

Conservation of the Snow Leopard in Nepal

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The snow leopard is one of the least known and most threatened wild animals in Nepal. Limited information is available on this elusive animal as little detailed study has been conducted so far. Some of the early Himalayan studies include surveys conducted by Jackson (1978, 1979), Schaller (1976, 1977) and Dang (1967). Snow leopard populations have been seriously depleted by hunters in retaliation for livestock lifting. Many countries including Nepal have now ratified the 1973 Convention on International Trade in Endangered Species (CITES) in an attempt to check the fur trade. Establishment of 6 national parks and conservation areas in the high Himalayan region provide protection to animals like the snow leopard which has a restricted distributional range. The National Parks and Wildlife Conservation Act 2029 (1973) has listed 26 mammals (including snow leopard), 9 birds and 3 reptiles under the protected category. Hunting bans on these animals are imposed by this act. However, enraged elephants, man-eating tigers and diseased or injured animals which can not survive can be killed or caught by the order of responsible authorities. Also, animals which damage the life and property of people outside forest areas can be killed, caught, or driven off by the order of responsible authorities. Snow leopards continue to be killed by the local people because they lose their livestock to predation.

CONSERVATION PROBLEMS

Inadequate budget, limited manpower, and lack of public awareness are some of the problems related to conserving the snow leopard in Nepal. Poor people in the rural areas of the Himalaya can no longer afford their crops and livestock being damaged by the wild animals without any developmental support from the park management.

Snow leopards are killed for their highly prized pelt and fur. They are also killed for so-called traditional medicinal purposes. Some Bhotia tribesmen have developed highly effective hunting strategies to kill musk deer, blue sheep and snow leopards. The technique does not require any firearms. Bamboo (*Arundinaria* spp.) spears are angled upright in the ground along trails. The extremely sharp and hard points of the spears are coated with a potent poison (neurotoxin), spears are placed on small ledges along steep trails, and as animals descend they are pierced by such spears.

DISTRIBUTION, STATUS AND BIOLOGY

Snow leopards are distributed all along the northern Himalayan range. In Nepal they inhabit the main Himalayan chain along the Tibetan border. Their distribution seems to be localized in the western half of the Nepal Himalayas. They are reported to occur in the Mugu (Jackson and Ahlborn 1986), and Dolpa (Schaller 1977) district of far-western Nepal, and in the Manang (Sherpa and Oli 1988) district of western Nepal. There are also unverified reports of snow leopard occurrence elsewhere in Nepal, including Mustang district. Less than 20% of the country having potentially suitable habitat is occupied by snow leopards. An extrapolation to the cat's possible range in all of Nepal (including the more heavily disturbed southern slopes of the Himalayas) suggests a population of 150-300 animals (Jackson 1979).

Jackson (1978) estimated 5 snow leopards periodically occupied a 400-500 km² area in the Langu valley during winter months. Home range size may be as large as 300-500 km² (Jackson 1978, Schaller 1977). Snow leopards show a strong tendency to use traditional routes such as livestock and wildlife trails, scree slopes along the bare cliffs and ridges to move about their large home range. Both sexes mark their range by depositing scent, tracks and scrape marks (Schaller 1977).

Habit and Habitat

An ideal habitat of snow leopard is rugged terrain with scrub jungle above the treeline where scrub juniper, *Caragana*, dwarf rhododendron and honeysuckle grow in abundance. The den is built beneath rock overhangs or in rock crevices. Snow leopards are usually seen above the evergreen forest belt of the Himalaya in alpine grassland, scrub and rocky scree areas.

Generally the snow leopard occurs at high altitudes ranging from 3000 m to 4000 m. Roberts (1977) and Schaller (1977) reported that they descend as low as 1500 m during the winter to oak and spruce

forests. This is the time when snow leopards and local livestock interact with each other. Novikov (1962) reported that snow leopards occupy open forest scrub as low as 600-900 m during the winter. Snow leopards are mostly nocturnal; they hunt in the night and establish territories within the range of 70 to 110 square miles.

Food Habits and Breeding Biology

The snow leopard usually hunts alone, except in the mating season or while the cubs are reared. Generally they hunt ibex, blue sheep, tahr and other mountain herbivores, but in winter when the snow leopard moves into lower altitudes it preys on animals such as deer, wild boar and hare. It stalks its prey, creeping up and then grabbing it in a sudden spring. The snow leopard is a superior jumper, executing jumps of from 6 to 15 meters through the air. Unlike the common leopard, the snow leopard begins eating their prey from the posterior portion of the body. First, the belly is opened and the viscera are eaten, then the snow leopard begins at the muscles from the rump area moving towards the front of the prey (Fox and Chundawat 1988).

Ungulates such as bharal (blue sheep), goral, tahr, musk deer, and livestock are the main prey of snow leopards in the Himalayas. Dang (1967) reported that Himalayan tahr, takin, goral, serow, musk deer, and snow cock are snow leopard food resources, whereas Ward (1923) included monal and chukar partridge as well. Schaller (1977) and Jackson (1979) found bharal in at least 50% of the scats analyzed from the Nepal Himalayas, as well as livestock. Green (1982) reported snow leopards preying on langur monkey and Novikov (1962) and Keeverion (1910) reported the taking of pigs, Marco Polo sheep and Persian gazelle in the USSR and China.

The breeding season occurs towards the end of winter. Females are in heat 5 to 7 days. The gestation period is 96-103 days and two to five cubs are born between June and July. The newly born cubs weigh 300-700 grams. The young open their eyes after 7 to 9 days and begin crawling after 10 days and can run well when they are two months old.

CONSERVATION

Nepal has taken a significant step in the conservation of snow leopards by establishing several National Parks and Wildlife Reserves in the Himalaya region. Langtang National Park, Shey-Phoksundo National Park and Rara National Park are most famous among those with known snow leopard presence. The snow leopard is legally protected in all the Himalayan regions of Nepal by the 1973 Act. These parks are protected by contingents of the Royal Nepal Army and are regularly patrolled.

The fur trade in Nepal is totally illegal and is punishable by law. The export of pelts is virtually non-existent. The snow leopard is listed as one of the most endangered species among the 26 mammals species in Nepal. Moreover, Nepal has ratified the 1973 Convention on International Trade in Endangered Species (CITES), that prohibits trade in species like snow leopard. This has caused substantial reduction in snow leopard pelt values in Nepal (Jackson 1979). But crazy hunters often kill this elusive and shy predator just to show off. Most villagers will kill the leopard in defence of their livestock. The Department of National Parks and Wildlife is considering these events very seriously and is going to evaluate and compensate for the loss of the livestock of the villagers. Our wardens and game scouts are collecting information from the villagers and shepherds about the type of snow leopard/livestock interactions. We are going to find the ways and means to reduce this conflict between man the snow leopard in the near future.

Moreover, snow leopards outside the national parks are also suffering due to reduced food sources from wild animals. Thus, they normally now tend to prey upon livestock. The snow leopard's tendency to return to its prey makes it an easy target for village poachers. Thus, controlling illegal poaching will continue although it is extremely difficult within the limited budget and manpower constraints to police the rugged habitat of the Himalayas outside the park boundaries.

The snow leopard needs a large living space and its home range often overlaps with humans. It has a low reproductive rate and is easily affected by hunting. These factors make the snow leopard extremely vulnerable and thus make its conservation and protection a difficult task.

Suggestions for the Future

1. Regularly collect data from the local people, game scouts, rangers and wardens from the field.
2. Organize local workshops about snow leopard/livestock lifting in and around the problematic areas such as Mugu, Rara and Dolpa.
3. Publicize as much as possible in the local areas by booklets, pamphlets and by local radio.
4. Announce awards from radio, TV, etc. to give more publicity to the local villagers.
5. Involve the community as a whole in the village level to control poaching.
6. Give job opportunities to the locals who have lost their livestock to the snow leopard.