

Status and Conservation of Snow Leopard in Bhutan

Full Text:

A landlocked country nestled in the southern slopes of the Eastern Himalaya, Bhutan has a total land area of 46,500 km² and a population of 650,000. It is bordered by the Tibet Autonomous Region of China to the north, the Indian states of Sikkim, West Bengal, Assam and Arunachal Pradesh to the west, south, and east respectively. More than 90% of the population is agrarian-based with crop agriculture as the economic mainstay. Livestock farming is prevalent as a subsidiary economic activity.

Bhutan has one of the most rugged mountain terrains in the world. Over the short south-north distance of 240 km, it covers a wide altitudinal range, starting at 150 m (above sea level) in the south to over 7,500 m in the north. Geographically, the country can be divided into three distinct regions: (i) the flatlands and foothills in the south; (ii) the inner Himalayan mountains and river valleys in the central parts, and (iii) the upper Himalayan snow-clad range to the north. The climate is extremely varied, ranging from hot and humid conditions in the south to a very cold alpine climate in the north.

Over 60% of its land surface is covered by forests; endowed with such altitudinal and climatic diversity, Bhutan's floral and faunal composition is among the world's richest. Although no detailed studies have been undertaken so far, cursory biological surveys have revealed that the kingdom is home to more than 5,000 species of vascular plants, 700 species of birds, and 200 species of mammals. More than 60% of the species endemic to the Eastern Himalayan region are found in Bhutan, with the principal biological elements belonging to the Indo-Malayan and Palaearctic regions.

Institutional Arrangements for Conservation Activities, Policy, and Legislation

The Forestry Services Division (FSD), under the Ministry of Agriculture (MoA), is the government agency directly responsible for the overall management of Bhutan's forests including its protected areas. Within FSD, the specific responsibility for protected area and wildlife management is vested with the Nature Conservation Section (NCS). The senior body responsible for inter-sectoral coordination and policy direction in conservation is the Ministry of Planning. An offshoot of the Ministry of Planning is the National Environment Commission (NEC) which is specifically responsible for coordinating and overseeing matters related to environmental conservation. A national NGO, the Royal Society for the Protection of Nature (RSPN) is involved in promoting public awareness of conservation issues and conducting field research.

The Royal Government of Bhutan (RGoB) has adopted a far-sighted and globally responsible conservation policy. The national forest policy underscores the importance of conservation over the exploitation of forest resources for short-term economic gain. In measurable terms, the policy aims at maintaining the country's forest coverage at at least 60% of the total land area. It prescribes the utilization of forest resources within the limits of sustainability. All forestry activities in Bhutan are legally governed by the Forest and Nature Conservation Act of 1995. Prior to 1995, the Bhutan Forest Act of 1969

provided the legal basis to regulate forestry activities. There is a blanket ban on hunting and no forest land can be converted into another land use without a Royal decree. Finally, about a quarter of Bhutan's land area has been brought under the protected areas system, encompassing all major representative ecosystems.

Conservation Programmes

Protected Areas Management: In 1993, RGoB revised the protected areas system to make it comprehensively representative of all major ecosystems found in Bhutan. The revised system enlarged Bhutan's protected area coverage from 9,505 km² to 10,841 km². The present protected areas system consists of:

1. Royal Manas National Park	1,023 km ²
2. Jigme Dorji National Park	4,280 km ²
3. Black Mountains National Park	1,723 km ²
4. Thrumshing-la National Park	768 km ²
5. Phipsoo Wildlife Sanctuary	278 km ²
6. Kulongchhu Wildlife Sanctuary	1,182 km ²
7. Sakteng Wildlife Sanctuary	670 km ²
8. Khaling/Neoli Wildlife Sanctuary	273 km ²
9. Torsa Strict Nature Reserve	644 km ²

Four protected areas, namely the Royal Manas National Park (NP), Jigme Dorji NP, Black Mountains NP, and Kulongchhu Wildlife Sanctuary (WLS), have been identified as priority areas for which conservation management plans will be developed and implemented. A five-year conservation management plan has already been completed for the Royal Manas NP with financial and technical support from the Bhutan Trust Fund for Environmental Conservation (BTF) and WWF-Bhutan Program. Work on preparation of a conservation management plan for Jigme Dorji NP is well underway and the plan is expected to be ready for implementation by mid-1996.

Sustainable Forest Management: Scientific forest management planning started in Bhutan only in the mid-1970s. FSD is bringing more and more forest areas under management plans to ensure that timber and other forest products are extracted in culturally-correct and sustainable ways. The total operable area under the management plan is estimated to be 902,000 hectares; an annual target of 20,000 hectares has been marked for the ongoing five-year plan period (1992-97). The target is expected to expand as the manpower situation and infrastructure improves.

Awareness Raising and Conservation Education: Workshops, distribution of pamphlets, essay and poster contests, and other awareness raising activities are organized regularly to promote public awareness of conservation issues. Conservation education activities are encouraged in schools so that the students and teachers are more conservation conscious and qualified to provide leadership to other members of society. Since 1985, the 2nd of June is observed as social forestry day all over the country to serve as an annual reminder of the role and responsibilities of the Bhutanese people in conserving their forests and environment. Initiation has been taken and efforts are ongoing at Sherubtse College, Bhutan's premier and only institute of higher

education, to develop full-fledged environmental studies for undergraduate students.

Forestry for Community Development: Experiences worldwide have revealed that the chances for the conservation success are enhanced when there is increased public participation and appreciation. RGoB recognizes the significance of linking conservation and people's development, and as far back as 1979 it embarked on a social forestry programme under His Majesty's command. Today, community forestry, agroforestry, and watershed management are among front-line activities. The interaction between forests and people is very high in Bhutan and, therefore, community-oriented conservation programmes have a national appeal. The Forest and Nature Conservation Act of 1995 explicitly covers new areas of conservation with a focus on social forestry and biodiversity conservation.

Snow Leopard Status and Threats

Population and Distribution: Although no studies have been carried out to determine snow leopard (*Uncia uncia*) population size and distribution in Bhutan, animal signs and anecdotal reports indicate that the species exists in scattered but substantial numbers at higher elevations of 4,000 to 5,000 m. in the northern parts of the country. The Jigme Dorji NP is easily the most prominent protected area in Bhutan that contains a significant snow leopard population. The Kulongchhu Wildlife Sanctuary is another protected area where snow leopards are expected to occur in significant numbers.

Legal Protection Measures: Hunting of all mammals and birds is banned by law in Bhutan. However, some species are given special protection by virtue of having more severe fines applied to persons convicted of killing them; the snow leopard features prominently in the list of totally protected animals. Under the prevailing fine schedule, killing a snow leopard can result in a fine of Nu. 10,000 (approximately US \$285), which is one of the highest fine amounts imposed in the country for the killing of an animal. Chapters on protected areas and wildlife conservation in the Forest and Nature Conservation Act of 1995 also implicitly cover the protection of snow leopard prey species. Strict legal provisions have been framed to prevent trade in wildlife products.

Threats: Fortunately, threats to the snow leopard population in Bhutan are minimal. Trade in snow leopards or their body-parts is virtually non-existent. The fact that snow leopard habitats in Bhutan are highly inaccessible contributes largely to a low level of outside poaching. Limited tourist activities and highly controlled mountaineering expeditions enables snow leopards to roam about relatively undisturbed. The main threat arises from the retaliatory killing of snow leopards by livestock keepers and, indirectly, from grazing competition between yaks and blue sheep. While the threats are few, we cannot be complacent about them.

Key elements in contributing to these threats are discussed in the following paragraphs:

(1) **Predation on livestock:** Huge herds of yak are allowed to graze freely in the open pastures making them easy prey for snow leopards.

Economic loss from livestock depredation by snow leopards is quite high. For the livestock keepers who subsist mainly on yak products, the loss of a single animal is huge. An adult yak is valued at Nu. 9,000-11,000 (US \$255-315). Livestock depredation has provoked incidences of killing of snow leopard by local communities in retaliation for loss of livestock. While such incidents are few, they cannot be overlooked owing to the fact that the snow leopard is a highly endangered species. Any loss in snow leopard population will only bring it closer to extinction.

(2) Lack of awareness and community education: In general, the Bhutanese people are not under pressure for their basic needs are easily met from the adjacent natural resources. Information on conservation policies and programmes seldom flows down to the grassroots level. Local communities are not aware of the totally protected status of snow leopard and the legal implications of killing the animals. Education programmes to convince the livestock owners that it is cost-efficient to maintain fewer but more productive livestock are lacking.

(3) Limitations in animal health and extension or outreach programmes: Animal health and extension facilities are limited in the higher elevation settlements. Also, it is difficult to organize extension outreach programmes because of the semi-nomadic lifestyle of the livestock keepers. Due to lack of animal health and extension services, the local communities continue to maintain large numbers of livestock.

(4) Lack of baseline data: No scientific research or studies on any species have been conducted so far, primarily due to RGoB's policy of conserving the total ecological integrity of habitats rather than specific species, but also due to the lack of trained personnel. Lack of specific data renders it difficult to plan and implement species-specific conservation programmes. Information available on snow leopards is mostly anecdotal.

(5) Shortage of manpower: FSD, as the country's main conservation agency, is severely short-handed. With a little over 700 staff, FSD is having difficulty managing vast areas of forests. Specialized personnel are even fewer and are overburdened. The manpower problem is more pronounced in the snow leopard areas due to lack of a communication network and other logistic facilities. Under such conditions, law enforcement and implementation of conservation measures is difficult and time-consuming.

Ongoing Conservation Efforts

Protected Areas Management: Among the present activities the most significant initiative to safeguarding snow leopards in Bhutan involves the establishment and management of a protected areas network. The largest of Bhutan's protected areas, Jigme Dorji NP, is not only home to snow leopard but also harbors healthy populations of prey species like blue sheep, marmot, and pika.

Jigme Dorji NP, which covers an area of 4,280 km², is the most biologically diverse protected area in the country. Twenty five percent of Bhutan's flora and fauna are found in the park. Preliminary

biological surveys have recorded 31 confirmed and 11 expected species of mammals, and 251 confirmed and 12 expected species of birds in the Park. Further surveys are likely to expand the list. Snow leopard sign has been observed at various spots in Jigme Dorji NP, around Lunana and between Yasa and Inela, near Tso Phu, Ngila, and Tsharijathang.

Owing to its high level of biological diversity, coupled with some pressing conservation problems, RGoB has listed this park as a priority protected area for development and implementation of a conservation management plan. Apart from financial assistance, WWF is collaborating technically with FSD toward developing the park's five-year conservation management plan. Park infrastructure development and staff training are also being pursued by FSD with financial and technical support from WWF and BTF. WWF has made grants available to FSD to carry out biological and socio-economic surveys in Kulongchhu WLS beginning next year.

Wildlife Protection: With assistance from WWF, FSD has launched a number of anti-poaching squads that have helped reduce incidences of wildlife poaching. The squads are equipped with surveillance equipment, radio sets, field gear, and arms; under this programme, local informants are recruited and rewarded for their assistance. Workshops are organized regularly to update foresters, custom officials and other law enforcement personnel with the legal framework, apprehension procedures, and detection techniques for controlling trade in wildlife products.

Integrated Conservation and Development Programme: Socio-economic surveys and local needs assessments have become part and parcel of nature conservation planning in Bhutan so that community development is integrated into conservation management plans. The community development component provides park planners and managers with an opportunity to address conservation issues emerging from people-wildlife conflicts. Alternative income-generating activities and the reduction of livestock by only maintaining productive animals are common discussions in the community development agenda of conservation plans. This integrated approach is also being pursued in order to garner popular appreciation and support for solving conservation problems.

Future Plans and Recommendations for Snow Leopard Conservation

(1) **Development and Implementation of Protected Area Conservation Management Plans:** Efforts are currently underway to draw up a long-term conservation management plan for Jigme Dorji NP. As noted earlier, the plan will be ready for implementation by mid-1996. Biological and socio-economic surveys will be initiated in Kulongchhu Wildlife Sanctuary in 1996. Survey teams, assisted by expatriate consultants, will be deputed in the protected area for three or more months to collect baseline data for planning management of Kulongchhu Wildlife Sanctuary. Conservation management plans will incorporate community development needs to make conservation interventions socially acceptable and sustainable.

(2) In-depth Study on Snow Leopard: A survey should be undertaken to establish the current distribution of snow leopard, initially in protected areas and subsequently in other habitats. Since snow leopards tend to use established trails, camera traps can be used to confirm their presence and to identify individuals. Studies to determine population trend, reproductive success and mortality rates of snow leopard and major prey species will have to be carried out in order to implement and monitor conservation interventions. It will be critical to study the extent and impact of livestock loss caused by snow leopard predation. Further, grazing impact assessments in areas shared by blue sheep and yaks will also be useful to develop appropriate conservation interventions.

(3) Building National Implementation Capacity: A dearth of trained manpower and inadequate infrastructure have prevented full-scale implementation of conservation programmes in Bhutan. Enhancing the implementation capacity of FSD and other conservation partners through training, development of conservation guidelines, and infrastructural development will have to remain a high priority for some years to come. Training and equipment will have to be provided to field staff to enable them to implement snow leopard conservation measures. Relevant techniques, such as counting scrapes, marking and scat, photo-traplines, and radiotelemetry, can be taught to forestry personnel to measure abundance and distribution of snow leopards.

(4) Awareness-raising and Community Education: A general lack of awareness of conservation issues is prevalent and is the root cause of many problems related to conservation. Awareness-raising programmes will have to be initiated to educate local communities on conservation policies and programmes and their role in implementing them. Non-formal education activities will have to be introduced to enable local communities to have a better understanding of conservation and other related issues. Such activities will facilitate local participation.

The communities living in snow leopard areas in Bhutan are Buddhists and have a high regard for all life forms. Monks and other religious figures could be approached to disseminate conservation messages among the local populace by appealing to their religious sentiments.

(5) Promoting Alternate Economic Opportunities for Local People: Most of the people living in snow leopard areas subsist upon yak herding. They have very little knowledge about the economic prospects of other alternate livelihood sources such as tour guiding, propagation of medicinal plants, and weaving. A promotional programme to support alternative livelihood and income enhancement activities in the high altitude areas will be necessary to divert local people from depending entirely on yak herding. RGoB could consider providing compensation to people for loss of their livestock to snow leopards. However, providing compensation can be very expensive and should be taken up only as an interim measure.

(6) Development of Animal Health and Extension Facilities: Facilities for animal health and extension services will have to be expanded in higher elevation settlements to encourage local people to keep healthier and fewer livestock. Such facilities could also help introduce improved pasture management and rotational grazing practices.

Mobile animal health and extension programmes can be organized to reach the majority of the semi-nomadic population.

(7) Inter-disciplinary Considerations: Conservation is a cross-sectoral issue, and in the case of the snow leopard, conservation needs the attention and participation of other sectors such as forestry, animal husbandry, and education. Therefore, snow leopard conservation problems will have to be addressed in an inter-disciplinary and holistic manner. FSD will have to gain the participation and cooperation of animal husbandry, education and other relevant sectors to plan and implement snow leopard conservation interventions.

Conclusions

Pro-conservation development policies, largely intact forest resources, the socio-cultural setting, and rugged topography are all conducive to snow leopard conservation in Bhutan. These positive factors notwithstanding, Bhutan cannot afford to be complacent. Conditions are changing, and the population is growing at a rapid rate with increasing development needs.

Bhutan is in a privileged position as far as the state of conservation and environment is concerned. It has the unique opportunity to implement conservation measures which are pro-active and preventive, unlike many countries which have already lost most of their natural heritage and are now investing large amounts of manpower and money in restoring it. Bhutan realizes this and accordingly, its conservation policies and programmes are being evolved to address the new challenges emerging from development. However, certain prerequisites will have to be fulfilled to enable Bhutan to translate policies and programmes into reality. Training, research, and community education programmes will have to be continually strengthened to complement conservation policies and programmes. Inter-disciplinary approaches must be enhanced, for no conservation programme can be sustained in isolation. Local participation is also critical for a country where there is a very high level of interaction between people and nature. Diversification and expansion of economic opportunities are also necessary so that the Bhutanese people do not continue to depend entirely on the land and other limited natural resources.