Status Paper of Dhorpatan Hunting Reserve

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Abstract

The Dhorpatan Hunting Reserve (DHR), located in the high mountain physiographic region of western Nepal covers 1,325 sq.km and comprises alpine, sub-alpine, and high temperate types of vegetation. It is surrounded by settlements in eleven Village Development Committees (VDCs) of Rukum, Baglung, and Myagdi districts to the east, west, and south. Pasturelands occupy more than 50% of the total area of the reserve at higher elevation. The reserve is affected by human pressures from grazing, wood harvesting, poaching, and unauthorised collection of medicinal plants. More than 100,000 livestock belonging to about 5,000 households are brought to the reserve for grazing each year. People from adjoining and neighbouring VDCs of three districts enter the reserve to let their livestock graze from mid March to October. As a privilege, people from distances as far away as three-days' travel (Palpa district) are allowed to continue livestock grazing in DHR, although access is supposeddly controlled through the local VDCs. Problems may be minimised if the carrying capacity of the grassland is improved in a scientific and strategic manner. A database needs to be maintained that can be used to help in making better management decisions. Participatory management practices in DHR can be a successful tool for pastureland management in this mountain region.

Background

The Dhorpatan Hunting Reserve (DHR), located in western Nepal, includes parts of Rukum, Baglung, and Myagdi districts in the Dhaulagiri Himalayan range. Putha, Churen, and Gurja Himal form the northern boundary of the reserve; to the south the reserve is bounded by the Uttar Ganga River; Darkhani, Jhalke, and the ridges of Lama Kyang form the eastern boundary; and Khariwang khola, Pelma khola, Ulta vanjyang, and Jagala vanjyang the western boundary. The higher elevations remain snow-capped throughout the year. The altitude of the reserve ranges from 3,000m to more than 7,000m.

The reserve covers 1,325 sq.km and has the distinction of being the only hunting reserve in Nepal. It is renowned for its blue sheep (*Pseudois nayaur*) population. Other species hunted are goral (*Naemorhaedus goral*), serow (*Capricornis sumatraensis*), Himalayan thar (*Hemitragus jemlahicus*), barking deer (*Muntiacus muntjak*), and wild boar (*Sus scrofa*). Apart from large game species, other species found in the reserve are lynx (*Felis lynx*), red panda (*Ailurus fulgens*), musk deer (*Moschus chrysogaster*), wolf (*Canis lupus*), snow leopard (*Uncia uncia*), common leopard (*Panthera pardus*), mouse hare (*Ochotona royeli*), rhesus macaque (*Macaca mulatta*), langur (*Presbytis entellus*), and wild dog (*Cuon alpinus*), and the birds danphe (*Lophophorus impejanus*) and chir (*Catreus wallichii*). Endangered animals in the reserve

include musk deer, wolf, and red panda, and endangered birds chir and danphe. Common plant species include fir (*Abies spectabilis*), pine (*Pinus wallichii*), birch (*Betula utilis*), rhododendron (*Rhododendron arboreum*), hemlock (*Tsuga dumosa*), oak (*Quercus semecarpifolia*), juniper (*Juniperus indica*), and spruce (*Picea smithiana*).

The reserve was established in 1983 and gazetted in 1987. The management objectives of the reserve allow sport hunting and preserve a representative high altitude ecosystem in west Nepal. The alpine meadows above the tree line (4,000m), locally known as 'patans', are important for animals like the blue sheep. The reserve is characterised by alpine, sub-alpine, and high temperate vegetation, and comprises high and rocky mountain ranges. Located in front of moderately high saddle connecting the high Dhaulagiri and Hiunchuli, and shielded by several ridges south of the Uttar Ganga, the reserve area receives less precipitation than other parts of Nepal's mid lands (Stainton 1972). Extrapolating from (Dobremez and Jest 1971) and Hagen (1961), total annual precipitation is somewhat less than 1,000 mm, of which one half falls as rain in the summer monsoon months, and the rest as snow, mostly in January and February. This dry climate, which favours grass vegetation at higher altitude, may partly explain the presence of blue sheep so far south of its central range in the rain shadow of the Himalayas (Dolpa, Mugu, Humla, Mustang, and Manang, in Nepal) (Dobremez and Jest 1971).

The majority of the local residents are Magar and Kami, with some Nauthar caste and some Tibetan refugees. Their major occupation is agriculture and livestock, but Tibetans are also involved in business in Tibet. Potato, buckwheat, and barley are the main crops produced.

Grasslands: Status and Use

Traditional grazing practices

As the reserve is surrounded by the settlements of 11 Village Development Committees (VDCs) in 3 districts (Table 1), the area has been greatly influenced

Table 1: **Village Development Committees (VDCs) in the Buffer Zone around DHR**

District	VDCs	Households	Population	Livestock	Names of office and field posts
Rukum	1. Ranma maikot	900	4977	19800	1. Mahikot Post
	2. Hukam	352	2187	8800	2. Taksera post
	3. Kol	150	840	3300	
	4. Kakri	162	934	3560	
	5. Taksera	716	3847	31217	
Baglung	1. Nisi	870	4814	8551	1. Niseldhor Post
	2. Bobang	900	5850	19800	2. Headquarters
	3. Adhikari chaur	340	1250	7922	(Dhorpatan)
	4. Bunga dovan	180	995	3960	
Myagdi	1. Lulang Khoriya	228	1381	1446	1. Gurja ghat Post
	2. Gurjakhani	146	878	2117	2. Gurja khani Post

by the activities of local people. There are many pasturelands scattered throughout the reserve (Table 2). They occupy more than 50% of the total area of the reserve at higher elevations.

Table 2. **List of alpine ('patan') and lower pasturelands in various blocks**

Block Name	Name of the pasture lands
Surtibang	Balegri, Surttibang, Bayali, Thari, Khalikhola, Chuha, Mahabhas, Chauribuki, Mani, Marpes, Hile, Dum, Nepane, Patalethari, Pokhara, Jurgun, Barulakharka, Simpani, Mulkharka, Kalidhand, lasunban, Marpani deurali, Ratamata, Pangrsbsn
Barse	Gurjaghat, Shivaodhar, Rughachaur, Naulakhola, Kharbayali, Nimthala, Thalkharka, Thulomela, lammela, Surkemela, Dayamela, Dallejur Sasarmul, Chokte, Dhuka, Sechun, Phaliyaghar, Simthari
Fagune	Tikethara, Rajban, Dahakharka, Khubribanlasune, Chaundul, Ratabhir, Phurse, Kiteni, Fagune, Satban(Murchula), Kholathari, Thangur, Simkharka, Jalaapa, Bhedachaur, Lamdanda, Mandi, Ripla, Kanspur Bhimpa, Niseldhor, Nebhang, Daha, Majhdhara, Rithekharka Karichaur, Paleti, Hanirahulo, Tarabang, Pattigaira, Ranikharka, Nursing buki, lasune, Drubathari, Ghakalibang, Dotho, Dharkharka, jauleghati, Jaulebisauna, Chamale, Thalkharka
Ghustung	Mansungmela, Naure, Chaluke, Parvimarvi, Nayaban, Newabang Hinggoi, Kayamdanda
Dogadi	Wollochalike, Psllochalike, Puthaban, Tiser, Lamsar
Seng	Pupal, Ghurang, Purbabg, Panidhal, Naure, Jangalapas, Bhedacharan, Nautale, Darlanwa, Tallosim, Upallosing, Ngangabas, Dule, Khani
Sundaha	Ankhe, Pape, Daple, Chaurikhark, Kultavanjyang

The major season for livestock grazing varies from mid March to mid October. Animals are brought to 'buki', highland pasture where alpine grasses dominate, from mid May to August. Herds move down to the lower pastures in late August and reach Dhorpatan by September. By the end of October, they have returned to the lowlands. Tibetan livestock remain in Dhorpatan throughout the year. During severe winters, the larger stock are used to transport goods in the region. Generally, men of 25-40 years are engaged in livestock grazing. Milk and butter are the main products from the cattle. Milk production from buffaloes ranges from 1-2 to 4-6 litres per day. The milk is consumed by the local communities themselves. None is sold for cash income. About 5,000 households are directly involved in livestock grazing. Each of them owns 20 livestock units (LU) on average, which shows that about 100,000 livestock graze within the area (Heinen and Kattel 1992). The type of livestock grazing varies in the different blocks (Table 3).

Table 3. **Types of livestock grazing in different blocks**

Grazing Site	Animals	District	Remarks
Fagune	All**	Rukum, Rolpa, Baglung	Sheep only from Rukum
Barse	All	Myagdi, Baglung	Mainly mules and horses
Ghustung	All	Myagdi, Baglung	Buffalo from Myagdi and sheep, goat, cows, mules, from Baglung
Surtibang	All	Dolpa, Rukum, Baglung	Sheep, goats, and cattle only from Dolpa
Seng*	Mules, horses, sheep, goats	Dolpa, Rukum	
Sundaha*	Sheep, goats, buffalos	Rukum	
Dogadi	Sheep and goats	Rolpa, Rukum, Baglung	Few from Baglung

* The Seng and Sundaha blocks are rich in wild animals.
** Sheep, goat, cattle, mules, horses

An understanding was established with the local VDCs to allow only people from VDCs in the Buffer Zone (BZ) area to graze their livestock inside the reserve. Furthermore the local people have a good understanding with the reserve authority that the livestock should only be brought to the *Buki* from mid May to the end of August. From May 1999, the local people have decided to restrict horses and mules belonging to hunting groups. However, these arrangements ignore the traditional rights of those coming from other areas.

Management Practices in DHR

Management of hunting

To manage hunting so as to regulate the objectives of the reserve, the area is divided into seven hunting blocks with a specified quota system (Table 4). At present, sport hunting is organized by two companies: Wildlife Adventure Nepal and Himalayan Safari Nepal. There is a system of block reservation, and the hunters take a separate permit for each animal.

Management of the grazing cycle

An agreement has been reached between the local VDCs in the buffer zone and the DHR to control livestock belonging to outsiders (communities beyond BZ areas). A discussion programme is held once a year among reserve managers and local herders to discuss problems and sustainable grazing practices. Previously, the head of the reserve office used to collect a charge from livestock holders for grazing inside the reserve; but due to the lack of strict regulations, this ceased. At present, the adjoining VDCs in the BZ collect a charge from all livestock grazers who come from other areas. However, this is leading to a higher livestock pressure inside the park, and VDCs have even been found to be engaged in financial irregularities.

Table 4. Hunting blocks, area, and quota system for professional hunting			
Blocks	Area (sq.km)	Annual quota of blue sheep	Authorised Agency
Sundaha Seng	145	4	WAN
Dogadi	138	4	HSN
Ghustung	199	6	HSN
Fagune	201	4	WAN
Barse	327	4	WAN
Surtibang	167	4	WAN
	148	not practised	-
Total	1325	26	

Research Activities

Some experts have conducted research in this area. The reports include:

1. a blue sheep status survey (Wegge 1976);
2. an overall assessment of DHR (Bajimaya 1990); and
3. Survey and management proposals for the Himalayan Shikar (Hunting) Reserves (Wegge 1976).

Management Issues

Grazing—Excessive grazing can lead to vegetation loss, soil exposure, and disturbance of wild animals. Although blue sheep often graze and live among herds of domestic goats and sheep, there is concern that local people affect the young and old blue sheep. There is a potential risk of transfer of diseases (Table 5) from domestic to wild animals, although no research has been conducted to show this transference. The recent introduction of mules and horses for hunting purposes may be displacing blue sheep along the ridges.

Livestock affects wild lands most severely when large tracts of forest are cleared for pastures. In the absence of intensive management in DHR, there is concern among PA managers that some pastures have lost their productivity owing to soil erosion, compacting by cattle hooves, depletion of nutrients, and invasion by noxious and unpalatable plants. This warrants further investigation to substantiate such concerns with follow-up action on the part of the local herders and PA managers.

Table 5. List of diseases possibly communicable from domestic livestock to wild ungulates	
Name of Disease	
Nepali Name	English name
Luto	Menge and scabies
Khoret (FMD)	foot and mouth disease
Mokhma mala jasto khatira	-
Vyakute	Haemorrhagic septicaemia (HS)
Phila sunnine and cracking with bleeding	-

Encroachment—During the grazing season, herders sometimes cultivate the open land for agricultural crop production and eventually claim this land. If these claims are accepted, it would result in a reduction in the size of the reserve area, degradation of site quality, and loss of grassland ecosystems.

Over harvesting of wood and timber—People use timber products for making houses and livestock sheds, and for cooking without taking permission to harvest from the reserve authority. They also girdle trees to make harvesting easy in the coming year. Blue pine (*Pinus wallichiana*) resin is heavily extracted for lighting purposes.

Collection of herbs—Many people are engaged in collecting herbs for local treatment and selling to outsiders. Trade of non-timber forest products (NTFP), especially of medicinal plants, is well established. Local dealers are in touch with local communities illegally for collection. The herbs are sold in Burtibhang, then to Tamghas, Pokhara through Beni, Rolpa, and Rukum.

Hunting/poaching—With the presence of so many herders, it is difficult to identify whether a man is a poacher or not. Poachers mainly poach musk deer for trade. Herders have traditionally hunted wild animals such as blue sheep for meat and hides by trapping.

Settlements inside the reserve—People inside the reserve delineate their area illegally and use it for cultivation and settlement, which influences the reserve. Herders, resident communities, and poachers sometimes threaten reserve personnel.

Staff shortages—The limited number of reserve staff cannot be deployed effectively given the diverse demands on their time.

Food deficiency—Valuable foodstuff is now given to mules and horses, and this could lead to food shortages or heavy reliance on purchased grain.

In summary, DHR faces several problems similar to those facing other protected areas in Nepal. These challenges include the following.

1. Local peoples' dependence on forests to meet fuelwood, timber, fodder, and heating needs, resulting in degradation of forest resources, especially in the critical, high altitude areas
2. Over-grazing of pasture by livestock and increased competition for forage between livestock and wild ungulates, resulting in habitat degradation
3. Conflicts between local communities' agricultural and animal husbandry practices and management of the protected areas
4. Lack of trained natural resource managers and inadequate infrastructure for management of the area
5. Inadequate knowledge about and planning for the impacts of tourism and grazing in culturally and environmentally sensitive region
6. Poaching and illegal trade of wild and endangered protected species

Research Gaps

The protected area Manager in Dhorpatan Hunting Reserve would like to answer two types of questions about the species in the reserve.

1. What species of plants and animals occur within the protected area, where and in what numbers?
2. What are the population trends of wild animals over time?

The authority of the reserve is concerned about the gap between the database of the reserve and the database needed to develop a strategy for effective management of the reserve. There is not only a lack of systematic surveys, inventories, and studies of fauna and flora (especially threatened species), there is also insufficient information about local uses of natural resources, including non-wood products and the illegal exploitation of herbal plants.

It is usually said that grazing, browsing, and trampling by domestic animals affect various ecological processes. For example, there can be a modification of the natural succession leading to a dominance of unpalatable species and reduction of palatable species. Excretion of dung can make vegetation unacceptable to wildlife, although it also fertilizes pasture land. Similarly, natural decomposition processes are circumvented by the grazing animal cycle as the increase in herbage intake results in a lower production of litter and low rates of decomposition. Exposure of the soil surface causes increased surface runoff leading to soil erosion. Although all these events may potentially be devastating to natural ecological systems within the reserve, no systematic study has been conducted to date on these aspects of livestock grazing.

Any change in the distribution in abundance of species is of major significance for management. These are usually determined by periodically measuring similar samples, i.e., by recording trends over time. In monitoring, the manager has to be very selective and should restrict observations to indicator species or key phenomena.

Monitoring usually aims at recording three different features of biological resources.

1. Trends in population of key plants and animal species over time, including historical evidence where possible
2. The measurement of reproductive success or productivity of a species
3. Assessment of the quality or condition of species and habitats, which can involve examining soil loss and water runoff patterns, measuring total biological productivity, or assessing species' composition.

Recommendations

If grazing is allowed in a protected area, the PA manager must maintain some degree of control over grazing rights. As soon as the desired level is reached, the manager must have the authority to regulate access. The effects of grazing by domestic livestock should be carefully monitored to ensure that the protected area does not lose any of its original value due to the presence of livestock.

Fostering a land ethic through conservation awareness programmes can be the remedy for ecologically damaging land-use practices, where they exist. Once adopted by society, a land ethic would discourage irresponsible land use through social pressure. In some cases, active manipulation of an ecosystem is not only permissible but vital for its successful management. Taking this into consideration, the following recommendations have been made for the sustainable management of grassland in Dhorpatan Hunting Reserve (DHR).

1. In some forest areas, absence of livestock grazing may result in invasion by undesirable shrubs and tree species, thus reducing the forage base for native ungulates as well as livestock. However, in other areas, such as alpine or drier shrub communities, cattle and other livestock may displace wildlife from natural grasslands and, in the absence of proper range management, may degrade these lands. To address these varied responses to grazing, studies should be conducted on the impacts of livestock grazing in different ecological zones within the hunting reserve. In addition, support for livestock development loans should be contingent on sustainable management of grazing lands by herders.
2. To regulate the livestock grazing in DHR, rights to graze sheep and goats should be authorised for traditional users only (both within the BZ and beyond). Similarly, a system of identity cards should be applied for BZ dwellers to control grazing by those outside.
3. Studies should be conducted to determine the degree of competition between livestock and wild herbivores in order to reduce potential conflicts in DHR. Follow-up management could be done that matches domestic animals with wild species that have different food habitats. If well managed in specific grazing sites, the different or combined productivity of both game and livestock can be boosted beyond that of either separately.
4. It is necessary to perform compulsory health checks of domestic livestock.
5. To avoid overgrazing in lower forest areas, stall feeding should be encouraged, at least partially. For this purpose, fodder trees should be planted on farmland by communities in the lower elevation villages and in BZs. In addition, improved breeds of cattle with limited numbers should be promoted, provided that the benefits in terms of improved animal performance exceed the costs of maintaining such animals.
6. Local people, especially herders from both the BZ and beyond, should be organized and made aware of their rights, while simultaneously increasing their conservation awareness through their participation in management. They should be empowered to make decisions for proper grassland management by means of discussion and participatory planning.
7. To reduce the dependency on livestock rearing, alternative employment such as apple farming, processing of apples, potato cropping, and development of handicraft skills. should be provided to the local communities. Another activity could be the development of the area as a tourist region.
8. The unarmed game scouts of the reserve have no chance against armed poachers. They should be supplemented with separate armed forces which could be handled by the reserve administration.
9. Adequate budget and staff are required for effective management of the reserve.

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