



Dhorpatan Hunting Reserve Management Plan FY 2076/77-2080/81 (First Plan)



**Government of Nepal
Ministry of Forests and Environment
Department of National Parks and
Wildlife Conservation
Dhorpatan Hunting Reserve Office
Dhorpatan, Baglung**



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Publisher:

Dhorpatan Hunting Reserve Office, Dhorpatan, Baglung, Nepal.

Citation:

DHR 2019. Dhorpatan Hunting Reserve Management Plan (2076/77 – 2080/81)

Dhorpatan Hunting Reserve Office, Dhorpatan, Baglung, Nepal.

Cover Photo Credit:

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Supported By:

USAID's Hariyo Ban Program, WWF Nepal

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Pby: United Multi Printers (P.) Ltd.

Dhapakhel, Hattiban-23, Printed Lalitpur

Tel 01-5250027(Direct line)

Printed Date: 2078 Ashad



Government of Nepal
Ministry of Forest and Environment
Department of National Parks & Wildlife Conservation



Date: 07/08/2021

Foreword

Dhorpatan Hunting Reserve was established in 1983 and gazetted in 1987 for sport hunting and conservation of representative high-altitude ecosystem of western Nepal. From the period of its establishment to date various changes in social, economic and political dimensions have occurred affecting biodiversity conservation efforts within the country. The Ministry of Forests and Environment has brought forth and fifth legislative changes to National Parks and Wildlife Conservation Act, 2029 BS to adapt with the changing context for safeguarding the biodiversity and integrity of protected areas while ensuring benefits to local communities. There was a strong need of a management plan for Dhorpatan Hunting Reserve and its proposed Buffer Zone for addressing the current issues and challenges and for translating the legislative provisions into field practice.

This is the first management plan for the Reserve and its proposed Buffer Zone aimed to address emerging conservation issues and challenges and for translating the legislative provisions into action. This management plan 2076/77-2080/81 (2019/20-2023/24) has provided a roadmap for conserving biodiversity, managing sport hunting, promoting sustainable natural resource management with a focus on NTFPs in the area while regulating tourism and fulfilling the development aspirations of local communities in the proposed Buffer Zone. I would like to thank our former Director General- Man Bahadur Khadka for his leadership, guidance, and encouragement for preparation of this management plan. This five-year plan is a result of hard work of Management Plan Preparation Team led by Then Chief Conservation Officer, Mr. Ana Nath Baral. I would like to take this opportunity to acknowledge the support conservation partners, stakeholders, including conservation communities. Besides, many professionals, practitioners and other stakeholders have made valuable contributions during its preparation. I believe that this plan is based on holistic approach of reserve and its proposed buffer zone management as well as biodiversity conservation integrating the whole landscape, its proposed buffer zone and their inter-linkages through corridors and connectivity. I would like to extend my sincere thanks to the reviewers of this plan who provided valuable inputs on the draft plan. I also take this opportunity to thank WWF Nepal/Hariyo Ban Program for the financial and technical support in this process.

Finally, I thank all the concerned organizations and people, who provided their support and contribution to prepare this plan. I am confident that this will be another milestone in our effort of systematic and scientific management of Dhorpatan Hunting Reserve.

Deepak Kumar Kharal, PhD
Director General
Department of National Park and Wildlife Conservation



Government of Nepal
Ministry of Forest and Environment
Department of National Parks and Wildlife Conservation
Dhorpatan Hunting Reserve Office
Dhorpatan, Baglung



Letter No. : 077/078
Ref. No. :

Date : 14th May 2021



Acknowledgements

Dhorpatan Hunting Reserve is globally famous for sport hunting of Blue sheep and Himalayan Tahr. Since the declaration of the reserve in 1987 for sport hunting and biodiversity conservation of the unique landscape, the reserve does not have an approved management plan. Under the changing conservation context which requires adequate participation of the local communities and engagement of local bodies, there is an urgent need for a comprehensive management plan. To fill this gap, the formulation process adopted a participatory approach and followed the existing principles and procedures of the management plan approved by DNPWC. The Management Plan of Dhorpatan Hunting Reserve is an undertaking of the Dhorpatan Hunting Reserve Office under the guidance of the Department of National Parks and Wildlife Conservation (DNPWC) with the financial and technical support of USAID funded Hariyo Ban Program through WWF Nepal.

First and foremost, I would like to express my gratitude to Director General – Dr. Deepak Kumar Kharel for his encouragement, and support. Likewise, I would also like to express sincere gratitude to Then Director General of DNPWC- Man Bahadur Khadka (Now, Director General-DOFSC) for his never-ending guidance and support. I am also thankful to Then Deputy Director General Mr. Gopal Prakash Bhattarai for his constant technical support through the plan preparation period and final review of the plan with a special mention to Mr. Barna Bahadur Thapa for drafting the management plan. I would like to thank Then Chief Warden of Dhorpatan Hunting Reserve- Mr. Ananath Baral for his support in the preparation of the management. A very special gratitude to Management Officer Mr. Narayan Rupkheti, Assistant Management Officer Mr. Bishnu Prasad Thapaliya and Ranger Mr. Santosh Kumar Bhagat for invaluable assistance. Thanks are due to members of the plan preparation team, Planning Officer Mr. Amir Maharjan and Assistant Planning Officer Mrs. Saraswoti Sapkota for their inputs and all the DNPWC experts for their valuable comments and suggestions to improve this plan. I acknowledge the contributions of Dr. Buddhi Sagar Poudel, Joint- Secretary, Ministry of Forests and Environment and Mr. Shyam Bajimaya, former Director General of DNPWC for their critical review and feedback on the draft plan.

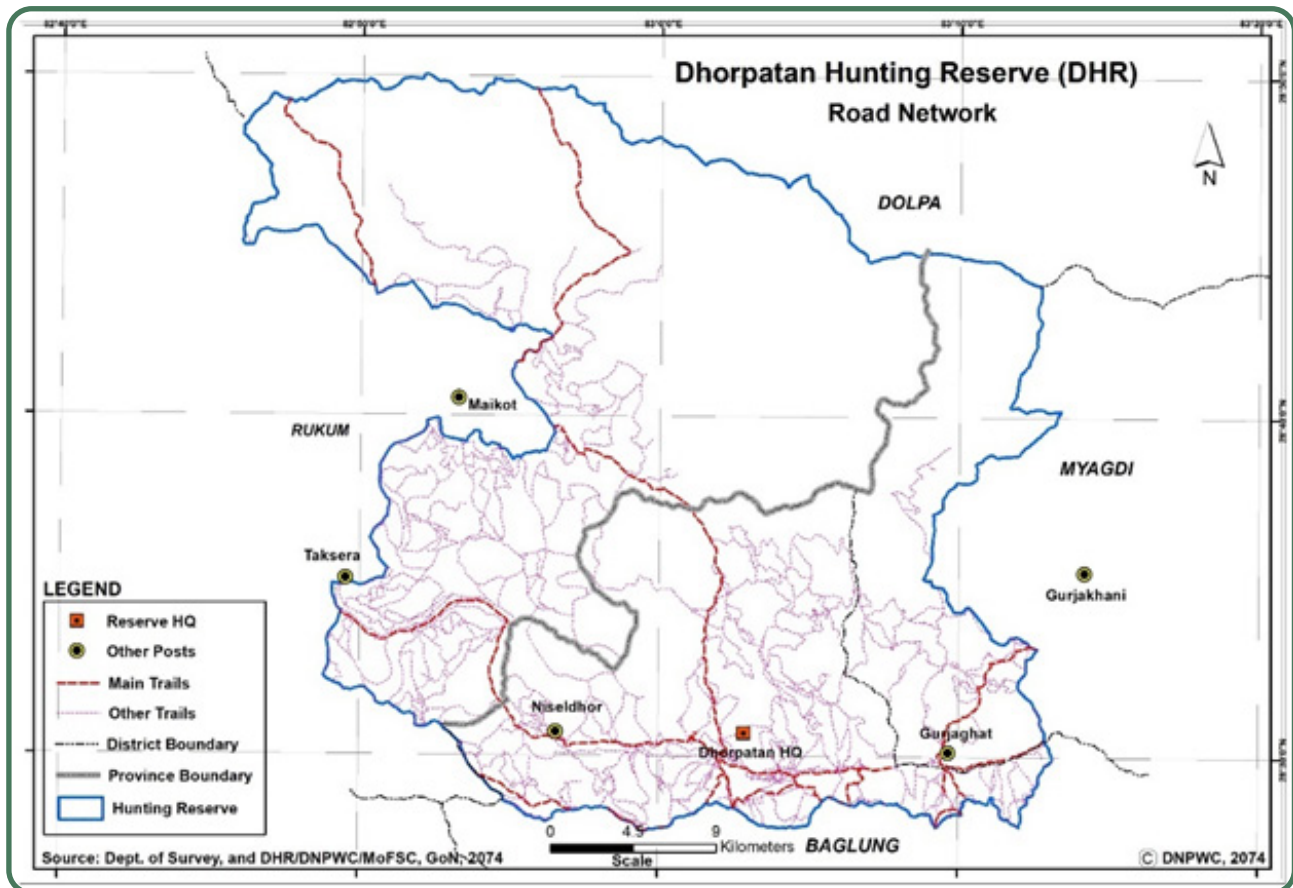
Moreover, I would like to acknowledge Netra Narayan Sharma Sapkota, USAID. Dr. Shant Raj Jnawali, Chief of Party of the USAID funded Hariyo Ban Program, and Mr. Dipesh Joshi, Senior Program Officer WWF Nepal for their support throughout whole process and for integrating aspects of climate change in the plan. I would like to thank all the field respondents for their lively interaction and assistance in a process of preparing this plan. Finally, special thanks to all my colleagues of the reserve for their untiring efforts in conducting local consultations and compiling the required information for the management plan especially Then Assistant Conservation Officer Mr. Pashupati Adhikari.

Mr. Birendra Prasad Kandel
Chief Conservation Officer
Dhorpatan Hunting Reserve

1.2 Access to the Reserve

DHR is one of the least visited protected areas because of not only its remoteness but also limited road access. It is located about 200 km. west of Pokhara and there are only three major routes to reach the reserve. The first one is Kathmandu-Pokhara-Beni-Darbang motor way and one-day walk from Darbang to Jaljala pass from the Eastern side. The second is Kathmandu-Pokhara-Baglung- Burtibang-Bobang-Dhorpatan motorable road from the Southern side. The other alternate route is Kathmandu-Rukum-Taksera motor way and one day walk from Taksera to Niseldhor from the Western side. Map 2 shows the major trails within the reserve. There is an existing airstrip constructed by Civil Aviation Authority of Nepal in the Dhorpatan Valley near the reserve headquarters, but it is not in use at present.

Map 2. Trail network inside Dhorpatan Hunting Reserve



1.3 Statement of Significance

The reserve holds following significance:

- The only hunting reserve in Nepal renowned globally that provides recreational hunting opportunities of Blue sheep and Himalayan Tahr,
- The reserve is one of the prime habitats for blue sheep and an important home range for endangered snow leopard and red panda,
- The reserve also provides habitat for protected wildlife such as musk deer, grey wolf, clouded leopard, leopard cat and several other important wildlife species,
- The reserve harbors large numbers of rare, endangered, endemic plants including medicinal and aromatic plants in Nepal,
- The high-altitude forests and rangelands are vital for local livelihoods and used for traditional livestock herding and collection of high-value medicinal plants, fuelwood and building materials,
- A religious place in the region called Dhorbarahasthan in Uttarganga at Dhorpatan visited by thousands of pilgrims during the Janai Purnima festival every year,
- The snow-fed rivers of the area are important source of water for downstream communities.

Chapter II

Background Information and Attributes

2.1 Boundaries (legal, ecological)

2.1.1 Legal boundaries

DHR was declared in 1983 and gazetted on 14 Baisakh 2044 (April 1987). The area of the reserve is duly notified and demarcated on the ground. The legal boundary of the reserve as per the gazette notification of the then His Majesty's Government of Nepal (HMG/N) is provided in Annex 1. The reserve is bordered by the western extension of the Dhaulagiri massif of the north and the Surtibang and Uttar Ganga river valley to the south. Similarly, the eastern boundary adjoins Dharekhani, Jhalke, and Lamakanka peaks and Naudelle dhuri. Kharibang Khola, Kulta Pass and Jagla Pass separate the western boundary of the reserve.

2.1.2 Legislations

National Parks and Wildlife Conservation Act 2029 (1973AD) and its regulation 2030 (1974 AD), are the key policy documents which guide wildlife conservation and protected area management in Nepal. Related regulations and guidelines have been formulated to support the implementation of the Act. Besides these, various environment and biodiversity conservation acts and regulations along with strategies are in place to guide protected area management in Nepal.

2.1.2.1 National Parks and Wildlife Conservation Act, 2029 BS (1973)

The clause 3 (1Ka) of the fifth amendment of National Parks and Wildlife Conservation (NPWC) Act, 2029 has made it mandatory that National Parks, Reserve and Conservation Area must be conserved and managed by the approved management plan. The management plan shall be approved by the Department of National Parks and Wildlife Conservation (DNPWC).

2.1.2.2 International Trade in Endangered Species of Wild Flora and Fauna Control Act, 2073 BS (2017)

International Trade in Endangered Wild Flora and Fauna (CITES) Control Act 2073, generally known as CITES Act, has recently been enacted. This Act has authorized Chief Conservation Officer or officer assigned by him/her of the protected area to work as Investigation Officer in illegal wildlife trade case and to file case in District Court as per the Clause 23.

Along with the above listed Acts, some key policies and their key provisions that have implications for the management of Dhorpatan Hunting Reserve have been listed below (Table 2).

Table 2: Key policies and legislations relevant for the Management of DHR

Major Policies	Key Provisions
National Forest Policy	<ul style="list-style-type: none"> ▪ Biodiversity conservation and community engagement for sustainable management of natural resources
National Wetland Policy, 2069	<ul style="list-style-type: none"> ▪ The policy has identified wetlands of protected areas as a major wetland category in Nepal ▪ The policy has emphasized on conservation and wise use of wetlands ▪ It also emphasizes to conduct regular studies on the status of wetlands that lie within the protected areas or buffer zones
Nepal Biodiversity Strategy and Action Plan (2014-2020),	<ul style="list-style-type: none"> ▪ Nepal Biodiversity Strategy and Action Plan (NBSAP) has identified Protected Areas (PAs) as one of the major sectors for biodiversity conservation ▪ NBSAP has emphasized on capacity building of staffs and local communities by developing PAs as research and training centre ▪ NBSAP has emphasized on regular inventories and updating of biodiversity at ecosystem, species and genetic level ▪ NBSAP emphasized on preparation and implementation of species conservation action plan for keystone species
National Parks and Wildlife Conservation Act, 2029 National Parks and Wildlife Conservation Regulation, 2030	<ul style="list-style-type: none"> ▪ The act provisions for declaration and management of National Park and Buffer zone declaration ▪ 30-50% of the annual revenue of the park to be ploughed back for conservation, development and management buffer zone ▪ Details on precedures and guidelines for hunting
Environment Protection Act, 2053 BS and Regulation, 2054 BS	<ul style="list-style-type: none"> ▪ The act strictly emphasizes to carry out Initial Environmental Examination (IEE) and/or Environmental Impact Assessment (EIA) before implementation of any development projects in the protected areas and their buffer zones ▪ The regulation has provisioned to carry out and approve Initial Environmental Examination of the PAs and its Buffer Zone Management Plan (EPA 1997 Rule 3, Schedule-1 Forestry Sector, Clause-12)
Wildlife Damage Relief and Compensation Guideline, 2069 BS	<ul style="list-style-type: none"> ▪ The guideline has provisioned for the compensation for human injuries and casualties; property damage, livestock depredation; crop and grain damages caused by wild animals. ▪ It also explains the administrative procedure and requirements to complete the process.
Wildlife Reserve Regulations, 2034	<ul style="list-style-type: none"> ▪ Provides detailed information on terms of entry into reserve, list of prohibited activities within the reserve and authorities of chief conservation officer.

2.1.3 Ecological Significance

Biogeographically, the reserve represents Palearctic region. The DHR is included in one of the WWF's Global 200 Eco-regions namely the Western Himalayan Alpine Shrubs and Meadows. The Reserve (1,325 km²) and its proposed Buffer zone (539.04 km²) forms a larger landscape being connected to Annapurna Conservation Area (ACA) (7,629 km²) and Manaslu Conservation Area (MCA) (1,660.3 km²) to the East, and Shey-Phoksunmdo National Park (3555 km²) and its buffer zone (1348 km²) to the West. The combined area of DHR, ACA, MCA and SPNP is over 15,518 Km², which forms one of the second largest protected area complexes in high mountain ecosystem. Therefore, DHR along with surrounding landscape is considered as broad ecological region of this area.



2.2 Physical Attributes

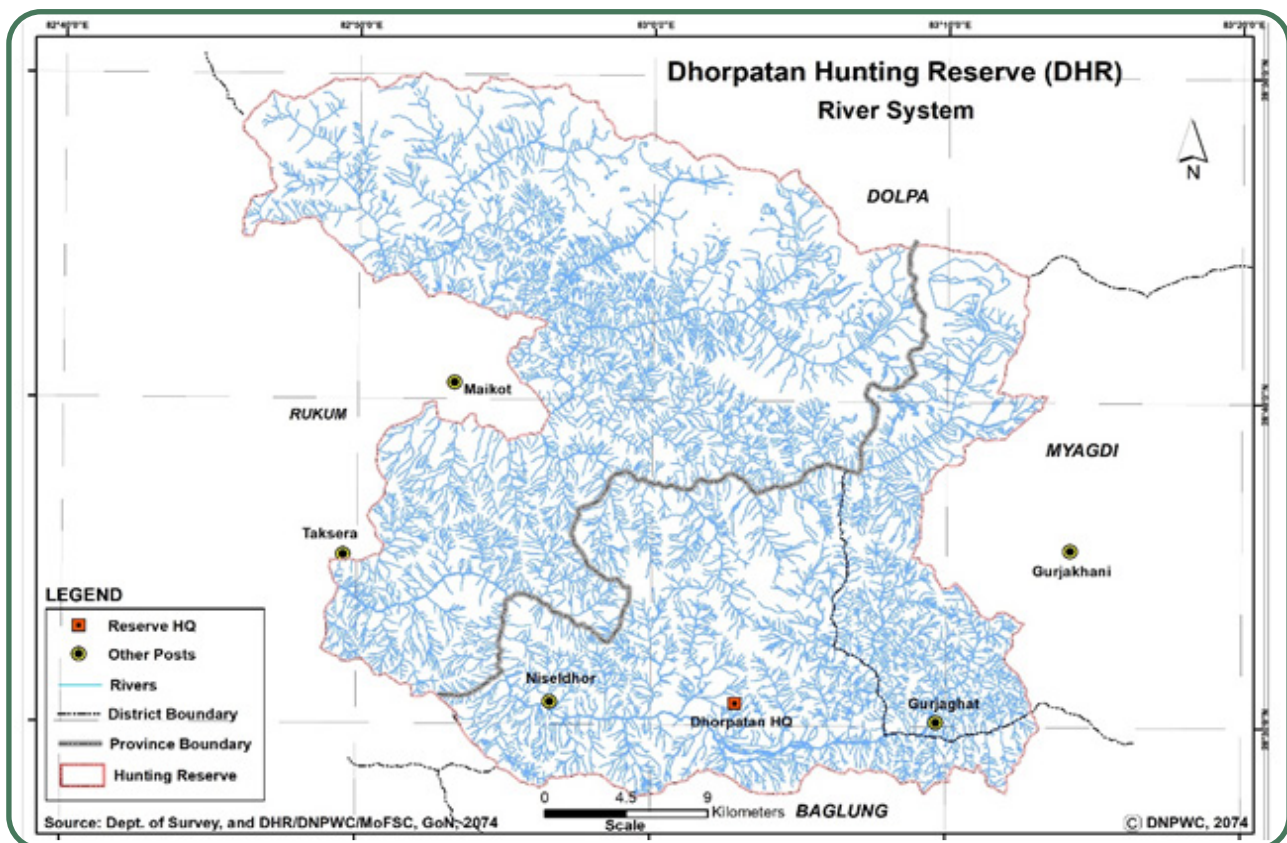
2.2.1 Geology and Soil

The geologic feature of the Dhorpatan Hunting Reserve is the result of the continental-scale plate-tectonic collision of the Indian subcontinent with the Eurasian continent. Most of the reserve area lies on unmetamorphosed sedimentary rocks that were formed along the northern margin of Indian sub-continent before colliding with the southern margin of Eurasia. These rocks are referred to as the Tethyan sedimentary rock sequence, which belong to the Tibetan sedimentary zone (Brew, 1991). In the North, the high peaks and broad valleys are formed in the folded and locally faulted limestone, shale, siltstone, and sandstone of the Tethyan (Tibetan) sequence. In the South, steep-sided valleys cut in both rocks that are transitional from the Tethyan sequence to the metamorphic rocks of the central crystalline zone and the high-grade metamorphic rocks (Brew, 1991). Geomorphic processes such as erosion and sedimentation are active in this region.

2.2.2 Topography and drainage

The DHR is spread across Middle mountains, High Mountains and High Himal. The elevation of the reserve ranges from about 2000 m. (Takasera) to 7246 m. (Putahimal). The terrain is steep, rugged, and broken by deep river gorges below, glaciers, and glacial valleys at upper reaches. High mountains are primary water sources of major river systems of the reserve. Uttar Ganga, Ghustung, Dogadi Purbang, Pelma and Seng rivers are the major rivers in the reserve. Towards the south-eastern part of the valley, Gur Gad and several tributaries come into the Uttar Ganga River. The Gur Gad flows southwards to Gurjaghat to mix with Dhor Khola and flows westwards into the Dhorpatan valley. About 8 miles north of Dhorpatan another major river Gustung runs parallel to the Uttar Ganga. This river comes from the glaciers west of Churen Himal running below the long-extended ridge from Dhaulagiri to Barse Mountain. Similarly, the next drainage north of Gustung and Chalike Pahar is Dogadi River which originates from glaciers of Dhaulagiri and flows westwards. The valley is broken into several large and small tributaries forming high bowls and grassy basins, which are good habitats for blue sheep (Wegge, 1976). Map 3 shows the drainage system of the reserve.

Map 3. Drainage system of Dhorpatan Hunting Reserve



Another major river is Seng also known as Tatopani Khola that flows northwest of Dogadi River and joins Dogadi River. Almost parallel to Seng and about five-mile further northwest is the Purbang river valley, which also provides a good habitat for Blue sheep. Several glacial lakes are formed beneath the mountains during the formation of the Himalayas. Among them the major lakes are Sundaha, Pupa Tal, Warmy and Parmy Tal, Thakur Tal, Daha Tal, Putha Tal, Pala Tal, Murchula Tal, Rudra Tal, etc.

2.2.3 Climate and Weather

Considering the variations in altitude, aspect and topography, the overall climate of DHR varies widely from cool temperate monsoonal in the lower reaches to Sub-alpine, Alpine, Tundra type and arctic in the high Himal. A large proportion of annual rainfall (60- 65%) occurs during the monsoon months of July, August and September (Wilson 1981). Wegge (1976) extrapolated an annual rainfall total of somewhat less than 1000 mm a year, half of which falls during the monsoon months. In relation to the Dhorpatan area, the Sera station (at 1046 m) recorded an annual precipitation of 1340 mm, and the Dunai station at Dolpa (at 1803 m.) recorded 1170 mm. In comparison, Pokhara under the rain shadow of Annapurna Himal recorded 3507 mm. and Rukumkot (24 km west of Takasera) at 1591 m. recorded almost 1800 mm. At the other extreme Jomsom at 2800m recorded less than 200 mm. of annual rainfall (Wilson, 1981).

It is observed that heavy spring snowfall occurs generally during January to April, but the total amount varies year to year. Winter is severe with temperature below freezing point and

frequent snowfall above 2500 m. altitude. Occasional heavy snowfall disrupts the trails in the reserve for several days and snow avalanches frequently pose threats to local people, livestock and wildlife. The weather is dry and cold with light snow during mid-winter, and unpredictable heavier snowstorms into a late spring (Wegge, 1976).

2.3 Biological Attributes

2.3.1 Vegetation

The reserve has a highly mixed vegetative composition due to high degree of variations in altitude, aspect and topography affecting the soil depth and moisture. The dry (xeric sites), northern parts are more pronounced at higher altitudes and on southeasterly aspects. In moister and shaded area (mesic sites), mixed-hardwoods forest is found from lower elevation fir (*Abies spectabilis*) to birch rhododendron at higher altitudes (Wegge, 1976). In the upper Gustung drainage, the forests are still largely unmodified by human activities. The upper north slope to tree line, between 3000m to 6000m elevation, are densely covered with Silver birch (*Betula utilis*) and rhododendron (*Rhododendron campanulata*) whereas the lower belt comprises of fir and hemlock (*Tsuga dumosa*) whereas the river valleys are occupied by rich mixed -hardwood forests. The South slopes on the other side about 2400 m to 3300 m consists of open scrub forest such as oak (*Quercus semicarpifolia*), blue pine (*Pinus excelsa*), rhododendron (*Rhododendron arborea*), and juniper (*Juniperus indica*) (Wegge, 1979; Wilson 1981).

In the lower part of Dhorpatan valley, dense forests are composed of blue pine (*Pinus wallichiana*) intermixed with spruce (*Picea smithiana*), hemlock (*Tsuga dumosa*), and silver fir (*Abies spectabilis*). The middle story of this forest is covered with populus and the ground story dominated by bamboo. Silver birch (*Betula utilis*), and Juniper (*Juniperus recurva*) dominate the landscape along the upper tree line. Low lying areas such as Dhorpatan valley has good stands of oak (*Quercus semecarpifolia*) and other temperate-type forests. Above the timberline, which usually runs at around 3600m - 3900m along the northern aspect slopes and around 3000m on south slopes, different grass/sedge types cover the area. On the damper and unstable northern slopes, scrub rhododendron (*Rhododendron anthopogan*) and (*R. lepiditum*) may form extensive mats, while on warmer and moist sites, shrubs of *Potentilla fruticosa* and Polygonum grass spp may become established. In the transition between upper treeline and the alpine zone, the proper species of juniper (both *J. squamata* and *J. recurva*), potentilla, fruticosa, *Cotoneaster* spp., *Lonicera* spp., and *Berberies* spp often form large patches of brush cover (Wegge,1976).

Alpine Shrubs and Meadows/Pastures: Grasslands cover about 50% of the total area of DHR (Map 1). However, most of them are inaccessible due to steep rocky topography. Local people residing in and around the reserve use the rest of the area to graze their livestock. Species composition and of the pastures vary significantly in upper and lower part of the reserve. The number of major fodder/grass species is more in the lower part than the upper part. However, it is essential to explore how many other species including livestock uses because these pastures in Dhorpatan are very rich in species diversity.

Medicinal and Aromatic Plants DHR is situated in the Himalayan region has a large variety of endemic and threatened medicinal and aromatic plants used in traditional medicines in the region due to diversified habitats and niches of the area. Major medicinal plants include atis (*Delphinium himalayan*), kutki (*Picrorhiza scrophulariiflora*), panchaunle (*Dactylorhiza hatagirea*), yarsagumba/yartsa-gunbu (*Ophiocordyceps sinensis*), padamchal (*Rheum australe*), bhutley/jatamansi (*Nardostachys grandiflora*), khirauli (*Polygonatum* spp.) and samayo (*Valeriana wallichii*), which are harvested by most of the households. Among them, padamchal and yarsagumba are mostly harvested by the local people (Shrestha and Joshi, 1996) and are also being exploited commercially in recent times. Frequencies and densities of these plants varied from site to site, which can be attributed to different levels of disturbances and harvesting practices, besides physical characteristics and overall vegetation structure. Diversity of associated herbs and grasses are very low in disturbed areas. Annex 2 provides the detailed list of plants recorded in the reserve.

2.3.2 Wildlife

The reserve supports several endangered, protected and other common species including wolf (*Canis lupus*), Snow leopard (*Panthera uncia*), Red panda (*Ailurus fulgens*), leopard cat (*Felis bengalensis*), Lynx (*Felis lynx*), clouded leopard (*Neofelis nebulosa*) and musk deer (*Moschus chrysogaster*). The other common wild animals found in the reserve are common leopard (*Panthera pardus*), Bharal or Nayaur (*Pseudois nayaur*), Himalayan thar (*Hemitragus jemlahicus*), langur (*Presbytis entellus*), wild boar (*Sus scrofa*), Himalayan black bear (*Selenarctos thibetanus*), goral (*Nemorhaedus goral*), serow (*Capricornis sumatraensis*), Yellow-throated marten (*Martes flavigula*) and barking deer (*Muntiacus muntjak*). The protected bird species found in the reserve are danphe (*Lophophorus impejanus*), Cheer (*Catreus wallichii*) and Monal (*Tragopan satyara*). A total of 137 bird species area recorded in the reserve (Inskipp 1998). The list of mammals and birds recorded in DHR is given in (Annex 3 and 4).

2.4 Social and Cultural Features

2.4.1 Population

Total estimated population living in and around the proposed buffer zone is about 24,472 with 5,193 households recorded within the buffer zone (DHR field data, 2073). A total of 2,945 households reside in the 53 settlements within the reserve. The exact number of populations living inside the reserve area is highly variable due to their seasonal migration pattern from the reserve. The rate of population growth in buffer zone is higher than other parts of Nepal. Major ethnic groups in Dhorpatan area include Magar, Bishowkarma, Nauthar, Thakuri, Brahmin, Chhetri, Thakali Chhantel and Tibetan refugees. The details of population, ethnicity and households are described in the buffer zone chapter of the plan.

2.4.2 Trade

DHR and its proposed community development zone have included the settlements within the reserve is well known for trade of medicinal plants, traditional wool products and goats and sheeps. A large volume of herbs is exported from Ranmamaikot. Similarly, goats and sheep are traded to nearby market for meat production. Trade (barter system) with Tibet used to be



the dominant form of local economy. Local Tibetan people lived in reserve exchanged grains purchased/bartered from lower parts of the reserve for salt, wool, goat and sheep and again traded with wheat and maize grains in the southern part. They frequently visit Tibet for trade where they also barter horses and mules for food items such as salts. However, recently, this system is disappearing due to increasing price of commodities in Tibet and decreasing in the lower part of Dhorpatan.

2.4.3 Agriculture

Local subsistence economy depends mainly on agriculture and animal husbandry. About 90% of the total households are involved directly or indirectly in agriculture and animal husbandry. However, their agricultural production is sufficient only for three to six months. Agricultural land is very limited because most of the DHR areas is cold-dry Himalayan steppe lands. The settlements on the southern periphery of the reserve produce more grains. Croplands are located along Dhorpatan valley floors and gently sloping terraces. The crops are grown in rotational pattern: i) potato during April- August of first year, ii) buckwheat during May-September of second year, iii) wheat during April- October of third year and iv) Potato during April- August, thus returning for fourth year. Irrigation facilities are limited, and most of the agriculture land is rainfed and hence the vulnerability of crops and agricultural practices that are largely rainfed is comparatively higher. The productivity of the area is quite low (Sherchan et al., 1990).

2.4.4 Livestock

Livestock is a main source of income, which is the major component of subsistence farming in the highland mountains of Nepal. There are 5,193 households recorded in and around the reserve i.e. in proposed buffer zone. A total of 14,545 cow and buffalo, and 56,350 sheep and goats are recorded in the proposed BZ (DHR field data, 2073). However, the number of livestock grazing during the summer can be far more than the recorded, because distance user also send their livestock to graze in DHR. Average cattle population per household is estimated 2.77 cows, 11.52 sheep/goat, 0.50 buffalo and 0.24 horse/pony (DHR baseline survey, 2008). The local people traditionally use Dhorpatan as a livestock grazing land. An estimated 80,000 to 100,000 livestock enter the DHR for grazing (DHR record, 2064). These livestock are brought in the area from surrounding districts including Rolpa, Rukum and Gulmi. Those animals are taken to *Buki* or high-altitude grazing land (pasture land) in the summer. Many people spend their life living in such grazing lands with huge numbers of domestic animals mainly sheep and goats.

2.4.5 Cultural and Customary Systems

DHR is highly diversified in terms of ethnic and cultural groups. Highland agro-pastoralism is the principal occupation that relies heavily on natural resources. Agro-pastoral societies have resided in this area for long times, modifying their environment in a sustainable manner. Recorded history referring to such land use dates to the 10th century. Traditionally, villagers possessed winter grazing practice rights for their livestock in highland pastures.

Chapter III

Past Management and Present Practices

3.1 Conservation History

The then HMGN/UNDP National Parks and Wildlife Conservation Project in 1972, for establishing several hunting reserves throughout the Kingdom of Nepal initiated the efforts to establish DHR. Per Wegge (a consultant wildlife biologist from Food and Agricultural Organization) conducted surveys in 1974 to explore the possibilities of establishing hunting reserves in Nepal including Dhorpatan. Following the findings and recommendations of the survey, the then HMGN has decided to establish Dhorpatan Hunting Reserve. A feasibility study for setting up reserve began in 1983 (BS 2039, Chaitra) and, Dhorpatan valley traditional high mountain pastureland situated in the Baglung district was selected as site for the Reserve Headquarters. At the same time, Ranger Durga Prasad Paudel was appointed by the department as an officer-in-charge to set up the office in Dhorpatan. Construction of facilities such as office buildings, staff quarters and outlying guard posts began soon after. The formal declaration of the 1325 km² reserve comprising part of Baglung, Myagdi and Rukum districts took place in April 1987 (2044-1-14 B. S.) by declaring its boundaries in the Nepal Gazette (Annex 1) . Table 3 below provides an overview of key events of the area in DHR.

Table 3: Timeline of key events in relation to Dhorpatan Hunting Reserve

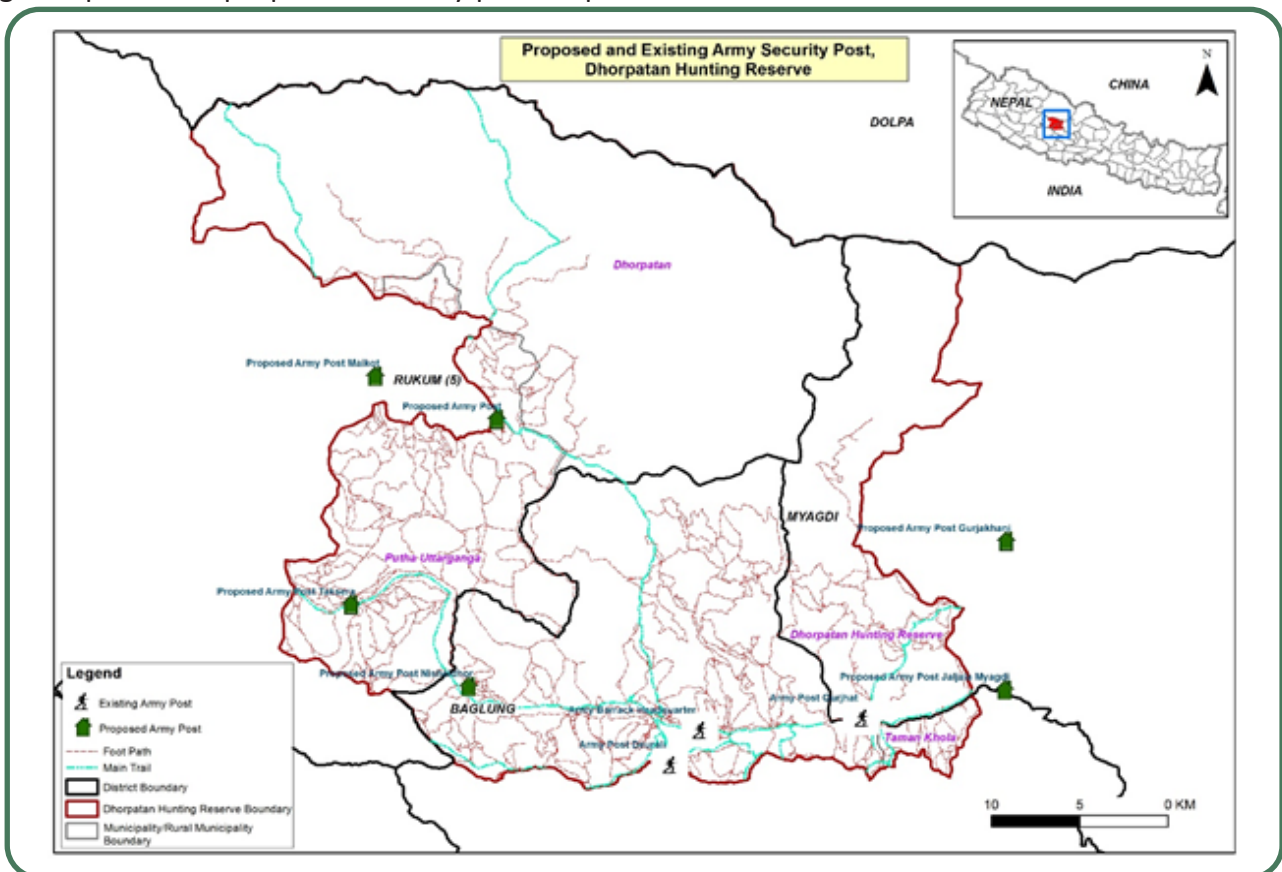
Year	Major Event/Activities
1960s	Tibetans as refugees initially migrated to Dolpo and few moved to Dhorpatan
1973	First trophy hunters visited Barse area of Dhorpatan Hunting Reserve
1974,76	Per Wegge (1976) assessed suitability as a hunting reserve for blue sheep
1983	The area was declared as a hunting reserve
1987	The Dhorpatan Hunting Reserve was gazetted in April 1987
1990	Overall assessment survey of DHR by DNPWC (Bajimaya <i>et. al.</i> 1990)
1996-1998	WWF Nepal supported the Northern Mountain Conservation Project, with financial support of USAID
1998	Regular hunting of blue sheep in DHR was halted due to political turmoil
2000	Maikot Range Post of DHR was blasted during the insurgency period
2000	Extension of Northern Mountain Conservation Project in DHR as a follow up program in DHR
2001	DHR office was shifted to Baglung due to political insurgency
2007	DHR office reopened in Dhorpatan
2007	Blue sheep and Himalayan tahr numbers counted by DHR
2011	Periodic blue sheep and Himalayan tahr counted by DHR and hunting quota fixed
2016	Blue sheep counted by DHR and trophy hunting quota fixed
2016	A company of Nepali Army was deployed for protection of DHR
2017	Himalayan tahr counted by DHR and trophy hunting quota fixed by DNPWC

(Source: DHR Office Records)

National Parks and Wildlife Conservation Regulation was introduced in 1974 (2030 BS) to provide the legal framework for hunting management in DHR and other area (Wegge, 1976 and Wilson, 1981). Regulated hunting of blue sheep in DHR was stopped in 1998 due to political insurgency and office was relocated to Baglung in the year 2058 to 2063 and now it is again regulated as per annual quota.

3.2 Reserve Protection

Along with the reserve headquarters at Dhorpatan, 1 sector office, 3 range posts and 6 guards posts provide support for reserve protection. Despite the difficult geography and limited staffs, regular patrolling activities were conducted by these sector offices and guard posts to control illegal activities and monitor grazing and NTFP harvesting activities. Initially, Nepali Army was not deployed in DHR as its main objective of establishment was Trophy Hunting of game animals, particularly Blue sheep and Himalayan tahr. But considering the increased threats over the reserve and its biodiversity such as poaching and encroachment, a company of Nepali Army is deployed in the reserve since 2016. At present, a company of Nepali Army is based in the reserve for protection since Baisakh 30, 2073 (May 12, 2016) after the cabinet decision (dated in, 2072-11-3). Nepali Army is carrying out various conservation and surveillance activities including regular patrols and sweeping operations. They are also carrying out various social service works including health camps, clean up campaigns and involving local youths through sports competitions. Security posts are under construction in Deurali which is the main entrance point for the reserve. Other posts will be expanded as per need and conservation issues of the reserve. The details of existing sector offices, range posts, guard posts and proposed security posts is provided in **Annex 5**.



Map 4. Proposed and existing security posts in DHR

3.3 Habitat Management

In order to maintain mosaics of suitable habitat in the reserve, management of rangelands and wetlands has been in practice as habitat management intervention. The focus of habitat management in DHR has been to minimize human induced pressure on rangelands from overgrazing and unsustainable collection of forest products. Over grazing by livestock during summer can affect rangeland and degrade wildlife habitat and it can also accelerate soil erosion and landslides. Forest fire is another threat to wildlife habitat as frequent accidental fire deteriorates the wildlife habitat every year.

3.4 Anti-poaching and other illegal activities

Wildlife poaching, illegal timber harvesting, encroachment and other illegal activities such as collection of natural resource including Non-Timber Forest Products (NTFPs) are the most chronic issues for DHR management. In order to control poaching of wildlife species and illegal trade of their body parts, anti-poaching operations were carried out by reserve staffs. There is a need for informants' network to collect reliable information to control probable wildlife crimes in this area. The deployment of Nepali Army along with continuous engagement of local communities could be more effective after the expansion of security posts.

3.5 Tourism and Interpretation

Though Dhorpatan Hunting Reserve is primarily established for sport hunting, it is a highly potential destination for trekking, hiking and other tourist activities. Because of its remoteness, poor infrastructure, and lack of proper tourist routes as well as poor transportation and accommodation facilities, the number of foreign tourists visiting the reserve is very low. However, such number started to go up slowly after the opening of the southern region of Dolpa in May 1989 and upper Dolpa in October 1992 including southern part of Shey - Phoksundo National Park, to foreign trekkers by the then His Majesty's Government of Nepal to use the trekking routes through DHR. When government opened the Trans-Himalayan region of inner Dolpa for foreign tourists, certified trekking companies started trekking expeditions to Dolpa through DHR. Since then, the number of tourists entering the Dolpa via Dhorpatan has been slowly going up but the facilities (means of transportation and communication, camp sites, lodges, trekking routes) are limited within the reserve along that route (Bajimaya *et. al* 1990).

3.6 Research and Monitoring

Research and monitoring are essential for PA management. However, limited number of researches on biodiversity has been conducted in DHR. Periodic monitoring of trophy animals is conducted by the reserve office. Research interested of students and academicians is increasing in recent years and as a result flow of researchers, mainly university students have increased. The major focus of research in recent times is on snow leopard, red panda, musk deer and impacts of climate change on flora and fauna and other mid and high-altitude ecosystems and their components. Most of the research records has been destroyed during political insurgences. A list of past research studies is provided in **Annex 6**.

3.7 Human wildlife conflict

Human-wildlife conflict is a common issue in the reserve and its proposed BZ. However, there are few reported cases of wildlife damage recorded in the proposed buffer zone. Crop

depredation by wild boar is the most serious management issue in the reserve and proposed buffer zone Livestock killing by leopard and wild dogs are also frequently reported. Thus, retaliatory killing of wildlife species by local communities is also reported. In recent years, human-wildlife conflict is becoming one of the major hindering factors for maintaining harmonious relationships with local people that hampering people's participation in conservation.

3.8 Administration and organization

The Chief Conservation Officer (Gazetted Class II Officer) heads DHR administration and management with the headquarters at Dhorpatan. The reserve headquarters and Range posts are mostly located along the southern part of the reserve at the lower elevation near human settlement to ensure effective protection and management. Considering the state restructuring, there might be a need to organize the administration and operation of the park to facilitate coordination with local bodies. The organizational structure and staff composition of the reserve is shown in **Annex 7 and 8**.

3.9 Achievements of Preceding Management programs

As DHR does not have management plan till now, annual programs are prepared based on the need identified by DHR and submitted to DNPWC. DNPWC has the right to approve and allocate the annual program and budget for DHR. The implemented programs and progress achieved by DHR as per approved budget during the last five years is provided in Table 4 below:

Table 4. Annual expenditure of last five fiscal years in DHR (Amount in thousands)

SN	Description	Fiscal Year 069/70	Fiscal Year 070/071	Fiscal Year 071/072	Fiscal Year 072/073	Fiscal Year 073/074
1	Capital Expenditure	2519	1800	2710	4408	5858
2	Conservation Programs	4325	3715	3789	4305	4325
2.1	Conservation Education	500	500	500	500	500
2.2	Habitat Management	575	575	575	575	575
2.3	Species Conservation and Monitoring	200	200	200	200	200
2.4	Anti-poaching operations	350	350	350	350	350
2.5	Buffer Zones and Others	800	800	800	800	800
2.6	Public property maintenance	1900	1290	1364	1880	1900
Total: Program Budget		6844	5515	6499	8713	10183



Utilities/Office Running Cost	7292	11123	11592	11776	27221
Total Budget for each Fiscal Year	14136	16638	18091	20489	37404

3.10 SWOT Analysis of DHR

Strength

- ✓ A globally recognized trophy hunting reserve for blue sheep and Himalayan tahr
- ✓ High ethnicity and cultural diversity
- ✓ New strengthened organizational structure of the reserve
- ✓ NTFPs management including Yarsha Gumba and revenue collection
- ✓ Potential high-altitude tourist destinations

Weakness

- ✓ Inadequate basic infrastructure for reserve management and tourism development
- ✓ Inadequate knowledge and information on impacts of trophy hunting on population ecology of game animals
- ✓ Inaccessibility of the reserve and inadequate facilities for field staff

Opportunities

- ✓ High potential to support community development through trophy hunting revenue and tourism
- ✓ High potentialities of tourism development (domestic and international) due to unique natural beauty and landscape, endangered wild flora and fauna, trekking route to upper Dolpo, local cultural values
- ✓ Possible area for adventure tourism including mountain biking, horse riding and others
- ✓ Opportunity of additional funding from trophy hunting groups for the reserve and its proposed buffer zone management and community development
- ✓ Promotion of trophy hunting to increase revenue for reserve management and provide income and seasonal employment for local people
- ✓ Diversification of local livelihoods through eco-tourism to reduce pressure on the reserve
- ✓ Involvement of local people in sustainable management of NTFP for livelihood diversification
- ✓ Expanding research opportunities through collaboration with academic institutions

Threats

- ✓ Burgeoning human and livestock population and dependency of local communities on natural resources within the reserve
- ✓ Forest fires and encroachment of forests and rangelands

- ✓ Planned Uttarganga hydropower project and possible loss of biodiversity
- ✓ Crop depredation and increasing human wildlife conflicts
- ✓ Poaching and retaliatory killing of animals such as Grey wolf
- ✓ Unplanned infrastructure development leading to habitat degradation and fragmentation

3.11 Physical Infrastructures

Currently, there are six range/guard posts with more than 16 buildings including reserve headquarters. Most of the buildings are made up of local materials of stone with mud and finished by cement and roof of aluminium sheet. Almost 75 percent buildings are in poor conditions because of destruction during the conflict situation and inadequate resources for repair and maintenance. Among them Maikot range post was destroyed in a bomb blast in 2057 BS and other buildings were partially destroyed during insurgency in 2058 BS. Due to security reasons, DHR office was relocated to Baglung District Headquarters from 2058 to 2063 BS for an interim period of 5 years during political insurgency. Other physical infrastructures such as bridges, campsites and trekking trails are also in poor condition. The details of the damaged infrastructure with locations including buildings are given in **Annex 9**.

Part B: The Proposed Management

Chapter IV

Vision, Goal and Objectives

4.1 Vision Statement

Conserve biological diversity and ecological integrity of the Dhorpatan Hunting Reserve for prosperity of the region.

4.2 Management Goal

The goal of Dhorpatan Hunting Reserve is to conserve, maintain and enhance the biological diversity and socio-cultural uniqueness through regulated trophy hunting and promotion of ecotourism and sustainable management of NTFPs to enhance livelihoods of the local people.

4.3 Management Objectives

- ✓ To conserve threatened and endangered wildlife and their habitat under changing socio-ecological contexts;
- ✓ To regulate trophy hunting of blue sheep and Himalayan tahr maintaining its healthy population;
- ✓ To promote and improve sustainable livelihoods through eco-tourism and NTFP management;
- ✓ To improve community engagement in participatory biodiversity conservation; and
- ✓ To strengthen institutional capacity through research, coordination and collaboration.

4.4 Major issues and challenges in achieving management objectives

There are numerous issues and challenges in achieving future desired condition of the reserve. The key issues and challenges to achieve each objective are listed below:

Issues:

- ✓ Poaching and trade of wildlife including blue sheep, Himalayan tahr, musk deer, red panda, Himalayan pheasant and other species mainly from the most inaccessible areas,
- ✓ Illegal logging of timbers for local construction, tapping resins from matured trees for firewood,
- ✓ Unregulated and over grazing in reserve and its proposed buffer zone,
- ✓ Uncontrolled forest fires destroying forest and rangelands,
- ✓ Livestock and crop depredation by wildlife such as leopard and wild boar,
- ✓ Unregulated harvesting of medicinal and aromatic plants,
- ✓ Inadequacy of reserve infrastructure (such as guard posts) and limited budget for repair and maintenance,
- ✓ Insufficient facilities, incentives and field gears to staffs in adverse weather conditions,
- ✓ Inadequate monitoring mechanism of reserve during hunting seasons due to limited human resources and extremely adverse topographic conditions,

- ✓ Lack of basic tourism infrastructure such as Visitor Information Centre (VIC), communication, transportation, signage, trekking trail, camping sites, lodges, hotels, etc.
- ✓ Inadequate awareness, communication and publication of tourism related information at local and national level,
- ✓ Lack of zonation and internal demarcation between reserve and settlements inside the reserve,
- ✓ Lack of collaboration with academic and research institutions,
- ✓ Inadequate research, training and trained staff working in reserve,

Challenges:

- ✓ Remoteness and limited accessibility in the reserve exacerbated by harsh climatic conditions that hinders staff mobility,
- ✓ Delay in declaration of Buffer Zone,
- ✓ Absence of management plan and lack of regulations of the reserve hindering community engagement and development initiatives,
- ✓ Extensive encroachment within the reserve area,
- ✓ Habitat fragmentation by haphazardly planned road, trail construction inside the reserve,
- ✓ Unregulated traditional grazing and pasture management practices leading to unsustainable practices.

Chapter V

Management Strategies

5.1 Boundaries

5.1.1 Legal

The boundary of Dhorpatan Hunting Reserve is well defined and duly notified through publication in Nepal gazette. The area of reserve is well demarcated on ground with natural features such as rivers, ridges and other land features as its boundaries. Since some of the adjoining forest areas are important as extended habitats of key species and realizing the importance of community participation in long-term biodiversity conservation, the management plan envisions incorporation of such important forests and human settlements as a part of proposed buffer zone. The peripheral land of the reserve as well as village enclave inside the reserve comprises the proposed buffer zone. The declaration of buffer zone of DHR is underway.

5.1.2 Administrative

The core area of DHR falls currently under parts of Dhorpatan Municipality and Taman Rural Municipality (previously Bongadovan, Bobang, Adhikarichour and Nisi VDCs) of Baglung, Putha Uttarganga Rural Municipality (previously Takasera, Maikot and Hukam VDCs of Rukum) of East Rukum and Dhaulagiri Rural Municipality (previously part of Gurjakhani and Lulangkhoria VDCs) of Myagdi district (Map 1).

5.1.3 Ecological

The Reserve and its buffer zone (1,325 km.²) has landscape continuity through corridor with Annapurna Conservation Area and Manasolu Conservation Area to the East, and Shey-phoksunmdo National Park and its buffer zone to the West. Thus, the combined area of DHR, ACA, MCA and Sp NP is over 15,518 Km², which forms the second largest protected area complexes in high mountain ecosystem.

5.2 Zonation

For Protected area management, zonation is a very important strategy for biodiversity conservation. To harmonize the conflicts and conservation to maximize the efforts to protect, maintain and enhance the wildlife habitat as well as hunting management in sensitive environment in effective way, the following zones are proposed.

5.2.1 Traditional Use Zone

Himali National Park Regulation 2036 B.S. has provided the local communities the privilege for collection of forest products only for domestic use. By considering this legal provision, adjoining forest can be demarcated as traditional use zone to facilitate the use and limit the encroachment into the core areas.

5.2.2 Management Facility Zone

This is the small zone inside the reserve designated or allocated for office infrastructures and accommodation of reserve staff and army personnel. It comprises parts of the Hunting Reserve to facilitate effective protected area management.

5.2.3 Tourism/Recreational Zone

Recreational activities are permitted only within this zone. The main objective of managing this zone is to regulate tourism in the core area to minimize the disturbance to wildlife and their habitat and to enhance visitors' satisfaction through provision of tourist facilities for wilderness experience. Trophy hunting and other tourism activities such as camping, trekking trail are provided within this zone. Areas adjoining trekking routes and camp sites are also included in this zone along with monasteries, temples and other religious sites.

5.2.4 Biodiversity Conservation Zone

The biodiversity hotspot zone along with key habitat and connectivity can be categorized as Biodiversity conservation zone. The key objective of this zone is to preserve the suitable habitat for wildlife, manage them and to encourage research and science-based management interventions.

5.3 Theme Plans

Of the broad thematic areas; Reserve protection, Anti-poaching, wildlife health management, habitat management, fire management and control and management of encroachment are covered in this chapter.

5.3.1 Protection and Conservation of Biodiversity

5.3.1.1 Reserve Protection

Context

The Reserve headquarters at Dhorpatan is supported by 1 sector office, 3 range posts and 6 guards posts for protection of the reserve. Regardless of the difficult terrain and limited staffs, regular patrolling activities were conducted by these sector offices and guard posts for reserve protection. But with increase in anthropogenic pressure in the park, the limited sector offices, range and guards posts could not provide adequate protection and hence Nepali Army was deployed. Currently, a company of Nepali Army (NA) is deployed in DHR and based at headquarters of the reserve. Nepal Army is mobilized for protection of the reserve due to an increased threats of illegal activities inside the reserve which was difficult to manage solely by administrative unit of DHR office. Expansion of army posts to other strategic locations will improve security situation of the reserve. Communication and infrastructure development are the prime requirement for creation of a strategic network of security system.

Issues

- Inadequate alternatives, incentives and mechanism for local people to control illegal activities,
- High dependency of local communities on resources within the reserve,

- Extremely difficult terrain and harsh environmental conditions where frequent, patrolling and monitoring is challenging and costly,
- Inadequate guard post in strategic locations,
- Inadequate infrastructures and logistics, field gear and equipment suitable for the operation including communication infrastructures,
- Regular long-range patrolling by Reserve staff and protection unit is inadequate,
- Low level of awareness and coordination with local people for biodiversity conservation.

Strategies

- Enhancing community engagement
- Improving infrastructure development
- Improving use of technology and communication

Activities

- Establish and expand protection units around DHR strategically to mitigate illegal activities mainly at as Niseldhor, Takasera, Ranma, Dule, Jaljala, Maikot, Gurjaghat, and Gurjakhani
- Conduct periodic patrolling and monitoring of the hunting blocks during the hunting season by the reserve staff and Army together to ensure that there are no illegal activities
- Establish and mobilize community-based anti-poaching units to support security systems
- Maintain regular sweeping and patrolling around critical areas and wildlife hotspots in accessible areas and change the time and route of patrol strategically
- Construct infrastructures for improving communication in coordination with service providers (BTS towers)
- Provide logistic equipment and facilities for operation in high altitude area
- Initiate the use of cutting-edge technologies such as conservation drone to monitor key species and their habitat in the reserve.

5.3.1.2 Anti-poaching and intelligence

Context

The commonly poached wildlife species in DHR are Blue sheep, Himalayan Tahr, Serow and Ghoral. These species are mainly killed for local meat consumption. Other species poached for wildlife parts are Musk deer, Asiatic Black bear and Red panda which are killed for musk pod, gall bladder and skin. Poaching and illegal hunting increase during summer when local herders move their livestock into upper areas of the reserve for grazing. Many traps and snares are commonly found at the end of grazing season. Similarly, cases of retaliatory killings cannot be neglected in and around DHR. However, the reserve does not have a network of informants for

intelligence gathering at present. Thus, there is a need to develop a network of informants and strengthening their capacity for regular gathering of intelligence information and its use.

Issues

- Traditional practice of hunting and illegal trade of wildlife parts in surrounding areas even increased with an opening of road network
- Lack of intelligence network
- Lack of Community Based Anti-Poaching Operation (CBAPO) and absence of community mobilization mechanisms
- Inadequate coordination amongst government and Non-Government Organizations (NGOs) and local people of the surrounding districts.

Strategies

- Community engagement for surveillance
- Capacity building
- Enhancing local coordination and collaboration

Activities

- Institutionalize APU and intelligence network
- Strengthen intelligence networks
- Initiate long-term surveillance of suspected person
- Institutionalize Community Based Anti-Poaching Operation (CBAPO)
- Provide anti-poaching skill development training to reserve and Army staff
- Encourage and mobilize eco-clubs, students, local user group and local clubs against poaching and other illegal activities- awareness campaigns and awareness raising at mass scale.

5.3.1.3 Wildlife health management

Context

It is estimated that around 80 thousand to 1 million livestock from surrounding areas graze inside the reserve during the summer (DHR, 2064). Both domestic and wild animals use the same pasturelands during the summer and this immensely increases the risk of disease transmission among the animals. Wild animals may also encounter livestock while straying out of the core area. Since there is the risk of transfer of disease from livestock to wild animals and vice versa, health monitoring and surveillance of animal diseases should be done regularly. Besides, regular and timely immunization of domestic livestock inside as well as around the reserve against the major diseases is needed to prevent disease outbreak.

Issues

- Large number of livestock grazing inside the reserve;
- Poor livestock health care facilities in remote areas around DHR;

- Lack of information and studies on wildlife health and disease in DHR;
- Inadequate capacity to diagnose and monitor wildlife diseases.

Strategies

- Coordination with relevant stakeholders and service providers
- Infrastructure development for improving facilities
- Formulate a protocol for wildlife health monitoring and disease surveillance
- Capacity building of staff and communities.

Activities

- Coordinate with District Livestock Services Office to assess and manage livestock related diseases;
- Immunization of livestock against communicable and endemic diseases within the enclave settlements;
- Support to establish a Community based veterinary center in key livestock rearing areas;
- Build capacity of frontline staff to identify and report disease of wildlife;
- Assessment and documentation of wildlife mortality cases;

5.3.2 Habitat management

5.3.2.1 Wetland management

Context

Conservation of high mountain wetlands has become an increasingly significant global issue due to impacts of climate change in recent years, especially given that these wetlands function as water towers for the World. They are important resting site and habitat for a significant number of migratory and some resident water birds. The high -altitude flora and fauna are important for global biological diversity because there are very few other places where life exists at such high altitudes. The snow-fed Seng, Ghustung and Dogadi Khola originating from the Himalayas are the main aquatic habitat in the area. In addition, some glacial lakes harbor wetland habitat for migratory birds. Water pollution, over-grazing of pastures, unsustainable harvest of natural resources and likely impact of climate change are the major conservation issues that threaten the high-altitude lakes of the reserve.

Issues

- Poor database of existing wetlands and their biodiversity values; and
- Sedimentation due to deterioration of adjoining pastures and grazing areas;

Strategies

- Mapping, documentation and monitoring of important wetlands
- Restoration of wetlands and conservation of key watershed areas

Activities

- Detail inventory of existing wetlands and their biodiversity values;
- Conduct annual monitoring of important wetlands in the reserve;
- Prepare and update location maps and site action plan of wetlands;
- Explore religious value of wetlands e.g. Sundaha, Ganhaune Tal (Thagur) and others;
- Renovate and restore wetlands which are being disappeared;
- Undertake activities to enhance, maintain and restore wetlands including its functions and its diversity;
- Conserve watersheds around spring sources and headwaters of rivers and streams through bioengineering, plantation, erosion control;
- Forest protection around key wetlands and water sources.

5.3.2.2 Forest management

Context

Forested area in the lower elevation of reserve provides good habitat for important wildlife. Girdling, lopping and ring barking of trees for traditional use is a common phenomenon in the reserve. The local communities are involved in managing adjoining forests within the DHR as a provision under the Himali PA regulation. This leads to unsustainable harvesting and rapid degradation of forest areas. However, this traditional practice has serious impact on pine and broadleaf forests. Illegal felling of green trees for fuelwood and timber also has serious impacts on habitat quality while causing disturbances to wildlife populations.

Issues

- High demand of fuelwood and timber, degradation of forest and encroachment in DHR,
- Lack of mechanism to determine annual harvestable amount of forest products based on production capacity of the forest,
- Over harvesting of high-altitude Rhododendron/Birch forest and nearby the village forest for fuelwood, timber, fodder and roofing planks,
- Extracting diyalo from the pine tree for lighting,
- Girdling, ring barking and lopping green tree for fodder and fuel wood,
- Yearly lopping of Kharsu trees for fodder collection,
- Dispute on forest boundary with residents within the reserve area,
- No alternative source of energy and people solely depend on forest for cooking and heating rooms,
- There is no legal provision of formulating CFUGs to manage nearby forests within the reserve area.

Strategies

- Encroachment control and management through demarcation,
- Community engagement in management of forest resources by revision of regulations and declaration of buffer zone,



- Promotion of alternative source of fuels, timber and other household consumptions,
- Maintain vulgarity of forest.

Activities

- Prepare inventory and sustainable use plan for major forest products
- Provide alternates to fodder, timber and energy for local communities to reduce pressure on forests
- Co-ordinate to resolve the boundary dispute between communities which leads to over-exploitation of resources.

5.3.2.3 Fire management

Context

Forest fire is a major threat to biodiversity conservation in human dominated mountain landscapes specially species such as pine, rhododendron, spruce forests. Most of the forests in high mountains are prone to fire. Local people set forest areas on fire during the winter for sprouting palatable grass for domestic livestock. Incidents of forest fire has increased in the reserve in recent years mainly during hot summer seasons due to prolonged drought as well as influx of herders inside the DHR. The main objective of fire management in DHR is to prevent accidental and intentional fire to avoid the adverse impacts on wildlife and its habitat.

Issues

- Challenges in monitoring cattle herders and poachers due to difficult topography
- Inadequate engagement of local communities in forest management inside the reserve due to legal constraints leading to unsustainable resource use
- Lack of capacity in DHR to deal with fire situations such as equipments and capacity to control fire hazards

Strategies

- Fire prone zone mapping
- Engage relevant government stakeholders and security forces in fire management
- Community engagement in awareness and capacity building

Activities

- Identify and analyze fire prone areas by using mapping based on satellite imagery;
- Conduct training to reserve staff, Army and local people regarding firefighting techniques;
- Raise awareness on fire prevention and control at local level through local institutions and media;
- Construct fire line in sensitive forests and grasslands to control spread of fire;
- Involve local communities to manage the adjoining village forest and remove legal constraints for this purpose;

- Support forest users to enhance their capacity to combat with forest firing;
- Provide incentive and firefighting equipment to forest users to minimize fire hazard;
- Co-ordinate with Nepali Army, Nepal Police, local bodies and Medias for fire control.

5.3.2.4 Encroachment Management

Context

Pasture lands in DHR are used as traditional grazing zone by local communities of surrounding districts including Baglung, Myagdi, East Rukum, Rolpa and Gulmi. Seasonal movement of local herders into the reserve for livestock grazing and summer cropping as a part of transhumance pastoralism system increases encroachment in the reserve each year. They encroach the forest and grassland area for construction of seasonal huts, expansion of farm lands for cultivation of crops such as Potato, Phapar and *Jai* grass. It is also an emerging phenomenon that construction of roads and trails with inadequate coordination with DHR office results in encroachment of forest areas adjoining these infrastructures.

Issues

- Poor level of law enforcement
- Burgeoning population pressure leading to increasing demand for food production; and
- Poorly planned infrastructure development

Strategies

- Implement existing government policy for encroachment management in coordination with relevant stakeholders
- Rehabilitation and restoration of evacuated areas
- Coordination and collaboration with local communities and local bodies

Activities

- Prepare detail database on encroachment inside DHR;
- Co-ordinate with stakeholders to manage/evacuate encroached areas;
- Regulate infrastructure development (hotels, trekking trails, market centers, etc.)
- Rehabilitate/restoration of evacuated areas.

Chapter VI

Research, Monitoring and Capacity Building

6.1 Research

Adequate understanding of socio-ecological systems within protected areas is essential to identify major threats and vulnerabilities for conservation and design effective management strategies. Among protected areas in Nepal, DHR is one of the least studied areas due to its difficult terrain and limited logistic facilities. To ensure adequate research areas for use in conservation and management of the reserve, there is a need to collaborate with research and academic institutions in Nepal for multiyear long-term research projects.

6.1.1 Research priorities

As DHR is primarily managed for trophy hunting, the research focus will be in areas related to hunting and biodiversity conservation along with areas of buffer zone management as it is at a very early stage. Following are priority research areas for DHR:

Hunting Management

- ✓ Overall impact of trophy hunting on biodiversity conservation
- ✓ Impact of hunting on blue sheep and Himalayan Tahr population dynamics with a comparative analysis of populations between hunted and protected populations
- ✓ Population dynamics, habitat and status survey of blue sheep and Himalayan Tahr
- ✓ Potential of ecotourism especially trophy hunting and other related tourism products

Habitat Management

- ✓ Rangeland management and impact study of grazing in the reserve
- ✓ Wetland biodiversity and impacts of climate change
- ✓ Assessments of forest fires in PA management
- ✓ Encroachment in the reserve
- ✓ Identification and monitoring of climate indicator species
- ✓ Impact of infrastructure development and fragmentation of forests on wildlife movements and habitat

Species Conservation

- ✓ Distribution, status, and prey predator and human interface of key species such as Snow leopard and Grey wolf
- ✓ Baseline survey, population status, and distribution of Red panda, Musk deer
- ✓ Human wildlife conflict studies in relation to species such as Snow leopard, Grey wolf, Wild dog, Black bear
- ✓ Species shifts (tree line shifts, species shifts including animals)

Ethno-botany

- ✓ Baseline inventory of forest timber species, NTFP and medicinal plants with specific focus on key species such as Yarsagumba, Setakchini, Padamchal
- ✓ Commercial exploitation of NTFP its market and conservation strategy
- ✓ Socio-cultural effects of natural resource conservation
- ✓ Status and traditional use practices of medicinal herbs of Tibetan Amchi at Chentung

6.2 Monitoring

Wildlife and habitat monitoring on regular basis is very important for adaptive management of protected area. As monitoring provides information on ecological changes based on vital sign, it is highly valuable for PA managers especially in timely identification and addressing of threats and issues. Monitoring will help to assess the effectiveness of PA management and enhance the understanding on ecological processes and function while helping to track changes in species and habitat conditions over time and compare the condition between similar habitats based on ecological baseline; and identify priority areas for further research.

6.2.1 Population Monitoring

The key species whose population needs to be closely monitored include Musk deer, Red panda, Snow leopard and Grey wolf. With the declaration of buffer zone around key hotspots around DHR, population monitoring will also be key to monitor human wildlife conflict cases. Population monitoring of key game animals is of highest priority to ensure a healthy population even after hunting seasons. Similarly, monitoring of forest and wetland birds is also recommended on a regular basis with a focus on monitoring of globally significant and nationally protected birds e.g. cheer pheasant and Himalayan Monal (Danphe). Detailed surveys and population monitoring of poorly documented flora and fauna particularly in climate refugia and climate corridors is also required. During the period, amphibians, reptiles, fishes, butterflies, orchids, and ferns should be prioritized so they can be used as indicators for climate change monitoring.

6.2.2 Habitat Monitoring

There is a need to establish long-term permanent monitoring plots in strategic location in DHR to monitor potential changes in habitats with a special focus on rangelands in higher altitudes as they provide the key habitats for game animals especially considering the predicted impacts of climate change on alpine rangelands. The vegetation of different categories needs to be monitored and recorded in these long-term monitoring plots with different levels of human use. Scientific researches are required to better understand the ecology and population status of species threatened as well as sensitive to climate change. There is a need to identify important core areas through landscape-scale zoning exercises and ensuring ecological connectivity among these core areas with climate resilient habitat corridors.

6.2.3 Grazing Monitoring

Traditional system of grazing not only causes soil expose and erosion but also degrades wildlife habitat, compacts soil and damages the natural regeneration. To understand livestock



number and grazing pressure regular monitoring is to be conducted before, during and after the grazing seasons on an annual basis which can also help in management and regulation of pasturelands to ensure that they are not overgrazed and overstocked.

6.2.4 Climate change and Weather Monitoring

Climate change is becoming a major issue in PA management, particularly in high Hymnal because of predicted changes and vulnerability of species, ecosystems and human communities. There is no such meteorological station close to DHR. Considering the importance of weather-related data in evaluating management strategies especially in case of high value hunting reserves, it is important to establish at least one meteorological station in a technically feasible location in coordination with Department of Hydrology and Meteorology.

6.2.5 Forest Fire Monitoring

DHR is one of the most fire prone area of mountain PA because there are 53 human settlements within the reserve. Thus, it is important to identify, monitor and analyses fire dynamics inside the reserve.

6.2.6 Tourism and visitor facilities

As tourism activities are expected to grow in DHR and its proposed buffer zone, monitoring of the status and potential impacts on species, habitats and community benefits will be required. These aspects are discussed in detail in Chapter VIII.

6.3 Capacity Building

As reserve staffs need to address a wide range of issues, they also need to be capacitated in relevant context specific areas. A rapid training need assessment may be required for capacity building at various tiers at DHR. Both, horizontal and vertical type of capacity building modalities are needed as per the course objectives. Some of the capacity building activities that are considered important to DHR staff are as follows.

Vertical Participant

- ✓ Team building workshop
- ✓ Appreciative inquiry
- ✓ Appreciative Project Planning and Action
- ✓ Training for community based anti-poaching operation
- ✓ Orientation training on legal issues
- ✓ Gender and social inclusion in buffer zone management

For Frontline staff

- ✓ Hunting monitoring training
- ✓ Wildlife management/handling techniques
- ✓ Injured animal handling techniques
- ✓ Basic training on handling of field equipment such as Global Positioning System (GPS), Compass
- ✓ Training on Real-time Spatial Monitoring and Reporting Tool (SMART) patrolling and

anti-poaching operation

- ✓ Field techniques for wildlife monitoring and report writing
- ✓ Orientation training on social mobilization and participatory planning
- ✓ Basic training on vegetation quantification for recording data in monitoring plots
- ✓ Wildlife health assessment
- ✓ Buffer zone management training including Human rights

For Rangers

- ✓ Software applicable for wildlife management, including Geographic Information System (GIS), Statistical Package for Social Science
- ✓ Certificate course in wildlife management
- ✓ Training of Trainers (general and specialized)
- ✓ Participatory planning, monitoring and evaluations
- ✓ Nature interpretation and display management
- ✓ Training on Real-time SMART patrolling and anti-poaching operation
- ✓ Community development, conservation awareness and human rights
- ✓ Wildlife Crime investigation and legal processing
- ✓ Buffer zone management including community mobilization and human rights.

For Conservation Officers and Chief Conservation Officer

- ✓ Human resource management and legal procedure including human rights
- ✓ Participatory planning, monitoring and evaluation
- ✓ Training course of Diploma standard
- ✓ Conflict management
- ✓ Appreciative enquiry
- ✓ Wildlife Crime investigation

Likewise, basic conservation orientation training is needed for Nepali Army/protection unit and special training on conservation and buffer zone management for buffer zone committees.

Chapter VII

Species Conservation

7.1 Musk Deer Conservation

Status, Significance and Conservation Efforts

Musk deers are reported to occupy the middle to the higher mountain regions, which cover 12 PAs of Nepal. Major hotspots include Dahakharka to Gurjaghat in Barse block, Masa and Kang Khola of Phagune Block, northern side of Surtibang block and sparsely distributed in other area of the reserve. However, of the 30177.19 km² potential habitat, only 19.26 % (5815.08 km²) is inside PAs and the remaining 80.73 % falls outside PAs. Therefore, controlling of poaching, habitat destruction, livestock grazing and forest fire in the musk deer habitat are important challenges for the conservation of musk deer in Nepal (Aryal and Subedi, 2011). Gurjaghat, Gurjakhani, and Jaljala near Barse block, Masa and Kang Khola of Phagune Block, are the most vulnerable sites for musk deer poaching. Livestock frequently uses the musk deer habitat and it was estimated that about 50 % of the musk deer habitat overlaps with livestock grazing areas. Forest fire, encroachment and collection of excess timber, NTFP and firewood also degrade the habitat of musk deer (Aryal and Subedi, 2011). Further, musk deer is a habitat specialist adapted to old-growth subalpine conifer and mixed conifer-broadleaf forests with a dense understory that provides cover and food plants. Although the large trees in the subalpine forests are predicted to be resilient to climate change, the smaller food species such as mosses and lichens could be more sensitive, especially if the forest floor microclimates are altered because of forest degradation due to anthropogenic activities. The latter can act in synergy with climate change and exacerbate the change in vegetation composition and structure. Restricted range distribution in the Himalayas suggests that this species has a narrow physiological tolerance and could be sensitive to changes in environmental conditions.

Issues

- ✓ Habitat loss, degradation and fragmentation due to forest fire and human pressure
- ✓ Poaching of musk deer for illegal trade of its musk pod
- ✓ Competition for forage with livestock
- ✓ Lack of community ownership and responsibility for species conservation

Strategies

- Research and assessments on status, distribution and ecology of Musk deer in DHR
- Grazing and livestock management
- Community engagement in anti-poaching initiatives
- Networking and coordination with stakeholders around DHR

Activities

- ✓ Mapping of habitat and conduct research to identify status, distribution, and population ecology of musk deer
- ✓ Identify and study Climate resilient area and micro-refugia sites and potential connectivities
- ✓ Prepare a Musk deer conservation action plan for prime habitats
- ✓ Identify major habitats/potential hotspots of Musk deer in DHR
- ✓ Evaluate habitat quality of musk deer; access availability of food sources and shelter
- ✓ Protect and manage critical habitats and connectivities
- ✓ Provide additional protection to special conservation management zones
- ✓ Conduct regular monitoring by reserve staff to control poaching
- ✓ Mobilize local youth to control the poaching of Musk deer from outsiders
- ✓ Explore Musk deer focused tourism destinations
- ✓ Minimize the human pressure and livestock grazing in musk deer habitat area.

7.2 Snow Leopard Conservation

Status, Significance and Conservation Efforts

The status and distribution of snow leopard in DHR is not known in detail, however, the reserve is not only the suitable habitat for snow leopard but also has a good population of prey species such as blue sheep and Tahr. In June 2007 during the field survey of blue sheep and jharal count, signs (pugmark, scat) of snow leopard were observed in Dogadi, Sundaha and Gustung blocks. A primary field survey of snow leopard and its prey was conducted in April 2008 by the reserve office in coordination with WWF Nepal although, a detail field study using Snow Leopard Information Management System is needed to confirm the status and distribution of snow leopard in this reserve. Major threats to the snow leopards include poaching and trapping for its pelt and bones, loss of prey, retaliation for livestock losses, habitat degradation, habitat fragmentation and lack of conservation awareness (Yonzon, 1990).

The Snow leopard is a habitat specialist that inhabits the alpine grasslands, scrub above tree line where they hunt large alpine ungulates, especially blue sheep and Himalayan Tahr. Forrest et al (2012) estimate a loss of around 30% of the species habitat due to shifting tree lines and shrinking of the alpine zone mostly along the southern edges. Habitat connectivities with areas outside PAs is an important aspect of Snow leopard conservation (DNPWC 2017). Climate projections predict an upslope shift of the tree line along the Himalayan Mountains in the future reducing the habitat available for the prey species. Warming trends in the high Himalaya that make it suitable for trees could also create conditions that are favourable to horticulture, encouraging people to convert natural alpine habitat into orchards, which can happen in a shorter time-scale than upslope movement of forests. Moreover, as alpine grasslands begin to shrink, the livestock will become confined to smaller areas, increasing stocking density. Wild ungulates that are the snow leopard's principle prey will become displaced, either through competitive exclusion by livestock or be removed by herders who view wild ungulates as direct competitors with livestock for food. Such decreases in Snow leopard habitats and onset of favourable weather conditions for expansion of agricultural activities brings the species in



closer confrontation with livestock and human communities in lower ranges (DNPWC 2017) increasing conflict and retaliatory killing.

Issues

- ✓ Lack of intensive study on prey-predator status and dynamics regarding snow leopard;
- ✓ Inadequate information/research on status, distribution, interrelationship with domestic animal and ecology of snow leopard in DHR;
- ✓ Inadequate capacity of reserve staff and local communities in snow leopard conservation including snow leopard and its prey monitoring;
- ✓ Likely impact of climate change on snow leopards and their habitat (Territorial area overlapping with common leopard);
- ✓ Unmanaged grazing of livestock poses serious threat to snow leopard habitat;
- ✓ Poaching of snow leopard and illegal trade of its body parts could be a serious threat;
- ✓ Human-snow leopard conflict (retaliatory killing by shepherds by using poison) is likely to be one of the serious threats for its survival in DHR;
- ✓ Inadequate public awareness on snow leopard conservation;
- ✓ Encounter killing of Snow leopard by domestic dogs of *Bhedi Gotha*.

Strategies

- Research and capacity building on Snow leopard biology, behavior and ecosystems
- Landuse planning and habitat management
- Community engagement through mitigation of human snow leopard conflict and livelihood improvement
- Strengthening law enforcement

Activities

The activities planned below are designed to meet the objectives of the Snow Leopard Conservation Action Plan for Nepal (2017-2021)

- Estimate snow leopard population using cutting-edge technologies and best available science in and around the reserve including corridors and connectivities
- Research on sympatric carnivores (wolf, common leopard, and wild dog) to understand resource competition, mainly diet and habitat use
- Research on Snow leopard habitats and habit use with respect to climate and human-caused stressors including critical corridors and key areas
- Carry out periodic monitoring of snow leopard and prey population status, and regular monitoring in important snow leopard habitat through mobilizing citizen scientists, exploring best available methodologies, to evaluate and guide conservation initiatives

- Intensive management of climate-resilient habitats that are susceptible to human disturbances including unsustainable harvesting of NTFPs
 - Research on the scale, extent and intensity of human-wildlife conflict, mainly focusing on snow leopards and retaliatory killings including mapping spatio-temporal hotspots of human- Snow Leopard conflicts around DHR
 - Develop and implement integrated livestock/rangeland management plan in coordination with local herders
 - Develop and institutionalize community-based insurance scheme and relief delivery mechanism
 - Provide conflict resolution and management training to staff and communities
 - Provide support for innovative technologies, predator-proof corrals and alternative livelihoods for local communities including human-snow leopard conflict affected families
 - Promote indigenous herding practices and sustainable grazing system to avoid competition between snow leopards' prey and livestock
 - Establish security posts in strategic locations (e.g. Dule) throughout DHR and its proposed buffer zone
 - Develop snow-leopard based eco-tourism to increase the value of snow leopards among local communities
 - Provide capacity building trainings (e.g. Crime Scene Investigation) to protected area and Division Forest Office (DFO) staff, Nepal Police and Nepali Army engaged in curbing wildlife crime
 - Strengthen intelligence network (informants, information gathering, purchasing information, and communication and travel, and establishing wildlife crime database)
 - Form and strengthen APOs and CBAPUs in protected areas and surrounding district forests.
- Conduct awareness raising programs at community level related to conservation laws and wildlife crime.

7.3 Red Panda Conservation

Status, Significance and Conservation Efforts

It is estimated that based on habitat suitability index model, approximately 1.9% of the total global population of the red panda (*Ailurus fulgens*) is recorded in Nepal. Red panda is patchily distributed within altitudinal range between 2,500 m and 4,000 m from east to west in temperate and sub-alpine zones of eastern Himalayas from eastern Nepal through Bhutan, India, and Burma to southern Tibet and western Yunnan Province of China. Its habitat is typically characterized by the presence of mixed deciduous and coniferous forests with a bamboo-thicket understory (Aryal *et al.* 2012). In Nepal, red panda is protected by the National Parks and Wildlife Conservation Act (1973). Though the status and distribution of Red Panda is not assessed in DHR, a study in 2012 reported the presence of red panda based on sightings, existing signs and scats. Red pandas were found in Khopriban, Sivaodhar area of Barse block in Baglung and Myagdi; Surtibang and Dija khung of Surtibang block in Baglung;

Kanga khung, Masa khung, and Thakur area of Fagune block in Baglung; along the riverbank forests of Ghustang block (Ranma maikot and Gurjakhani of the Rukum and Myagdi); around Sengkhola and Dule of Seng block in East Rukum; and in Sundaha block. The Doghadi block was not considered potential habitat for the red panda, because of limited forest cover associated potential red panda habitat. However, the lower belt of the forest area (< 10 km²) the block was suitable habitat for red panda. The south face of the Surtibang peak of Baglung and Lalpatan of East were identified as potential habitat for red panda outside of the reserve, and they were surveyed for signs of red panda and livestock (Aryal *et al.* 2012). The study also reported that 75% of habitat of the red pandas were dominated by forest and 16% by shrub. The habitat survey ranged in elevation from 2300 to 4380 m. across the reserve

The study concluded that livestock grazing and human activities such as collection of fuel-wood, timber, mushrooms, and other non-timber forest products (NTFPs) by local herders and local people were significantly higher in habitats where signs of pandas were recorded than in areas where they were absent. This habitat overlap between the red panda and livestock potentially poses a major threat to the survival of red panda in the reserve. Further, climate change is a critical factor for red panda conservation considering the species to be a habitat specialist which relies on specific food source, primarily feeding on bamboos. Any potential impacts on the habitat conditions and food source through frequent droughts, changes in hydrological patterns and shifts in vegetation could create new threats for the species.

Issues

- ✓ Inadequate information on status and distribution of red panda in DHR,
- ✓ Poaching of red panda in DHR is prevalent,
- ✓ Disturbance and degradation of red panda habitat due to livestock and human activities,
- ✓ Forest fires in bamboo forests,
- ✓ Ecology and behavior of red panda in DHR is not studied well,
- ✓ Killing of red panda by stray dog.

Strategies

- ✓ Research and capacity building
- ✓ Habitat management
- ✓ Community engagement in anti-poaching
- ✓ Designate restricted areas/or specified red panda zone within the reserve

Activities

- ✓ Conduct red panda presence/absence surveys across the potential habitat area and detailed status and distribution surveys
- ✓ Regulate grazing and prohibit domestic dogs in red panda habitat
- ✓ Control human activities from critical red panda habitat through promotion of alternative

sources and livelihood strategies

- ✓ Manage forest fires through mobilization of local communities
- ✓ Conduct regular patrolling by reserve staff to control the poaching of red panda
- ✓ Implement programs for rotational grazing and/or stall feeding
- ✓ Intervene for rangeland management and forage development activities to reduce grazing pressure around red panda habitats
- ✓ Rehabilitate degraded range areas and develop protection sites for forage species
- ✓ Conduct feasibility studies on potential sites for red panda-based ecotourism
- ✓ Develop guidelines to design and operate community-based ecotourism projects to support red panda conservation
- ✓ Organize awareness events and community outreach program at the local level through eco-clubs, conservation education events, workshops and interactions.

7.4 Other small mammals, birds, reptile, fish and amphibians

As DHR has limited information on many species other than the ones hunted for trophies, there is a need to strengthen research and knowledge base for species such as Grey wolf, Himalayan serow, pheasants, clouded leopard and Himalayan black bear. It is also important to update the lists of flora and fauna of DHR.

Chapter VIII

Tourism and Interpretation

8.1 Background

8.1.1 Tourism scenario

Protected areas of Nepal offer important destination especially for nature-based tourism and are also a means to raise conservation awareness among visitors and local communities to generate public support for conservation. Therefore, tourism in protected area should be developed and managed at a level that benefits conservation and it is evident that tourism generates revenue for conservation and conservation encourages tourism. Sustainability of conservation will be ensured if local livelihood is supported by tourism. The then His Majesty's Government of Nepal opened the southern region of Dolpa in May 1989 and upper Dolpa in October 1992 including southern part of Shey - Phoksundo National Park for foreigners. Since then certified trekking companies have conducted trekking expeditions and the number of tourists entering Dolpa via Dhorpatan has increased intermittently but the facilities (means of transportation and communication, campsites, lodges, trekking routes) are limited in the reserve which is also supported by the following figure which gives information regarding the annual visitors to the reserve.

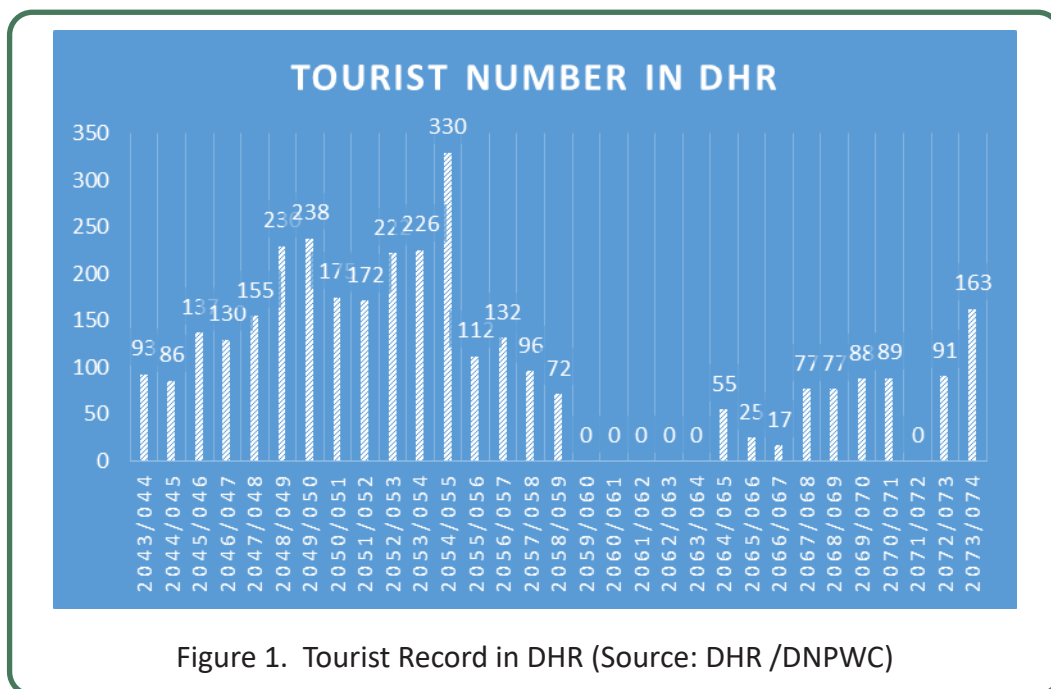
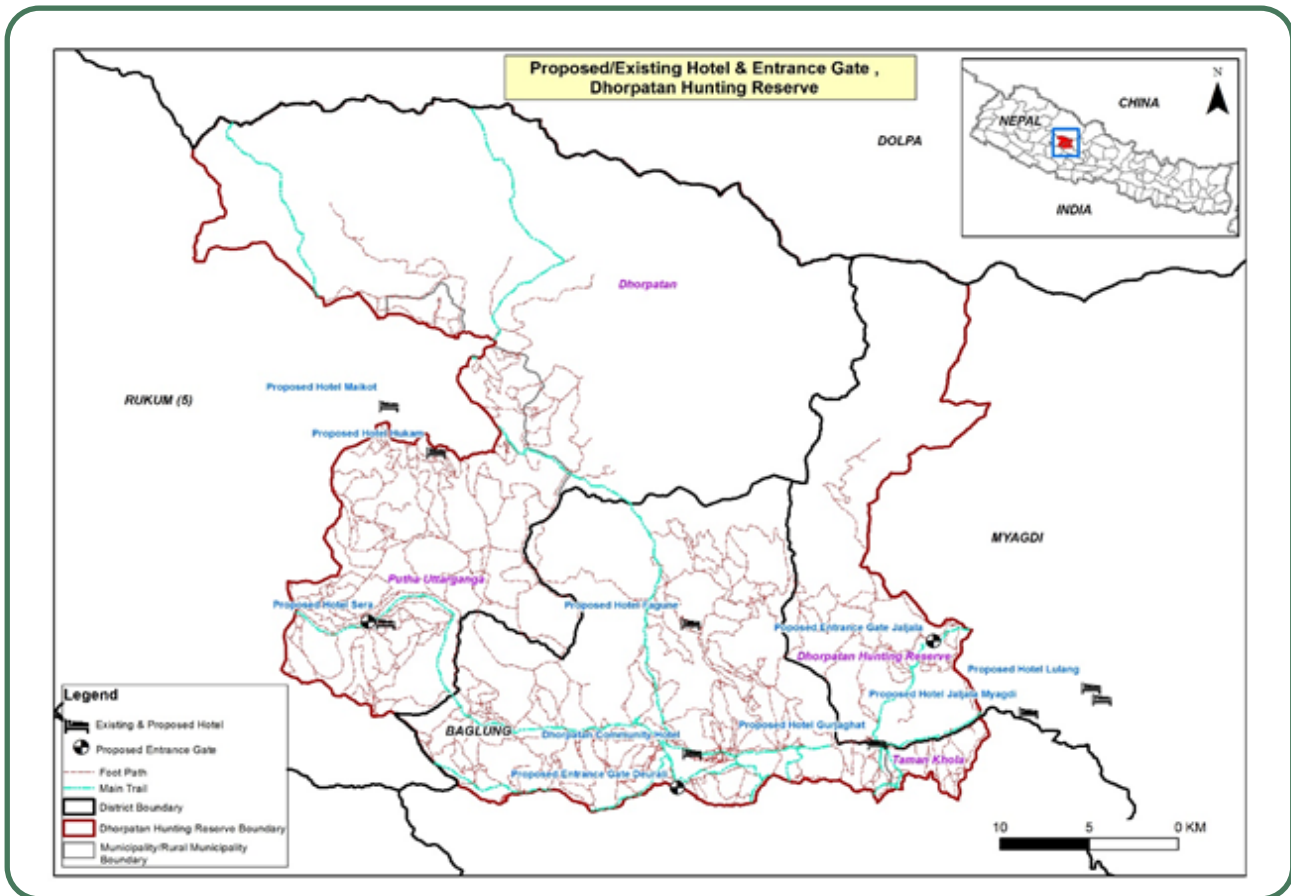


Figure 1. Tourist Record in DHR (Source: DHR /DNPWC)

DHR is a potential destination for tourists due to its wilderness and unique landscapes ranging from middle-mountains to high Himal but its remoteness, poor infrastructure, inadequate services and lack of proper tourist routes have been a key issue for promotion of tourism in the area. Hence, tourism activities are limited to trophy hunting attracting limited number of foreigners as of now. The main objectives of tourism management in DHR is to identify tourism attractions, develop and improve tourism infrastructures, conduct and sustain tourism activities and facilities in the reserve and community development zone in close coordination with local communities and key stakeholders including local bodies. In terms of developing

sustainable eco-tourism, reserve needs to develop tourism action plan with the engagement of local communities in ways to promote new tourism development initiatives in their villages providing awareness to the local people and better services for tourists.



Map 5. Existing and proposed infrastructure facilities for tourism promotion in DHR

8.1.2 Interpretation facilities

The main objective of resource interpretation in protected area is to assist visitors in developing satisfaction, appreciation and understanding of the natural and cultural resources of an area. At present, there is only one visitor information center with limited information about nature and culture of the area in general at the reserve headquarters. Similar facilities should be extended in the adjoining potential tourism entry points and community development zones as well.

8.1.3 Issues

- ✓ Inadequate study on feasibility and possibilities of tourism destinations and products in the reserve
- ✓ Lack of tourism infrastructures (e.g. homestays, nature guide, hotels, lodges, camping sites, trekking trails, road (Including Dhorpatan-Gurjaghat, Gurjaghat-Jaljala, Dhorpatan-Nisildhor, Nisildhor-Takasera, Dhorpatan-Deurali) information centers, view towers) within the reserve
- ✓ Lack of ecotourism awareness among local communities
- ✓ Inadequate communication and transportation facilities

- ✓ Inadequate promotion of natural, cultural and historical sites within and around DHR

Strategies

- Tourism promotion and diversification through identification of potential destinations and products in consultation with national and local stakeholders,
- Infrastructure development to provide basic facilities to visitors in the form of accommodation, trails, transportation and communication,
- Capacity development of local communities and stakeholders in promotion, hospitality, nature guide and related fields, community engagement for livelihood improvement and impact minimization in tourism.

8.2 Tourism Management

8.2.1 Institutional Setup

It is vital to establish a dedicated focal person or a unit which looks after management of eco-tourism and conservation education in the reserve and surrounding communities. The dedicated unit should be responsible to oversee tourism and interpretation related facilities and activities. Furthermore, design and implementation of regulatory framework for tourism service to ensure eco-friendly practices are required. To provide better service to visitors, staff capacity needs to be improved and enhanced by providing orientation training. Coordination with adjoining municipalities and engagement of local communities is required to develop an institutional setup and infrastructures necessary for tourism promotion in and around the reserve.

8.2.2 Tourism impact minimization

With the influx of tourism in a certain destination, certain changes in the environment, society and culture and economy as tourism impacts are inevitable which can have both positive or negative negative. The major impacts of tourism promotion and growth is solid waste generation, pollution and socio-cultural degradation. Tourism has not had significant negative impacts in DHR till now though there are issues of solid waste due to trophy hunting expeditions. However; if mitigation measures are not adopted in a timely manner, tourism activities can adversely affect the natural, cultural and economic environment of the reserve. In order to minimize negative impacts following strategies are recommended.

- ✓ Study the impact of existing and potential growth in tourism on surrounding environment, society and culture, wildlife and its habitat,
- ✓ Demarcate recreational/tourism zone and core biodiversity conservation zones
- ✓ Promote low volume high value tourism as a strategy for sustainable tourism promotion
- ✓ Develop action plan to manage and minimize negative impact such as solid waste, noise and pollution or other sources of pollution
- ✓ Provide environmental awareness to local communities of buffer zones,
- ✓ Promote fuel and energy efficient technologies along tourist routes and impact zones,

- ✓ Promote waste segregation and management strategies,
- ✓ Promote local culture-based tourism to mitigate impacts of socio-economic changes because of external influence,
- ✓ Provide incentive to install micro hydro plants to reduce the demand of fuelwood for cooking and room heating.

8.2.3 Diversification of tourism products/activities

Tourism in DHR is largely focused on trophy hunting. To diversify tourism, a wider range of products and activities need to be promoted to attract visitors of different categories for long durations and high budgets. Various recreational activities such as short duration bird watching, hiking, trekking, home stays and cultural shows need to be designed whereas longer duration mountaineering expeditions, trekking and wildlife sighting trips need to be explored and promoted. Following activities are suggested for tourism diversification in DHR:

- ✓ Assess and promote potential social, cultural and natural tourism attractions in DHR and surrounding communities,
- ✓ Improve basic facilities such as trekking routes, signage, camping sites, drinking water and security by engaging local communities around key areas in collaboration with local authorities and key stakeholders,
- ✓ Promote accommodation facilities at key locations of Jaljala (Myagdi), Phagune (Baglung) and Thagur and Kayemdanda (East Rukum) following the provisions of NPWC Act,
- ✓ Open Churen Himal expeditions packages
- ✓ Explore and promote trekking routes via Beni to Gurjakhani, Maikot upto Sisne Himal and back to Taksera and Dhorpatan
- ✓ Promote adventure tourism such as horse riding, Danphe watching, paragliding; hiking, rock climbing, Himal expedition, skiing at Phagune and Barse area
- ✓ Conserve and maintain cultural heritage and indigenous architecture to promote eco-tourism in DHR;
- ✓ Identify and promote homestay facilities in appropriate communities around traditional villages of Lulangkhoriya, Gurjakhani, Chentung, Dhorpatan, Maikot, Taksera Promote cultural tour to experience Tibetan culture at Chentung
- ✓ Engage local communities and youths as nature guides and build their capacity.

8.2.4 Nature interpretation

Nature interpretive program help visitors to improve their ability to understand nature and provide opportunities to establish direct contact with nature and natural resources. Furthermore, nature interpretation makes visitors aware of the surrounding area and gives them a better understanding and importance of natural environment. Following Nature



Interpretation activities are proposed for DHR.

- ✓ Develop and expand visitor information center at Dhorpatan and other entry routes providing basic interpretation facilities;
- ✓ Provide nature guides training on nature interpretation focusing on plants and bird identification;
- ✓ Operate multi-purpose souvenir shops to promote biodiversity conservation and local products such as sheep wool;
- ✓ Conduct informal nature conservation education program in community development zone;
- ✓ Conduct and enhance '**Eco-club**' program in schools of adjoining areas on specific nature conservation course for informal education;
- ✓ Develop and conduct guided nature walk and nature camp program for school students of buffer zone;
- ✓ Provide interpretive talk program focusing school student, visitors and local people about biodiversity conservation;
- ✓ Celebrate special day through various conservation awareness activities with the participation of all stakeholders at local level.

Chapter IX

Special program

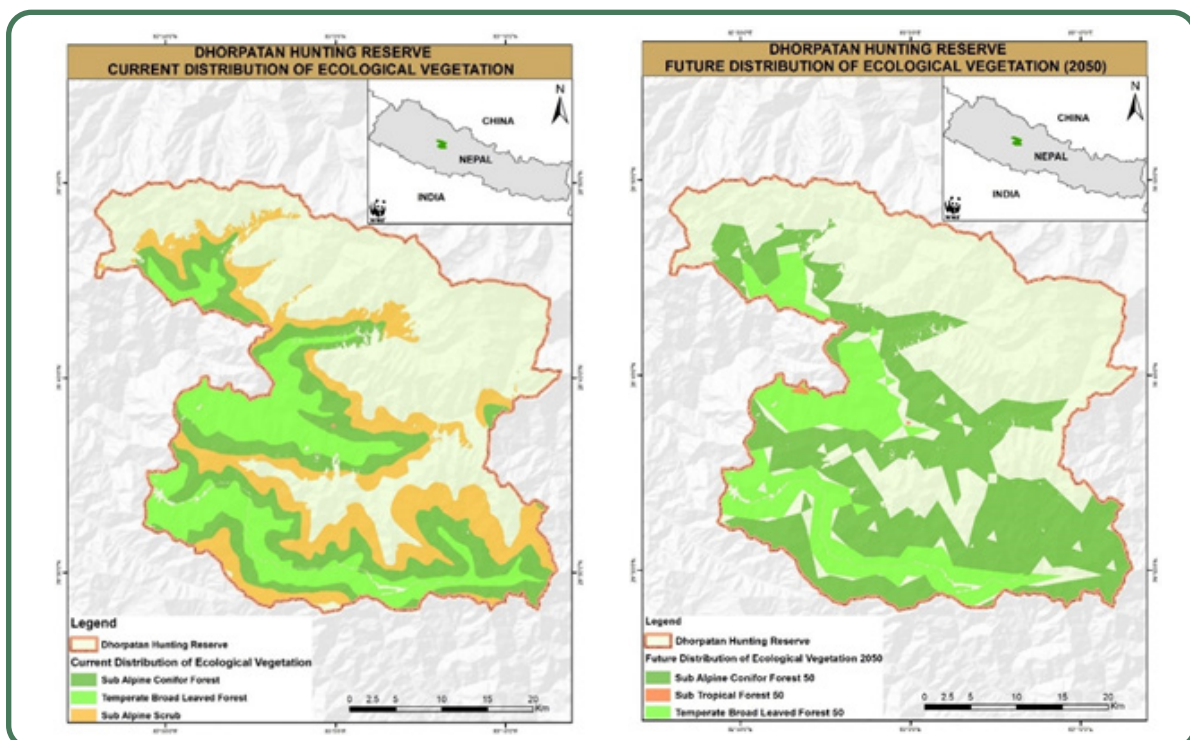
9.1 Rangeland Management

Context

Livelihood of Himalayan people depends on rangeland-based livestock farming in Nepal. It is estimated that over 1.7 million ha. of land is considered as rangelands, which comprises approximately 11.5 percent of the total land resources on Nepal. Out of total area under rangelands, over 98 percent is in high hills, middle mountains and High Mountains. Overall rangeland contributes to 11.5 percent of total livestock feed supply. In high altitude Himalayan areas above, 2,500 m contribution of rangelands in feed supply is more than 65 percent (LRMP, 1986). DHR consists of temperate and subalpine rangelands and alpine meadows. It is estimated that about 50 % of the reserve area is covered by rangelands (locally known as Buki) rich in herbaceous vegetation.

Along with threats from overgrazing and conversions, the subalpine rangelands and alpine meadows are the ecosystems most vulnerable to climate change as they are maintained by extreme climatic parameters, including long periods under snow cover and a short vegetation period (Ramming et al. 2009). Climate change models predict longer, warmer growing seasons in these alpine areas, creating environmental conditions favourable for different vegetation types. The climate change models predict an upslope migration of the tree line into the current

Map 6. Resilient patches of the vegetation types in 2050 under the A2A climate projection scenario.



alpine zone (Forrest et al. 2012). Field observations have identified and confirmed the model predictions in several areas across the Himalaya, where the tree line has been moving upslope (Kunwar 2011). Consequently, the alpine rangelands in the reserve could become fragmented and spatially constricted. Uncertainty in precipitation regimes (i.e., how much, when, and for how long) that can result in extended drought periods can increase the likelihood of fires in the alpine scrub zone including uncontrolled fires set by herders to create alpine pastures for livestock.

Map 6 shows the current and projected distribution of ecological vegetation in the reserve. These patches represent the areas where the vegetation composition is not expected to change under the A2A climate projection and does not represent forest loss or fragmentation due to non-climate related anthropogenic drivers (Thapa et al. 2015).

If alpine rangelands become smaller and the grazing season becomes longer because of the favourable climatic conditions, the grazing pressure will increase as the stocking density increases and the grazing period becomes longer, placing more grazing pressure on these fragile habitats. Furthermore, local people state that domestic animals displace the blue sheep to higher elevation. In addition, large number of local people entering the reserve for yarsagumba collection are degrading these rangelands.

Issues

Major issues regarding the rangeland or pastureland management in DHR are:

- ✓ Dispute on users' right on rangeland resources and high grazing pressure;
- ✓ Lack of study of carrying capacity, nutrient cycling and ecological aspects of rangelands dynamics;
- ✓ Deterioration of rangelands and associated forests due to over grazing and uncontrolled fire and invasive alien species;
- ✓ Lack of community awareness and social ownership in rangeland management;
- ✓ Monopoly of grazing fee collection by local elites with no support service;
- ✓ Increasing encroachment for agriculture expansion (apple orchards, potato and wheat);
- ✓ Customary rules of traditional grazing practices (e.g. rotational grazing) are weakening leading to an imbalance in livestock grazing over rangelands;
- ✓ Intrusion of invasive/ unpalatable species in rangelands due to excessive grazing by livestock;
- ✓ Shorting of growing season of rangeland grasses due to decreasing snowfall and pre-monsoon rainfall;
- ✓ Very high anthropogenic pressure in Yarsagumba producing area.

Strategies

- Research, awareness and capacity building
- Encroachment control
- Promote community engagement and benefit sharing mechanism
- Rangeland improvement through active management



Activities

- ✓ Map, zone, and manage alpine rangelands and sub-alpine forests, invasive alien species and monitor for changes, including conversion of forests into rangelands
- ✓ Map and monitor key floral species such as Fir (*Abies*) dominated forests that could move upslope, Blue pine (*Pinus wallachiana*) that could become physiologically stressed from climate change and become susceptible to disease or insect pests, and stands of birch (*Betula utilis*) to prevent invasion into important alpine rangelands
- ✓ Map rangelands to identify important, connected, and climate resilient alpine habitats and secure these for a 'no regrets' conservation strategy
- ✓ Identify and establish connectivities with alpine habitats outside the reserve for possible linkages and conservation
- ✓ Establish permanent research plots to study rangeland ecology or productivity of *Poa spp.* under different treatments
- ✓ Control livestock number through rotational grazing in main rangelands
- ✓ Control forest fire by regular monitoring following appropriate fire control measures
- ✓ Conduct conservation awareness among *Gothala* or herders
- ✓ Conduct regular monitoring and control encroachment
- ✓ Impose traditional rangeland practices for sustainable use of rangelands;
- ✓ Control invasive/ unpalatable species in rangelands.

9.2 Yarsagumba and NTFP management

Context

DHR is rich in some high-value NTFPs such as atis, kutki, panchaunle, yarsagumba/yartsa-gunbu, padamchal, bhutley/jatamansi, khirauli and samayo, which are harvested by most of the households while communities from adjoining areas also come into DHR during harvesting seasons. Among them, khiraulo is also cultivated in private lands whereas yarsagumba is distributed in isolated patches across an altitude of 3,000 m. to 5,000 m. in rangelands of high Himalayan region of Nepal. Government of Nepal had imposed a ban on collection, use, sale, distribution, transportation and export of Yarsagumba till 2001. Since then it can be traded in raw or processed form with the permission from the government on payment of royalty. In the last couple of years, harvesting and trade of Yarsagumba has increased with the increase in its publicity, market price and entry of businessmen in the trade which was largely managed by local people in the past. Due to decreasing harvest, growing demand and rising prices, there is a steep competition among collectors leading to rampant degradation of rangelands. Yarsagumba collectors come from surrounding districts of Baglung, East Rukum and Myagdi in all the 20 major pastures across the seven hunting blocks. It was estimated that about 75 kg of Yarsagumba can be collected every year from DHR and the amount has been declining since 2008. Similarly, khiraulo/setakchini is a highly potential income source for local communities of the proposed bufferzone as it is also cultivated in private lands and has a growing market, but additional assessments are necessary sustainable harvesting of the species.

Issues

- ✓ Inadequate knowledge of distribution, sustainable harvesting volumes and phenology of yarsagumba and key NTFPs like padamchal and khiraulo
- ✓ Very high number of people entering DHR during collection season
- ✓ Unmanaged collection of entry fee by local elite groups leading to disputes
- ✓ Inadequate information on actual number of people entering the parks and volume of yarsagumba harvested leading to unsustainable harvesting and degradation of pastures
- ✓ Inadequate human resources and infrastructures to monitor harvesting seasons and due to inaccessibility and limited staffs it is difficult to monitor all the potential areas
- ✓ Solid waste generation following the collection season
- ✓ Inadequate monitoring leading to poaching incidents
- ✓ Soil erosion due to haphazard digging along slopes.

Strategies

- Research and studies on distribution, allowable harvesting and management of human pressure on potential distribution range of Yarsagumba, setakchini, padamchal, kutki, jatamasi etc.;
- Formulate locally appropriate policies, plans and code of conducts in line with the Yarsagumba collection and transportation directive;
- Design locally feasible mechanisms for regulation of harvesting and transportation of Yarsagumba and key NTFPs including setakchini and padamchal;
- Formulate mechanisms to manage waste generated during harvesting season;
- Watershed management for control of soil erosion;
- Build capacity of local collectors, reserve staffs and security personnel on sustainable harvesting.

Activities

- ✓ Assessments of yarsagumba and key NTFPs (Khiraulo, jatamasi, padamchal) ecology, distribution and production at potential sites and prepare GIS maps;
- ✓ Formulate Yarsagumba and NTFP harvest regimes and protocols with appropriate monitoring, regulations, and awareness programs to ensure long-term conservation and sustainable harvesting;
- ✓ Conduct value chain analyses, and market promotions to ensure high quality low volume harvesting for optimal value addition and sustainability;
- ✓ Regulate sustainable/or optimized grazing and harvesting practices through community-based stewardship programs;
- ✓ Explore appropriate sites for plantations and ex-situ cultivation strategies of high-value NTFPs such as khiraulo, padamchal and initiate farming of Yarsagumba artificially;
- ✓ Limit the quota for number of collectors and collection blocks to minimize excessive harvesting at rangelands and wildlife habitats;
- ✓ Devise mechanisms for solid waste management;
- ✓ Identify and implement soil/slope stabilization techniques;
- ✓ Strengthen monitoring during collection periods engaging buffer zone communities through establishing seasonal check posts/camps (e.g. Dule);

- ✓ Provide training on techniques of harvesting to harvesters/collectors so that they can effectively harvest mature Yarsagumba for better standard and quality, hence obtain better income;
- ✓ Provision of trust and relief funds for human casualties and reserve staffs (civilian and security forces).

9.3 Climate change adaptation

Context

Global climate change is now recognized as an important driver of ecological change though the specific impacts on natural ecosystems. Recent assessments have predicted that the average annual temperature in the Himalayas will increase faster than the global average, and precipitation patterns are also expected to change (Shrestha et al. 2012). Climate change is expected to cause changes to the distribution and composition of plant species in forest and grassland ecosystems (Kelly and Goulden 2008). Field studies have detected upslope shifts in tree species along the tree line in the Nepal Himalaya (Dubey *et al.* 2003, Gaire *et al.* 2011, Suwal 2010, Gaire *et al.* 2013). Changes in habitat will also affect faunal biodiversity and the habitat specialist species will be most vulnerable to climate change as they require very specific habitats, host and food plants and environmental conditions (temperature, shade/sunlight, moisture, humidity, etc.).

Several species of conservation importance in the reserve are vulnerable to climate change. These include red panda, musk deer, Himalayan Tahr, snow leopard, clouded leopard, Grey wolf, lynx, vultures and pheasants, Fir, Silver fir, and Blue pine. In general, habitat specialist species with a narrow distribution and a longer generation time, dependent on seasonal patterns that trigger key life events are comparatively more vulnerable to climate change. Climate change is expected to influence the structure and composition of the habitats for red panda, musk deer, snow leopards, grey wolf, and blue sheep. The strategies and activities for species are covered under the respective sections for habitats, rangelands and species conservation. Tree species such as Fir are sensitive and responsive to climate change due to a narrow distribution bound by elevation and physiological tolerances to environment and are already showing an upslope movement in Nepal. Blue pine is also considered to be sensitive to climate change and become physiologically maladaptive and susceptible to diseases and pests, causing diebacks in areas of its current range. The alpine rangelands, glaciers and glacial lakes, and wetlands (including rivers, rivulets, springs, ponds and lakes) are the ecosystems most vulnerable to climate change in DHR and its surrounding.

The reserve consists of temperate, subalpine rangelands and alpine meadows covering an estimated 50% of DHR above the forest zones that support several endangered and endemic species and are also very important for sustaining local livelihoods as the economy depends mainly on agriculture, animal husbandry and NTFPs (the latter two are highly dependent on the rangelands within the reserve). Some of the major NTFPs widely harvested in the reserve are *Atis*, *Setakchini*, *Kutki*, *padamchal*, *panchaunle*, *Samayo*, *Jatamansi*, and *Yarsagumba*. Farmers in and around DHR largely cultivate buckwheat and potato in the lowlands using rain-fed methods. Agricultural practices and crops are also considered to be vulnerable, especially

as water availability during the appropriate times and in appropriate amounts can change with climate change. Changing temperature regimes will also affect crops. Changes in rainfall patterns could thus decrease agriculture productivity. These potential impacts on agriculture practices and rangelands will consequently affect the NTFP-based livelihoods. There are limited built infrastructures in the reserve mainly in the form of existing and upcoming rural roads, settlements, and planned hydropower. Rural roads are the most vulnerable infrastructures considering the design and alignment.

Issues

- Inadequate knowledge and research on likely impact of climate change on species, ecosystems and human communities and their livelihood;
- Degradation of key habitats such as rangelands, wetlands and unique habitats;
- Changes in hydrological patterns impacting agricultural practices;
- Disastrous effects on human lives with flooding resulting from flash flood during the summer threatening human settlements downstream;
- Widening rangeland gully because of degradation of forests and landscapes due to high intensity rainfall;
- Decrease in water availability during the pre-monsoon period;
- Vulnerability to fire hazards in the dry forests every year;
- Shifting Blue sheep and snow leopard habitat upwards with increasing temperature;
- Decrease in agricultural productivity (e.g. mushroom) due to decreasing soil moisture;
- Decrease in production of NTFPs, and
- Decreasing snowfall and shorting the period of monsoon rainfall during the summer.

Strategies

- Strengthen knowledge and research capacity to support DHR management;
- Reduce threats to the most vulnerable species and their habitats;
- Conserve important ecosystems to maintain ecological integrity;
- Reduce vulnerability of communities from natural disasters;
- Engage local communities as conservation stewards;
- Promote sustainable use of forests, rangelands, and NTFPs;
- Enhance local livelihoods through expansion of on-farm and off-farm economic opportunities to diversify livelihoods including livestock management system;
- Support maintenance and rehabilitation of community infrastructure.



Activities:

- Control existing pressure such as overgrazing and over-harvesting on rangelands through engaging local communities in management of these high-value resources,
- Reduce proximate threats that degrade habitat quality or increase stresses on populations,
- Identify the climate resilient habitats for species of concern, such as musk deer, snow leopard, gray wolf, brown bear, and blue sheep and secure these areas for their protection,
- Identify and secure connectivity and corridors with climate refugia and alpine habitats outside the reserve,
- Encourage plantation of native species in degraded lands, but promote climate resilient species, or species that are hardy to harsh environmental conditions,
- Control rangeland and forest fire and practice prescribed burning of rangelands,
- Prepare guidelines for sustainable harvesting of firewood, timber, NTFPs/MAPs and other plant resources for both domestic and commercial purposes from community forests and multiple use forests,
- Support production and distribution of timber and NTFP/MAP seedlings/cuttings for private and community plantations including setakchini. Especially promote in-situ cultivation of climate resilient species of trees and high-value NTFPs,
- Reforest degraded, climate vulnerable areas with fast-growing tree and plant species, especially on slopes that are vulnerable to erosion and landslides,
- Encourage establishment of forests in private and community lands to meet demands of forest products by both local communities and for local enterprises. Promote use of climate resilient high-value trees (e.g. species such as Yew [Taxus] that have medicinal value and are resilient to climate change),
- Improve value chain analyses and market linkages for value addition,
- Strengthen institutional capacity at local level to develop local stewardship on protecting, managing and sustainably use of forest resources,
- Build capacity of local youths as local resource persons or as citizen scientists to use them during monitoring of vulnerable species, ecosystem and habitat,
- Ensure adequate measures in designing upcoming infrastructure, and that sites are selected in areas that are not exposed and vulnerable to climate change-related natural disasters,
- Develop local irrigation systems using small reservoirs to hold and release water in a regulated and sustained way,
- Improve and introduce livestock breeds adapted to warmer climatic conditions as a pilot adaptation strategy,
- Mapping of areas prone to flooding and landslides and conduct awareness and safety programs, including emergency rescue and treatment exercises.
- Install and pilot early warning systems in areas vulnerable to natural disasters,
- Prevent unplanned settlements in environmentally sensitive areas and encourage integrated resettlement from prone zones,
- Establish multipurpose community buildings to facilitate local community in the affected

areas in the case of flash flood disasters,

- Establish and strengthen community-based disaster management committees
- Conserve water sources by using indigenous technology eg. fencing at certain area surrounding the water source and plant local tree species,
- Renovate/restore wetlands within and near reserve area;
- Construct water harvesting structures in the village situated nearby the flooding river.

Chapter X

Sport Hunting Management

10.1 Background

Species and their habitat conservation are an important part of protected area management to maintain either natural ecosystems or for recreational purposes. Utilization of wild animals can be divided in two broad categories: consumptive and non-consumptive use. A general perception is that non-consumptive use is more compatible with ecosystem as compared to consumptive use, but both forms of use have positive and negative aspects. Non-consumptive use includes establishing protected areas and generating revenue through tourism. Consumptive use is often divided into subsistence meat hunting by local communities and recreational meat hunting and trophy hunting. In wildlife management, big game harvest is considered as one of the tools for sustainable utilization and maintaining a healthy population of the game animals. Trophy hunting management is to maximize the off take of trophy animals' usually older males from the population. An animal sold as a trophy has a market value many times higher than the meat and skin of the same animal. Many wildlife biologists suggest that the market for safari hunting is larger and far valuable from skin and meat hunting. Therefore, trophy hunting has a potential to generate bigger revenue for many biodiversity hotspot countries from the developing world.

10.2 Past and present management practices

10.2.1 Trophy hunting in DHR Nepal

Trophy hunting in Nepal was systematized after the declaration of six royal hunting reserves in 1969. Currently, among the national parks and reserves in Nepal, DHR is the only reserve that has been set aside for trophy hunting. There are two hunting seasons in DHR; Autumn (October 1 to December 15) and spring (February 15-May 15). The safari operators tend to use some blocks exclusively in the spring season, and other only in autumn. The spring hunting season ends close to the lambing time of the blue sheep and the autumn season ends close to the rut. The duration of hunting season largely depends on the number of hunters. The NPWC Regulation 1974 provides permission to trophy hunting to both Nepali citizens and foreigners when they meet all the legal and administrative procedures. However, it is mandatory for foreign trophy hunters to be accompanied by certified professional Nepali guides. There are 8 authorized professional hunting operators who provide facilities and services to foreigners in Nepal (Table 6).

Table 5: Registered Hunting Operators in Nepal

S N	Name of the Organization
1	Nepal Wildlife Adventure (1974)
2	Himalayan Safaris Pvt Ltd (1976)
3	Tracks and Trails (1997)
4	Nepal Wildlife Safari Pvt Ltd (2008)
5	Global Safaris Nepal Pvt Ltd (2014)
6	Open Nepal Wildlife Safari and Trek Pvt Ltd (2014)
7	Nepal Hunting Safari Pvt Ltd (2011)
8	Nepal Nepal Trave Expedition Pvt. Ltd. (2017)

(Source DHR/DNPWC, 2018)

Population surveys for game animals and other key species are also conducted based on these hunting blocks to determine a hunting quota every year. DNPWC has allocated an annual quota of 26 blue sheep and around 14 Himalayan tahr for trophy hunting in DHR since 1976. But the allocated hunting quota is usually never reached since 1980. Blue sheep trophies are preferred over Tahr and the overall demand for Blue sheep is also increasing as compared to Tahr. Trophy hunting was disrupted during insurgency due to security issues from 1998 to early 2006. It re-started again with the initiation of Safari Outfitters after Peace Agreement in 2006. A maximum of 96.15% of the annual quotas was harvested in the year (2014/015).

Table 6: Population Status of Blue Sheep in DHR

Year	No. of blue sheep observed	No. of herds of blue sheep	Average herd size	Average apparent density /km²
2016	2202	83	26.53	4.22
2011	1648	98	15.00	3.11
2007	852	73	10.95	1.45
1990	1346	84	15.00	2.50

(Source: DHR).

10.2.2 Hunting block division and quotas

Per Wegge (1976) suggested the division of hunting reserve into blocks to regulate hunting and manage population dynamics. Initially, DHR was divided into five blocks namely: Phagune, Barse, Gustung, Dogadi and Seng which were divided around major rangelands. Two more blocks; Sundaha, west of Seng block and Surtibang, south of Phagune block were added (**Map 7**). The detail of boundary of hunting blocks are given in the (**Annex 11**).

Map 7 Hunting blocks in DHR



While considering blocks, a maximum of 30 blue sheep were hunted in Dogadi block during the five-year period (2011/12 – 2015/16). On an average, 81.54% of annual quotas have been utilized in past five consecutive years (2011/12 – 2015/16). The trend of use of annual blue sheep quotas has increased from average one third during the period 1992-1998 to two third in 2007-2011 and to four fifth in 2011-2015. It indicates that hunting demand of blue sheep is increasing. Based on the size of rangelands, population dynamics and associated characteristics within these blocks, hunting quota for Blue sheep and Tahr is determined (Table 6, 7 and 8).

Table 7: Hunting Block and Hunting Quota of Blue Sheep in DHR

SN	Name of the Block	Area Km ²	Hunting Quota of Blue sheep				
			1976	1990	2007	2011	2016
1	Phagune	327	4	4+0	4+0	4	1+1
2	Barse	167	4	4+2	4+2	5	1+1
3	Ghustung	201	4	4+0	4+0	6	4+1
4	Dogadi	199	6	6+2	6+2	8	5+1
5	Seng	138	4	4+1	4+0	5	5+1
6	Sundaha	145	4	4+1	4+2	2	3+1
7	Surtibang	148	-	-	-	-	-
Total		1325	26	26+6=32	26+6=32	30	19+6=25

(Source DHR/DNPWC)

The following table provides block-wise annual harvest information of blue sheep in DHR.

Table 8: Numbers of Blue Sheep Harvested in Different Blocks of DHR

Blocks	Annual quota	FY (2011/012)	FY (2012/013)	FY (2013/014)	FY (2014/015)	FY (015/016)	Total harvest
Sundaha	4	4	1	2	2	2	11
Seng	4	4	3	4	3	4	18
Dogadi	6	7	5	5	7	6	30
Ghustung	4	1	4	2	6	3	16
Barse	4	1	3	4	3	4	15
Phagune	4	2	3	3	4	4	16
Total	26	19	19	20	25	23	106
Utilized %		73.07%	73.07%	76.93%	96.15%	88.46%	

(Source: DHR/DNPWC)

Data shows that only 40 tahrs were hunted in six consecutive years between 1992/93 and to 1997/98 on a regular basis. It is 47.62% of total hunting permission. In three consecutive years from 2008/09 to 2010/11, 34 tahrs were harvested. It is 80.95% of total hunting permission and 26.98% per year. In 2008/09, 18 (128.5%) of total permitted tahr were harvested. This shows over harvesting of the species this year. In Surtibang block 2 tahrs were harvested in 2008/09 but 9 were hunted in 2009/10. It indicates random hunting of tahr resulting in halting hunting in this block till now.

Harvesting pattern indicates that demand is much lower than the allowable trophy hunting quotas (Table 10). Only seven (47.62%) of the annual quota of the tahr were used up in 1990s. On an average, 67.46% of annual quotas were utilized in past nine years (2008/09-2016/17). In previous six years, 60.71% of total permitted tahr or 51 individuals were harvested. It means 8.5 tahr were consumed annually during that time. In Fagune block, 25 tahrs were hunted during the period. A maximum of 78.57 % of annual quota was consumed in 2014/015. It was the highest number hunted among all the blocks. As this block is very near and easy to access from Dhorpatan, hunting outfitters could have favored it.

Table 9: Numbers of tahr harvested in different blocks of DHR

Block	CAQ	2008 /009	2009 /2010	2010 /011	011 /012	012 /013	013 /014	014 015	015 016	016 017	Total harvested 08/09-016/017	Total harvested 092/093-097/098
Sundaha		2	0	2	2	1	1	2	0	1	11	7
Seng		0	0	0	2	1	1	2	2	0	8	11
Dogadi		1	0	2	2	0	1	1	2	0	9	6
Ghustung		6	0	0	1	2	1	2	2	3	17	6
Phagune		5	0	1	3	3	4	4	4	1	25	6
Barse		2	2	0	0	0	0	0	0	0	4	4
Surtibang		2	9	Hunting not allowed after 2009/010							11	
Total	14	18	11	5	10	7	8	11	10	5	85	40
Utilized %		128.5	78.57	35.72	71.43	50.00	57.14	78.57	71.43	35.72	67.46	47.62

(Source: DHR/ DNPWC)Note: CAQ=Current annual quota, 2016/017=BS 2073/074, 2015/016=BS

2072/073, 2014/015=BS 2071/072 and so on. Sources: DHR (2072, 2073, 2074), DNPWC (2074) and DHR and DNPWC (unpublished data).

Since the second hunting season of FY 2067/2068 BS, DNPWC initiated open bidding for blue sheep hunting. The bidding price ranges from a minimum of NPR 41,000.00 to NPR 97,000.00 for one blue sheep. There is significant increase in bidding compare to the past without bidding. The following table gives the revenue collected during the last five years from trophy hunting in DHR.

Table 10: Revenue generated by DHR and DNPWC in last five years

Fiscal Year	Revenue generated by DHR from other sources	Revenue generated by DNPWC from hunting	Total Revenue of DHR
069/070	432108.00		
070/071	426952.61	4057000.00	4483952.60
071/072	360945.18	16728106.00	17099051.10
072/073	367362.92	12971600.00	13338962.90
073/074	475370.00	14952250.00	15427620.00

(Source: DNPWC/DHR)

Table 11 Government's price tag on trophy of Blue Sheep and Himalayan Tahr

Hunting Animal	Govt. tag price before 2070		Govt. tag price after 2074	
	Nepalese	Foreigner	Nepalese	Foreigner
Blue Sheep	NPR 5000,00	NPR.40000.00	NPR.10000.00	NPR. 100000.00
Tahr	NPR. 3000.00	NPR, 20000.00	NPR.7000.00	NPR.50000.00

(Source: DNPWC/DHR)

Issues

- Inadequate information on some isolated population of game animals eg. in Surtibang
- High livestock grazing pressure during the summer in hunting areas;
- Rangeland degradation due to unregulated NTFP esp. Yarsagunba collection;
- Poaching of game animal due to remoteness and poor community support.
- Lack of necessary communication equipment for regular monitoring of hunting;
- Poor access trails between and among hunting blocks limiting adequate monitoring;
- Inadequate monitoring of hunting expeditions leading to exploitation of trees during hunting periods;
- Inadequate mechanisms to engage local communities in hunting practice and benefit sharing at local level;
- Weak co-ordination between DHR office, local communities and and hunting operators;
- Inadequate research and studies on impacts of hunting on species gene pool, ecology, population dynamics, carrying capacity and predator relations;

Strategies

- Research and monitoring to better understand population dynamics, ecology and impact of hunting on population structure,
- Infrastructure development to improve access and facilitate monitoring during hunting seasons,
- Community engagement for regular coordination, monitoring, anti-poaching and benefit sharing.

Activities

- ✓ Conduct livestock surveys to understand and regulate grazing pressure around hunting areas;
- ✓ Formulate grazing management strategies through the participation of local communities;
- ✓ Develop regulatory mechanism of yarsagumba collection in the hunting area;
- ✓ Formulate mechanisms for engagement and benefit sharing with local communities;
- ✓ Conduct regular anti-poaching and monitoring patrols of highly threatened areas;
- ✓ Mobilize reserve staff for monitoring the hunting area;
- ✓ Improve infrastructures around hunting blocks to improve access;
- ✓ Conduct extension programs (interaction meeting, workshop, radio programs) for awareness raising about hunting management;
- ✓ Disseminate message through media, about ecological and economical importance of hunting;
- ✓ Manage basic facilities and alternative energy sources in nearby village for hunting operators to minimize use of green tree as firewood;
- ✓ Prioritize scientific study on population ecology of game animals;
- ✓ Promote community based anti-poaching program and mobilize youth to control poaching;
- ✓ Construct Range post/ Guard post at Maikot and Dule and mobilize staffs/ Nepali Army/ Nepal Police in the field.

Alternative hunting of Wild Boar: Wild boar population around human settlements and agricultural fields are emerging as a key pest animal for local communities. Local people frequently report damage of their crops by these animals. Such damage has resulted in human wildlife conflicts ultimately demotivating community participation in biodiversity conservation. Management of the conflict has been one of the important challenges for the reserve. One of the strategies of its management could be to allow hunting of wild boar as per National Parks and wildlife conservation regulation (2030). So, population surveys around human settlements and agricultural areas, identification of conflict hotspots and prescribing annual allowable hunting quotas in such areas through proper regulation could be a socially, economically and technically viable solution to resolve the issue.

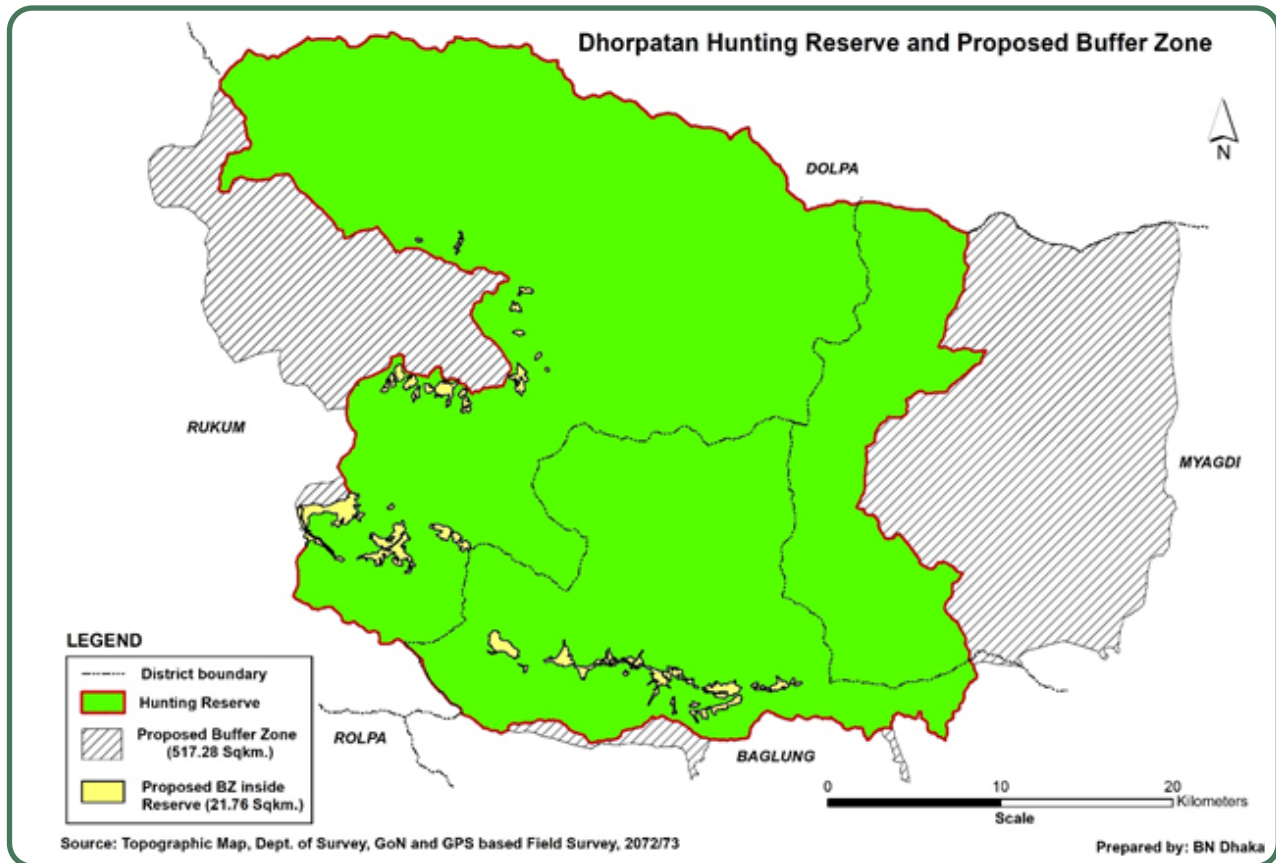
Chapter XI

Proposed Buffer Zone management

11.1 Background

The concept of buffer zone is a model of managing protected areas through local community participation and benefit sharing amongst them. The fourth amendment of the National Parks and Wildlife Conservation Act, 1973 introduced the concept of buffer zone management in 1993 ensure people's participation in conservation through community-based natural resource management in the fringes. Currently, the reserve does not have a buffer zone and this concept of local participation is only proposed through buffer zone management. The National Parks and Wildlife Conservation Act 1973, Buffer Zone Regulations 1996 and Buffer Zone Guidelines 1999 provide policy and legal framework for buffer zone management. The legislation has made a provision of channeling 30-50 % of the park/reserve revenue to the local people for the implementation of conservation and community development program. The proposed buffer zone development programs are aimed at institutional development, alternative natural resource development to meet the local needs, capacity building, financial management, conservation education and awareness, gender and special target group mainstreaming.

The currently identified buffer zone includes encroachments inside the reserve and its peripheral area available for multiple uses such as agriculture, grazing, forestry, tourism, and alternative income generating activities for local people. Based on the Himalayan National Park Regulation 2036, the proposed buffer zone was identified after several discussions and interactions with local communities of the surrounding area. DHR has proposed an area of 539.04 km² part of Baglung, Myagdi and the then Rukum districts surrounding the reserve area including settlements inside the reserve as community development zone in 2073 BS. The proposed buffer zone of DHR consists of the population of over 24,472 that covers parts of one municipality (Dhorpatan) and 3 Rural Municipalities (Putha Uttarganga, Dhaulagiri, Taman Khola) across Baglung, Myagdi and East Rukum (**Map 8**).



Map 8 Dhorpatan Hunting Reserve and Proposed Buffer zone

11.2 Past management and present practices

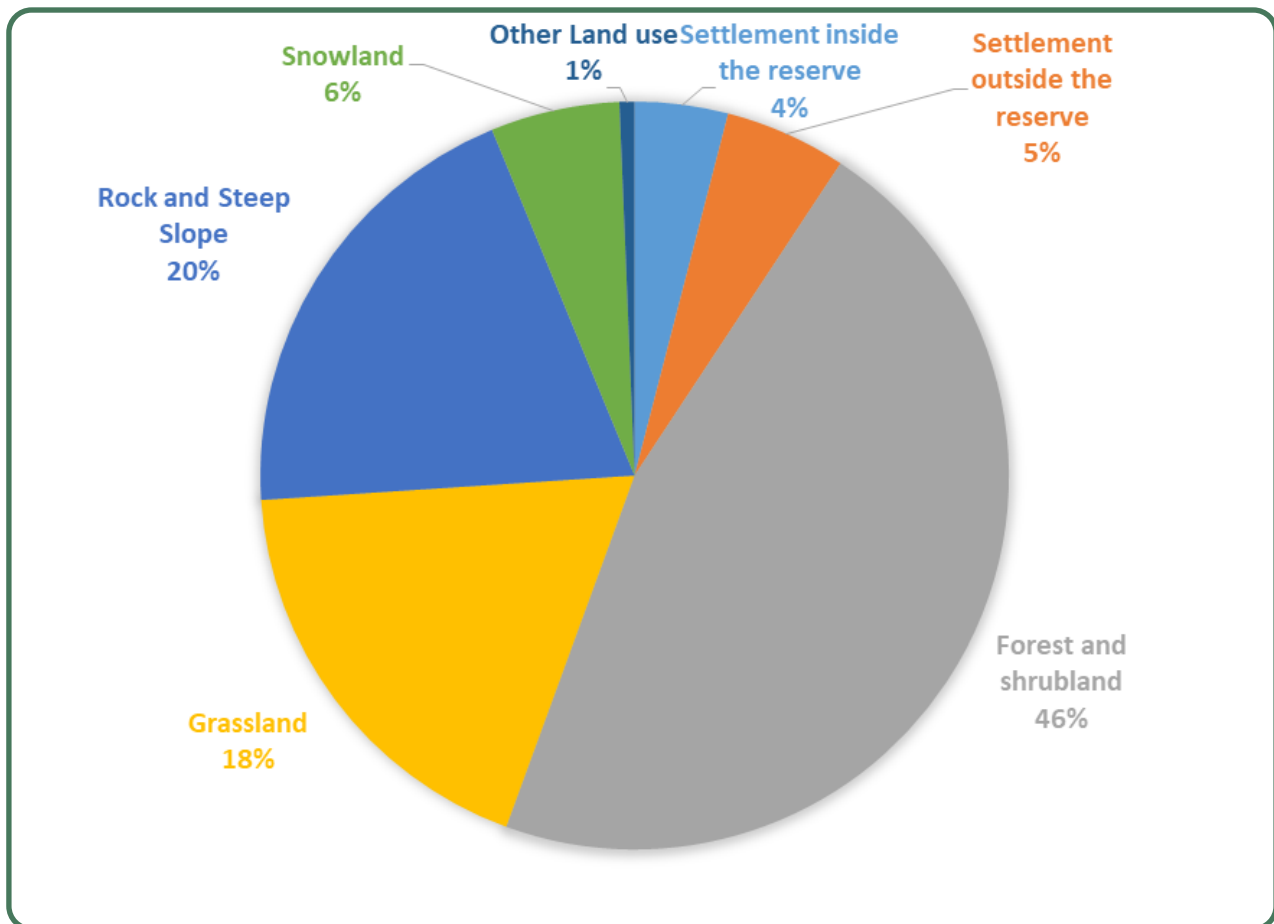
11.2.1 Forest Management

DHR buffer zone program emphasizes participatory management of natural resources. The use rights of forest patches and blocks in the buffer zone will be handed over to local communities through the formation of forest user groups. The proposed buffer zone has 16 community forests with area of 1870.35 hectares managed by local people under DFO Baglung, Myagdi and East Rukum. As of now, the forests inside proposed buffer zone are under the jurisdiction of respective DFOs, whereas these will be managed under the jurisdiction of DHR when the buffer zone is approved as per existing regulations. Himali National Park Regulation 2036 has provisioned timber, firewood, designated NTFPs collection and grazing concession to local communities. These provisions can be continued in the proposed buffer zone community forest after the declaration of BZ in DHR.

11.2.2 Other Land use

The major land use in the proposed buffer zone is forested areas, human settlements and agricultural lands. The total proposed community development zone covers an area of 539.04 km² and comprises of 249.43 km² (46.27%) forest land, 106.78 km² (19.81%) rock and barren land, 99.04 km² (18.37%) Pastureland, 50.15 km² (9.30%) agriculture and settlement, 30.1 km² (5.58%) snow cover, and 3.54 km² (0.65 %) water body and river bank. There are no major built up areas within the buffer zone. Infrastructure development in the form of access roads, trekking trails, transmission lines and construction of road in some key areas are major developments required in the reserve and proposed buffer zone.

Figure 2: Land Use of DHR and proposed Buffer Zone



11.3 Management Strategies

11.3.1 Zonation

DHR has proposed 539.04 km² area inside as well as periphery of reserve as buffer zone. For management purpose, the proposed buffer zone will be delineated into conservation zone, sustainable use zone and intensive use zone after the demarcation and declaration of buffer zone.

11.3.1.1 Conservation Zone

The large forest patches in proposed buffer zone such as in Gurjakhani and Lalpatan are as good as core areas of the reserve for wildlife. Thus, these areas will be managed as extended wildlife habitat where extraction of forest products will be restricted but the area will be allowed for regulated tourism activities if needed.

11.3.1.2 Sustainable Use Zone

The forested areas in proposed buffer zone, which is managed by community for dual purpose of meeting the need of forest products for the households and providing refuge for dispersing population of wildlife, falls under this category of zonation.

11.3.1.3 Intensive Use Zone

This is the area in the proposed buffer zone which includes all the settlements and private lands, where environment-friendly development activities will be carried out to enhance the

livelihood of the people living in the area through various conservation and developmental interventions.

11.3.2 Community Development

As need-based and site-specific interventions for the socio-economic development in proposed buffer zone to reduce the dependency of local communities on the natural resources of core reserve area are vital. The management of proposed buffer zone is oriented towards not only enhancing support of local people through need-based socio-economic development but also encouraging people in participatory natural forest management for fulfilling their needs. Site-specific plans, including livelihood support initiatives, will be the guiding document for implementing developmental initiatives in the respective user committees and groups.

11.3.3 Biodiversity Conservation, Monitoring and Research

The forests and rangelands in proposed buffer zone are also important areas as extended habitats and connectivities for wildlife. One of the major objectives of community development zone in these areas is to develop partnership between reserve and people in biodiversity conservation. Involvement of local communities safeguards the core area. People will be made aware of biodiversity conservation and several programs will be launched focusing on different aspects of biodiversity conservation in proposed buffer zone. Lalpatan and Gurjakhani will be included as buffer zones which is appropriate to be extended as hunting blocks from where revenue can be generated for community development as there is legal provision of hunting in such areas under the Buffer Zone Management Regulation, 2052 BS.

11.3.4 Tourism Promotion

Eco-tourism promotion in proposed buffer zone will diversify the livelihood opportunities of local communities. DHR and its proposed community development area has a potential area for community-based nature tourism promotion. It is necessary to add facilities in major tourist destinations such as Lulang, Gurjakhani, Maikot, Teksera and Dhorpatan. Community based eco-tourism, village trekking tourism, home stay promotion may be a feasible solution of dispersing income generated by tourism. In addition to natural beauty, the best tourism products of DHR are to explore Kham Magar culture and adding value to woolen goods which is being slackening since last decade. For providing better service and facilities for tourist, develop and manage hotel at the entrance gate/ticket counter such as at Lulangkhoriya, Gurjaghat, Gurjakhani, Deurali, HQ, and Taksera. There is a potential and need to develop hotel and observation tower at Jaljala and Phagune which is very good view point and promote expedition at Gurja himal. Lalpatan and Gurjakhani forest of the proposed buffer zone area will be managed as an alternate hunting tourism area in the future.

11.3.5 Functional Coordination

Coordination with local bodies and communities is an integral part of participatory biodiversity conservation. Planning, implementation and monitoring of community development initiatives will be coordinated with local bodies, local communities and functional local groups including possible user groups which will be formed at a later stage on approval of buffer zone. Participation of women marginalized and socially excluded disadvantaged communities will



be ensured in planning and implementation of conservation and community development program. To ensure prioritization of the needs and support to be provided, participatory ranking of the users will be conducted using principles and methodologies formulated collectively with local stakeholders. Prior to approval, the provision for reviewing the plan will be made for its modification and aligning the activities with the support provided by local bodies such as Rural Municipality and Municipality, other government line agencies and I/NGOs, Hunting operators, CFUGs and other stakeholders eg. NTFPs entrepreneurs.

11.3.6 Capacity Building

To conduct conservation and community development activities, local stakeholders and reserve staffs need to be trained in participatory appraisals and planning, facilitation, community-based conservation, environment- friendly tourism and development, sustainable harvesting of natural resources, conflict mitigation and rural development. Detailed human resource development plans and activities will be designed to include in the above key areas through in-house workshops, trainings and capacity building courses, lectures, improvement of skills to positively change staff's perceptions and improve their professionalism in reserve-people cooperation and participatory management. Capacity development will also target local user groups and committees after the declaration of buffer zone.

11.3.7 Conflict mitigation

Human wildlife conflict is an emerging issue in and around the reserve. Conflict mitigation is a core area of intervention which is also addressed separately under HWC theme and species conservation of this management plan. Crop depredation by wildlife particularly by wild boar, Asiatic Black bear and porcupines is a major concern in the community development zones which includes human settlements within and outside the core area of the reserve. Furthermore, there are also conflicts between the local communities and reserve administration regarding infrastructure development where local communities see the reserve as an obstacle in modern development. In this context, it is of utmost importance to develop a conducive environment where local communities understand the existing wildlife damage relief provisions and mechanisms and can benefit from the same while also realizing the value of environment-friendly infrastructure development. In order to minimize crop depredation and livestock casualties by wildlife, solar fencing, stone fencing, mesh wire fencing and predator-proof corrals can be provided. Further, cattle loss or retaliatory killing can be minimized through implementing and institutionalizing insurance and relief mechanisms. Conflicts situation in and around reserve and encroachment will also be mitigated through stakeholder dialogues while providing alternative livelihood support.

11.3.8 Income Generation and Skill Development

Income generation and related skill development activities for diversifying livelihood options help to reduce dependency of local people on natural resources of the reserve and critical areas in the proposed buffer zone. These initiatives will focus on the marginalized and socially excluded sectors of the communities who are the most dependent on the natural resources of the area. Locally identified and appropriate, effective income generation, and skill development activities will be conducted in the proposed buffer zone. These activities

can broadly vary from expansion and improvement of apple farming, vegetable farming and integrated livestock management in intensive use zones to support for ecotourism such as homestay and, souvenir shop, and promotion of local arts and crafts.

11.3.9 Conservation Education

Since the reserve does not have a buffer zone till date, conservation awareness among local communities is limited. Thus, conservation education has a high importance in the proposed buffer zone. To develop an understanding and importance of biodiversity conservation for community development while harnessing positive attitude and support of local communities for biodiversity conservation several activities will be conducted focusing on different profiles of the society, such as students, natural resource management groups, mother groups, youth group, civil society organizations, indigenous communities and local bodies. Various conservation education initiatives will be adopted through Eco club mobilization, excursion programs, publications relating to biodiversity, cultural and religious significance of the area (leaflets, brochures, calendar, poster, audiovisual program) interactions with stakeholders and exposure visits.

11.3.10 Regulation of Forest Products

Most of the high-value NTFPs are collected from the core area of reserve without proper procedures. There are legal constraints to form forest user groups to manage NTFPs in the core area. In case of DHR, Forest User Groups (FUGs) can only be formed in settlements within the reserve to manage adjoining forests for firewood, bedding material, forest fire, etc. These groups cannot be legalized as community forest user groups outside the protected areas. The demand for forest resources is a major challenge in managing forest resources. Unregulated NTFP collection in the reserve as well as from the proposed buffer zone is another challenge in DHR. To regulate forest products, site specific plans will be formulated with participation and support of local communities. Resource surveys will be conducted to determine the annual harvestable amounts for important NTFP such as Lokta, Yarsagumba, Kutki, Padamchal, etc., in the community development zone.

11.4 Implementation and Mainstreaming Strategy

This integrated DHR management plan provides directions for biodiversity conservation and community development. To ensure local ownership, efficiency and effectiveness in implementation of the plan, the entire community development program will be implemented through participation of local bodies and local communities. The basic implementation strategy will:

- ✓ Ensure participation of all relevant stakeholders in decision making;
- ✓ Follow the good governance practices and maintain transparency;
- ✓ Promote green development in proposed buffer zone through organic farming,
- ✓ Plantation and other green technology that reduces carbon footprint;
- ✓ Capacity building for institutional sustainability;



- ✓ Raise Awareness to biodiversity conservation and community development.

The mainstreaming strategies in buffer zone will include protection of wildlife, management of wildlife habitats, regular monitoring of wildlife species, regulation of forest product collection and livestock grazing, conflict minimization, encroachment control and paying relief for any damage by wildlife.

Chapter XII

Activity, Budget and Logical Framework

12.1 Activity and Budget

The budget required for the implementation of the activities prescribed by the plan for the period of five years is estimated as NRs. 281,220, 000 and presented in line with the major themes and objectives of the plan in Table 11 below. The detail budget is provided in Annex 13.

Table 12 Activity and Budget of Management Plan (Amount in '000)

SN	Activities	Yr I	Yr II	Yr III	Yr IV	Yr V	Total	%
1	Park protection and conservation of Biodiversity	13,800	15,350	11,250	14,900	10,050	65,350	23
1.1	Reserve protection	9,450	10,000	6,200	9,600	5,500	40,750	
1.2	Anti-poaching and intelligence	3,200	3,700	3,700	3,450	3,200	17,250	
1.3	Wildlife Health Management	1,150	1,650	1,350	1,850	1,350	7,350	
2	Habitat management	8,800	6,150	9,150	7,900	6,400	38,400	14
2.1	Wetlands and grasslands	1,950	1,200	1,950	1,200	1,200	7,500	
2.2	Forest and fire management	2,600	2,700	3,450	1,450	950	11,150	
2.3	Encroachment management	4,250	2,250	3,750	5,250	4,250	19,750	
3	Species Conservation	6,050	5,850	6,900	5,000	5,550	29,350	10
3.1	Musk deer	1,350	800	600	1,350	400	4,500	
3.2	Snow Leopard	3,750	2,800	4,750	2,700	3,500	17,500	
3.3	Red Panda	950	2,250	1,550	950	1,650	7,350	
4	Research, monitoring and capacity building	5,260	3,505	7,965	2,300	3,290	22,320	8
4.1	Research	500	1,000	3,550	500	800	6,350	
4.2	Monitoring	3,100	1,700	3,200	1,100	1,200	10,300	
4.3	Capacity building	1,660	805	1,215	700	1,290	5,670	
5	Tourism and interpretation	3,120	6,120	5,770	5,670	3,770	24,450	9
6	Special programs	4,420	8,770	7,670	5,320	9,570	35,750	13
6.1	Rangeland management	1,320	2,620	2,420	1,620	2,620	10,600	
6.2	Yarsagumba management	1,500	2,150	1,900	1,200	2,000	8,750	
6.3	Climate change adaptation	1,600	4,000	3,350	2,500	4,950	16,400	
7	Sport hunting management	2,400	2,200	2,250	2,050	2,200	11,100	4
8	Community development	8,690	9,540	10,540	8,290	11,440	48,500	17
8.1	Conservation program	2,600	3,300	3,950	3,250	3,500	16,600	
8.2	Community support	2,900	2,900	2,900	2,900	2,900	14,500	
8.3	Conservation education	1,540	490	1,540	490	1,540	5,600	
8.4	Income generating activities	1,650	2,850	2,150	1,650	3,500	11,800	
9	Office Management	1,570	1,240	890	890	1,410	6,000	2
	Annual percentage	19 %	21 %	22%	19 %	19 %		
Total		54,110	58,725	62,385	52,320	53,680	281,220	

12.2 Gender Equity and Social Inclusion

The implementation of DHR management plan will adopt gender equity and social inclusion (GESI) strategy as a core cross-cutting theme. Considering the existing context of the proposed buffer zone, the planned activities will be implemented in a participatory and inclusive manner in close coordination with local bodies to address issues of exclusion and marginalization. DHR will consider Government of Nepal's existing GESI strategies and policies in planning and implementing the management plan. At the program level the emphasis will be to identify whether the program is GESI responsive, embraces inclusive approaches in program appraisal, design, implementation, monitoring and evaluation. In terms of organizational preparedness, building conceptual clarity and operational skills for GESI issues is a common concern for all stakeholders and partners. The management plan will mainstream GESI strategy to engage and empower women and marginalized people in equitable benefit sharing through meaningful participation in participatory biodiversity conservation and community development activities.

12.3 Monitoring, Evaluation and Review of the plan

DHR will be responsible for monitoring and evaluation of the management plan in close coordination with DNPWC. DHR will coordinate with local bodies and communities in conducting periodic monitoring of the activities implemented to fulfill the objectives of the management plan. Annual progress of management plan implementation will be reflected in the annual progress report of the reserve. This management plan will be reviewed towards the end of plan period by DHR in coordination with DNPWC which will also contribute to formulation of the next management plan. If deemed necessary, a mid-term review of the plan will also be conducted. The findings and learning from these periodic reviews will feed into the next plan.

12.4 Logical Framework Analysis

The logical framework of Dhorpatan Hunting Reserve and its Buffer Zone Management Plan for five years period (2074/75- 2078/79) is as follows:

Narrative Summary	Objectively Verifiable Indicator (OVI)	Means of Verification (MoV)	Risks and assumptions
<p>Goal</p> <p>Conserve, maintain and enhance the biological diversity and socio-cultural uniqueness through regulated trophy hunting and promotion of ecotourism and sustainable harvesting of NTFPs to enhance livelihoods of the local people.</p>	<p>Improved Biodiversity status, Revenue generated through trophy hunting, Livelihood benefits through sustainable NTFP management and ecotourism</p>	<p>Annual progress reports, surveys and assessments</p>	<p>Government prioritizes biodiversity conservation at all governance levels and continues to promote trophy hunting, NTFP management and ecotourism with local community support.</p>
<p>Objective 1: To conserve threatened and endangered wildlife and their habitat under changing socio-ecological contexts</p>			
<p>Outcome 1: Strengthened park protection</p>			
<p>OUTPUTS: Infrastructure facilities for park protection improved, Intensity of patrolling improved</p>	<p>Number of buildings, posts, infrastructure facilities constructed, maintained, repaired, electrification and solar facilities available, number of patrolling regulated and improved.</p>	<p>Field reports, periodic reports of DHR, DNPWC</p>	<p>Timely availability of resources, continued support of federal, provincial and local governments, staff positions are fulfilled.</p>
<p>Outcome 2: Improved habitat conditions</p>			

<p>OUTPUTS: Major threats identified, and strategies implemented, Site-specific resource management plans formulated and implemented, Wetland habitats and water sources protected, Forest fires controlled, Rotational grazing plans formulated and grazing regulated, Rangeland habitats managed for quality forage, Encroachment controlled and restored</p>	<p>Hectares of critical habitats, wetlands, rangelands managed/ protected/ conserved and restored, Number of forest fire incidences controlled, Hectares of encroachment controlled and restored, Number of site-specific plans formulated and implemented</p>	<p>Field reports, periodic reports of DHR, DNPWC</p>	<p>Availability of adequate budget and willingness of local communities</p>
<p>Outcome 3: Strengthened anti-poaching and intelligence gathering</p>			
<p>OUTPUTS: Reduction in events of poaching and illegal wildlife trade, Formation and mobilization of WCCB units, APOs, CBAPUS, Capacity of local communities and key stakeholders enhanced</p>	<p>Number of illegal cases reported, Number of districts and local level anti-poaching units, Number of events and personnel trained on anti-poaching</p>	<p>Field reports, periodic reports of DHR, DNPWC</p>	<p>Availability of resources, adequate support from security agencies, local governments and communities</p>
<p>Outcome 4: Improved Wildlife health knowledge and facilities</p>			
<p>OUTPUTS: Wildlife health related issues sensitized, Wildlife health facilities improved,</p>	<p>Number of studies, assessments and capacity building events, number of staffs and community members trained, Number of infrastructure facilities</p>	<p>Field reports, periodic reports of DHR,</p>	<p>Availability of resources</p>
<p>Objective 2: To regulate trophy hunting of blue sheep and Himalayan tahr maintaining its healthy population</p>			
<p>Outcome 5: Sport hunting management, research, benefit sharing, infrastructure</p>			

<p>OUTPUTS: Knowledge and understanding of sport hunting species improved, Local level benefits improved, Improved infrastructures for hunting, its monitoring and management</p>	<p>Amount of revenue generated from hunting, Number of people engaged Number of infrastructures constructed for hunting,</p>	<p>Field reports, periodic reports of DHR, DNPWC,</p>	<p>Tourism sector continues to grow, adequate support from local communities and governments</p>
<p>Objective 3: To promote and improve sustainable livelihoods through eco-tourism and NTFP management</p>			
<p>Outcome 6: Improved livelihood opportunities through eco-tourism and sustainable management of NTFPs</p>			
<p>OUTPUTS: Enhanced understanding of tourism status and potential of DHR, Diversification of tourism products, Improved infrastructures for tourism promotion, Construction/upgrade information facility, Community-managed eco-tourism promoted around potential areas</p>	<p>Increased no. of tourism-based private enterprises, Number of sites promoted, Number of infrastructures supported, Number of trekking routes identified and established, Number of households engaged and benefitted,</p>	<p>Field reports, periodic reports of DHR, DNPWC, Survey reports</p>	<p>Tourism sector continues to grow, adequate support from local communities and governments</p>
<p>Objective 4: To improve community engagement in participatory biodiversity conservation</p>			
<p>Outcome 7: Reduced risks and vulnerabilities due to climate change</p>			
<p>OUTPUTS: Appropriate climate change adaptation measures implemented, Climate appropriate livelihood diversification promoted, Climate change adaptation measures adopted by local communities, local bodies and key stakeholders, Local communities and key stakeholders capacitated to assess and address climate change vulnerabilities</p>	<p>Number of adaptation measures implemented, Number of households supported for livelihood diversification, Number of stakeholders adopting adaptation measures, Number of institutions/individuals capacitated</p>	<p>Field reports, periodic reports of DHR, Survey reports</p>	<p>Availability of resources, supportive local environment</p>

Outcome 8: Human Wildlife conflict reduced			
<p>OUTPUTS: Community-based Insurance schemes implemented, Improved mechanism for quick and adequate relief, Effective and safe livestock management schemes implemented, Best practices such as 'safe system approach' adopted</p>	<p>Number of incidences of livestock depredation, retaliatory killings, Attitude of local communities, Number of schemes and beneficiaries</p>	<p>Field reports, periodic reports of DHR, DNPWC, Survey reports</p>	<p>Availability of resources, supportive local environment for mitigation of HWC</p>
Objective 5: To strengthen institutional capacity through research, coordination and collaboration			
Outcome 9: Enhanced understanding and knowledge on species, habitat and Ecosystems for effective management			
<p>OUTPUTS: Database for flora and fauna of DHR updated, Knowledge on key species habitats, distribution and ecology enhanced, Key species such as Snow Leopard, Red Panda, Musk deer studied, Key species, habitats, ecosystems and environmental changes monitored periodically, Human and livestock pressure on the reserve monitored to enhance management strategies</p>	<p>Number of studies, assessments and species database updated</p>	<p>Technical reports, assessments, periodic progress reports</p>	<p>Availability of resources</p>
Outcome 10: Strong institutions and good governance ensured, and local communities are empowered			
<p>OUTPUTS: Relevant institutions established and strengthened, Conservation communities are strengthened and institutionalized, Increased conservation awareness and collaboration among key stakeholders, Increased participation of local communities in conservation</p>	<p>Number of institutions engaged, Number of people trained, Number of meetings and decisions among stakeholders, Number of collaborative actions</p>	<p>Field reports, periodic reports of DHR, Survey reports</p>	<p>Availability of resources, conducive local environment</p>

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List of Annexes

Annex 1 Legal boundary of Dhorpatan Hunting Reserve as per Gazette notification

अनसूची - ५

खण्ड ३७

संख्या २

नेपाल राजपत्र भाग ३

मिति २०४४१११४

श्री ५ को सरकार

वन तथा भू-संरक्षण मन्त्रालयको सूचना

श्री ५ को सरकारले राष्ट्रिय निकुञ्ज तथा वन्यजन्तु संरक्षण ऐन, २०२९ को दफा ३ को उप-दफा (१) ले दिएको अधिकार प्रयोग गरी राप्ती र धवलागिरि अञ्चलको रुकुम, म्याग्दी र बागलुङ जिल्लाहरूको केही भाग समावेश गरी देहायबमोजिमको चारकिल्लाभित्रको क्षेत्रलाई “ढोरपाटन शिकार आरक्ष” घोषणा गरेको छ ।

ढोरपाटन शिकार आरक्षको चारकिल्ला

पूर्व:- चुरेन हिमालयबाट शुरु भई दक्षिणतर्फ लागी धौलाश्री हिमालको १७,२४६ फिटको टुप्पासम्म र उक्त टुप्पाबाट डाँडै डाँडा हुँदै वसिंधुरीको १६,३७५ फिटसम्म, त्यहाँबाट १५,४०२, १४,७४०, १५,०१२, १४,५२६, १३,९६९, १३,३२६, १२,८०४ र १२,३३२ को डाँडै डाँडा हुँदै अक्षिणतर्फ रहेको उत्तर गङ्गा नदीसम्म । त्यहाँबाट दक्षिणतर्फको ढारखानी डाँडाको १२,१७४ फिटको टुप्पासम्म ।

दक्षिण:- ढारखानी डाँडाको १२,१७४ फिटको त्रिभुजाकार टुप्पाबाट सोही धुरी हुँदै पश्चिमतर्फ लागी ११,७३३ फिटको टुप्पासम्म र सोही धुरीको नाकै नाक हुँदै ११,६३७ फिटसम्म, फेरि सोही नाकै नाक हुँदै ९,६१७ फिट र १३,२५८ फिटको उचाइसम्म । त्यहाँबाट भाल्के डाँडाको टुप्पा समाती १२,८४५ फिट र सोही डाँडै डाँडा हुँदै १२,४४५ र १२,३३१ को टुप्पा र १२,३१५ फिटको टुप्पासम्म । त्यहाँबाट लामाक्याङ्ग धुरीको १३,१३६को टुप्पा समाती सोही धुरीको १२,०५७ र कुचिंवाङ खोलाको मुहान १०२४५ फिटसम्म ।

पश्चिम:- १०,२४५ फिटको धुरीबाट लुकु गाउँबाट टका गाउँ जाने बाटो हुँदै उत्तर गङ्गा नदीसम्म, त्यहाँबाट सो नदीको उत्तर किनारा हुँदै खरीडवाङ खोलाको दोभानसम्म, त्यहाँबाट खोलैखोला माथि आई टाका हुकाम जाने बाटोको कुटेवास डाँडाको ११,९६१ फिटको टुप्पा भएर टका गाउँबाट हुकाम जाने पैदल बाटो हुँदै पेल्ला खोलासम्म, त्यहाँबाट उक्त खोला हुँदै घुम्लुङ खोलाको दोभानसम्म । त्यहाँबाट दोगाडी खोला हुँदै यामाखार गाउँसम्म, त्यहाँबाट जाडला भञ्ज्याङ जाने बाटो हुँदै ११,७३१ फिटको धुरीसम्म । त्यहाँबाट र हाल खोला समाती सोही खोला हुँदै सागुरे खोला दोभानसम्म । त्यहाँबाट ११,८८० को धुरी हुँदै १४,७०२ को धुरीसम्म र कुल्टा भञ्ज्याङसम्म ।

उत्तर:- कुल्टा भञ्ज्याङबाट डाँडै डाँडा हुँदै १६,५८० फिट र सुनदहमाथिको १७,२६६ फिटको डाँडा भै १६,८६२ र १६,५२३ डाँडा हुँदै जाडला भञ्ज्याङसम्म । त्यहाँबाट पुरवाङ पहाडको डाँडा हुँदै १८,३७३ र १८,३९६ फिटको डाँडै डाँडा भै १९,४०७ को टुप्पासम्म र त्यहाँबाट दक्षिण लागी २१,४४२, २०,६८० र पुठा हिउँचुलीसम्म, त्यहाँबाट सोही धुरी हुँदै चुरेन हिमालसम्म ।

आज्ञाले,

वीरेन्द्रनाथ खुजेली

श्री ५ को सरकारको सचिव

Annex 2 List of Plants recorded in DHR and its Proposed BZ

SN	Scientific Name	Family	Local Name	Recorded Location
1	<i>Abies spectabilis</i>	<i>Pinaceae</i>	Thingre sallo	Dhorpatan
2	<i>Acanthopanax cissifolius</i>	<i>Araliaceae</i>		
3	<i>Acer acuminatum</i>	<i>Aceraceae</i>	Charipaile	Gurjakhani
4	<i>Acer caesium Gled.</i>	<i>Aceraceae</i>	Kukurpaile	Gurjakhani
5	<i>Achyranthes bidentata</i>	<i>Amaranthaceae</i>		
6	<i>Aconitum bisma</i>	<i>Ranunculaceae</i>	Bikh	
7	<i>Aconitum spicatum</i>	<i>Ranunculaceae</i>	Bikh	
8	<i>Aconogonum rumisifolium</i>	<i>Polygonaceae</i>		
9	<i>Aesculus indica</i>	<i>Hippocastanaceae</i>	Pangar	Bobang
10	<i>Agave sp</i>	<i>Agavaceae</i>		
11	<i>Ainsliaea aptera</i>	<i>Asteraceae</i>		
12	<i>Allium hypsistum</i>	<i>Amaryllidaceae</i>		
13	<i>Alnus nitida</i>	<i>Betulaceae</i>		
14	<i>Aloe vera</i>	<i>Liliaceae</i>		
15	<i>Anagallis sp</i>	<i>Primulaceae</i>		
16	<i>Anaphalis contorta</i>	<i>Asteraceae</i>	Buki	
17	<i>Androsace sarmentosa</i>	<i>Primulaceae</i>		
18	<i>Anemone obtusiloba</i>	<i>Ranunculaceae</i>	Kangraitto	
19	<i>Anemone tetrasephala</i>	<i>Ranunculaceae</i>		Gurjakhani
20	<i>Arisaema costatum</i>	<i>Araceae</i>	Chari Banko	Gurjakhani
21	<i>Arisaema grifithi</i>	<i>Araceae</i>	Dhakaya Banko	Gurjakhani
22	<i>Artemisia dubia</i>	<i>Asteraceae</i>	Titepati	
23	<i>Artemisia sp</i>	<i>Asteraceae</i>		
24	<i>Arundinaria falcata</i>	<i>Poaceae</i>	Nigalo	Gurjakhani
25	<i>Asparagus racemosus</i>	<i>Liliaceae</i>	Kurilo	Bobang
26	<i>Aster albescens</i>	<i>Asteraceae</i>		
27	<i>Aster flaccidus</i>	<i>Asteraceae</i>		
28	<i>Astilbe rivularis</i>	<i>Saxifragaceae</i>	Budhookhati	Gurjakhani
29	<i>Astragalus candolleanus</i>	<i>Fabaceae</i>		
30	<i>Berberis aristata</i>	<i>Berberidaceae</i>	Chutro	
31	<i>Berberis mucrifolia</i>	<i>Berberidaceae</i>		
32	<i>Bergenia ciliata</i>	<i>Saxifragaceae</i>	Pakhanved	Gurjakhani
33	<i>Betula utilis</i>	<i>Betulaceae</i>	Seto Bhojpatra	Khara
34	<i>Bistorta amplexicaulis</i>	<i>Polygonaceae</i>	Myakuro	Gustung
35	<i>Boenninghausenia albiflora</i>	<i>Rutaceae</i>		Syalpakhe

36	<i>Caltha palustris</i>	<i>Ranunculaceae</i>		Deurali,
37	<i>Cannabis sativa</i>	<i>Cannabaceae</i>		
38	<i>Capsella bursapastoris</i>	<i>Brassicaceae</i>		Monsonmela
39	<i>Caragana gerardiana</i>	<i>Fabaceae</i>		
40	<i>Cassiope fastigiata</i>	<i>Ericaceae</i>		Bayali
41	<i>Cephalanthera longifolia</i>	<i>Orchidaceae</i>		Gurja khani
42	<i>Chara sp</i>			Warmi
43	<i>Chenopodium album</i>	<i>Chenopodiaceae</i>	Bethe	Dhorpatan
44	<i>Cirsium falconeri</i>	<i>Compositae</i>	Chakailo	Bobang
45	<i>Clematis barbellata</i>	<i>Ranunculaceae</i>		Gurja ghat
46	<i>Clematis connata</i>	<i>Ranunculaceae</i>		Dhorpatan
47	<i>Clematis vernayi</i>	<i>Ranunculaceae</i>		Gurjakhani
48	<i>Clintonia udensis</i>	<i>Liliaceae</i>		Gustung
49	<i>Cordyceps sinensis</i>	<i>Clavicipitaceae</i>	Buti, Kira	Gustung
50	<i>Coriaria nepalensis</i>	<i>Coriariaceae</i>	Machhain	Gurjakhani
51	<i>Corydalis cashmeriana</i>	<i>Papaveraceae</i>		Gurjakhani
52	<i>Cotoneaster frigidus</i>	<i>Rosaceae</i>		
53	<i>Cotoneaster microphyllus</i>	<i>Rosaceae</i>	Pate	Deurali
54	<i>Cremanthodium sp</i>	<i>Asteraceae</i>		Gurja khola
55	<i>Cupressus torulosa</i>	<i>Cupressaceae</i>	Dhupi	
56	<i>Dactylorhiza hatagirea</i>	<i>Orchidaceae</i>	Hathajadi	Monsonmela
57	<i>Datura stramonium</i>	<i>Solanaceae</i>	Dhaturo	Gurjakhani
58	<i>Delphinium himalayai</i>	<i>Ranunculaceae</i>	Atis	Deurali
59	<i>Desmodium elegans</i>	<i>Fabaceae</i>		Gurjakhani
60	<i>Drymaria cordata</i>	<i>Caryophyllaceae</i>	Abhijalo	
61	<i>Drynaria sp.</i>	<i>Pteridaceae</i>		Deurali
62	<i>Dryopteris cochleata</i>	<i>Dryopteridaceae</i>	Gheu neuro	
63	<i>Elaeagnus parvifolia</i>	<i>Elaeagnaceae</i>	Guyalo	Gurjakhani
64	<i>Elsholtzia flava</i>	<i>Lamiaceae</i>		
65	<i>Ephedra gerardiana</i>	<i>Ephedraceae</i>	Salajari	Dhorpatan
66	<i>Euphorbia cognata</i>	<i>Euphorbiaceae</i>		
67	<i>Euphorbia stracheyi</i>	<i>Euphorbiaceae</i>		Khara
68	<i>Euphorbia wallichii</i>	<i>Euphorbiaceae</i>	Dudhyalo	
69	<i>Fagopyrum sp</i>	<i>Polygonaceae</i>	Phapar	
70	<i>Fragaria nubicola</i>	<i>Rosaceae</i>	Kafal	Gurjakhani
71	<i>Fritillaria cirrhosa</i>	<i>Liliaceae</i>		Monsonmela
72	<i>Gaultheria trichophylla</i>	<i>Ericaceae</i>		Khara
73	<i>Gentiana stipitata</i>	<i>Gentianaceae</i>		
74	<i>Gentiana unrula</i>	<i>Gentianaceae</i>		Khara

75	<i>Geranium wallichianum</i>	<i>Geraniaceae</i>		
76	<i>Geum elatum</i>	<i>Rosaceae</i>		Khara
77	<i>Girardinea diversifolia</i>	<i>Urticaceae</i>	Allo	Gurja khola
78	<i>Gnaphalium affine</i>	<i>Asteraceae</i>		Deurali
79	<i>Heracleum nepalense</i>	<i>Umbelliferae</i>	Dosaila	Bobang
80	<i>Helixanthera ligustrina</i>	<i>Loranthaceae</i>		Gurjakhani
81	<i>Hippophoe salicifolia</i>	<i>Elaeagnaceae</i>	Dalechuk	Gurjakhani
82	<i>Impatiens sulcata</i>	<i>Balsaminaceae</i>		Deurali,
83	<i>Incarvillea emodi</i>	<i>Bignoniaceae</i>		
84	<i>Indigofera heterantha</i>	<i>Leguminosae</i>	Sakhino	Gurjaghat
85	<i>Iris decora</i>	<i>Iridaceae</i>	Kakedhun	Warmi
86	<i>Iris kemaonensis</i>	<i>Iridaceae</i>	Kakedhun	Khara
87	<i>Jasminum humile</i>	<i>Oleaceae</i>		Gurjakhani
88	<i>Jasminum officinale</i>	<i>Oleaceae</i>		Gurjakhani
89	<i>Juglans regia</i>	<i>Juglandaceae</i>	Okhar	Deurali
90	<i>Juniperus indica</i>	<i>Cupressaceae</i>	Gya yak	Dhorpatan
91	<i>Juniperus squamata</i>	<i>Cupressaceae</i>		Dhorpatan
92	<i>Jurinea dolomea</i>	<i>Asteraceae</i>	Dhupjadi	Hepu lake
93	<i>Leontopodium stracheyi</i>	<i>Asteraceae</i>		Dhorpatan,
94	<i>Ligularia fischeri</i>	<i>Asteraceae</i>	Hate kallo	Gurjakhani
95	<i>Lonicera glabrata</i>	<i>Caprifoliaceae</i>	Bhatkudi	
96	<i>Lonicera obvata</i>	<i>Caprifoliaceae</i>		
97	<i>Lyonia ovalifolia</i>	<i>Ericaceae</i>		Bobang
98	<i>Lyonia villosa</i>	<i>Ericaceae</i>		Deurali
99	<i>Mahonia nepalensis</i>	<i>Berberidaceae</i>		
100	<i>Malus pumila Mill.</i>	<i>Rosaceae</i>	Syau	
101	<i>Malva verticillata</i>	<i>Malvaceae</i>		Gurjakhani
102	<i>Meconopsis dhwojii</i>	<i>Papaveraceae</i>		Gurjakhola
103	<i>Meconopsis paniculata</i>	<i>Papaveraceae</i>		Monsonmela
104	<i>Megacarpea polyandra</i>	<i>Cruciferae</i>		Monsonmela
105	<i>Morchella esculenta</i>	<i>Morchellaceae</i>	Mathyaura	
106	<i>Morina polyphylla</i>	<i>Dipsacaceae</i>		
107	<i>Nardostachys grandiflora</i>	<i>Valerianaceae</i>		
108	<i>Neillia rubiflora</i>	<i>Rosaceae</i>		Gurja khola
109	<i>Neopicrorhiza scrophulariifolia</i>	<i>Scrophulariaceae</i>	Katuko	
110	<i>Nepeta linearis</i>	<i>Lamiaceae</i>	Marethi	
111	<i>Ophioglossum sp</i>	<i>Ophiglossaceae</i>	Jibre sag	Gurjaghat
112	<i>Opuntia monacantha</i>	<i>Cactaceae</i>		Bobang
113	<i>Osmunda sp</i>	<i>Osmundaceae</i>	Daliya	Monsonmela

114	<i>Oxalis corniculata</i>	<i>Oxalidaceae</i>		
115	<i>Paris polyphylla</i>	<i>Liliaceae</i>		Gustung
116	<i>Parochetus communis</i>	<i>Leguminosae</i>		Deurali
117	<i>Pedicularis bicornuta</i>	<i>Scrophulariaceae</i>		Gurjaghat
118	<i>Pedicularis siphonantha</i>	<i>Scrophulariaceae</i>		Khara
119	<i>Persea odoratissima</i>	<i>Lauraceae</i>	Aaare	Gurjakhani
120	<i>Persicaria capitata</i>	<i>Polygonaceae</i>		
121	<i>Pilea umbrosa</i>	<i>Urticaceae</i>		Gurja khola
122	<i>Pinus wallichiana</i>	<i>Pinaceae</i>	Khote salla	Dhorpatan
123	<i>Piptanthus nepalensis</i>	<i>Leguminosae</i>		Dhorpatan
124	<i>Plantago erosa</i>	<i>Plantaginaceae</i>		Dhorpatan
125	<i>Podophyllum hexandrum</i>	<i>Berberidaceae</i>	Madhu	Gurjaghat
126	<i>Polygonatum cirrihifolium</i>	<i>Liliaceae</i>	Khirnaulo	Gurjakhani
127	<i>Potentilla atosanguinea.</i>	<i>Rosaceae</i>		Bayali
128	<i>Potentilla peduncularis</i>	<i>Rosaceae</i>		Deurali,
129	<i>Primula calderana</i>	<i>Primulaceae</i>		Bayali
130	<i>Primula glomerata</i>	<i>Primulaceae</i>		Khara
131	<i>Primula macrophylla</i>	<i>Primulaceae</i>		Gustung
132	<i>Primula sessilis</i>	<i>Primulaceae</i>		Bayali
133	<i>Princepia utilis</i>	<i>Rosaceae</i>	Dhatelo	Dhorpatan
134	<i>Prunus carmesina Hara</i>	<i>Rosaceae</i>	Amilearu	
135	<i>Punica grantum L.</i>	<i>Punicaceae</i>	Sendu	Bobang
136	<i>Pyracantha crenulata</i>	<i>Rosaceae</i>	Ghangaru	Gurjakhani
137	<i>Pyrus pashia</i>	<i>Rosaceae</i>	Chuli	Bobang
138	<i>Quercus semicarpifolia</i>	<i>Fagaceae</i>	Khasru	Deurali
139	<i>Ranunculus species</i>	<i>Ranunculaceae</i>		
140	<i>Rheum australe</i>	<i>Polygonaceae</i>	Padamchal	Gustung
141	<i>Rheum moorcroftianum</i>	<i>Polygonaceae</i>	Chumatsi	Dhorpatan
142	<i>Rhodiola wallichiana</i>	<i>Crassulaceae</i>		Gurjakhani
143	<i>Rhododendron arboreum</i>	<i>Ericaceae</i>	Laligurans	Deurali
144	<i>Rhododendron barbatum</i>	<i>Ericaceae</i>	Laligurans	Gurjakhani
145	<i>Rhododendron campanulatum</i>	<i>Ericaceae</i>	Chimal	
146	<i>Rhododendron lepidotum</i>	<i>Ericaceae</i>	Sunpati	Gustung k
147	<i>Rhododendron anthopogon</i>	<i>Ericaceae</i>	Sunpati	Warmi lake
148	<i>Ribes alpestre</i>	<i>Grossulariaceae</i>		
149	<i>Roripa indica</i>	<i>Brassicaceae</i>		
150	<i>Rosa sericea</i>	<i>Rosaceae</i>	Ryuili	Chyangtung
151	<i>Roscoea purpurea</i>	<i>Zingiberaceae</i>		Monsonmela
152	<i>Rubia manjith</i>	<i>Rubiaceae</i>	Majitho	Gurjakhani

153	<i>Rubus ellipticus</i>	<i>Rosaceae</i>	Ainselu	Bobang
154	<i>Rubus foliolosus</i>	<i>Rosaceae</i>	Ainselu	
155	<i>Rumex nepalensis</i>	<i>Polygonaceae</i>	Padamchal	
156	<i>Salix calyculata</i>	<i>Salicaceae</i>	Rainsa	Ustung
157	<i>Salix sikkimensis</i>	<i>Salicaceae</i>	Bainsa	
158	<i>Salvia hians</i>	<i>Lamiaceae</i>		
159	<i>Sapium insigne</i>	<i>Euphorbiaceae</i>	Khirro	
160	<i>Sarcococca hookerana</i>	<i>Buxaceae</i>		Gurjakhani
161	<i>Saxifraga andersonii</i>	<i>Saxifragaceae</i>		Bayali
162	<i>Saxifraga brachypoda</i>	<i>Saxifragaceae</i>		Warmi lake
163	<i>Saxifraga sp</i>	<i>Saxifragaceae</i>		Bayali
164	<i>Scurrula eleta</i>	<i>Loranthaceae</i>	Ainjeru	Gurjakhani
165	<i>Selinum tenuifolium</i>	<i>Umbelliferae</i>	Bhutkesh	Gustung
166	<i>Senecio graciliflorus</i>	<i>Asteraceae</i>		Khara
167	<i>Siegesbeckia orientalis</i>	<i>Asteraceae</i>	Kuroo	
168	<i>Skimmia anquetilia</i>	<i>Rutaceae</i>	Narku	Gurjakhani,
169	<i>Smilacina purpurea</i>	<i>Liliaceae</i>		Gurjakhani
170	<i>Smilax aspera</i>	<i>Liliaceae</i>		Gurjakhani
171	<i>Sorbus microphylla</i>	<i>Rosaceae</i>		Monsun mela
172	<i>Spiraea arcuata</i>	<i>Rosaceae</i>		Gurjakhani
173	<i>Taxus wallichiana</i>	<i>Taxaceae</i>	Kandeloto	Deurali,
174	<i>Thalictrum cultarum</i>	<i>Ranunculaceae</i>		
175	<i>Thermopsis barbata</i>	<i>Leguminosae</i>		
176	<i>Trigonella emodi Benth.</i>	<i>Leguminosae</i>		Deurali
177	<i>Trillidium govanianum</i>	<i>Liliaceae</i>		Gurjakhani
178	<i>Triosteum himalayanum</i>	<i>Caprifoliaceae</i>	Maurikhaja	Gurjaghat
179	<i>Tsuga dumosa</i>	<i>Pinaceae</i>	Kupi salla,	Deurali
180	<i>Urtica dioica</i>	<i>Urticaceae</i>	Sisnu	Gurjakhani
181	<i>Valeriana wallichii Jones</i>	<i>Valerianaceae</i>	Simjadi	Bobang
182	<i>Viburnum erubescens</i>	<i>Sambucaceae</i>	Lissya	Deurali
183	<i>Vincetoxicum hirundinaria</i>	<i>Asclepiadaceae</i>	Latokosero	Dhorpatan
184	<i>Voila biflora</i>	<i>Violaceae</i>	Tamik	Bayali
185	<i>Zanthoxylum armatum</i>	<i>Rutaceae</i>	Timur	Dhorpatan

Source: Ripu Kunwar 2007/DNPWC/DHR

Annex 3 List of Mammals Recorded in DHR and its Proposed BZ

SN	Scientific Name	English Name	Family
1	<i>Ailurus fulgens</i>	Red Panda	<i>Ursidae</i>
2	<i>Anathana ellioti</i>	Shrew	<i>Soricidae</i>
3	<i>Canis aurcus</i>	Jackal	<i>Canidae</i>
4	<i>Canis lupus</i>	Grey Wolf	<i>Canidae</i>
5	<i>Cuon alpinus</i>	Wild Dog	<i>Canidae</i>
6	<i>Cynoptenis sphins</i>	Bat	<i>Pteropodidae</i>
7	<i>Felis bengalensis</i>	Leopard Cat	<i>Felidae</i>
8	<i>Felis lynx</i>	Lynx	<i>Felidae</i>
9	<i>Funambulus palmarum</i>	Tree Squirrel	<i>Sciuridae</i>
10	<i>Golunda ellioti</i>	Bush Rat	<i>Muridae</i>
11	<i>Hemitragus jemlachicus</i>	Himalayan Thar	<i>Bovidae</i>
12	<i>Hylopetes alboniger</i>	Flying Squirrel	<i>Sciuridae</i>
13	<i>Hystrix indica</i>	Indian Procupine	<i>Hystricidae</i>
14	<i>Lepus nigricollis</i>	Hare	<i>Herpestidae</i>
15	<i>Macaca radiata</i>	Rhesus Monkey	<i>Cercopithecidae</i>
16	<i>Martes flavigula</i>	Yellow throated Marten	<i>Mustelidae</i>
17	<i>Merpestes edwardsi</i>	Common Mongoose	<i>Herpestidae</i>
18	<i>Moschus chrysogaster</i>	Musk Deer	<i>Moschidae</i>
19	<i>Muntiacus muntjak</i>	Barking Deer	<i>Cervidae</i>
20	<i>Naemorhedus goral</i>	Himalayan Goral	<i>Bovidae</i>
21	<i>Naemorhedus samatraensis</i>	Himalayan Serow	<i>Bovidae</i>
22	<i>Neofelis nebulosa</i>	Clouded Leopard	<i>Felidae</i>
23	<i>Niviventer</i>	White bellied Rat	<i>Muridae</i>
24	<i>Ochotona roylei</i>	Pica	<i>Ochotonidae</i>
25	<i>Panthera pardus</i>	Common Leopard	<i>Felidae</i>
26	<i>Panthera uncia</i>	Snow Leopard	<i>Felidae</i>
27	<i>Presbytis entellus</i>	Common Languor	<i>Cercopithecidae</i>
28	<i>Pseudois nayaur</i>	Bharal	<i>Bovidae</i>
29	<i>Sorex minutus</i>	Urasion Pigmy Shrew	<i>Soricidae</i>
30	<i>Sus scrofa</i>	Wild Boar	<i>Suidae</i>
31	<i>Ursus thibetanus</i>	HimalayanBlack bear	<i>Ursidae</i>
32	<i>Vulpes</i>	Red Fox	<i>Canidae</i>

Source: DHR office record and local consultations

Annex 4 List of Birds recorded in DHR and its Proposed BZ

S.N.	Scientific Name	Common Name	Family
1	<i>Accipiter nisus</i>	Northern sparrow hawk	Accipitridae
2	<i>Acridotheres tristis</i>	Common mynah	Sturnidae
3	<i>Aegithalos concinnus</i>	Black-throated tit	Aegithalidae
4	<i>Aethopyga ignicauda</i>	Fire-tailed sunbird	Nectariniidae
5	<i>Aethopyga nipalensis</i>	Green-tailed sunbird	Nectariniidae
6	<i>Alauda gulgula</i>	Oriental skylark	Alaudidae
7	<i>Alcedo atthis</i>	Common kingfisher	Alcedinidae
8	<i>Alectoris chukar</i>	Chukar partridge	Phasianidae
9	<i>Anthus hodgsoni</i>	Olive-backed Pipit	Motacillidae
10	<i>Anthus sylvanus</i>	Upland Pipit	Motacillidae
11	<i>Apus melba</i>	Alpine swift	Apodidae
12	<i>Buteo</i>	Common buzzard	Falconidae
13	<i>Caprimulgus indicus</i>	Jungle nightjar	Caprimulgidae
14	<i>Carpodacus nipalensis</i>	Dark breasted rosefinch	Fringillidae
15	<i>Carpodacus pulcherrimus</i>	Beautiful rosefinch	Fringillidae
16	<i>Carpodacus rhodopeplus</i>	Spot winged rosefinch	Fringillidae
17	<i>Catreus wallichii</i>	Cheer pheasant	Phasianidae
18	<i>Cephalopyrus flammiceps</i>	Fire-capped tit	Paridae
19	<i>Certhia familiaris</i>	Common treecreeper	Certhiidae
20	<i>Certhia himalayan</i>	Bar-tailed treecreeper	Certhiidae
21	<i>Certhia nipalensis</i>	Rusty-flanked treecreeper	Certhiidae
22	<i>Cettia brunnifrons</i>	Grey-side bush warbler	Cettiidae
23	<i>Chaimarrornis leucocephalus</i>	White-capped redstart	Muscicapidae
24	<i>Chelidorhynch hypoxantha</i>	Yellow-bellied fantail	Stenostiridae
25	<i>Chloris spinoides</i>	Yellow-breasted green finch	Fringillidae
26	<i>Ciconia episcopus</i>	Woolly-necked Stork	Ciconiidae
27	<i>Ciconia nigra</i>	Black Stork	Ciconiidae
28	<i>Cinclus pallasii</i>	Brown dipper	Muscicapidae
29	<i>Circus cyaneus</i>	Hen harrier	Accipitridae
30	<i>Circus marcourus</i>	Pallid harrier	Accipitridae
31	<i>Columba hodgsonii</i>	Speckled wood pigeon	Columbidae
32	<i>Columba leuconota</i>	Snow pigeon	Columbidae
33	<i>Corvus macrorhynchos</i>	Jungle crow	Corvidae
34	<i>Cuculus carnorus</i>	Common cuckoo	Cuculidae
35	<i>Cuculus saturatus</i>	Oriental cuckoo	Cuculidae
36	<i>Culicicapa ceylonensis</i>	Grey-headed flycatcher	Stenostiridae
37	<i>Delichon nipalenses</i>	Nepal house martin	Hirundinidae

38	<i>Dendrocopos auriceps</i>	Brown-fronted pied woodpecker	<i>Picidae</i>
39	<i>Dendrocopos himalayensis</i>	Himalayan pied woodpecker	<i>Picidae</i>
40	<i>Dendrocopos hyperythrus</i>	Rufous-bellied woodpecker	<i>Picidae</i>
41	<i>Dicaeum ignipectus</i>	Buff-bellied flowerpecker	<i>Dicaeidae</i>
42	<i>Dicrurus leucophaeus</i>	Ashy drongo	<i>Dicruridae</i>
43	<i>Emberiza cia</i>	Rock bunting	<i>Emberizidae</i>
44	<i>Emberiza fucata</i>	Chestnut-eared bunting	<i>Emberizidae</i>
45	<i>Emberiza pusilla</i>	Little bunting	<i>Emberizidae</i>
46	<i>Enicurus scouleri</i>	Little forktail	<i>Muscicapidae</i>
47	<i>Eumyias thalassinus</i>	Verditer flycatcher	<i>Muscicapidae</i>
48	<i>Falco tirununculus</i>	Common kestrel	<i>Phasianidae</i>
49	<i>Ficedula parva</i>	Red-breasted flycatcher	<i>Muscicapidae</i>
50	<i>Ficedula strophliata</i>	Orange-gorgeted flycatcher	<i>Muscicapidae</i>
51	<i>Ficedula superciliaris</i>	Ultramarine flycatcher	<i>Muscicapidae</i>
52	<i>Ficedula tricolor</i>	Slaty blue flycatcher	<i>Muscicapidae</i>
53	<i>Ficedula westermanni</i>	Little pied flycatcher	<i>Muscicapidae</i>
54	<i>Fulvetta vinipectus</i>	White-browed fulvetta	<i>Sylviidae</i>
55	<i>Garrulax affinis</i>	Black faced laughing thrush	<i>Leiothrichidae</i>
56	<i>Garrulax albogularis</i>	White-throated laughing thrush	<i>Leiothrichidae</i>
57	<i>Garrulax lineatus</i>	Streaked laughing thrush	<i>Leiothrichidae</i>
58	<i>Garrulax ocellatus</i>	Spotted laughing thrush	<i>Leiothrichidae</i>
59	<i>Garrulax striatus</i>	Striated laughing thrush	<i>Leiothrichidae</i>
60	<i>Garrulax variegatus</i>	Variiegated laughing thrush	<i>Leiothrichidae</i>
61	<i>Garrulus lanceolatus</i>	Lanceolate jay	<i>Corvidae</i>
62	<i>Geokichla citrina</i>	Orange-headed ground Thrush	<i>Turdidae</i>
63	<i>Glaucidium cuculoides</i>	Asian barren owlet	<i>Strigidae</i>
64	<i>Gypaetus barbatus</i>	Lammergeier	<i>Accipitridae</i>
65	<i>Gyps himalayensis</i>	Himalayan griffon vulture	<i>Accipitridae</i>
66	<i>Hierococcyx sparveriioides</i>	Large hawk cuckoo	<i>Cuculidae</i>
67	<i>Hodgsonius phoenicuroides</i>	White-bellied redstart	<i>Muscicapidae</i>
68	<i>Horornis fortipes</i>	Brown-flanked bush warbler	<i>Cettiidae</i>
69	<i>Hypsipetes leucocephalus</i>	Black bulbul	<i>Cinclidae</i>
70	<i>Ibidohyncha struthersii</i>	Ibisbill	<i>Ibidorhynchidae</i>
71	<i>Lanius schach</i>	Long-tailed shrike	<i>Laniidae</i>
72	<i>Lanius tephronotus</i>	Grey-backed shrike	<i>Laniidae</i>
73	<i>Lonchura punctulata</i>	Scaly breasted munia	<i>Estrildidae</i>
74	<i>Lophophanes dichrous</i>	Grey-crested tit	<i>Paridae</i>
75	<i>Luscinia brunnea</i>	Indian blue robin	<i>Muscicapidae</i>
76	<i>Megaceryle lugubris</i>	Crested kingfisher	<i>Alcedinidae</i>

77	<i>Megalaima virens</i>	Great barbet	<i>Megalaimidae</i>
78	<i>Melophus lathamii</i>	Crested bunting	<i>Emberizidae</i>
79	<i>Milvus migrans</i>	Black kite	<i>Accipitridae</i>
80	<i>Minla strigula</i>	Chestnut-tailed minla	<i>Leiothrichidae</i>
81	<i>Monticola cinclorhyncha</i>	Blue-capped rock thrush	<i>Muscicapidae</i>
82	<i>Motacilla alba</i>	White wagtail	<i>Campephagidae</i>
83	<i>Motacilla cinerea</i>	Grey wagtail	<i>Motacillidae</i>
84	<i>Muscicapa sibirica</i>	Asian sooty flycatcher	<i>Muscicapidae</i>
85	<i>Mycerobas affinis</i>	Collared grosbeak	<i>Fringillidae</i>
86	<i>Mycerobas carnipes</i>	White-winged grosbeak	<i>Emberizidae</i>
87	<i>Myophonus caeruleus</i>	Blue whistling thrush	<i>Muscicapidae</i>
88	<i>Neophron percnopterus</i>	Egyptian vulture	<i>Accipitridae</i>
89	<i>Nucifraga caryocatactes</i>	Eurasian nutcracker	<i>Corvidae</i>
90	<i>Otus spilocephalus</i>	Mountain scops owl	<i>Strigidae</i>
91	<i>Pariparus ater</i>	Coal tit	<i>Paridae</i>
92	<i>Pariparus melanolophus</i>	Spot winged black tit	<i>Paridae</i>
93	<i>Pariparus rubiventris</i>	Rufous-vented black tit	<i>Paridae</i>
94	<i>Parus monticolus</i>	Green backed tit	<i>Paridae</i>
95	<i>Parus xanthogenys</i>	Black lored tit	<i>Paridae</i>
96	<i>Passer domestica</i>	House sparrow	<i>Passeridae</i>
97	<i>Passer montanus</i>	Eurasian tree sparrow	<i>Passeridae</i>
98	<i>Passer rutilans</i>	Cinnamon sparrow	<i>Emberizidae</i>
99	<i>Pericrocotus ethologus</i>	Long-tailed minivet	<i>Pycnonotidae</i>
100	<i>Phoenicurus frontalis</i>	Blue-fronted redstart	<i>Muscicapidae</i>
101	<i>Phoenicurus ochruros</i>	Black redstart	<i>Muscicapidae</i>
102	<i>Phylloscopus reguloides</i>	Blyth's crowned warbler	<i>Phylloscopidae</i>
103	<i>Phylliscopeus magnirostris</i>	Larger-billed leaf warbler	<i>Phylloscopidae</i>
104	<i>Phylloscopus inornatus</i>	Yellow-browed warbler	<i>Phylloscopidae</i>
105	<i>Phylloscopus occipitalis</i>	Western crowned warbler	<i>Phylloscopidae</i>
106	<i>Phylloscopus pulcher</i>	Orange-barred leaf warbler	<i>Phylloscopidae</i>
107	<i>Phylloscopus xanthoschistos</i>	Grey-hooded warbler	<i>Phylloscopidae</i>
108	<i>Phylloscopus maculipennis</i>	Grey-faced leaf warbler	<i>Phylloscopidae</i>
109	<i>Picus squamatus</i>	Scaly-bellied green woodpecker	<i>Picidae</i>
110	<i>Poecile atricapillus</i>	Black-capped tit	<i>Paridae</i>
111	<i>Prinia criniger</i>	Striated prinia	<i>Cisticolidae</i>
112	<i>Pucrasia macrolopha</i>	Koklass pheasant	<i>Phasianidae</i>
113	<i>Pyrrhocorax</i>	Red-billed chough	<i>Corvidae</i>
114	<i>Pyrrhula erythrocephala</i>	Red-headed bullfinch	<i>Fringillidae</i>
115	<i>Regulus</i>	Goldcrest	<i>Regulidae</i>

116	<i>Rhyacornis fuliginosus</i>	Plumbeous redstart	<i>Muscicapidae</i>
117	<i>Saxicola ferreus</i>	Grey bushchat	<i>Muscicapidae</i>
118	<i>Saxicola torquatus</i>	Common stonechat	<i>Muscicapidae</i>
119	<i>Scolopax rusticola</i>	Eurasian woodcock	<i>Scolopaci</i>
120	<i>Seicurus burkii</i>	Golden-spectacled warbler	<i>Phylloscopidae</i>
121	<i>Sitta himalayansis</i>	White-tailed nuthatch	<i>Sittidae</i>
122	<i>Spilornis cheela</i>	Crested serpent eagle	<i>Accipitridae</i>
123	<i>Streptopelia chinensis</i>	Spotted dove	<i>Columbidae</i>
124	<i>Streptopelia orientalis</i>	Oriental turtle	<i>Columbidae</i>
125	<i>Strix aluco</i>	Tawny owl	<i>Strigidae</i>
126	<i>Tarsiger chrysaeus</i>	Golden bush-robin	<i>Muscicapidae</i>
127	<i>Tarsiger cyanurus</i>	Orange-flanked bush-robin	<i>Muscicapidae</i>
128	<i>Tragopan satyra</i>	Satyr tragopan	<i>Phasianidae</i>
129	<i>Turdus albocinctus</i>	White-collared blackbird	<i>Turdidae</i>
130	<i>Turdus boulboul</i>	Grey-winged blackbird	<i>Turdidae</i>
131	<i>Turdus ruficollis</i>	Dark-throated thrush	<i>Turdidae</i>
132	<i>Turdus viscivorus</i>	Mistle thrush	<i>Turdidae</i>
133	<i>Upupa epops</i>	Hoopoe	<i>Upupidae Leach</i>
134	<i>Urocissa flavirostris</i>	Yellow-billed blue magpie	<i>Corvidae</i>
135	<i>Yuhina gularis</i>	Stripe-throated yuhine	<i>Zosteropidae</i>
136	<i>Zoothera wardii</i>	Pied ground thrush	<i>Turdidae</i>
137	<i>Zosterops palpebrosus</i>	Oriental white eye	<i>Zosteropidae</i>

Source: Inskipp, C. (1998), Nepal's Forest Birds

Annex 5 Existing and Proposed Reserve and Security Posts in DHR

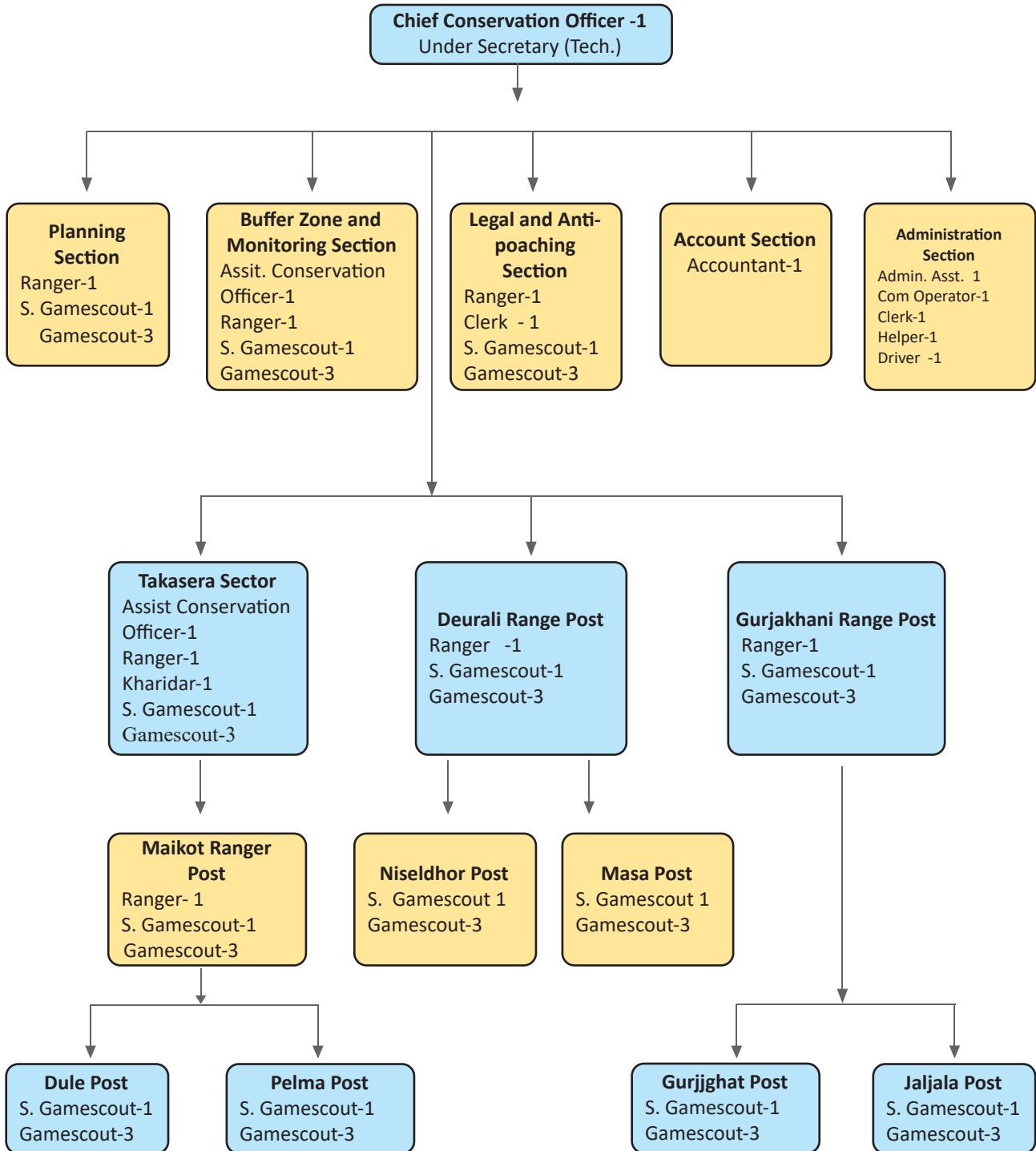
SN	Post	Post Type			District	Remarks
		Reserve	Army	Combined		
1	Dhorpatan	HQ		√	Baglung	Reserve and Nepali Army HQ
2	Deurali	Range post			„	Reserve entry point
3	Niseldhor	Guard Post			„	
4	Masa	Guard Post			„	Proposed
5	Gurjakhani	Range Post			Myagdi	
6	Gurjaghat	Guard Post			„	
7	Jaljala	Guard Post			„	
8	Takasera	Sector Post			Rukum	
9	Maikot	Range post			„	Damaged by Maoist
10	Dule	Guard Post			„	Proposed
11	Pelma	Guard Post			„	Proposed



Annex 6 Research studies conducted in Dhorpatan Hunting Reserve

SN	Topic of Research	Name of Researcher	Year
1	Himalayan Sikar Reserve: Survey and Management.	Wegge P.	1976
2	Report on Overall Assessment of Dhorpatan Hunting Reserve.	Bajamaya S. et al.	1990
3	Trophy Hunting in Nepal.	Austegard, G. and S. Hauglanel	1993
4	A Field Survey Report Submitted by Dhaulagiri Safari Management Group	Dhaulagiri Safari Group	1993
5	Nepal's Forest Birdes: Their Status and Conservation.	Inscip C.	1998
6	Management Problems and Suggestions: Book Published by Dhorpatan Hunting Reserve.	Thapa B. B.	2000
7	Problems and Prospects of Hunting Management in Dhorpatan Hunting Reserve	Baral A. N.	2001
8	Status and Distribution of Cheer Pheasant in Dhorpatan Hunting Reserve.	Subedi P.	2004
9	Status of Musk Deer in Dhorpatan Hunting Reserve.	Karki M. B.	2007
10	Inventory of High Altitude Wetland (Warmy lake) in Dhorpatan Hunting Reserve.	Kunwar R.M.	2007
11	Study on Status of Blue Sheep and Jharal in Dhorpatan Hunting Reserve.	Thapa B.B and Karki J.	2007
12	An Assessment of Yarsagumba Collection in Dhorpatan Hunting Reserve	Thapa B. B. et al.	2012
13	Summer Diet and Distribution of the Red Panda in Dhorpatan Hunting Reserve.	Achyut Aryal, et al.	2012
14	Study on status of Blue Sheep and Jharal in Dhorpatan Hunting Reserve.	Kandel Birender et al.	2011
15	Study on status of Blue Sheep and Jharal in Dhorpatan Hunting Reserve.	Baral Ana Nath et al.	2016
16.	Study on status of Himalayan tahr in Dhorpatan Hunting Reserve	Baral, Ana Nath et.al.	2017

Annex 7 Organizational Structure of DHR





Annex 8 Organizational Composition of Staff in DHR

SN	Designation	Class	Service	Group	Number	Remarks
1	Chief Conservation Officer	Gazetted Class Second (Tech)	Forest	National Parks and Wildlife	1	
2	Assistant Conservation Officer	Gazetted Class Third (Tech)	Forest	National Parks and Wildlife	2	
3	Accountant	NonGazetted Class First	Administration	Account	1	
4	Ranger	Non-gazetted Class First (Tech)	Forest	National Parks and Wildlife	7	
5	Admin. Asst	Non-gazetted Class First	Administration	General Administration	2	
6	Computer Operator	Non-gazetted Class First	Miscellaneous	Miscellaneous	1	
7	Clerk	Non-gazetted Class Second	Administration	General Administration	2	
8	Senior Gamescout	Non-gazetted Class Second	Forest	National Parks and Wildlife	13	
9	Gamescout	Unclassed	Forest	National Parks and Wildlife	39	
10	Driver	Unclassed	Administration	General Administration	1	
11	Office Helper	Unclassed	Administration	General Administration	1	
Total					70	

Annex 9 Infrastructures damaged during insurgency in DHR

S.N.	Damaged Infrastructures	Initial construction cost	Estimated cost (2064) for reconstruction, maintenance	Remarks
1.	Dhorpatan Headquarter			
	Old warden quarter	99,994.13	100,000.00	maintenance
	New warden quarter	269,218.74	200,000.00	„
	Office building	140,964.75	100,000.00	„
	Old Ranger quarter	100,000.00	150,000.00	„
	Staff quarter (lower)	100,000.00	100,000.00	„
	Staff quarter (middle)	49,997.00	500,000.00	„
	Staff quarter (upper new)	236,997.03	50,000.00	„

	Store building	100,000.00	50,000.00	„
	Horse shed	14,999.75	40,000.00	„
	Kitchen house	47,685.40	50,000.00	„
	Toilets (6)	120,000.00	100,000.00	repair/reconst
2.	Maikot Post office cum quarter	74,064.73	1000,000.00	reconstruction
3.	Takasera Post office cum quarter	74,064.73	150,000.00	maintenance
4.	Neseldhor Post office cum quarter	400,000.00	150,000.00	„
5.	Gurjaghat Post office cum quarter	136,856.54	70,000.00	„
6.	Gurjakhani Post office cum quarter	200000.00	100,000.00	„
A	Sub total (buildings)	Rs. 2164,842.60	Rs. 2910,000.00	
7.	Miscellaneous	Estimated cost of damaged materials	Estimated cost for re-purchase	
	Solar sets, Furnitures, Machinery equipments, Kitchen ware, Tents, Sleeping bags, Books, Reports, Weapons (Gun, Khukuri etc), Wldlife Trophy	1022,652.00		some items were valuable
B	Sub total (materials)	Rs. 1022,652.00	Rs. 2000,000.00	
	Grand total (A+B)	Rs. 3187,494.60	Rs. 49,10,000.00	

Source: DHR Office Note : The reconstruction and re-purchase cost was estimated in 2064

Annex 10 Revenue Generation by DHR over a period of 35 years

Fiscal Year	Revenue Rs.	Fiscal Year	Revenue Rs.	Remarks
2040/041	20.00	041/042	7069.75	
2042/043	11503.00	043/044	6027.80	
2044/045	16609.30	045/046	25153.80	
2046/047	47195.20	047/048	86331.80	
2048/049	69153.20	049/050	81513.15	
2050/051	59126.00	051/052	57778.00	
2052/053	50735.00	053/054	120951.26	
2054/055	326833.56	055/056	197506.87	
2056/057	156138.76	057/058	151081.00	
2058/059	87387.00	059/060	1200.00	

2060/061	900.00	061/062	1800.00	
2062/063	3600.00	063/064	6235.00	
2064/065	81898.00	065/066	46552.00	
2066/067	87003.00	067/068	80670.00	
2068/069	221126.00	069/070	432108.00	
2070/071	426952.00	071/072	370945.00	
2072/073	399105.93	073/074	475370.00	
2074/075	8,44,410			

Source: DNPWC/DHR

Annex 11 Visitors in DHR over a period of 31 years

Fiscal Year	Tourist Number	Fiscal Year	Tourist Number	Remarks
2043/044	93	2044/045	86	
2045/046	137	2046/047	130	
2047/048	255	2048/049	230	
2049/050	238	2050/051	175	
2051/052	172	2052/053	222	
2053/054	226	2054/055	330	
2055/056	112	2056/057	132	
2057/058	96	2058/059	72	
2059/060	0	2060/061	0	
2061/062	0	2062/063	0	
2063/064	0	2064/065	55	
2065/066	25	2066/067	17	
2067/068	77	2068/069	77	
2069/070	88	2070/071	89	
2071/072	0	2072/073	91	
2073/074	163	2074/075	119	

Source: DNPWC/DHR

Annex 12 Boundaries of DHR Hunting Blocks

- i. Phagune:** In west along the trail up north from Uttar Gang at Taka across the Phagune ridge at approx. 12,500 ft.; down to Pelma khola, there turning east upstream along Pelma & Gustung kholas to an about 3.2-4.0 km east sheep ridge east of tributary, along east side of the ridge to the Dhorpatan trail intersection than following trail south to Dhorpatan & back down along Uttar Ganga.
- ii. Barse:** Along the eastern part of Phagune block, up from gustung southwards along the Kharka trail to Dhorpatan, eastwards along Uttar Ganga to Barse Mount trail take-off, following trail along the ridge northwards across pass to eastern tributary of Gustung Khola, along the tributary and Gustung down back to Phagune block boundary.
- iii. Gustung:** Along the top of the Chalikhe pahad range turning north to the head water of Gustung khola, across this to the east side of the ridge separating the Gustung and Murigurja watersheds, Southwards below this ridge on the east side to directly east of the headwater of Gustung tributary, along the tributary down to Gustung Khola, following the river to its confluence with Pelma Khola intersection, then almost due east up to the top of Chalikhe ridge.
- iv. Dogadi:** Along the top of Chalikhe pahad (bordering Gustung block), swinging north the main Dhaulagiri massif, following the base of the Dhaulagiri northeasterly to ridge extending southeast, following top of this ridge to the Seng Dogadi trail crossing, then turning north along trail down to Seng khola, following river down stream to the Dogadi khola confluence, then SE across up to the Chalikhe pahad ridge. The boundaries are easily defined. Note that the lower SE part of the Seng watershed (south of the Seng-Dogadi trail) is included in the Dogadi block.
- v. Seng block:** In the NE following the ridge boundary of Dogadi , at the pass where the trail crosses over to Dogadi it follows the trail down to the khola, then along Seng khola downstream to where it turns abruptly east, from the bend directly southwest up across ridge and the Tarakot trail and down to forested tributary on other side, then following tributary into main Saunre khola, then following Saunre (later called Purbang khola) north to the Tarakot trail crossing Purbang, then following this trail up to Jangla Bhanjyang, at the pass swinging north and then east along the high ridge until interesting the NE corner of the Dogadi block east of the headwater of Seng khola.
- vi. Sundaha Block:** In the east Saunre Khola and the boundary of Reserve towards North, West and South.
- vii. Surtibang Block:** Uttar Ganga River towards North and the reserve boundary towards West, South and East.

Annex 13 Detailed budget of the management plan

SN	Activities	Unit	No.	Rate	Year I	Year II	Year III	Year IV	Year V	Total	Remarks
1	Protection and conservation of Biodiversity				13,800,000	15,350,000	11,250,000	14,900,000	10,050,000	65,350,000	23%
1.1	Reserve protection				9,450,000	10,000,000	6,200,000	9,600,000	5,500,000	40,750,000	
	Establish guard posts and protection units (Niseldhor, Takasera, Ranma, Dule, Jaljala, Maikot, Gurjaghat, and Gurjakhani)	No.	8	4,000,000	8,000,000	8,000,000	4,000,000	8,000,000	4,000,000	32,000,000	
	Provide solar power facilities at security post	No.	15	100,000	300,000	300,000	500,000	200,000	200,000	1,500,000	
	Repair and maintenance of head office, sector office, Range post, security offices.	No.	10	200,000	200,000	400,000	400,000	600,000	400,000	2,000,000	
	Install communication facilities for key posts with repeater tower	No.	5	250,000	250,000	500,000	500,000			1,250,000	
	Repair and maintenance of radio communication	No.	5	100,000		100,000	100,000	100,000	200,000	500,000	
	Install BTS with coordination with service provider	No.	5							-	With the support of service providers

SN	Activities	Unit	No.	Rate	Year I	Year II	Year III	Year IV	Year V	Total	Remarks
	Conduct periodic monitoring of blocks during the hunting season	times	10	200,000	400,000	400,000	400,000	400,000	400,000	2,000,000	
	Provide water treatment facilities at reserve posts	No.	50	30,000	300,000	300,000	300,000	300,000	300,000	1,500,000	
1.2	Anti-poaching and intelligence				3,200,000	3,700,000	3,700,000	3,450,000	3,200,000	17,250,000	
	Camping and sweeping operation during critical seasons	times	15	300,000	900,000	900,000	900,000	900,000	900,000	4,500,000	
	Pilot real time SMART patrolling and establish joint operation cell	times	5	250,000	500,000	500,000	500,000	250,000		1,250,000	
	Institutionalize district level Wildlife Crime Control Bureau (WCCB) formed in Baglung, Myagdi, East Rukum	times	5	200,000	200,000	200,000	200,000	200,000	200,000	1,000,000	
	Establish, institutionalize and mobilize community-based anti-poaching units (CBAPO) to support security forces	No.	25	100,000	500,000	500,000	500,000	500,000	500,000	2,500,000	
	Strengthen APU and intelligence network	Times	25	300,000	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000	7,500,000	
	Initiate long-term surveillance of suspected area and person	Years	5	500,000	100,000	100,000	100,000	100,000	100,000	500,000	

SN	Activities	Unit	No.	Rate	Year I	Year II	Year III	Year IV	Year V	Total	Remarks
1.3	Wildlife Health Management				1,150,000	1,650,000	1,350,000	1,850,000	1,350,000	7,350,000	
	Establish temporary rescue and treatment centres	No.	2	500,000		500,000		500,000		1,000,000	
	Provide treatment and rehabilitation to injured animal	Years	5	200,000	200,000	200,000	200,000	200,000	200,000	1,000,000	
	Undertake research and development work for wildlife health	No.	5	350,000	350,000	350,000	350,000	350,000	350,000	1,750,000	
	Coordinate DLSD and conservation partner for immunization and vaccination against potential communicable diseases	Years	5	300,000	300,000	300,000	300,000	300,000	300,000	1,500,000	
	Support to establish a community based veterinary center with materials required in medical emergencies,	No.	3	200,000			200,000	200,000	200,000	600,000	
	Build capacity of frontline staff to recognize, record and report disease and health status of wildlife	No.	5	150,000	150,000	150,000	150,000	150,000	150,000	750,000	

SN	Activities	Unit	No.	Rate	Year I	Year II	Year III	Year IV	Year V	Total	Remarks
	Assessment and documentation of wildlife mortality cases in coordination with DLSO	No.	5	150,000	150,000	150,000	150,000	150,000	150,000	750,000	
2	Habitat management				8,800,000	6,150,000	9,150,000	7,900,000	6,400,000	38,400,000	14 %
2.1	Wetlands				1,950,000	1,200,000	1,950,000	1,200,000	1,200,000	7,500,000	
	Inventory of wetlands and their associated biodiversity values	No.	2	750,000	750,000		750,000			1,500,000	
	Prepare and update site action plans and database	Years	5	200,000	200,000	200,000	200,000	200,000	200,000	1,000,000	
	Regular monitoring of important wetlands in the reserve	Years	5	100,000	100,000	100,000	100,000	100,000	100,000	500,000	
	Restore and rehabilitate wetlands of ecological and cultural significance	sites	5	300,000	300,000	300,000	300,000	300,000	300,000	1,500,000	
	Conserve watersheds around spring sources and headwaters of rivers and streams	No.	10	300,000	600,000	600,000	600,000	600,000	600,000	3,000,000	
2.2	Forest and fire management				2,600,000	2,700,000	3,450,000	1,450,000	950,000	11,150,000	
	Prepare inventory and sustainable use plan for forest products	Times	2	750,000	750,000		750,000			1,500,000	
	Support energy efficient technologies	No.	500	2,000		200,000	400,000	200,000	200,000	1,000,000	

SN	Activities	Unit	No.	Rate	Year I	Year II	Year III	Year IV	Year V	Total	Remarks
	Identify and analyze fire prone areas by using satellite imagery and web-based tools	Years	5	100,000	100,000	100,000	100,000	100,000	100,000	500,000	
	Conduct training to reserve staff, Army and local people on firefighting techniques;	times	25	50,000	250,000	250,000	250,000	250,000	250,000	1,250,000	
	Construct fire line in sensitive forests and grasslands	Km	100	20,000	500,000	500,000	500,000	500,000	500,000	2,000,000	
	Develop site specific forest fire management plan	No.	5	200,000	400,000	400,000	200,000			1,000,000	
	Early burning of grasslands on the basis of burning regime and creation of firebreaks annually	Ha.	100	10,000	200,000	200,000	200,000	200,000	200,000	1,000,000	
	Provide firefighting equipment to park post and forest users	No.	5	200,000	200,000	400,000	400,000			1,000,000	
	Carry out fire prevention education and awareness activities	Years	5	200,000	200,000	200,000	200,000	200,000	200,000	1,000,000	
	Establish forest fire reporting and statistical databases	times	2	250,000		250,000	250,000			500,000	
	Establish forest fire early warning system	No.	2	200,000		200,000	200,000			400,000	

SN	Activities	Unit	No.	Rate	Year I	Year II	Year III	Year IV	Year V	Total	Remarks
2.3	Encroachment management				4,250,000	2,250,000	3,750,000	5,250,000	4,250,000	19,750,000	
	Prepare detail database on encroachment inside DHR	Times	2	500,000					500,000	1,000,000	
	Rehabilitate/restoration	Ha.	100	150,000	3,000,000	1,500,000	3,000,000	4,500,000	3,000,000	15,000,000	
	Adopt communication, education and public awareness among local community and stakeholders in wise use of wetlands, issues of forest encroachment and fire management	Years	5	350,000	350,000	350,000	350,000	350,000	350,000	1,750,000	
	Coordinate with local stakeholders and authorities to regulate infrastructure development	Years	5	100,000	100,000	100,000	100,000	100,000	100,000	500,000	
	Involve local communities, including wetland dependent and their institutions in management of wetlands, forest resources and fire management in community development zone	Years	5	300,000	300,000	300,000	300,000	300,000	300,000	1,500,000	
3	Species Conservation				6,050,000	5,850,000	6,900,000	5,000,000	5,550,000	29,350,000	10 %
3.1	Musk deer				1,350,000	800,000	600,000	1,350,000	400,000	4,500,000	

SN	Activities	Unit	No.	Rate	Year I	Year II	Year III	Year IV	Year V	Total	Remarks
	Conduct research to identify status, distribution, and population ecology of musk deer and map habitats including climate resilient area and micro-refugia sites and potential connectivities	times	2	750,000	750,000			750,000		1,500,000	
	Prepare a Musk deer conservation action plan for prime habitats	plans	5	200,000	200,000	400,000	200,000	200,000		1,000,000	
	Conduct regular monitoring by reserve staff to control poaching	Years	5	200,000	200,000	200,000	200,000	200,000	200,000	1,000,000	
	Mobilize local youth to control the poaching of Musk deer	Years	5	200,000	200,000	200,000	200,000	200,000	200,000	1,000,000	
3.2	Snow Leopard				3,750,000	2,800,000	4,750,000	2,700,000	3,500,000	17,500,000	
	Estimate snow leopard population in and around the reserve including corridors and connectivities	times	2	1,000,000			1,000,000		1,000,000	2,000,000	
	Carry out periodic monitoring of snow leopard and prey population status, and regular monitoring in important snow leopard habitat	times	2	750,000	750,000		750,000			1,500,000	

SN	Activities	Unit	No.	Rate	Year I	Year II	Year III	Year IV	Year V	Total	Remarks
	Develop and implement integrated livestock/rangeland management plan	No.	3	200,000	200,000		200,000	200,000		600,000	
	Provide conflict resolution and management training to staff and communities	times	15	100,000	300,000	300,000	300,000	300,000	300,000	1,500,000	
	Develop and institutionalize community-based insurance scheme and relief delivery mechanism	Times	3	300,000	300,000	300,000	300,000			900,000	
	Provide capacity building trainings (e.g. Crime Scene Investigation) to protected area and DFO staff, Nepal Police and Nepali Army engaged in curbing wildlife crime.	times	10	100,000	200,000	200,000	200,000	200,000	200,000	1,000,000	
	Strengthen intelligence network and establishing wildlife crime database	Years	5	500,000	500,000	500,000	500,000	500,000	500,000	2,500,000	

SN	Activities	Unit	No.	Rate	Year I	Year II	Year III	Year IV	Year V	Total	Remarks
	Provide support for predator-proof corrals and alternative livelihoods for local communities including human-snow leopard conflict affected families	No.	250	30,000	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000	7,500,000	
3.3	Red Panda				950,000	2,250,000	1,550,000	950,000	1,650,000	7,350,000	
	Conduct detailed status and distribution surveys of Red Panda	Times	2	500,000		500,000			500,000	1,000,000	
	Manage forest fires through mobilization of staffs and local communities	Years	5	300,000	300,000	300,000	300,000	300,000	300,000	1,500,000	
	Implement programs on rotational grazing, enclosures, and/or stall feeding	Years	5	300,000	300,000	300,000	300,000	300,000	300,000	1,500,000	
	Prepare rangeland management and forage development activities to reduce grazing pressure around red panda habitats.	Times	2	600,000		600,000	600,000			1,200,000	

SN	Activities	Unit	No.	Rate	Year I	Year II	Year III	Year IV	Year V	Total	Remarks
	Develop guidelines to design and operate community-based ecotourism projects to support red panda conservation	Sites	2	200,000		200,000			200,000	400,000	
	Organize awareness events and community outreach program at the local level through eco-clubs, conservation education events, workshops and interactions with a focus on key species including Red Panda, Musk deer, Snow Leopard	Years	5	350,000	350,000	350,000	350,000	350,000	350,000	1,750,000	
4	Research, monitoring and capacity building				5,260,000	3,505,000	7,965,000	2,300,000	3,290,000	22,320,000	8%
4.1	Research				500,000	1000,000	3,550,000	500,000	800,000	6,350,000	
	Studies on expansion and effects of invasive species on habitats	Times	1	500,000		500,000				500,000	
	Study on overall impact of trophy hunting on biodiversity conservation and population dynamics	Times	1	750,000			750,000			750,000	

SN	Activities	Unit	No.	Rate	Year I	Year II	Year III	Year IV	Year V	Total	Remarks
	Undertake surveys of Bird and indicators species of small mammals on periodic basis	Times	2	500,000	500,000			500,000		1,000,000	
	Prepare land use plans for critical rangelands	Times	1	500,000		500,000				500,000	
	Update digital database for key species' information	Times	2	500,000			500,000		500,000	1,000,000	
	Distribution, status, and prey predator and human interface of key species such as Snow leopard and Grey wolf	times	1	750,000			750,000			750,000	
	Conduct study of climate change indicators and impact on biodiversity conservation along with identification of adaptation activities,	Times	1	750,000			750,000			750,000	
	Human wildlife conflict studies in relation to species such as Snow leopard, Grey wolf, Wild dog, Black bear	Times	2	300,000			300,000		300,000	600,000	
	Habitat mapping of important (critical) wildlife habitat and areas of high conservation significance	Times	1	500,000			500,000			500,000	
4.2	Monitoring				3,100,000	1,700,000	3,200,000	1,100,000	1,200,000	10,300,000	

SN	Activities	Unit	No.	Rate	Year I	Year II	Year III	Year IV	Year V	Total	Remarks
	Periodic monitoring of water quality of different wetlands	Times	2	500,000	500,000			500,000		1,000,000	
	Monitoring of indicator species to assess habitat condition	Times	2	500,000		500,000			500,000	1,000,000	
	Monitor wildlife species around human settlements to assess HWC status with local community engagement	Times	2	200,000	200,000			200,000		400,000	
	Forest fire monitoring	Years	5	200,000	200,000	200,000	200,000	200,000	200,000	1,000,000	
	Monitoring of populations of key species such as Musk deer, Red Panda, Snow Leopard, Grey wolf, Cheer and prey species	Times	2	500,000		500,000			500,000	1,000,000	
	Monitoring of key habitats, rangelands and livestock grazing pressure	Times	2	200,000	200,000			200,000		400,000	
	Establish permanent experimental plots (control and treatment) to gather information pertaining to grassland management and biodiversity monitoring	No.	10	100,000	500,000					1,000,000	

SN	Activities	Unit	No.	Rate	Year I	Year II	Year III	Year IV	Year V	Total	Remarks
	Set up Climate change and weather monitoring system	No.	3	1,500,000	1,500,000		3,000,000			4,500,000	
4.3	Capacity building				1,660,000	805,000	1,215,000	700,000	1,290,000	5,670,000	
	Orientation training to security units	Times	15	30,000	90,000	90,000	90,000	90,000	90,000	450,000	
	Team building workshops	Times	5	200,000	200,000	200,000	200,000	200,000	200,000	1,000,000	
	Orientation training to Game Scouts on legal issues	Times	2	30,000	30,000		30,000			60,000	
	Wildlife management and handling training	Times	3	100,000	100,000		100,000		100,000	300,000	
	Basic training Games Scouts and Rangers to handle GPS	Times	2	100,000		100,000		100,000		200,000	
	Training on Real-time SMART patrolling	Times	2	50,000		50,000			50,000	100,000	
	Field monitoring techniques for wildlife	Times	2	50,000	50,000			50,000		100,000	
	Training on sample collection (blood, fecal matter, urine or vital organs)	Times	2	100,000	100,000				100,000	200,000	
	Basic training on vegetation quantification for recording data in monitoring plots	Times	2	50,000		50,000			50,000	100,000	

SN	Activities	Unit	No.	Rate	Year I	Year II	Year III	Year IV	Year V	Total	Remarks
	Training on wildlife health condition assessment	Times	2	150,000	150,000			150,000		300,000	
	Training to park staff in wildlife habitat monitoring	Times	2	50,000		50,000			50,000	100,000	
	Crime scene investigation and interrogation training	Times	4	100,000	200,000		200,000			400,000	
	Training on nature interpretation and display management	Times	2	50,000	50,000				50,000	100,000	
	Human rights training to handle the convicted people	Times	3	100,000	100,000		100,000		100,000	300,000	
	Training on social mobilization	Times	15	50,000	250,000		250,000		250,000	750,000	
	Training of Trainers (general and specialized)	Times	2	25,000	25,000			25,000		50,000	
	Training on appreciative enquiry	Times	2	15,000		15,000		15,000		30,000	
	Public administration and management training	Times	2	20,000	20,000		20,000			40,000	
	Training on organization development and management	Times	2	20,000	20,000			20,000		40,000	
	Planning, monitoring and evaluation training	Times	2	25,000	25,000		25,000			50,000	
	Training on conflict management	Times	10	20,000	100,000		100,000			200,000	
	CITES training	Times	6	50,000	100,000		100,000		100,000	300,000	

SN	Activities	Unit	No.	Rate	Year I	Year II	Year III	Year IV	Year V	Total	Remarks
	Database management Training to Rangers and Officers	Times	4	50,000	50,000	100,000		50,000		200,000	
	GIS training to Rangers and Officers	Times	2	150,000		150,000			150,000	300,000	
5	Tourism and Entrepreneurship				3,120,000	6,120,000	5,770,000	5,670,000	3,770,000	24,450,000	9 %
	Develop comprehensive tourism plan for DHR	No.	1	500,000	500,000					500,000	
	Study impact of existing and potential growth in tourism	No.	1	500,000		500,000				500,000	
	Informal nature conservation education program in communities	times	30	200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	6,000,000	
	Trekking trail (motorable) construction and maintenance	No.	10	100,000	200,000	200,000	200,000	200,000	200,000	1,000,000	
	Bridge and culvert maintenance	No.	10	150,000	300,000	300,000	300,000	300,000	300,000	1,500,000	
	Camping site maintenance	No.	6	100,000	200,000		200,000		200,000	600,000	
	Assess and promote potential social, cultural and natural tourism attractions in DHR and surrounding communities	Times	2	300,000		300,000		300,000		600,000	

SN	Activities	Unit	No.	Rate	Year I	Year II	Year III	Year IV	Year V	Total	Remarks
	Develop and expand visitor information center at Dhorpatan and other entry routes providing basic interpretation facilities;	No.	3	5,000,000		5,000,000	5,000,000	5,000,000		15,000,000	In coordination with local bodies, Nepal Tourism Board
	Provide nature guides trainings	Times	6	100,000		200,000	200,000		200,000	600,000	
	Solid waste segregation and management	sites	15	10,000	30,000	30,000	30,000	30,000	30,000	150,000	
	Signboard development and erection	No.	25	20,000	100,000	100,000	100,000	100,000	100,000	500,000	
	Develop and conduct guided nature walk and nature camp program for school students of buffer zone;	times	30	15,000	90,000	90,000	90,000	90,000	90,000	450,000	
	Identify and promote homestay facilities in appropriate communities around traditional village	No.	10	400,000	400,000	800,000	800,000	1,200,000	800,000	4,000,000	
	Conserve and maintain cultural heritage and indigenous architecture to promote eco-tourism in DHR.	No.	5	150,000		300,000	150,000	150,000	150,000	750,000	

SN	Activities	Unit	No.	Rate	Year I	Year II	Year III	Year IV	Year V	Total	Remarks
	Promote accommodation facilities at key locations	No.	4								in coordination with local bodies, Nepal Tourism Board and private sector
	Upgrade visitor information centers	No.	2	5,000,000		5,000,000		5,000,000		10,000,000	
	Publish news and article in newspaper	Times	5	100,000	100,000		100,000	100,000	100,000	500,000	
	Production of video documentary	Times	2	400,000			400,000		400,000	800,000	
6	Special programs				4,420,000	8,770,000	7,670,000	5,320,000	9,570,000	35,750,000	13 %
6.1	Rangeland management				1,320,000	2,620,000	2,420,000	1,620,000	2,620,000	10,600,000	
	Mapping and zonation of Alpine rangelands and sub-alpine forests,	times	1	500,000		500,000				500,000	
	Monitor priority rangelands for vegetation changes, including intrusion of forests	Years	5	500,000	500,000	500,000	500,000	500,000	500,000	2,500,000	
	Map and monitor key floral species such as Fir (Abies), Blue pine (Pinus wallachiana), Birch (Betula utilis) to prevent invasion into important alpine rangelands	Times	2	500,000			500,000		500,000	1,000,000	

SN	Activities	Unit	No.	Rate	Year I	Year II	Year III	Year IV	Year V	Total	Remarks
	Control forest fire by regular monitoring and using appropriate fire control mechanism	Years	5	200,000	200,000	200,000	200,000	200,000	200,000	1,000,000	
	Conduct conservation awareness among Gothala or herders	Times	30	20,000	120,000	120,000	120,000	120,000	120,000	600,000	
	Promote soil and watershed conservation techniques to protect rangelands	No.	20	150,000	300,000	600,000	900,000	600,000	600,000	3,000,000	
	Manage invasive/unpalatable species in rangelands;	Times	5	200,000	200,000	200,000	200,000	200,000	200,000	1,000,000	
	Establish permanent research plots to study rangeland ecology or productivity of Poa spp. under different treatments.	sites	20	50,000		500,000			500,000	1,000,000	
6.2	Yarsagumba management				1,500,000	2,150,000	1,900,000	1,200,000	2,000,000	8,750,000	
	Assessments of yarsagumba ecology and production	Times	2	500,000	500,000				500,000	1,000,000	

SN	Activities	Unit	No.	Rate	Year I	Year II	Year III	Year IV	Year V	Total	Remarks
	Formulate Yarsagumba and NTFP harvest regimes and protocols with appropriate monitoring and regulations,	Times	2	300,000			300,000		300,000	600,000	
	Conduct value chain analyses, and market promotions to ensure high quality low volume harvesting;	No.	4	200,000		400,000	400,000			800,000	
	Consultations to review Yarsagumba collection and benefit sharing mechanism policy under present context of federal system for regulation and benefit sharing	Times	1	250,000		250,000				250,000	
	Use of GIS/mapping techniques to prepare database and maps of such potential areas and to differentiate areas of high and low/moderate pressure during the harvest season.	No.	1	500,000		500,000				500,000	

SN	Activities	Unit	No.	Rate	Year I	Year II	Year III	Year IV	Year V	Total	Remarks
	Explore plantations and ex-situ cultivation strategies of high-value NTFPs and initiate farming of Yarsagumba artificially,	No.	3	200,000			200,000	200,000	200,000	600,000	
	Strengthen monitoring during collection periods engaging local communities through establishing seasonal check posts;	Years	5	400,000	400,000	400,000	400,000	400,000	400,000	2,000,000	
	Provide training to harvesters/collectors for sustainable and quality harvesting of Yarsagumba	Times	30	100,000	600,000	600,000	600,000	600,000	600,000	3,000,000	
6.3	Climate change adaptation				1,600,000	4,000,000	3,350,000	2,500,000	4,950,000	16,400,000	
	Conduct participatory vulnerability assessments and hazard mapping of major human settlements and prepare Local Adaptation Plan of Action	No.	10	200,000		800,000	800,000	400,000		2,000,000	
	Establishment of forests and grazing lands in private and community lands to meet demands of forest products by both local communities and enterprises.	Ha	10	150,000	300,000		300,000	300,000	600,000	1,500,000	

SN	Activities	Unit	No.	Rate	Year I	Year II	Year III	Year IV	Year V	Total	Remarks
	Promote use of climate resilient high-value trees (e.g. species such as Yew [Taxus] that have medicinal value and are resilient to climate change)	Times	4	25,000		50,000	50,000			100,000	
	Build capacity of local youths as local resource persons or as citizen scientists to use them during monitoring of vulnerable species, ecosystem and habitat	No.	10	100,000			400,000	200,000	400,000	1,000,000	
	Introduction of new crops varieties as adaptation interventions	Times	2	100,000	100,000		100,000			200,000	
	Provide support to develop and rehabilitate community infrastructures damaged by disasters	No.	10	150,000	300,000	300,000	300,000	300,000	300,000	1,500,000	
	Develop local irrigation systems using small reservoirs to hold and release water in a regulated and sustained way	No.	5	150,000	150,000		300,000		300,000	750,000	

SN	Activities	Unit	No.	Rate	Year I	Year II	Year III	Year IV	Year V	Total	Remarks
	Install and pilot early warning systems in areas vulnerable to natural disasters	No.	3	750,000	750,000	750,000			750,000	2,250,000	
	Support to establish multipurpose community buildings for natural disasters;	No.	3	1,000,000		1,000,000		1,000,000	1,000,000	3,000,000	collaborate with local bodies
	Establish and strengthen community-based disaster management committees	No.	15	100,000		500,000	500,000		500,000	1,500,000	
	Conserve water sources by using indigenous technology. For example, fencing certain area surrounding the water source and plant local tree species;	No.	10	100,000		100,000	200,000	300,000	400,000	1,000,000	
	Documentation of climate change impacts and indigenous knowledge, skills and practices on adaptation	Times	2	300,000		300,000			300,000	600,000	
	Construct embankment, check-dams and soil and watershed conservation measure in various watershed to reduce climate vulnerabilities	No.	10	100,000		200,000	400,000		400,000	1,000,000	

SN	Activities	Unit	No.	Rate	Year I	Year II	Year III	Year IV	Year V	Total	Remarks
7	Sport hunting management				2,400,000	2,200,000	2,250,000	2,050,000	2,200,000	11,100,000	4 %
	Periodic monitoring of game animals	Times	2	500,000		500,000			500,000	1,000,000	
	Research on population dynamics, ecology and impact of hunting on population structure of game animals and prey	times	1	750,000			750,000			750,000	
	Conduct livestock surveys to understand and regulate grazing pressure around hunting areas;	times	2	200,000		200,000			200,000	400,000	
	Formulate participatory grazing management strategies	No.	6	200,000	600,000	200,000	200,000		200,000	1,200,000	
	Formulate mechanisms for local engagement and benefit sharing	No.	1	500,000	500,000					500,000	
	Conduct regular anti-poaching and monitoring patrols of highly threatened areas;	times	15	200,000	600,000	600,000	600,000	600,000	600,000	3,000,000	
	Conduct extension programs,	Years	5	200,000	200,000	200,000	200,000	200,000	200,000	1,000,000	

SN	Activities	Unit	No.	Rate	Year I	Year II	Year III	Year IV	Year V	Total	Remarks
	Manage basic facilities and alternative energy sources in nearby village for hunting operators to minimize use of green tree as firewood;	Years	5	500,000	500,000	500,000	500,000	500,000	500,000	2,500,000	
	Study status and distribution of alternative hunting species	Times	1	750,000				750,000		750,000	
8	Proposed Buffer Zone management				8,690,000	9,540,000	10,540,000	8,290,000	11,440,000	48,500,000	17 %
8.1	Conservation program				2,600,000	3,300,000	3,950,000	3,250,000	3,500,000	16,600,000	
	Forest restoration in biodiversity important and climate vulnerable areas in proposed buffer zone	ha	100	75,000	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000	7,500,000	
	Establish multi-purpose nurseries	No.	6	150,000			450,000		450,000	900,000	
	Prepare guidelines for sustainable harvesting of firewood, timber, NTFPs/ MAPs	Times	1	200,000			200,000			200,000	
	Support alternative/ efficient energy technologies	No.	500	5,000	500,000	500,000	500,000	500,000	500,000	2,500,000	
	Improve and introduce livestock breeds adapted to warmer climatic conditions as a pilot adaptation strategy	No.	100	30,000	300,000	600,000	600,000	750,000	750,000	3,000,000	

SN	Activities	Unit	No.	Rate	Year I	Year II	Year III	Year IV	Year V	Total	Remarks
	Strengthen veterinary services partnering with Government and private sectors	Times	15	100,000	300,000	300,000	300,000	300,000	300,000	1,500,000	
	Improve value chain analyses and market linkages	products	5	200,000		400,000	400,000	200,000		1,000,000	
8.2	Community support				2,900,000	2,900,000	2,900,000	2,900,000	2,900,000	14,500,000	
	Repair and maintenance of trails	No.	15	100,000	300,000	300,000	300,000	300,000	300,000	1,500,000	
	Repair and maintenance of bridges	No.	15	200,000	600,000	600,000	600,000	600,000	600,000	3,000,000	
	Repair and maintenance of community buildings	No.	10	150,000	300,000	300,000	300,000	300,000	300,000	1,500,000	
	Repair and maintenance of cultural sites	No.	5	200,000	200,000	200,000	200,000	200,000	200,000	1,000,000	
	Local level coordination meetings	years	5	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000	7,500,000	
8.3	Conservation education				1,540,000	490,000	1,540,000	490,000	1,540,000	5,600,000	
	IEC materials hoarding boards, signage	years	5	100,000	100,000	100,000	100,000	100,000	100,000	500,000	
	Strengthen Eco-clubs and mobilization	years	5	200,000	200,000	200,000	200,000	200,000	200,000	1,000,000	
	Radio programs	years	5	100,000	100,000	100,000	100,000	100,000	100,000	500,000	
	Orientation training to communities on conservation legislation	Times	30	15,000	90,000	90,000	90,000	90,000	90,000	450,000	

SN	Activities	Unit	No.	Rate	Year I	Year II	Year III	Year IV	Year V	Total	Remarks
	Learning and exposure visits	Times	9	350,000	1,050,000		1,050,000		1,050,000	3,150,000	
8.4	Income generating activities				1,650,000	2,850,000	2,150,000	1,650,000	3,500,000	11,800,000	
	Develop site specific livelihood improvement strategy	sites	15	150,000	750,000	750,000	750,000			2,250,000	
	Nature guide trainings	Times	15	150,000	300,000	150,000	600,000	450,000	750,000	2,250,000	
	Home-stay training	times	8	100,000		400,000			400,000	800,000	
	Home-stay support	No.	30	50,000		750,000			750,000	1,500,000	
	Production and distribution of timber and NTFP/MAP seedlings/cuttings for private and community plantations	sites	10	200,000		200,000	200,000	600,000	1,000,000	2,000,000	
	Introduce improved animal breeds	sites	15	200,000	600,000	600,000	600,000	600,000	600,000	3,000,000	
9	Office Management				1,570,000	1,240,000	890,000	890,000	1,410,000	6,000,000	2 %
	Procure computer	No.	5	80,000	160,000	80,000	80,000	80,000		400,000	
	Procure laptop	No.	3	100,000	100,000	100,000			100,000	300,000	
	Procure multimedia projector	No.	2	50,000	50,000				50,000	100,000	
	Procure motorbikes	No.	3	250,000	250,000	250,000			250,000	750,000	

SN	Activities	Unit	No.	Rate	Year I	Year II	Year III	Year IV	Year V	Total	Remarks
	Maintenance of vehicle, motorbikes,	Years	5	300,000	300,000	300,000	300,000	300,000	300,000	1,500,000	
	Fuel for vehicle	Liter	10,000	105	210,000	210,000	210,000	210,000	210,000	1,050,000	
	Stationeries	Years	5	150,000	150,000	150,000	150,000	150,000	150,000	750,000	
	Procure furniture	times	2	200,000	200,000				200,000	400,000	
	Payment of electricity, telephone, Internet	Years	5	150,000	150,000	150,000	150,000	150,000	150,000	750,000	
	Annual percentage				19	21	22	19	19		
Total					54,110,000	58,725,000	62,385,000	52,320,000	53,680,000	281,220,000	

Annex 14: Management Plan Preparation Team

SN	Name	Designation	Office
1	Mr. Ana Nath Baral	Chief Conservation Officer/ Coordinator	DHR
2 to 3	Mr. Narayan Rupakheti and Shyam Kumar Shah	Management Officer/member	DNPWC
3 to 4	Mr. Amir Maharjan /Bishnu Prasad Shrestha	Planning Officer/member	DNPWC
4 to 2	Mrs. Saraswoti Sapkota	Assistant Chief Conservation Officer/Coordinator	DHR
5	Mr. Rabindra Karki	Computer Officer	DNPWC
6	Mr. Santosh K Bhagat /Nurendra Aryal	Assistant Management Officer	DNPWC
7	Mr. Barna Bahadur Thapa	Consultant	Ex WARDEN

Annex 15: Management Plan reviewers

SN	Name	Remarks
1	Dr. Ram Chandra Kandel	Deputy Director General, DNPWC
2	Dr. Buddi Sagar Poudel	Ministry of Forests and Environment
3	Mr. Shyam Bajimaya	Former Director General
4	Mr. Fanindra Kharel	Former Director General
5	Mr. Bishnu Pd. Thapaliya	Asst. Management Officer, DNPWC
6	Mr. Dipesh Joshi	Senior Program Officer, WWF Nepal



Annex 16: Participants of National Consultation at DNPWC (2075/07/12)

SN	Name	Designation	Organization
1	Man Bahadur Khadka	Director General	DNPWC
2	Ram Chandra Kandel	Deputy Director General	DNPWC
3	Shyam Bajimaya	Former Director General	
4	Fanindra Kharel	Former Director General	
5	Sher Singh Thagunna	Former Deputy Director General	
6	Shant Raj Jnawali	Chief of Party/Hariyo Ban Program	WWF Nepal
7	Ana Nath Baral	Chief Conservation Officer	DHR
8	Bhumiraj Bhusal	Under Secretary	DNPWC
9	Bishnu Prasad Shrestha	Conservation Education Officer	DNPWC
10	Narayan Rupakheti	Management Officer	DNPWC
11	Laxman Prasad Paudel	Ecologist	DNPWC
12	Bhupendra Prasad Yadav	Asst. Ecologist	DNPWC
13	Rishi Ranabhat	Asst. Ecologist	DNPWC
14	Saraswoti Sapkota	Asst. Planning Officer	DNPWC
15	Pramod Bhattarai	Chief Conservation Officer	SNP
16	Ram Dev Chaudhary	Chief Conservation Officer	SPNP
17	Barna Bahadur Thapa	Former Chief Conservation Officer	DNPWC
18	Bhoj Raj Pantha	Asst. Conservation Edu. Officer	DNPWC
19	Bishnu Prasad Thapaliya	Asst. Management Officer	DNPWC
20	Santosh Kumar Bhagat	Asst. Management Officer	DNPWC
21	Pradip Joshi		ZSL Nepal
22	Dipesh Joshi	Senior Program Officer	WWF Nepal
23	Bimala Paudel	Ranger	DNPWC
24	Man Bahadur Khadka	Asst. Conservation Officer	DNPWC
25	Bhumiraj Upadhaya	Monitoring and Evaluation Officer	DNPWC
26	Sarita Lama	Ranger	DNPWC
27	Jyotendra Thakuri		BCN
28	Pramila Neupane	Ranger	DNPWC
29	Rupak Maharjan	Asst. Investigation Officer	DNPWC
30	Bimala Bhusal	Section Officer	DNPWC
31	Rabindra Karki	Computer Officer	DNPWC
32	Arjun Gautam	Under Secretary	DNPWC
33	Tej Kumar Shrestha	Consultant	LENS Pvt. Ltd
34	Madhav Khadka	Senior Manager	WWF Nepal



Government of Nepal
Ministry of Forests and Environment
Singhdurbar, Kathmandu



Department of National Parks and Wildlife Conservation
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