Assessment of Asiatic Black Bear (*Ursus thibetanus*) -Human Conflicts at Dhorpatan Hunting Reserve, Nepal

Submitted by
Bhupendra Prasad Yadav
Department of National Parks and Wildlife Conservation, Nepal
E-mail: bhupendra_iof@yahoo.com
Web: www.brcnepal.org.np

Submitted to

The Rufford Small Grants Foundation, UK
&
People's Trust for Endangered Species, UK

2009

Assessment of Asiatic Black Bear (*Ursus thibetanus*) -Human Conflicts at Dhorpatan Hunting Reserve, Nepal

PRINCIPAL INVESTIGATOR: Bhupendra Prasad Yadav

ADVISOR: S. Sathyakumar, Wildlife Institute of India,
Shiva Raj Bhatta, Department of National Parks and Wildlife Conservation, Nepal

FUNDED BY: The Rufford Small Grants Foundation, UK and People's Trust for Endangered Species, UK

CITATION**:** Yadav, B.P, Sathyakumar, S. and Bhatta, S.R.2009. Assessment of Asiatic Black Bear (*Ursus thibetanus*) -Human Conflicts at Dhorpatan Hunting Reserve, Nepal, 51 pp.

COVER PHOTO: Conservation education programme photo in Rukum District

ACKNOWLEDGEMENT

I would like to thank to the Rufford Small Grants Foundation, UK and People's Trust for Endangered Species, UK that provided me the grant to carry out this study on the "Assessment of Asiatic black bear (*Ursus thibetanus*) – Human Conflicts at Dhorpatan Hunting Reserve Nepal". I am deeply indebted to my respected advisor Dr. S. Sathyakumar, Scientist Wildlife Institute of India, Dehradun and Mr. Shiva Raj Bhatta (Department of National Parks and Wildlife Conservation, Nepal) for his valuable guidance, Suggestions and constructive comments at different stages of this study.

My great thanks are to Mr. Shyam Bajimaya (Acting Director General, DNPWC), for his credible cooperation to work in Dhorpatan Hunting Reserve. I thank Dr. Frederick C. Dean, Dr. Dave Garseli, Dr. Mahendra Shrestha, Mr. Jane Raymond, Dr. Cynthia H. Holte, Mr. Megh Bahadur Pandey, Dr. Narendra Pradhan, Mr. Surya Bahadur Pandey, Mr. Barna Bahadur Thapa, Mr. Budhi Sagar Poudel, Mr. Arjun Bhusal (Ranger), Mr. Pradip Saud and Mr. Rajesh Rai for their help and cooperation in many ways. I would like to thank to the Department of National Parks and Wildlife Conservation, Nepal, IBA, USA and Bear Research and Conservation Nepal.

I would like to thank Mr. Bharat Bhatta, Mr.Hare Ram Pandey, Mr. Mohan K.C, and Mr. Ashok K. Shah for field work. I wish to thank Mr. Achyut Aryal (Map development), Mr. Bishnu Devkota, Mr. Kamal Thapa, Mr. Bishnu Prasad Shrestha, Mr. Khim Bd K.C.(DFO, Rukum), Mr. Ishwar Shah (principal of Jan Jagriti) and all participants, Mr. Bishnu Thapaliya, Ms Ganga Bhandari and my beloved wife Mrs. Pratima Yadav and my lovely daughter Roshi Yadav for their encouragement and support. All other informants are thanked for sharing their information.

Finally, my greatest recognition goes to my beloved parents for their inspiration and moral support for this study.

Bhupendra Prasad Yadav

SUMMARY

We assessed the extent and magnitude of Asiatic black bear (*Ursus thibetanus*) - Human Conflicts of Dhorpatan Hunting Reserve (DHR), Nepal from May 2007 to December 2007 through field surveys and semi-structured questionnaire surveys in order to identify the high conflict zones and the causes for conflicts for mitigation planning. The conservation activities were done in the January and February of 2008. We sampled 33 transects during the study period (52.3 km effort) to obtain information on the status, distribution, and relative abundance of black bears based on direct and indirect evidences. We interviewed 190 local villagers to collect information on cropping patterns and livestock holdings, bear attacks on humans, crop raiding behavior, livestock depredation, causes for conflicts, and the current practices of local villagers in reducing conflicts.

In DHR, black bear occurs in a variety of habitats ranging from subtropical mixed forests (1,500m to 2,000m) to Temperate conifer forests (2,000m to 3,000m) and sub-alpine oak-rhododendron forests (3,000m to 3,500m). The overall black bear encounter rate in DHR was 0.75±0.09 bear signs/km (1.0-2.0/km), and it ranged from 0 to 3 bears signs/ km walk. Bear signs (n=25) included: scats (n=17), feeding signs (n=5), tracks (n=2), and nest (n=1). The sign encounter rate of black bear is statistically significant in Dhorpatan Hunting Reserve ($t=7.76$, $df = 32$, $P < 0.05$). The seasonal observation of black bear in DHR was higher in August and September.

During the period 1998 to 2007, six cases of bear attacks on people have been reported. The overall loss (21.29%) of agricultural crops in 2006, the black bear was responsible for (6.53%) and in 2007, out of total loss (22.45%) the black bear was responsible for (8.33%) in DHR. The total number of livestock loss due to large carnivores from 2006 to 2007 was accounted to 69 livestock. Out of them, black bear was responsible to 4.65% in 2006 and 5.0% in 2007. During survey, most of the respondents (47.62%) indicated that the black bear were most active at mid- night (9PM-3AM) to the crop raiding than early night (6PM-9PM). The black bear preferred 4 agricultural crops whole 8 species of wild food species. It was seen that Rele, Jhim, Syaula forests had more pressure than other forest to collect fuel wood, fodder and timber followed by Ghuri and Chepare forests.

The Village Development Committees of Gurjakhani and Maikot of Myagdi and Rukum districts respectively were categorized in the high conflicts zone. The seven traditional and indigenous techniques/activities of protection measures against black bear were being used. Measures such as habitat improvement in the community forests and changes in cropping patterns are proposed for reduction in crop raiding by black bear.

Key word: *Asiatic Black bear, Dhorpatan Hunting Reserve, status, agriculture, crop-raiding, livestock depredation, behavior, conflict reduction.*

CONTENTS

	PAGE
Acknowledge	iii
Summary	iv
Contents	v
List of Table	vii
List of Figure	vii
List of Annex	vii
List of Acronyms	viii
CHAPTER-1: INTRODUCTION	1
1. 1 Background	1
1.2 Conservation status	1
1.3 Distribution	2
1.4 Rationale	2
1.5 Objective	2
CHAPTER-2: STUDY AREA	3
2.1 Study Area:	3
2.1.1 Caste composition:	3
2.1.2 General climate	3
2.1.3 Current land use	4
2.1.4 Forest types	4
2.1.5 Flora	4
2.1.6 Fauna	4
2.1.7 Livelihood	4
CHAPTER-3: METHODOLOGY	6
3.1. Primary Data Collection	6
3.2 Informal interviews	6
3.3 Field surveys	6
3.4 Status and potential habitat	6
3.5 Secondary Data	6
CHAPTER- 4: RESULTS AND DISCUSSION	7
4.1. Bear –Human Conflicts	7
4.1.1 Black Bear Victim	8
4.1.3 Grazing area, Seasons and Herders	9
4.1.4 Livestock loss and depredation	11
4.2 Land Use and Agricultural Production	12

4.2.1 Land use 12
4.2.2 Agricultural Crop Production and Loss 13
4.2.3 Agricultural crop loss by other wildlife in DHR 14
4.3 Crop Raiding Behavior and Preference 15
4.3.1 Agricultural crop raiding **time** (N=168) 15
4.3.2 Agricultural crop preference by black bear 16
4.3.3 Feeding habits and parts of agricultural crops eaten 16
4.3.4 Wild Food Preference 17
4.4 Habitat types 18
4.4.1. Plant species at signs recorded in DHR 18
4.5. Anthropogenic Pressure 18
4.5.1 Grazing pressure 18
4.5.2 Forest resource dependency 19
4.6. Conflict Zone and Mitigation Measures 20
4.6.1. Encounter rate of Asiatic black bear in DHR 20
4.6.2 Conflict zones 20
4.6.3 Protection measure against black bear crop raiding 20
4.7 Status, Distribution and Habitat Condition 21
4.7.1 Seasonality of Bear Observation 21
4.7.2 Status of black bear in DHR 23
4.7.3 Distribution of black bear and its potential area in DHR. 24

CHAPTER FIVE: CONSERVATION PROGRAMME 25
5.1 Poster Publication and Web- page designing 25
5.2 Art, Quiz and Essay competition 25
5.3 Background of places where conservation activities conducted 25
5.4 Bear Conservation Quiz Contest 26
5.5 Essay and Art Competition: 29
5.6 Awareness camp for various age groups: 31
5.7 Eco-club formation and orientation training 31
5.8 Group discussion: 31

CHAPTER SIX: CONSERVATION AND MANAGEMENT 32
6.1Conclusions 32
6.2 Recommendation for Management 33

REFERENCES 35

List of Tables

Table1: Asiatic black bear attacks on Human in DHR (1998-2007) 7
Table 2: Livestock holding and practices of rearing in DHR 8
Table- 3: Grazing area with herder and seasonal use 9
Table 4: Grazing area, seasons and pressure 10
Table 5: Total agricultural crop cultivated land and its production in DHR (N=170) 13
Table 6: Crop calendar of the major agricultural crop of DHR (N=170) 13
Table 7: Wild food preference by black bear in DHR 17
Table 8: Grazing area, seasons & herders 18

List of Figures

Figure 1: Map of Dhorpatan Hunting Reserve 5
Figure 2: Livestock depredation by wild carnivores in DHR, 2006-2007 11
Figure 3: Livestock loss to carnivores in DHR (2006-2007). 12
Figure 4: agricultural production and loss in DHR (2006-2007). 14
Figure 5: Agricultural crop loss by other wildlife in Dhorpatan Hunting Reserve 15
Figure 6: Agricultural crop raiding by black bear with respect to time period 15
Figure 7: Relative agricultural crop preference of black bear based on Respondents 16
Figure 8: Feeding habits of agricultural crops 17
Figure 9: Percentage of activities carried out for protection measures in DHR (N=170) 21
Figure 10: Seasonal Observation of Asiatic black bear in DHR 22
Figure 11: Seasonal movements of black bear in DHR 22
Figure 12: Status of black bear in Dhorpatan Hunting Reserve 23
Figure 13: black bear distribution area in Dhorpatan Hunting Reserve 24

Annexure

Annex-1: Transect survey data 37
Annex-2: Name list of participants in conservation activities. 38
Annex 3: Constitution of Eco-club formed in Maikot of Rukum 39

LIST OF ACRONYMS

BPP	Biodiversity Project Profile
CITES	Conventional on International Trade in Endangered Species of Wild flora and Fauna
DFO	District Forest Office
DHR	Dhorpatan Hunting Reserve
DNPWC	Department of National Parks and Wildlife Conservation
GIS	Global Information System
IBA	International Association for Bear Research and Management
IUCN	The World Conservation Union
JBN	Japan Bear Network
NPWC	National Parks and Wildlife Conservation
NBS	National Biodiversity Strategy
NP	National Park
NTFP	Non-Timber Forest Product
VDC	Village Development Committee

CHAPTER-1: INTRODUCTION

1. 1 Background

The Asiatic black bear is a fascinating bear with its awesome power, athletic built and intelligence. Its generic name means, "Moon bear" (Ernest 1968). It is known as 'Dom' in Bhotia, ''Sona' in Lepcha, 'Maggen' in Limbu (Pocock 1932) and 'Kalo bhalu' in Nepali (Shrestha 1997). The literature shows that it has two common name; Asiatic black bear and Himalayan black bear for the "Kalo Bhalu". This literature is used to Asiatic black bear for Kalo Bhalo' (*Ursus thibetanus*), but somewhere it is also called Himalayan black bear. Of 8 species of bear, three species are available in Nepal such as Asiatic black bear (*Ursus thibetanus),* Brown bear *(Ursus arctos)* and Sloth bear *(Melursus ursinus).*

The Asiatic black bear (*Ursus thibetanus*) is distributed through much of southern Asia, northeastern China, far eastern Russia and Japan (Servheen 1990). In the Indian sub continent, it is distributed in Afghanistan, Pakistan, India, Nepal and Bhutan. This distribution continues into Myanmar and Southeast Asia (JBN, 2006). Asiatic black bear is threatened in South Asia due to poaching for gall bladder (medicine), skin (ornamental), and retaliatory killings to reduce agricultural crop depredation (Servheen 1990).

Asiatic black bear is an inhabitant of deciduous, mixed woodland and moist temperate forest up to the permanent tree line and in the Himalayas rarely found at the elevation above 4000m (Grizimek 1990). In Nepal, it is confined to conifer and rhododendron forest and ascends up to 12,000 ft in summer and descends to 5, 000 ft in winter (Shrestha 1997). It is nocturnal and usually emerges at dusk and dawn; and bed to twigs in winter and on the fork of the tree in summer, where they usually feed (Ernest 1968). It is omnivores and its diet comprises more than 90% of plant materials (Hwang *et al.* 2000).

1.2 Conservation status

The Asiatic black bear is not included in the protected animals' species in Nepal under the National Park and Wildlife Conservation Act, 1973 (NPWC Act 1973). The CITES appendices, 1995 included it under Appendix-I. CITES is the world's main way of protecting threatened and endangered wildlife from the disastrous effects of international trade. The CITES treaty involves trade restrictions for species listed in different Appendices, that is Appendix I includes species in danger of extinction which are or may be affected by international trade. Commercial trade of such species is strictly prohibited. Conservation status is IUCN Red List- Vulnerable, US Federal List- Endangered.

1.3 Distribution

Currently, Asiatic black bears are distributed throughout the eastern to western ranges of hills and mountains of Nepal. The distribution of Asiatic black bears in the parks areas are listed out by the literature review and personnel communication. The name of these parks are as follows Kanchenjunga Conservation Area, Makalu Barun National Park, Sagarmatha National Park, Annapurna Conservation area, Manasalu Conservation area, Langtang National Park, Shivapuri National Park, Dhorpatan Hunting Reserve, Rara National Park, Khaptad National Park and Shey- phoksundo National Park (Yadav, *et. al,* 2008).

1.4 Rationale

Asian bears face a particularly destructive combination of threats such as poaching for bear parts, habitat loss and habitat degradation as well as a critical lack of knowledge about their status, distribution, and requirements for survival. Many bear populations in these areas will disappear before they are ever documented (Servheen *et. al.*1999). No information is available on the status of Asiatic black bear in Nepal (Servheen 1990, Servheen *et. al.*1999). Bears are killed to use in Chinese medicine and to serve as soup in Asian and North American countries (Servheen 1989).

The reason for selecting DHR was that there were no information exists on the status, distribution, and the extent of Asiatic black bear-human conflicts from DHR. Only reports of high bear-human conflicts received from the local people and annual report of DHR. In Nepal, there is lack of information about Asiatic black bear due to various factors such as lack of research and trained man power. The conservation and management efforts will only be successful when we have the information on this species. Since the study of this species has not been done so far in Nepal, this study was conducted with a view to add some information on this species.

1.5 Objective:

1. Assess the interface between human and Asiatic black bear with special emphasis on the following:
    - *i.*Bear-Human conflicts
    - *ii.*Anthropogenic pressures on bear habitat
    - iii. Crop raiding behaviors and bear's preferences for agricultural crops.
2. Map the distribution and potential habitat area of Asiatic black bear
3. Identify the causes for conflicts and 'high conflict zones' for mitigation planning.
4. Raising conservation awareness activities to change local people attitude towards the conservation of Asiatic black bear.

CHAPTER-2: STUDY AREA

2.1 Study Area:

The study was conducted in Dhorpatan Hunting Reserve (DHR). It was established in 1983 and gazzeted in 1987. It lies at 82°50′ to 83°15′ E longitude to 28° 27′ 30″ to 28° 50′ N latitude and ranges from 2,000 m to 7,246 m elevation. The east-west length is 28-44 km and north – south width is 37 km. DHR is the only hunting reserve in the country to meet the needs of Nepalese and foreign hunters of blue sheep and other game animals. The trophy hunting in this reserve initiated since the beginning of the seventies (Austegard and Haugland 1993). Dhorpatan Hunting Reserve is situated in the Himalayan ecological zone of mid western Nepal occupying an area of 1,325 Km^2 with extension of 795 km^2 (60%) in Rukum district, 292 km^2 (22%) in Baglung district and 238 km^2 (17.96%) in Myagdi district. All the districts represent temperate to alpine ecosystems enriching endemic, threatened and economically important species (DNPWC, 2008).

The reserve is located on the southern flanks of the Dhaulagiri Himalayan range and is surrounded by villages from all sides except in the north. High Himalayan ranges and peaks Gurja, Putha, Churen etc. delineate the northern border of the reserve. The southern border limits to the Surtibang and holy river Uttarganga (Wilson 1981). Dhorkhani, Jhalke and Lamakyang range border the eastern part and Kharibanh khola, Pelma khola, Kulta, Bhanjyang and Jangla limit the western border. The reserve lies on an important trading route from Tarakot and Dolpo to the north. During the summer many Hindu pilgrims visit the area (BPP 1995).

2.1.1. Caste composition:

The major ethnic groups of the users of the reserve are Magar, Brahmin, Chhetri, Kami, Damai, Thakali, etc. The ethnic groups of the reserve are famed as *Nauthar* such as Adai, Bhandari, Chhotabhandari, Mateadai, Kather, Kayat, Khadka, Kumai, and Thapa. The average household size of the users is 6.35. The major occupations of the local people were livestock rearing, farming and forest products collection. The major livestock are goat, sheep, cow, ox, buffalo and horse etc.

2.1.2. General climate

The climatic variation is high because of the varied topography and elevation. Winter is severe with temperature below freezing point and frequent snowfall above 2,500 m altitude. Occasional heavy snowfall closes the trails for several days and snow avalanches frequently pose threats to local people, livestock and wildlife.

2.1.3. Current land use

Most of the area is barrenland followed by grassland, forest and shrubland. The forest is mainly situated along the river valley and slopes are covered by shrub and grassland. The area above the tree line was covered by rhododendron, juniper and cotoneaster scrubs.

2.1.4. Forest types

There are different types of forest observed during the field survey *Abies-Pinus* forest, *Quercus-Pecea, Rhododendron-Birch, Acer- cappadociccum* and *Abies-Arundinaria. Arundinaria and Quercus forest* is important to black bear according to the local people.

2.1.5. Flora

The area Dhorpatan Hunting reserve is rich in endemic species and threatened species. The northwestern Nepal particularly the area between Kaligandaki and Karnali rivers has been considered as exceptionally rich in endemism (Shrestha and Joshi 1996).

2.1.6. Fauna

More than 50% of the reserve area is covered by open grassland and snow. The reserve is prime habitat of Blue sheep (*Pseudois nayaur*). Other animals are Serow (*Capricornis sumatraensis*), Asiatic black bear (*Ursus thibetanus*), Musk deer (*Moschus chrysogastur*), Snow leopard (*Panthera uncial uncia*), Leopard (*Panthera pardus*), Ghoral (*Nemorhaedus goral*), Wolf (*Canis lupus*), Red panda (*Ailurus fulgens),* Barking deer (*Muntiacus reevesi*), Wild dog (*Cuon alpinus*), Wild boar (*Sus scrofa*), Himalayan Thar (*Hemitragus jemlahicus*), Red fox (*Valpes vulpes*), Mouse hare (*Ochotona roylei*), Cheer pheasant (*Catreus wallichii*), Danphe (*Lophophorus impejanus*), Monal (*Tragopan satyra*), Snow patridge (*Lerwa lerwa*), etc (DNPWC,2008).

2.1.7. Livelihood

Livelihood of the local people of DHR and its catchment area is versatile. Most of the people do migratory settlement due to climatic conditions and resources availability. They do descend down during winter and ascend up during summer. Both the purposes are related to storing forage and feeding their livestock and to sustain there in the reserve area. They do their household work and storing cereal crops (Oat (Waa), Potato) during September-November.

Figure 1: Map of Dhorpatan Hunting Reserve

CHAPTER-3: METHODOLOGY

3.1. Primary Data Collection

The field survey was carried out during spring (May-June 2007) and summer (July-August 2007). The field data collection time was extended till the end of December, 2007 due to harvesting of the agricultural crops according to altitudinal and seasonal variation.

3.2 Informal interviews

Local villagers were interviewed with the help of semi-structured questionnaire to assess the status, distribution of Asiatic black bear, its habitat, and bear-human conflicts. Some of the 'high conflict zones' and potential Asiatic black bear habitat areas were identified through the informal interviews. Such areas identified through questionnaire surveys, were later intensively surveyed for black bear status and understanding the causes for crop depredation. Data on cropping pattern, seasonality, production, crop loss, black bear behavior and circumstances that led to crop loss were collected from the villagers. In the examination of the total loss to total production of major agricultural crops for each year, minor discrepancy in the individual crop production and loss percentage to total production was obtained. Total production is the collective production of individual agricultural crop, whereas total loss is the cumulative loss of these crops to total production of crops that are considered in interpretation.

3.3 Field surveys

Over 120 field days were spent along with study team in DHR. In total, 190 people (31 Villages) were interviewed using semi-structured questionnaire. Most of the villagers did not agree for an interview due to the political instability. A total of 33 transects were laid for signs survey and sampled (52.3 km effort). The minimum and maximum length of transect was 1.0km-3.0km. Intensive field surveys were based on indirect evidences (tracks, scats, and claw or rake signs) along random line transects of 1.0 – 3.0 km length laid in different altitudinal zones in the study area. Habitat and vegetation parameters for every bear sign encountered along transects were recorded using 10 m radius plots. GPS location of each indirect evidences, transect routes and Sample plots were recorded.

3.4 Status and potential habitat

The status of black bear was recorded as high, medium and low on the basis of local people interview.

3.5 Secondary Data

Various relevant sources were searched and gathered the information from published and unpublished report.

CHAPTER- 4: RESULTS AND DISCUSSION

4.1. Bear –Human Conflicts

4.1.1 Black Bear Victim

In 31 villages, a total of 190 people were interviewed using the semi-structured questionnaire. During the field survey, we recorded only 6 cases of black bear attacks on humans in DHR (Table 1) though there were few more, for which confirmation was not available. Of these, 3 cases occurred in the forest areas when people were in search of forest produce or grazing their livestock. Two victims had lost their life. One case of bear attack on woman in the grazing land has been reported. Instances of retaliatory killing of black bear, after human attacks was reported some places, via, Gurjakhani and Maikot. The killing the bear for their bile and pug mark had also reported in some remote areas. Though these people were suffering of loss, the provision of compensation or supportive fund was not available in the DHR. So, no any support could be provided by DHR authority to the victims. The attitude of victims and their relatives became negative and this could have led to a change in the attitude of other people living close to them. Undermining this prominent aspect, the conservation and management of Asiatic black bear could not be feasible in the Dhorpatan Hunting Reserve.

Table1: Asiatic black bear attacks on Human in DHR (1998-2007)

S.N.	Sex	Date of attack	Victim people (single/group)	Place of incident	Activity of victim
1.	M	1998/07	Group	Forest	Collecting grass
2.	M	1998/09	single	Forest	Herder
3.	M	2001/10	Group	Trail	Returning to home
4.	M	2003/8	Single	Farmland	Grass collection
5.	F	2006/7	Single	Forest	Grazing land
6.	M	2007/10	Single	Forest	Searching livestock

Out of the 6 cases, 4 were recorded in the forest area when the victim was single and two cases when the victim was in a group. Four cases were reported in July and October followed by 2 cases in August and September. Most of the places are remote and there are no access to the vehicle so local people has been using the forest path and sometime it is happened bear - human interface. The effect of such human losses hampered the conservation to the black bear. People had strong voice to control the black bear by the government. During the field survey, we found that some of wildlife trophies in the local people home, via skin, head. Based on such evidences we concluded that the poaching were high in Dhorpatan Hunting Reserve. The movement of people carrying with gun was high in the forest. The research team had no courage to ask to these people and these people objective to arousing inside the forest with gun.

4.1.2 Major Livestock holding and practices of rearing

In the study area of DHR, most common livestock were found as Buffalo, Cow, Ox, Goat, Sheep and Horses. According to the respondent (N=165) they reported, Cow and Ox and sheep were commonly reared whereas Horse was reared in less number in comparison to other livestock (Table- 2). This is, because Horses are commonly used for carrying food material and travel from one place to another as a standard vehicle to the mountain people.

Table 2: Livestock holding and practices of rearing in DHR

S.N.	Livestock	2006	2007	Grazing (%)	Stall feeding (%)	Grazing & Stall (%)
1	Cow/Ox	842	998	37.97	6.02	4.13
2	Buffalo	266	308	13.53	7.52	3.75
3	Horse	98	132	9.40	1.50	3
4	Sheep	490	410	7.89	0.38	0.37
5	Goat	232	358	3.76	0.38	0.37
	Total	**1928**	**2206**	**72.56 %**	**15.79 %**	**11.62 %**

Generally the practices of rearing livestock was not a single, it was a mixture of two or more practices. The respondent reported that they practiced 'grazing', 'grazing and stall feeding', 'stall feeding' to rear their livestock. Normally, it was found that the practice of 'Grazing' was favored by 72.56%, followed by 'stall feeding' (15.79%) and Grazing & stall feeding (11.62%).

It was seen that the each individual livestock was not reared with single practice; Buffalo with stall feeding (7.52%), Cow & Ox with grazing (37.97%). Cow and Buffalo were reared with both grazing and stall feeding practices. Goat, sheep and horse were reared with grazing. Pressure in the forest area by livestock was directly and indirectly allied with the forest. The 'stall feeding' practices were supplement by the forest grass and fodder, while other practices were typically concentrated in the forest area. Wilson, 1997 data showed that the livestock density (heads/ha) on cultivated land in Nepal has mid-hills 7.44 millions, mountains 2.18 millions, & Terai 4.05 million. The DHR office records showed that there was 10% stall feeding system and 90% free grazing at *Buki* (scrubland above tree line).

4.1.3 Grazing area, Seasons and Herders

In this study, three types of areas and two grazing seasons were classified for grazing livestock. The classified areas were 'using/nearest forest'[1], 'distant forest/grazing land'[2] and 'village area/agricultural field'[3] and seasons were summer and winter. In both seasons 'distance/grazing land' was highly used by local people than other areas. In summer 25.09% (Table- 3) of respondent used 'distance forest/grazing land' for grazing whereas only 6.56% of people used 'village area/agricultural field' for grazing their livestock. In winter, 17.15% used 'using/nearest forest' and 10.67% used 'distance forest/grazing land' for grazing their livestock. But 'village area/agricultural field' was highly used by respondent (22.18%) to graze their livestock during winter season. In comparing with summer and winter season, the relative pressure of grazing on forest area ('using/nearest forest' and 'distance forest/grazing land') was high in summer (43.44%) than in winter (27.82%)

Table- 3: Grazing area with herder and seasonal use

S. N.	Grazing area	Seasons	
		Summer	Winter
1	Using /nearest forest	18.35%	17.15%
2	Distance forest/grazing land	25.09%	10.67%
3	Village area/Agricultural field	6.56%	22.18%

[1]*Using/nearest forest:* Those forest which are within the reach of 1 hrs or adjacent to the village area or those forest where the traditional right, using right or customary right of local people is privileged. These are such forest from where, local peoples daily need including livestock needs are expected to fulfill.

[2]*Distance forest/grazing land:* Those forests or grazing land which need more than 1.5 hrs to reach. These are such forest/land, where transhumance practices occurs or where local people go during the deficit period or make occasional visit to collect forest resources and to graze livestock.

[3]*Village area/agricultural field:* Village periphery, village open land, public land, barren agricultural land and or use of agricultural land after the harvesting of crop to graze livestock

Table 4: Grazing area, seasons and pressure

Summer	Respondent (%)	Winter	Respondent (%)
Buki	39.19	Bobang	9.09
Dhorpatan	18.92	Sukurdung	6.06
Fagune	1.35	Dhorpatan	1.52
Mansun mela	10.81	Morang	4.55
Tharakhola	10.81	Adhikari chaur	1.51
Bhedachang	1.40	Gurjakhani	18.18
Antarekharka	1.40	Deurali	6.06
Dhara	4.05	Pelma	4.54
Hanpa	2.70	Maikot	16.67
Navewang	2.70	Uttarganga	3.03
Ekhark	1.40	Makeltay	3.03

The Buki forest (39.19%) had more pressure followed by Dhorpatan (18.92%), Tharakhola (10.81%), Mansun Mela (10.81%) and Dhara (4.05%) in the summer season. The Gurjakhani (18.18%) forest had highest pressure followed by Maikot (16.67%), Bobang (9.09%), Sukurdung (6.06%), Deurali (6.06%), and Morang (4.55%) in the winter season.

In both season, it was found that 90% herders were used for livestock grazing while only 10% herders were not used for livestock grazing. The age of herder most frequent was 40-50 years old and followed by 20-40 and 10-20.It was seen that Rele, Jhim, Syaula forests had more pressure than other forests to collect fuel wood, fodder and timber followed by Ghuri and Chepare. Forest encroachment inside the reserve is the major problem. The process to capture the area were as first slash and burn the area and clearing of slash and making shelter house for livestock.

The villages around and inside the reserve are Bobang, Adhikari Chaur, Nisy and Bungadovan of Baglung district; Gurjakhani, Muna and Lulongkhoriya of Myagdi district; and Taksera, Maikot, Hukam, Kankri and Koola of Rukum district. More than 80% pasture needs of the livestock of the villages is met from the reserve. It is estimated that more than 80000 domestic animals graze inside the reserve per year (Poudel 1995).

The data showed that there were 90% of 114,104 livestock grazing in reserve area (Baral 2001). Herders chase away the wild animals. Fire is deliberately set at reserve area for wildlife trapping and sprouting tender shoots of grass and fodder species for their livestock. Mainly the herders were used fire to get new flushes of grass for their livestock and poachers used it to find out the spot to catch the animals (Baral, 2001).

4.1.4 Livestock loss and depredation

The source of conflict between human and wildlife in the protected area is manifested by livestock loss to wild carnivore. In the study area the livestock holding was found to be 5.41 Cow/Ox (0-10), 1.68 Buffalo (0-4), 0.67 horse (0-4), 3.47 Goat (0-17), 2.64 Sheep (0-19). The total number of livestock loss due to large carnivores from 2006 to 2007 was 69.

In the study area, local people reported that the livestock depredation by wild carnivores has been increasing. In the overall livestock depredation in 2006 to 2007, it was found that Black bear accounted for 4.65% in 2006 and 5.0%% in 2007 (figure-2). Leopard, Wolf and Jackal were reported another wild carnivore that causes livestock depredation in 2006-2007, leopard accounted for the 31.40% & 32.5% of livestock loss in 2006 and 2007 respectively while Wolf accounted for 11.63% and 8.75% in 2006 and 2007. Jackal (*Canis aureus*) accounted for 2.33% and 3.75% of livestock loss.

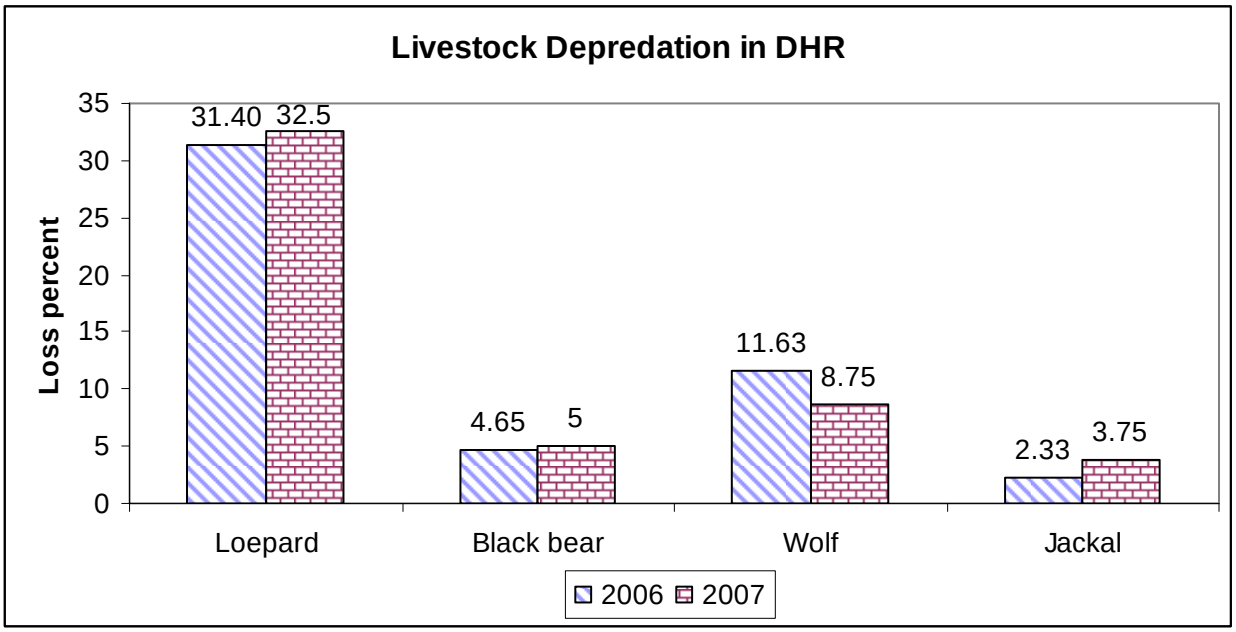


Figure 2: Livestock depredation by wild carnivores in DHR, 2006-2007

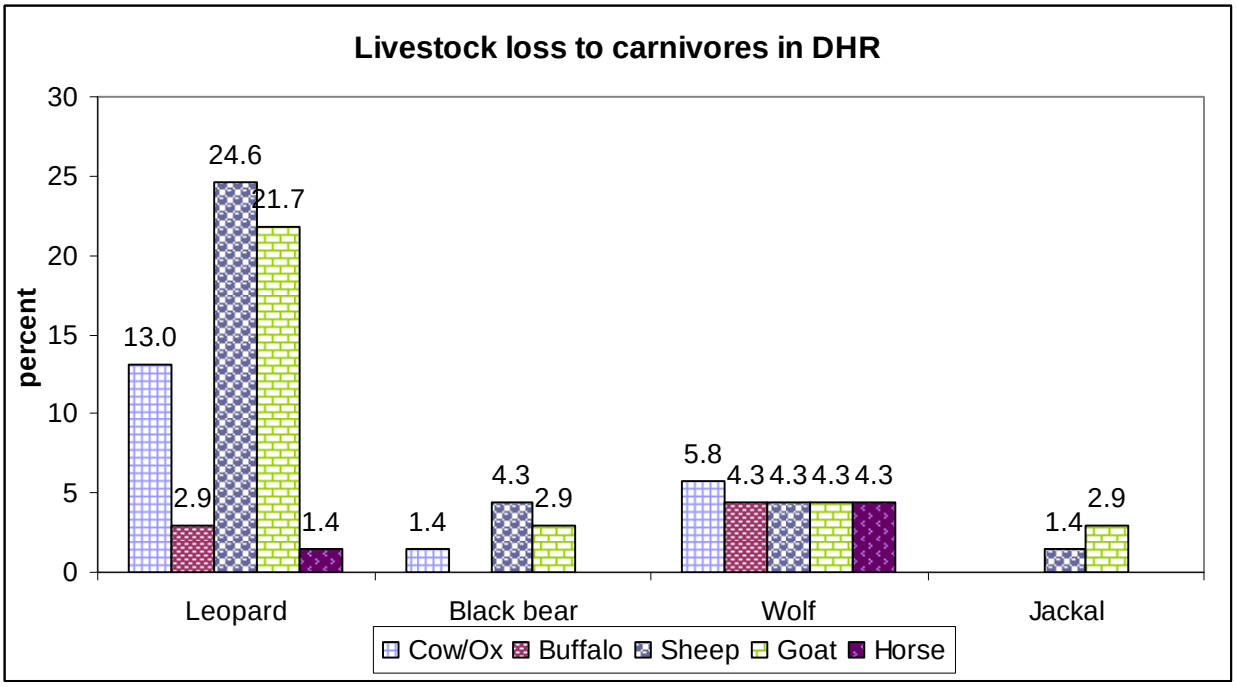


Figure 3: Livestock loss to carnivores in DHR (2006-2007).

The field data of livestock loss to wild carnivores infers that, sheep is largely depredated, than to other livestock. Black bear accounted for loss of 4.3% of sheep, and 2.9% of goat and 1.4% of cow/ox each. Leopard accounted for loss of 24.6% of sheep, followed by 21.7% of goat, 13.0 % of cow/ox, 2.9% of buffalo and 1.4 % of horse. Wolf accounted for 5.8% of cow/ox, 4.3% of buffalo, sheep, goat and horse each. Jackal accounted for 2.9% of goat and 1.4% of sheep loss. The reports of livestock loss by black bear were least but not most as to leopard. The occasional report of livestock loss such as cow and ox occurred. It was reported that sometime black bear entered in the livestock house and they fight with the big livestock and killed them. The livestock killed by black bear was reported rarely and happened unintentionally.

4.2 Land Use and Agricultural Production

The villages that were not reported the crop loss by black bear were not interviewed. The crop growing pattern and harvesting pattern was different due to altitudinal variation and different climate. The average land holding capacity was also different in different altitudinal zones due to land fertility and profession of local people.

4.2.1 Land use

Land holding and average agricultural crop cultivated and its production in the study area were assessed during 2007.

Table 5: Total agricultural crop cultivated land and its production in DHR (N=170)

		Area in hectare		Production in Kg	
S. N.	**Crop**	**2006**	**2007**	**2006**	**2007**
1	Maize	35.62	38.68	70566	76410
2	Millet	7.33	7.12	9990	9300
3	Wheat	8.04	9.67	10140	12480
4	Rice	3.66	3.66	7200	6720
5	Buckwheat	0.61	0.61	390	390
6	Potato	26.51	28.35	74184	75654
7	Barley	2.75	4.12	2940	5683.2
	Total	**84.53**	**92.21**	**175410**	**186637.2**

Table 6: Crop calendar of the major agricultural crop of DHR (N=170)

S.N.	Crop	Germination period	Harvesting period
1	Maize	Mar-Apr	Oct-Nov
2	Millet	May-Jun	Oct-Nov
3	Wheat	Oct-Nov	Apr-May
4	Rice	Jun-July	Oct-Nov
5	Buckwheat	Aug-sep	Oct-Nov
6	Potato	Feb-Mar	Oct-Nov
7	Barley	Oct-Nov	Apr-May

The above table shows that the germination period for maize is mid (Mar-Apr) while the harvesting period of maize is (Oct-Nov). Likewise the germination period of millet is (May-Jun) while the harvesting time of millet is (Oct-Nov). The germination and harvesting time was some how different according to the altitude because higher altitude was slower growth rate and slower harvesting period while the lower altitude was faster growth and earlier harvesting time. The crop harvesting time is very important because it determines the black bear movement.

4.2.2 Agricultural Crop Production and Loss

In the examination of the total loss to total production of major agricultural crop in 2006 & 2007, minor discrepancy in the individual crop production and loss percentage to total production was obtained. Total production is the collective production of individual agricultural crop; where as total loss is the cumulative loss of these crops to total production of crops that are considered in interpretation.

In total production (1,75,410 Kg) of major agricultural crop for 2006 comprised of maize with 51.76%, millet with 5.10% and potato with 43.15%, and total loss of 21.29% to total production was accrue of maize (15.77%), millet (0.21%) and potato (5.31%). In 2007, total production (186637.2 Kg) of major crop was contributed by maize (47.35%), millet (46.88%) and potato (5.76%) and total loss of 22.45% to total production was accounted by maize (17.65%), millet (4.37%) and potato (0.43%). In both years, total productions of maize occupied major portion for total loss in 2006 and 2007.

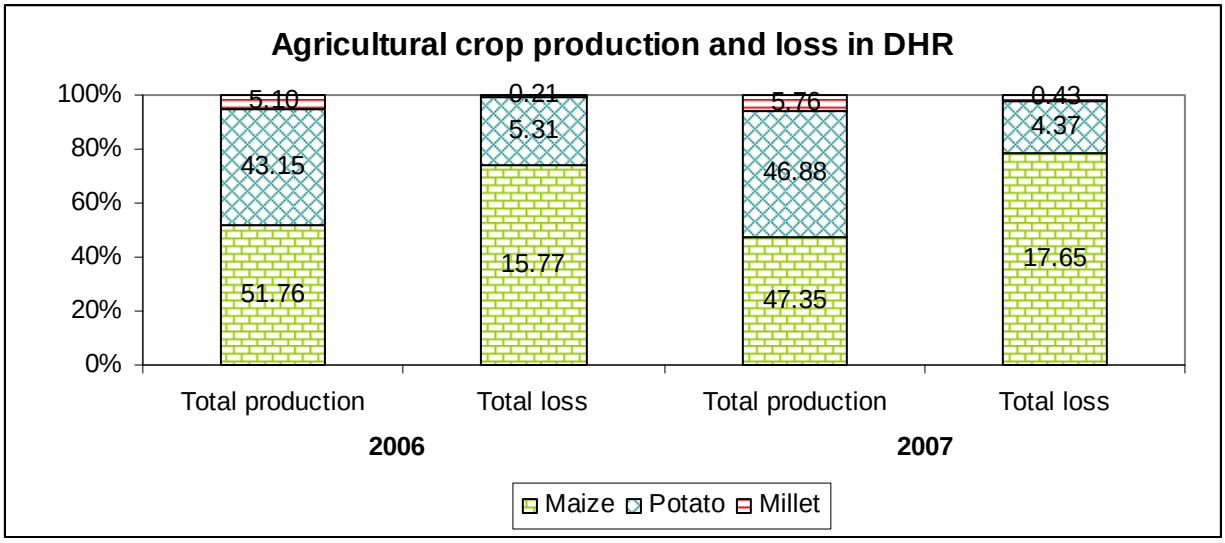


Figure 4: agricultural production and loss in DHR (2006-2007).

4.2.3 Agricultural crop loss by other wildlife in DHR

Human and wildlife conflict has always been exaggerated by the agricultural crop loss and rarely by human mauling. In DHR, Asiatic black bear was not only the problematic animal but also monkey, porcupine and wild boar. In the relation of the agricultural crop raised by the people such as maize, millet, paddy, potato, wheat, barley (Himalayan) and buckwheat; black bears were accounted for high agricultural crop loss percentage to total production in 2006 and 2007 (figure-4). Out of total loss (21.29%) of crop in 2006, we calculated the crop loss percentage to Asiatic black bear was 6.53% followed by wild boar (6.47%), macaque (monkey) (4.93%) and porcupine (3.36%). In 2007, out of total loss (22.45%) the black bear was responsible for 8.33% to crop loss while the macaque (monkey) (5.50%), wild boar (4.82%) and porcupine (3.80%). Apart from the Asiatic black bear, the loss was due to wild boar and macaque was appropriate to illustrate the existence of conflict in DHR.

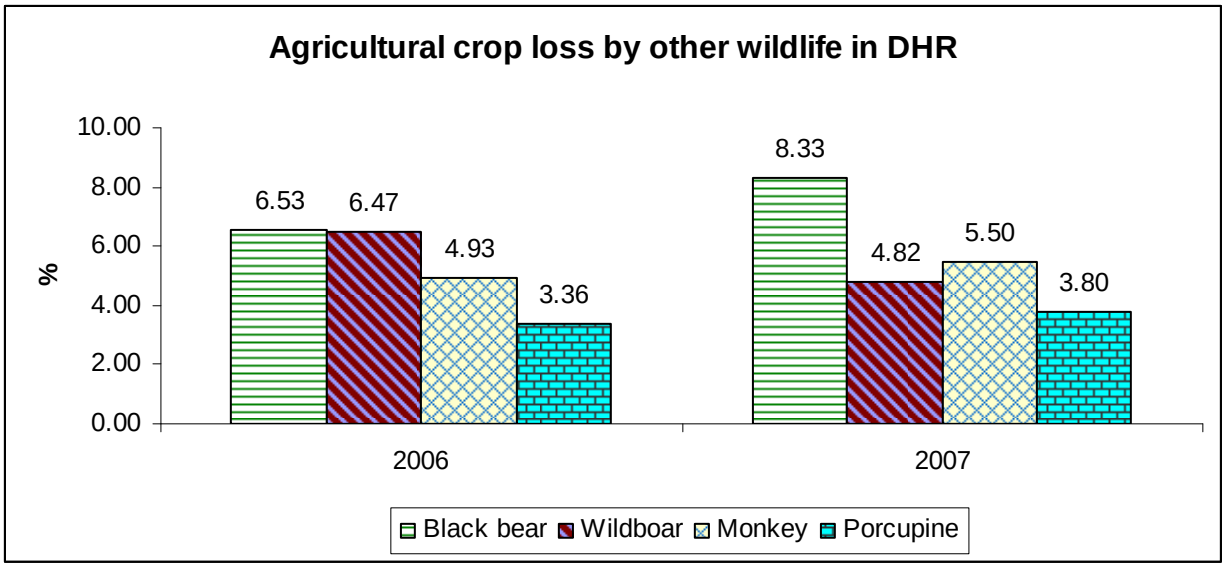


Figure 5: Agricultural crop loss by other wildlife in Dhorpatan Hunting Reserve

4.3 Crop Raiding Behavior and Preference

4.3.1 Agricultural crop raiding time (N=168)

Black bear is a nocturnal animal and its crop raiding activities were also confined to night time period. We classified the time hour into four different periods as early night (6PM-9PM), mid-night (9PM-3AM), early morning (3AM-6AM), and day (6AM-6PM) to examine its active time period in agricultural crop raiding. During survey, most of the respondents (47.62%) indicated that the black bear were most active at mid- night (9PM-3AM) to the crop raiding than early night (6PM-9PM).

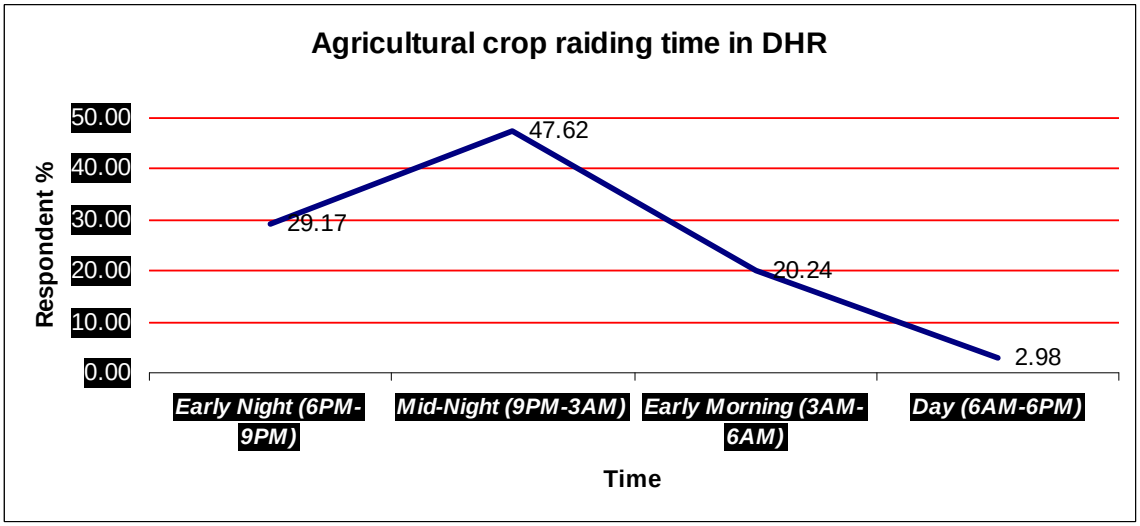


Figure 6: Agricultural crop raiding by black bear with respect to time period

4.3.2 Agricultural crop preference by Black bear

The respondents (N=188) reported that black bear prefers 4 different agricultural crop species. Among crops, maize (85.1%) was the relatively highest preference in Dhorpatan Hunting Reserve. Millet (9.57%) is the second major preferred agricultural crop in DHR. But it was also reported that black bear preferred potato. People of Dhorpatan Hunting Reserve were not practiced more agricultural crops due to high altitudinal ranges.

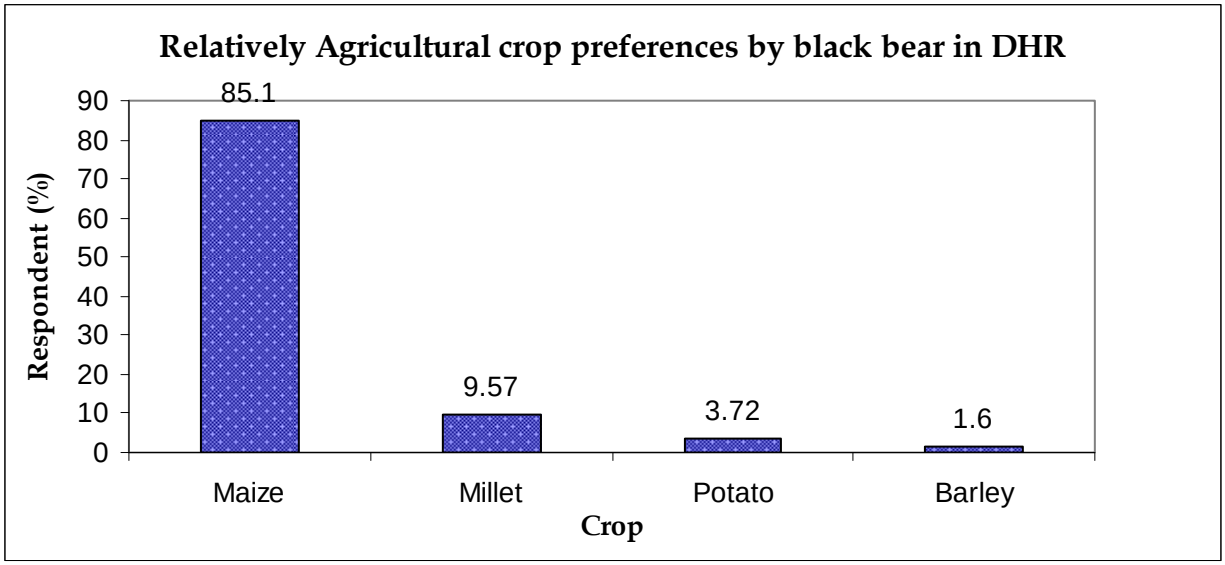


Figure 7: Relative agricultural crop preference of black bear based on Respondents (N=188)

4.3.3 Feeding habits and parts of agricultural crops eaten

Based on the nature of damage and indirect signs during agricultural crop raiding, people explained the eating habits of black bear. They placed five types of eating habits for black bear. They are allocating in one area[4], looping[5], sweeping, tearing and digging. With reference to individual crop with different explained feeding habits, one of the habits was predominantly reported. For maize, 41.8% of respondent reported it tears the plant and then eats. For, millet, 62.5% respondent reported that it makes sweeping to grab the corn and then eat. Similarly for barley 67.74% reported to sweeping. It was reported that potato was eaten by digging (88.09%) and sometime black bear uprooted and allowing at one places then eaten.

Even if different eating habits were placed, one of the habits was predominantly responded to individual crop. Habit of sweeping was commonly (37.21%) addressed. People reported that the black bear consumes grains of maize, millet, barley and buckwheat while as rhizome of potato.

Allocating in one area[4]: Making collection of crop in one area and sits to eat crop
Looping[5] : Grab of corn with partial damage to standing plant

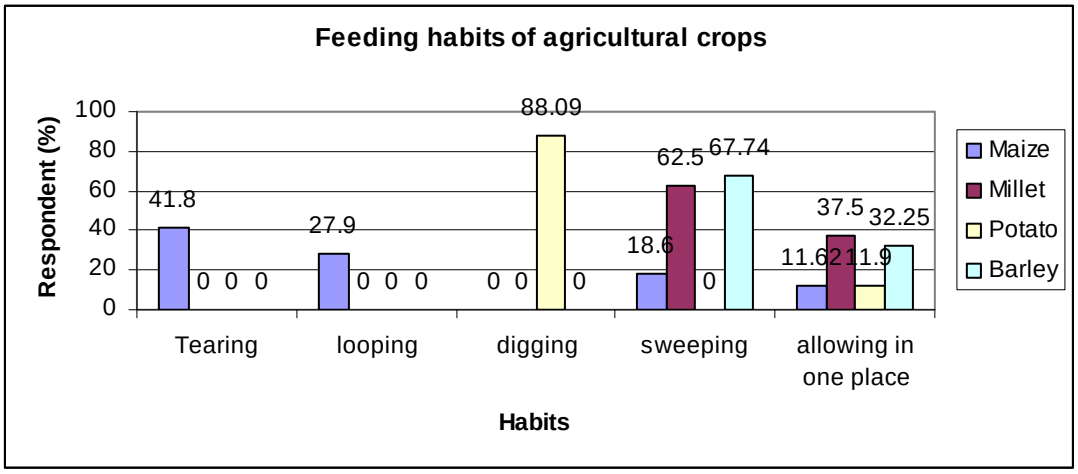


Figure 8: Feeding habits of agricultural crops

4.3.4 Wild Food Preference

The respondents (N=142) reported that the Asiatic black bear used 8 wild plant species as food (Table-7). The local people reported the plants name mostly in local language and it was collected as plants samples and identified them through expert.

Table 7: Wild food preference by black bear in DHR

S.N.	Local Name	Botanical Name	Respondent (%)
1	Nigalo	*Himalayacalamus species*	24.65
2	Mayal	*Pyrus pashia*	11.27
3	Khasru	*Quercus species*	30.28
4	Dummer"		4.23
5	Deodar	*Cedrus deodara*	2.11
6	Aiselu	*Rubus species*	5.63
7	Chutro	*Berberis species*	16.20
8	Kafal	*Myrica esculenta*	5.63
	N=142		

Dummer" is local name and it is a kind of fruit that favored by the black bear.

The respondents reported that the black bear preferred wild food as following respect *Quercus species (30.28%), Himalayacalamus species (24.65%), Berberis species (16.20%), Prunus pashia (11.27%), Rubus species (5.63%), Myrica esculenta (5.63%), "Dummer (4.23%) and Cedrus deodara (2.11%).*

4.4 Habitat types

Based on the respondents (N=165) knowledge of black bear habitat use and description of bear encounter locations, we attempted to describe the species association of its habitat. The respondent reported that Asiatic black bear mostly uses mixed forest type rather than hardwood forest and conifer forest. The respondent (N=165) reported that the Asiatic black bear uses Mixed forest (59%), Hardwood forest (22%) and Coniferous forest (19%) on the basis of their knowledge and sighting reference. Asiatic black bear moved seasonally and locally where the crops grown.

Asiatic black bear is an inhabitant of deciduous, mixed woodland and moist temperate forest up to the permanent tree line in the Himalayas rarely found at the elevation above 4000m (Grizimek 1990). In Nepal it is confined in conifer and rhododendron forest and ascends upto 12,000ft in summer and descends to 5,000 ft in winter (Shrestha 1997). They mostly occurred in the deciduous forest consisting of *Morus species, Quercus species, Salix species, Juglans regia* as well as *Celtis australis, Rhus continus, Populas species* (Grizimek 1990). Servheen *et al*. 1999 and Schaller 1969 reported that *Ursus thibetanus* utilize more of mixed forest in China, India, Taiwan, Japan and Russia. Similarly American black bear also use mixed forest extensively (Beringer *et al.* 1994). The extensive use of mixed forest can be attributed to the presences of variety of forage plants including many succulent fruit species in this forest.

4.4.1. Plant species at signs recorded in DHR

Habitat and vegetation parameters for every bear sign encountered along transects were recorded using 10m radius plots. We recorded *Quercus species* and *Rhododendron species* as a major percentage followed by *Malus sikkimensis, Schima wallichii, Pyrus pashia, Maesa chisia, Berberis species, Lyonia ovalifolia,Pinus species, Rubus species, Gaultheria fragrantissima, Engelhardia spicata and Himalayacalamus species, cupressus species, cedrus deodara and Dummer"("local name).*

4.5. Anthropogenic Pressure

4.5.1 Grazing pressure

Table 8: Grazing area, seasons & herders

Summer	Respondent (%)	Winter	Respondent (%)
Buki	39.19	Bobang	9.09
Dhorpatan	18.92	Sukurdung	6.06
Fagune	1.35	Dhorpatan	1.52
Mansun mela	10.81	Morang	4.55
Tharakhola	10.81	Adhikari chaur	1.51
Bhedachang	1.40	Gurjakhani	18.18

Antarekharka	1.40	Deurali	6.06
Dhara	4.05	Pelma	4.54
Hanpa	2.70	Maikot	16.67
Navewang	2.70	Uttarganga	3.03
Ekhark	1.40	Makeltay	3.03

The Buki forest (39.19%) had more pressure followed by Dhorpatan (18.92%), Tharakhola (10.81%), Mansun Mela (10.81%) and Dhara (4.05%) in the summer season. The Gurjakhani (18.18%) forest had highest pressure followed by Maikot (16.67%), Bobang (9.09%), Sukurdung (6.06%), Deurali (6.06%), and Morang (4.55%).

In both season, we found that 90% herders were used for livestock grazing while only 10% herders were not used for livestock grazing. The most frequent age of herder was 40-50 years old and followed by 20-40 and 10-20.It was seen that Rele, Jhim, Syaula forests had more pressure than other forest to collect fuel wood, fodder and timber followed by Ghuri, Chepare forests.

Grazing is usually only a seasonal treat to the high elevation pastures of the Himalayas. The level of livestock grazing is also one of the most serious treats to the ecological integrity of the mid-hill and highlands PAs (NBS, 2002).

4.5.2 Forest resource dependency

The people's pressure in forest area was mainly for fuel wood, fodder, and wood/timber collection. Beside these, NTFPs collection was also a major pressure exerting activity in the DHR. During the study, we categorized the forest on the basis of distance and collection of forest resources. Three types of forest being used by people were found i.e. 'nearest forest', 'distant forest' and 'nearest and distant forest' to collect forest resources.

Nepal has approximately 4,268,000 hectares of forest (29% of the country's total land area). The latest available statistics reveal that forest area decreased at an annual rate of 1.7% between 1978/79 & 1994, whereas forest & shrub land together decreased at an annual rate of 0.5 %.The decrease in forest area was not uniform through the different physiographic zones. In the hill areas it decreases at a rate of 2.3% per annum from 1978/79 to 1994 (NBS, 2002). Studied carried on Asiatic black bear had also shown that human impact was the prime cause of extinction of the bear in Japan (Horino and Shingo 2000), and in India (Johnsingh 2003).

4.6. Conflict Zone and Mitigation Measures

4.6.1. Encounter rate of Asiatic black bear in DHR

During field survey, altogether 33 transects were laid of 52.3 km (Annex-1). In the survey period, the existing trials and tracks were chosen for transects to record the reference points and GPS location. During survey, 8 transects were established from which 3 transects that run through agricultural field to forest area and 5 transects entirely in the forest area. Taking consideration of the altitudinal ranges, forest cover, human settlement, agricultural land and perceived bear and human conflict situation, the possible representation was expected by laying out 17 transects in other areas. The average transect length was 1.58 km, the minimum length of 1.0 km transects were laid where the topographical condition was difficult. But in those areas, where frequent survey was difficult, the transect length was maximized up to 3 km length and there were only one large transects. The distance of 1.0 km was maintained between each transects.

During the survey, altogether 25 signs were encountered, which comprised of 17 sings of scats, 5 feeding signs (plant crushing), 2 tracks and 1 nest. Overall, the encounter rate for the black bear signs based on line transect (N=33) was 0.75±0.09 signs/km with standard deviation of 0.56 (Range =1.0-3.0 km).The sign encounter rate of black bear is statistically significant in Dhorpatan Hunting Reserve ($t=7.76$, $df = 32$, $P < 0.05$).

4.6.2 Conflict zones

Based on the survey data of encounter rate and crop loss, we finalized the conflict zones in DHR. We proceeded to determine the effect of black bear in the agricultural perspective. Finally, using average loss percentage and total loss percentage per year with the average crop production of per year, only few areas above 1% loss of the average production of per year were observed. For convenient of zoning, areas were ranked with high (>3% loss), medium (1-3%) and low (<1 %) degree and it was found that, only two areas were high conflict zones. Where as only one area was found as medium and remaining others were found as low conflict zones. The VDC of Gurjakhani in Myagdi district and VDC of Maikot in Rukum district were categorized in the high conflicts zone. The Bobang VDC of Baglung districts were categorized in medium and Adhikari Chaur VDC of Baglung was categorized in low conflict zones.

4.6.3 Protection measure against black bear crop raiding

In DHR, respondent (N=170) explicated traditional and indigenous techniques/activities of protection measures against black bear that were being used. Not only single or specific protection measure was practiced; a sort of collective techniques were used varying in magnitude irrespective to the altitudinal range and time period by local respondent.

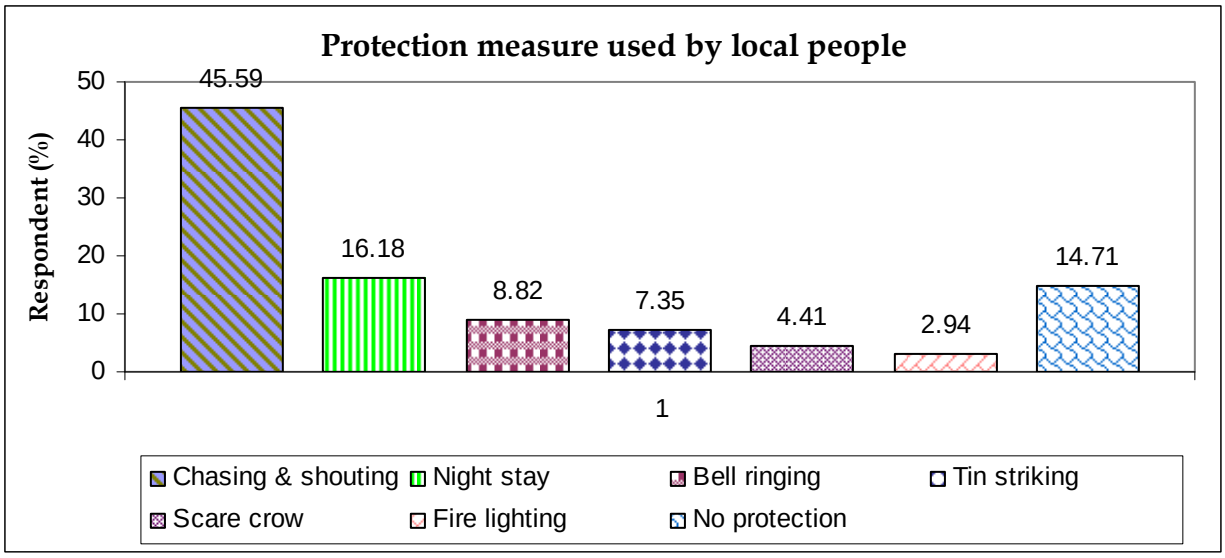


Figure 9: Percentage of activities carried out for protection measures in DHR (N=170)

The practice of 'Chasing and shouting', Night Stay" and Bell ringing' were acknowledged as accustomed practices. Chasing and shouting was accredited with 45.59%, subsequently, Night stay with 16.18%, Bell ringing with 8.82% and Tin striking with 7.35%. Apart from undertaking protection measures, 14.71% of respondent were reported of not adopting any practices as protection measures against black bear raiding.

4.7. Status, Distribution and Habitat Condition

4.7.1 Seasonality of Bear Observation

We analyzed respondents past and present observations of black bear to (N=161) during the period 2006-2007 in different places; either in agricultural field or in the forest area, performing different activities such as crop surveillance, forest resource collection, and livestock grazing and wandering to their destinations.

It was inferred that during summer season the black bear was highly observed in Northern aspect (39.29%) followed by Southern aspect (32.14%), Western (17.86%) and Eastern aspect (10.71%). It coincides with the maize harvesting period in that season and concomitantly fruiting of *Berberis species*. During winter, its observation was reported high in Southern aspect (42.86%) followed by Northern aspect (28.57%), Western aspect (21.43%) and Eastern aspect (7.14%).

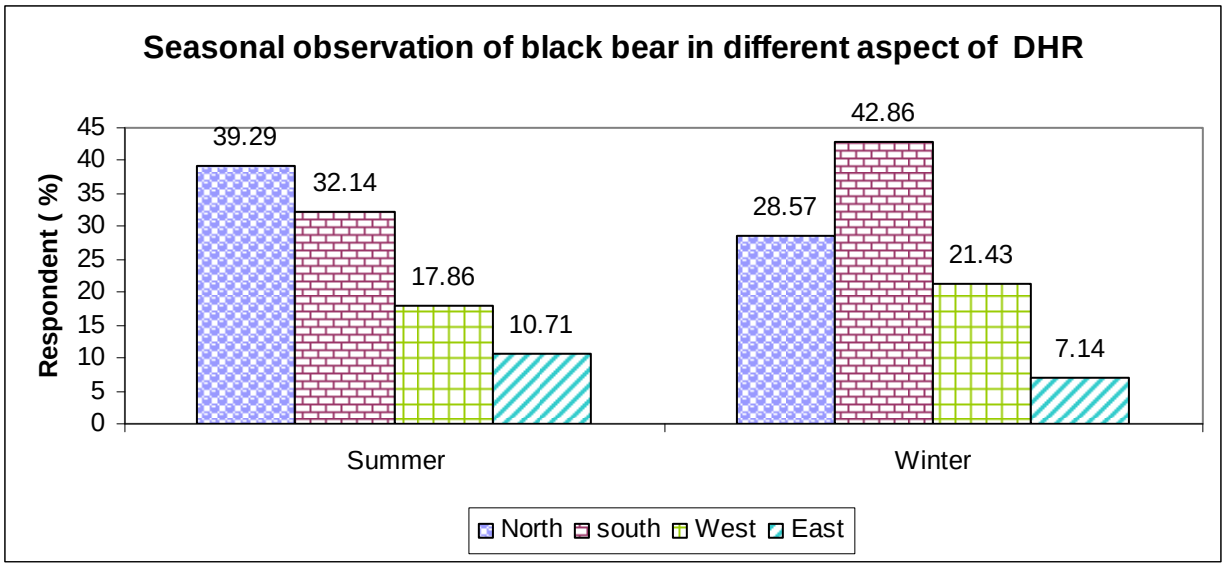


Figure 10: Seasonal Observation of Asiatic black bear in DHR

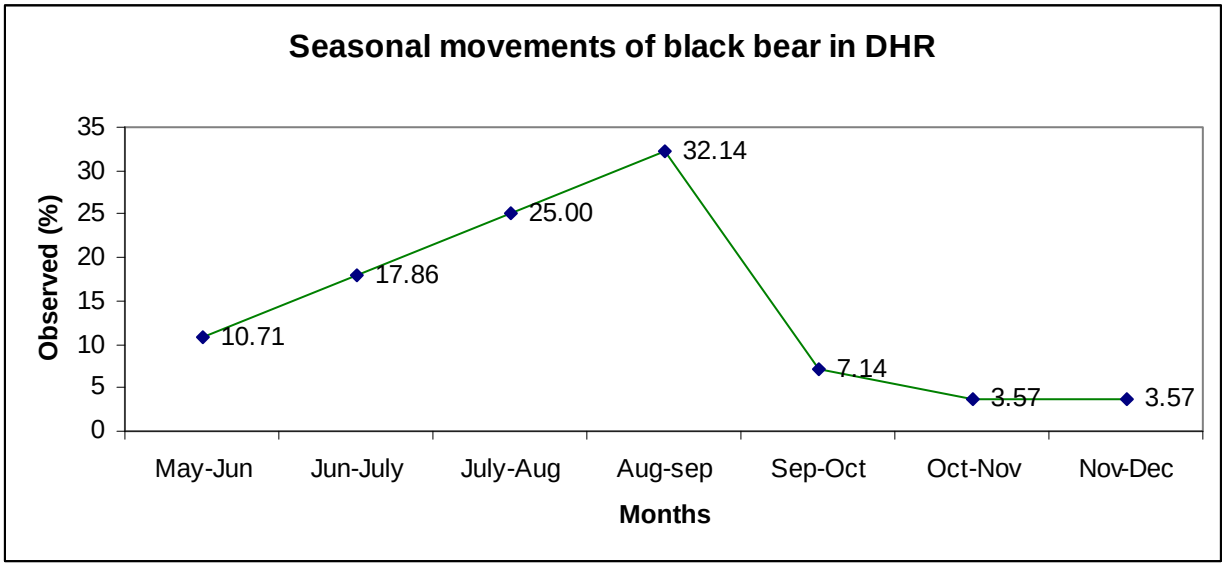


Figure 11: Seasonal movements of black bear in DHR

The seasonal observation of black bear in Dhorpatan Hunting Reserve was higher in summer season than others. It was highly observed in August and September (32.14%) followed by July- August (25.00%), Jun-July (17.86%), May-Jun (10.71%), Sep-Oct (7.14%), Oct-Nov (3.57%) and Nov-Dec (3.57%) (figure-11). Movement of Asiatic black bear is normally defined by the availability of food. They had been found to be territorial during the agricultural crop harvesting period as crop raiding occurred sequentially and concurrently in different areas.

4.7.2 Status of black bear in DHR

Conducting interview with local people, key informants, herders and Park staffs (N=165), we obtained the status of the black bear was high, medium and low. According to the respondents of their villages and forest area they reported that black bear status was low (34.04%) followed by high (29.97%), medium (25.53%) and no idea (10.64%). The responded reported that the status of black bear is going to be decreasing since last five to seven years.

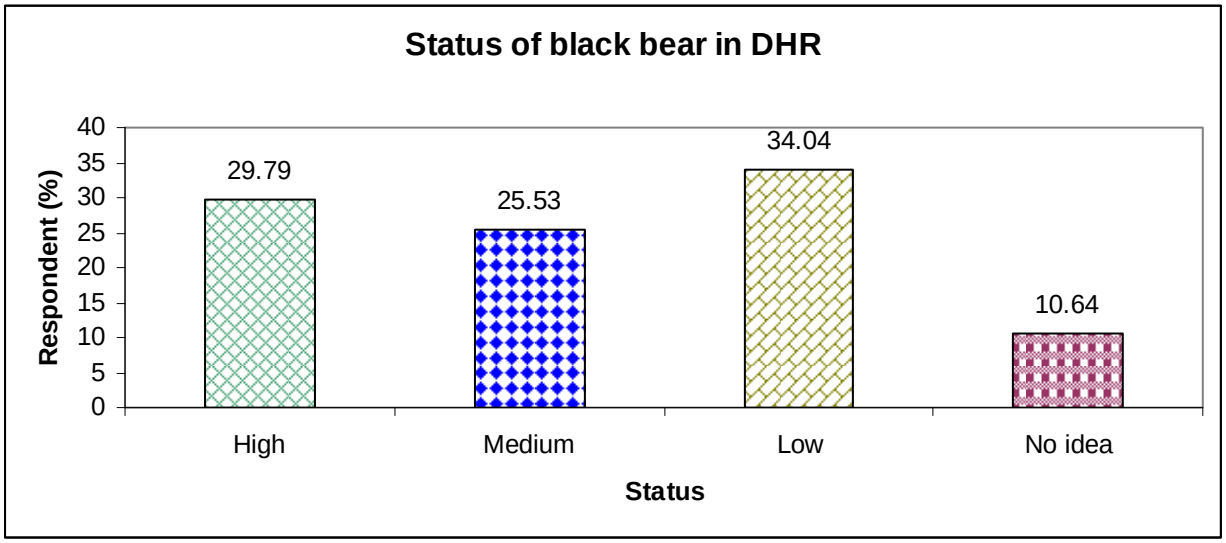


Figure 12: Status of black bear in Dhorpatan Hunting Reserve

The criteria to determine the status is based on the following assumptions: low[1]: sighting of black bear more than 3 years ago, medium[2]: sighting of black bear within 2-3 years at one time and high[3]: sighting of bear at each year.

4.7.5 Distribution of black bear and its potential area in DHR.

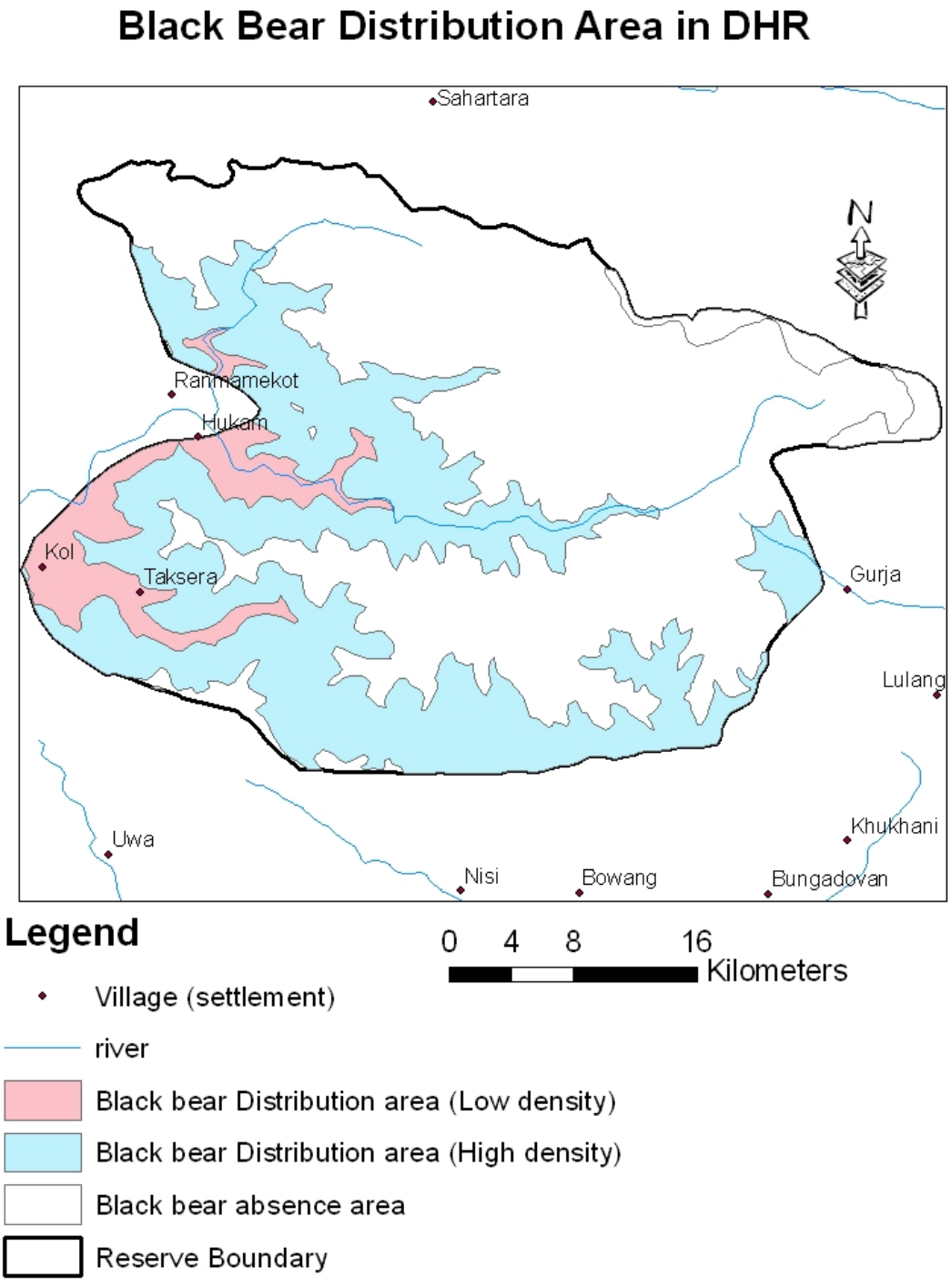


Figure 13: black bear distribution area in Dhorpatan Hunting Reserve.

CHAPTER FIVE: CONSERVATION PROGRAMME

Bear Conservation Awareness Activities in Dhorpatan Hunting Reserve

Some activities were performed in the field to make the people aware.

5.1 Poster Publication and Web- page designing

The poster was published on "Save the Bears of Nepal" of 2,500 copies. It had distributed 500 copies in the field and 100 in district center area, 500 copies provided to the Department of National Parks and Wildlife Conservation to distribute the poster to all the concern areas. Almost 1,000 copies of poster were distributed to organization working with wildlife conservation and rests of copies were left to Bear Research and Conservation Nepal for future distribution.

This funding has supported to create the web page for the conservation and awareness of bears in Nepal: "*Bear Research and Conservation Nepal" (BRCN).*The webpage is www.brcnepal.org.np. It is created to the long lasting effect to support for conservation of bears in wild and provide the information through the internet to concern people.

5.2 Art, Quiz and Essay competition

We were selected very remote and most effective places to conduct the conservation education activities. We found that the Maikot VDC of Rukum district was categorized it as conflict zone and we selected this zone to conduct the conservation activities. The background of this area is given below:

5.3 Background of places where conservation activities conducted

Rukum District is a remote with high biodiversity area of Nepal. The District ranging from 754m to 6000m and the District headquarter lies in 1448m from, sea level. Its geographical position is 250 29' latitude and 82^0 12' longitudes. Takshera VDC is the most important village among 43VDCs of Rukum district which have religious as well as the high bio-aesthetic value situated at Dhorpatan HR.

Rukum District, a part of Rapti zone is one of the important Remote Districts of Nepal. The District, with Musikot (also called Jumlikhalanga) as its District headquarters, covers an area of 2,877 km^2 and has a population (as of 2001) of around 188,438. Rukum District has many could-be-tourist-spots places, but due lack of information, many of them remain unexplored. One of the main places that could have been the major tourist destination is Mt. Sisne also called Virgin Mountain, as nobody has claimed to have conquered this mountain yet. Rukum is also called the place of 'Baunna Pokhari Tripanna Takuri', means the place of 52 lakes and 53 hills. Takshera is the most

attractive tourist destination due to Dhorpatan hunting reserve surrounding it from eastern part of district. It is really attractive valley having natural beauties ever.

Rukum District is considered remote, in no small part because air travel is the only modern transportation mode available there. The District's two airports offer safe but rudimentary facilities for passenger flights, mainly from Nepalgunj and Kathmandu. Otherwise, access from Rukum to major highways and population centers requires up to several days' hiking. During the monsoon months, this can be hazardous even for seasoned locals. The two airports in Rukum are in Chaurjahari and Salle. Salle airport is located near Musikot, the District headquarters. It takes 2.5 days walk from Rukum district headquarters to reach Takshera.

5.4 Bear Conservation Quiz Contest

Venue/Location:

The location was selected on the basis of access of all participants from different schools.

Janagarti Ma.Vi.(Secondary School) Sankh, Rukum was selected for the quiz contest spot.

Participants:

1) **Mahendra Ma. Vi.(Secondary School) Takshera, Rukum**
   - Sabitri Budha Magar- class 9
   - Ram Chandra Budha Magar- class 10
   - Safal Budha Magar- class 10
2) **Jana jagarti Ma. Vi. Sankh, Rukum (Section –A)**
   - Krishna Oli- class 10
   - Dambar K.C.- class 10
   - Girja Gharti- class 9
3) **Jana jagarti Ma. Vi. Sankh, Rukum (Section –B)**
   - Anju Gharti- class 9
   - Ganesh Pandey- class 10
   - Buddhiman Pun- class 10

Group selection:

- Three groups were selected.
- Each group having three members including one girl and rest two were boy.

- Students from 9 and 10 classes were selected.

Methods and process of program:

1) Inaugural session:

- Program announcement by- Mohan K.C.
- Introduction with each other
- Purpose of program
- Chief Guest- Khim Bahadur K.C. (for District Forest Officer, Rukum)
- Program President- Ishwar Shah (Principle, Jana jagarti Ma.Vi. Sankh, Rukum)
- Other guests- school teacher from Takshera Ma.Vi., Jana jagarti Ma.Vi. and local leaders
- Program was released by Quiz contest program President.

2) Rules and regulations of quiz contest:

Certain rules were formulated to conduct the quiz contest.

3) Participants Arrangement

- Each group represented by giving chance to them by selecting the name of wild animal. They selected three name-(Arna, Chittal and Bagh)
  Chittal group: Jana jagarti Ma. Vi. Sankh, Rukum (Section –A)
  Bagh group: Mahendra Ma. Vi. Takshera, Rukum
  Arna group: Jana jagarti Ma. Vi. Sankh, Rukum (Section –B)
- Each group's member leader was requested for selecting lottery for allocating the seat and selecting question.

4) Questionnaire announcement by Khim Bahadur K.C. (for DFO, Rukum)

5) Questionnaire:

A) General round

- Total 21 questionnaires were asked for this round.
- Questions were from different sectors including natural resource management, wildlife, forest, politics, sports, literature etc.
- Each question of this round bearing 10 marks for one correct answer.

B) Audio round

- Sound of animal were listened and asked to recognize.
- Song of singer was listened to recognize the name of singer.
- Each question of this round bearing 10 marks for correct answer.
- This round was very interesting in the program.

C) Visual round (available on webpage)

- Photo of animal were shown to each group secretly and asked to them to tell their English name.
- Each question of this round bearing 10 marks for correct answer.

D) Rapid fire round

- Total 15 questions were asked for this round.

- Each group having 5 question and timing was kept only 1 minute to answer 5 questions rapidly one by one.
- One interesting things of this round was 10 marks will be minus if the wrong answer was spoken. In each correct answer 10 marks was added.

6) Marking evaluation:

- This was helped out by science teacher of the Jana jagarti Ma. Vi. Rukum

7) Result of Quiz:

1st position: Chittal group: Jana jagarti Ma. Vi. Sankh, Rukum (Section –A)

- Total scoring- 100 marks

2nd positin: Arna group: Jana jagarti Ma. Vi. Sankh, Rukum (Section –B)

- Total scoring- 90 marks

3rd position: Bagh group: Mahendra Ma. Vi. Takshera, Rukum

- Total scoring- 40 marks
-

8) Prize distribution:

- Final marks announcement by evaluator (science teacher)
- Winner announcement by Mohan K.C. (Program organizer).
- Prize was given to each member of the group (i.e., 3 members to each group)
- Since there was 3 groups and prize was distributed to all of the groups.
-

1st prize-:3 General knowledge, 3 diaries, 3 copies, 3 pens and other publication.
2nd prize-:3 diaries, 3 copies, 3 pens and other publication.
3rd prize-:3 copies, 3 pens and others publication of district forest office Rukum

- First Prize was handed over to winner by president of this quiz contest program (ie. Ishwar shah)
- Second and third prize was handed over to winner by other guests.

9) Closing program:

- Thanking note from organizer side by Mr. Mohan K.C. (He is the local forestry student and he had helped to conduct the overall program). He has requested to

conduct this program because local people always believe the residential people voice than other people.)

- Thanking note from chief guest Mr. Khim Bahadur K.C. (for District forest officer, Rukum,)
- Thanking and closing by quiz contest program president Mr. Ishwar Shah (Principal, Janajagarti Ma. Vi. Sankh Rukum)

10) Feedback:

This program was very interesting and creative to all of our students. They were very much happy on this regard. Such type of program was conducted in past by other persons and organization but this type of program and style of asking question was new for us. We got knowledge of conducting such program in our school our self from the learning from handling of this program. Our students got updated knowledge on wildlife conservation on one hand and bear conservation on other hand. This would encourage them to concentrate their sense of knowledge on conservation from any site from this stage. Sine this region is deprived from getting such opportunity due to remoteness and difficult accessibility. I also welcome to you again at this spot by taking such creative and innovative program to our student. (Speech of Principal, Jana Jagarti Ma.Vi. Sankh, Rukum, noted during closing program).

5.5 Essay and Art Competition

The art and essay competition were performed among the selected students. We had developed some standard criteria and conducted these activities among the students.

Methodology:

1) School selection

- Major priority is given to that school which is near about Dhorpatan HR. It is because the responsibility of conservation activities is dependent on most of nearby local people rather than outsiders.

2) Selected school

- Shree Mahendra higher Secondary school, Takshera, Rukum, Nepal.

3) Student selection
- Student of class 7, 8, 9 and 10 are selected to participate in program.

4) Number of participated students
- 29 students were participated in the program.

5) Name list of participated students
- See Annex-2

A) Activities:

1) Inaugural session:
- Introduction with each other.

2) Introductory class:
- Forest and Forest resource
- Nature and Natural resource
- Environment
- Eco-system
- What is Bear?
- Why to conserve Bear?
- Relationship between human and Bear
- Bear conservation in Dhorpatan HR
- Bear Conservation related organizations
- What can be our role in conservation?

3) Conservation related games:

Few games related to conservation were made to energize the student while taking class. Following are the games:
- Happy and Sad
- Communication barrier
- Knowing friends etc.

B) Contests:

1) Essay competition:

Topics of essay-

"Bear conservation and our responsibility" (Bhalu samrakshan ra hamro daitto)

Time given- 1 hour

No. of participants- 29

2) Art competition:

Art on- Bear and its surroundings

Time given- 1 hour

No. of participants- 29

C) Judgment of contestants:
- Papers were judged by 3 teachers of that school and final checking was done by resource person (program coordinator).
- 4 winners are awarded by prize in each contest.

D) Winners in essay competition:

S.N.	Position	Name of student	Class	Remarks
1	1st	Hikmat B.K.	8	
2	2dn	Akash Pun	9	
3	3rd	Kalpana B.K.	7	
4	4th	Dipendra Gharti	10	

E) Winners in Art competition:

S.N.	Position	Name of student	Class	Remarks
1	1st	Shankar Gatane	10	
2	2dn	Dipendra Gharti	10	
3	3rd	Jootbir Budha	9	
4	4th	Dhan Kumari Budha	8	

F) Conclusion:

Rukum is remote district due to its geographical as well as other factors. There is hardly such programs are conducted due to several constraints. This program was heartily welcomed by local people and students. Due to changing political situation of country people is too much aware on different aspect. As per conservation aspect there is little awareness on local level. According to local leaders who are alert in the area are requiring such types of program in future.

Overall this program was very effective than expected due to help from different person of different sector.

5.6 Awareness camp for various age groups

Herder and women were gathered at one place in their villages at night and conducted some information classes about bear and their status and importance about the wildlife.

5.7 Eco-club formation and orientation training

The local youth were encouraged to make unity through Eco-club. The constitution was developed for conducting the Eco-club in systematic way. This constitution will be registered in district administration office in the future. The youth were gathered at one places and given some classes and training to work for bear conservation work. The youth were promised to work for bear conservation. But they need continue support and monitoring to conduct smoothly. The Dhorpatan Hunting Reserve has formulating buffer zone and this organization have promised to continue support for the youth through eco-club. This is effective way to conduct the youth at local region.

The constitution is attached in the annex -3.

5.8 Group discussion

During the management plan formulation, the group discussions were conducted with the key persons and local knowledge people. First of all, participants were enforced to conduct the awareness activities because the education level is very low and there should be the awareness program with some financial support to local community.

CHAPTER SIX: CONSERVATION AND MANAGEMENT

6.1 Conclusions

The Asiatic black bear is not included in the protected animals' species in Nepal under the National Park and Wildlife Conservation Act, 1973 (NPWC Act, 1973). Overall encounter rate for the black bear signs based on line transect (N=33) in Dhorpatan Hunting Reserve was 0.75 ± 0.09 signs/km (range =1.0-3/km). The total respondent (N=165), out of them (34.04%) reported that the status of black bear in DHR was low while (29.97%) reported high, (25.53%) medium and no idea (10.64%). The responded reported that the status of black bear is going to be decreasing since last five to seven years. The seasonal observation of black bear in Dhorpatan Hunting Reserve was higher in summer season than others. It was highly observed in August and September (32.14%) followed by July- August (25.00%), Jun-July (17.86%), May-Jun (10.71%), Sep-Oct (7.14%), Oct-Nov (3.57%) and Nov-Dec (3.57%).

During the field survey, we recorded only 6 cases of black bear attacks on humans in DHR during (1998-2007). Of these, 3 cases occurred in the forest areas when people were in search of forest produce or grazing their livestock. Two victims had lost their life. One case of bear attack on woman in the grazing land has been reported.

The overall loss (21.29%) of agricultural crops in 2006, the black bear was responsible for (6.53%) and in 2007, out of total loss (22.45%) the black bear was responsible for (8.33%) in DHR. The black bear generally loss the crops from mid July to December. The differential land allocation for each crop cultivation in different altitudinal ranges and preference of local people as food in each season has consecutive effect in the seasonal crop loss to black bear.

The total number of livestock loss due to large carnivores from 2006 to 2007 was accounted to 69 livestock. Out of them, black bear was responsible to 4.65% in 2006 and 5.0% in 2007. Black bear accounted for loss of 4.3% of sheep, and 2.9% of goat and 1.4% of cow/ox each. The reports of livestock loss by black bear were least but not most as to leopard. The occasional report of livestock loss such as cow and ox occurred. It was reported that sometime black bear entered in the livestock house and they fight with the big livestock and killed them. The livestock killed by black bear was reported rarely and happened unintentionally.

In comparing with summer and winter season, the relative pressure of grazing on forest area ('using/nearest forest' and 'distance forest/grazing land') was high in summer (43.44%) than in winter (27.82%). It was seen that Rele, Jhim, Syaula forests had more pressure than other forests to collect fuel wood, fodder and timber followed by Ghuri and Chepare forests. Forest encroachment inside the reserve is major problem. The process to

capture the area were as first slash and burn the area and clearing of slash and making shelter house for livestock.
During survey, most of the respondents (47.62%) indicated that the black bear were most active at mid- night (9PM-3AM) to the crop raiding than early night (6PM-9PM).

People of DHR were not practiced more agricultural crops due to high altitudinal ranges. The respondents (N=188) reported that black bear prefers 4 different agricultural crops. Out of them, maize (85.1%) was the relatively highest preference in Dhorpatan Hunting Reserve.

Based on the nature of damage and indirect signs during agricultural crop raiding, people explained the eating habits of black bear. They placed five types of eating habits for black bear. They are allocating in one area[6], looping[7], sweeping, tearing and digging.

The respondents (N=142) reported the black bear preferred 8 wild food as follows: *Quercus species (30.28%) Himalayacalamus species (24.65%) Berberis species (16.20%), Prunus pashia (11.27%), Rubus species (5.63%), Myrica esculenta (5.63%), "Dummer (4.23%) and Cedrus deodara (2.11%)*.

The respondent (N=165) reported that the Asiatic black bear uses Mixed forest (59%), Hardwood forest (22%) and Coniferous forest (19%) on the basis of their knowledge and sighting reference.

The VDC of Gurjakhani and Maikot of Myagdi and Rukum districts respectively were categorized in the high conflicts zone. The Bobang VDC of Baglung districts were categorized in medium and Adhikari Chaur VDC of Baglung was categorized in low conflict zones.

In DHR, respondent (N=170) explicated 7 traditional and indigenous techniques/activities of protection measures against black bear that were being used. The practice of 'Chasing and shouting', Night Stay" and Bell ringing' were acknowledged as accustomed practices.

6.2 Recommendation for Management

Provision of compensation and support to the black bear victims for medical treatment should be created. This will help in reducing negative attitude and retaliatory killing.

Local villagers currently practice many indigenous methods to reduce crop raiding by black bear, of which chasing the bears by making noises were found to be most effective. To reduce crop raiding by black bear and other wild herbivores in the high

Allocating in one area[6]: Making collection of crop in one area and sits to eat crop
Looping[7] : Grab of corn with partial damage to standing plant

conflict zones, we propose community based night vigilance by a group of local villagers on a rotational basis. Other measures such as habitat improvement outside the reserve and changes in cropping patterns are proposed for reduction in crop raiding by black bear.

People participation should be effective way to conserve the bear in Dhorpatan Hunting Reserve. The long term program can achieve the conservation goal.

I would like to recommend the community based conservation program that can support the local people livelihood.

REFERENCES

Austegard, Go and S, Haugland. 1993. Trophy hunting in Nepal: a case study on blue sheep in Dhorpatan Shikar Reserve. M.Sc thesis, Agricultural University of Norway,

Baral, A.N. 2001. Problems and prospects of hunting management in Dhorpatan Hunting Reserve. Institute of Forestry, Tribhuvan University, Nepal 52p.

Beringer,J.S., Steven, G and Pelton,M.R. 1994. Transmitter drops as a technique for detecting black bear habitat use. International Conference on Bear Research and Management, 9,303-307.

BPP, 1995. Biodiversity Project Profile. Biodiversity profile of High Mountains and High Himal Physiographic Zones. Technical Publication Number 14. DNPWC, Ministry of Forest and Soil Conservation, HMG of Nepal, Kathmandu. ISBN: 90-7328715-4

DNPWC, 2008. Draft report of Department of National Parks and Wildlife Conservation, Dhorpatan Hunting Reserve, Nepal

Ernest, P. W. 1968. Mammals of the world. The Johns Hopkins Press, Baltimore. 2

Grizimek, B. 1990. Grizimek's encyclopedia of mammals. Mc Graw Hill Publication Company. 2

Horino, S and Shingo, M. 2000. population viability analysis of Japanese Black bear population. Forest and Forest Product Research Institute of Japan. Population Ecology, 42, (1), 37-44.

Hwang, M., D. Garshelis, and Y. Wang. 2000. Diets of Asiatic black bears in Taiwan, with methodological and geographical comparisons. Ursus 13:111-125. India. London (Taylor and Francis) Publication. Mammalia, 20.197

JBN, 2006. Japan Bear Network (complier). 2006 Understanding Asian Bears to Secure Their Future. Japan Bear Network , Ibaraki , Japan. (page iii).

Johnshing, A. J. T. 2003. Bear Conservation in India due to human. Journal of Bombay Natural History Society, 3, (12).

NBS, 2002. Nepal Biodiversity Strategy. Published by Ministry of Forests and Soil Conservation supported by Global Environmental Facility and UNDP.

NPWC, Act, 1973: National Parks and Wildlife Conservation, Act, 1973. Ministry of Forests and Soil Conservation, Nepal.

Pocock, R.I.1932. The Black and Brown bear of Asia and Europe. Journal of Bombay Natural History Society, 36,101-138.

Poudel, M. 1995. Feasibility study of buffer zone management in Dhorpatan Hunting Reserve, Dhorpatan, Baglung. Institute of Forestry, Tribhuvan University, Nepal 31p.

Schaller, G.B. 1969. Food habits of Himalayan Black bear in Dachigam Natioal Sanctuary, Kashmir. Journal of Bombay Natural history Society, 66, (1).

Servheen, C. 1989. The status and conservation of the bear of the World. International Conference on Bear research and Management. Monograph, 2.

Servheen, C. 1990. The stuatus and conservation of the bears of the world. Int. Conf. Bear Res. And Manage. Mongor, Series, No.2. 32pp

Servheen, C., Herreo, S. & Peyton, B. (compilers). 1999. Bears. Status survey and Consrvation Action Plan. IUCN/SSC Bear & Polar Bear specialist Groups. IUCN, Gland, Switzerland, and Cambridge, UK. X+309 pp.

Shrestha, N. 1997. Protected wildlife species of Nepal. An introductory Handbook. The world Conservation Union. IUCN, Nepal.

Shrestha, T. K. 1997. Mammals of Nepal.Published by B. Shrestha. R.K. Printers,Teku, Kathmandu, Nepal.

Shrestha, TB and RM Joshi 1996. *Rare, endemic and endangered plants of Nepal.* WWF Nepal program, Kathmandu, Nepal. 244p.

Wilson, P. 1981. Ecology and habitat utilization of blue sheep in Nepal. *Biological Conservation* 21: 55-74.

Wilson, R.T. 1997. Animal genetic resources & Domestic animal diversity in Nepal. Biodiversity & Conservation 6:233-251.

Yadav, B.P and Sathyakumar, S. 2008. Assessment of Asiatic Black Bear (*Ursus thibetanus*) -Human Conflicts at Langtang National Park, Nepal, 100 pp.

Annex-1: Transect survey data

				GPS point			
S.N	**Place name**	**Trail name**	**Alt (m)**	**N**	**E**	**Length**	**Signs**
1	Bhuji khung	Fagune	3085	28.30.59.3	83.01.48.9	1.5	1
2	Bhujikhung	Fagune jane bato	3330	28.30.59.8	83.01.48.9	1	0
3	Uttarganga	Bhuji Jane bato	2850	28.29.19.8	83.02.12.4	2	1
4	Uttarganga	Uttarganga jane bato	2848	28.29.28.2	83.02.11.8	1.7	1
5	Kamjakhani	Lamjung jane bato	2382	28.34.51	83.15.16.1	1	1
6	Lotrabang	Lamsung jane bato	2645	28.34.03.4	83.15.26.4	1.5	0
7	Kamjakhani	Lamjung jane bato	2382	28.34.51.1	83.15.16.1	1.9	2
8	Rudra tal	Talujane	2763	28.27.20	83.03.12.7	1.5	1
9	Rudra tal	Tallu janghar jane	2778	28.27.20	83.03.12.7	1	1
10	Okhma dhuri	tak jane bato	2237	28.37.42.9	83.46.20.8	1	1
11	Taksera	Taksera jane bato	2326	28.36.32.6	82.47.09.2	2	1
12	Okhama	Taksera jane bato	2198	28.37.42.1	82.46.20.9	3	1
13	Tatung	Nishil dhor	2770	28.33.47.9	82.54.44	1.7	2
14	Tatung	Nisildhor	2761	28.33.47.9	82.54.44.1	1.5	1
15	Khoria jungle	Nisildhor jane bato	2703	28.34.24.1	82.53.16.2	1	0
16	Lulan mathi	Lulang	2654	28.31.43.1	83.16.30	1.5	0
17	Lulang	lulang jane bato	3247	28.33.09.7	83.15.41.3	1	0
18	Lulang	Lulang jane bato	2837	28.32.24.4	83.18.25	1	1
19	Dhupineta	Maikot jane bato	3590	28.35.57.8	83.01.47.2	1	1
20	Pusare	Maikot jane bato	2430	28.39.59.9	82.53.32	2	1
21	Pelma danda	Pelma jane bato	2986	28.38.54.7	82.57.10.9	1	0
22	Rukha chaur	rukha chaur jane bato	2113	28.31.19.6	83.10.20	3	1
23	Dopta	Gurja jane bato	2603	28.35.08	83.13.24.7	2.5	1
24	marpes	marpes jane bato	2800	28.32 27.2	82.54.20.7	2.1	1
25	Gurja	Niure	2744	28.35.35.4	83.14.13.3	1.6	1
26	Lachhabang	Arche jane bato	2343	28.34.53.5	83.15.02.1	1.5	0
27	nailibang	Kanabara	2682	28.35.12.4	83.14.31.4	1	1
28	Ghengel		2390	28.34.48.3	83.15.26.6	2	0
29	Ochdar	khaska	2464	28.34.43.4	83.15.51.9	1	0
30	ban than	banthan	2384	28.34.16.4	83.15.29.3	2.3	1
31	Gurse deurali		2737	28.32.57.5	83.31.31.9	1	0
32	Deurali	Deurali jane bato	2868	28.27.43	83.02.58.2	1.5	1

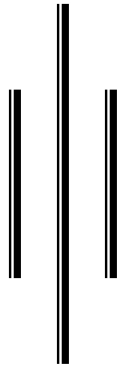
33	Utrabang		2583	28.33.44.5	83.15.23.9	2	1
						52.3	**25**

Annex-2: Name list of participants in conservation activities.

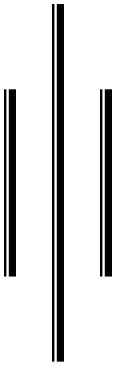
S.N.	Name of students	Class	Remarks
1	Aakash Pun	9	
2	Jootbir Budha	9	
3	Subindra Budha	8	
4	Umesh Budha	8	
5	Bum Bahadur Budha	9	
6	Dhanrupi Budha	8	
7	Jun kumari Budha	8	
8	Deurupi B.K.	8	
9	Dhan kumari Budha	8	
10	Lali Budha	8	
11	Hikmat Budha	8	
12	Jaya kumar B.K.	9	
13	Aasha kumar Budha	7	
14	Smita Gharti Magar	7	
15	Gopi Gharti Magar	7	
16	Kalpana B.K.	7	
17	Bina Gharti Magar	8	
18	Junsura G.M.	8	
19	Jun kumari Budha-A	8	
20	Dhanrupi Budha-A	8	
21	Hira Budha	7	
22	Sut kumari Budha Magar	7	
23	Dipendra B.K.	8	
24	Sundar Ghatane	8	
25	Karna Bahadur B.M.	8	
26	Pandap Budha	8	
27	Shankar Ghatane	10	
28	Dipendra Gharti	10	
29	Kumir man B.K.	9	

Annex 3: Constitution of Eco-club formed in Maikot of Rukum district.

हिमाली भालु संरक्षण क्लब
तकसेरा, रूकुम



विधान



२०६५

१) क्लबको नाम :

क) यस ब्लबको नाम ' हिमाली भालु संरक्षण क्लब हुनेछ ' ।
ख) यो क्लब हिमाली भालुको संरक्षण क्रियाकलापका लागी तकसेरामा रहने छ ।
ग) यसमा तकसेरा क्षेत्रका जनताहरुलाई हिमाली भालु संरक्षणका लागी जागरण दिलाउने उद्देश्यले स्थापना गरिने छ ।

२) परिभाषा :

क) क्लब भन्नाले हिमाली भालु संरक्षण क्लबलाई जनाउने छ ।
ख)विधान भन्नाले हिमाली भालु संरक्षण विधान २०६५ को विधानलाई जनाउने छ ।
गं) सदस्य भन्नाले यस क्लबमा समावेश कार्य समिति र अन्य सदस्यहरुलाई जनाउने छ ।
ङ)यस क्लबले मूख्य रुपमा हिमाली भालु संरक्षणको लागी जनजागरण गर्ने काममा कार्य गर्ने छ ।

३) क्लबको उद्देश्य

➢ यस क्लबका उद्देश्यहरु देहाय बमोजिम हुनेछ ।

क) यस क्लब भालु संरक्षणको लागी कार्य गर्ने छ ।
ख) हिमाली भालु संरक्षण सम्बन्धि प्रचार प्रसार गर्ने छ ।
ग) समाजमा भालुको महत्व वारेमा जनचेतना अभिबृद्धि गर्ने छ ।
घ) भालुको शिकार तथा चोरी निकाशीमा नियन्त्रण गर्ने ।
ङ) भालु संरक्षणको लागी विभिन्न संघ संस्थासंग समन्वय गरी कार्य गर्ने ।

४) उद्देश्य प्राप्तीका लागी गरिने कार्यहरु :

➢ यस क्लबको उद्देश्य प्राप्ती गर्ने देहायका कार्यहरु गरिने छ ।
क) क्लबलाई आवश्यक पर्ने प्रचार प्रसार सामग्रीहरु सहयोगी संस्थाहरुलाई माग गर्ने ।
खं) क्लबका कृयाकलापहरुलाई निरन्तर रुपमा संचालन गर्ने ।
ग) क्लबको सदस्यता लिने र कोष संचालनको पनि व्यवस्था गर्ने ।
घ) क्लबका उद्देश्यहरु कार्यान्वयन गर्ने ।

५) सदस्यताको व्यवस्था

➢ क्लबले निम्न आधारमा सदस्यता लिने व्यस्था गर्ने छ ।
क) तकसेरा क्षेत्र वरिपरिको स्थानिय वासीन्दा हुनु पर्ने छ ।

ख) भालु संरक्षणमा कार्य गर्न ईच्छुक यूवा/यूवती हुनु पर्ने छ ।
ग) मूख्य गरेर उमेरले १५ देखी ३० वर्ष सम्मको व्यक्ति यस क्लबको सदस्य हुन सक्ने छ ।
घ) संरक्षण कार्य तथा सामाजीक कार्यमा रुचि भएको व्यक्ति हुनु पर्ने छ ।
ङ) वन वन्य जन्तु र वातावरण सम्बन्धि रुचि एवं अनुभव भएको स्थानिय वासीन्दा हुनु पर्ने छ ।

६) यस क्लवमा सदस्य हुन नसक्ने अवस्थाहरु :

क) संरक्षण नियमहरु उलङ्घन गर्ने व्यक्ति यस क्लबको सदस्य हुन पाईने छैन ।
ख) क्लवको काममा निजी स्वार्थ भएको व्यक्ति ।
ग) नियमित बैठकमा उपस्थित हुन नसक्ने व्यक्ति ।
घ) विधानले तोकेको काम भन्दा वहिर रहेर अनियमित कार्य गरेमा ।

७) सदस्यता शुल्क सम्बन्धि व्यवस्था :

➢ शूल्क सम्बन्धि व्यवस्था समयानुकुल क्लबको निर्णयानुसार हुनेछ ।
क) तकसेरा वरिपरिको क्षेत्रमा हिमाली भालु संरक्षण कार्यमा योगदान पर्‌याएका कुनै पनि यूवा व्यक्तिलाई नि:शुल्क सदस्यता प्रदान गरिने छ ।

८) बैठक सम्बन्धि व्यवस्था :

➢ यस क्लको बैठक प्रत्येक महिनाको अन्तिम शनिवार वस्नेछ ।
क) बैठक वस्नलाई पहिलो पटक ६६ प्रतिशत सदस्यहरुको उपस्थिति हुनु पर्नेछ ।
ख) दोस्रो पटक बैठक वस्दा कम्तिमा ५१ प्रतिशत सदस्यहरुको उपस्थिति अनिवार्य हुनेछ ।
ग) बैठक मूख्य गरि हिमाली भालु संरक्षण सम्बन्धि विषयवस्तुमा केन्द्रित हुनेछ ।
घ) बैठक वस्नु भन्दा १० दिन अगावै वस्नु पर्ने मिति,स्थान र समय र छलफलका विषयवस्तु समेत खोली सवै साधारण सदस्यहरुलाई सूचना दिईने छ ।

९) कार्य समिति सम्बन्धि व्यवस्था :

क) यस क्लवमा ७-९ जनाको कार्य समिति हुनेछ ।
ख) यस कार्य समितिको कार्य काल २ वर्षको हुनेछ ।
ग) कार्य समितिको वैठकमा कम्तिमा ६६ प्रतिशत सदस्यहरुको उपस्थिति हुनु पर्नेछ ।
घ) कार्य समितीको वैठकको अध्यक्षता समितीका अध्यक्षबाट हुनेछ ।
ङ) अध्यक्षको अनुपस्थितिमा कार्य समितिका उपाध्यक्षबाट वैठकको अध्यक्षता हुनेछ ।
च) बैठकमा छलफल भएको विषय र निर्णयको विवरण छुट्टै रजिस्टरमा लेखी राख्नु पर्नेछ ।
छ) कम्तिमा ५१ प्रतिशत सदस्यहरुको सहमतीको निर्णय मात्र मान्य हनेछ ।
ज) मूख्य रुपमा हिमाली भालु संरक्षण कार्यमा अभिरुचि भएको यूवा व्यक्ति यस क्लबको पदाधिकारी हुन योग्य हुनेछ ।

१०) कार्य समितिको काम कर्तव्य र अधिकार

अध्यक्ष :

क) क्लबको नेतृत्व दिने
ख) बैठकमा प्रस्ताव पेश गर्ने ।
ग) निर्णहरुलाई कार्यान्वयन गर्ने गराउने ।
घ) सम्बन्धित निकायहरु संग सम्पर्क र समन्वय गर्ने ।

उपाध्यक्ष :

क) अध्यक्षको अनुपस्थितिमा अध्यक्षको कार्य भार समाल्ने ।

सचिब :

क) क्लबको कार्य संचालन गर्ने ।
ख) क्लबको अभिलेख दुरुस्त राख्ने ।
ग) अध्यक्ष संग सर सल्लाह र सहयोग गर्ने ।
घ) अध्यक्षको आज्ञा अनुसार बैठक संचालन गर्न सदस्यहरुलाई पत्राचार गर्ने ।

कोषाध्यक्ष :

क) क्लबको आय व्ययको विवरण दुरुस्त राख्ने ।
ख) क्लबको कोष बृद्धि गर्ने कार्यक्रम बनाई बैठकमा पेश गर्ने ।

सदस्यहरु :
क) बैठक बोलाएमा नियमित उपस्थित हुनु ।
ख) तोकिएको काम पूरा गर्ने ।
ग) अन्यलाई सल्लाह सुझाव दिने ।

११) क्लबको कोष :

➢ यस क्लबको छुट्टै कोष रहने हुनेछ र सो कोषमा देहाय बमोजिम प्राप्त रकमहरु हुनेछन् ।
क) सदस्यता शूल्क वापतको रकम
ख) बाह्य निकायहरुबाट प्राप्त अनुदान रकम ।

१२) विधान संशोधन

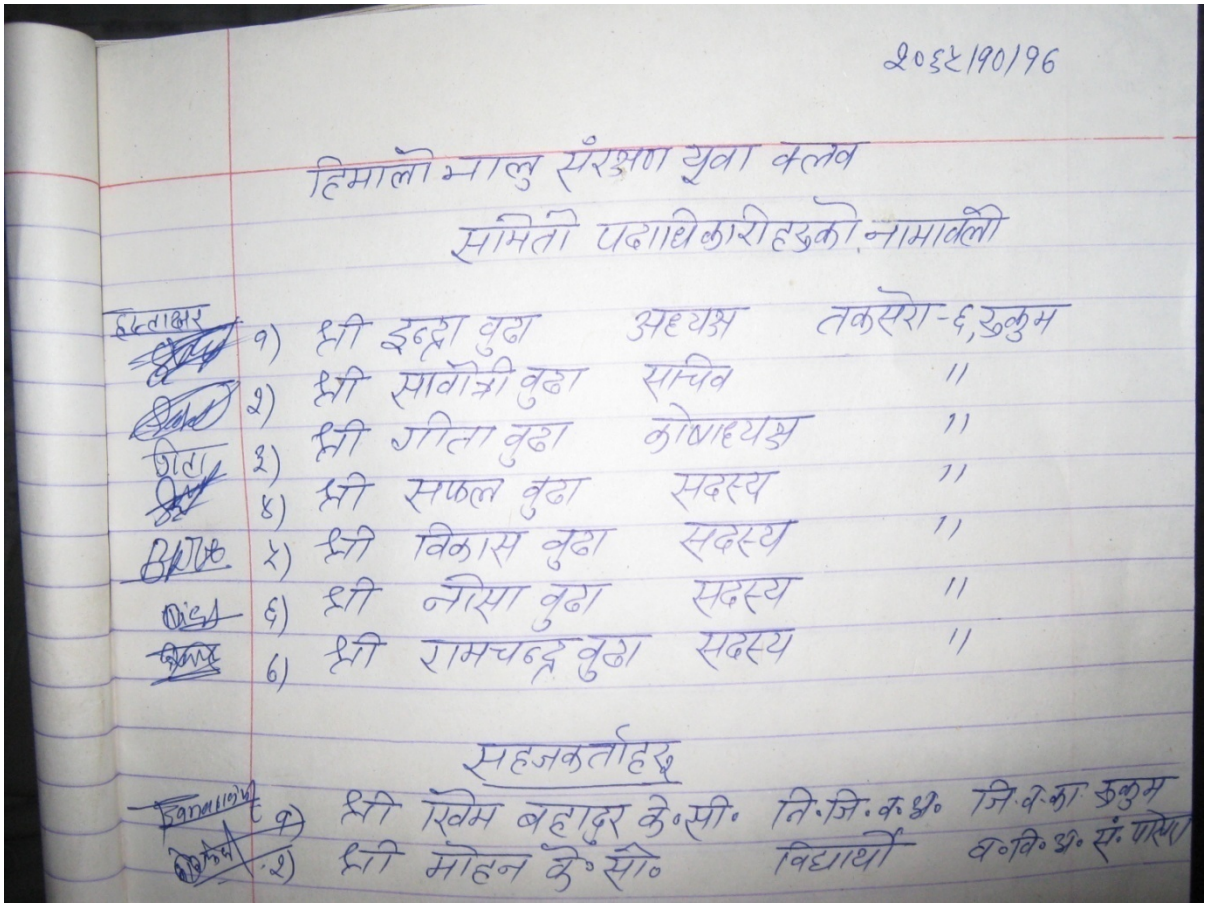
कुल सदस्य संख्याको दुई तिहाई सदस्यहरुले अनुमोदन गरे पश्चात् क्लबको कनैपनि दफा संशोधन या खारेजीका लागी सम्बन्धित निकाय वा व्यक्ति समक्ष सिफारिश पठाउनु पर्नेछ ।सम्बन्धित निकाय वा व्यक्तिबाट स्वीकृत भै आए पश्चात् मात्र क्लबको कुनै पनि दफा संशोधन वा खारेज भएको मानिने छ ।

१३) विविध :

क) हिमाली भालु संरक्षणको लागी विभिन्न जनजागरण कार्यक्रम संचालनको लागी संघ संस्था निकाय वा व्यक्तिहरु संग सम्पर्क राखी व्यवस्था गर्ने र गराउने ।

यस क्लवको संपूर्ण अधिकार भुपेन्द्र प्रसाद यादव, राष्ट्रिय निकुञ्ज तथा वन्य जन्तु संरक्षण विभाग मा रहने छ ।

हामी हिमाली भालु संरक्षण क्लवका तपसिलमा उल्लेखित व्यक्तिहरु यस विधान बमोजिम कार्य गर्न मञ्जुर भै सहीछाप समेत गरिदियौं ।



२०६२/१०/१६

हिमाली भालु संरक्षण युवा क्लब

समितीको पदाधिकारीहरुको नामावली

हस्ताक्षर				
	१)	श्री इन्द्रा बुढा	अध्यक्ष	तकसेरा-६,कुकुम
	२)	श्री सावोत्री बुढा	सचिव	〃
	३)	श्री गीता बुढा	कोषाध्यक्ष	〃
	४)	श्री सफल बुढा	सदस्य	〃
	५)	श्री विकास बुढा	सदस्य	〃
	६)	श्री नीसा बुढा	सदस्य	〃
	७)	श्री रामचन्द्र बुढा	सदस्य	〃

सहजकर्ताहरु

	१)	श्री खेम बहादुर के.सी.	नि.जि.क.अ.	जि.वि.का कुकुम
	२)	श्री मोहन के.सी.	विद्यार्थी	क.वि.अ.सं.परियो