Management Plan Dachigam National Park (2020 - 2030)

ALTAF HUSSAIN (SFS) Wildlife Warden, Central Division

Preface



Jammu and Kashmir extremely rich in biodiversity harboring a great of flora and fauna. The management of such great diversity is always a challenging task and requires a great deal of expertise, hard work and great zeal of passion. The Dachigam National Park has unique value due to its rich biodiversity, climatic peculiarities, social, cultural, anthropological and aesthetic importance. Dachigam National Park is single compact catchment area in Srinagar having unique flora and fauna. Dachigam National Park occupies almost half of catchment zone of world famous Dal Lake and is important source of drinking water to the Srinagar city. The flora, fauna, the ecological, geomorphological significance together with the proximity to the Srinagar city has added splendor shine to the glory of Dachigam as gene pool for reboisement, protection and propagation of wildlife. The outstanding conservation values made Dachigam National Park as one of the most important protected areas and it holds the last and most viable population of Kashmir stag 'Hangul'.

For the maintenance of the physical and demographic integrity of the site and rich wildlife, resources in Dachigam national Park need more scientific management with a long term planning process. In the changing world management of wildlife as a separate planning strategy is quite newer than the mainstream forest management. The current management plan is the most comprehensive management plan, which is prepared by following the guidelines, developed by MOEF & CC (Wildlife Wing), Wildlife Institute of India, and the manual for planning wildlife management in protected area and managed forest.

I congratulate Regional Wildlife Warden, Kashmir, Wildlife Warden Central and their team for their efforts and successful completion of this document.

> SURESH K. GUPTA, IFS Chief Wildlife Warden Jammu and Kashmir

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I at the very outset take this opportunity to thank our worthy Commissioner/Secretary to Government Forest, Ecology and Environment Department, Shri Sanjeev Verma, IAS, and Shri Mohit Gera, IFS, HOFF/ Principal Chief Conservator of Forest, J & K for leading the way in the progress and development of the department.

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I would like to thank Dr. Samina, Research Officer, Dr. Umar, Asst. Veterinary surgeon and Dr. Khursheed, Head of Wildlife Division SKUAST – K for their support, invaluable insight and suggestions, further more for their contributions in the form of write-ups, which are part of the current management plan.

The process of acknowledgement will be surely incomplete without mention of Mr. Shabir Ah, In charge, ICT Lab., who always has been a great resource person when it comes to digitized records, GIS mapping and field data processing. He has made himself available whenever his help was required.

In more than a yearlong process of formulation of current plan for Dachigam national park and its contagious conservation reserves, my real working hands and arms has been a volunteer Mr. Aakib Hussain Paul, a wildlife researcher perusing his PhD. It will not be an over statement to say that without him timely completion would have never been possible. I truly owe him a standup vote of thanks. He deserves a certificate of appreciation and recognition from department, as his continuous and tremendous help came without any remuneration. His field exposure, data collection and data analysis need a special mention.

I thank range officers Mr. Showkat Ah Jan, Mr. Sajid Farooq, Mr. Khursheed Iqbal, Mr. Khursheed Mir, all Bos, Mr. Nazir Ah Malik (Retd) and field staff for their efforts and support. I extend my thanks to Mr. Tahir Hussain Lone, Head Assistant for his active efforts and contribution towards formulation of budgetary part to this plan and to Mr. Tahir Ah Bhat, GSA for offering his DTP skills. Finally I express my thanks to all those whose names could not be mentioned in acknowledgement but have rendered a great help and support during the preparation of current management plan.

> Altaf Hussain (SFS) Wildlife Warden, Central Division

CONTENTS

INRODUCTION TO CONSERVATION RESERVES	1 – 3
CHAPTER ONE	4 - 26
1.1 INTODUCTION	
1.2 VEGETATION OF KHREW CONSERVATION RESERVE	
1.3 FAUNA OF KHREW CONSERVATION RESERVE	
1.4 PROBLEMS IN MANAGEMENT OF KHREW CONSERVATION	
RESERVE	
1.5 MANAGEMENTAL INTERVENTIONS OF THE KHEW	
CONSERVATION RESERVE	
CHAPTER TWO	27 – 46
2.1 INTRODUCTION	
2.2 VEGETATION OF KHONMOH CONSERVATION RESERVE	
2.3 FAUNA OF THE KHONMOH CONSERVATION RESERVE	
2.4 PROBLEMS IN MANAGEMENT OF KHONMOH	
CONSERVATION RESERVE	
2.5 MANAGEMENTAL INTERVENTIONS OF	
THE KHONMOH CONSERVATION RESERVE	
CHAPTER THREE	47 – 69
3.1 INTRODUCTION	
3.2 VEGETATION OF THE BRAIN NISHAT CONSERVATION	

RESERVE

3.3 FAUNA OF BRAIN NISHAT CONSERVATION RESERVE

3.4 PROBLEMS IN MANAGEMENT OF BRAIN NISHAT

CONSERVATION RESERVE

3.5 MANAGEMENTAL INTERVENTIONS OF THE

BRAIN NISHAT CONSERVATION RESERVE

CHAPTER FOUR

70 - 90

4.1 INTRODUCTION

4.2. VEGETATION OF THE KHIMBER DARA

AND SHARAZBAL CONSERVATION RESERVE

4.3 FAUNA OF KHIMBER DARA AND SHARAZBAL

CONSERVATION RESERVE

4.4 PROBLEMS IN MANAGEMENT OF

KHIMBER DARA AND SHARAZBALCONSERVATION RESERVE

4.5 MANAGEMENTAL INTERVENTIONS OF THE KHIMBER

DARA AND SHARAZBALCONSERVATION RESERVE

LIST OF TABLES

Table 1.	Encounter rate of Black Bear in Dachigam National Park
Table 2.	Black Bear signs (%) recorded at Dachigam National Park in different habitats
Table 3.	Transect analysis for Himalayan Grey Langur in Dachigam National Park
Table 4.	Population estimation of Himalayan Grey Langur using Block count method
Table 5.	Land use categories with area in Dachigam Landscape
Table 6.	List of proposed fire lines in Dachigam National Park
Table 7.	Human-wildlife and animal involved in zone of influence in Dachigam National Park

LIST OF PLATES

Plate 1.	Marsar Lake in Upper Dachigam			
Plate 2.	Temperate Deciduous Forests of Dachigam National Park			
Plate 3.	Oak Plantations in Dachigam National Park			
Plate 4.	Temperate Grasslands of Dachigam National Park			
Plate 5.	Himalayan Low Line Blue Pine Forest area of Dachigam National Park			
Plate 6.	Mid Temperate Mixed Forest of Dachigam National Park			
Plate 7.	Mixed coniferous forests of Dachigam National Park			
Plate 8.	Sub – alpine Rhododendron Forests of Dachigam National Park			
Plate 9.	Camera trap image of Red Fox			
Plate 10.	Himalayan Marmot			
Plate 11.	Kashmir Musk Deer			
Plate 12.	Golden Jackal			
Plate 13.	Rhesus Macaque			
Plate 14.	Rare Camera trap image of Leopard cat			
Plate 15.	Camera trap image of Porcupine			
Plate 16.	Camera trap image of the Hangul			
Plate 17.	Spectacled Finch			
Plate 18.	Orange Bullfinch			
Plate 19.	Black Throated Thrush			
Plate 20.	Chestnut Thrush			
Plate 21.	Variegated Laughing Thrush			
Plate 22.	Russet Sparrow			
Plate 23.	Rock Bunting			
Plate 24.	Green Backed Tit			
Plate 25.	Common starling			
Plate 26.	Rufous Bellied Niltava			
Plate 27.	Himalayan Black Bulbul			
Plate 28.	Scaly Thrush			

Plate 29.	Tawny Owl			
Plate 30.	Fire caped Tit			
Plate 31.	Black and Yellow Grosbeak			
Plate 32.	Siberian Stonechat			
Plate 33.	White cheeked Nutach			
Plate 34.	Koklas Pheasant			
Plate 35.	Himalayan Monal			
Plate 36.	Snow Covered grasslands of the Dachigam National Park			
Plate 37.	Himalayan Skink			
Plate 38.	Kashmir Agama			
Plate 39.	Himalayan Pit Viper			
Plate 40.	Plain Tiger			
Plate 41.	Common Yellow Swallowtail			
Plate 42.	Pala's Sailor			
Plate 43.	Indian Tortoise Shell			
Plate 44.	Ruddy Darter			
Plate 45.	Floriculture Nursery near VIP guesthouse			
Plate 46.	Laribal Fish farm gate			
Plate 47.	Trout Fish hatchery ponds			
Plate 48.	Power department transformers inside Dachigam			
Plate 49.	CRPF barrier near NIC			
Plate 50.	CRPF bunker and settlements at VIP guesthouse			
Plate 51.	VIP guesthouse at Draphama in the middle of National Park			
Plate 52.	Water supply department control gate and canal			
Plate 53.	Irrigation department gauge			
Plate 54.	Forest fires inside Dachigam National Park			
Plate 55.	Horticulture cropland near boundary of Dachigam National Park			
Plate 56.	Landscape picture showing mosaic of forested habitats and croplands			
Plate 57.	Firefighting squad of Dachigam National Park			
Plate 58.	Awareness programmes in Dachigam National Park			

Plate 59.	Human – wildlife conflict around Dachigam National Park		
Plate 60.	A group of Wild boar foraging inside Dachigam National Park		
Plate 61.	Camera trap image of wild boar inside prime habitat of Hangul		
Plate 62.	Camera trap image of Piglets inside the prime habitat of Hangul		
Plate 63.	Castration in Common Leopard		
Plate 64.	Laboratory investigation of fecal samples		
Plate 65.	Nematode eggs in droppings of Barn owl x 40		
Plate 66.	DNA extracted from the Kidney and heart of common Leopard (Lane 3,4,5)		
Plate 67.	Successful rescue and release of Adult male Hangul		
Plate 68.	Feeding of various rescued animals		
Plate 69.	Training workshop at Dachigam National Park		
Plate 70.	Transportation of rescued animals		
Plate 71.	Disinfection of animal enclosures at rescue Centre at Dachigam		
Plate 72.	Door to Door FMD awareness cum survey in Mulnar, Fakir Gujri		
Plate 73.	24 x 7 Ambulatory services		
Plate 74.	Tranquilization and satellite collaring of Hangul		
Plate 75.	Brown Bear enclosure at Dachigam National Park		
Plate 76.	Common Leopard enclosure		
Plate 77.	Black Bear enclosure at Dachigam National Park		
Plate 78.	Proposed building for development of Research and development		
Plate 79.	Participants during Hangul census		

LIST OF FIGURES

Figure 1.	Map showing location of Dachigam National Park		
Figure 2.	Map showing Dachigam National Park and surrounding Pas in Dachigam Landscape		
Figure 3.	Map showing Dachigam National Park with compartment boundaries and management unit of source working plan map of SOI		
Figure 4.	Map showing the Dachigam National Park with road connectivity		
Figure 5.	Proposed block map of Dachigam National Park		
Figure 6.	Map showing Dachigam National Park with drainage as feeding channel for the famous Dal Lake		
Figure 7.	Map showing Dachigam National Park with beat boundaries		
Figure 8.	Map showing boundaries of protected areas contagious with boundary of Dachigam National Park		
Figure 9.	Map showing slope aspect of Dachigam National Park		
Figure 10.	Map showing elevation of Dachigam National Park		
Figure 11.	Monthly rainfall recorded in Dachigam Landscape for the year 2019		
Figure 12.	Average rainfall in Dachigam Landscape during time from 2010 – 2019		
Figure 13.	Mean temperature of the months of year 2019 at Dachigam National Park		
Figure 14.	The relative humidity of the months of 2019 at Dachigam National Park		
Figure 15.	The Drainage map of Dachigam National Park		
Figure 16.	Land use and Land cover map of Dachigam National Park		
Figure 17.	Map showing the location of main Oak patches of Dachigam National Park		
Figure 18.	Diameter class of oak in Dachigam National Park		
Figure 19.	Hangul population estimation in Dachigam National Park from 2004 – 2019		
Figure 20.	Hangul population counts with standard errors from 2004 – 2019		
Figure 21.	Occupancy and detection probability of Black Bear in Dachigam National Park		

Figure 22.	Fire map of Dachigam National Park		
Figure 23.	Map showing snow covered areas of Dachigam National Park		
Figure 24.	Map showing the existing infrastructure inside Dachigam National Park		
Figure 25.	Map showing the grazing routes of the Dachigam National Park		
Figure 26.	Fire map of Dachigam National park		
Figure 27.	Map showing the ecotourism zone of Dachigam National Park		
Figure 28.	Administrative areas of various beats of Dachigam National Park		
Figure 29.	Administrative setup units at Dachigam National Park		
Figure 30.	Habitat map of Dachigam National Park		
Figure 31.	Map showing land use categories in Dachigam Landscape		
Figure 32.	Map showing the proposed Eco – sensitive zone of Dachigam National Park		
Figure 33.	Map showing the zone of no mining from the buffer areas of Dachigam National Park		
Figure 34.	Map showing Eco – tourism zone of Dachigam National Park		
Figure 35.	Block map of Dachigam National Park		
Figure 36.	Map showing the zone of Dachigam National Park		
Figure 37.	Human – wildlife conflict around Dachigam National Park		

List of Annexures

S. No.	Annexure
1.	Gazette notifications on Dachigam National Park
2.	Hangul population figure for the last five year census
3.	Sanctioned strength of staff. Man power in Dachigam national Park
4.	Rainfall data of the Dachigam National Park over past ten years
5.	Natural water resources in Dachigam National Park
6.	Check list of birds species recorded in Dachigam National Park
7.	Butterflies species recorded in Dachigam National Park
8.	Check list of flora of Dachigam National Park
9.	List of revenue villages surrounding the Dachigam National park
10.	Poaching and natural death of wild animals from last five years
11.	List of watch tower and viewpoints in Dachigam National Park
12.	List of Vehicles in Dachigam National Park
13.	List of temporary anti-poaching and anti-grazing camp in Dachigam National Park
14.	Mean annual temperature of the months of 2019
15.	Relative humidity of the months of the year 2019
16.	Check list of the mammals of Dachigam National Park
17.	Map showing the regeneration status of Oak in Dachigam National Park
18.	Vegetation sampling of oak plantations in Dachigam National Park
19.	Draft Notification for Eco sensitive Zone
20.	Visitor Management Data
21.	Human Wildlife Conflict Data
22.	Hangul population analysis 2021
23.	Project Hangul Budget layout

PART 1^{s⊤} HISTORY AND CURRENT MANAGEMENT

PART 2ND STRATEGIES AND PROPOSED MANAGEMENT

PART 3RD THE BUDGET

Introduction

The Jammu and Kashmir state is the northern most UT of the country and known for its biodiversity, natural beauty and for the uniqueness found in the species composition. The rapidly increasing population, infrastructure development is causing deforestation, depletion of natural resources and conditions of paucity. The Himalayas, which play vital role not only in Indian but also in the sub-continental economy, is in the grip of environmental degradation. The carrying capacity of the Himalaya is decreasing day by day due to the heavy pressure of both increasing human and livestock population. Historically, local communities were dependent on natural resources for their livelihood.

The Western Himalayan UT of Jammu and Kashmir supports a diverse array of cultures, resource uses, and management traditions in spiritual beliefs. The Western Himalayan ecosystem, of which Jammu and Kashmir is a part, has been recognised as a repository of local conservation traditions that promote the careful use of natural resources in order to maintain a long-term sustainability and to support local socioeconomic condition. However, these mountainous areas undergo rapid socioeconomic and environmental changes due to hasty increase in population, forest degradation and developmental activities.

Dachigam National park is single compact catchment area in Srinagar having unique flora and fauna. Dachigam National Park occupies almost half of catchment zone of world famous Dal Lake and is important source of drinking water to the Srinagar city. The flora, fauna, the ecological, geomorphological significance together with the proximity to the Srinagar city has added splendor shine to the glory of Dachigam as gene pool for reboisement, protection and propagation of wildlife.

The outstanding conservation values made Dachigam National Park as one of the most important protected areas and it holds the last and most viable population of Kashmir stag 'Hangul'. The recent studies states that Dachigam National Park holds largest and one of the finest population of Asiatic black bear in Asia.

For the maintenance of the physical and demographic integrity of the site and rich wildlife, resources in Dachigam national Park need more scientific management with a long term planning process. In the changing world management of wildlife as a separate planning strategy is quite newer than the mainstream forest management. The current management plan is the most comprehensive management plan, which is prepared by following the guidelines, developed by MOEF & CC (Wildlife Wing), Wildlife Institute of India, and the manual for planning wildlife management in protected area and managed forest.

Though the management plan is written for the period of 10 years, it is necessary to revise after the completion of the period on regular basis to incorporate and upgrade the changes, which are caused due to dynamic nature of habitat and accrued knowledge after research publications. It is felt that the management plan in the present condition is the big leap towards achieving set goals and objectives.

Srinagar 01 July 2021

Altaf Hussain (SFS) Wildlife Warden Central

Executive summary of the Management plan

Dachigam National Park is one of the most important protected areas in Jammu and Kashmir because it holds the last viable and largest population of Hangul in the world. The park is spread over an area of 161 sq. km in the Zabarwan mountain ranges of great Himalayas. Dachigam National park harbors the last viable population of Hangul and one of the largest and finest population of Asiatic black bear.

Dachigam National park was a hunting reserve or 'Rakh' of the Maharaja of Jammu and Kashmir for a long time from 1910 until 1947, after that its management was handed over to Department of Hospitality and Protocol (Fisheries Department, Directorate of game preservation) and subsequently to the Forest Department. It was managed under the Wildlife wing of Forest Department and later Dachigam was declared as a sanctuary by state order no. 276/C in 1951 (Holloway, 1970; Holloway and Wani, 1970). Dachigam Wildlife sanctuary was upgraded to National Park on 4 February, 1981 (state order no. FST/20) by the Government of Jammu and Kashmir. The management of Dachigam NP was handed over to the newly formed Department of Wildlife Protection, Jammu and Kashmir 1982 after separation from Forest Department. The park is divided into two administrative unit Lower and Upper Dachigam that are administered by Central Wildlife Division. Today Dachigam National Park is managed in IUCN category - II (National Park).

Therefore, for the focus of the park management had mainly been on the protection aspect. Today the wildlife enjoying near wildness conditions, because of the proper management of the park and protection given to the habitats of wild animals but today it is needed to explore the other facets, which the management of the park is facing in the changing world. The draft management plan written for ten years (2020-2030) focuses on important aspects with the following objectives:-

- 1. To conserve the last viable population of the Hangul.
- 2. To conserve the unique grassland and scrubland habitat which is adobe to Hangul and holds key position in Hangul conservation.
- 3. To ensure the sustaining and enhancing ecosystem services of the Dachigam National Park.

- 4. To manage the watershed and habitat to conserve the greater Dachigam ecosystem and for the benefit of local dependent communities.
- 5. To prepare and implement the visitor management plan by assessing the carrying capacity of the eco tourism zone of national park.
- 6. To create awareness among public, visitors and stakeholders through strengthened education and interpretation programmes.
- 7. To strengthen the park management people relation especially people of fringe areas, NGOs and other stakeholders in the management.
- 8. To device a strong and effective fire management plan
- 9. To device effective strategies to deal with the menace of invasive alien and unpalatable species.
- 10. To formulate the strategies and management practices to mitigate the Human wildlife conflict.
- 11. To ensure effective immunization of livestock in fringe areas of national park in order to avoid any chance of epidemic inside national park.
- 12. To ensure capacity building of frontline staff for effective enforcement and effective implementation of strategies in the field.
- 13. To facilitate and undertake long term and short-term research programmes particularly significant towards managmental interventions.
- 14. To ensure strong protection strategy aiming at controlling poaching of any sort.

It comprises of three parts;

Part one covers four chapters namely (Introduction, Background information, History of the management and present practices in the protected areas and the interface land use situation) respectively.

Part two of the plan covers rest of the twelve chapters namely (Plan objectives and problems, strategies, Fire management plan, Human – wildlife conflict, Animal health monitoring, management and rehabilitation of rescued Animals, Tourism interpretation and conservation Education, Eco-development, Research and monitoring, Organization and administration, the budget and the schedule of operations) respectively.

Part three comprises of various Annexures and control forms pertaining to the park.

The objectives are well defined however there are a number of constrains/ problems in achieving these objectives.

Some of the major constrains that have been identified are: Grazing in alpine pasture, fire in grasslands, dearth of staff, siltation of water bodies, financial constraints and problems related to infrastructure and communication needs of the park. The VIP guesthouse in the heart of the park and the recent increase in Human – wildlife conflict reports are the problems of greater and some lesser magnitude, with greater implications for the future.

The strategies proposed in chapter-6 to tackle these problems are to divide the park in zones. Each zone has its own set of objectives and strategies for dealing with the problems, which the management is having today.

The managmental interventions, which are applicable to whole of the national park, are described as "theme plans". Nine theme plans, which are applicable to the entire parks irrespective of the zonation, are as under. The management strategies for the Dachigam National Park that are applicable to the entire park irrespective of their zones and have not been discussed in the chapter no.6 of the plan are listed here:

- 1. Habitat Management
- 2. Control of poaching
- 3. Control of grazing and other biotic pressures
- 4. Animal health surveillance
- 5. Management and rehabilitation of rescued animals
- 6. Watershed development and management
- 7. Ecotourism development
- 8. Capacity and human resource development
- 9. Communication and infrastructure development Research and monitoring

The chapter seven deals with the Fire management and the strategies to tackle the fire. This chapter in depth deals with the strategies regarding the fire management and lays foundation in framing out fire management plan. The chapter eight deals with Human – wildlife conflict and the strategies to tackle the ever-increasing issue, which nowadays became the talk of town. The chapter nine deals with the Animal

health monitoring, management and Rehabilitation of the Rescued animals. The chapter in depth deals with the management of rescued animals, wild animal health monitoring and disease investigation and future strategies regarding health and monitoring of the wild animals. The chapter 10 deals with the Research monitoring and Training. The chapter in-depth deals with the research monitoring and identification of key research thrust areas and identification of research areas. The chapter 11 deals with the Eco – development and various strategies regarding the *Eco – developmental activities at Dachigam National Park. The chapter 12 deals with* the Tourism interpretation and conservation education objectives and strategies regarding achieving those objectives. The chapter in depth deals with the facilitating the nature based regulated tourism and the proposals of new eco – tourism plans. Chapter 13 deals with the present and proposed staff that would be required for the proper management and protection and various staff amenities to be provided to the front line staff. The Chapter 14 deals with the budget that would be required for fulfilling these activities and the objectives. The total budget at present rate of the entire period of ten year would be Rs.2360 lakhs while the projected expenditure will be of 10 % increment of the current base budget.

All the annexures and control forms pertaining to Dachigam National park in fulfilling the objectives of the Management Plan are enclosed.





CHAPTER ONE INTRODUCTION TO THE AREA

1.1 NAME, LOCATION, CONSTITUTION AND EXTENT

1.1.1 NAME AND HISTORY

Dachigam National Park has a great history and legacy of which its name is a part. The name of the National Park is connected to the story of ten villages that were there once in its lap. Before the existence of the park, there were ten villages, which were translocated from the area due to formation of a Game Reserve or Rakh by Maharaja of Jammu and Kashmir. So the translocation of the ten villages gave the National Park the name of Dachigam which is an amalgam of three Kashmiri words *Dah* which means 10, *chi* means are and *gam* means village so "ten villages". Inside the park, there are many nallahs, which are named after these translocated villages. The reason to declare this area as a game reserve by Maharaja was the existence of an immensely diversified flora and fauna of this area. Though this decision was not taken purely from the Conservation point of view but with the progression of the time, it proved to be a milestone in the context of Conservation.

1.1.2 LOCATION

Dachigam National Park is located 21 Km northeast of Srinagar which is the summer capital of UT of J&K. It is enveloped by the Zabarwan mountain range of greater Himalayas. The Latitude and Longitude extend of Dachigam National Park lie between 34° 08' 19.26" N 74° 53' 58.67" E to 34° 08' 52.14" N 74° 53' 58.67" E and 34° 10' 55.10" N 75° 00' 44.47" E to 34° 04' 48.82" N 75° 02' 05.16" E and falls within civil jurisdictions of Srinagar and Ganderbal. Its area comes in 2.38.12 (Himalayan Highlands) bio-geographical province, and 2A Bio-geographic zone. The transportation access up to Dachigam National Park Gate 1 is easy and highly accessible. The nearest airport is Sheikh-ul Alam International Airport at the distance of 29 Km while as nearest railhead lies at the distance of 26 Km.



INTRODUCTION TO THE AREA



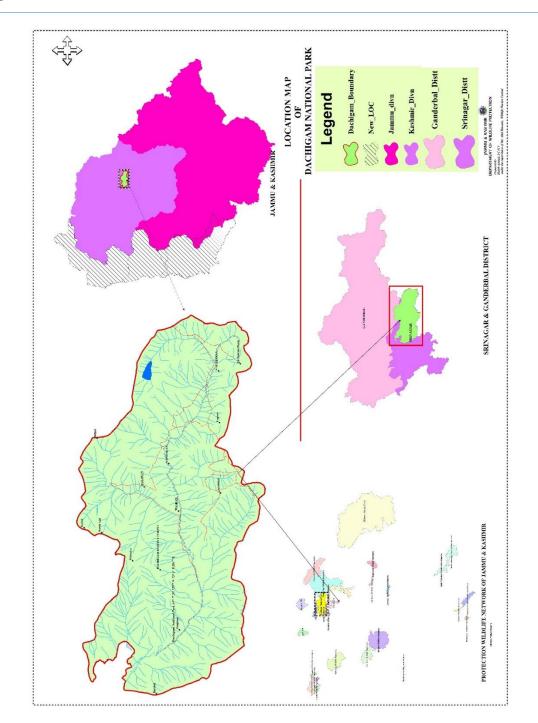


Fig.1. Map showing Location of Dachigam National Park





1.1.3 CONSTITUTION

Dachigam National park was a hunting reserve or 'Rakh' of the Maharaja of Jammu and Kashmir for a long time from 1910 until 1947, after that its management was handed over to Department of Hospitality and Protocol (Fisheries Department, Directorate of game preservation) and subsequently to the Forest Department. It was managed under the Wildlife wing of Forest Department and later Dachigam was declared as a sanctuary by state order no. 276/C in 1951 (Holloway, 1970; Holloway and Wani, 1970). Dachigam Wildlife Sanctuary was upgraded to National Park on 4 February, 1981 (state order no. FST/20) by the Government of Jammu and Kashmir. The management of Dachigam National Park was handed over to the newly formed Department of Wildlife Protection, Jammu and Kashmir in 1982 after separation from Forest Department. Central and South Wildlife Division divide the Park into two administrative units of Lower and Upper Dachigam, which were administered, respectively. Today Dachigam National Park managed under IUCN category- II (National Park).

Today Dachigam National Park is surrounded by many Conservation Reserves, which are contiguous to its boundaries. There are many villages which are located on the periphery of Dachigam where managing wildlife have become a challenging task. For the better management of the National Park there is a need that important corridors are to be identified, which can increase the range of this landscape by connecting it to contiguous habitats for animals like Black Bear, Leopard and most significantly Hangul.





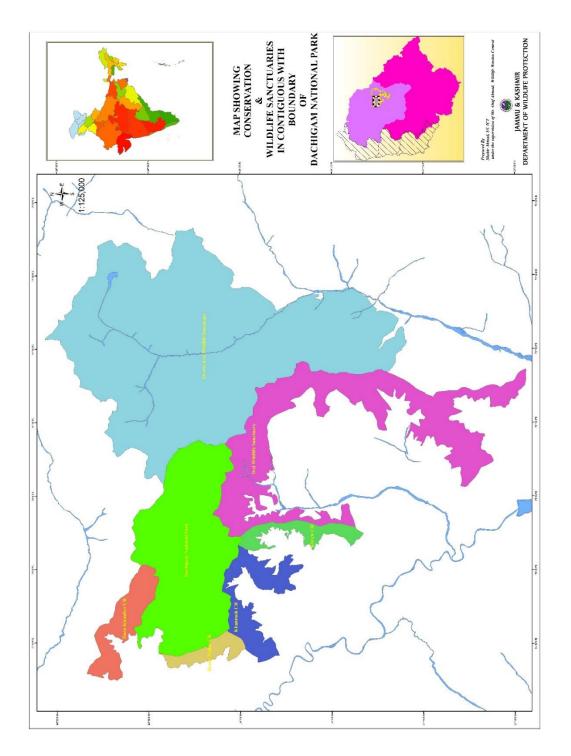


Fig.2. Map showing Dachigam National Park and surrounding protected areas in Dachigam Landscape





1.1.4 EXTENT

The total area of Dachigam National Park was reported to be as 141 Sq. Km. as in the notification as well as previous Management Plan. While digitizing the map of Dachigam National Park current extent comes out to be 161 Sq. Km.

Name of the area	Area Sq. Km	Date of notification	Section Under Which Notified
Dachigam National Park	161	4 th February 1982	Section-35 of Jammu and Kashmir WPA, 1978 but currently Governed under Wildlife Protection Act 1972



INTRODUCTION TO THE AREA



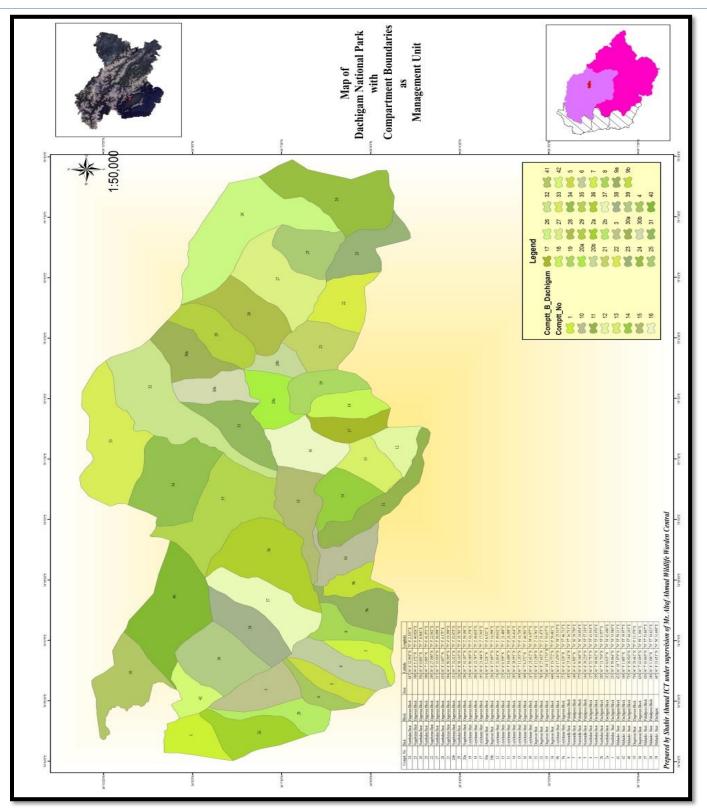


Fig.3. Map showing Dachigam National Park with Compartment Boundaries and management units of Source Working Plan Map of SOI





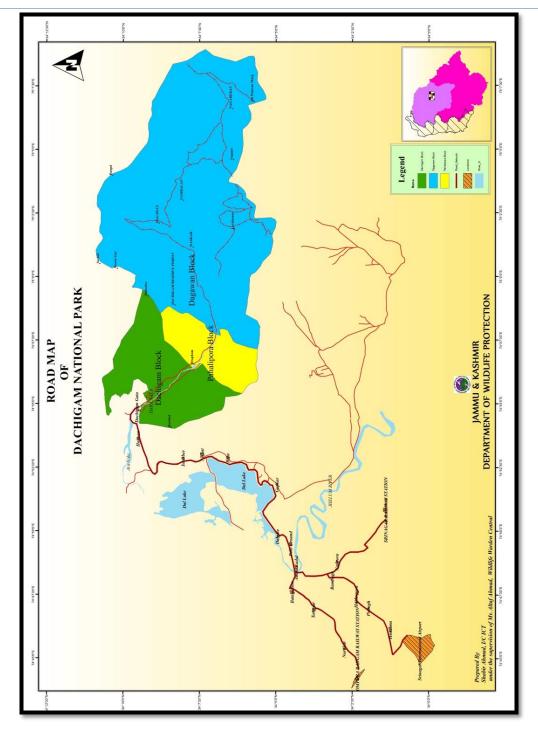


Fig.4. Map showing Dachigam National Park with Road connectivity





1.2 APPROACH AND ACCESS

The administrative head office and the range office of Dachigam National park are located at New Theed Harwan, Srinagar. Harwan is 21 Km from the center of Srinagar, which is a summer capital of UT of Jammu And Kashmir. Nearest airport is Sheikh-ul- Alam International Airport at the distance of 29 Km while as nearest railhead lies at the distance of 26 Km. The area is highly accessible in terms of availability of transport facilities.

1.3 THE STATEMENT OF SIGNIFICANCE

When the status of National Park is attributed to a protected area, it has to full fill certain requirements in terms of Floral and Faunal diversity. In case of Dachigam National Park, not every such requirement is just fulfilled but it emphatically stand out in terms of everything. Right from the indigenous population of Hangul to the dominant population of Asiatic Black Bear, right from towering mountain peaks to velvet feel landscapes, right from the gushing streams to extraordinary mixed forests, Dachigam National Park simply stands out. For this reason, Dachigam National Park is famous, recognized and admired world over. Dachigam occupies almost half of the catchment zone of the famous Dal Lake and is the one of the important sources of water for the Srinagar city. The National Park is significant in the sense that it is the only area in the world where last and largest viable population of Kashmir Stag (Hangul) is in existence. The Park is foster mother nurturing rich assets of threatened as well as rare flora and fauna. The faunal, floral, ecological and geomorphologic significance together with proximity to Srinagar has added splendorous shine to the glory of Dachigam, as a gene pool for reboisement, protection and propagation of Wildlife. Dachigam is a stupendous example, which represents and preserves significant ecological and biological processes in the way of evolution and development of various ecosystems consisting of several communities of plant and animal species. Most significantly, Dachigam National Park provides suitable habitat for the in-situ conservation of Hangul, which is "Critically Endangered", and needs attention for the conservation. The other species, which have global importance, include Himalayan Grey Langur, Himalayan Yellow throated Marten, Asiatic black bear, Common Leopard.





Some of the key significant Conservation values of Dachigam National Park are enumerated below:

- It holds the last surviving and viable population of Hangul
- It is the main Catchment for the famous Dal Lake
- It holds best population of Asiatic Black Bear and with high ecological density
- Dachigam National Park with adjacent Conservation Reserves and Wildlife Sanctuaries makes Greater Dachigam Landscape, which harbors high level of biodiversity
- It offers substantial Research, Education and Recreation values
- A great deal of avian diversity can be witnessed inside the National Park, which range from various endemic to migratory birds. The data of certain researchers in the form of e-bird data point to a number more than 160 different bird species, therefore to call it "*Bird Watchers Paradise*" will not be an over statement.
- In terms of ecosystem, services National Park along the Zabarwan Hills truly acts as the lungs of the Srinagar City
- Patches of grasslands is an immaculate feature of its diversified ecosystem



INTRODUCTION TO THE AREA



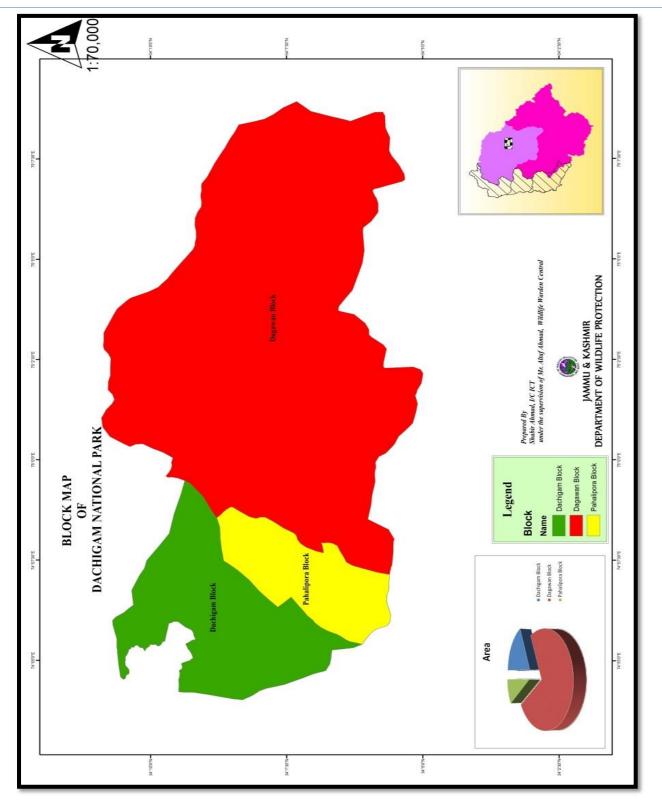


Fig.5. the proposed Block map of Dachigam National Park





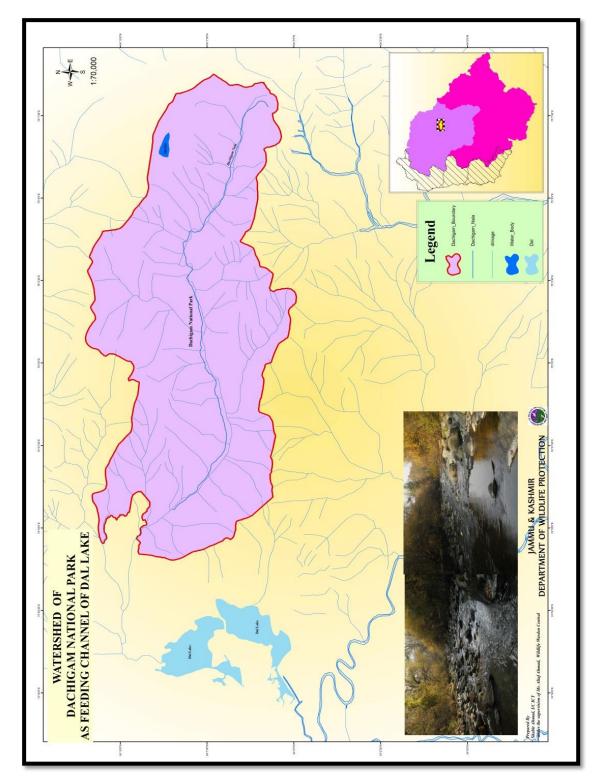


Fig.6. Map showing Dachigam National Park with Drainage as Feeding Channel for Famous Dal Lake



INTRODUCTION TO THE AREA



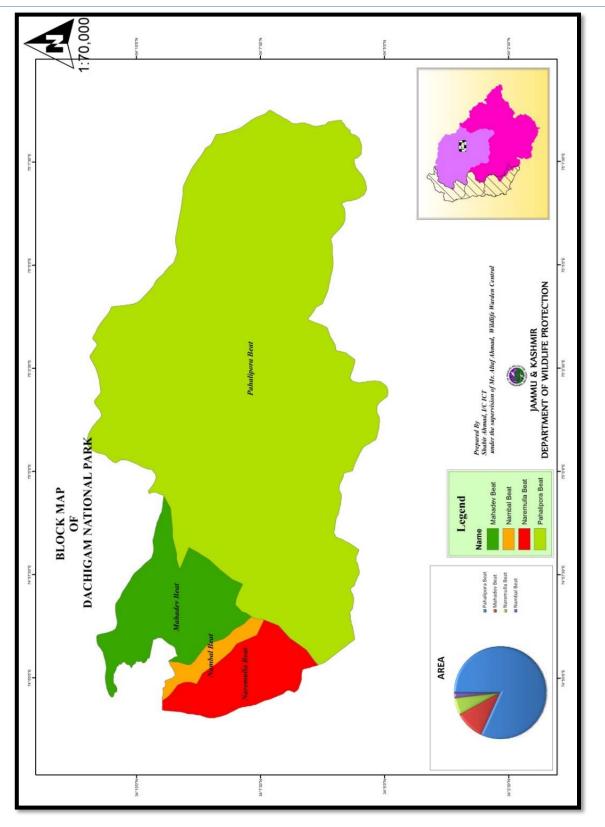


Fig.7. Map showing Dachigam National Park with Beat Boundaries





CHAPTER TWO BACKGROUND INFORMATION AND ATTRIBUTES

2.1 BOUNDARIES

Dachigam National Park (NP) came into existence vide the government notification no. FST/ 2A dated 4 Feb 1981, which describes the boundaries of Dachigam. The natural boundaries of the park are two steep mountain ridges, one originating from Harwan water reservoir on the southwest side of the park and the other originating from Dara/ Khimber side with an elevation gradient of 2,600 m to 3,000 m. Dachigam National Park is bounded by Sindh valley to the north- east, Tarsar, Lidderwath, Kolhai of Lidder Valley and Overa-Aru Wildlife Sanctuary in the Far East. Tral Wildlife Sanctuary bounds the Dachigam National Park from the south- east and Harwan, Brain and Nishat in the west and south- west. The artificial boundaries are well demarcated and fenced that at many places have deteriorated. Pillars are required for maintaining the integrity of the area and law enforcement.

2.2 GEOLOGY, ROCK AND SOIL

The entire area of the Dachigam National Park is highly mountainous and consists of crystalline rocks such as the granite, phyllites; schists with limestone embedded, which form the core of Zanskar range, which encloses the Dachigam National Park. The area from Khonmoh to Mahadev is mainly composed of calcareous slates, shale and blue limestone (Singh and Kachroo, 1976). The sediment composition of these ranges is of the era of Cambrian to Tertiary period. The crystalline axis of the Himalayan system consists some of the oldest rocks and the northern flank of this crystalline axis consists the fossils of marine origin. The soil depth in Dachigam National Park from lower to the middle reaches is less than 25 cm and falls under the category of shallow Soils.



BACKGROUND INFORMATION AND ATTRIBUTES



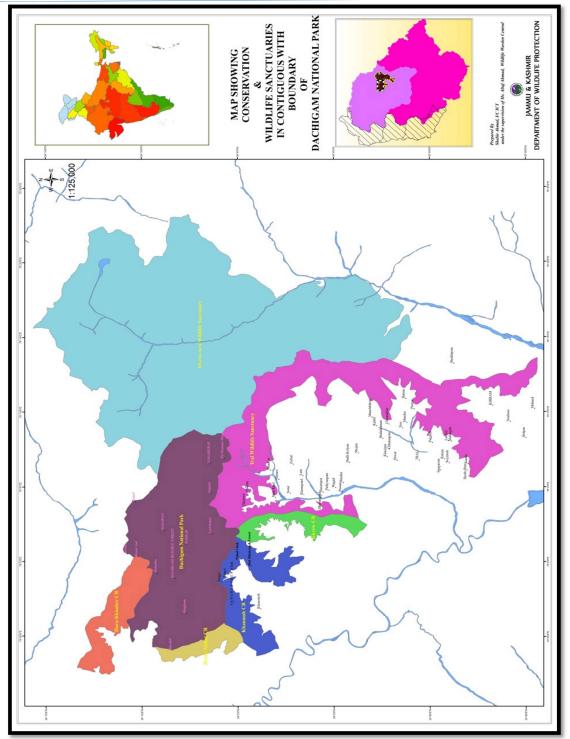


Fig.8. Map showing boundaries of protected areas contagious with boundary of Dachigam National Park



BACKGROUND INFORMATION AND ATTRIBUTES



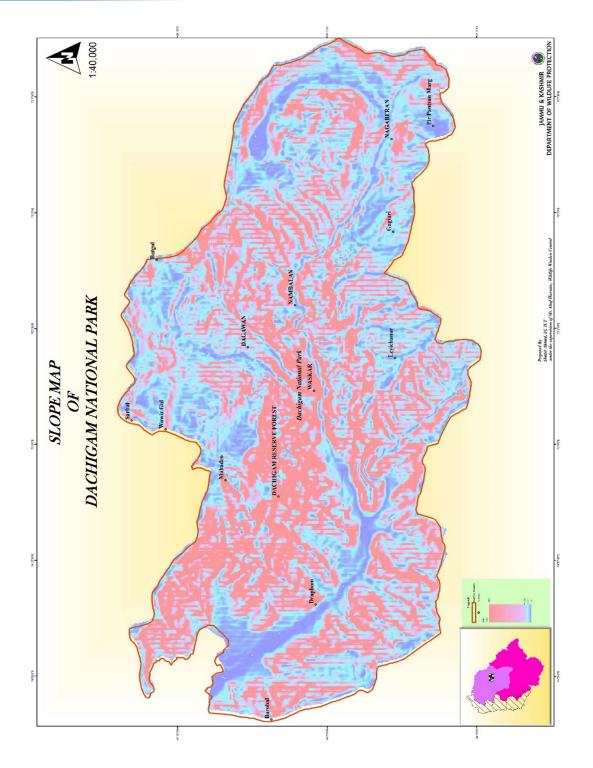


Fig.9. Map showing the slope aspect of Dachigam National Park





2.3 TERRAIN

Dachigam National Park possesses Great Himalayan feature with steep mountains separated with deep gorges and valleys. The series of undulations present a variety of slope aspects supporting an array of vegetation types. The overall terrain in Dachigam is steep mountainous.

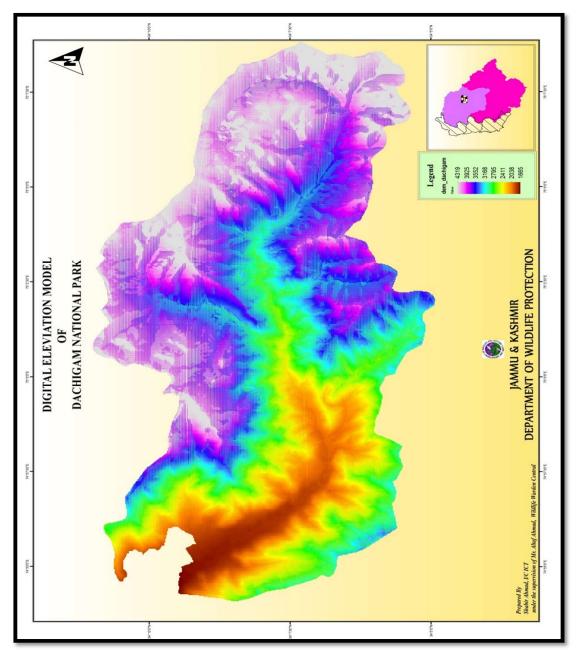


Fig.10. Map showing the elevation of the Dachigam National Park





2.4 CLIMATE

2.4.1 RAINFALL PATTERN AND DISTRIBUTION

The climate in Dachigam is sub-Mediterranean type with bixeric regime having two spells of dryness of April- June and September- November (Singh and Kachroo, 1977, 1978). The area observes an irregular weather condition with a considerable variation in the amount of precipitation. Snow is the main source of precipitation and in some parts, it melts until June. The annual minimum and maximum rainfall of Dachigam has been calculated ranging between 32 mm to 546 mm (Bhat, 1988).

The precipitation received during the 2019 in the Dachigam landscape shows that maximum precipitation was received during the month of November owing to the early and heavy snowfall (Source: IMD, Srinagar).

The precipitation data over the last ten years show that the 2019 was the year of maximum precipitation in which highest amount of rainfall was received (source: IMD, Srinagar). The rainfall received in the Dachigam landscape and reported by the Indian Metrological Department, Srinagar for past ten years is given in annexure number 4.

2.4.2 TEMPERATURE – A SUMMARY OF YEAR ROUND PATTERNS

The Dachigam National Park experiences four distinct seasons: winter (Dec.-Feb.), spring (Mar.-May), summer (Jun.-Aug.), and autumn (Sep.-Nov.). Dachigam NP has a temperate climate with cool summer and chilling winter. The temperature recorded in summer shows a maximum and minimum temperature of mean temperatures 25° C and 2.0° C. The mean month wise temperature recorded in the area for the year 2019 is shown in Annexure no.14 (Source: IMD, Srinagar)



BACKGROUND INFORMATION AND ATTRIBUTES

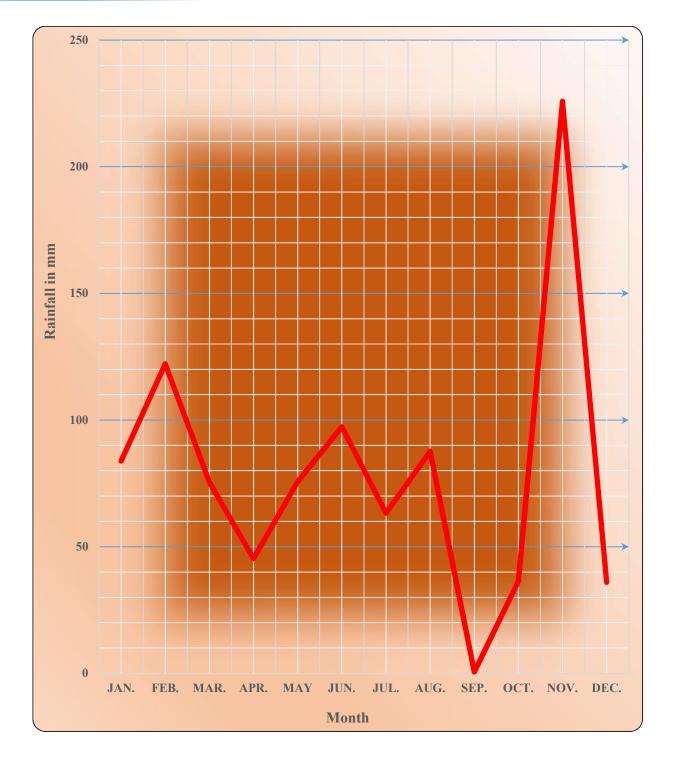


Fig. 11. Monthly rainfall recorded in Dachigam landscape for year 2019



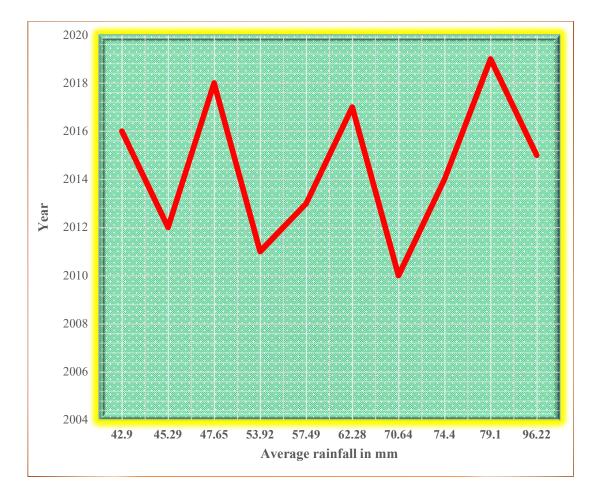


Fig.12. Average rainfall in Dachigam National Park during the time from 2010 to 201



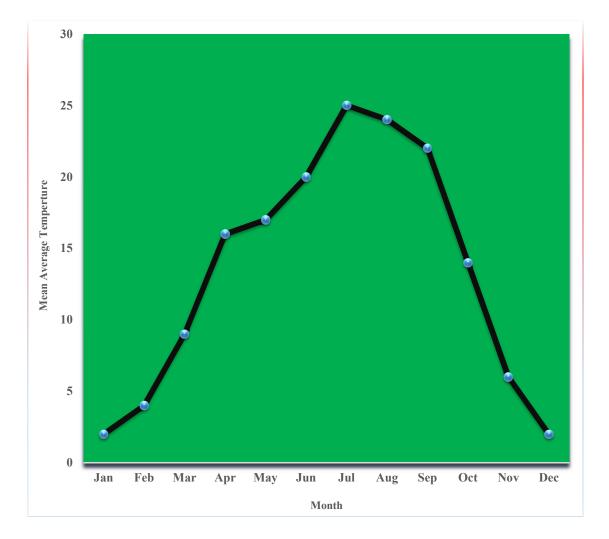


Fig.13. Mean temperature of the months of the year 2019 at Dachigam National Park

2.4.3 HUMIDITY

The relative humidity of Dachigam National Park is generally low during most part of the year. The maximum humidity is recorded in spring. The mean month wise humidity recorded during the year 2019 in the area is shown in figure 14 (Source: IMD, Srinagar).



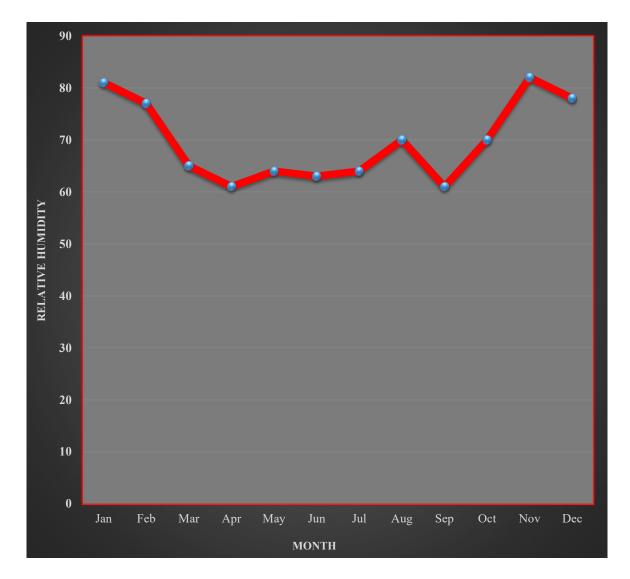


Fig. 14. The relative humidity of the months of 2019 at Dachigam National Park

2.4.4 DROUGHT

The Dachigam national park is being bestowed by the perennial water streams and nallahs, drought is very rare, has not been observed in past 20 years, and therefore does not require any management consideration.





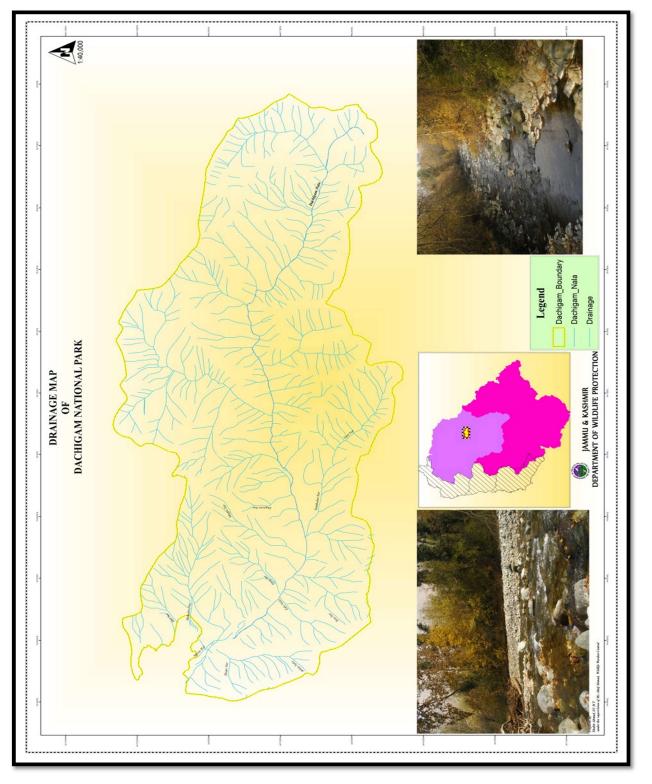


Fig.15. The Drainage map of Dachigam National Park





Dachigam National Park is gifted with numerous perennial streams, nallahs, springs, glaciers. The main Dachigam nallah emerges from Marsar Lake where in supply of water almost remains unobstructed, as result there is adequate water supply throughout year. Dachigam nallah forms the main catchment of Dal. The perennial water streams and main nallah provide drinking water for the wild animals living in the natural habitats of Dachigam National Park. The fresh waters of Dachigam National Park not only feed the wildlife creatures of Dachigam National Park but also half of the population of Srinagar.



Plate 1. Marsar Lake located in upper Dachigam

2.6 RANGE OF WILDLIFE, STATUS DISTRIBUTION AND ATTRIBUTES

2.6.1 VEGETATION

2.6.1.1 The bio-geographic classification





According to the bio-geographic classification suggested by Rodgers and Panwar of Wildlife Institute of India, who outlined a scheme to divide India zoo geographically, Dachigam National Park comes under Zone 2 – Himalaya.

2.6.1.2 The forest Types, cover and food for wild animals

The vegetation of Dachigam National Park typically falls under Himalayan Moist temperate forest, Sub – alpine forest and Alpine forest type as per the new and revised Champion and Seth classification (Champion and Seth, 1968). The vegetation of Dachigam National Park can be sub – divided into the following sub – types:-

- Moist temperate deciduous forests
- Temperate grassland and scrub
- Himalayan low level Blue pine forests
- Temperate mixed forests
- Coniferous forests
- Himalayan sub alpine forests
- Alpine pastures

The Dachigam National park exhibits a variety of vegetation types mainly characterized by the habitat, exposure, slope, aspect, and biotic pressure (Singh and Kachroo, 1978). The low-lying areas of Dachigam exhibit a complex mixture of broadleaved forests comprising of species of *Morus alba*, *Ulmus wallichiana*, *Celtis australis*, and *Juglunas regia* with scattered patches of the plantations of English Oak (*Quercus robur*) and *Robinia pseudoacacia*. The middle areas comprise of the mixed coniferous forests with certain pure patches of *Pinus wallichiana*. There is luxuriant vegetation on the both sides of Dachigam nallah. The riverine vegetation mainly consists of *Salix alba*, *Ulmus wallichiana*, *Populas cilita* and *Juglunas regia*. The upper areas of higher altitudes consists of vegetation comprising mainly of alpine and sub – alpine forest types. These forests are composed of *Betula utilis*, *Rhododendron spp.*, intercepted with luxuriant herbaceous grasses. A detailed checklist of the flora of Dachigam national park is shown in Annexure no.8



2.6.1.3 Vegetation and habitat mapping of Dachigam National Park

The vegetation map of Dachigam was prepared using the Landsat data IRS-1D LISS-IV sensor using ArcGIS 10.6, ERDAS 9.1 software program. The topo sheets of Dachigam national park in the scale of 1:50000 were digitized. For the vegetation characterization in Dachigam, random vegetation sampling was carried out throughout the Dachigam National park. The vegetation data was analyzed for the plant community classification in Dachigam.

For the vegetation type delineation in Dachigam a hybrid method (supervised, unsupervised and rule based classification) was used. A unique color was given to all different vegetation types. Maximum likelihood classification method of classification was adopted for the false color classification.

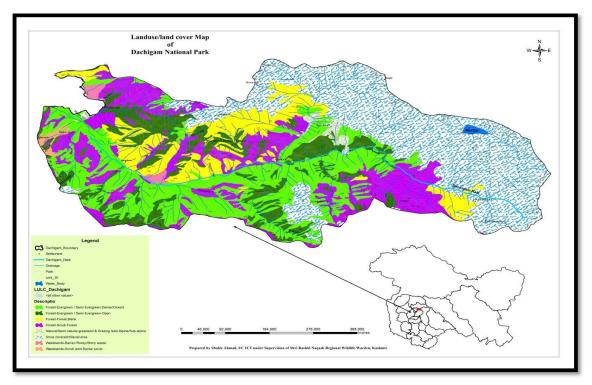


Fig.16. Land use and land cover map of the Dachigam National Park

Based on the results of TWINSPAN analysis and field survey, we classified the vegetation of Dachigam into following types:-





MOIST TEMPERATE DECIDUOUS FOREST

Riverine forest type is mainly confined along the Dachigam Nallah, a succession vegetation type whose succession is mainly determined by the local edaphic and climatic conditions. The plant community of this forest includes broadleaved species such as *Morus alba*, *Morus nigra*, *Salix alba*, *Salix Babylonia*, *Salix trevendra Populas alba*, *Juglunas regia*, *Juglunas nigra*, *Acer cesium*, *Rhus succedanea*, *Robinia pseudoacacia* and *Ulmus wallichinea*. The dominant shrubs of this forest type are *Indigofera heterantha*, *Berberis spp.*, *Vibernum spp.*, *etc*. The moist temperate deciduous forest vegetation lies in the altitudinal zone of 1650 m to 1900 m and covers near about 30 % of Dachigam National park.



Plate 2. Temperate Deciduous forests of Dachigam National Park





OAK PLANTATIONS

The genus *Quercus* Known as **Oaks** include more than 500 species worldwide. The oaks are important group of tree species of the temperate forests and are commercially important wood genus. The oaks are dicotyledonous, monoecious tree species with fruit development as nuts. The nut seeds of the oaks are commonly known as "**Acorn**" which are usually associated with a cup like structure (Cupule) around the mature fruit. The English Oak (*Quercus robur*) found inside the Dachigam National Park is an exotic species to the Kashmir region and were introduced by the Maharaja of Kashmir. The English oak belongs to the Fagaceae family and is member of white oaks mainly distributed in the temperate regions of the northern hemisphere (Harlow *et al.*, 1991).

The English oak is large broadleaved deciduous tree with huge spreading crown, short stout trunk with deep-fissured grey brown bark. The fruit of oak is nut, egg shaped (acorns) of which one – third remains enclosed by half round by the capule. The seeds are initially green in color but at maturity turn light brown.

Importance of Oak in Dachigam National Park

- English Oak is an exotic species to the Kashmir region but now has become one of the most important habitat and provides food and shelter to the animal species such as Asiatic black bear, Hangul and Himalayan Grey Langur.
- Oak acorn is the most important food for the Asiatic Black Bear and Himalyan Grey Langur in autumn season.
- Asiatic black bear feed extensively on the oak acorn before going into hibernation or winter sleep (Sharma, *et al.*, 2010).
- The Black Bear make bushy bed on these trees. By climbing up the oak, they break the branches to eat acorn and tender branches.
- It provides a suitable habitat and breeding ground for a number of bird species.





Oak Patches in Dachigam National Park

There are extensive oak plantations in all over the Dachigam National Park, which have become an important component of its ecosystem. The oak trees in Dachigam National Park are mainly found along the Dachigam nallah flowing along the lengths of the national park. Although the oaks are scattered all over the Dachigam national Park, however there are nine main oak plantation areas whose location details and area are given in the annexure no. 17.

Among these nine oak patches, the Main oak located on the right side of the main road while going from gate 1 to Draphama and the oak patch located in the Nambal beat area are largest ones and remaining seven are having small areas. The oak though exotic to the ecosystem of Dachigam National Park has become one of the important components of its ecosystem providing food and shelter to vast number of species throughout the seasons. It is providing food and shelter to the "**Critically Endangered**" Hangul and other species such as Asiatic Black Bear, Himalayan Grey Langur, Rhesus macaque and other bird species in Dachigam National Park (Sharma *et al.*, 2010, Mir *et al.*, 2019). The oak acorn is an important component of food for the Black bear before going into the hibernation. The oak plantations are occasionally mixed with other species such as *Parrotiopsis jacquemontiana*, *Morus alba*, *Morus nigra*, *Rhus succedanae*, *Aseculas indica* and *Prunus spp*.

Problems of Oak plantations

The main problem faced by the oak planation and oak in generally is comparative less regeneration rate inside the Dachigam National Park. During the formation of the current Management Plan, the regeneration survey was carried out by this Division in all the oak plantations in Dachigam National using 10×10 m sampling plot and it was found that most of the oak trees belonged to the diameter class more than 50 cm (Fig.18). The sampling data is given in the annexure 18.

The presence of most of the sampled trees in the diameter class of greater than 50 cm indicate a less regeneration rate, which immediately require managmental intervention so that its regeneration can be enhanced. One of reasons for less regeneration is the excessive feeding of all the animals on the oak acorn throughout all the seasons. Even the left out seeds are carefully searched and fed by the Himalayan Grey Langur and Asiatic Black Bear. So in conclusion excessive feeding dependence of Hangul, Himalayan Grey Langur and Asiatic



Black Bear on the oak acorn and the tender young plants leads to very feeble regeneration of the oak. There is immediate need and prioritization of the oak plantations in Dachigam National Park to keep the ecosystem healthy and sustainable.

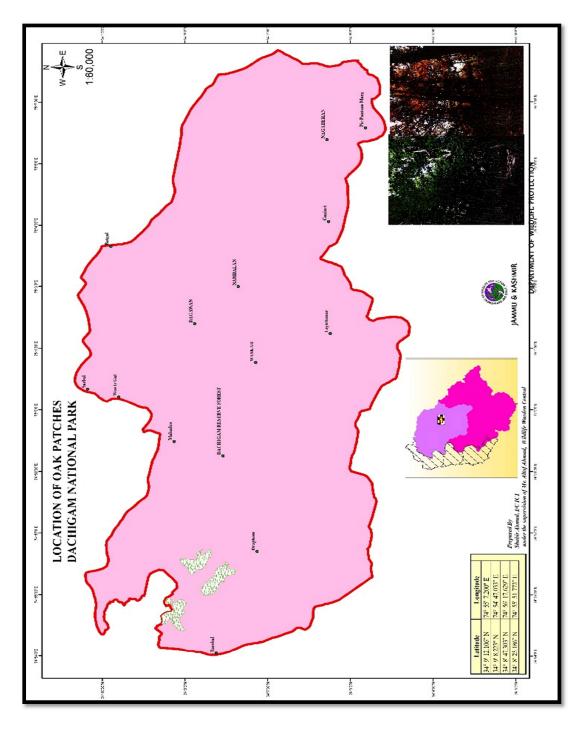


Fig.17. Location of main oak Patches in Dachigam National Park



Number of trees

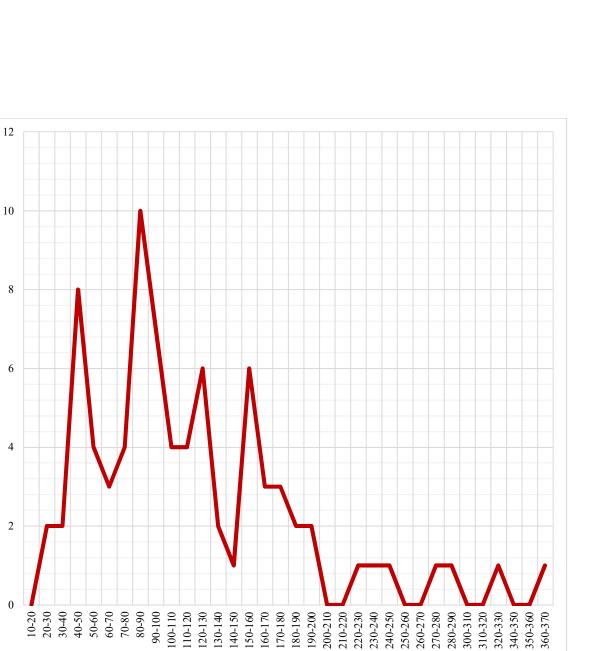


Fig. 18. Diameter class of Oak in Dachigam National Park

Girth class (cm)



BACKGROUND INFORMATION AND ATTRIBUTES













The grasslands are defined as the areas dominated by the grass with less than 10 percent growth of trees. The grasslands are an immaculate feature of the landscape of Dachigam National Park. The grasslands at Dachigam National Park are highly dynamic ecosystems that support a highly diversified flora and fauna. The Grassland vegetation is broadly inferred to include grasses, legumes and other forbs and sometimes, woody species (Allen *et al.*, 2011). The grasslands of the greater Dachigam landscape are known for aesthetic, biological and cultural values. The grasslands comprise 26 percent of world's total area and represent wide variety of ecosystems. The perspectives and perceptions of the most appropriate roles and functions of grasslands have been changing in recent decades. There has been recognition that there are numerous regional, national and global issues with which utilization of grasslands are inextricably linked. Traditionally the grasslands were used only for the agricultural uses mostly for cattle rearing and milk production. However, these include the function of grasslands to provide social and cultural needs for many rural societies, their role in reducing greenhouse gas (GHG) emissions, as water catchments, and the preservation of ecosystem biodiversity.

Since the grasslands of Dachigam landscape provide food and shelter to "**Critically Endangered**" Hangul, therefore there are compelling reasons why they need to be better managed in order to full – fill various ecological functions they play in the greater Dachigam ecosystem. The management of the grasslands is challenging task given their diversity in the ecological contexts, diversified flora and fauna and soil – plant – animal interactions. The management mainly includes the inventorization, assessments of the grasslands and knowledge of grassland dependent animals available and the knowledge of important herbage – animal relationship. The strategies have to be developed for the management of the grasslands of Dachigam national Park for the improved productivity and food resource availability to the RET species of Dachigam national Park and evaluation of the utilization of the grasslands of Dachigam National Park to devise the managemental strategies.





Plate 4. Temperate Grasslands of Dachigam National Park

The temperate grasslands of the Dachigam National Park are the vast stretches of open lands which are most prominent on South – west side lying at an altitude between 1,800 m to 2,700 m. Thickets of broad-leaved deciduous scrub comprising, *Parrotiopsis jacquemontiana*, *Prunus armeniaca*, *Celtis australis*, and *Ulmus spp*. The undergrowth of these temperate grasslands and scrubs consists of many xerophytic species such as *Indigofera heterantha*, *Rosa webbiana*, *Rubus niveus*, *Rosa brunonii*, *Kocleuria cristata*, *Lonicera quinquelocularis*, *Geranium nepalensis*, *Dipsacus mitis*, *Dactylis gloerate*, *Colchicum luteum*, *Stipa siberica*, *Zizyphus anathera*, *Fragaria verca*, *Kocleuria cristata* sparsely cover these open stretches.





The alpine pastures are found in upper Dachigam National Park area, which is full of vast grasslands with no prominent tree cover. The area is devoid of tree cover but full of luxuriant herbaceous grasses and medicinal herbs. These vast alpine pastures are distributed at elevations between 3,600 m to 4,100 m. These vast alpine pastures composed of many mesophytic perineal herbs. The herbs of this area mainly comprise of many Rananculaceae, Cruciferae, and Compsitae family species. These vast alpine meadows and pastures serve as important food reserve during the summer time for "Critically Endangered" Kashmir stag (*Cervus hanglu hanglu*) and "Endangered" Kashmir Musk Deer (*Moschus cupreus*).

The meadows are composed of perennial mesophytic herbs with very little grasses. Conspicuous amongst the herbs are *Primula spp., Anemone spp., Fritillaira imperialis, and Iris spp., Gentiana spp.* with many Rananculaceae, Cruciferae, and Compsitae and Caryophyllaceae species. The alpine pastures form most important habitat for the critically endangered Hangul (*Cervus hanglu hanglu*) as it serves as food reservoir particularly during the summer season. The management of this habitat is extremely important as the animal faces grazing competition from the cattle of migrant tribe's men during the summer season. The management of the core importance for the long-term survival and conservation of the Hangul (*Cervus hanglu hanglu*) as well the Kashmir Musk Deer (*Moschus cupreus*).

The Grasslands have a fundamental role to play in the wildlife conservation in general and Hangul in particular as it forms an excellent foraging ground for the Hangul particularly during the summer season. There have been very few studies conducted on the grassland ecology. The limited managmental interventions and maintenance of the pure grassland patches in the Dachigam National Park has been a great managmental challenge.

Some of the key issues associated with the grasslands and particularly the alpine pastures of the Dachigam National Park are:

- Grazing from the nomadic tribal livestock particularly during the summer season,
- To maintain the structural and functional attributes of the grasslands so as to provide optimal foraging opportunities to the Hangul and other animals



- Y
- Invasion of the grasslands by the weeds and other unpalatable species and impacts from the uncontrolled fires.

Grasslands as Biodiversity hub

The complex of the grasslands provides wide range of habitat to many mammals, birds and reptiles. The grasslands are home to variety of animals particularly the RET species providing nutritive and luxurious food resources and shelter cover. It provides food and shelter and is the main niche of the Hangul. The Grasslands of the Dachigam National Park are home to several species of insects and butterflies for their shelter, food and complete life cycle history. The different species of grasses and herbaceous plants are source of food for most of the species of butterflies. These different kinds of butterflies and insects are excellent indicators of different species of grasses as their larval food grasses vary species wise. Any kind of impact on the grasslands of the Dachigam National Park may lead to disappear of the many species of the butterflies and insects.

The conservation and management of the grass and scrublands of the Dachigam National Park are of immense importance in the long – term conservation of the species. Besides Hangul, grassland ecosystem is important for Black Bear and other species of the national park. The grasslands are home to a variety of avian diversity, which harbors both the native and migrant bird species. There is immense diversity in the herbs and other medicinal plants in the grasslands of Dachigam National Park.

Problems of Grasslands of Dachigam National Park

- The main managmental challenge faced by the grasslands of the Dachigam National is the illegal grazing in upper alpine pastures particularly during the summer season. The illegal grazing increases the competition both in food resources as well shelter as the animals particularly the Hangul is forced to share the same niche. Besides increasing competition, these livestocks increase the chances of the disease spread to the wild animals, which can be catastrophic to them.
- There have been fire incidences in the grasslands of Dachigam National Park. The uncontrolled fires are devastating and destructive agents faced by the grasslands. The control burning is a great managmental tool that if implemented with right



strategy can prove to be an excellent managmental intervention for reviving the potential of grasslands.

• The grasslands are very nutritive and fondly fed by the herbivore and omnivore species of the Dachigam National Park. These grasslands contain certain unpalatable species such as *Solenanthus circinatus, Stipa siberica, Euphorbia spp.*, and *Isodon plectranthus*. The presence of these weeds and unpalatable species forces the animals to abandon these safe places and venture into the less secure areas. The eradication of these weeds and unpalatable grasses is great managmental challenge in enhancing its overall health and well-being which in turn will be immensely helpful in devising the long – term strategies for the conservation of RET species particularly Hangul.

Managmental Interventions of Grasslands

Although the general strategies have been discussed in the Theme Plan for Habitat Management in the Chapter 6, some specific strategies and activities are described as follows:

Strategies:

- Survey, classification and mapping of the grasslands
- Mapping of the encroachment zone by the weeds
- To carry out the carrying capacity of the grasslands and alpine pastures. This will be done by carrying out a study that can be conducted departmentally or can be outsourced to a relevant research institute or can be done jointly. This has a great potential to involve NGOs having the expertise in the relevant field and this study shall be ensured within the plan period. This will act as a supplementary plan pertaining to the issues of grazing. Therefore, study must come up with a clear-cut set of recommendations, which will be put in action after departmental concurrence.

Activities:

- Maintain the grasslands of Dachigam National Park in their natural, pristine and sustainable way
- Inventorize and monitor grassland and grassland species
- Revise and update eco system types in the Dachigam National Park
- Conduct regular assessment of the alien invasive and unpalatable species





- - Control burning, maintenance of fire lines in the grasslands (Discussed in detail in the chapter The Fire Management Plan)
 - Planting of indigenous and nutritive grass species such as Red and white clover in the grasslands through patch sowing and seed balls

HIMALAYAN LOW LEVEL BLUE PINE FORESTS

The Blue pine forests grow on the slopes extending from the north to the north – east aspect starting from the Harwan reservoir up to Draphama. The Himalayan Blue pine (Pinus wallichiana) is the dominant conifer of this forest type, which sometimes comes up even in open areas and scrubs and form patches. The Blue pine forest extends between the altitudinal zones of 1,800 m to 3,400 m throughout the Dachigam. The Blue pine forms an association with shrubs such as Parrotiopsis Jacquemontiana, Rosa webbiana, Prunus ceracifera, Creteagus monogyua, Berberis lyceum. The Blue Pine or Pinus wallichiana has very little undergrowth and has the herbaceous elements in the form of Lonicera quinquelocularis, Vibernum grandiflorum, Berberis lyceum, Rosa webbiana, Stipa siberica, Artemisia vestita, Polygonum auplexicaule, Geranium wallichiana, Origanum normal etc. The low line Blue Pine forest forms an important habitat for the animals such as Himalayan Black Bear; Himalayan Yellow throated Martin besides forming an important habitat and breeding ground for so many endemic and rare birds such as Variegated Laughing Thrush, Himalayan woodpecker, Hodgson's tree creeper, Bar-tailed tree creeper, Kashmir Nutach and White cheeked Nutach. Recent studies conducted on regeneration indicated a low regeneration rate of this forest, which needs immediate managmental interventions in the form of planting.



Plate 5. Himalayan Low Level Blue Pine Forest area





TEMPERATE MIXED FOREST

Temperate mixed forests are distributed at the elevation ranging from 1,800 to 2,400 m. It comprises near about 20 percent of the total area of Dachigam. The dominant tree species of this forest type include *Juglunas regia*, *Aseculas indica*, *Pardus cornuta*, *Populas ciliata*, *Populas deltoids*, *Rhus succedanea*, and *Fraxinus floribunda*. The dominant shrubs include *Prunus ceracifera*, *Berberis lyceum*, *Rosa webbiana* and *Vibernum spp*. This holds key position regarding the habitat, food of some important animal species of Dachigam National Park such as Hangul (*Cervus hanglu hanglu*), Himalayan grey langur (*Semnopithecus ajax*), and Asiatic Black Bear (*Ursus thibetanus*). The temperate mixed forest is paradise of the avian life as it provides shelter as well as food throughout all the seasons. It particularly forms habitat of important birds such as Kashmir Nutcracker, Kashmir flycatcher, Indian paradise flycatcher besides others.



Plate 6. Mid Temperate Mixed Forest of Dachigam National Park





This forest community is distributed in the upper elevations ranging from 2,700 m to 3,400 m. The pine trees are found distributed on the open and exposed slopes whereas *Abies pindrow* is confined to smaller areas that are less exposed to sun light and along the water streams. The dominant tree species are *Cedrus deodara, Taxus wallichiana, Abies pindrow*. The pine forest occurs in association with shrub species such as *Isodom plectranthoides, Indigofera heterantha, and Rosa webbiana*. The small silver fir patches are mixed up with *Rosa macrophylla, Viburnum grandiflorum*. This type of forest forms an important habitat in the upper Dachigam National Park, which forms the core area of the park. The mixed coniferous forest area forming core of the Dachigam National Park is found on the both sides along the Dachigam nallah from Waskhar onwards.



Plate 7. Mixed coniferous forest of Dachigam National Park



HIMALAYAN SUB-ALPINE FOREST

This forest type is mainly distributed in the upper areas of Dachigam. This forest type is found at elevations above 3,500 m. The dominant tree species of the Himalayan sub – alpine forest are *Betula utilis, Rhododenron anthopogon, syringa emodi, Juniperus recura.* The dominant shrub species of this forest type include *Fragaria vesca, Stachys sericea*, and *Sieversa elata.* The *Betula Utilis* forest is found where the altitudinal zone of *Abies pindrow* ceases. *Betula utilis* at altitude of 3,500 m merges with *Abies pindrow* and form patches with it. Above this altitude, *Betula utilis* form pure patches. The sub – alpine forest and pastures of Dachigam National Park forms important grazing ground for the Hangul (*Cervus hanglu hanglu*) and Kashmir Musk Deer (*Moschus cupreus*).



Plate 8. Sub – alpine Rhododendron Birch Forest of Dachigam National Park





2.6.2 FAUNA OF DACHIGAM NATIONAL PARK

2.6.2.1 Vertebrates their status, distribution and habitats

Dachigam is worldwide famous as it holds the last surviving viable population of red deer species – Hangul (*Cervus hanglu hanglu*) and one of the best populations of Asiatic black Bear (*Ursus thibetanus*). Dachigam is home to a number of threatened, vulnerable and endangered species like Himalayan grey langur (*Semnopithecus ajax*), Kashmir Musk Deer (*Moschus cupreus*) Himalayan yellow throated Martin (*Martes flavigula*), common leopard (*Panthera pardus*) and many others. Dachigam National park is single compact catchment area in Central Kashmir having unique flora and fauna. The flora, fauna, ecological and geomorphological significance together with the proximity to the Srinagar city has added splendor shine to the glory of Dachigam as gene pool for reboisement, protection and propagation of wildlife. Dachigam National Park is a home for large number of species, which belongs to phylum vertebrata. Large number of birds, mammals, and reptiles represents the vertebrata phylum.

Mammals - status, distribution and habitats

THE HANGUL

The Kashmir stag or Hangul (Cervus hanglu hanglu) declared as a separate species in 2017

(IUCN, 2017) earlier considered as one of the four eastern most distributed subspecies of red deer. Dachigam National Park holds the last surviving and most viable population of Hangul. The Hangul comes under **Schedule-I** under Indian Wildlife (Protection) Act, 1972, and **Critically Endangered** in IUCN red list (IUCN 2020). The IUCN's Red list has classified it as "**Critically Endangered**"



and similarly listed under Species Recovery Program of Wildlife Institute of India (WII) and the Environmental Information System (ENVIS) of the MoEF & CC.





The Hangul population has shown a decreasing trend from 1940's until date. The numbers have declined drastically since 1947 (Gee 1966, Schaller 1969, Holloway 1970, Department of Wildlife Protection 2004). The population of Hangul in Dachigam National park was about 1000 - 2000 just before independence but by late 1950's, it was reduced to some 400 individuals (Gee, 1966). The population of Hangul estimated in November 1969 in Dachigam was approximately 150 - 200 (Holloway and Schaller, 1970). According to Holloway (1970), the total number of Hangul of the Dachigam population was 140 - 170 individuals in February 1970. Population estimations carried out in winter 1976 - 1977 and in April 1977 estimated the Hangul population in Dachigam National Park near about 250 individuals, an increase of 25% from 1975 (Kurt, 1978). This conclusion was attributed to the fact that poaching had been largely contained owing to strict patrolling from the frontline staff.

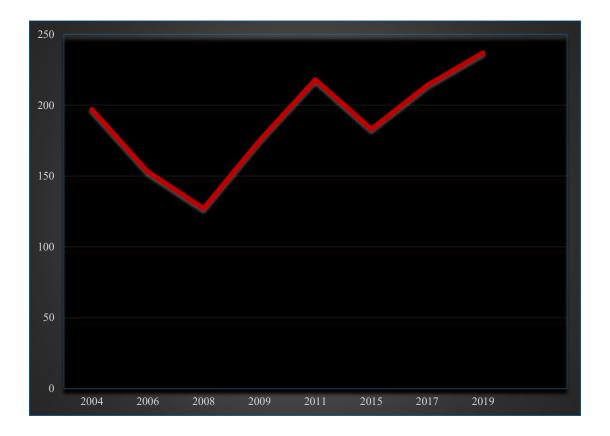


Fig. 19. Hangul population estimates trends in Dachigam and adjoining areas from 2004 to 2019

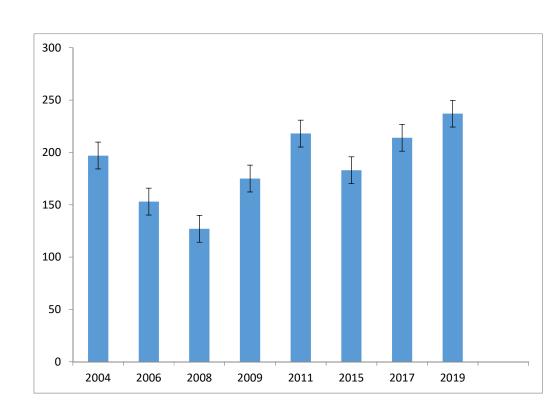


Fig. 20. Hangul population counts with Error bars (2004 to 2019)

After the 1980's the population of Hangul showed marked fluctuations, a reflection of either true population fluctuations or inadequacies in population estimations carried out. The recent census done in March 2011 has provided an estimate of 218±13.68 Hangul for Dachigam and adjoining areas (Department of Wildlife Protection, 2011).

The recent census of 2019 showed a welcome step as population increased to \pm 237 but sex ratio remains biggest hurdle. As per the latest census carried out by the Department of wildlife protection in 2019 there were 15.5 males per 100 females and 7.5 fawns per 100 females.

Habitat and Distribution

The recent studies on the Hangul habitat suggests that Hangul habitat use shows a seasonal shift in utilization patterns, which can be associated with the changes in habitat





structure and abiotic factors such as temperature and snowfall (Ahmad 2006: Sharma et al. 2010; Ahmad et al, 2015). Some of the major factors that affect habitat use by the Hangul include altitude, aspect, slope, habitat type, food availability-abundance and quality, escape terrain, escape cover and cover against extreme of weather and biotic pressures. The studies have shown that Hangul show strong preferences for Riverine and Grassland/Scrub habitats in Dachigam National Park. The Hangul use primarily the mixed oak forests followed by mixed temperate and riverine habitats during winter months, and mixed oak forests and coniferous forests during the summer months, as these habitats provide sufficient food, shelter and cover to avoid not only chilly winds, but also predators (Ahmad et al., 2015). Forage availability at Dachigam National Park is naturally low during the winter months; therefore, the Hangul being restricted to the mixed oak forest, mixed temperate and riverine forests to forage on the grasses and forbs that remained available in ravines even in harsh winters. During autumn, the Hangul mostly uses grasslands/scrub habitats followed by riverine habitats. The predominant use of grassland/scrub and grassy/rocky cliff habitats by the Kashmir red deer is due to the presence of varied and plentiful bushes and grasses available on the south-facing slopes (N, E, NE and NW aspects), as well as to have a better view of the surroundings as part of an anti-predator strategy, a pattern shown by other Red deer species as well. (Ahmad et al., 2015). Hangul tend to inhabit coniferous forests associated with rugged, broken terrain or foothill ranges during summers, which provide good shelter from summer heat and nutritious diet.

Hangul spend most of their time in high mountain meadows in the alpine or sub alpine zones or in bottom of river Dagwan. The Hangul like other Red deer species is reported to show preference for mid-altitudes between 1700 - 2300 m and flat surfaces and very steep slopes and mostly south facing slopes (Ahmad *et al.*, 2015).

The preferential use of riverine habitat by Hangul in winter and spring was due to the fact that riverine habitat were close to water sources and being provided with artificial food (salt licks) by the park management. The movement of Hangul population from upper elevations to valley areas in winter and spring can be attributed with extreme cold weather conditions in upper elevation. The preference of eastern and steeper slopes was because eastern slopes are more exposed to sunlight that provides relief from harsh cold winds. But in summer, maximum Hangul sightings and signs were recorded in the altitudinal range of





2,500-2,700m because of the fact that they do segregate, *i.e.*, females forming smaller groups and males separated from each other establishing social hierarchy and moving in different areas which was similar to other Red deer species. In summer, the southern slopes provide good forage, but the valley areas were warmer and were not suitable for Hangul so they migrate to higher reaches of the Dachigam National Park.

The more recent studies have show that Hangul is a not only a mixed feeder, but it ingested disproportionate amounts of browse in almost all seasons, and also feeds on barkstripped woody species. The Hangul feeding habits vary according to food resource availability in different seasons and constituted mainly dicotyledonous shrubs and trees, forbs and herbs, monocotyledonous grasses and herbs in spring and winter, respectively (Ahmad *et al.*, 2015). The winter diet mainly constitutes browse (trees and shrubs) respectively. Although during significant number of sightings, Hangul was observed debarking on trees. During spring, the diet of Hangul deer comprised mainly forbs, beside grasses/sedges, and browses. During summer, the percentages of grasses and sedges increased in the diet to 19.05 and 28% respectively, while forbs constituted 42.86 and 60% with browse (trees and shrubs) constituting 38.10 and 12%. Among the monocots, the species consumed by Hangul in maximum sightings were Carex cernua, Panicum crusgalli, Poa annua and Hemerocallis fulva. Also, debarking on Prunus ceracifera and Parrotiopsis jacquemontiana has been reported in autumn and on Pinus wallichiana, Lonicera quinquelocularis and Parrotiopsis jacquemontiana during winter, and root knelling (debarking) by Hangul in both spring and winter on the introduced Robinia pseudoacacia is also reported (Ahmad et al., 2015).

During cold periods and during periods of snow cover, the Hangul deer is found to take shelter in the mixed deciduous forests, isolated patches of oak that are used as a bedding site during day time where the salt licks and supplementary feed is provided by the wildlife department.

The studies have however recommended that the supplementary diet provided to Hangul during winter season should be distributed evenly along the main streams (*nullahas*) so as to ensure the availability of food and minerals to the Hangul in its distributional areas (Ahmad *et al.*, 2015). The provisioning of supplementary food in winters is reported to be useful for both males and females, preventing greater winter male mortalities in red deer and elk (*Cervus Canadensis*) and (Smith 2001; Clutton-Brock and Albon, 1989).



BACKGROUND INFORMATION AND ATTRIBUTES



The distribution of Hangul in Dachigam National Park shows a seasonal trend. In spring season, Hangul is distributed in lower riverine forest of Dachigam, but in summer season. Hangul moves towards the upper reaches of Dachigam. In autumn and winter season Hangul used lower and medium elevation of riverine, pine forests and grasslands and the distribution is clumped in lower altitudes of Dachigam. However, the findings of the recent long – term monitoring and satellite telemetry have indicated that the heavy livestock disturbances in the upper Dachigam have been impairing with the upward movements of Hangul to alpine meadows of upper Dachigam (Ahmad *et al.*, 2009; Ahmad and Nigam, 2014).

Threats

The young to female ratio in Hangul was reported to range between 21 to 51 young/100 females during February and March (Department of Wildlife Protection, 1996, 1997, 2000, 2001, 2002, 2003). Schaller (1969) reported 45 juveniles to 100 females. The counts from 2000 to 2004 indicate a decreasing trend (Department of Wildlife Protection, 1996, 1997, 2000, 2001, 2002 and 2003). This is alarming and need to be monitored carefully by the management. The fawning grounds therefore need to be monitored and safeguarded.

The sex ratio is 23.23 males per 100 female against an ideal ratio of 50-70 males per 100 females and fawn to female ratio is 21.70 fawn/100 female against an ideal ratio of 30 fawns/100 females recorded during the recent studies is of grave concern for the long term survival of the Hangul (Ahmad *et al.*, 2009; Ahmad and Nigam, 2014). Compared to the reported fawn to female ratio of 45 fawn/100 female in Kashmir red deer (Schaller, 1969), the estimates from 2000 to 2004 (Qureshi and Shah, 2004: Qureshi *et al.*, 2009) and observations during this recent study indicate a declining trend (Ahmad *et al.*, 2009). The recently concluded census of 2019 conducted by Department of wildlife Protection also shows declining trend with 7.5 fawn per 100 females and 15.5 males per 100 females.

Poaching earlier identified as the principal cause of decline of the Hangul (Gee, 1966, Schaller 1969, Holloway and Schaller 1970 and Kurt, 1978).One of the reasons for rampant poaching was that the anti-poaching patrols operating during the rut and winter months were restricted only to Lower Dachigam (Kurt, 1978). However, during the recent times due to the





continued and tireless management efforts by the Wildlife department and change in the people's perceptions poaching seems to have decreased significantly.

The poaching by Gujjars, Bakarwals and other shepherds, who take their livestock to Upper Dachigam during summer, has been the main cause for Hangul decline (Stockley, 1936; Gee, 1965) in the past. This has been compounded in Dachigam by the large-scale biotic interference due to grazing by the State Animal Husbandry Department owned cattle and nomadic grazer's *i.e.* Gujjars and Bakarwals, which use Dagwan in Upper Dachigam as a grazing ground. In the vast areas of Nageberan and Marsar, thousands of sheep, local grazers, Gujjars from Kashmir as well as Bakarwals and Banyaris from Jammu, graze goat, horses and cattle. This has created potential competitors and persistent sources of disturbance for Hangul during summers. The Dachigam Hangul population decreased from 3000 animals in 1940's to some 200 by 1969, while the sheep introduced in Dachigam NP in 1961 by the State Animal Husbandry Department increased from 20 to some 3000 during the same period. The sheep spend the summer in Upper Dachigam and winter in Lower Dachigam (Kurt 1978). High livestock densities may out-compete native Trans-Himalayan wild ungulates (Mishra, 2001). Empirical studies in the adjoining areas of Spiti, Himachal Pradesh has established that the Bharal is out competed by livestock. The Deer and sheep have similar preferences in grazing and are hence competitive (Darling, 1937 and Smith, 1953). The removal of sheep farm was milestone in the park management however the grazing from nomadic tribal people is still a big hurdle in the management.

Long-term conservation action plan

The Hangul conservation action plan was developed in collaboration with Wildlife Institute of India. The main aim of the plan is the recovery of the declining *Hangul* population to bring this to the endangered category from existing critically endangered status. Under this broad aim, the plan has following specific objectives.

- To improve the recruitment in the adult population
- To restore the shrinking habitat range of species
- Conservation breeding program





Major proposed outcomes

The action plan proposes four major outcomes for the conservation of the species:-

- Improved survival rate of the young fawns to ensure their recruitment into adult population
- Reduction of disturbance in the summer habitat range of the species so that the animals could use wider range of habitat, particularly during breeding season
- The identification and prioritization of relic habitats based on their ecological status/ suitability and connectivity with the existing habitat of Dachigam National Park
- Operational awareness programmes for different stakeholders concerning conservation of this species

Problems causing decline in numbers

- 1. **Poaching:** Though poaching is not the main factor that caused the decline of Hangul in Dachigam for the last two decades, however, initially hunting was regulated under law, later with the change in legal setup and enforcement poaching was controlled largely. However, with the changing political scenario and with the intent of normalcy in the valley, Poaching could be envisaged a potential threat to Hangul in coming years.
- 2. Increase in predator numbers: There seems to be an increase in the population of predators (mainly Common Leopard and Black bear), because of an actual increase in the population or an artificial increase by release of conflict animals. There seems to have been a dramatic increase in the number of leopards sighted in Dachigam National Park and evidence (hair) of Hangul in leopard scats. This may also have caused the low fawn female ratio prevalent in Dachigam National Park at present. This could also be true of locations outside Dachigam.
- 3. **Grazing of domestic livestock in summer grounds:** Hangul is locally migrant, moving attitudinally between high altitude grazing grounds in summer and then descending to lower altitudes where they over winter. The females drop fawns in May at these low altitudes while males who segregate from females move to higher altitudes. Thus, movement is necessary and by causing continual disturbance in the uplands, the natural movements of Hangul are disrupted. In addition, the rutting





may happen close to these areas so the rutting may also be disrupted as the Bakarwals and the local grazers take their livestock up to upper Dachigam during summer months.

4. Zoonotic diseases- Diseases having caused large – scale Hangul mortality but in a single population that is small, chances of spread are great and therefore caution needs to be exercised. Thus far, post mortems or even disease screening has been rudimentary and stricter disease screening regimes may need to be in place.

Problems restraining growth of Hangul population in Dachigam and outside areas and those that can play a positive role

- a) Fragmentation of habitats and disruptions in key movement areas: In the past, Hangul used to occur in an arc from Bandipur district through Srinagar, Eastwards to Anantanag and Kishtwar. There was probably a constant genetic flow across these populations and contiguous habitats permitted movement of males across the valleys. This movement is now hampered and has resulted in populations becoming locally scarce or even extinct. Movement paths and corridors need to be identified and protected. Habitats outside Dachigam may also, because of not receiving adequate protection, have deteriorated. Habitat fragmentation and degradation is one the premier causes of the declining Hangul population.
- b) Grazing: In Dachigam National Park, grazing is prevalent in most of the areas of alpine pastures, which is the feeding ground of the Hangul during the summer season. Control or regulation of grazing in these summer grounds may provide some relief to the Hangul during summer and will be helpful in long-term conservation of the Hangul. The grazing of cattle not only competes in the food resources and shelter of the Hangul but grazing animals are potent source of the diseases. As there were confirmed cases of John's disease transmission to Hangul in 1978.
- c) **Development:** The linear developments (mainly roads) in Hangul habitats may cause temporary and sometimes permanent disruptions in animal movements and these needs to be dealt with cautiously.
- d) **Security:** Due to the security concerns, some upland pastures, especially those close to the LoC have been made out of bounds for grazers. They therefore have had to shift their grazing grounds to ones already occupied adding immense pressure. Suitable



alternatives need to be provided so that rangelands for key animal species are not violated.

- e) **Poaching:** Poaching still continues in areas outside the PA network and it is imperative that this is to be stalled. Local forest officials and the police officials need to be taken on board so that along with the wildlife staff, proper enforcement is done.
- f) Tourism: While wildlife is conserved for aesthetics and to promote tourism (ecotourism), unregulated activities may be detrimental to its population growth. Also important tourism areas like Pahalgam and Sonamarg are important areas for Hangul and any plans of development from the respective development authorities must be sensitive towards the requirements of the wildlife in the area, especially threatened species.
- g) Education: Education has a very important role to play in creating awareness for the conservation of Hangul and other species and wildlife conservation should be a part of the regular curriculum.

The long-term studies on current Hangul population trend have indicated that the species could go extinct if serious management and Conservation interventions are not made immediately. The published results of the recent studies (Qureshi et al. 2009; Ahmad *et.al.* 2009; Anmad *et.al* 2013; Ahmad and Nigam, 2014; Ahmad *et al.*, 2015, Thakur *et al.*, 2015; Kumar *et al.*, 2016) have indicated that beside biotic interferences some of the major ecological issues concerning the decline in the Hangul population that need to be given due consideration during the management plan period are as under:

1. Low breeding, female biased sex ratio and lower fawn to female ration

The female biased sex ratio (19.2 male/100 females) and significantly low fawn-tofemale ratio (9.6 fawn/100 females) of the Hangul population as indicated by the scientific studies (Ahmad *et al.*, 2016) which is much lower than the ideal ratios of 40-50 Male/100 female and above 60 fawn/100 female reported in Red deer populations (Clutton-Brock *et al.*,1982; Bonenfant, 2004) seems to have worsened the situation quite significantly in recent years (Ahmad 2006, Qureshi *et al.*,2009; Ahmad *et al.*, 2009, 2013, 2014) while poaching and other biotic and ecological factors are taking a considerable toll on the Hangul population. Hangul population in Dachigam National Park and its adjoining areas as such needs an intensive population monitoring program and further reproductive and behavioral





ecology studies to better understand factors affecting low male/female adult sex and fawn/female ratios and population growth.

2. Predation and the problem of survival of the young

The low fawn to female ratio and fawn survival is presumed to be attributed to stress owing to the heavy biotic disturbance in Dachigam compounded with nutritional stress and fawn predation by common leopard, Asiatic black bear, Jackal (*Canis aureus*), Red fox (*Vulpes Vulpes*) and stray dogs of shepherds and army installations (Qureshi *et al.*, 2009; Ahmad *et al.*, 2009). The predation by leopard and Black bear, both of which prey principally on the young deer (Ahmad *et al.*, 2009), seems to be the worst threat for Hangul deer. The predation on Hangul by leopard (60% biomass of leopard diet) (Ahmad *et al.*, 2009) is very high in winter and summer when the Hangul has a limited distributional range in Dachigam National Park. The predation, if it continues, will add to the demographic stochasticity and may produce a further future decline in the Hangul population in the future (Ahmad and Nigam 2014). The information on this aspect is however inadequate and this is an important grey area of research that needs to be addressed in the action plan.

3. The movements of Hangul in summer to unprotected areas outside Dachigam NP and the excessive biotic interferences therein- Strengthening of Corridor Connectivity.

The corridors Surfrao/Akhal and Kangan blocks of Sindh Reserve forest north and north east of Dachigam Dachigam-Tral and Shikargah-Overa south and south east of Dachigam where significant movement of Hangul was recorded and validated scientifically by Satellite Telemetry studies and camera trapping by SKUAST-Kashmir and the wildlife Department (Ahmad *et al.*, 2018, 2020), require special attention and immediate management and conservation efforts on scientific lines. The continued monitoring and surveys for collecting further baseline information on the habitat conditions and biotic interference in these corridor areas is imperative for enabling re-establishment of these areas as ecologically viable corridors for Hangul movement and reintroduction and to maintain required genetic heterozygosity for population viability.

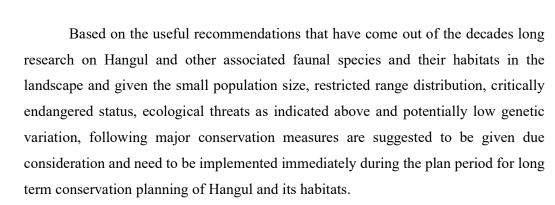


4. Relatively low genetic diversity as compared to other red deer species and resultant susceptibility to inbreeding depression resulting from low population size

The Scientific studies by SKUAST-Kashmir and WII have indicated a decrease in genetic heterozygosity in Hangul population over time and resultant susceptibility to inbreeding depression resulting from low population size (Ahmad *et al.*, 2009; Mukesh *et al.*, 2015). The sensitivity analysis indicated that there is a 25% chance of extinction in 100 years (Ahmad *et al.*, 2009).). Increasing the chance of poaching to 39% (catpoach and cat-poach - woutdd) with additional winter mortality with a 5% chance of occurrence will substantially increase the extinction risk (cat-poach-winter and catpoach-winter-woutdd) to 90% (Ahmad *et al.*, 2009;) There is as such a dire need for urgent measures to arrest the loss in heterozygosis and declining trend of the Hangul population.

The phylogenetic studies by SKUAST-Kashmir and WII which lead to according separate species status to Hangul by IUCN (IUCN 2017) have found Hangul to be genetically closer to the Bactrian and Yarkand Red Deer than European Red deer. Based on molecular analysis our study has supported the idea that the Hangul diverged from the Bactrian Red Deer and migrated to India from Tajikistan approximately 1.2 MYA (Kumar et al. 2016). However, strengthening Hangul genome sequencing is need of the hour to understand the DNA mitochondrial based phylogeography of the species and Skull based genetic investigations to link the mitochondrial DNA analysis findings with the nuclear genetic analysis to further establish the degree of closeness or divergence between Hangul and the Bacterian deer.

There is as such a dire need to address the basic and real ecological issues detailed as above, which is prerequisite for effective management and long term survival and conservation of Hangul and its habitat. The studies have indicated that there is still an enough habitat in and around Dachigam National Park, where a minimum population of about 1000 Hangul can be sustained if the above-mentioned ecological problems are addressed and biotic interferences are eliminated from upper Dachigam and controlled in the adjacent potential areas.



Suggested management and Conservation Measures

- 1. Sufficient measures to expand range of Hangul to alpine meadows of Upper Dachigam so that these ideal summer habitats are recuperated and used by Hangul in summer as it used to in the past.
- 2. There should be much emphasize on measures to strengthen and establish corridor connectivity between Dachigam National Park and Wangath-Naranag Conservation Reserve by delineating the corridor areas and movement routes already identified and validated through scientifically based Satellite Telemetry and camera trapping studies (Ahmad *et al.*, 2018, 2020) along the Surfrao/Akhal and Kangan blocks of Sindh Reserve forest north and north east of Dachigam and Dachigam-Tral and Shikargah-Overa south and south east of Dachigam.
- **3.** The continued monitoring and surveys for collecting further baseline information on the habitat conditions and biotic interference in these identified corridor areas is imperative to establish corridor connectively to mitigate habitat fragmentation issues and enabling re-establishment of these areas as ecologically viable corridors for Hangul movement and reintroduction and to maintain required genetic heterozygosity for population viability.
- 4. Sufficient budgetary provisions for supporting and strengthening such Satellite Telemetry studies and camera trapping along the Greater Dachigam landscape for identification of more number of corridors along the northern and southern boundaries of Dachigam NP and habitat evaluation therein to establish corridor connectively to mitigate habitat fragmentation issues departmentally or in collaboration . Appropriate corridors may assist the dispersal of Kashmir red deer to its former distribution range.





- 5. Budgetary provisions for regulated monitoring of the Hangul populations on a longterm scientific basis and breeding biology of Hangul particularly during fawning and at the time of rut to find out the causes of low reproduction and fawn survival in the Hangul population in Dachigam National Park.
- **6.** Nutritional assessment studies to assess the nutritional quality on the growth and reproduction of Hangul deer particularly fawn production are imperative.
- 7. Establishment of 5 to 10 exclosures of the dimensions of 50×50 m both in Lower and Upper Dachigam, for long term study and monitoring of the impacts of grazing and habitat degradations in the grassland habitats of the national park.
- 8. Livestock grazing in upper Dachigam may prove harmful to Hangul in the long run. Initiation of long-term diseases monitoring and surveillance program including forensic investigations to confirm status of significant wildlife trade is imperative. Since the higher parasitic prevalence rate (32.26%) during summer has been attributed possibly to be influenced by cross-species parasitic infection from the livestock when the Hangul shares its habitats with livestock in both lower and upper Dachigam (Ahmad *et al.*, 2009; Ahmad *et al.*, 2015). Thus, the population requires immediate health management, especially during summer and winter, when the animal shares resources with livestock and infections are more prevalent, for the long-term survival and conservation of this subspecies.
- **9.** Hangul conservation breeding-cum- reintroduction program is required to be carried out at the earliest and significant budgetary provisions for the same should be reflected separately as part of this management plan, since only large population of Hangul is present in Dachigam National Park, it is important to expand the range of Hangul by restocking Hangul in some of its past ranges of occurrence.
- **10.** The park provides supplementary food to the Kashmir red deer in the form of salt and willow leaves at certain fixed spots. As a result, the deer have started to move around those spots, leading to microhabitat degradation. The plan should incorporate measures to ensure the supplementary food items are evenly distributed e.g., along streams, to ensure the availability of food and minerals to the deer, it will significantly reduce microhabitat degradation pressure.
- 11. Budgetary provisions for strengthening Hangul genome sequencing to understand the DNA mitochondrial based phylogeography of the species and Skull based genetic investigations to link the mitochondrial DNA analysis findings with the nuclear genetic



analysis to further establish the degree of closeness or divergence between Hangul and the Bacterian deer.

- **12.** Monitoring of socio-economic circumstances and people's attitude towards conservation may be as important to Hangul conservation as scientific population monitoring, surveillance and management.
- **13.** Rehabilitation of the livestock owners, providing them with alternate grazing lands and involving them in eco-development and conservation activities should be given due consideration during the plan period.

PROJECT HANGUL (2021 – 2031)

As a long-term measure towards Hangul Conservation, Project Hangul will have key role to play in order to safeguard last viable Hangul population in the world. Project Hangul shall be one of the main activities during the plan period and shall be implemented as per the approved project and its financial implications are annexed at annexure 23 and these financial implications shall be executed from the special funding done to the project and shall have no bearing on the budget formulated for the plan period.

COMMON LEOPARD

Leopard (Panthera pardus) is the top most carnivore in Dachigam National Park.

Leopard is the most widely distributed of all the wild cats in the world (Nowell and Jackson, 1996). The geographical distribution of leopard extends throughout Africa, central Asia, south – East Asia and north Amur valley in Russia. Leopard is found throughout the Indian



sub-continent with the exception of deserts, the Sundarbans, mangroves, and densely settled





areas (Khan 1986, Jhonsingh *et al.*, 1991). It is the most common of the big cats (Myres, 1976). Common Leopard falls under **Appendix I** of CITES because extensive hunting had depressed populations in several parts of the world. In India it figures in the **Schedule I** of the Indian Wildlife Protection Act, 1972. Leopard is placed under "**Vulnerable**" category of 2020 IUCN Red List of threatened animals.

Leopard is found to be distributed in all forest areas of Kashmir up to tree line. It is the most common wild animal after Asiatic Black Bear in Jammu and Kashmir. In Dachigam National Park, leopards are fairly common. However, no scientific study has been carried out on Common Leopard population, abundance, habitat use in Dachigam. Iqbal *et al.* (2008) carried out a short study on Leopard – Hangul interaction in 2008 that states about the interactions and food habits of leopards only, no population estimates is available for leopards in Dachigam National Park right now. It is distributed in all forest types of Lower Dachigam area of the National Park. There are some areas in upper Dachigam, which supports leopards, but most of the Distribution is restricted to Lower Dachigam only. It is the need of time to have an elaborated census, which can give important information about the predatory relationship with Hangul.

Threats

The increasing in reports of the Leopard – Human conflict cases in the nearby areas of Dachigam National Park has become most common threat to the survival of Leopards. There are instances of retaliatory killing of leopards by local villagers to reduce conflict in the state. There is need for the long – term study on leopard ecology in Dachigam National Park under which ecological aspects such as population, habitat uses, ranging and foraging movement patterns should be covered.

ASIATIC BLACK BEAR

Out of the total eight species of bears in the world four species of bears are found in India i.e., the sloth bear (*Melursus ursinus*), the Asiatic black bear (*Ursus thibetanus*), Himalayan brown bear (*Ursus arctos*), and the sun bear (*Helarctos malayanus*),. Asiatic black bear overlaps its distributional range with sloth bear and brown bears. As per Sathyakumar & Choudhury (2008), the status of Asiatic Black bear in the state of Jammu and Kashmir has been





reported as 'fairly common'. Asiatic Black Bear is reported from 16 PAs and 20 FDs, RFs, and FVs of the State.

The Dachigam (NP), Kishtwar NP, City Forest NP, Overa-Aru WS, Limber WS, Lachipora WS, Gulmarg WS, Thajwas (Baltal) WS, Rajparian (Daksum) WS and 12 (CRs) viz., Ajas, Brain, Nishat, Dara, Khiram, Shikarkgarh, Panyar, Khangund, Khrew, Khonmoh,

Naganari and Wangat have black bear populations. Black bear is also reported from over 20 other areas and some of these include FDs in Lidder (Pahalgam), Naranaga, Sindh, Wangat, Anantnag, and RFs of Gugnar, Pir Bianoi, Panjal, Zaberwan, Bandipora, and Kolhai. It



is also reported from Banihal CR, Sumchan Saphare WS, proposed PAs such as Pir Panjal NP, Ghambiar Mongtu WS, Dhera-ki-Gali WS, Ans River WS, and Nowshera WS. In Jammu region, black bear is reported from the FDs of Marwa, Rambandh, Batote, Doda, Bhaderwah, Kistwar, Poonch, Rajouri, Nowshera, Reasi, Mahor, Udhampur, Jammu, Ramnagar and Bilwar (Sathyakumar & Choudhury, 2008). Saberwal (1989) reported Asiatic black bear density estimates of 1.3 - 1.8 bears/km² in Lower Dachigam during high fruit abundance. Encounter rates ranged from 0 to 3.5 bears/km walked. Twenty-five to 40 bears were estimated to use Lower Dachigam in early September and probably late June through October (times of high fruit abundance). The relative abundance of Asiatic black bear in Dachigam at present is not known until now.

As like many other parts of India, the human population in the UT of Jammu & Kashmir has also increased over the last 100 years. The decadal variation in human population growth in this state was less than +11% between 1911 and 1961, but it rapidly grew and ranged between +23.69% and +29.65% during the period 1961 and 1991. The census by the Government of





India for Jammu and Kashmir during 2001 reported a human population of 10069917. In Srinagar and Anantanag districts, the human population growth rate is 31.45% and 32.7% respectively. In rural areas of Srinagar and Anantanag districts, the human population density is 127/km² and 258/km² respectively (http://www.indiastat.com). As a result of growing human population, changing land use practices and resultant anthropogenic pressures, forest cover had either decreased or declined in quality due to habitat degradation. The official estimate of forest encroachment in Jammu and Kashmir (as of 4.12.2007) is 14,375 hectare. (http://www.indiastat.com). Movement and ranging patterns of large mammals are controlled essentially by availability of food and water, escape cover, and the availability of mates (Mace et al., 1983). When food is the limiting factor, its nature (ephemeral or long lasting, super abundant or scarce) and its distribution (clumped or random) will be crucial importance in determining animal movement and distribution (Clutton-Brock, 1975). Kashmir being a valley has an interspersion of orchards, croplands with human habitations and forest. The movement of bears for food outside these forest areas in search of cultivated crops leads to close encounters of man and bear, and sometimes to conflict. The black bear-human conflicts are in the form of crop damage, livestock predation, human attacks and sometimes even death of humans. All these have led to strong backlash from people resulting in confrontation with the Department of Wildlife Protection or the Government authorities, and sometimes retaliatory killing of strayed bears. The Dachigam NP and its surrounding forest areas and agricultural/horticultural landscape has black bear in relatively high densities resulting in increasing bear-human conflicts and also providing ample opportunities for ecological research on different aspects of ecology and bear-human conflicts. Comparison of scientific information generated on these ecological aspects in other forested areas near Dachigam NP would help in better understanding of the species behavior, habitat ecology and bear-human conflicts in north west Himalayan landscape.

Asiatic black bear abundance in Dachigam National park

Dachigam National Park is known to possess one of the best populations of Asiatic black bears (Sathyakumar, 2001). The population density of black bears has been estimated to be high as reported by Saberwal, 1989 at Lower Dachigam NP. As per the results of the study conducted by WII at Dachigam NP, during 2007 and 2008, the encounter rates (#/km) of black bears showed a seasonal variation (ρ =0.04, One Way ANOVA). It was highest in summer





followed by autumn, spring and winter. The distribution and availability of food has a considerable influence on the black bear movement and activity.

In spring, black bear encounter rates (ER) was low, as bears have just come out of hibernation (Table 1). In summer, the fruit abundance was highest and bears were more active during this period. Autumn season also had bear food in the form of oak acorns and walnuts, but comparatively less when compared to the summer. ER was low in winter as bear activity ceases from December onwards. The occupancy and detection probability have almost a similar trend for all the three seasons of spring, summer and autumn (table 1). However, in case of spring season detection probability was comparatively less probably because of the less activity of animals after the state of hibernation.

Season	Encounter Rate (# / km)	SE
Spring (Mar May)	0.52	0.05
Summer (Jun Sep.)	1.13	0.17
Autumn (Oct. – Nov.)	1.01	0.02
Winter (Dec. – Feb.)	0.17	0.12

 Table 1.Encounter rates (# / km) of Black bear in Dachigam National Park, 2007-09.

The previous studies have indicated that Black bear encounter rates both per hour effort and per km. walk showed significant differences between different seasons (F= 42.218; P = 0.001 and F= 42.44; P= 0.001 respectively). The maximum bear encounter rates of $(0.60 \pm 0.07$ 95% confidence limit c.l. individuals/ hour effort and 0.19 ± 0.02 c.l. individuals/ km. walk) were recorded in summer followed by 0.39 ± 0.05 c.l individuals/ hour effort and 0.13 ± 0.02 c.l. individuals/ km. walk recorded in autumn. Minimum bear encounter rates of 0.30 ± 0.08



c.l. individuals/ hour effort and 0.10 ± 0.03 C.L. individuals/ km walk were recorded in spring (Ahmad *et al.* 2005; Ahmad, 2015).

The overall bear mean group size varied between seasons, it was largest in summer $(1.54 \pm 0.1695\%$ confidence limit (c.l)) followed by $(0.99 \pm 0.12$ c.l) in autumn. The smallest bear mean group size of 0.71 ± 0.17 c.l. was observed in spring (table 1). The overall typical bear group size was 1.83 individuals and it varied between the seasons from 1.45 individuals in spring to 2.07 individuals in summer (Ahmad *et al.*, 2005; Ahmad, 2015).

Habitat use by Black bear in Dachigam National Park

The selection of a habitat is based on food, cover and other requirements of a species. The habitat of the Asiatic Black Bear can be categorized six major bear habitats viz., Riverine, Oak, Lower temperate, Lower temperate pine mixed, mid temperate, Temperate grasslands and scrubland in Lower area of Dachigam NP. Based on Black bear sightings and signs, it was found that black bears showed considerable variation (ρ <0.05, Chi-square test) in the use of different habitats in different seasons. Oak habitat recorded maximum number of signs followed by Lower temperate pine mixed, riverine, lower temperate and mid temperate (Table 2). Asiatic Black bear comparatively less used grassland and scrubland habitats. Maximum number of black bear signs and sightings were recorded in habitats with more than 80% canopy cover indicating black bear preference for forested habitats. Northeastern aspect (ρ <0.01, Chi-square test) and the altitudinal ranges of 1,800 - 2,000m were used most by the black bears.

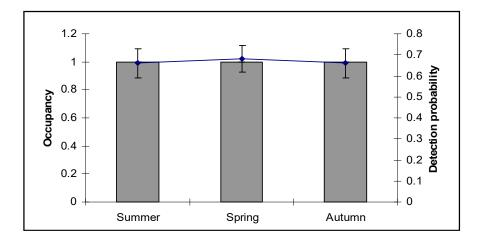


Fig. 21. Occupancy and detection probability of Black bear in Dachigam National Park, 2007-2008





Table 2. Black bear signs (%) recorded at Dachigam National Park in different habitats,
June 2007-August 2008.

Habitat	Black bear sign type (n=295)			
	Feeding sign (%)	Scat (%)	Other sign (%)	
Riverine (58)	10	26.90	5.71	
Oak plantation (98)	14.28	30.40	39.04	
Lower Temperate (67)	41.42	12.28	8.57	
Lower temperate pine mixed (51)	27.14	18.77	33.33	
Mid temperate (15)	7.14	8.77	13.33	
Temperate grassland/ scrub land (6)	0	3.50	0	

The earlier studies have indicated that the overall bear sightings showed significant differences (40.299; P = 0.001) in different habitat types in Dachigam National Park. The maximum bear sightings (42 sightings) were recorded in Riverine habitat followed by recording of 31 bear sightings in Grassland/Scrub habitats of Dachigam National Park. In spring and autumn maximum number of bears (12 and 19 bears respectively) were seen in Riverine habitat followed by sighting of 6 and 17 bears in spring and autumn respectively in Grassland/Scrub habitat of Dachigam National Park. However during autumn 29 bears were seen in Riverine habitat and 13 and 12 bears were seen in Mixed Woodland and Grassland/Scrub habitats. Overall Bear Sightings in different habitat types of Dachigam NP (Jan.2002-Dec. 2007) Ahmad *et. al.*, 2015).

Distribution

There is seasonal variation in the distribution of Asiatic black bear in Dachigam National Park. In summer and autumn seasons, the distribution is clumped in riverine forest or valley areas of Lower Dachigam because of high food abundance but in spring and winter, black bear distribution is even in all parts of Dachigam. Out of total area of Dachigam 90





sq.km, represent the black bear habitat, which starts from the Nambal beat the nearest beat to Dachigam gate up to the Waskhar beat of Pahli pora block of Dachigam.

Threats

The Black Bears are threatened due to poaching for gall bladder (medicine), skin (ornamental), retaliatory killings to reduce bear-human conflicts, and due to large scale habitat degradation or loss. Because of these threats, the black bear population in India is decreasing in many areas. Existing information on black bear in India is either anecdotal or insufficient for effective conservation and management. A few short investigations (Schaller 1969; Manjrekar 1989; Saberwal 1989; Sathyakumar 1999, 2001, 2006; Sathyakumar & Visvanathan 2003, Sathyakumar & Choudhury, 2008) on black bear have been carried out so far in India. Black bear-human conflicts is an important managemental issue that needs to be addressed on priority basis as depredation of agricultural/horticultural produce by black bears have resulted in the resentment of the local people who suffer such losses leading to retaliatory killings and animosity with the government departments.

HIMALAYAN GREY LANGUR

The Himalyan Grey Langur or Kashmir Grey Langur (Semnopithecus ajax) is a species

of langur formerly considered as sub species of Semnopithecus entellus. The Himalayan grey langur is dark eyed langur, which can be distinguished from other grey of the langurs family Cercopithecidae by their large body dimensions and the thick silver dark colored hair on the outer sides of both the fore and hind limbs (Wilson and



Redeer, 1992). The Himalayan grey langur carries a long tail, which forms a broad arc over





their back towards the head region when it moves on the ground (Jay, 1965). The Himalayan grey langur belongs to the family of *Cercopithecidae* and the sub – family Colobinae that includes all the old world monkeys having the folivorous habit. In India, the Himalayan grey langur is endemic to the western Himalayan states of Himachal Pradesh and Jammu and Kashmir. In Himachal Pradesh, the species is confined to the Great Himalayan National Park, Kallatop – Kajjair and Manali wildlife Sanctuaries (Walker and Molur, 2004). In UT of Jammu and Kashmir, the species is found in Dachigam National Park and scattered population is found at Bhaderwah forest areas (Sharma and Ahmed, 2017). The Himalayan or Kashmir grey langur is a social animal and prefers to live in groups with definite structure and composition. The Himalayan grey langur lives usually in groups of 20 - 40 individuals but may exceed up to more than 100 individuals depending upon the location and food availability. The competition for food and infanticide largely determine the troop size, composure and composition, these factors may be limiting in deciding the sociality of langurs (Koeing et al., 1997). The social system and troop size largely varies from place to place and the troop composition include one – male bisexual group, multi – male bisexual group and all – male band group. The denser the group, larger is defense coalitions and increased vigilance. The bisexual troops are usually matrilineal and mostly remain with the natal group while as males emigrate as juveniles to join all – male band. The males start mating at the age of six or seven years and prevent other males of lower age from mating even though they are sexually mature. The females start mating at three and half years. Ecological conditions, feeding competition as well as the physical conditions of female affects the reproductive events of females. Breeding season varies from location to location with gestation period of 190 - 210 days (Roonwal and Mohnot, 1997). The young ones are born in the months of March – June. The Himalayan grey langur usually give single birth but twins and triplets have also been recorded (Mohnot, 1974).

All the primate taxa including the Himalayan grey langur are under severe threats. The common and major threats, which Himalayan or Kashmir grey langur faces throughout its habitat range include the habitat loss and degradation through illegal and unethical encroachment, overgrazing, building of roads through its home range and lopping of forest trees for domestic cattle, thus depriving them of food, deforestation, forest fires, unchecked and unregulated expansion of agricultural lands at the cost of forest ecosystems, unavailability of food during certain periods of the year, predation by large carnivores and several bacterial and viral diseases. The present and future threats are mainly due to ever-





increasing expansion of agricultural land at the cost of forest ecosystems and other developmental activities. Thus, International Union for Conservation of Nature and Natural Resources (IUCN) has classified the Himalayan grey langur (*Semnopithecus ajax*) as **"Endangered"** in 2008 (IUCN, 2018). This species is listed on CITES **Appendix I**, and **Schedule II Part I**, of the Indian Wildlife Protection Act, 1972 amended up to 2002 (Molur *et al.*, 2003).

At the ecosystem level, the primates including the Himalyan grey langur exert very vital feedback control on the vegetation of the forest ecosystem. They are the essential component of the forest ecosystem to maintain the vitality and the homeostasis of the forest ecosystems, especially being critical for the regeneration and the survival of the major forest ecosystems. The primate species could be projected as the flagship or the umbrella species in the forest ecosystems and by projecting these primates as the flagship or umbrella species, the whole habitat and the forest ecosystem can be protected. The primates perform certain essential ecological services that are very important to maintain the health and vigor of the forest ecosystems such as the seed dispenser, pollinator as well as being food for some of the top predators. The primates are essential and integral part of the biodiversity and are cognizable link between the humans and the nature. There is certain kind of bond still existing between primates and humans in some of the peculiar primate zones, which can be effectively used for the biodiversity conservation by projecting the primates as flagship and umbrella species (Southwick and Lindburg, 1986). Although most of the areas where the Himalayan grey langur is found are the protected areas, still special efforts are required to protect and conserve this valuable and "Endangered" species. Concrete identification of the species, physical characteristics along with the molecular techniques should be employed while studying the species.

Today in Kashmir, its distribution is restricted to Dachigam National Park and surrounding protected area (PA's), and Kishtwar National Park. There are no estimates of population in Kishtwar. In Dachigam National Park, Himalayan Grey Langur is common. The greatest threats to its survival are the large-scale livestock grazing in its habitat range, lopping, deforestation, anthropogenic pressures, agricultural expansion and disturbances in the form of movement of people and operations by the security forces. The major predators in Dachigam NP are Common leopard and Asiatic black bear (Iqbal *et al.* 2005; Sharma *et al.*, 2009). Langur forms a major proportion (ca. 25%) of the leopard diet (Iqbal *et al.*, 2005) and





it forms almost 3% of black bear diet (Sharma *et al.* 2009). The overall density of common langur in Dachigam National Park was estimated to be 22.38 ± 3.9 , against its A.I.C. values 551.17 of the model uniform. Therefore, the total population of langur in lower Dachigam was estimated to be 572.

The other estimated parameters i.e. effective strip width (ESW), encounter rate (n/L), density of cluster (DS), and expected cluster (ES) with 95% confidence interval, & lowest of chi-square (χ 2) is given in the Table. 3.

Parameters	Point Estimator	Standard Error (SE)	95% Confidence Interval (CI)	
			Low	High
Density[D]	22.388	3.9003	15.871	31.582
Effective strip width [ESW]	150.00	0.00	150.00	150.00
Encounter Rate [n/L]	0.000829	0.00013	0.00059	0.001128
Cluster Density[DS]	2.7363	0.43834	7.1334	9.3848
Expected Cluster size [ES)	8.1818	0.56024	7.1334	9.3843

Table 3. Transect analysis for Himalyan Grey langur in DNP, J&K.

Distribution

The Himalayan Grey Langur habitat use was significantly different across the seasons. Riverine and Lower temperate habitats were used more in all seasons. In winter and spring, Langur uses the Valley with flat areas, which provide shelter to Himalayan Grey Langur from extreme cold and heavy snowfall in its distribution range and fulfill the requirement of food since valley or stream areas have been considered to provide a better shelter. The eastern slopes were used widely in all season. Himalayan Grey Langur used flat and less steep slopes in all season except winter that can be related with, the availability of food and shelter. The valley



areas are having high density of food tree and canopy cover. It is distributed in all areas of Dachigam starting from gate up to sub-alpine areas of Dagwan valley.

A recent study conducted on the ecology of Himalayan Grey Langur estimates the population to be more than 800 individuals using the Block count method (A.H. Paul, 2019).

Table 4. The population estimation of Himalayan Grey Langur using Block count method

Block No.	Average number of animals	Altitude (m)
	encountered	
Block I	160	1600 – 1700 m
Block II	148	1700 – 1800 m
Block III	170	1800 – 1900 m
Block IV	58	1900 – 2000 m
Block V	151	2000 - 2100 m
Block VI	122	2100 – 2200 m
Total	809	
1000		





Apart from the above large mammals Dachigam National Park holds good population of many other mammals which includes, Himalayan Brown bear (*Ursus arctos isabellinus*), Himalayan yellow Throated Marten (*Martes flavigula*), Kashmir Musk deer (*Moschus cupreus*), Serow (*Nemorhaedus sumatraensis*), Himalayan weasel (*Mustela sibirca*), Red fox (*Vulpes vulpes*), Jackal (*Canis aureus*), Small Indian civet (*Viverricula indica*), Leopard cat (*Felis bengalensis*), Common otter (*Lutra lutra*), Common Mongoose (*Herpestes edwardsi*) and Long tailed marmot (*Marmota caudata*).

Red fox is distributed in the middle elevation of Dachigam mainly in mixed forest, temperate grasslands, and nallahs. They are not sighted frequently in lower elevations. Although Dachigam National Park holds a fair population of the Red Fox, yet there is no official confirmation on the exact population of the Red Fox in Dachigam National Park. Serow is reported after a long period of twenty years by the research team of Wildlife institute of India in mid temperate pine mixed forest. Dachigam National Park also holds an excellent and viable population of the Rhesus Macaque (*Macaca mulata*) mainly inhibiting the higher elevations.

Himalayan yellow-throated marten (*Martes flavigula*) is the commonly found in riverine forests and pine forest in areas of Dachigam mainly in lower Dachigam.



Plate 9. Camera trap image of Red Fox







Plate 10. Himalayan Marmot



Plate 11. Kashmir Musk Deer







Plate 12. Golden Jackal



Plate 13. Rhesus Macaque







Plate 14. Rare camera trap image of Leopard cat



Plate 15. Camera trap image of Porcupine







Plate 16. Camera trap image of the Hangul





Checklist of Mammals of Dachigam National Park

Common Name	Scientific Name
Hangul or Kashmir Stag	Cervus hanglu hanglu
Common Leopard	Panthera pardus
Himalayan Brown Bear	Ursus arctos isabellinus
Asiatic Black Bear	Ursus thibetanus
Leopard Cat	Prionailurus bengalensis
Jungle Cat	Felis chaus
Red Fox	Vulpes vulpes
Jackal	Canis aureus
Serow	Nemorhaedus sumatraensis
Kashmir Musk Deer	Moschus cupreus
Himalayan Yellow-throated Marten	Martes flavigula
Himalayan Weasel	Mustela sibirca
Long-Tailed Marmot	Marmota caudata
Indian Porcupine	Hystrix indica
Himalayan Mouse Hare	Ochotona roylei
Himalayan Grey Langur	Semnopithecus ajax
Wild boar	Sus scrofa
Rhesus macaque	Macaca mulata





AQUATIC FAUNA

The main Dachigam stream is the ideal habitat for the cold-water fishes, and other aquatic forms of life. There have not been many aquatic species reported from the Dachigam National Park so far and a survey to access aquatic fauna is required in Dachigam National Park.

AVIFAUNA

The Dachigam National Park supports a rich and varied bird life. In addition to numerous species of resident birds, it serves as the winter visiting ground to many migratory birds. Altogether 160 species of birds are reported from Dachigam National Park and has been rightly called as **"Birdwatchers Paradise"**. Some of the major birds of Dachigam National Park include orange bullfinch, Kashmir Nutcracker, Kashmir flycatcher, spectacled finch besides other endemic and migratory birds. A detailed checklist of the birds of Dachigam National Park is described in annexure 6.



Plate 17. Spectacled Finch







Plate 18. Orange Bullfinch



Plate 19. Black Throated Thrush







Plate 20. Chestnut Thrush



Plate 21. Variegated Laughing Thrush







Plate 22. Russet sparrow



Plate 23. Rock Bunting







Plate 24. Green Backed Tit



Plate 25.Common starling







Plate 26. Rufous-Bellied Niltava



Plate 27. Himalayan Black bulbul







Plate 28. Scaly Thrush



Plate 29. Tawny owl







Plate 30. Fire capped Tit

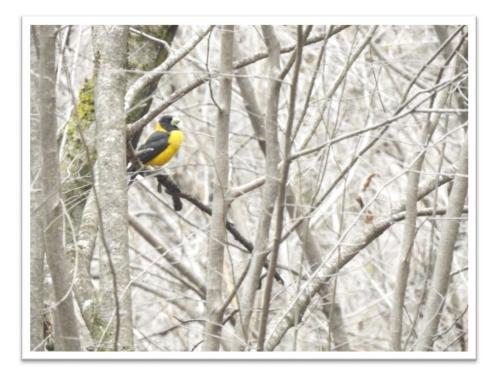


Plate 31. Black and Yellow Grosbeak







Plate 32. Siberian Stonechat



Plate 33. White cheeked Nutach







Plate 34. Koklas Pheasant



Plate 35. Himalayan Monal



2.6.2.2 Limiting factors

Factors limiting the range, movement, food, shelter otherwise affecting the general well-being of the wildlife population may be stated as absent. Habitat loss is the main limiting factor for the survival of wild animal species such as black bear, Hangul, leopards. Increased pressure on forests of Dachigam by local villagers for grass cutting, livestock grazing in upper reaches of Dachigam during the summer season is becoming one of the main limiting factor for the survival of Hangul in Dachigam National Park.

The Upper Dachigam is under a heavy grazing pressure and is one of the main limiting factors for the wildlife because of following effects of grazing on Wildlife.

INTERFERENCE

- Reduction in food availability for herbivores
- Disease propagation
- Reduction in area of wilderness needed for the wildlife

There are about 100 families of nomadic Bakarwals with the huge livestock of more than 5,000 cattle herds who graze in Upper Dachigam, which is a summer home of Hangul. The concentration of these grazers is maximum in Dagwan valley and other areas of upper Dachigam. Though there is the carrying capacity of the area to accommodate considerable wildlife, but owing to the limiting factor of grazing the actual population of Wildlife in the area is quite low. There is a need to have specific proposals and rapid intervention to overcome this limiting factor to obviate the menace of grazing in Upper Dachigam, which not only increases competition for Hangul for the same niche but also brings zoonotic diseases with them, which severely affects the Hangul population.

FIRE

Fire does occur accidentally in the lower part of the Dachigam National Park. The fire common in the area is ground fire and the crown fire usually does not take place in the area. The fire is usually confined to lower grassy areas mainly on southern or western aspects. The most sensitive areas for fire are Drog nallah, Reshwudur nallah and Munew grassland area.





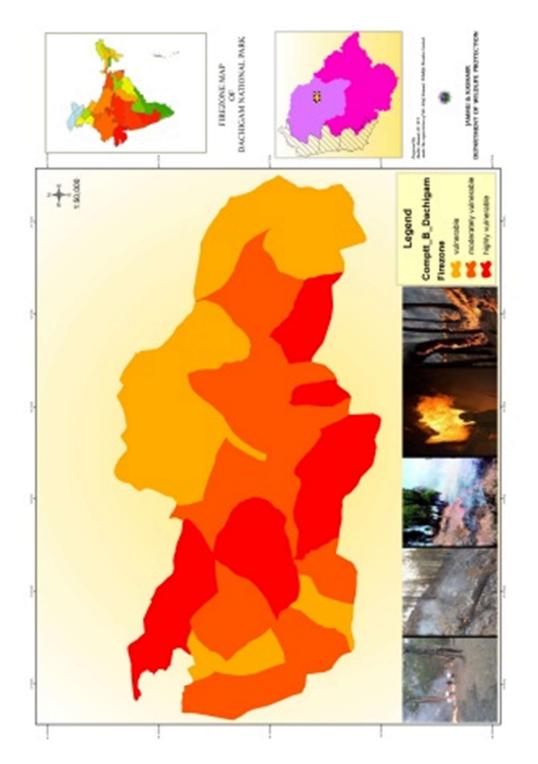


Fig.22. Fire map of Dachigam national park





SNOW

The snow is also limiting factor for both the flora and fauna. The trees are damaged by snow by the way of uprooting of the trees, debarking of the branches and snow slides. In winter season, most of the areas of Dachigam National Park remain covered under snow and the animals have to migrate to lower areas for food and shelter. The most affected areas by the heavy snowfall falls in upper Dachigam. The winter season is the tough period for the wildlife in the area. Artificial feed for species such as Hangul is very much important for their survival.

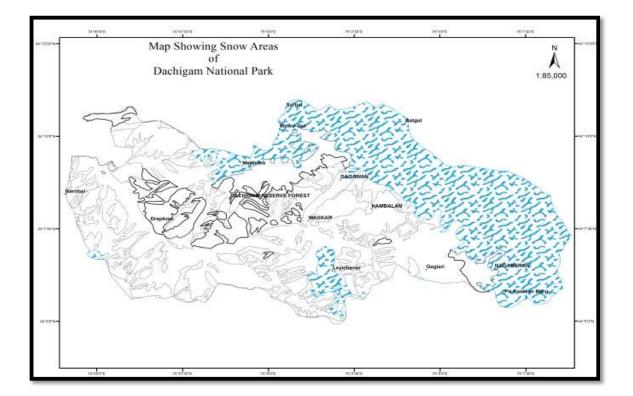


Fig.23. Map showing the snow covered areas of Dachigam National Park







Plate 36. Snow covered grasslands of Dachigam National Park

External Interference

The entire Dachigam National Park is free from any sort of external interference except the summer grazing in upper Dachigam but Lower Dachigam do not have any external interference no forest products exploited from the area excepting some human disturbance, collection of mushroom in spring season that to some limited areas. The external interference in lower Dachigam at present consists of the activities of large number of government departments such as Department of hospitality and Protocol, Fisheries department, power supply department, irrigation department, flood control department, and military operation. The Wildlife department staff activities are also a source of external interference in park by way of cutting patrolling paths, clearance of visiting spots, etc. along with the activities of the visitors coming to view wildlife in Dachigam.





The most important external interference in Dachigam is the VIP guesthouse (Draphama) which is visited by large number of VIPs and state guests with their cavalcade vehicles mostly in summer season. The cavalcade passing through main habitat of the Hangul immensely disturbs the animal. The vehicles passing through occasionally over run the animals and results in the roadkill which is common in case of Himalayan Grey Langur.

A menace, which may be considered as an external interference, is the frequent blasting sound, which comes from the nearby cement factories in north side of park near to Kawnar nallah.

Epidemic

Any serious epidemic disease has not affected the animals of the park in the recent years. The danger of spreading epidemic diseases is always there because of the presence of the large number of grazing livestock in upper Dachigam, which are potent source of infectious diseases communicable to wild animals.

Unsuitable period

In winter season after heavy snowfall is the most unsuitable period for the wildlife in the areas because of foraging ground is covered by snow and getting food becomes difficult for many species.

2.6.2.3 Important invertebrates, their status, distribution and habitat

The status, distribution and habitat for the invertebrates requires a detailed studies/observation in the park. No systematic research work for invertebrates has been done in Dachigam National Park yet. However, among snakes in Dachigam three species of viper have been reported which includes Himalayan pit viper, Levantine viper and Rat snake. There are more than 50 species of butterflies reported to be present in Dachigam National Park. (Annexure no. 6). In the squamate reptiles, the two widely distributed species in Dachigam National Park include Kashmir Rock Agama (*Laudakia tuberculate*) and Himalayan Ground skink (*Asymblepharus himalayanus*).







Plate 37. Himalayan Skink



Plate 38. Kashmir Rock Agama







Plate 39. Himalayan Pit viper



Plate 40. Plain Tiger







Plate 41. Common Yellow Swallowtail



Plate 42. Pala's Sailor







Plate 43. Indian Tortoise shell



Plate 44. Ruddy Darter









CHAPTER THREE HISTORY OF MANAGEMENT AND PRESENT PRACTICES

3.1 GENERAL

Dachigam National Park comes under the Central Wildlife Division of Kashmir Region and was constituted in year 1981. Before National Park status, it was a Wildlife Sanctuary. Dachigam has a history of management practices before the establishment of the Forest Department of Jammu and Kashmir, the Maharaja of Kashmir as a Game Reserve managed it. The area of National Park has the history of unimaginable floral and faunal diversity. The ecosystem harbors one of the largest population of Black Bear and it is a home for the last surviving population of Kashmir Stag (Hangul). The ten villages, which were present in today's Dachigam, were translocated when the area was declared as Rakh (Game Reserve). During the Era of the Maharaja Rule, the Park area was his Game Reserve where he used to hunt animals for pleasure, which resulted into over exploitation and excessive removal of wild animals from the park. He had done lot of intervention with the natural ecosystem of Dachigam and one of them was bringing of wild Boar (Sus scrofa) from outside Kashmir for hunting which was not the part of the ecosystem and whose impact on this ecosystem was not properly evaluated and monitored. Later the wild Boar population was reported to have disappeared from the park in 1985. Though the wild Boar population has reemerged in substantial numbers, which poses a great challenge in the Management of the area. After the formation of department of wildlife protection, habitat management and improvement intervention were under taken by taking up plantation work in some areas of the park.

The first documented management plan was formulated in 1985 for the period of five years (1985 – 1990) by Mir Inayatullah (IFS) and subsequently revised in 1995 by P.P. Sharma (IFS), Dr. M. A. Kawoosa (IFS) as principal investigators and Dr Haneefa Banoo as Project investigator for a period of five years (1995 – 2000). In 2011 third documented management plan was formulated by Mr. Rashid Yahiya Naquash and Lalit Kumar Sharma. This Management plan





was proposed for a period of five years from 2011 to 2016. This management plan mainly focused on protection, conservation and habitat improvement strategies. The key managemental practices, interventions and strategies proposed by this management plan are as under:-

- 1. Careful rechecking of boundary dilatations and demarcation.
- 2. Interdepartmental coordination.
- **3.** Formulation and implementations of zoo plans in-terms of dividing the area in to core buffer and tourism zone.
- 4. Regulation of tourism.
- 5. Development of theme plans were proposed for the following
 - a) Control of poaching and grazing.
 - b) Weed control.
 - c) Raging pattern of wild animals outside managed area.
 - d) Soil erosion monitoring.
 - e) Animal health surveillance.
 - f) Man animal coexistence.
 - g) Development of infrastructure and communication.
 - h) Management of quarantine areas for captivity centers of rescued animals.

Besides this management plan of 2011 laid strategies for conservation, education, eco development where in emphasis was laid on alternative livelihood generation, mitigation of man animal conflict, compensation schemes and last but not the least research, monitoring and training was brought to the central focus for the effective management plan of the Dachigam National Park. It was for the first time through a well-documented management plan budget strategies for a period of five years while scientifically evaluated and a comprehensive financial plan was formulated.

3.2 TIMBER OPERATION INCLUDING FIREWOOD HARVEST

The prime objective of creating Dachigam as a National Park was for the protection of Kashmir stag (Hangul) and other wild animals in the park. The entire park was closed to hunting and trapping of any wild animal as soon as it was declared as sanctuary in 1951 after Maharaja





Rule. Initially wildlife protection was the only management practice, which was carried out. There is no record of timber harvest from Dachigam area.

3.3 NON-TIMBERFOREST PRODUCE COLLECTION

The reserve was covered by some management interventions at the time of Maharaja. There were strict guidelines under which some activities were allowed up to some extent such as grass cutting, and fire wood collection in winter season. There were reports of collection of Hangul shielded antlers from Dachigam in past. However, since the area was notified as a National Park the practice of any sort of NTFP collection has been completely abolished.

3.4 LEASES

No lease has been given under the jurisdiction of the manager of the park in the area under the control of Wildlife Warden Central and South.

3.5 OTHER PROGRAMMES AND ACTIVITIES

There are many government department settlements existent inside Dachigam National Park, which mainly includes Trout Fish Farm, Hospitality and Protocol Department, Irrigation Works, Flood Control Department and Power Supply Department. However, it is worthwhile to mention here that biggest challenge in the management of the National Park was Sheep Breeding Farm but it was shifted completely from the National Park in year 2018 and the same is considered to be one of the landmark achievements in the Conservation strategies in the history of Dachigam National Park. Remaining above-mentioned departments do not pose a greater challenge in the conservation strategies however, presence of these departments do create disturbances in certain sensitive periods like rutting season of the Hangul. Besides the protection and conservation of wildlife flora and fauna, other activities include carrying out of awareness programs pertaining to all wildlife aspects wherein local population, schoolchildren, colleges and university scholars are involved.

3.6 FOREST PROTECTION





3.6.1 LEGAL STATUS

Dachigam National Park has been legally notified as a National Park in the year 1982. The detailed legal status for Dachigam National Park has been discussed in Para 1.1.3 and 1.1.4 of chapter one.

3.6.2 HUNTING

Before the declaration of Dachigam as a National Park and during colonial rule it was found that, giving protection to Hangul population did not given desired results. It was because there were many areas adjacent to Dachigam which were having good population and access to Dachigam where hunting use to take place. After the declaration of many adjacent areas as conservation reserves the problem of hunting comes down to zero and today there are no cases of Hangul hunting in the area.



Plate 45. Floriculture nursery near VIP guesthouse







Plate 46. Laribal Fish Farm gate



Plate 47. Trout fish hatchery ponds







Plate 48. Power department transformers inside Dachigam



Plate 49. CRPF barrier near NIC







Plate 50. CRPF bunker and settlements at VIP guest



Plate 51. VIP guesthouse Draphama in the middle of the National Park







Plate 52. Water supply department control gate and canal



Plate 53. Irrigation department gauge





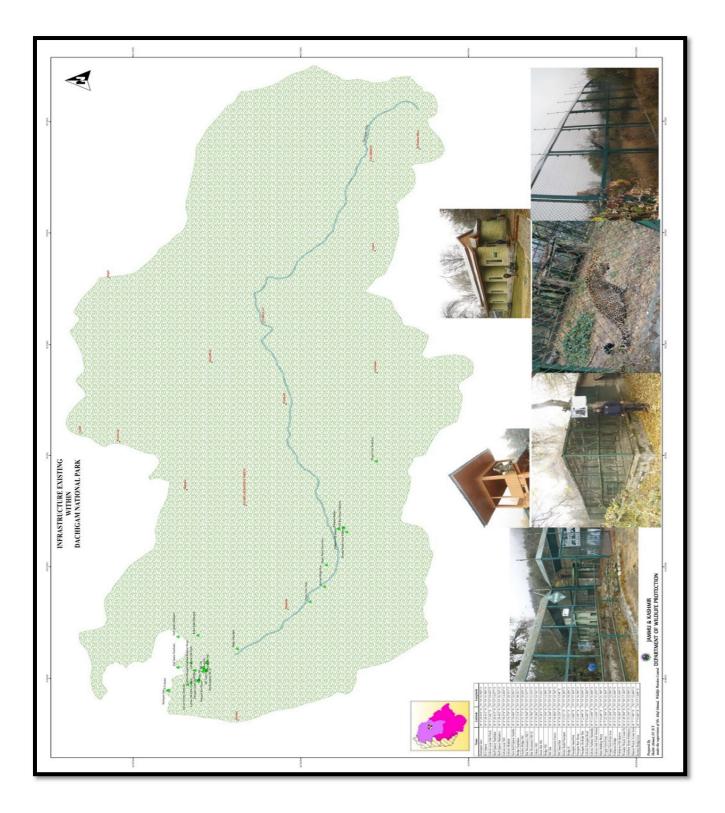


Fig. 24. Map showing infrastructure inside Dachigam National Park





3.6.3 ILLEGAL ACTIVITIES

Poaching and other illegal activities

All actions, efforts and management practices executed in the Dachigam National Park from the beginning till date are however aimed mainly towards the protection of Hangul from the poachers. During the formative years, this was to be achieved by extending the areas and by keeping it close to hunting and poaching. Constant and intensive patrolling has been made a thrush activity in order to remove any apprehension of the poaching in and around the National Park. Today there is no report of poaching incidences in Dachigam National Park.

3.6.4 LIVESTOCK GRAZING

In Dachigam National Park, the most affected area by grazing is upper Dachigam where nomadic grazers are coming from other areas in summer seasons. The summer habitat of Hangul is getting disturbed because of excessive grazing. The detrimental effects on habitat coupled with the danger of spreading epidemics always remains threat for wildlife in Dachigam National Park. Livestock grazing is completely stopped in lower Dachigam and in upper Dachigam but it is still going on illegally.

3.6.5 FOREST FIRES

The Natural forest fires are not common in the region; however, accidental fires may result in the woodland areas and grasslands of the park because fire spreads from grasslands. The areas like Drog, Munew and Reshwudur are highly fire sensitive but with an increase in vigil and awareness, incidents of fire have been declined over the years. Making of fire lines to the fire sensitive areas remains almost a routine activity every year and hence forms an important component of fire management plan. Besides this, the department has procured various firefighting equipments and fire proximity suits in order to enhance the effectiveness of firefighting and providing protection to the field staff.



HISTORY OF MANAGEMENT AND PRESENT PRACTICES



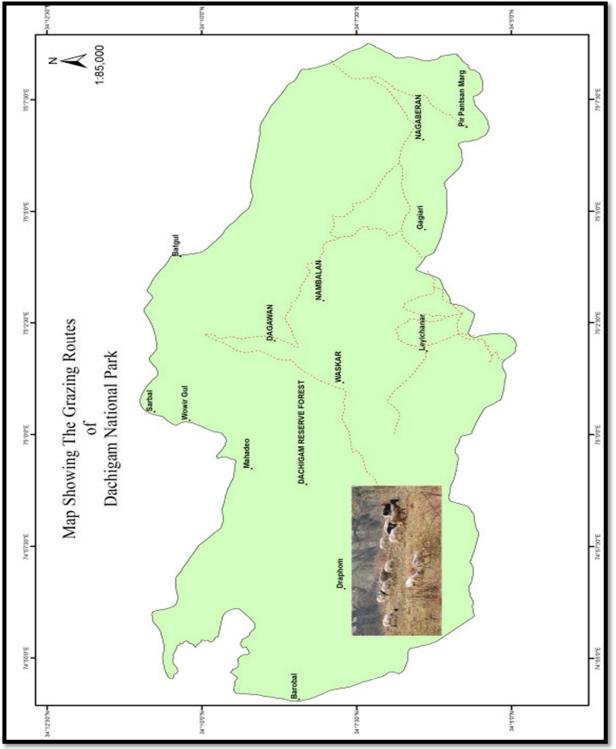


Fig.25. Map showing the grazing routes of Dachigam National Park



HISTORY OF MANAGEMENT AND PRESENT PRACTICES



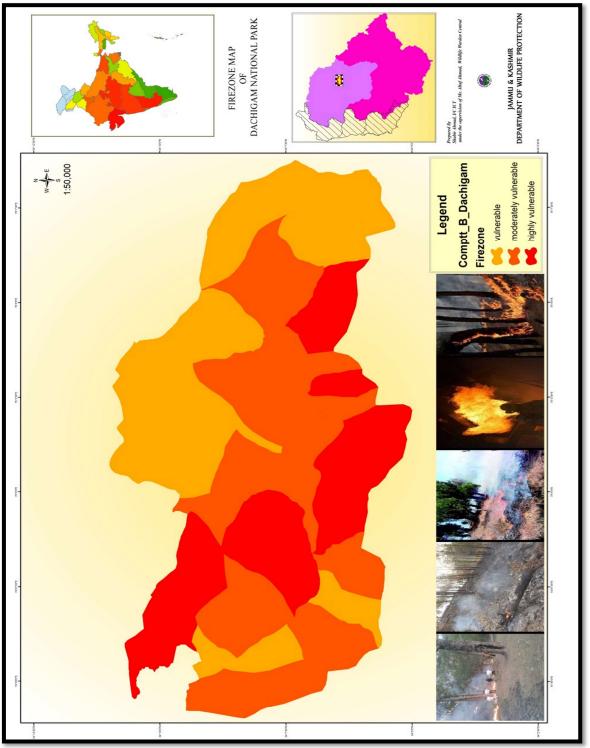


Fig.26. Fire map of Dachigam National Park







Plate 54. Forest fire inside Dachigam National Park

3.6.6 WILDLIFE HEALTH (Insect attacks and pathological problems)

Since the inception of the National Park no out-break of insect attacks or any pathological problem has been noticed. However, the presence of cattle along the fringe possesses the threat of outbreak of rinderpest and foot and mouth disease. Vaccination is being carried out in these areas but incidents and frequency needs to be increase in order to avoid any unwanted disease spread. The reach of immunization of livestock needs to be extended to livestock of nomadic grazers.





3.7 ECO-TOURISM

Large number of tourists visits Dachigam being very close to Srinagar summer capital of Jammu and Kashmir in summer because of the natural beauty. Large number of visitors use to come to Dachigam from mid-sixties but today it have become one of the most important tourist destinations because of Hangul and other endemic flora and fauna. In case of an undisturbed tourist season around 2000 tourists visit the Dachigam which includes students, naturalists,

scientists, conservation activists, etc. Department also organize limited number of nature education camps every year for the awareness creation at Nature Interpretation Center. Immersion free battery operated carts are also on offer to visiting tourists to have a wellcontrolled safari through the Dachigam National Park.



HISTORY OF MANAGEMENT AND PRESENT PRACTICES



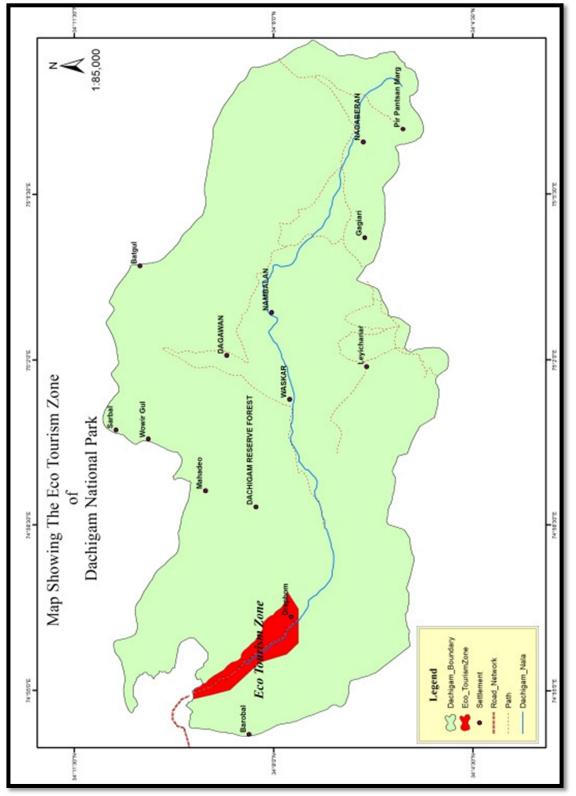


Fig.27. Map showing the ecotourism zone of the Dachigam National Park





3.8 RESEARCH AND MONITORING

The rich biodiversity and unique ecosystem of Dachigam National Park require well established, scientifically proved data/ information/studies to act as an effective management tool for the conservation of habitat and wildlife. Many studies/ research projects have been carried out by individuals/institutions mainly for academic interests. There has not been much of systematic recording and retrieval of information at the PA level for use in the management. The details of the studies are given separately in the chapter ten on research and monitoring in the management plan.

3.9 WILDLIFE CONSERVATION STRATEGIES

Wildlife conservation strategies consist of mainly two components viz. Anti-poaching activities to counter the threat of organized gangs of poachers and Habitat manipulation for improving the habitat condition whenever needed.

Some of the major efforts to stop illegal hunting were made during the late 1980 – 90s under the leadership of Mr. A.R Wani in Dachigam landscape. Intensive measures for the protection of Dachigam National Park were again taken up with due earnestness from the early part of 1980 when the chief wildlife warden himself took up the matter with all seriousness. The entire administrative setup was reorganized and has been vastly improved.

The overall response of all the animals of the park to the present management practice which is primarily protection oriented is quite encouraging. For the habitat improvement inside Dachigam, plantations were carried out in many areas, which mainly include fruit bearing plants to enhance the availability of food to wild animals inside the park.

3.10 ADMINISTRATIVE SETUP

The National Park is under the control of Wildlife Warden Central, Dachigam and Wildlife Warden South, Bijbehara. Dachigam spread over two Wildlife Divisions. Details of Staff in Dachigam National Park are given in Annexure No. 3.





3.11 COMMUNICATION

Main source of communication remains the mobile phone network, which doesn't offer a reliable mode of communication due to lack of connectivity in upper reaches. Wireless communication would have been an ideal mode of communication but due to security reasons, it is not recommended under the prevailing situations.

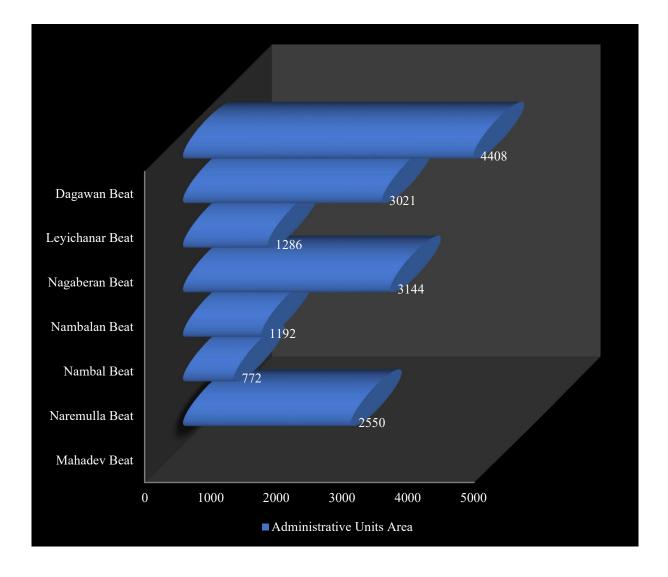


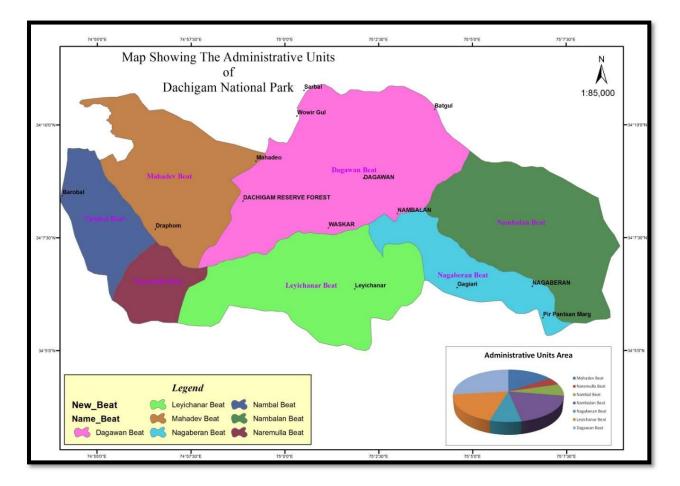
Fig. 28. Administrative area of various beats of Dachigam National Park





3.12 SUMMERY OF THREATS TO WILDLIFE

Grazing in some areas of the park, threat of an epidemic from the livestock, Man animal conflict, forest fires and close human habitations to the boundary of National Park remain main threats for the wildlife in Dachigam National Park.





3.13 Hangul Census / Population Estimation

In the recent times, Hangul census / population estimation is being carried biannually to monitor and compare the trends in its population. In the census, the whole Hangul landscape is scanned. Ranging from the field staff to NGO's, students, scholars and volunteers take part in it in a well-organized manner. The feasible time for this activity remains the month of February and early March.





3.14 Habitat Management

The key interventions in habitat improvement mainly include plantation, fencing, DRSM works, fire lines, inspection paths, water holes, small animal passes bridges, supplementary feed in the form of vegetables, salt licks and willow bachas and hence these components form the regular items of annual plan of operations.

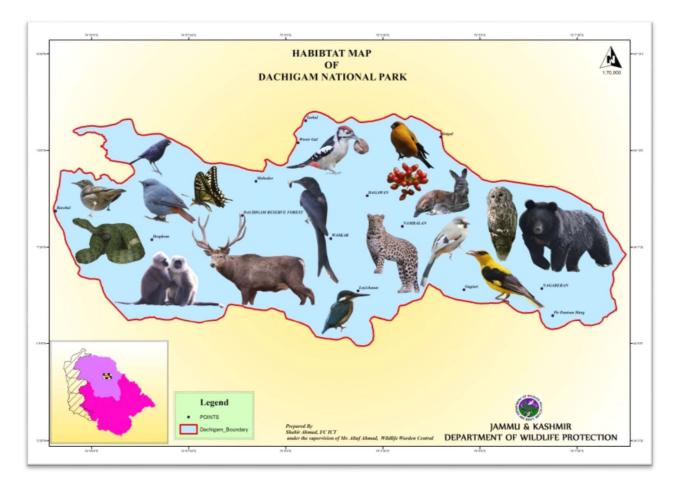


Fig.30. Habitat map of the Dachigam National Park



CHAPTER FOUR THE PROTECTED AREA AND THE INTERFACE LANDUSE SITUATION

4.1 THE EXISTING SITUATION IN THE ZONE OF INFLUENCE

There are approximately 40 villages surrounding the boundary of the Dachigam National park excluding the North boundary. The livelihood of villages is agriculture, orchards, animal husbandry, poultry and dairy activities. Prior to the declaration of Dachigam as national park, people used to be dependent on the natural resources of the area such as livestock grazing, fire wood collection. Crop raiding, orchard raiding and loss of livestock due to straying of wild animals from the park affect the villages located near to the park. Traditionally the fringe residents are positive towards conservation and therefore attitude towards park and conservation is still positive at large. However, the increase in crop raiding incidences and livestock depredation may change this dynamic view in near future if clear and strict measures to mitigate Human – wildlife conflict are not taken soon. The zone of influence of Dachigam National Park is identified within 10 km of the legal boundaries.

4.1.1 LOCATION, EXTENT, BOUNDARIES, NATURAL ATTRIBUTES OF THE ZONE OF INFLUENCE

Dachigam National Park, along with eight conservation reserves and two-wildlife sanctuaries named Overa-Aru Wildlife Sanctuary and Tral Wildlife Sanctuary makes Greater Dachigam Landscape. The zones of influence have 40 revenue villages extending from Mufti Bagh to Sonwar Srinagar. The revenue villages located on the boundary will be prioritized for the eco-development activities to foster the sustainable coexistence. The zone of influence also has high-level tourist areas within its limits.

4.1.2 VILLAGES INSIDE AND OUTSIDE THE PROTECTED AREAS



There is no village notified inside the Dachigam National Park. However, there are many departmental setups, which are operating inside the boundary of the park. The area which is under the biotic interference starts from the gate 1 up to Draphama VIP guest house, most of the infrastructure of these government lies in between Dachigam gate and Draphama guest house.

The main communities in the villages, which comes in the zone of influence, are Kashmiris, and Gujjars. These communities are mainly dependent on agriculture and horticulture for subsistence. The Gujjar community is the only tribal community in the area. Agriculture, horticulture is their principal activity and they rear livestock such as cows, goats, and sheep to supplement their economy and subsistence. Socio-economic condition of the Gujjar community is poor. This community is also involved in fire wood collection and herbs collection from the protected forests and adjoining landscape. List of villages surrounding Dachigam given in Annexure no.9.

4.1.3 STATE OF THE PEOPLE'S ECONOMY

Most of the villagers in the zone of influence are marginal farmers with small land holdings. The main occupation is the orchard cultivation and a large number of local laborers are involved in cultivation and harvesting in orchard fields. The animal husbandry practices is one of the main source of livelihood of the locals, which is the cause of disagreement between the Park managers and the local people owing to the grazing within the protected areas or the reserve forest.

The socio-economic conditions of other Kashmiri communities is better. A significant population of this community is working in government sector, business and in tourism industry etc. The terrain and the topology in the zone of influence is mountainous in which numerous water streams and nallahs anatomize. Though no proper survey has been conducted for entire zone of influence, a thorough survey on socio-economic status of villagers living near Dachigam is required. Land use pattern within 10 km of the boundary of Dachigam National Park is given as under:-



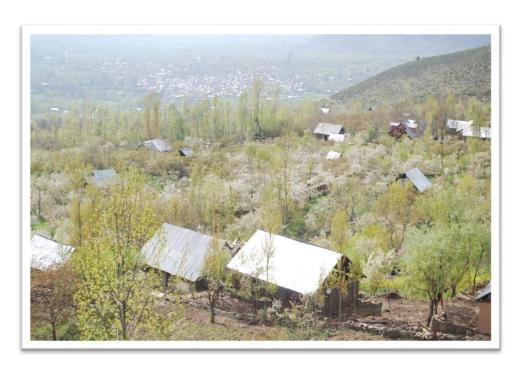


Plate 55. Horticulture cropland near to the boundary of Dachigam National Park



Plate 56. Landscape picture-showing mosaic of forested habitats and crop land





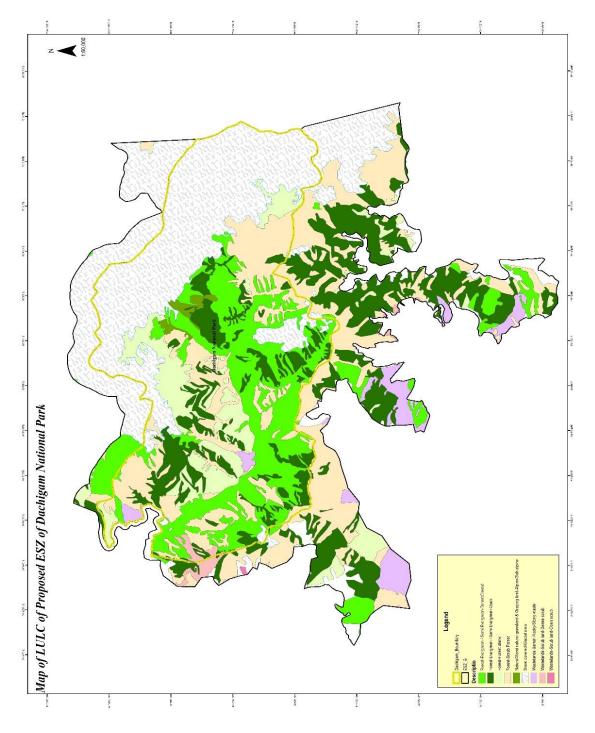


Fig.31.LULC around Dachigam National Park



4

Category	Area(ha)
BUILT-UP LAND	3804.13
FOREST AREA	24556.72
CULTIVATED	15004.22
PLANTATION/ ORCHARD	3679.71
MARSHY AREA	745.22
BARREN/GRASSLAND	22993.92
QUERY SITE	207.41
WATER BODY	1926.72
SNOW COVERED	18149.76
TOTAL	91067.84

4.1.4. IMPLICATIONS OF THE LAND USE AND RESOURCE DEPENDENCY FOR THE CONSERVATION OF THE PROTECTED AREA

The land holding of the villagers is small and the quality of the livestock they are rearing is poor. The economy of the area is very dependent on the agriculture. The agriculture is not rewarding owing to the traditional cultural practices, which is changing in some areas with people shifting to orchards, which now has become a cause of concern for the park managers as it has fueled the much-talked human – wildlife conflict. In summer, seasons there are many



locals, which are going for livestock grazing in upper Dachigam, and in spring season, many locals are involved in Guchi (mushroom) collection because of its high market price, which is the main dependency on Dachigam National Park.

4.1.5 FOREST / PROTECTED AREA MANAGEMENT PRACTICES AND THEIR IMPLICATIONS FOR LOCALS

The major implications of the management practices for the peoples of the area are listed as under:-

- 1. **Livestock Grazing:-** The villagers, who used the areas of originally notified Dachigam National Park, were prevented from cattle grazing, hunting, fishing and collection of timber, NTFPs etc. Now they have to graze their cattle elsewhere or illegally in the protected areas. The upper Dachigam area is under huge livestock grazing pressure in spite of the fact that the area falls under National Park.
- 2. Delayed and inadequate compensation for crop damage: Today Human wildlife conflict has become one of the major concerns for the department of wildlife protection. The increase in number of conflict cases in zone of influence has become a major problem for the locals as well as the wildlife managers. The livestock killing and human injuries by wild animals such as black bear and leopard, crop raiding by black bear and Himalayan Grey Langur have become common in the zone of influence. The increase in killing and damage by animals in the area leading to retaliatory killing of species such as black bear and leopard by local villagers.

The studies on black bear-human conflict by Wildlife institute of India states large number of crop damage in zone of influence. Many of the conflict-affected peoples do not report to the department for compensation / ex-gratia because of less amounts and timeconsuming process. The main problem in compensation scheme is the inadequate funds and lengthy procedures, which one have to follow in order to get compensation. The factor of suitable compensation and fast relief from damage by wild animals to crop, livestock and human is very important to the well-being of the protected area. There should be some efficient mechanism immediately worked out which includes rise in compensation amount,





faster release of funds and there is need of inclusion of some orchard crops in the compensation scheme to reduce the negative impact of such incidences on wild animals.

4.2 THE DEVELOPMENT PROGRAMMES AND CONSERVATION ISSUES

 Government agencies such as rural development, Jal Shakti, education, agriculture, animal husbandry etc. are implementing various development activities such as construction of roads and other infrastructures. These development practices are likely to influence the socio-economic condition of the locals, which are living in the zone of influence. The improvement in the socio-economic condition of the local people will definitely help in conservation of the resources of the park.

Summary of problem faced by people that affect the management of the protected area and the zone of influence:

- a) Shrinkage of area for cattle grazing.
- b) Abolition of traditional access to forest resources in the park.
- c) Poor conditions of the local villagers' resulting in considerable illegal activities such as timber felling and grazing in reserved forest areas in zone of influence.
- d) Poor education and awareness, which results in lack of sensitivity among the people towards wildlife protection as observed during forest fire time. In conflict situations, people harass the animals, which some time comes out of the forest in human habitations.
- e) Damage because of different types of conflicts by Human-animal interaction, which includes crop damage, livestock killing and sometimes human mortality, and retaliatory killing of animal.









CHAPTER FIVE PLAN OBJECTIVES AND PROBLEMS

5.1 VISION

The vision of the current management plan document is to conserve the last viable population of the Hangul besides many other RET species of the Dachigam National Park. It emphasis on the conservation of the eco – systems and landscape attributes of the Dachigam National Park that contribute to the biological diversity, aesthetic beauty, recreational opportunity, cultural and educational values and advancement of scientific knowledge and temperament.

5.2 OBJECTIVES OF MANAGEMENT

The following objectives have been formulated around the set of values recognized and prioritized:

- **5.2.1** To conserve the last viable population of the Hangul
- 5.2.2 To conserve the unique grassland and scrubland habitat which is adobe to Hangul and holds key position in Hangul conservation
- 5.2.3 To ensure the sustaining and enhancing ecosystem services of the Dachigam National Park
- 5.2.4 To manage the watershed and habitat to conserve the greater Dachigam ecosystem and for the benefit of local dependent communities
- 5.2.5 To prepare and implement the visitor management plan by assessing the carrying capacity of the eco tourism zone of the national park
- 5.2.6 To create awareness among public, visitors and stakeholders through strengthened education and interpretation programmes
- 5.2.7 To strengthen the park management people relation especially people of fringe areas, NGOs and other stakeholders in the management
- 5.2.8 To device a strong and effective fire management plan





- 5.2.9 To device effective strategies to deal with the menace of invasive alien and unpalatable species
- 5.2.10 To formulate the strategies and management practices to mitigate the Human wildlife conflict
- 5.2.11 To ensure effective immunization of livestock in fringe areas of national park in order to avoid any chance of epidemic inside the national park
- 5.2.12 To ensure capacity building of frontline staff for effective enforcement and effective implementation of strategies in the field
- 5.2.13 To facilitate and undertake long term and short term research programmes particularly significant towards managmental interventions

5.3 PROBLEMS IN ACHIEVING OBJECTIVES

5.3.1 CONSTRAINTS/ PROBLEMS IN ACHIEVING OBJECTIVE 1

1. Inadequacy of the ecological studies on the Hangul

The population dynamics, the seasonal migratory routes, mortality, natality, perfect habitat requirements and breeding biology are under studied. There is need of sound knowledge of ecological characteristics of the animal, which will be helpful in laying key strategies for the long-term conservation of the Hangul.

2. Lack of monitoring of health and diseases

There are no such monitoring protocols being implemented so as assess the health of animals and monitor the diseases. The need of hour is device such health monitoring and diseases assessment protocols so that effective measures are put in place based on scientific advices in such scenarios.

3. Movement of the Hangul to outside of Dachigam National Park

The Hangul takes several migratory routes and sometimes moves out of the boundaries of Dachigam National park. The lack of knowledge and proper understanding of these migratory corridors can be cited as one the reason of population decline. The security and proper maintenance of these migratory corridors will be of immense help in long-term conservation of the animal.





4. Grazing competition from the nomadic tribal cattle

The illegal grazing is still persistent from some areas of the upper Dachigam particularly during the summer season. The grazing competition largely deprives the Hangul from the food resources, as it has to share same niche. Besides competition in the food resources, the grazing cattle are a potent source of diseases, which are transmittable to the Hangul. Biggest challenge in stopping the seasonal grazers from moving to parts of upper Dachigam is lack of coordination between the department of wildlife protection and district administration. Unless there is strong support from various district administrations, handling of this problem will serve always a biggest bottleneck in securing summer habitat of Hangul.

5.3.2 CONSTRAINTS/ PROBLEMS IN ACHIEVING OBJECTIVE 2

1. Lacuna of knowledge regarding dynamics of ecosystem

There is insufficiency pertaining to the studies to understand exact dynamics of grassland ecosystems and lack of scientific advices thereof to manage grasslands on scientific lines and as per requirements of habitat. The habitat of grassland and scrublands are an adobe to Hangul and a key feature in the long-term strategy for the conservation of the Hangul.

2. Habitat degradation due to the unmanaged fires

There has been no fire management plan in place for the Dachigam National park nor has been there a protocol for the controlled burning regimes. There is need to develop the protocol for scientific monitoring of fire and control burning. The fire incidences need to be scientifically studied and impact carefully documented as per the protocol.

3. Grazing of cattle by tribal and nomadic people

One of the reasons of disagreement and cause of disagreement between the park managers and the stakeholders is the illegal grazing particularly during the summer season. The excessive grazing by the cattle of tribal nomads have rendered this type of habitat with less palatable and less nutritive grasses. There has been no survey or studies conducted so far for the assessment of regeneration, palatability, or important value index of the species in this habitat, which holds a key position in conserving the rich





biodiversity of Dachigam National Park in general and **Critically Endangered** Hangul in particular.

4. Weeds and unpalatable grasses

There are areas within the habitat of grassland and scrubs infested with the weeds and unpalatable grasses. More studies that are scientific are need to be conducted to evaluate extent of infestation of these weeds.

5.3.3 CONSTRAINTS/ PROBLEMS IN ACHIEVING OBJECTIVE 3

1. Lack of landscape level planning and management

With more focus on lower Dachigam in terms of managmental interventions, the upper Dachigam would always remain significantly unattended. Therefore, in general there is a lack of a holistic landscape level planning.

2. No documentation of the ecosystem services

There is no study or the survey carried out by the department or the researchers, which could point out towards the services rendered by the ecosystem services of the Dachigam National Park. There is need of scientific research to study in-depth about the ecosystem services, which will be helpful in managerial activities and plans.

3. Improvement of Interpretation, ecosystem education awareness and publicity facilities

There is a great scope in improving the interpretation facilities at Dachigam National Park for the education awareness. There is great scope making Dachigam National Park an interpretation hub in a sustainable way, which has not been taped to fullest so far.

5.3.4 CONSTRAINS/PROBLEMS IN ACHIEVING OBJECTIVE 4

1. Low priority to watershed development by the policy makers

There has not been a strong earlier precedent in recent times for watershed development in and around the park. There is much emphasis on the watershed development in the recent times, as the water resources will hold a key feature in progress and development of the society.





2. Lack of training and trained staff

The staff especially at the lower level has so far solely played the role of the protectors of forest and wildlife. The new approach towards the watershed development is a concept for which the staff may not currently have the mindset. Lack of proper training adds to more to the confusion regarding the execution of the policy at the ground level.

5.3.5 CONSTRAINS/PROBLEMS IN ACHIEVING OBJECTIVE 5

1. No carrying capacity of the visitors carried so far

At Dachigam National Park so far no study have been conducted which could be conclusive regarding the carrying capacity of the visitors who throng round the park frequently. As the perception for the nature based tourism increased tremendously during the recent past, there needs to be a proper and well-planned management for the visitations. Assessing the carrying capacity of the park will be a boon to device management strategies, as what amount of visitation the Dachigam National Park can sustain without hampering the ecological well-being and ecological health of the park.

2. Lack of information about the negative impacts of the tourism in tourism zone

Not enough studies are available that would highlight negative impacts of tourism in tourism zone. In absence of such studies, a proper plan for sustainable tourism cannot be formulated.

3. Inadequate feedback from the visitors

A study also needs to be conducted involving the tourists visiting the park. Feedback of the tourists needs to be taken using a questionnaire with questions related to the experience of tourists in Dachigam National Park in comparison to other National Parks they have visited.

5.3.6 CONSTRAINS/PROBLEMS IN ACHIEVING OBJECTIVE 6





1. Lack of interpretation and education plan

A well-organized and well-planned interpretation and education plan is lacking which could have been helpful in strengthening the relation between the park managers and the public in general.

2. Inadequate interpretation facilities

There is need to enhance and upgrade the interpretation facilities in the park.

3. Lack of research facilities and infrastructure

A well-equipped research and monitoring cell that would look exclusively in the aspect of conducting, documenting and implementing the research information is lacking. There are not much research facilities available, which can be provided to the researchers for carrying out their research in the park.

5.3.7 CONSTRAINS/PROBLEMS IN ACHIEVING OBJECTIVE 7

1. Inadequate collaboration with the panchayats and other line departments

There need to be a liaison between the panchayats of the fringe areas of the national park and wildlife department to enhance and strengthen the cooperation between the stakeholders.

2. Human – wildlife conflict

The increasing cases of the Human – wildlife conflict in the zone of influence of the national park is one of the main causes of disagreement between the people of fringe areas and park managers. The strict and effective mitigation measures of the Human – wildlife conflict will greatly help in bridging the confidence level between the managers of park and the people in the fridge areas. The Human – wildlife conflict results in crop damage, cattle injuries, human mortality on one side and apprehensions of retaliatory killing and injuries on the other side.

3. Lack of knowledge of staff regarding participatory forest management

The staff particularly the low line staff are primarily trained for forest and wildlife protection. The staff is not well acquainted with the participatory management as well as public dealing.







5.3.8 CONSTRAINS/PROBLEMS IN ACHIEVING OBJECTIVE 8

1. Laying of the fire lines and fire paths

With area of 161 Km^2 it is vital to have a fire management plan where in fire lines will be an integral part of it. However late release of funds usually becomes a constraint to develop the fire lines at the right time.

2. Fire causes

There have been an ambiguity regarding the causes of fire at Dachigam national Park. There are a number of causes of the forest fires in Dachigam as it is having a huge zone of influence.

5.3.9 CONSTRAINS/PROBLEMS IN ACHIEVING OBJECTIVE 9

1. Lack of information regarding invasive and unpalatable species

There have been a very little survey or studies conducted to assess the extent of invasive and unpalatable species in the Dachigam national park. The unpalatable species particularly in the grasslands greatly hamper and reduce the nutritive value of the grasses. The presence of unpalatable species in the prime habitat particularly of the Hangul forces to thrive in some less secure areas. The studies and the management practices to manage or eradicate such invasive and unpalatable species to maintain the health of the ecosystem.

2. The ever-increasing problem of wild boar

The wild boar is an alien invasive exotic species to the habitat of Dachigam National park in particular and Kashmir in general. There has been alarming increase in the population of wild boar in the park; however, the exact figures remains to be unknown. There is need of immediate measures and management practices to be followed to confine the exotic animal as it greatly hampers the Hangul habitat, increases competition for food resources and shelter. There is urgent need of study to investigate the effects such exotic animal is having on native species particularly the **Critically Endangered** Hangul.

5.3.10 CONSTRAINS/PROBLEMS IN ACHIEVING OBJECTIVE 10





1. Ranging pattern of wild animals outside the park boundary

Large mammals such as Asiatic black bear, Leopard often comes out of the National Park boundary and gets involved in conflicts in surrounding human habitations around Dachigam. This results in Human – Wildlife conflicts and poses a problem in driving back the animals inside the park.

2. Close habitations to Dachigam National

The close habitation encircle Dachigam National Park, so the Human – Wildlife conflict is apparent to happen.

3. Easy availability of food to Asiatic Black Bear

Fruit orchards surrounding the Dachigam National park offer easy food to Asiatic Black Bear. In addition to this unorganized trash, that again makes food easily available to Black Bear raises frequency of Human – wildlife conflict.

5.3.11 CONSTRAINS/PROBLEMS IN ACHIEVING OBJECTIVE 11

1. Budgetary constraints

In view of lack, sufficient funds livestock immunization cannot be conducted holistically. In addition, there is lack of coordination between the wildlife department with animal husbandry department.

5.3.12 CONSTRAINS/PROBLEMS IN ACHIEVING OBJECTIVE 12

1. Dearth of fresh recruitment

Most of the field staff in the department is approaching towards ending part of their career, therefore imparting new skills through trainings is not going to yield much because of their limited capacity to imbibe it. New recruitments would highly address this problem but lack of it is always going to remain a massive bottleneck.

2. Lack of periodic trainings

Since there is, no setup to impart periodic trainings to keep the field staff updated and well versed with scientific interventions so in view of this field staff is not able to keep pace with legal and scientific matters.





5.3.13 CONSTRAINS/PROBLEMS IN ACHIEVING OBJECTIVE 12

1. Lack of coordination with various research institutes

There is lack of proper coordination between the park management and various research organizations, which could have, greatly helpful in management activities of the national park.

2. Upgradation of the existing research facilities

There is great scope to upgrade the research development facilities at the national park, which will cater the needs of scientific community.

5.4. SWOT ANALYSIS OF DACHIGAM NATIONAL PARK

SWOT analysis is proposed to support the conservation objectives. The SWOT analysis provides an overview of the protected area's inherent assets and weaknesses while also identifying the opportunities and the challenges created by external factors.

The strengths, weaknesses, Opportunities and Threats to the Dachigam National Park have been worked out as follows:

STRENGTHS

- I. Being situated in the lap of the great Himalayas and owing to the rich and varied landscapes Dachigam National Park harbors a great deal of biodiversity
- II. The presence of Rare, Endangered and Threatened (RET) species such as Hangul, Asiatic Black Bear, Himalayan Grey Langur and Common Leopard
- III. Dachigam National Park renders great ecological services and truly act as "Lungs of Srinagar City"
- **IV.** Dachigam National Park forms main catchment of the world famous Dal lake
- **V.** Close proximity to the Srinagar city

WEAKNESSES

- I. Shortage of the staff, lack of trained and well skilled staff
- II. Lack of coordinated research and between various research organizations
- **III.** Lack of research that is purely driven by need to suggest conclusive managmental interventions in certain key matters like grassland management, development and regeneration of oaks and control of grazing.
- IV. Urbanization in the surroundings





OPPURTUNITIES

- I. Dachigam National Park supporting the surrounding habitats by acting as core while surrounding Conservation Reserves can also be effectively conserved through enhanced protection
- **II.** There are great provisions of the eco systems services to the surrounding urbanized areas
- **III.** Dachigam National Park can play greater role in Srinagar smart city
- **IV.** Ample scope of co ordinated research to convert weaknesses into strengths

THREATS

- **I.** Human wildlife conflict which on one hand results in crop raiding, human injuries and sometimes death and on other hand retaliatory killing and serious injuries to the wild animals
- **II.** Grazing in the alpine pastures particularly during the summer season resulting in increased competition in both food and space besides are potent threat or source of communicable diseases
- III. There are apprehensions of the poaching owing to the presence of RET species in Dachigam National Park
- **IV.** Presence of VIP guest house in the middle of Dachigam National Park







CHAPTER SIX THE STRATEGIES

6.1 BOUNDARIES

The details of the boundaries of the park have been discussed in Chapter 2. Detailed boundary descriptions of the originally notified Dachigam National Park have been provided as Annexure no. 1. In addition, boundaries as per new digitized maps are provided as annexure no. 19.

6.1.1 ECOLOGICAL BOUNDARIES

The Dachigam National Park is bounded by Sindh valley to the north east, Tarsar, Lidderwath, Kolhai of Lidder Valley and Overa-Aru Wildlife Sanctuary in the Far East. Tral Wildlife Sanctuary in the southeast and Harwan, Brain and Nishat in the west and Khrew in south and Khonmoh in southwest.

1. Boundary delineation

The position of boundary pillars should be rechecked and should be erected as per new digitally generated map and geo coordinates should be recorded a fresh. Compartment, Beat and Block boundaries should be marked through rings on trees or physical features in order to create a clear distinction between the jurisdictions so that it is easier for field staff to be aware about their jurisdictional areas.

2. Maintenance and regular monitoring

Name of block, compartment number and number of pillar should be inscribed on the pillars and record maintained in the office. Wildlife warden, Range officers should regularly check these boundaries during their routine inspection of the area.

3. Inter-departmental coordination

Coordination should be established with the Revenue authorities and forest department for proper correction of records pertaining to land and boundaries of national park. In





addition to this status of land around the national park should also be evaluated in order to monitor the activities in adjoining areas.

6.2 ZONATION AND ZONE PLANS IN DACHIGAM NATIONAL PARK

Zonation and zone plans have been recommended by previous management plan, which is retained in current management plan as such except for change in areas of core, buffer and tourism zone. The extent of buffer zone will be site specific and care of which will be taken by declaration of Eco sensitive zone. Proposal for Formulation of Eco sensitive around Dachigam National Park has already been forwarded to concerned division of MoEF & CC and in this regard, draft notification has been issued which is given as annexure 19.

Zone	Area in sq. Km
Core Zone	151 Km ²
Buffer Zone	2 km buffer surrounding Dachigam NP
Tourism Zone	10 km ²





ZONE PLANS

The National Park was divided into various zones in previous management plan to provide a geographical framework for management, indicate management priorities in different parts of the Park, and indicate the types and levels of use that are appropriate throughout the Park. This assists in minimizing the potential conflicts between uses and activities and the protection of Park values and to provide a basis for assessing the suitability of future activities and development proposals.

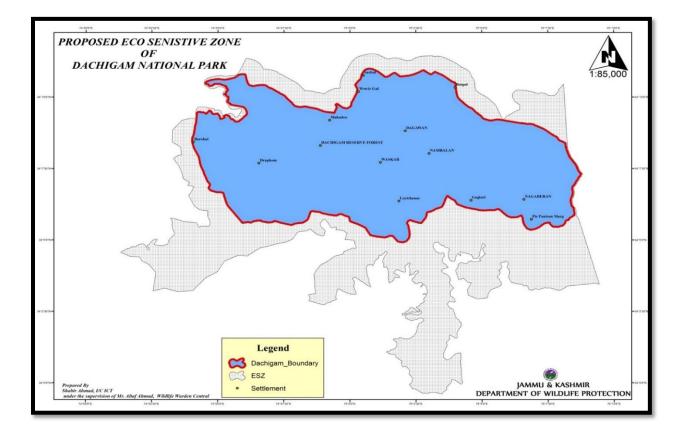


Fig.32. Map showing the proposed Eco sensitive zone of the Dachigam National Park





In order to achieve the objectives, the National Park is proposed to be managed as the following zones:

6.2.1 CORE ZONE

The core zone is an inviolate area where human interventions are strictly restricted. The total area of core zone is 151 Km². The focus of the management is the conservation of the largest and only viable population Hangul in the world along with the largest stretch of unique eco-system of grassland and scrubs for ecological and environmental benefits. In the core zone, the following activities will be allowed to be implemented during the plan period:

- Protection from illegal activities and other specific issues in the core as detailed in the Theme Plan in section 6.3.1 and section 6.3.2 and section 6.3.3.
- Fire protection activities including controlled burning and participatory fire management as given in Theme Plan for 'Fire Protection' under chapter 7, The Fire Management.
- Activities as proposed in Theme Plan for 'Watershed and habitat management under section 6.3.6
- Research, monitoring, scientific studies to facilitate improved protection and management of core zone (Chapter 10).

6.2.2 BUFFER ZONE

Buffer zone can be defined as the zone that acts as a cushion to absorb all the distresses of biotic impacts and does not let them affect the core zone. The buffer zones comprises of area outside Dachigam National Park whose range varies from place to place and has been taken care of, in the proposed eco sensitive zone. Inside the national park, the buffer zone has been proposed from the gate 1 up to Draphama VIP guesthouse but this area is highly significant as far as winter habitat of flagship species Hangul is concerned, the famous Oak patch wherein frequent sighting of Hangul is witnessed lies in this area. Therefore, instead of the fact, this area remains part of buffer zone, the activities beyond fish farm shall be highly regulated. Therefore, area from the Gate 1 up to NIC should be treated as buffer zone beyond which rest of the area





should be conserved and treated on the lines of core zone. Buffer zone is depicted on the map on lines of proposed eco sensitive zone.

There are many protected areas surrounding the Dachigam National Park such as Khimber, Sharazbal, Nishat, Brain, Chasmasahi, Khonmoh, Khrew, Hanjin, Aru, and Dara conservation reserve, which are included in buffer areas of Dachigam, and they shall serve as corridors for wild animals like Hangul, Black Bear and Leopard.

The following objectives and strategies have been framed for the buffer zone:-

- 1. To maintain and restore the fragile ecosystems within the buffer zone
- 2. To provide a safe refuge for animals who would reside in such areas due to their movement, food availability and during extreme cold conditions in upper reaches of Dachigam
- **3.** To encourage eco-tourism related activities in order to generate local employment and a sense of belongingness towards the national park
- 4. To promote awareness and information dissemination activities

Strategies

1. Boundary demarcation, maintenance and monitoring

The boundaries should be surveyed and demarcated properly. Damaged and missing pillars shall be repaired. At strategic boundary, fencing should be erected.

2. Reducing biotic pressure

There is a need to cut down all the biotic pressures inside the areas by stopping and minimizing the activities of the other government departments. Uncontrolled grazing should be properly regulated in the CRs and effective measures should be taken for allowing fodder regeneration. Immunization of livestock entering such CRs should be carried out on an annual basis.

3. Planning and execution of eco-tourism related activities

Eco-tourism activities will also be taken up in buffer zone. The details of the eco-tourism activities have been described in a separate chapter of this management plan.





6.2.3 ECO – TOURISM ZONE

This zone can be defined as that part of the national park where tourism is allowed to a certain extent without disturbing the natural integrity of the ecosystem. The tourism zone is identified in the form of a dendritic pattern of trails, road network in Dachigam National Park. Further expansion of the tourism activities may be proposed in the CR's surrounding Dachigam.

The following objectives and strategies have been framed for the tourism zone:-

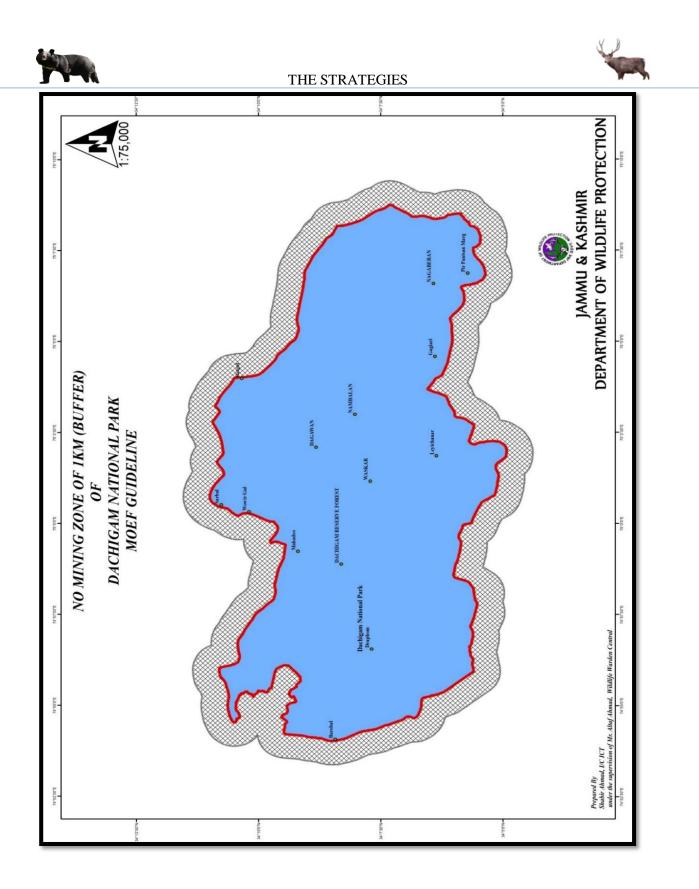
- 1. To regulate Eco tourism in such a manner that there is no adverse impact on the protected area.
- 2. To provide maximum satisfaction to the visitors besides creating nature awareness and conservation.

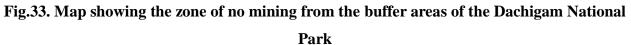
Strategies

1. Regulate and monitor the inflow of tourists

The tourist influx should be controlled especially in summer season. Strict regulation on vehicles, maximum number of tourists to be allowed at a particular point of time and time permitted should be strictly followed. All the rules pertaining to wildlife photography and use of video camera should be enforced. Details of the various strategies adopted have been dealt separately under a separate chapter on tourism.

- 2. To prohibit the vehicular movement to maximum possible extent
- **3.** To promote emission free battery cart safaris wherein possibility of public private partnership can be looked at subject to approval from competent authority.









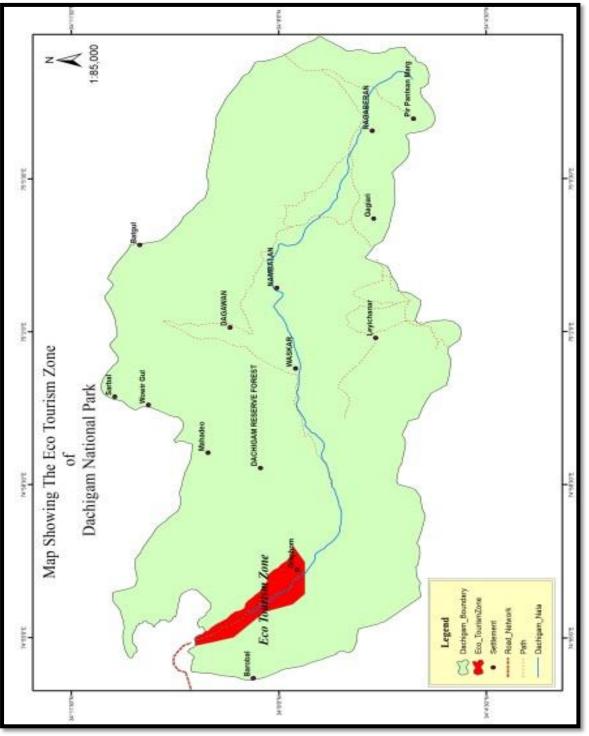


Fig.34. Map showing Eco – tourism zone of Dachigam National Park





6.3 THEME PLANS

The Management strategies for the Dachigam National Park that are applicable to the entire park irrespective of their zones are discussed in the following theme plans:-

- 1. Habitat Management
- 2. Control of poaching
- 3. Control of grazing and other biotic pressures
- 4. Animal health surveillance
- 5. Management and rehabilitation of rescued animals
- 6. Watershed development and management
- 7. Ecotourism development
- 8. Capacity and human resource development
- 9. Communication and infrastructure development
- **10. Research and monitoring**

6.3.1 THEME PLAN FOR HABITAT MANAGEMENT

As a part of the Habitat management, the following prescriptions will be followed during the plan period:-

- Artificial waterholes to be constructed in areas with little or no accessibility of animal to the natural water sources based on the studies of the animal movement or rutting or other activity in that area
- Grassland habitat enhancement techniques to be undertaken, with extreme caution so as to keep the area as pristine as possible
- The department shall ensure evaluation and monitoring the health of ecosystem through plant health evaluation and periodic plant disease assessment through regular surveying and monitoring. These surveys shall be conducted by department in collaboration with various universities, related research institutes SKUAST and Kashmir University in particular.
- Plantation of the trees particularly the fruit bearing in the areas devoid of such plantation or less regeneration rate





- The broadleaved tree will be planted in mixture with the coniferous plants
- The plantations will be scientifically managed and plantation register to be maintained
- Eradication of the weeds and unpalatable grasses such as *Solenanthus circinatus, Stipa siberica, Euphorbia spp., Isodon plectranthus* and other such species in the Hangul habitat and corridors which are unpalatable
- Control burning, maintenance of fire lines in the grasslands and other scrub areas
- Identification, protection, improvement and maintenance of important wildlife corridors
- Fencing up of boundaries wherever required to avoid apprehensions of encroachment and restrict movement of animals outside national park to avoid Human – wildlife conflict. The nature and type of fencing should be site specific
- Bio fencing with species such as *Rosa brunonii*, *Rosa webbiana* and other such species to augment the artificial fencing. Besides they provide food to animals and it will also prevent them going outside the protected area
- Suitable areas should be identified for willow plantation so that green loppings can be cut and stored as supplementary food
- Planting of indigenous nutritive grass species such as Red and white clover in place of unpalatable species in the prime grasslands of Hangul habitat
- Plantation of *Betula utilis* in the upper Dachigam to augment the summer habitat of Hangul
- Salt licks and green vegetables for ebb period
- Oak plantations shall be considered very seriously in suitable areas owing to its less regeneration rate and areas shall be identified for such planation after proper ground survey
- The oak regeneration is to be augmented through nursery raised seedlings

6.3.2 THEME PLAN FOR CONTROL OF POACHING

The Dachigam National Park holds the largest and most viable population of the Hangul in the world, so it is under constant threat round the season. Owing to the tireless efforts of the Department of Wildlife protection, regular patrolling by the frontline staff together with the proactive role of the park management, the poaching has come down to zero. However, the





threats are still persistent due to the increasing demand for Hangul antlers and meat in the underground market. Therefore, the department needs to equip itself adequately to meet the challenges.

To control the menace of poaching the following prescriptions will be followed in the plan period:-

1. Proposed Anti-poaching camps

Anti- poaching camps will be setup in all the critical locations especially in the core area of upper Dachigam for enhanced protection. The anti – poaching camps in the areas such as Pahli pora, Brain, Sangri and Dara will be prioritized.

2. Patrolling schedule

The whole area of Dachigam National Park except the tourism zone is inaccessible to the vehicles owing to the very rugged terrain of the area. The whole movement inside the Park is on foot and regular perambulation of the Park areas is the only way for protection.

- I. The Range officer will divide area into patrolling units and communicate the perambulation schedule to the field staff on monthly basis for implementation under intimation to wildlife warden office.
- II. Camping for 4-5 day duration will be regularly carried out in the core and buffer areas. At least 3 to 4 camps will be arranged in the critical areas each month to ensure proper protection.
- III. All existing patrolling paths will be cleared once a year at least to provide safe movement to the field staff for patrolling. Proper mapping of these paths will be done and if required new alignment of patrolling paths for effective patrolling will be done.
- IV. Providing all basic logistic facilities to field staff such as wireless equipment, if possible, flashlights and cells, GPS, binoculars, cameras, summer and winter gears etc.
- V. The Range officer will conduct frequent checks followed by surprise checks by wildlife warden.





VI. There is an immediate need to divide the national park into two ranges, which will be extremely helpful in executing the various managmental interventions in general and poaching in particular. The creation of two ranges will be a boon in effective management of the Dachigam National Park.

3. REGISTARION OF FIRE ARMS AROUND THE PARK

All villagers, which are living in the zone of, influence of Dachigam and having firearms, will be made to register with the concerned police stations. Effort is on enlist the names of such persons for registering such arms with the park authority as per the existing Wildlife protection rules. There is strong need to create database of all those persons who own firearms. This will serve as great check on poaching apprehensions. There is a need for strict compliance of provisions suggested in different sections of the Indian Wildlife Protection Act, 1972.

6.3.3 THEME PLAN FOR CONTROL OF GRAZING AND OTHER BIOTIC PRESSURES

The illegal grazing by the cattle of migratory tribal people is a huge challenge for the park management. During summer season, a large number of nomadic livestock and Grazers sneak in to upper Dachigam area of the park for grazing which has become a serious concern for park management. The grazing increases the food competition, and a potent source of the diseases.

The following measures are planned to be enforced during the plan period for control of grazing:-

- I. There is an immediate need to divide the park into three blocks, which will make it easier regarding the controlling of grazing and other biotic pressures. Since upper Dachigam is part of Pahli pora block having maximum strength of 2 3 officials including BO so, upper Dachigam does not get the requisite focus. Therefore, there is dire need to notify it as separate block.
- II. At most vulnerable entry points, cattle proof fencing should be raised.





- III. Mapping of the grazing routes leading to commonly occupied areas for grazing, it will immensely help in planning of setting up appropriate anti - gazing camps. However, for setting up of anti-grazing camps following locations shall be given preference:
 - Harwan
 - Dara
 - Sangri
 - Brain
 - Shalimar
- IV. As the menace of illegal grazing is more persistent during the summer season, grazing camps will be setup particularly in the upper reaches.
- V. A proper survey of livestock population in the zone of influence should be initiated to formulate a scheme for immunization of livestock.
- VI. The grazing in alpine pastures of upper Dachigam have done considerable damage to summer habitat of Hangul in park, so there is an urgent need to regulate grazing in Dachigam for boosting the population of Critically Endangered Hangul.
- VII. Providing proper incentives, medicine, flashlights and proper gears to the staff performing duties at anti grazing camps.
- VIII. Liaison between the Department of Wildlife Protection and district administration will be of immense help in eradicating this great bottleneck in the Hangul conservation.
 - IX. Concerned authorities shall be requested not to issue any MOTOs to seasonal grazers for any part of Dachigam National Park
 - X. Currently main tactic used by the department is installation of anti grazing camps particularly during the movement of seasonal grazers, but this is only a short-term strategy, which cannot offer a permanent solution. As a long term, strategy department shall make a thorough survey in order to identify feasible areas that can be developed to provide an alternative to grazing in protected areas. In these areas, rotational grazing can be allowed by dividing the identified area into grazing plots. This exercise will be very demanding but has a potential to provide a long term and a permanent solution.





6.3.4 THEME PLAN FOR ANIMAL HEALTH SURVILANCE

The theme plan animal health surveillance has been described separately in the chapter Animal health, monitoring, management and rehabilitation of rescued animals.

6.3.5 THEME PLAN FOR MANAGEMENT AND REHABILITATION OF RESCUED ANIMALS

The theme plan for the management and rehabilitation of rescued animals has been separately dealt in the chapter Animal health, monitoring, management and rehabilitation of rescued animals.

6.3.6 THEME PLAN FOR WATERSHED DEVELOPMENT AND MANAGEMENT AND SOIL EROSION MANAGEMENT

Soil erosion in Dachigam National Park is attributed to cloud bursts and heavy rainfall in upper elevations of Dachigam. Erosion is not a regular process but constant monitoring with the use of multi-date satellite data to ascertain the fluvial dynamics and trend of erosion is required.

The Dachigam National Park is having vast network of the perineal water streams, springs and other natural water resources. The watershed unit holds now key position in the development and has been described as "Unit of Development". The following procedures will be adopted in plan period for the watershed management and development:-

- I. Construction of check dams the check dams will be constructed using the locally available materials in the high priority areas.
- II. Close liasioning should be developed with LAWDA with regard to watershed management of Dachigam National Park as this forms the main catchment of the Dal lake
- III. DRSM works should be used to create bunds in order to prevent the divergence of water into high vegetation zones of Dachigam
- IV. To conduct a detailed survey / study on the soil structure, composition and pH to evaluate the response of the biological communities to the long-term treatments and associated changes in soil pH. Since this is very technical study, therefore involvement of relevant research wings and the relevant line departments shall be ensured. Budgetary provision with regard to such studies has been kept under the head research and survey.





V. To evaluate the soil microbial community structure

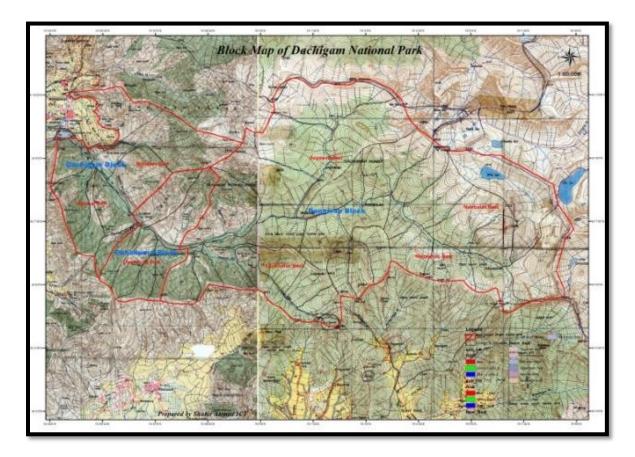


Fig. 35. Block map of Dachigam National Park

6.3.7 THEME PLAN FOR ECOTOURISM DEVELOPMENT

The theme plan for ecotourism has been discussed under a separate chapter Ecotourism Development.

6.3.8 CAPACITY BUILDING AND HUMAN RESOURCE DEVELOPMENT

The following activities regarding the capacity building and human resource development activities are planned in the current plan period:-





- Training shall be given to patrolling staff in unarmed combat, survival skills, usage of tranqllizing guns, first aid, swimming, driving etc. These trainings can be imparted in collaboration with many departments including police
- Training shall be given in the preparation of offence reports. Selected staff will be trained as 'handlers' as part of intelligence gathering.
- Police should be approached for giving short-term trainings on intelligence gathering at regular intervals
- Exposure training to staff in identification of plants and animals will be periodically provided to staff working in the national park as part of building their capacity
- Local persons from the communities from the fringe areas with aptitude will be identified and trained in basics of wildlife crime detection.
- It is proposed to procure field equipment such as Tents, Compass, GPS, Binoculars, Range finder, Digital camera, Rain Gauge, Thermometer, Hygrometer, Camera trap, field kits, etc. for all camping stations manned. In addition, the staff will be provided with field uniform once a year during the plan period.

6.3.9 COMMUNICATION AND INFRASTRUCTRE DEVELOPMENT

To provide adequate protection to the wildlife and manage the park, extensive infrastructure and communication network are to be maintained in a best possible way. There shall be two ranges in Dachigam. Two wildlife wardens manage Dachigam: Wildlife warden Central and wildlife warden South.

Major departmental infrastructure inside the Dachigam National Park include Range office, residential quarter for BOs and guard quarters and guest house. However, residential quarter for Beat office near gate number 1 needs lot of renovation and upgradation.

Abstract of present number of Buildings:

- 1. Offices:
- a) Wildlife Warden/ DFO = 1
- b) Range officer = 1
- c) Beat/ Sub Beats =







2.	Rest house	= 1
3.	Staff Quarters:	
a)	Range officers	=
b)	Beat / sub beat quarters	= 10
c)	Quarters for other staff including Ba	rracks $= 5$ (Now occupied by CRPF)
4.	Anti-poaching camps:	
a)	Permanent:	=
b)	Temporary:	= N/A
5.	Anti-Grazing Posts/ naka	
a)	Permanent	
b)	Temporary	=
Nat	ure interpretation Centre	= 1

Details of the existing infrastructure are depicted in Fig. 24.

Most of the Beat / Sub beat offices mentioned are non-functional and inhabitable due to lack of maintenance over period.

Prescriptions

- I. All the office buildings will be repaired periodically and as per requirement.
- II. Almost all the staff quarters are in bad shape and are in need of major repairing and some need minor repairing, few are non-functional and need serious repairment.
- III. Most of the existing buildings are in bad shape and will be renovated and reconstructed in the plan period. Besides few new more buildings as mentioned below are suggested for this plan period.
- IV. Residential quarters for Wildlife Warden = 1 Nos.
- V. Quarters for range officers = 1 Nos.
- VI. Quarters for field staff = 4 Nos.
- VII. BO quarters = 02
- VIII. Requirement of anti-grazing camps and watchtowers has been discussed in the theme plan for grazing control.





ROADS/ BRIDGES/ CULVERTS

Access is key for the conservation, improved access will ensure strict and enhanced patrolling of the staff in the national park. Dachigam National Park has a small network of roads inside the park, which require renovation, and there is a need to construct some new roads during the plan period. These roads are to be repaired annually after the winter season to make them

motor able for emergency services. Besides there are several wooden, iron bridges and culverts on these roads. These are also to be periodically repaired and some of these are to be reconstructed.

COMMUNICATION

Vehicles

The list of vehicles under Dachigam National Park is given in Annexure no. 12. Vehicles of Dachigam are to be repaired constantly in order to make them fit for engaging in various works such as anti-poaching duty, supervision, Human-wildlife conflict, and anti-grazing duty. Beside the existing vehicles, at least one 4-wheel jeep shall be procured for the conflict monitoring team. A time limit for using the vehicle in the park i.e. service period is to be fixed.

Wireless

There is no wireless network system at present used in Dachigam National Park for communication and staff largely dependent on mobile networks, which sometime do not have coverage in all areas of the park. There is an immediate need of wireless network in Dachigam for better communication.

Though the prescriptions for development of infrastructure and communication are given above, a detailed plan involving proper survey and alignment of roads, present status of buildings, new requirement and their locations, estimates etc. will be prepared during the first year of the plan.





CHAPTER SEVEN THE FIRE MANGEMENT PLAN

The Dachigam National Park harbors the unique flora and fauna in its pristine ecosystem. The Forest fire is major destructive factor that challenges the protection of the ecosystem of the Dachigam National Park. Therefore, fire management has to be given central focus in order to manage and mitigate its effects.

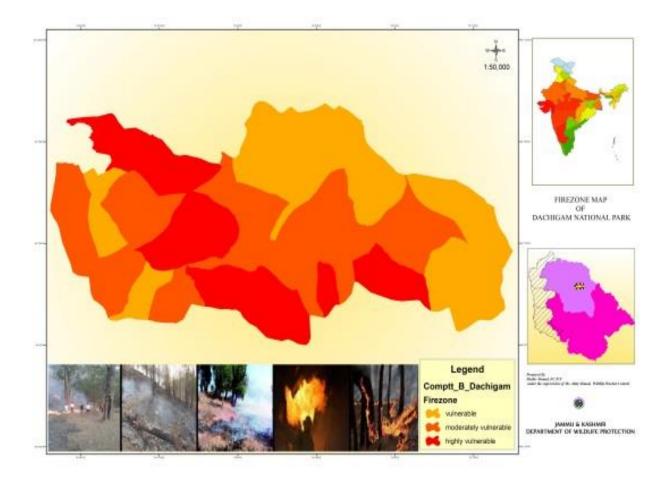


Fig.36. Map showing the fire zones of Dachigam National Park





7.1 FIRE MANAGEMENT PLAN

The Forest fires come across as a dynamic problem in context that place of incidence, cause, impact and mitigation measures may vary therefore in case of fire management a supplementary fire management plan can be formulated from time to time completely depending up on the need. The Guiding principles for formulation of a supplementary fire management plan shall be following:

7.1.1 General guidelines for preparation and Implementation of Fire Management Plan

- I. Identify the cause and consequences of fire at ecosystem level
- II. Prioritize and map fire prone areas based on field knowledge
- III. Prepare plans on basis of need
- IV. Provide adequate training to fire-fighting squad in fighting fires and self defence
- V. Develop infrastructure by procuring necessary equipments and materials required for fire protection based on annual assessment
- VI. Develop proper monitoring protocols
- VII. Ensure timely implementation of interventions
- VIII. Maintain fire records at Range and Division level
- IX. Report incidences of fire to Wildlife Warden and Regional wildlife warden for evaluation and further action
- X. Document the results of fire protection measures taken annually

7.2 Fire Management Strategies

The following are general Strategies for implementation of fire protection measures in Dachigam National Park:

7.2.1 FIRE LINES

The following fire lines will be maintained in the fire prone areas





Sl. No.	Name of the Fire line	Length (Km)	
1	Sharazbal	4	
2	Shalkan (Mahadev)	5	
3	Harikeen – Padshadub	5	
4	Reshwudur – Astanmadij	3 (2 No.)	
5	Drog – Munew	5 (2 No.)	
6	Munew – Brennar 5 (2 No.		
7	Yachiguj	3	
8	Kawnar 3		
9	Zahel	3	
10	Razinar	3	
11	Baden	1	
12	Hydernal	3 (2 No.)	

Table 6. List of proposed fire lines in the Dachigam National Park

In addition to above proposed fire lines new fire lines can be created depending up on field requirements.

The following strategies shall be followed in creating the fire lines in the Park:

- No scrapping should be done in the grasslands and core areas of the park for preparation of fire lines
- The fire line around the grassland should be taken giving reasonable space of 10 meters
- Clearing and maintenance of fire lines should be carried out as per the existing rules prescribed in the section 7.1.1.
- Scraping of grasses in the grasslands and around scrub patches, as fire protection measures should be avoided. The grass shall be cut and burnt without scraping
- Preparation and implementation of fire management in association with the EDC to the extent possible





• Controlled / cool burning is an important tool in habitat and fire management and shall be implemented as per the field requirements

7.2.2 Camps for fire-fighting squads

- The fire protection camps will be used for the camping of firefighting squad and fire protection committee members (in case it exists) during the fire season. In addition, temporary structures will be set up in all fire vulnerable areas to detect and prevent the spread of fire from the human habitation around the National Park
- A team shall be put at constant patrolling in tourism zone in order to prevent fire incidents in this highly sensitive area, which is frequented by vehicles and tourists
- The Wildlife Warden shall consider engagement of the people from fringe areas in firefighting squads wherever fire sensitivity is high

7.2.3 Fire watchtowers

The fire watchtowers shall setup in all the fire prone areas and will be maintained periodically.

7.2.4 Controlled pre-burning

Controlled burning can be one of the most important tools in connection with fire management. Controlled burning of grassland shall be carried out to facilitate growth of fresh grass to make available nutritious food for the young Hangul calves and other herbivores during dry season and to help in fire protection. The aim shall be to create a mosaic of burnt and unburnt patches. This helps to prevent the animals from venturing outside the Park in search of fresh grass. This will also help in avoiding severe and irreversible damage due to late fires. Late fires accompanied by strong winds can cause irreversible damage to the grasslands.

Controlled burning needs expertise, extra care and attention. While doing it the following parameters and strategies are recommended:

- Pre flushing of birds and small animals must be done prior to controlled burning
- Burning has to be carried out in areas utilized by herbivores, and the grassy stretches on the Park boundary
- Fire will be set only after taking fire lines around the prescribed burning regime set





- Burning must be carried out only early in the morning
- Night burning will cause damage to insects and birds that would otherwise move away
- Simultaneous setting of fires on all sides of the block should be avoided
- Fire should be set opposite to the wind direction to control speed/velocity and intensity
- On hill slopes, fire is to be set from top down direction for better control
- Controlled burning should be carried out only in the presence of staff not less than ten in number
- Range officer shall be allowed to heir the labourers to supplement the staff in process of controlled burning, whose number shall depend up on area to be treated. The recommended number for hiring of labourer shall be one labour per hectare.
- Necessary fire-fighting equipments should be procured in advance. Staff and labourers involved for burning should be trained in using firefighting instruments
- The area burnt shall be marked on a large-scale map, GPS documented and kept as permanent record. The area has to be monitored regularly, right from the date of burning
- A separate register shall be maintained by forester / Block officer in case of controlled burning regimes and same shall duly attested and authenticated by range officer concerned

7.2.5 Deployment of firefighting squads

Firefighting squads will be engaged throughout the season for efficient fire protection activities. In addition to the existing daily waged laborers and EDC members if any, a minimum of 10 members preferably from local dependents will be engaged during the fire season every year. The number of persons engaged for this purpose will be decided based on the intensity of fire.







Plate 57. Fire Fighting squad of Dachigam National Park

7.3 Participatory Fire Management

The members of the participatory fire management will be from the fringe areas and will be involved in participatory fire management. A supplementary Participatory Fire Management Plan if required shall include the causes/sources of fire, preventive measures and conditions specified in line. People along the boundary can also be engaged as firefighting squads in vulnerable areas.

7.4 Awareness and Training

Awareness campaigns are essential for preventing fire. Wildlife Warden will arrange awareness and training programmes for the staff, local dependents before the fire season every year. Awareness campaigns may be arranged for fringe area people, school, colleges, and people's representatives on the impact of fires on forests and wildlife. This may be done by mass involvement of people in procession, talks, information display boards hoardings, banners, street play etc. The awareness campaigns highlighting fire preventive and containment measures





among children and youth in the localities shall be held during the fire season. Creative programmes in this regard shall also be developed.



Plate 58. Awareness programs in Dachigam National Park

7.5 Training programmes

Training programmes for staff, and other members of the community involved in fire protection shall be organized and liasioning in this regard shall developed with Department of fire and Emergency.





7.6 Fire watchtowers and communication network

Owing to the non-use of the wireless communication and least mobile network availability, setting up the fire watchtowers in critical locations is crucial for mitigating the ill effects of forest fires.

7.7 Firefighting equipments

The equipments like gumboots; fire resistant suit etc. may be procured and made available to the fire management groups.

The Wildlife Warden may review the fire plan every year after the fire season. The gap in fire protection may be identified and suitable proposals may be made in the ensuing year to make Park very free from fire.

7.8 Impact Monitoring

Incidents of fire shall be documented and shall be reported promptly to Regional wildlife warden and Chief Wildlife Warden. Controlled pre-burning areas will be mapped and GPS documented to assess their impact and to streamline future activities.





CHAPTER EIGHT THE HUMAN – WILDLIFE CONFLICT

GENERAL

Human – wildlife conflict refers to interaction between wild animals and people and resultant negative impact on people or their resources, or wild animals or their habitat. Human-Wildlife Conflict (HWC) occurs when wildlife requirements overlap with those of human populations, creating costs to both residents and wild animals (IUCN World Parks Congress). Human – wildlife conflict particularly the Human – carnivore conflict has increased particularly in the recent past in all over the places. With increasing human population and pressure on forest areas, human-wildlife interaction and resultant conflict is also increasing. Direct contact with the wildlife occurs both in rural and urban areas but it is more common and prevalent in and around the protected areas. Movement and ranging patterns of large mammals are controlled essentially by availability of food, water, escape cover and mates. In case of unavailability of any of these components in natural habitats, wild animals are forced to move out causing several forms of conflict. Human-wildlife conflict in Kashmir region of UT Jammu & Kashmir is a conservation concern that increasingly threatens the continued existence of some species like leopard and Black bear. The increasing population with subsequent encroachment on wild land has resulted in close proximity between humans and wild animals, which most often results in a negative outcome for humans, wildlife or both. The need to handle conflict has become a challenging job for the department.

The Dachigam National Park is having a huge zone of influence. With area of 161 Km² and harbouring one of the finest populations of Himalayan Black Bear with density of more than one per Km². In the zone of influence of Dachigam National Park Himalayan Black Bear is mainly involved in the conflict as depicted in the table 7. The more involvement of the Black Bear in conflicts attribute to the easy availability of the luxurious food in the vicinity areas of the park, which attracts the Black Bear substantially. The increased trash in the vicinity of the Dachigam National park also attracts black bears. The increased population of the cattle in the fringe areas is also one of the factors of the livestock depredation around the park.





Table 7. Human – wildlife conflict and the animal involved in the zone of influenceof Dachigam National park

Year	Animal involved	No. of injuries	Death
2015 - 16	Black Bear	2	
2016 - 17	Black Bear	4	
2017 - 18	Black Bear	2	
2018 - 19	Black Bear	3	
2019 - 20	Black Bear	3	1
	Total	14	1

The above table does not depict the actual nature of conflict in the sense that it does not include appearance of wild animals in human habitations where injuries and death do not take place. The complete data of Man – animal conflict in and around Dachigam national Park in annexure 21.



Plate 59. Human – wildlife conflict around Dachigam National Park





In the recent five years, highest reports of the conflict were reported during the 2016 - 17 after which certain mitigation measures were enforced to mitigate the Human – wildlife conflict.

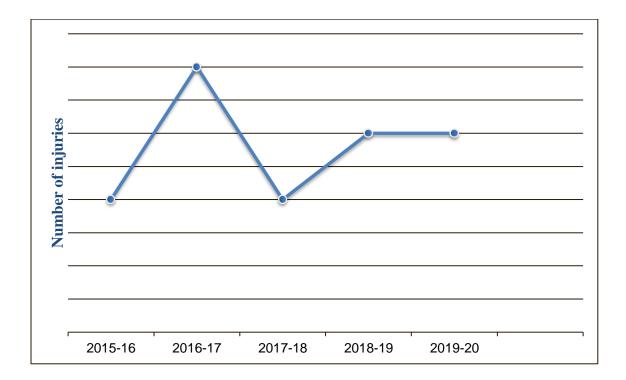


Fig.37. Human Wildlife conflict around the Dachigam National Park

8.1 OBJECTIVES

- I. Formation of Rapid Response teams equipped with all latest tools
- II. Education and mass awareness among the people particularly in the fringe areas
- III. Fencing of areas near close habitations
- IV. To consider compensation in the cases of the crop loss due to crop raiding without much delay
- V. To grant exgratia in case of mortality or injuries without much hiccups
- VI. Encourage people of fringe for crop insurance





8.2 Constraints in achieving the objectives

1. Crop raiding

Incidences of the crop damage is the most prevalent form of Human – wildlife conflict around the world. In the recent times, around the Dachigam National Park the agriculture and horticulture activities have increased many folds. The change in land use pattern to orchard farming have increased the crop raiding particularly involving the black bear and Himalayan Grey Langur. The delicious and luxuriant food items particularly fruits such as apple, pear and cherry attract the attention of wild animals thus increases the chances of crop raiding.

2. Livestock depredation

With enormous increase in the population of domestic cattle in zone of influence, there are increased chances of livestock depredation in zone of influence of the Dachigam National Park.

3. Human deaths and injuries

Human deaths and injuries are the most severe manifestations of the HWC and are universally regarded as intolerant. This type conflicts in the zone of influence of the Dachigam National Park occur mainly when people are protecting their crops against the raiding animals particularly the Himalayan Black Bear in the fruiting season. Most of such incidences are accidental as wild animals have tendency to avoid the human interaction. In the zone of influence, such incidences occur when people accidentally come in close contact with the Asiatic Black Bear or the Common Leopard especially protecting their crops, near forest areas or while collecting the firewood in the forest area.

8.3 STRATEGIES

- Rapid response teams shall be formulated to deal with Human wildlife conflict in such a way that response time should appreciably decrease. This can be achieved by increasing number of such teams and stationing them at multiple locations.
- 2. Each rapid response team must be equipped with a well maintained vehicle/ truck which can carry small and large animal trap cages





- Currently one Human wildlife conflict control room stationed near gate 1 of Dachigam National Park but one more such unit at a different location is to be set up to deal with raising cases of conflict.
- 4. Each of such units shall be equipped with high end tranquillizing guns, first aid boxes, sanitizers, disinfectants, PPE kits special attires, folding staircases, nets, night vision binoculars and other such equipments necessary for effective combat of such conflicts.
- 5. Because of the dearth of permanent staff causal labourers shall be used to supplement them
- 6. Such control rooms shall be provided with basic night staying facilities at respective control rooms along with heating and cooking arrangements.
- Fencing of various types depending up on requirement shall be installed near close habitation areas. The type of fencing may be chain-link, electric fencing, solar fencing or continuous RCC blocks to plug the bridges at ground level.
- 8. Injury and death compensation cases shall be disposed off on top priority in a hustle free manner.
- 9. Formulation of policy for compensation in case of crop damage
- Awareness among people of fringe areas regarding crop insurance through Pradhan Mantri Fasal Bima Yojana (PMFBY)
- 11. The use of micro biochips in case of rescued animals should be a regular feature of veterinary interventions. This may help in checking frequency of involvement of a specific animal in conflicts and accordingly mitigate measures can be put in place
- 12. After rescuing of wild animal from conflict situation its release in an alien habitat shall completely be discouraged unless there is an unavoidable compulsion
- 13. Sufficient budgetary allocations shall be provided for
 - A) Maintenance of old trap cages and procurement of new
 - B) For maintenance of vehicles and their POL
 - C) For other conflict handling expenditures
 - D) For procurement of tranquilizing guns, drugs and other accessories
 - E) For essential medical kits and gears for dealing staff





14. In Human – wildlife conflict sometimes rescued animals need to be rehabilitated in view of same a rescue centre has been developed to cater the needs of animal rehabilitation.it is suggested that said rescue centre shall immediately be got register in line with regulations laid by CZA . Further, any construction / upgradation during the plan period in the rescue centre during plan period shall be strictly done as per CZA norms.





THE NEW CHALLENGE (WILD BOAR)

The wild boar (Sus scrofa) is an alien invasive exotic animal species to the habitat of Kashmir in general and Dachigam National Park in particular (Valley of Kashmir pp.17). The then ruler of Kashmir Maharaja Gulab Singh (1846 – 1857) introduced the wild boar into the ecosystem of the Dachigam National Park for the game purposes. The last population of Wild Boar was thought to have been wiped out from Dachigam during the 1980s, and according to the Wildlife Department, it has never been reported from Dachigam National Park or its adjoining forests since 1984. However, in the last few years there has been a phenomenal increase in the population of the Wild boar in the Dachigam National Park at an alarming rate. The certain increased population of the wild boar in Dachigam is an alien phenomena to both the native fauna particularly Hangul as well the park management. Like any other invasive exotic species the reappearance of the wild boar that too at an alarming rate will have long-term ecological consequences on the endemic faunal species particularly on the Critically Endangered Hangul, whose last viable population Dachigam National Park harbors. The wild boar is becoming a cause of concern and headache for the department as it is increasingly involved in the conflict cases. The wild boar often comes out of the park in to the fringe areas, digging tunnels in field and damaging the crops. The wild boar is also becoming an obstruct in the Hangul habitat as it is reported by field staff that Hangul avoids the habitat occupied by the wild boar. Besides, it increases competition for the food and habitat, thus becoming a huge obstruct in the Hangul conservation.

The following measures are to be taken on war footing to tackle the "Ever-increasing problem" of wild boar:

- Immediate need to declare the wild boar as "Vermin" in the Dachigam Ecosystem
- There is immediate need of detailed survey of Wild boar population in the Dachigam National Park
- Detailed study of the effects of wild boar on the native endemic faunal species particularly Hangul
- To device strategies to tackle this menace in the management of this national Park







Plate 60. A group of wild boars foraging inside Dachigam National Park

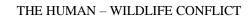






Plate 61. Camera trap image of Wild boar inside the prime habitat of Hangul



Plate 62. Camera trap image of the piglets inside the prime habitat of Hangul





CHAPTER NINE

ANIMAL HEALTH MOINTORING, MANAGEMENT AND REHABILITATION OF RESUED ANIMALS

The Wild Animal Health Care Centre (WAHCC) is presently functioning from a make shift building located within the premises of Rescue Centre Dachigam National Park. Veterinary Officer who is working under the Administrative control of Regional Wildlife Warden, Kashmir, heads the center.

The following are important activities carried out by the wild animal Health care center:

9.1 Wild Animal Health Management

The center caters to the needs of health care of wild animals in free range and captivity. As per the nature of the case, timely medical/surgical intervention is undertaken to treat sick/injured animals. Intensive observation on every individual animal for his or her general health and other associated veterinary care is ensured.

Prevention and control of diseases is given much emphasis in addition to the treatment of the sick wild animals. Periodical supplementation of vitamins, mineral nutrients and essential amino acids is followed routinely to promote the good health.



Plate 63. Castration in Common Leopard





9.2 Disease investigation

The wild animals suffer from variety of infectious, parasitic and non-infectious diseases. Diagnosis of disease is the most crucial aspect of disease investigation in wild animals and accurate diagnosis is vital to decide specific therapeutic and appropriate control measures. The samples such as blood, serum, urine, droppings and other required specimens collected from the inmate animals and dead carcasses are investigated for general status of health, cause of disease/death etc. Post-mortem of dead animals /birds is carried out routinely to ascertain the cause of death. Further samples collected during post mortem are analyzed in collaboration with FVSc & AH, Shuhama, for confirmatory diagnosis of disease conditions. In addition to the investigations the specimens (Visceral organs, parasites etc.) obtained during postmortem are collected, processed and stored in laboratory to serve as specimens for future reference and anatomical museum.



Plate 64. Laboratory investigation of fecal samples





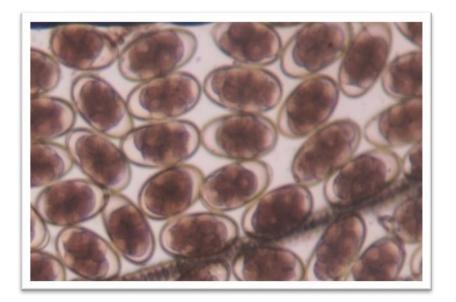


Plate 65. Nematode eggs in fecal dropping of Barn owl x40

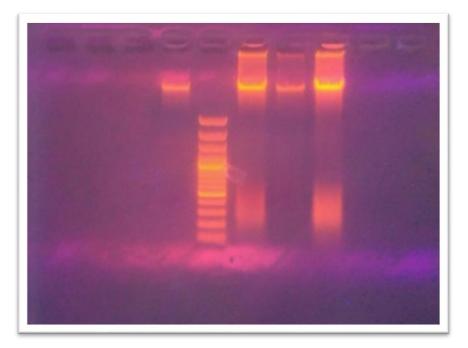


Plate 66. DNA extracted from the Kidney and Heart of Common Leopard (lane 3, 4, 5)





9.3 Rescue and Rehabilitation

- I. All rescued animals, irrespective of the method used are chemically restrained for evaluation of its health condition and its suitability for release into the wild.
- II. Healthy animals are released at or near the site of capture at the earliest. The animals with minor bruises or lacerations are also released immediately with a first aid treatment, within its home range and are not transferred to rescue centre, as transportation would mean further stress to the animal. Long acting antibiotics are given to all rescued animals for sustained therapeutic effects even after release.
- III. If the animal has severe injuries, the animal is kept at the rescue centre with minimum exposure to humans for few days until its complete recovery and is then released back in the wild.
- IV. If the animal is to be placed in captivity for lifetime then the animal is housed as per standard protocol prescribed by the Central Zoo Authority of India.

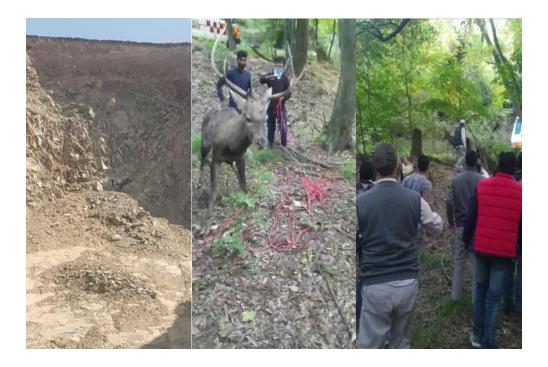


Plate 67. Successful Rescue and Release of Adult Male Hangul





9.4 Feeding management of Rescued Animals

Improper feeding can cause severe health problems and adversely affect animal welfare. Improved nutrition is positively linked with immunity, disease prevention, growth, reproduction and longevity. In view of this, all the rescued animals are being fed as per the guidelines of Central Zoo Authority of India enshrined in "Standardization of Animal diets in Indian Zoos". During the lean periods of the year supplementary feeding in the form of willow twigs and apples are provided to free ranging hangul and black bears respectively within the National park.



Plate 68. Feeding of various rescued animals

9.5 Practical trainings/workshops

This Centre routinely organizes training programmes/workshops for capacity building of frontline staff of the department and Veterinary/Forestry students of SKUAST K regarding restraint, nutrition, management and health care of wild animals.







Plate 69. Training workshop at Dachigam National Park

9.6 Transportation/translocation of Animals

Crating, shifting and transportation of rescued animals is done only under the supervision of Veterinary Officer.



Plate 70. Transportation of Rescued animals





9.7 Disinfection of Animal enclosures

Despite proper cleaning and washing of floor/animal sheds, there are chances for the accumulation of animal excreta, which often is mixed with urine, and they are embedded in the crevices of floor or wall. Hence, there may be a possibility of a heavy "build-up-of-Potentially Pathogenic microorganisms". Under suitable environmental conditions, there is increase in the

spread and survival of these microorganisms especially, when cleaning works are not done in a proper manner. As such, it is ensured that animal enclosures are cleaned on routine basis with disinfectants having wide safety margin.



Plate 71. Disinfection of Animal Enclosures at Rescue Centre Dachigam

9. 8 Disease control in Livestock

This Centre routinely organizes awareness cum treatment camps for livestock owners inhabiting the fringes of the protected areas to prevent the spread of various infectious and parasitic diseases into the wild animal population.







Plate 72. Door to door FMD Awareness cum Survey in Mulnar, Fakir Gujri

9.9 Mobile Ambulatory Dispensary

The Centre is equipped with 24x7 ambulatory vehicle to address health issues of rescued wild animals on spot during man animal conflict.



Plate 73. 24x7 Ambulatory service





9.10 Other activities

The Veterinarian and his supporting staff are integral part of key conservation projects like satellite collaring of Hangul, hangul census / population estimation etc.



Plate 74. Tranquilization and Satellite collaring of Hangul

Present Staff Strength

S. No.	Name of post	Existing Staff	
1.	Veterinary Officer	01	
2.	Laboratory Assistant	01	
3.	Laboratory Attendant	Nil	
4.	Wildlife Guard	01	
5.	Helper	01	





9.11 STRATEGIES

The Union Territory of Jammu and Kashmir is endowed with a rich biodiversity and varied ecosystems. Dachigam harbors Hangul – the pride of our state. A study states that

Dachigam holds one of the largest populations of Asiatic black bear in Asia. However, with rapid urbanization, industrialization and other developmental activities, we are losing our precious wild animal species with every passing day and as such; every possible effort must be made to conserve our wild animal species. Wild animal health care plays a pivotal role in the conservation of our wild animal species. Tremendous progress has been made in the field of veterinary medicine but wild animal health care are still in infancy in the Union Territory of Jammu and Kashmir.

The building of Wild Animal Health Care Centre is under construction. During last financial year, some of the equipments have been purchased and have been kept in makeshift Centre. The Centre would require state of art equipments and infrastructure for effective and proper monitoring of wild animal health on scientific lines.

The following strategies are proposed for the animal health monitoring, management, and rehabilitation of the rescued animals during the current plan period:

- **1.** To have a well-equipped and furnished operation theatre to address any medical/surgical condition of wild animals.
- **2.** To have an imaging unit consisting of portable colour Doppler ultrasound and digital portable X-ray machine.
- **3.** To have a portable ECG unit/pulse oximeter for monitoring of animals during anaesthetic state and to take care of critically ill animals.
- **4.** To have a digital endoscope unit for examination of gastro intestinal and upper respiratory tract.
- **5.** To have a postmortem unit/incinerator for conducting postmortem of dead animals and scientific disposal of carcasses of wild animals.
- 6. To have exclusive setup of indoor wards for housing the sick and injured animals.



- **7.** To have herbivore quarantine enclosure at Rescue Centre, Dachigam for treatment and stabilization of rescued herbivores.
- **8.** To have a robust laboratory infrastructure development for disease diagnosis among wild animals and comprehensive surveillance of diseases among the livestock inhabiting the fringes of Protected Areas.
- **9.** To have a repository of genetic material in the form of DNA bank of different wild animal species found in the region.
- **10.** Ambulance is the bedrock of ambulatory service carried out by this centre. Hence, a separate provision of funds should be kept for maintenance and up gradation of ambulance.
- **11.** To organize awareness campaigns in fringe villages regarding prevention of various infectious and parasitic diseases among local livestock and their potential transfer into the wild animal population.
- 12. To have a liaison with the Animal Husbandry Department with respect to vaccination of livestock against various infectious diseases in the buffer regions of protected areas and occurrence of disease outbreaks among livestock.
- 13. In addition to these, it is proposed that the feeding regiment of the rescued bears maintained at Rescue Centre Dachigam by Wildlife SoS should be first approved and Veterinary Officer and Wildlife Warden should provide the consent on the guidelines as recommended by Central Zoo Authority of India.





ANIMAL HEALTH MOINITORING, MANAGEMENT AND REHABILITATION OF THE RESUEDANIMALS



Plate 75. Brown Bear enclosure at Dachigam National Park



Plate 76. Common Leopard enclosure







Plate 77. Black Bear enclosure in Dachigam National Park





CHAPTER 10 RESEARCH, MONITORING AND TRAINING

10.1 RESEARCH AND MONITORING

Research and monitoring is backbone of Wildlife management and conservation. The protected areas are natural genome bank and their preservation requires a well-established and scientific management. Since, wildlife management is a multifaceted science and is species specific and area specific, so every species and protected area deserves to be understood thoroughly. The park management has to be equipped with all scientific data on exact status on park resources, ongoing ecological process, nature of threats and opportunities, etc. which will help in proper decision making and adopting effective strategies to deal with various management challenges. It is desirable to have a well-organized research base, which would help the Protected Area Management in the following areas:-

- Scientific based management strategies
- Improvement and update of bench mark knowledge
- Landscape level and species level planning
- Understanding ecosystem values for better management
- Evaluation and assessment of threats
- Public awareness and community participation in conservation

10.2 TRAINING

Trained work force is the primary requirement for any management strategy to be successful. Capacity building of field staff at park level has to ensure so as to upgrade their knowledge and delivering capabilities at ground.





Wildlife management has emerged as a science and this science is making progress. The different cadres of wildlife staff are to be imparted with certain level of basic training and education on wildlife management and other related disciplines to entrust them different tasks for effective management on the park. Staffs are also to be made physically fit through regular training and include handling modern arms, combat, etc. to deal effectively against the adversity in the managerial processes.

It is realized that there is inadequacy of training at all levels. Basic skill development will be targeted for the field staff. The front line staff will be exposed to other wildlife areas outside the state on regular basis for development of the skills and to bring competitive attitude among them. It is proposed to carry out regular training programs on matters of wildlife protection, conservation and relevant subjects of wildlife management in the field as well as reputed specialized institutes of the country.

10.3 RESEARCH AND MONITORING ACTIVITES

Dachigam National Park has been a source of attraction for various research organizations, freelance researchers and environmentalists for carrying out research primarily due to biodiversity values and close proximity to Srinagar city. However, a few long-term research studies have been carried out but owing to rich biodiversity values, there is still a great scope to understand the biodiversity values and ecological aspects for devising management strategies. Inadequate scientific data on various management aspects is becoming problem in decision-making. The research works carried out in the past has limited to ecological aspects of Hangul, Asiatic black bear, Common leopard, Kashmir Musk deer and Himalayan grey langur. Some studies related to bird community structure, floristic composition and invasive species have also been carried out.

10.4 Monitoring

Estimating abundance and monitoring populations are important aspects of species conservation and management and a common goal in ecology. The spatial and temporal patterns of abundance depict the spatio-temporal patterns of abundance and thus windows into





community, ecosystem, and evolutionary processes. The information on abundance/presence and change in abundance is important for the effective management of endangered species. A need of reliable Population estimates and trends governed by effective methods to make these estimates is required for the decisions in conservation practices. This fact has been emphasized by an accelerated loss of biodiversity in recent decades, which has reinforced the urgent need for monitoring programs, and the necessity of studies relating habitat and species occurrence and abundance worldwide. Regular monitoring of wildlife populations is a way to assess the success/failure/intervention of wildlife management in an area. Hangul being a flagship and important species has been monitored regularly. However, this regular monitoring of Hangul if done as per scientific methodology can help in monitoring of various other species. If no precise population, estimates are expected by this kind of monitoring but it may give occupancy (presence/absence) data. However, in addition to this data, regular population monitoring of indicator species is much needed.

The general response of various species in the park to the present management practices, which is primarily protection oriented is very encouraging. However, the inter-specific relationship, their impact on habitat, ecological problems, and status of habitat also need to be ascertained.

10.5 Infrastructure

A present basic facilities such as accommodation, field equipment, laboratory, museum, vehicle, library and computer facility etc. for conducting research are virtually nonexistent. There is need for providing some facilities for augmenting research works in Dachigam National Park such as dormitory and laboratory.

10.6 Prescription and the way forward

Research, monitoring and capacity building should be given a due priority. The main thrust will be collection of routine data, compilation, population dynamics and census, vegetation sampling, threats to wildlife and identifying research areas, which needs immediate, and future attention and a well-designed study. The research wing should be strengthened and entrusted



with proper documentation of scientific data. There should be an active participation and coordination with the research organizations/NGOs are working in the area. Efforts need to be made so that the management related research/academic institutions take up research studies.

10.7 Identification of research thrust areas and research topics

- Basic ecological studies of key indicator species viz., Hangul, Common Leopard, Asiatic Black bear, small mammals.
- 2. Invasive species- floral and faunal, documentation, impact and remedies.
- 3. Understanding reasons for dwindling population of hangul and devising management strategies.
- 4. Occupancy estimates, population abundance and regular monitoring.
- 5. Wildlife diseases monitoring.
- 6. Socio-economic studies of the local forest dwellers and population of fringe areas
- 7. Human- wildlife interactions, conflicts and the reasons- thereof.
- 8. Genetic structuring of endangered/ vulnerable species (RET species).
- 9. Study on insects, butterflies and micro fauna of Dachigam to understand the community structure.
- 10. Floristic and vegetation composition change detection (Vegetation sampling).
- 11. Movement patterns of long ranging species for corridor establishment and landscape level planning.

10.8 TRAINING AREAS

- Wildlife and forest protection laws.
- Handling arms and modern combat.
- Management and handling of Human wildlife conflict situation.
- Management of ranging patterns of animals especially large carnivores.
- Nature interpretation.
- Population dynamics and wildlife estimation.
- Animal health monitoring and nutrition.
- Participatory rural appraisal and micro planning.
- Ecology and population biology.





- First Aid.
- Intelligence gathering.
- Management of captivity animals.
- Basic wildlife forensics.

10.9 ESTABLISHMENT OF RESEARCH AND TRAINING CENTER

The Department had come up with idea of developing a wildlife research and training Centre in Dachigam National Park .For this purpose one of the buildings from the infrastructure left behind by sheep breeding farm was retained. A massive upgrade was given to the building and phase I has been successfully completed wherein building has been completely transformed into a habitable and usable structure. In phase II to make the building completely functional necessary infrastructure shall be installed that will provide the staying researchers the complete facility for night accommodations. This research center shall have classroom facility, dormitories for night stay, mess, library and possibly the internet facilities. It shall be ensured in the earlier years of the plan period that research center gets completely functional. This will be a landmark achievement to create a department owned research facility. It will further allow the department to create an effective alliance with universities and other research centers.



Plate 78. Wildlife Research and Training Centre







Plate 79. Participants during Hangul census

10.10 INVOLVEMENT OF JRFs

Since department, do not have enough human resource to take various research projects on its own. From time to time, various research projects either have been outsourced or have been collaborated upon with various research and academic institutes. To make it practically possible for the department to conduct various research projects that will be of high managmental significance it is recommended that hiring of JRFs / resource persons/ Designated researchers on the contract basis shall be considered subjected to the approval from the competent authority in this regard. Financial implications will be met out of the budget allocation for Research and monitoring.





USE OF MODERN TECHNOLOGY IN MONITORING AND SURVEILLANCE

The emerging and advanced technologies can play a huge role in research and management of wildlife. Wildlife biologists and managers who tend to improve data collection and to have effective monitoring and surveillance, especially when the technologies are cost effective are increasingly adopting such technologies. Remotely piloted aircraft (RPA), commonly known as "**Drones**," unmanned aerial systems or unmanned aerial vehicles have seen a rapid uptake by wildlife managers and scientists for novel data collection, monitoring and surveillance. Drones provide a comparatively low risk-free and low-cost manner to monitor natural habitat at high spatio-temporal resolution with less time and systematically. Drones can collect extremely fine spatial and temporal resolution data at the discretion of the user.

Therefore, drones are being used for data collection in an increasingly diverse suite of ecological applications, including transect counts of the animals, monitoring for poaching apprehensions, detecting reptile and arboreal mammal nests. The ability to collect data with higher accuracy, higher precision and less bias than the existing approach confirms that drones are a scientifically rigorous data collection tool for wildlife population monitoring and management. Furthermore, as RPA platforms, sensors and computer vision techniques continue to develop, it is likely that the accuracy and cost-effectiveness of RPA-based approaches will also continue to improve. These advantages have recently made drones to be used in wildlife research and management.

The Protected Areas are repositories of biodiversity and their aim is to safeguard this natural heritage for long term. Despite their critical role in conservation, they face shortage of resources in terms of manpower, infrastructure and equipment to fully achieve their aim, especially with the increasing anthropogenic interference and unforeseen circumstances. Thus, there is a demand for cost-effective, versatile and practical initiatives to achieve conservation and management goals by using a balance of traditional techniques, advanced technologies and innovative methods.



RESEARCH, MONITORING AND TRAINING



The usage of Drones can play extremely crucial role in the management of Dachigam National Parks such as animal censuses, Fire monitoring, patrolling and monitoring the animals in their natural habitat without disturbing them. They can be effectively used in strict vigilance and help in decreasing the wildlife crimes. They can be effectively used in population estimation and monitoring. Thus, the use of drones and drone surveys are highly recommended.





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CHAPTER 11

ECO-DEVELOPMENT

The Dachigam National Park is having a huge zone of influence. The livelihood of the people of these villagers is mainly agriculture based and rearing of cattle. The socio-economic status of majority of households is weak as the Socio - economic data furnished by block development office Harwan suggests that 57.32 percent households belong to combine class of BPL and ST. Details of Socio - economic status of fringe areas of Dachigam National Park is given in annexure 9 (source: BDO Harwan). As the existing wildlife laws do not allow traditional access to forest based resources in the park, people have to explore other areas for some activities like cattle grazing, collection of wood, fishing etc. besides, sometimes the wild animals comes out of the park and cause the damage to life and property of the people resulting in Human - wildlife conflict. They should be provided with more opportunities in visitor management and ecotourism to generate employment opportunities. Therefore, to uplift the socio-economic condition of the people of the fringe villages and to maintain a good relation between department of wildlife protection and the villagers, a broad based eco-development program in the buffer zone should be adopted. The possibility for the formation of Eco development committees, which will work in association with the department, panchayats and NGOs with good credentials in these areas are to be explored during the plan period. All the people surrounding the National Park depend on streams originating from the Park for their irrigation and drinking water needs and therefore any type of soil moisture conservation works shall be recommended in consultation with fringe population.

The Eco – development and need of the people is to be studied in consultation with experts. The help of Government agencies like Tribal Affairs Department, Agriculture department, Agriculture University, education and research institution and reputed NGOs are to be taken onboard in order to fulfill the eco developmental needs and thus achieving Park management objectives.





11.1 STRATEGIES

To strengthen the People-PA interface, the following strategies and activities are proposed:

- 1. Improve people-PA relationship through eco development
- 2. Strengthen the Eco development initiatives and form a MIST (microplanning Implementation Support Team). MIST shall comprise of wildlife warden, range officer, block officers, research officer of the department and expert ecologist, sociologist, representatives of department of agriculture, horticulture, tourism, SKUAST- K and NGOs with good credentials in the field of conservation and Eco development.
- 3. Facilitate Forest Rights Settlement including community rights
- 4. Facilitate certification and organic farming in the fringe area
- 5. Utilize all available funds for Eco development
- 6. Develop and improve inter wing and inter department co-operation
- 7. Vaccination of the cattle in fringe areas
- 8. Training of young and enthusiastic people from these fringe communities as Eco guides

11.2 ACTIVITIES

- 1. Identify the eco development needs through micro planning and studies
- 2. Strengthen the Eco development activities with the help of EDCs (if any)
- 3. Make available sustainable livelihood to people in the fringe areas by exploring available opportunities in visitor management and ecotourism programmes
- 4. Make available educational, social and medical assistance in fringe areas by facilitating coordination between people, NGOs and line departments
- 5. Assist the tribal people in enhancing the income from agriculture by facilitating workshops involving relevant departments
- 6. Encourage the idea of crop insurance
- 7. Implementation of Eco development programmes in fringe areas in relevant groups and NGOs





- 8. Explore all fund possibilities from various schemes for holistic eco development
- 9. Ensure the participation of Park management in planning and implementation of projects by the line departments

11.3 STRATEGIES FOR SPECIFIC ISSUES

11.3.1 Firewood collection

Since firewood collection always remains a challenge to deal with due to dependence of fringe communities on resources of protected areas, therefore this is too dealt with as a part of eco development initiatives. Therefore, following strategies shall be adopted:

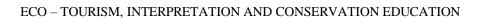
- Study extent and impact of firewood collection. Regular surveys shall be conducted to study extent and impact of firewood collection and hence comparative analysis should be generated in order to evaluate if there is any change in the pattern from the current situation.
- Encourage fuel wood cultivation of indigenous species
- Providing energy saving devices, supply of gas connection on subsidized rate by the department and explore the possibility of alternate fuel sources.

11.3.2 NTFP COLLECTION

NTFP collection does not offer a great deal of challenge as such inside the Dachigam National Park however, persistent monitoring shall be maintained and as major strategy regeneration of NTFP and medicinal plant species shall be encouraged among fringe communities in their proprietary lands, in line with recommendations laid down by Medicinal Plant Board.

11.4 STRATEGIES FOR ALTERNATE INCOME TO DEPENDENT COMMUNITY

- Explore the potential of ecotourism programmes to improve the employment generation for the local dependent communities
- Explore the possibility of enhancing opportunities in visitor management activities to create more employment for the local dependents
- Concept of home stay should be introduced







CHAPTER 12 ECO – TOURISM, INTERPRETATION AND CONSERVATION EDUCATION

12.1 GENERAL

The Wildlife sanctuaries or the national parks now a day have become an integral part of nature – based tourism. Now a days wildlife works as a magnet for the tourists, and hence creates positive impacts such as raising awareness among the people, on stern role and overt function in the biosphere. Dachigam National Park is important wildlife tourism spot for people from all over the world. The flow of tourists indicates a continuous rise in their number, which include Indians as well as foreigners. The main attraction of area is the near assured sighting of Kashmir Stag or Hangul. The field staff maintain a constant vigil to dissuade visitors from littering, trespassing, disturbing animals, plucking flowers, shouting etc. Two ecofriendly battery operated carts are available to the visitors. The year wise inflow of tourist data is given in the annexure 20.

Nature awareness programmes are conducted for the students, clubs, and other interested groups and which is the main activity related to conservation education in the Dachigam National Park. The Nature Interpretation Centre (NIC) is available for such activities.

12.2 STRATEGIES FOR ENVIRONMENTAL CONSERVATION AWARENESS

- 1. To Conduct nature awareness camps for schools, colleges, nature clubs, reputed NGOs and other interested groups
- Give priority to the Education Institutions and organizations around the National Park in awareness programmes
- To Device and conduct awareness programmes for target group such as tour operators, guides, and taxi drivers, to create awareness on nature conservation and to help in visitor management





- 4. Upgrade the existing Nature Interpretation Centre
- 5. Develop education and awareness materials like leaflets, brochures, pamphlets, posters etc. for various target groups
- 6. Organize extension programmes in the fringe areas of the national park with where in panchayats VDCs and relevant NGOs shall be taken on board
- 7. Impart training to the staff engaged in awareness programmes
- 8. An official not less than rank of forester shall be designated as Nature Education Officer whose mandate shall be to monitor and report on all ecotourism activities inside the national park
- 9. Engage officials with good knowledge of biodiversity in the national park shall be encouraged and trained further who in turn can be used for information dissemination and visitor management
- 10. Making available facilities like LCDs, computers, sound systems etc. at NIC and maintenance of existing facilities
- 11. Maintenance of existing facilities of nature education and interpretation
- 12. Conduct study tour for staff to other PAs in and outside of the Union Territory
- 13. Develop conference hall, library, toilet block at a feasible location inside tourism zone
- 14. Creation of Professional short movies and documentaries based up on nature education shall be encouraged. This always serves as most effective mode for information dissemination.
- 15. Provision for keeping park open on Sundays and close on Tuesday.
- 16. The permissions granted for various purposes such as Birdwatching, Research would be time specific. The wildlife warden to have competence of issuing the permissions.

12.3 FACILITATING NATURE-BASED REGULATED TOURISM

As part of the regulated ecotourism, the following activities shall be taken up during the plan period:

1. Engaging local dependent communities for managing the ecotourism programmes





- 2. To Prepare and implement a supplementary visitor management plan for tourism and awareness Zone and other ecotourism programmes
- 3. Prepare site specific micro plans for ecotourism packages for the buffer zone (mainly the conservation reserves)
- 4. Monitor the implementation and revise the supplementary visitor management plan once in 2 years if needed
- 5. Develop and implement interpretation packages as part of visitor management plan for all ecotourism programmes
- 6. Conduct periodic impact assessment of tourism areas once in 5 years with the help of scientific community
- 7. Develop and implement system for collection of feedback from visitors to the Park where in besides the field staff NGO members and volunteers can be utilized
- 8. Limit ticketing time to the tourism zone from 6 am 6 pm, however any research oriented activity should not be made time specific as it would be determined by requirements of the activity, subjected to the condition that permission has been granted for the visit in favor of tourist
- 9. A closure period for the park should be clearly defined as per requirement of habitat for instance as is required in case of Hangul rutting season. Studies should be allowed to conduct to determine need and span of closure periods
- 10. Create and maintain of basic amenities to visitors in the tourism areas for ecotourism programmes based on approved micro plan or supplementary visitor management plan
- 11. Online booking for the visitors to Dachigam National Park shall be considered on top priority
- 12. Ensure security by installing metal detectors and other facilities like CCTV cameras well inside the park to the extent possible
- 13. Explore the possibility of imposing fine for littering, plucking of flowers, teasing of animals etc. in the Park based on wildlife Protection Act 1972
- 14. Capacity building and training to staff on human behavior, identification of flora and fauna, visitor management, interpretation of Park values etc.



- 15. Conduct carrying capacity study and regulate the visitors to the tourism and awareness zone. Visitor permissions shall be issued strictly in accordance with carrying capacity worked out by this management plan
- 16. Develop web site of the National Park for information dissemination and online permissions on priority basis
- 17. Conduct review/ seminar / workshop annually on tourism programmes and publish the annual report
- 18. Develop theme based information displays in the tourism and awareness zone
- 19. Make available more information to the visitors on the Hangul and other endangered flora and fauna by making available literatures and publications by establishing a museum in the tourism zone
- 20. A recommendation shall be made to government for the use of some percentage of revenue generated from ecotourism and visitor management for park management and development
- 21. Action plan for existing trekking routes shall be put in action and identification of new ones along with the camping sites should be done

12.4 NEW ECOTOURISM PROPOSALS

The Park manager will initiate the following proposals during the plan period:

- Protection and education oriented limited trekking and camping programmes for school and college students.
- Vehicular movements inside national park shall be strictly discouraged. This can be effectively implemented by increasing availability of emission free battery operated vehicles where in a collaborative mechanism can be worked out in the form of public private partnership subjected to the approval from the competent authority in this regard.





CHAPTER 13 ORGANIZATION AND ADMINISTRATION

13.1 STRUCTURE AND RESPONSIBILITIES

13.1.1 PRESENT SETUP

The present Dachigam National Park was upgraded as National Park from its Wildlife sanctuary status in 1981. The management during 80's was so intense and technically oriented that the Dachigam national park received a national award for the best management national park in the country. Wildlife warden Central adminstravely mange the Dachigam National park with his headquarter located at Harwan, Srinagar. Regional Wildlife Warden [Conservator of Forest (Wildlife)] plays supervisory and managerial roles on the activities executed by wildlife Warden.

13.1.2 PROPOSED STAFF PATTERNS

The following officers are proposed to assist wildlife warden in the management of the Dachigam National Park is proposed:

Sl. No.	Position	Number
1.	Assistant veterinary surgeon	1
2.	Research officer	1
3.	Range officers	2
4.	Block officers	5
5.	Wildlife Guards	20
6.	Deputy Foresters	10
7.	Watchers / Helpers	20
8.	Drivers	3
9.	Seasonal Laborers	30





For the maintenance and caretaking of captivity, animals at captivity center 5 no. of helpers are required.

There is a dire need to divide the park in two ranges for an efficient and better management of the park.

13.2 STAFF AMINITIES

The work of field staff is very stiff, they supposed to work under constrictions and in every odd situation like squall weather, confronting wild animals, and continuous patrolling of park through day and night. The climatic condition in the landscape becomes very harsh in winter season for which devotion and hard work of the field staff has been recognized by all quarters in the hierarchy of the department.

The basic amenities required to provide for smooth functioning in field are:

- Regular supply of uniform, trekking shoes and gumboots.
- Provision of raincoats and pullover at convinced time.
- Provision for regular supply of flashlights and solar lanterns.
- Regular supply of solar lamps
- Provision of winter gears in extreme cold conditions and summer gears

Other than, above mentioned equipments and gears few more amenities shall be provided to the staff so that their round the clock presence in the national park is made convenient and sustainable and an account of same is given below:

- Free ration should be provided as they are scantily paid so that financial stresses on the field staff are relieved.
- Regular health check up with some lifesaving drugs and a registered medical practitioner should be provided.





- All the medical treatments should provided by the government for the workers who are injured in the time of their duty.
- Possible, ex-gratia grant should be provided to the immediate relatives of the staff who succumb to death, while on duty due to illness, any accident.
- Construction of housing complex in every range head quarter for the staff families will be helpful in turn, it will enhence the work output of the staff. Incidence of unauthorized absence will also be checked.





CHAPTER 14

THE BUDGET

Dachigam National Park gets funds from UT and Central government under various Schemes. Schemes mainly include CAMPA, CAPEX, CSS and sometimes small funding may be available under various non-plan heads. The budgeting plan for Dachigam National Park has been developed for ten years, which will be the plan period in accordance with current management plan. However, for the second half of the plan period proposed budget in the current management plan shall be flexible to changes to the extent of 20 percent because of price escalation, requirements of intervention and any unforeseen change in the habitat. The key driving factors in formulation of budget for plan period of ten years have been:

- A. Habitat management
- B. Developmental activities
- C. Infrastructure development
- D. Awareness curriculum
- E. Training and capacity building
- F. Fire management
- G. Handling of Man animal conflict
- H. Anti poaching and Anti grazing activities
- I. Engagement of daily rated labors in supporting and supplementing the permeant staff
- J. Demarcation and boundary consolidation etc.
- K. Research and Training

14.1 FUNDING SOURCES

As mentioned above main funding source in the management of Dachigam national Park





- A. CAMPA
- B. CAPEX
- C. Centrally Sponsored Schemes
- D. Few heads of non plan budget

To avail the funds from above mentioned schemes an annual plan of operations (APO) is formulated and submitted to higher offices for approval. The components included in APOs are determined by the recommendations of the management plan. In execution of various components of work, APOs are strictly followed and overlapping of works under various schemes is strictly avoided.

14.2 TIMELY ALLOCATION AND RELEASE OF FUNDS AND PLOUGHING BACK OF REVENUE GENERATED BY TOURISM

Every year the park management envisages an Annual Plan of Operations (APO) based on various strategies proposed in the management plan. The UT government also sanctions the grant however, the timely allocation of the funds usually does not take place. Sometimes release of funds take place at the fag end of year, which result into a great difficulty in achieving the annual targets. Several strategies are suggested to streamline the utilization of funds where in items of budget components are clearly defined in order to create an all-inclusive development of the national park.

ITEMS OF BUDGETING COMPONENTS

NON-RECURRING

1. Protected area management:

- i. Anti-poaching camps
- ii. Equipment (camera, binoculars, camera traps, Drones, GPS etc.)
- iii. Roads\ Trails
- iv. Buildings
- v. Habitat improvement
- vi. Fences





- vii. Survey and demarcation
- viii. Fire lines and Fire protection equipments

2. Infrastructure and communication:

- i. Vehicle
- ii. Wireless system
- iii. Specialized equipments
- iv. Field equipments

3. Eco-development :

- i. Entry point activities
- ii. Village eco-development program
- iii. Specialized program

4. Eco – Tourism management :

- i. Eco Tourism facilities
- ii. Nature trails
- iii. Camp facilities
- iv. Interpretation Centre
- v. Development of educational audio-visual programs

5. Information system:

- i. Computers and software
- ii. Survey equipments
- iii. Printing and electro state equipments

6. Environmental education:

- i. Development and procurement of education material
- ii. Educational programs

7. Research and monitoring:

- i. Research studies
- ii. Research facilities
- iii. Monitoring studies
- iv. Development of research lab





8. Staff amenities:

- i. Solar lighting.
- ii. Camping equipments
- iii. Housing facility for families of staff.

RECURRING COST:

1. Establishment cost:

- i. Salaries and allowance
- ii. TA/Medical
- iii. Office expenses

2. Maintenance cost:

- i. Maintenance of camps and buildings
- ii. Maintenance of vehicle
- iii. Maintenance of patrolling path, trails
- iv. Uniform and other staff amenities (torch, batteries, kerosene, winter gear
- v. Maintenance of wireless network
- vi. Compensation arising out of man animal conflict
- vii. Training
- viii. Research
- ix. Legal fees
- x. Awareness program
- xi. Staff welfare
- xii. Co-ordination
- xiii. Immunization program
- xiv. Wages

14.3 Financial requirements for plan period have been prepared and is part of current

management plan has been prepared on annual/ year wise basis and is as follows:

DISTRIBUTION OF EXPENDITURE DURING THE PLAN PERIOD (2020-21- to 2029-30)

Item/ Activities						Di	stribu	utior	n dur	ing p	olan	per	iod ((Rs.	In La	ikh)					
	1 st Y (2020		2 nd Y (2021			Year 2-23)	4 th Y (2023		5 th) (2024		6 th Y (2025			- /ear 6-27)	8 th Y (2027			Year 8-29)		Year 9-30)	Total
	Phy	fin	Phy	fin	Phy	fin	Phy	fin	Phy	fin	Phy	fin	Phy	fin	Phy	fin	Phy	fin	Phy	fin	
6.1.1. Boundary Delineation																					
Correction and re-fixing of boundary pillars	0	0	0	0	100 Nos	4.50	0	0	0	0	100 Nos	4.50	0	0	0	0	100 Nos	4.50	0	0	13.50
Enforcement of Chainlink fencing by way of providing of cement concrete blocks	0	0	1428 rft	16.42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16.42
Erection of chain-link fencing to consolidate boundaries	0	0	1700 Rft	19.55	0	0	1000 rft	11.50	0	0	0	0	0	0	0	0	1500 Rft	17.25	0	0	48.30
Making of digitalization demarcation records	0	0	0	0	LS	2.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.00
Chain-link fencing around information and awareness center panther house and liabilities and left out work	480 rft + liabilities	10.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10.50
Total:	0	10.50	0	35.97	0	6.50	0	11.50	0	0	0	4.50	0	0	0	0	0	21.75	0	0	90.72
6.3.1Habitat Management																					
Preparation of Management Plan of Dachigam National Park 2020-2030	0	5.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5.50
Making of water holes	1 No	0.40	0	0	6 Nos	3.60	0	0	3 Nos	1.80	0	0	6 No	3.60	0	0	0	0	0	0	9.40
Maintenance of old water holes	0	0	0	0	3 Nos	0.90	0	0	2 Nos	0.60	0	0	0	0	2 Nos	0.60	2 No	0.60	0	0	2.70
Plantation of fruit bearing /conifers plants	0	0	25000 Nos	5.79	0	0	20000	4.64	50000 Nos	12.00	0	0	15000 Nos	4.00	0	0	30000 Nos	7.00	0	0	33.43
Beating up casualties	0	0	0	0	0	0	0	0	0	0	10000 Nos	2.32	0	0	0	0	0	0	10000 Nos	2.32	4.64
Liability on account of errection of power fencing.	LS	1.43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.43
Maintenance of plantation closures by way of deweeding/grasses.	0	0	LS	1.80	0	0	LS	1.50	LS	1.00	0	0	LS	5.00	0	0	LS	2.50	LS	3.00	14.80
Eradication of weeds and unpalatable grasses in the Hangul habitat and corridors.	00	0	0	0	LS	3.00	0	0	0	0	0	0	LS	2.00	0	0	0	0	LS	3.00	8.00
Bio fencing to augment artificial fencing	0	0	0	0	LS	2.00	0	0	LS	2.00	0	0	0	0	0	0	LS	2.00	LS	2.00	8.00
Willow plantation in Suitable areas for supplementary feed for Hangul	0	0	0	0	LS	5.00	0	0	LS	5.00	0	0	LS	3.00	0	0	LS	5.00	LS	5.00	23.00
Plantation of indigenous grass species such as red and white clover	0	0	0	0	LS	4.00	0	0	LS	3.00	0	0	LS	10.00	0	0	LS	3.00	LS	2.00	22.00
Betula plantation in upper Dachigam to augment Summer	0	0	0	0	LS	10.00	0	0	0	0	0	0	0	0	LS	5.00	0	0	LS	10.00	25.00

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Habitat of Hangul																					
Oak plantation on priority basis	0	0	0	0	LS	4.00	0	0	LS	3.00	0	0	LS	5.00	0	0	0	0	LS	5.00	17.00
Providing of supplementary feed	10000	2.50	LS	3.50	LS	4.00	LS	4.50	LS	5.00	LS	5.50	LS	6.00	LS	6.50	LS	7.00	LS	7.50	52.00
for Hangul and Black Bears	Bachas																				52.00
(Bachas/ Green and fresh	& green																				
vegetables/ Salt licks and apples.	veg.	0.02		11.00		26.50		10.54		22.40		7.02		20.00		12.10		27.40		20.02	
Total :		9.83		11.09		36.50		10.64		33.40		7.82		38.60		12.10		27.10		39.82	226.90
6.3.2 Protection & Surveillance.																					
Anti-poaching camps at vulnerable areas	LS	1.00	LS	1.00	LS	2.00	LS	3.00	LS	2.00	LS	3.50	LS	4.00	LS	3.50	LS	2.00	LS	2.00	24.00
Patrolling of areas to combat anti-poaching activities by way of engaging labor force.	0	0	0	0	LS	5.00	0	0	LS	5.00	0	0	LS	3.00	0	0	LS	5.00	LS	5.00	23.00
Making of patrolling paths.	0	0	0	0	LS	3.00	0	0	LS	3.00	0	0	LS	2.00	0	0	LS	3.00	LS	3.00	14.00
Providing of logistic facilities to the anti-poaching staff during camp periods.	0	0	0	0	LS	2.00	0	0	LS	2.00	0	0	LS	3.00	0	0	LS	2.00	LS	2.00	11.00
Total:		1.00		1.00		12.00		3.00		12.00		3.50		12.00		3.50		12.00		12.00	72.00
6.3.3Controlling of Grazing		1.00		1.00		12.00		5.00		12.00		0.00		12.00		0.00		12.00		12.00	72.00
Cattle proof fencing at	0	0	0	0	LS	30.00	0	0	LS	30.00	0	0	LS	3.00	0	0	0	0	0	0	63.00
vulnerable entry points.	-	-																			03.00
Maintenance of cattle proof fencing	0	0	0	0	0	0	LS	4.00	0	0	0	0	0	0	0	0	LS	3.00	LS	3.00	10.00
Mapping of grazing routes	0	0	0	0	LS	1.00	0	0	0	0	0	0	LS	4.00	0	0	LS	1.00	0	0	6.00
Making of anti-grazing camps during summer in upper Dachigam areas and on vulnerable entry points	0	0	0	0	LS	4.00	LS	5.00	LS	4.00	0	0	LS	2.00	0	0	LS	4.00	LS	4.00	23.00
Engagement of labor force for anti-grazing camps.	LS	6.00	LS	9.00	LS	9.00	LS	10.00	LS	8.00	LS	9.00	LS	3.50	LS	11.00	LS	8.00	LS	9.00	82.50
Providing of logistic facilities to the anti-grazing staff during camp periods with necessary equipments	0	0	0	0	LS	3.50	LS	7.00	LS	3.50	LS	7.00	LS	7.00	0	0	LS	3.50	LS	3.00	34.50
Purchase of camping tents, utensils, flesh lights, self- protection tools and water proof jackets, trousers and hunter shoes	0	0	0	0	LS	7.00	LS	4.00	LS	7.00	LS	4.00	0	0	LS	3.00	0	0	0	0	25.00
Total :		6.00		9.00		54.50		30.00		52.50		20.00		19.50		14.00		19.50		19.00	244.00
6.3.6 Soil Moisture and water																					
conservation					-								- 6								
Construction of check dams to augment habitat.	0	0	0	0	0	0	LS	10.00	LS	9.00	0	0	Rft LS	15.00	0	0	LS	9.00	0	0	43.00
DRSM works to prevent diversions of water into high vegetation zones /soil erosion.	0	0	0	0	Rft LS	15.00	0	0	Rft LS	15.00	0	0	LS	15.00	0	0	Rft LS	15.00	Rft LS	15.00	75.00
Const. of crate bunds along Dachigam Nallah.	0	0	0	0	LS	15.00	0	0	LS	15.00	0	0	0	0	0	0	LS	5.00	LS	5.00	40.00
Total :		0		0		30.00		10.00		39.00		0		30.00		0		29.00		20.00	158.00
6.3.8 Capacity building																					

Following line staff:	Trainings for front																					
a.	Use of tranquilizing guns.	0	0	0	0	LS	5.00	0	0	LS	5.00	0	0	LS	4.00	0	0	LS	3.00	LS	2.00	19.00
b.	Intelligence gathering																					
с.	Wildlife Crime detection																					
d.	Preparation of offence reports																					
e.	Wild Plant and animal identification																					
f.	Unarmed combat and survival skills																					
g.	Handling of Man animal Conflict																					
h.	situations. Swimming, driving and first aid.																					
i.	Use of GPS and making of KMZ, KML, polygons tracts and																					
j.	waypoints. Damage /poaching/ grazing/																					
k.	encroachment cases Firefighting.																					
Procuren	nent of field	0	0	0	0	LS	10.00	0	0	LS	5.00	0	0	LS	5.00	0	0	LS	2.00	LS	2.00	24.00
	g of field gears to	0	0	0	0	LS	10.00	0	0	LS	10.00	0	0	LS	7.00	0	0	0	0	LS	10.00	37.00
	Total:		0		0		25.00		0		20.00		0		16.00		0		5.00		14.00	80.00
6.3.9 Infra Developm	astructure																					
	residential quarter for	0	0	0	0	1 No	20.00	On going	15.00	0	0	0	0	0	0	0	0	0	0	0	0	35.00
Range Off		0	0	0	0	1 No	15.00	On going	10.00	0	0	0	0	1 No	25.00	0	0	0	0	0	0	50.00
Const. of	staff 3qrs.	LS	13.00	0	0	LS	5.00	0	0	1 No	25.00	0	0	0	0	0	0	No	30.00	1 No	25.00	98.00
floor/staf	of store ground f qtr on its 1 st floor nigam Gate No: 1.	0	0	0	0	0	0	0	0	0	0	0	0	LS	20.00	On going	30.00	0	0	0	0	50.00
Repair buildings	/renovation of all including Divisional periodically as per	0	0	0	0	0	0	0	0	0	0	0	0	LS	7.00	0	0	LS	10.00	LS	10.00	27.00
requireme Repair/		0	0	0	0	0	0	0	0	Km	3.00		0	KM	3.50	0	0	Km	6.00	_	0	12.50
gradation	of road inside National .Park	0	U	U					U	NIII	5.00				5.50	U			0.00			12.50
	ng of Dachigam Gate unding areas.	LS	5.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5.00
Const of b	oridges/culverts	0	0	0	0	LS	4.00	LS	3.00	0	0	LS	2.00	0	0	0	0	0	0	0	0	9.00

Total:		18.00				44.00		28.00		28.00		2.00		55.50		30.00		46.00		35.00	286.50
7.2.1 Firelines																					
Making of fire lines in forest fire prone areas.	20 kms	5.85	7 km	2.05	10 Km	2.93	17 km	4.97	15 Km	4.40	8 km	2.34	15 Km	4.40	10 km	2.93	15 Km	4.40	15 Km	4.40	38.67
Maintenance of old fire lines.	0	0	0	0	0	0	0	0	7 Km	1.03	0	0	0	0	0	0	15 Km	2.19	15 Km	2.19	5.41
Total:		5.85		2.05		2.93		4.97		5.43		2.34		4.40		2.93		6.59		6.59	44.08
7.2.2 Need based engagement																					
Engagement of need based labors for firefighting operations	LS	2.00	0	0	LS	3.00	LS	2.50	LS	3.00	LS	3.00	LS	3.00	LS	2.50	LS	3.00	LS	3.00	25.00
Total:		2.00		0		3.00		2.50		3.00		3.00		3.00		2.50		3.00		3.00	25.00
7.2.3 Fire watch Towers																		0		0	
Construction of new fire watch towers in fire prone areas	0	0	1 No	15.00	0	0	0	0	0	0	0	0	LS	15.00	0	0	0	0	LS	16.00	46.00
Repair /renovation of existing fire watch towers.	0	0	0	0	0	0	0	0	0	0	0	0	LS	4.00	0	0	LS	4.00	LS	4.00	12.00
Total:		0		15.00		0		0		0		0		19.00		0		4.00		20.00	58.00
7.2.4 Control Burning																					
Control burning by way of engagement of labor force.	LS	3.00	LS	3.00	0	0	0	0	LS	0	0	0	LS	1.00	0	0	LS	1.00	LS	1.00	9.00
Clearance of fire hazards vegetation/ fallen stuff	0	0	LS	1.80	0	0	LS	2.50	0	0	LS	3.00	0	0	LS	3.50	0	0	LS	2.00	12.80
Total:		3.00		4.80		0		2.50		0		3.00		1.00		3.50		1.00		3.00	21.80
7.4 Awareness																					
Conducting of awareness programmes/ seminars/Wildlife Week to educate people especially living near forests with regard to Do's and Don'ts while forest fires and contingencies.	LS	2.00	LS	2.00	0	0	0	0	LS	1.00	0	0	LS	1.00	0	0	LS	1.00	LS	1.00	8.00
Distribution of literature	0	0	0	0	LS	1.00	0	0	LS	1.00	0	0	LS	1.00	0	0	LS	1.00	LS	1.00	5.00
material Framing of documentary on Dachigam National Park and wildlife.	0	0	LS	2.00	0	0	0	0	LS	3.00	0	0	0	0	LS	3.00	0	0	0	0	8.00
Total:		2.00		4.00		1.00		0		5.00		0		2.00		3.00		2.00		2.00	21.00
7.7. Firefighting equipment's																					
Purchase of firefighting suits	0	0	0	0	0	0	0	0	LS	10.00	0	0	LS	10.00	0	0	LS	10.00	0	0	30.00
Purchase of firefighting equipment's.	0	0	0	0	0	0	LS	5.00	LS	10.00	0	0	LS	20.00	0	0	LS	20.00	LS	20.00	75.00
Total:		0		0		0		5.00		20.00		0		30.00		0		30.00		20.00	105.00
8.3 Human Wildlife Conflict																					
Purchase of vehicle to deal with Human Wildlife Conflict situations.	0	0	0	0	0	0	0	0	0	0	0	0	LS	15.00	0	0	0	0	LS	15.00	30.00
Maint. Of old vehicles.	0	0	0	0	LS	1.00	0	0	LS	1.00	0	0	LS	1.00	0	0	LS	1.00	LS	1.00	5.00
Purchase of Tranquilizing guns/ medicines.net gun, snake tong, snake hook, snake bag trap net	0	0	LS	0.25	0	0	0	0	0	0	0	0	LS	20.00	0	0	0	0	Ls	20.00	40.25

for all trace of an incide and fine				1		1 1		Γ								<u> </u>				1 1	
for all types of animals and fire crackers.																					
Purchase of first aid kits/Sanitizers/PPE kits.	0	0	0	0	0	0	0	0	LS	2.00	0	0	LS	2.00	0	0	LS	2.00	LS	2.00	8.00
Purchase of night vision binoculars and other such equipment's	0	0	0	0	0	0	0	0	LS	5.00	0	0	LS	5.00	0	0	LS	5.00	0	0	15.00
Purchase of trapping cages /transportation cages/squeeze cages	0	0	LS	5.20	0	0	0	0	LS	10.00	0	0	LS	10.00	0	0	LS	10.00	LS	10.00	45.20
Repair and maint. Of old existing cages	0	0	0	0	LS	3.00	0	0	LS	3.00	0	0	LS	3.00	0	0	LS	3.00	LS	3.00	15.00
Operation cost for running of Rescue Control Rooms i.e. POL, Handling charges etc	LS	1.75	LS	1.75	0	0	0	0	LS	2.00	0	0	LS	2.00	0	0	LS	2.00	LS	2.00	11.50
Total:		1.75		7.20		4.00		0		23.00		0		58.00		0		23.00		53.00	169.95
9.11 Animal Health Monitoring and rehabilitation of rescued animals																					
Const of health, monitoring and disease control (infra and diagnosis Lab. Equipment's, augmentation and vet. Health center.	LS	18.22	LS	10.00	0	0	0	0	LS	20.00	0	0	LS	25.00	0	0	0	0	LS	30.00	103.22
Repair/renovation/upgradation/ remolding of Rescue center.	0	0	LS	16.00	0	0	0	0	0	0	0	0	LS	4.50	0	0	LS	25.00	0	0	45.50
Maint. Of Ambulance	0	0	0	0	LS	0.50	0	0	LS	0.50	0	0	LS	1.50	0	0	LS	0.50	LS	0.50	3.50
Purchase of medicines/ disinfects	0	0	0	0	LS	1.50	0	0	LS	1.50	0	0	LS	2.00	0	0	LS	1.50	LS	1.50	8.00
Immunization of livestock of fringe areas	0	0	0	0	0	0	0	0	LS	2.00	0	0	LS	1.00	0	0	LS	2.00	LS	2.00	7.00
Awareness camps in fringe areas regarding prevention various infectious and parasitic diseases among local live stock	LS	1.75	0	0	0	0	LS	1.00	0	0	0	0	LS	1.00	0	0	LS	1.00	LS	1.00	5.75
Total:		19.97		26.00		2.00		1.00		24.00		0		35.00		0		30.00		35.00	172.97
10.8 Research, Survey and Monitoring																					
Hangul Census	0	0	0	0	LS	10.00	0	0	LS	12.00	0	0	LS	12.00	0	0	LS	12.00	0	0	46.00
Census of leopard and black bears	0	0	0	0	0	0	LS	4.00	0	0	LS	4.00	0	0	LS	4.00	0	0	LS	5.00	17.00
Census/study of Wild Boars	0	0	0	0	LS	4.00	0	0	LS	4.00	0	0	0	0	LS	4.00	0	0	LS	3.00	15.00
Purchase of Census/survey equipment's	0	0	0	0	0	0	0	0	LS	15.00	0	0	0	0	0	0	LS	15.00	LS	15.00	45.00
Total:		0		0		14.00		4.00		31.00		4.00		12.00		8.00		27.00		23.00	123.00
10.9 Establishment of Research and Training Centre																					
Maint. Of Research and training center at sheep	LS	38.22	LS	8.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	LS	10.00	56.22
Total:		38.22		8.00		0		0		0		0		0		0		0		10.00	56.22
11.1 Eco Development.																					
Providing of gas connections	0	0	0	0	0	00	LS	3.00	0	0	0	0	LS	2.00	0	0	LS	10.00	LS	10.00	25.00

community.																					
Training of local youth as eco- guides.	0	0	0	0	LS	5.00	LS	5.00	LS	5.00	LS	5.00	LS	5.00	LS	5.00	LS	6.00	LS	6.00	42.00
Total:		0		0		5.00		8.00		5.00		5.00		7.00		5.00		16.00		16.00	67.00
13.2 Tourism and interpretation and conservation education.																					
To conduct nature awareness camps for schools and colleges	0	0	0	0	LS	1.50	0	0	LS	1.50	0	0	LS	1.50	0	0	LS	1.50	LS	1.50	7.50
Visitor management by way of awareness among tour operator, taxi drivers and guides etc.	0	0	0	0	LS	1.50	0	0	LS	1.50	0	0	0	3.00	0	0	LS	1.50	LS	1.50	9.00
Upgradation of NIC	0	0	0	0	0	5.00	0	0	LS	2.00	0	0	LS	1.50	0	0	0	2.00	0	2.00	12.50
Printing of awareness and publicity material.	0	0	0	0	LS	1.50	0	0	LS	1.50	0	0	LS	1.50	0	0	LS	1.50	LS	1.50	7.50
Organizing of extension programmes in fringe areas with Panchayats and VDC.	0	0	0	0	LS	1.50	0	0	LS	1.50	0	0	LS	5.00	0	0	LS	1.50	LS	1.50	11.00
Purchase of Audio visual equipment's for NIC	0	0	0	0	0	0	0	0	LS	5.00	0	0	LS	3.00	0	0	0	0	0	0	8.00
Conducting of study tour for staff to other PA and states.	0	0	0	0	LS	3.00	0	0	LS	3.00	0	0	LS	10.00	0	0	LS	3.00	LS	3.00	22.00
Const. of conference hall, library, toilet block at feasible locations	0	0	0	0	0	0	0	0	0	0	0	0	LS	3.00	0	0	LS	10.00	LS	10.00	23.00
Creation of professional short movies and documentaries based on nature education	0	0	0	0	LS	3.00	0	0	LS	3.00	0	0	LS	3.00	0	0	LS	3.00	LS	3.00	15.00
Installation of CCTV and metal detectors.	0	0	0	0	LS	3.00	LS	3.00	0	0	0	0	LS	8.00	0	0	LS	3.00	LS	3.00	20.00
Development of website of National Park for information decimation and online permission.	0	0	0	0	LS	8.00	0	0	0	0	0	0	LS	3.00	0	0	LS	8.00	LS	8.00	27.00
Conducting of seminars, workshops and publish report annually	0	0	0	0	LS	3.00	0	0	LS	3.00	0	0	LS	3.00	0	0	LS	3.00	LS	3.00	15.00
Theme based information displays in tourism and awareness zones.	0	0	0	0	LS	3.00	0	0	LS	3.00	0	0	LS	13.00	0	0	LS	3.00	LS	3.00	25.00
Establishment of museum in tourism zone to prove information on Hangul and other endangered flora and fauna.	0	0	0	0	0	0	0	0	0	0	0	0	LS	30.00	0	0	LS	13.00	LS	20.00	63.00
Purchase of battery operated carts	0	0	0	0	0	0	0	0	LS	30.00	0	0	LS	3.00	0	0	LS	30.00	LS	30.00	93.00
Maint. Of battery operated carts	0	0	0	0	LS	4.00	0	0	LS	3.00	0	0	0	0	0	0	LS	3.00	LS	3.00	13.00
Total:		0		0		38.00		3.00		58.00		0		91.50		0		87.00		94.00	371.50
Grand Total:		118.12		124.11		278.43		124.11		359.33		55.16		434.50		84.53		389.94		425.41	2393.64

Note: Financial implications shall be subject to approval of rates by the competent authority from time to time

ANNEXURE -11

List of watchtower and viewpoints in Dachigam National Park

S. No	Name of Watch tower
1.	Reshwudur watchtower
2.	Gandkadal watchtower
3.	Murkah watchtower
4.	Munew watch tower
5.	Lilchumb view point
6.	Reshwudur view point
7.	Reshwudur Salampal Watch Tower
8.	Drog Watch Tower I
9.	Drog Watch Tower II
10.	Chandernar Watch Tower
11.	Sheep Farm watch Tower
12.	Oak Patch Watch Tower

ANNEXURE - 12

List of vehicles in Dachigam national Park

S. No.	Registration No.	Туре	Present Status	Remarks
1.	JK01P 1850	Scorpio	In use	
2.	JK02BC 7259	Tempo traveler (Rescue van)	In use	Used in rescue
3.	JK01AK 3732	TATA 709	In use	
4.	JK01AJ 5193	Ambulance	In use	Used in Vet. Health Care
5.	JK01P-1850	Scorpio	In use	
6.	Motor Bikes	2 No's	In use	

<u>List of anti-poaching and anti-grazing camps in and around</u> <u>Dachigam National park</u>

S. No.	Name	Туре
1.	Brain	Anti-grazing
2.	Nishat	Anti-grazing
3.	Harwan	Anti-grazing
4.	Dara	Anti-grazing
5.	Khimber	Anti-grazing/ Anti-poaching
6.	Dhatharpatri	Anti-grazing/ Anti-poaching
7.	Safad Bal	Anti-grazing/ Anti-poaching
8.	Sangri	Anti-grazing/ Anti-poaching
9.	Zawur	Anti-grazing/ Anti-poaching
10.	Bathen	Anti-grazing/ Anti-poaching
11.	Nagendar	Anti-grazing/ Anti-poaching

MEAN MONTHLY AVERAGE TEMPERTURE OF DACHIGAM LANDSCAPE FOR THE YEAR 2019

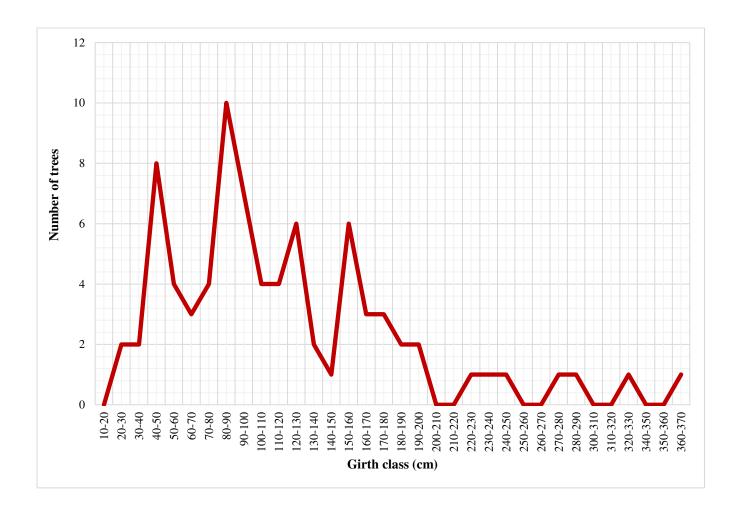
Month	Average mean Temperature
January	2^{0} C
February	$4^0 \mathrm{C}$
March	9 ⁰ C
April	$16^0 \mathrm{C}$
May	$17^0 \mathrm{C}$
June	$20^0 \mathrm{C}$
July	25 ⁰ C
August	$24^{0} \mathrm{C}$
September	$22^{0} \mathrm{C}$
October	$14^0 \mathrm{C}$
November	6 ⁰ C
December	$2^0 \mathrm{C}$

Relative Humidity of the months of the year 2019

Month	Relative Humidity	
January	81	
February	77	
March	65	
April	61	
May	64	
June	63	
July	64	
August	70	
September	61	
October	70	
November	82	
December	78	

Checklist of the Mammals of Dachigam National Park

S. No	Common Name	Scientific Name
1.	Hangul or Kashmir Stag	Cervus hanglu hanglu
2.	Common Leopard	Panthera pardus
3.	Asiatic Black Bear	Ursus thibetanus
4.	Leopard Cat	Prionailurus bengalensis
5.	Jungle Cat	Felis chaus
6.	Red Fox	Vulpes vulpes
7.	Jackal	Canis aureus
8.	Serow	Nemorhaedus sumatraensis
9.	Kashmir Musk Deer	Moschus cupreus
10.	Himalayan Yellow-throated Marten	Martes flavigula
11.	Himalayan Weasel	Mustela sibirca
12.	Long-Tailed Marmot	Marmota caudata
13.	Indian Porcupine	Hystrix indica
14.	Himalayan Grey Langur / Kashmir Grey Langur	Semnopithecus ajax
15.	Rhesus macaque	Macaca mulata
16.	Wild boar	Sus scrofa



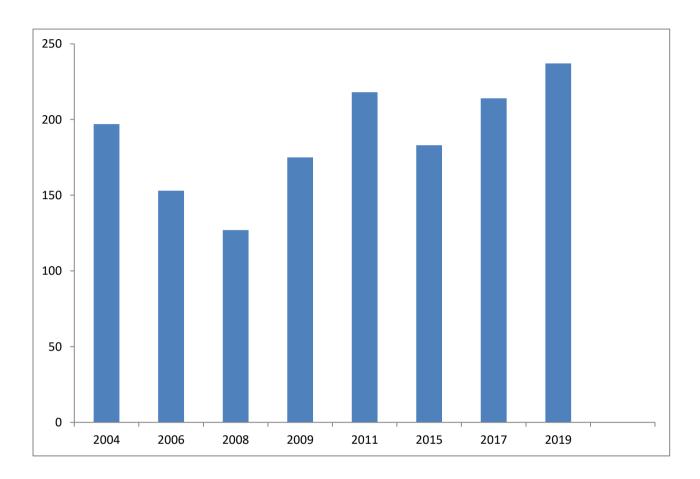
Graph showing the regeneration status of Oak in Dachigam National Park

VEGETATION SAMPLING OF OAK PLANTATIONS IN DACHIGAM NATIONAL PARK

Location	Latitude	Longitude	Altitude (m)	Area (m ²)	Species	DBH (m)	Height (m)
Mach e Kadal	34º07.757	074°56.167	1776	24000	Quercus robur	1.5	30
	5101101	0,100,10,	1110	21000	Parrotiopsis		
					Jacquemontiana	0.1	2
					Quercus robur	0.36	20
					Quercus robur	1.2	30
					Rhus succedanae	1.2	30
					Quercus robur	1.2	35
					\tilde{Q} uercus robur	0.77	25
					Quercus robur	1.27	50
					Quercus robur	2.7	60
					Quercus robur	2.25	75
Gand e Kadal	34º08.367	074°55.560	1736	12000	Quercus robur	0.63	35
	34 00.307	074 33.300	1750	12000	Parrotiopsis	0.03	
					Jacquemontiana	0.4	25
					Parrotiopsis		
					Jacquemontiana	0.26	25
					Parrotiopsis		
					Jacquemontiana	0.42	25
					Parrotiopsis	0.00	26
					Jacquemontiana	0.32	26
					Parrotiopsis Jacquemontiana	0.46	25
					Parrotiopsis	0.40	23
					Jacquemontiana	0.34	25
					Quercus robur	1.81	52
					Quercus robur	1.56	65
					Quercus robur	0.9	30
					Quercus robur	1.28	60
Gand e Kadal					Quereus robui	1.20	00
(2)	34º08.449	074°55.532	1745	17500			
Main Oak Patch	34º08.320	074°55.910	1796	3500000	Quercus robur	0.85	25
					Quercus robur	0.95	55
					Quercus robur	0.3	25
					\tilde{Q} uercus robur	0.83	45
					\tilde{Q} uercus robur	0.97	60
					Quercus robur	0.5	60
					Quercus robur	0.85	6
					Quercus robur Quercus robur	2.8	80
					Quercus robur	0.82	55
					~		
					Quercus robur	1.18	55
					Quercus robur	0.7	45

						Quercus robur	0.85	30
						Quercus robur	0.91	25
						Quercus robur	0.7	15
Main Patch	Oak	34º08.334	074°55.949	1809		Quercus robur	1.68	70
						Quercus robur	1.8	70
						Quercus robur	1.5	80
						Quercus robur	0.67	50
						Quercus robur	0.79	22
						Quercus robur	0.85	35
						Quercus robur	1.7	90
Main Patch	Oak	34º08.407	074°55.905	1804		Quercus robur	1.1	50
						Quercus robur	0.91	60
						Quercus robur	0.53	70
						Juglunas regia	1.2	40
Sheep Fai	rm	34º09.200	074°55.387	1798		Quercus robur	1.74	70
						Quercus robur	1.5	45
						Quercus robur	3.61	75
						Quercus robur	3.32	80
Nambal		34º09.194	074°55.282	1778	210000	Quercus robur	1.3	60
						Quercus robur	1.32	65
						Quercus robur	1.54	70
						Quercus robur	1.72	82
						Quercus robur	1.44	87
Nambal 2		34º09.088	074°55.296	1771	100000	Quercus robur	1.27	80
						Quercus robur	2.4	75
						Quercus robur	1.58	60
						Quercus robur	1.16	45
Namabal	3	34º09.081	074°55.088	1750	10000			
Koker Ka	dal	34º09.137	074°55.020	1736	4800			

Hangul Population trends in Dachigam Landscape, 2004 to 2019.



Man power in Dachigam National Park

S. No.	Category of post	Physical strength	Vacant
1.	Wildlife Warden	2	No information
2.	Range Officer	2	No information
3.	Block Officers	3	No information
4.	Wildlife Guard	17	No information
5.	Lab Assistant	1	No information
6.	Stock Assistant	1	No information
7.	Mali	1	No information
8.	Helpers	10	No information
9.	Government ServiceAssistant (GSA)	3	No information
10.	Consolidated workers	2	No information

Man power in the office of the Wildlife Warden Central

S. No	Post	Physical strength	Vacant
1.	Head Assistant	1	No information
2.	Senior Assistant	1	No information
3.	Junior Assistant	1	No information
4.	Orderly	1	No information
5.	Helper (Driver)	1	No information
6.	Helpers (office attendant)	3	No information
7.	Government Service Assistant (GSA) (Computer operator/orderly/office worker)	3	No information

ANNEXURE - 4

Month rainfall of Dachigam National over last ten years

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.		SEP.			
								AUG.		OCT.	NOV.	DEC.
2010	24.1	88.9	61	126.8	186.4	45.3	69.8	132.1	16.9	51.4	2	43
	12.5/30	38.8/09	20.2/01	30.0/21	57.8/29	12.2/16	22.3/22	37.7/11	04.8/19	37.8/22	2.0/19	21.8/30
2011	54.2	100.9	100.8	105.8	20.1	27	37.1	68.4	46.5	29.1	24.1	33.1
	49.5/15	23.6/14	44.4/20	22.3/11	10.0/18	10.8/12	21.8/15	19.5/28	18.4/16	13.0/23	13.8/05	21.4/09
2012	60.2	78.7	58	82.7	39.8	24.3	12.1	26.6	111.5	10.8	11.7	27.1
	21.0/07	22.0/14	31.9/05	24.8/10	09.8/18	7.8/09	6.4/14	9.5/05	35.0/06	10.6/16	08.3/29	10.3/14
2013	58.7	111.9	69.4	102	51.8	54.1	79.8	88.8	34.2	18.5	4.1	16.6
	37.0/18	30.1/23	37.8/24	31.3/17	27.8/27	13.4/03	27.7/21	29.9/14	15.7/13	8.0/14	3.1/07	9.1/31
2014	86.9	39.1	220.1	113.7	50.9	18.6	55.8	72.2	184.8	35.7	15.1	0
	26.2/01	19.4/07	58.3/12	38.7/07	17.6/13	11.9/01	15.3/04	35.8/16	52.4/05	23.6/08	14.3/08	
2015	5.6	164.9	294.6	164.1	63.4	87.5	139.3	53.4	56.4	65.9	36.6	23
	3.3/22	45.4/25	53.8/09	45.3/20	16.7/18	49.1/25	38.8/21	18.6/02	38.0/23	19.7/20	16.3/05	19.6/11
2016	21.4	47.8	170.1	90.8	45.9	17.9	60.9	54.5	2	1.2	0	2.4
	9.5/05	27.8/20	52.8/19	27.9/07	10.0/24	16.2/08	30.8/28	16.3/17	2.0/12	1.2/13	0	2.4/11
2017	162.2	97.2	67.2	193.7	30.2	73.9	34.4	24	16.3	0	11.1	37.2
	37.6/07	61.6/05	24.5/10	83.9/06	6.7/04	23.2/06	20.2/12	7.8/14	6.4/07		7.0/11	21.2/12
2018	1.2	44.7	36.7	109.2	31.5	60.9	85.1	50.9	23.7	7.4	118.1	2.4
	1.2/31	23.2/13	14.1/15	33.8/21	12.9/07	22.3/30	22.7/25	40.6/08	16.1/16	4.2/09	49.8/03	1.0/13
2019	83.8	122.2	75.4	45.3	75.7	97.3	63.2	87.6	0.6	36.4	225.8	36
	25.2/05	47.0/07	21.0/21	15.1/25	14.0/11	39.2/12	36.7/26	35.7/10	0.4/29	13.2/18	76.8/08	24.5/13
2020	136.4	7.3	93.9	63.6	38.7	47.0	9.7	123.9	22.7			
	61.2/14	4.3/29	37.0/28	16.6/08	19.8/03	23.2/07	6.2/31	29.0/28	11.2/01			

Note: - 1. First Row against each year is Months Total Rainfall

2. Second row is the highest rainfall recorded during 24 hrs. of the month with

date.

3. All rainfall amounts are in mms.

<u>List of rivers/ nallah and natural water resources in Dachigam</u> <u>National Park</u>

S No.	NAME OF RIVER/ NALLAH	WATER AVAILABILITY				
	DACHIGAM BI	LOCK				
1.	Mahadev nar	Seasonal				
2.	Badin nar	Seasonal				
3.	Narimulla nar	Seasonal				
4.	Dachigam nar	All throughout the year				
	PALHIPORA B	LOCK				
5.	Menu nar	Seasonal				
6.	Drog nar	Seasonal				
7.	Zahil nar	Seasonal				
8.	Kaw nar	Seasonal				
9.	Chandar nar	Seasonal				
10.	Yachigachi	Seasonal				
11.	Bran nar	Seasonal				
12.	Brimj nar	Seasonal				
13.	Malik nar	Seasonal				
	UPPER DACHIGAN	M BLOCK				
14.	Gunas nar	Seasonal				

Natural Water Resources in Lower Dachigam National Park

S. No.	Name of Spring/ Lake	Water Availability
1.	Abchul Menu Spring	All throughout the year
2.	Abchul Mahadev Spring	All throughout the year
3.	NIC water Spring	All throughout the year
4.	Nambal Spring	All throughout the year
5.	Mar Sar Lake	All throughout the year

ANNEXURE - 6

Checklist of bird species recorded in Dachigam National Park

.NO.	Name of Species	Scientific Name	Status
			(IUCN)
	Far	nily Accipitridae	
1.	Black Kite	Milvus migrans	LC
2.	Eurasian Sparrow Hawk	Accipiter nipus	LC
3.	Golden Eagle	Aquila chrysateous	LC
4.	Booted eagle	Hieraaetus pennatus	LC
5.	Himalayan griffon vulture	Gyps himalayensis	NT
6.	Bearded vulture	Gypaetus barbatus	NT
7.	Oriental Honey Buzzard	Pernis ptilorhynchus	LC
8.	Shikra	Accipiter badius	LC
9.	Goshawk	Accipiter genitilis	LC
10.	Himalayan Buzzard	Buteo burmanicus	LC
	Family F	Falconidae	LC
11.	Common Kestrel	Falco tinnunculus	LC
12.	Eurasian hobby	Falco subbuteo	LC
	Family P	hasianidae	LC
13.	Chukar	Alectoris Chukar	LC
14.	Koklas pheasant	Pucrasia macrolopha	LC
15.	Himalayan Monal	Lophophorus impejanus	LC
16.	Snow partridge	Lerwa lerwa	LC
	Far	nily Columbidae	

Snow Pigeon	Columba leuconota	LC
		20
Rock Pigeon	Columba livia	LC
Oriental Turtle Dove	Streptopelia orientalis	LC
Eurasian Collared Dove	Streptopelia decaocto	LC
Speckled wood pigeon	Columba hodgsonii	LC
Fa	amily Psittacidae	I
Rose-Ringed Parakeet	Psittacula krameri	LC
Slaty-Headed Parakeet	Psittacula himalayana	LC
Indian Cuckoo	Cuculus micropterus	LC
Eurasian Cuckoo	Cuculus canorus	LC
F	Family Strigidae	
Eurasian Eagle Owl	Bubo bubo	LC
Little Owl	Athene noctuna	LC
Long-Eared Owl	Asio otus	LC
Tawny owl	Strix aluco	LC
]	Family Aodidae	I
Himalayan Swiftlet	Aerodramus brevirostris	LC
Alpine Swift	Tachymarptis melba	LC
Common Swift	Apus apus	LC
House Swift	Apus nepalensis	LC
Fa	mily Alcedinidae	
Pied Kingfisher	Ceryle rudis	LC
Common Kingfisher	Alcedo atthis	LC
White-Throated	Halcyon symmensis	LC
	Oriental Turtle Dove Eurasian Collared Dove Speckled wood pigeon Fa Rose-Ringed Parakeet Indian Cuckoo Eurasian Cuckoo Eurasian Cuckoo Eurasian Eagle Owl Little Owl Long-Eared Owl Tawny owl Iawny	Rock PigeonColumba liviaOriental Turtle DoveStreptopelia orientalisEurasian Collared DoveStreptopelia decaoctoSpeckled wood pigeonColumba hodgsoniiFamily PsittacidaeFamily PsittacidaeRose-Ringed ParakeetPsittacula krameriSlaty-Headed ParakeetPsittacula himalayanaIndian CuckooCuculus micropterusEurasian CuckooCuculus canorusEurasian Eagle OwlBubo buboLittle OwlAthene noctunaLong-Eared OwlStrix alucoTawny owlStrix alucoHimalayan SwiftletAerodramus brevirostrisAlpine SwiftTachymarptis melbaCommon SwiftApus apusHouse SwiftCeryle rudisPied KingfisherCeryle rudisCommon KingfisherAlcedo atthis

	Kingfisher		
37.	Crested Kingfisher	Megaceryle lugubris	LC
	Fa	mily Coraciidae	
38.	European Roller	Coracias garrulus	LC
	l Fa	amily Upupidae	
39.	Common Hoopoe	Upupa epops	LC
]	Family Picidae	
40.	Eurasian Wryneck	Jynx torquilla	LC
41.	Scaly-Bellied	Picus squamatus	LC
	Woodpecker		
42.	Grey-Headed	Picus canus	LC
	Woodpecker		
43.	Himalayan Woodpecker	Dendrocopos himalayensis	LC
44.	Speckled piculet	Picumnus innominatus	LC
	Fa	amily Alaudidae	
45.	Crested Lark	Galerida cristata	LC
46.	Oriental Skylark	Alauda gulgula	LC
	Fan	nily Hirundinidae	
47.	Dusky Crag Martin	Ptyonoprogne concolor	LC
48.	Barn Swallow	Hirundo rustica	LC
49.	Striated Or Red rumped	Cecropis daurica	LC
	Swallow		
	l F	amily Oriolidae	
50.	Eurasian Golden Oriole	Oriolus oriolus	LC

	F	amily Surnidae	
51.	Common Starling	Strunus vulgaris	LC
52.	Common Myna	Acridotheres tristis	LC
53.	Jungle Myna	Acridotheres fuscus	LC
	F	amily Corvidae	
54.	Yellow-Billed Blue	Urocissa flavirostris	LC
	Magpie		
55.	Rufous Tree pie	Dendrocitta vagabunda	LC
56.	House Crow	Crovus splendenus	LC
57.	Large-Billed Crow	Crovus macrorhynchos	LC
58.	Kashmir Nutcracker	Nucifraga multipunctata	LC
59.	Yellow-Billed Or Alpine	Pyrrhocorax graculus	LC
	Chough		
60.	Eurasian Jackdaw	Coloeus monedula	LC
61.	Common Raven	Covus corax	LC
62.	Jungle Crow	Crovus culminatus	LC
63.	Carrion crow	Crovus corone	LC
64.	Red billed cough	Pyrrhocorax pyrrhocorax	LC
	Fan	nily Pycnonotidae	I
65.	White-Cheeked Bulbul	Pycnontus leucogenys	LC
	(Himalayan Bulbul)		
66.	Black Bulbul	Hypsipetes leucocephalus	LC
67.	Jungle Babbler	Argya striata	LC
68.	Striated Laughing Thrush	Grammatoptila striatus	LC

69.	Variegated Laughing	Trochalopteron varriegatum	LC
	Thrush		
70.	Streaked Laughing	Trochalopteron lineatum	LC
	Thrush		
	Far	nily Muscicapidae	
71.	Kashmir Red breasted	Ficedula subrubra	LC
	Flycatcher		
72.	Little-Pied Flycatcher	Ficedula westermanni	LC
73.	Ultra marine Flycatcher	Ficedula superciliaris	LC
74.	Slaty Blue Flycatcher	Ficedula tricolor	LC
75.	Verditer Flycatcher	Emyias thalassinus	LC
76.	Grey-Headed canary	Culicicapa ceylonensis	LC
	Flycatcher		
77.	Indian Paradise	Tersiphone paradisi	LC
	Flycatcher		
78.	Blue whistling Thrush	Myophonus caeruleus	LC
79.	Blue-Capped Redstart	Phoenicurus coeruleocephala	LC
80.	White-Winged Redstart	Phoenicurus erythrogastrus	LC
81.	Plumbeous Water	Phoenicurus fuliginosus	LC
	Redstart		
82.	Orange-Flanked Bush	Tarsiger rufilatus	LC
	Robin (Himalayan Blue		
	tail)		
83.	Black Redstart	Phoenicurus ochruros	LC

84.	Little Fork tail	Enicurus scouleri	LC
85.	Spotted Fork tail	Enicurus maculatus	LC
86.	White-Capped Water	Phoenicurus leucocephalus	LC
	Redstart		
87.	Blue Rock Thrush	Monticola solitarius	LC
	Fam	ily Phylloscopidae	
88.	Plain Leaf Warbler	Phylloscopus neglectus	LC
89.	Tytler's Leaf Warbler	Phylloscopus tytleri	LC
90.	Tickell's Leaf Warbler	Phylloscopus affinis	LC
91.	Sulphur-Bellied Warbler	Phylloscopus griseolus	LC
92.	Yellow-Browed Warbler	Phylloscopus inornatus	LC
93.	Whistler's warbler	Phylloscopus whistleri	LC
94.	Lemon-Rumped Warbler	Phylloscopus chloronotus	LC
95.	Blyth's Leaf Warbler	Phylloscopus reguloides	LC
96.	Gold Crest	Regulus regulus	LC
97.	Common Chiffchaff	Phylloscopus collybita	LC
98.	Grey hooded warbler	Phylloscopus xathoschistos	LC
	Family	Turdinae	
99.	Grey-Winged Blackbird	Turdus boulboul	LC
100.	Scaly Thrush	Zoothera dauma	LC
101.	Chestnut Thrush	Turdus rubrocanus	LC
102.	Mistle Thrush	Turdus viscivorous	LC
103.	Tickell's Thrush	Turdus unicolor	LC
104.	Alpine Thrush	Zoothera mollissima	LC

	Fam	ily Troglodytidae	
105.	Winter Wren	Troglodytes hiemalis	LC
	Fa	amily Cinclidae	
10.5			
106.	White-Throated Dipper	Cinclus cinclus	LC
107.	Brown Dipper	Cinclus pallasii	LC
	Fa	mily Prunillidae	
108.	Alpine Accentor	Prunella collaris	LC
109.	Altai Accentor	Prunella himalayana	LC
110.	Black Throated accentor	Prunella atrogularis	LC
111.	Rufous breasted accentor	Prunella strophiata	LC
	Family	Paridae	
112.	Grey Tit	Melaniparus afer	
112.	Olcy III	meunipurus ujer	
13.	Green-Backed Tit	Parus monticolus	LC
14.	Crested Tit	Lophophanes cristatus	LC
115.	Himalayan Black lored	Machlolophus xanthogenys	LC
	Tit		
116.	Yellow-Cheeked Tit	Machlolophus spilonotus	LC
117.	Fire-Capped Tit	Cephalopyrus flammiceps	LC
118.	White-Throated Bush Tit	Aegithalos niveogularis	LC
19.	Coal tit	Periparus ater	LC
120.	Cinereous tit	Parus cinereus	LC
121.	Black Throated Bush Tit	Aegithalos concinnus	LC
	I	Family Sittidae	

122.	European Nuthatch	Sitta cashmirensis	LC
	(Kashmir Nuthatch)		
123.	White-Cheeked Nuthatch	Sitta leucopsis	LC
	Fa	amily Certhidae	
124.	Hodgson's Tree Creeper	Certhia familiaris	LC
125.	Himalayan Tree Creeper	Certhia himalayana	LC
	/ Bar tailed tree creeper		
	Far	nily Motacillidae	
126.	Yellow Wagtail	Motacilla flava	LC
127.	Grey Wagtail	Motacilla cinerea	LC
128.	Pied Or White Wagtail	Motacilla alba	LC
129.	Large Pied Wagtail /	Motacilla maderaspatensis	LC
	White browed wagtail		
130.	Citrine wagtail	Motacilla citreola	LC
131.	Rosy pipit	Anthus roseatus	LC
132.	Upland pipit	Anthus Sylvanus	LC
	Fan	nily Zosteropidae	
133.	Indian White Eye	Zosterops palpebrosus	LC
	Fa	mily Passerinae	
134.	House Sparrow	Passer domesticus	LC
135.	Russet Sparrow	Passer cinnamomeus	LC
136.	Eurasian Tree Sparrow	Passer montanus	LC
	Fami	ly Campephagidae	
137.	Scarlet Minivet	Pericrocotus speciosus	LC

138.	Long-Tailed Minivet	Pericrocotus ethologus	LC
139.	Small Minivet	Pericrocotus cinnamomeus	LC
	Far	nily Emberizidae	I
140.	Pine Bunting	Emberiza leucocephalos	LC
141.	White-Capped Bunting	Emberiza stewarti	LC
142.	Grey-Necked Bunting	Emberiza buchanani	LC
143.	Rock Bunting	Emberiza cia	LC
144.	Chestnut eared Bunting	Emberiza fucata	LC
	Fa	mily Fringillidae	
145.	Orange bullfinch	Pyrrhula aurantiaca	LC
146.	Spectacled Finch	Callacanthis burtoni	LC
147.	Black & Yellow	Mycerobas icterioides	LC
	grosbeak		
148.	Blyth's Rose Finch	Carpodacus grandis	LC
149.	Common Rose Finch	Carpodacus erythrinus	LC
150.	Himalayan Gold Finch	Carduelis carduelis	LC
151.	Yellow Breasted Green	Chloris spinoides	LC
	Finch		
152.	Pink Browed Rose Finch	Carpodacus rodochroa	LC
153.	Fire fronted serin	Serinus pasillus	LC
154.	Plain Mountain Finch	Leucosticte nemoricola	LC
	F	amily Ardeidae	I
155.	Indian Pond Heron	Ardeola grayii	LC
156.	Grey Heron	Ardea cinerea	LC

	Fan	nily Muscicapidae	
157. Si	berian Stonechat	Saxicola maurus	LC
158. Gi	rey Bush chat	Saxicola ferreus	LC
159. Bl	ue throat	Luscinia svecica	LC
160. Bl	ue Fronted Redstart	Phoenicurus frontalis	LC
161. Rı	fous bellied Niltava	Niltava sundara	LC
	Fam	ily Tichodromidae	
162. W	all creeper	Tichodroma muraria	LC
	Far	nily Scolopacidae	
163. Gi	een sandpiper	Tringa ochropus	LC
164. Co	ommon sandpiper	Actitis hypoleucos	LC
	Fa	mily Dicruridae	
	hy Drongo	Dicrurus leucophaeus	LC
165. As	bily Dioligo	Dierarias ieucopracas	
165. As		ily Leiothrichidae	

ANNEXURE 7

Checklist of Butterfly species recorded from Dachigam National Park

S. No.	Common name	Scientific name	Status				
	Papilionidae						
1.	Common Yellow Swallowtail	Papilio machaon (Linnaeus)	Common				
	Pi	ieridae					
1.	Large Cabbage White	Pieris brassicae (Linnaeus)	Common				
2.	Indian Cabbage White	Pieris canidia (Sparrman)	Common				
3.	Bath White	Pontia daplidice (Linnaeus)	Common				
4.	Common Gull	Cepora nerissa (Fabricius)	Common				
5.	Dark Clouded Yellow	Colias fieldii (Menetries)	Common				
6.	Common Brimstone	Gonepteryx rhammi (Linnaeus)	Common				
7.	Small Grass Yellow	<i>Eurema hecabe</i> (Linnaeus)	Common				
8.	Green-veined white	Pieris napi (Linnaeus)	Common				
9.	Pale Clouded Yellow	Colias erate (Esper)	Common				
10.	Common Emigrant	Catopsilia pomona (Fabricius)	Common				
	Lyc	caenidae					
11.	Common Copper	Lycaena phlaeas (Linnaeus)	Common				
12.	White-Bordered Copper	Lycaena pavana Kollar	Common				
13.	Dark Grass Blue	Zizeeria karsandra (Moore)	Common				
14.	Indian Cupid	Everres lacturnus (Godarts)	Common				
15.	Red Pierrot	Talicada nyseus (Guerin- meneville)	Common				
16.	Dusky Hedge Blue	Oreolyce vardhana (Moore)	Common				
17.	Orange Bordered Argus	Aricia astrarche (Bergsrasser)	Common				
18.	Plains Cupid	Chilades pandava (Horsfield)	Common				
19.	Lime Blue	Chilades lajus (Stoll)	Common				
20.	Small Green Underwing	Albulina metallica (C. & R. Felder)	Common				

	Nyn	ıphalidae	
21.	Common Beak	Libythea lepita (Moore)	Common
22.	Club Beak	Libythea myrrha (Godart)	Common
23.	Striped Tiger	Danaus genutia (Cramer)	Common
24.	Plain Tiger	Danaus chrysippus (Linnaeus)	Common
25.	Great Satyr	Aulocera padma (Kollar)	Common
26.	Common Satyr	Aulocera swaha (Kollar)	Common
27.	Common Fivering	Ypthima baldus (Fabricius)	Common
28.	Common Fourring	Ypthima huebneri (Kirby)	Common
29.	Himalayan Fivering	Ypthima sacra (Moore)	Common
30.	Common Threering	Ypthima asterope(Klug)	Common
31.	Large Threering	Ypthima nareda (Kollar)	Common
32.	Common Wall	Lasiommata chakra (Kollar)	Common
33.	Indian Fritillary	Argyreus hyperbius (Linnaeus)	Common
34.	Queen of Spain Fritillary	Issoria lathonia (Linnaeus)	Common
35.	Large Silver Stripe	Chidrena childreni (Gray)	Common
36.	Common Silver Stripe	Fabriciana Kamala (Moore)	Common
	Nyn	phalidae	
37.	Common Leopard	Phalanta phalantha (Drury)	Common
38.	Indian White Admiral	Limenitis trivena (Moore)	Common
39.	Indian Red Admiral	Vanessa indica (Herbst)	Rare
40.	Himalayan Sergeant	Athyma opalina (Kollar)	Common
41.	Common sailor	Neptis hylas (Linnaeus)	Common
42.	Himalayan Sailor	Neptis nahendra Morre	Common
43.	Indian Purple Emperor	Apatura ambica (Kollar)	Common
44.	Painted Lady	Vanessa cardui (Linnaeus)	Common
45.	Indian Tortoiseshell	Aglais casmiriensis (kollar)	Common
46.	Mountain Tortoiseshell	Aglais urticae (Linnaeus)	Rare
47.	Comma Tortoiseshell	Nyphalis vau-albm (Denis & Schiffermuller)	Rare
48.	Eastern Comma	Polygonia egea (Cramer)	Common
49.	Blue Admiral	Kaniska canace (Linnaeus)	Common

50.	Red Admiral	Vanessa indica (Herbst)	Common
51.	Blue Pansy	Junonia orithia (Linnaeus)	Common
52.	Chocolate Pansy	Junonia iphita (Cramer)	Common
53.	Ringed Argus	Callerebia ananda (Moore)	Common
54.	Common Map	Cyrestis thyodama Boisduval	Rare
55.	Indian Purple Emperor	Apatura ambica Kollar	Rare
56.	Himalayan Black vein	Aporia leucodice (Eversmann)	Common

ANNEXURE 8

CHECKLIST OF THE FLORA OF DACHIGAM NATIONAL PARK

CHEKLIST OF TREES

S. No	Tree	Family	Local Name	Status
1.	Aesculus indica	Sapindaceae	Haan Doon	Common
2.	Acer caesium	Sapindaceae	Chaind, Tilpattar	Common
3.	Abies pindrow	Pinaceae	Silver fir, Budul, Taleesha	Common
4.	Betula utilis	Betulaceae	Bhojpater	Uncommon
5.	Crataegus songarica	Rosaceae	Ringkul, Shonth	Common
6.	Celtis australis	Cannabaceae	Brimij	Common
7.	Celtis caucasica	Cannabaceae	Brimij	Common
8.	Euonymus	Celastraceae	Tran, Lichhoi	Uncommon
	fimbriatus			
9.	Euonymus hamitonianus	Celastraceae	Sheelkul, Chhalchhattar	Uncommon
10.	Fraxinus hookeri	Oleaceae	Sinnu, Soom, Hoom	Threatened
11.	Juglans regia	Juglandaceae	Doon	Common
12.	Juglans nigra	Juglandaceae	Doon	Common
13.	Morus nigra	Moraceae	Tul	Common
14.	Morus indica	Moraceae	Tul	Common
15.	Morus alba	Moraceae	Tul	Common
16.	Parrotiopsis jacquemontiana	Hamamelidaceae	Hatab	Common
17.	Pinus wallichiana	Pinaceae	Blue pine	Common
18.	Populus cilita	Salicaceae	Himalayan poplar	Common
19.	Populus deltiodes	Salicaceae	Eastern cotton wood	Common
20.	Populus alba	Salicaceae	White poplar	Common
21.	Platanus orientalis	Platanaceae	Chinar, Boone	Common
22.	Platanus occidentalis	Platanaceae	Safad Boone, Chinar	Common
23.	Prunus cornuta	Rosaceae	Bharath, wild cheery	Common
24.	Prunus ceracifera	Rosaceae	Chaier, wild apricot	Common
25.	Prunus armeniaca	Rosaceae	Apricot	Common
26.	Pyrus malus	Rosaceae	Apple	Common
27.	Quercus robur	Fagaceae	Oak, Vilaiti, Banj	Common
28.	Robinia pseudoacacia	Fabaceae	Kikar	Common
29.	Rhus succedanae	Anacardiaceae	Arkhor	Common

30.	Salix alba	Salicaceae	White willow	Common
31.	Salix babylonica	Salicaceae	Majno, weeping	Common
			willow	
32.	Salix tetrasperma	Salicaceae	Indian willow	Common
33.	Salix caprea	Salicaceae	Goat willow	Common
34.	Taxus wallichiana	Taxaceae	Postul	Endangered
35.	Ulmus wallichiana	Ulmaceae	Bren	Vulnerable
36.	Ulmus villosa	Ulmaceae	Bren	Common

CHECKLIST OF SHRUBS

S. No	Shrub	Family	Local name	Status
1.	Berberis aristata	Berberidaceae	Kawdach	Common
2.	Berberis lyceum	Berberidaceae	Kawdach	Common
3.	Chaerophyllum aromaticum	Apiaceae	Chikmi, Neochha	Common
4.	Daphne mucronata	Thymelaeaceae	Kaapshadi, Kachlum	Common
5.	Gaultheria trichophylla	Ericaceae	Gandhpuri booti, Gandhpura	Common
6.	Hydrangea macrophylla	Hydrangeaceae	Himgainda	Common
7.	Indigofera heterantha	Fabaceae	Krass	Common
8.	Juniperus communis	Cupressaceae	Bethri, Bethur, Hapusha	Common
9.	Juniperus recura	Cupressaceae	Palash, Bithur	Common
10.	Lonicera quinquelocularis	Caprifoliaceae	Bakkadu, Paakhar	Common
11.	Rosa webbiana	Rosaceae	Jungli gulaab	Common
12.	Rosa antennifer	Rosaceae	Jhaanshi, chhanchh	Common
13.	Rubus pungens	Rosaceae	Chhansh, Jhaansh	Common
14.	Rubus ulmifolius	Rosaceae	Jhaanshi, Chhansh	Common
15.	Rubus niveus	Rosaceae	Hill raspberry	Common
16.	Rhododendron anthopogon	Ericaceae	Nchhni, Inga	Common
17.	Sorbaria tomentosa	Rosaceae	Karukni, Kidsungal	Common

CHECKLIST OF CLIMBERS

S. No	Climbers and Twiner	Family	Local name	Status
1.	Aralia cachmerica	Araliaceae	Khori, Albo	Common
2.	Dioscorea deltoides	Dioscoreaceae	Kreensh, Krees	Threatened

3.	Hedera nepalensis	Araliaceae	Kateembri,	Common
			Karoori,	
			Agraanth	
4.	Potentialla reptans	Rosaceae	Creeping	Common
			tormentil	
5.	Rosa brunonii	Rosaceae	Arwl, Kreech	Common
6.	Sibbaldia cuneata	Rosaceae	Sinja, chukadu	Common
7.	Smilax vaginata	Smilacaceae	Thir, Cheenmool	Common
8.	Smilax aspera	Smilacaceae	Kaldaaioon,	Common
			Atkeer	

CHECKLIST OF GRASSES AND SEDGES

S. No	Grasses & Sedges	Family	Common name	Status
1.	Carex stenophylla	Cyperaceae	Phikal	Common
2.	Kobresia laxa	Cyperaceae	Kubber	Threatened
3.	Scripus setaceus	Cyperaceae	Kaseru, Ghussad	Common
4.	Eriocaulon cinereun	Eriocaulaceae	Irka	Common
5.	Agrostis pilosula	Poaceae	Ghaas	Abundant
6.	Datylis glomerata	Poaceae	Trakkad, Panjaghaas	Common
7.	Digitaria sanguinalis	Poaceae	Chhal, Trakkad	Common
8.	Phleum alpinum	Poaceae	Jaamno gha	Common
9.	Poa alpine Linn.	Poaceae	Humulu, Shaadal ghass	Common

CHECKLIST OF HERBS

S. No	Herb	Family	Common name	Status
1.	Anemone obtusiloba	Rananculaceae	Rattan jot	Uncommon
2.	Aquilegia pubiflora wallich	Rananculaceae	Sita di panni	Uncommon
3.	Aquilegia fragrance. Benth	Rananculaceae	Maime hait, kalumb	Common
4.	Clath alba camb.	Rananculaceae	Tahool , Ashpmaar	Common
5.	Clematis connata	Rananculaceae	Hathkad bel, Dhanvati	Common
6.	Clematis montana	Rananculaceae	Dashraanth , Dudh chivara	Common
7.	Delphinium denudatum wallich	Rananculaceae	Nirbis , Nirvisha	Common

8.	Delphinium roylei munz	Rananculaceae	Nirbis ,Nirvisha	Common
9.	Thalictrum minus L	Rananculaceae	Peeli bani, Haichinsah	Common
10.	Thalictrum pedunculatum Edqew.	Rananculaceae	Mamira ,Pinjaari	Uncommon
11.	Viola sylvatica	Violaceae	Nunposh	Common
12.	Arenaria serpylliofolia Linn.	Cryophyllaceae	Letarluni	Uncommon
13.	Lychnis cornaria (L.)Desr.	Cryophyllaceae	Laltraukal, Angaarda	Threatened
14.	Hypericum perforatum L.	Hypericaceae	Basantadu, Basanti	Common
15.	Tribulus terresteris L.	Zygophyllaceae	Bhakhada, Tirkundi	Common
16.	Impatiens bicolor Royle.	Balsaminaceae	Trul, Hajlu,	Common
17.	Lathyrus emodi (Wall.ex.Fritsch)Ali	Fabaceae	Khukni, Triputa	Abundant
18.	Lathyrus pratensis Linn.	Fabaceae	Khukni	Common
19.	Lotus corniculatus	Fabaceae		Common
20.	Genum elatum Wallich.	Rosaceae	Gogji mool, Bhadrashaak	Common
21.	Potentilla atrosanguina Lodd.	Rosaceae	Bajardantu, Rolu	Threatened
22.	Astilbe rivularis Buch.Ham.Ex.D.Don.	Saxifragaceae	Pothi	Common
23.	Sexifraga Sibirica	Saxifragaceae		Common
24.	Sedum adenotrichum Wall.Ex.Edgew.	Crassulaceae	Dazanposh	Abundant
25.	Epilobium parviflorum Schreb.	Onagraceae	Mellu, Loontar jadi	Common
26.	Bupleurum swatianum Nasir.	Apiaceae	Zardzaari, Shashparni	Common
27.	Chaerophyllum acuminatum Lindley.	Apiaceae	Chikmi, Neochha	Common
28.	Chaerophyllum reflexum Lindley.	Apiaceae	Jadgagari, Mukhach	Common
29.	Ferula jaeschkeana Vatke.	Apiaceae	Haput Kanphur, Hinga, Ghud- kaindal	Common
30.	Heracleum lantum Michx.	Apiaceae	Shuriyal, Phulao,	Common
31.	Chaerophyllum villosum Wall.ex.DC.	Apiaceae	Mukhach	Common

32.	Pimpinella diversifolia DC.	Apiaceae	Jehn,tirua	Common
33.	Scandix pecten- veneris L.	Apiaceae	Indusaag , Kachhidana	Common
34.	Seseli libanotis (L)W.Koch.	Apiaceae	Sappad gajari	Common
35.	Vicatia coniifolia DC.	Apiaceae	Shila dhaniya	Abundant
36.	Asperrula oppositifolia Regal.&Schmalth.	Rubiaceae	Machheet, Chhalmajeeth	Common
37.	Gallium asperuloides edgew	Rubiaceae	Machheetu	Common
38.	Gallium vernum Linn.	Rubiaceae	Peela machete	Common
39.	Anaphalis margaritacea(L)Benth	Asteraceae	Bhojli,Kinja	Common
40.	Anaphalis nepalensis (Sprengel)Hand.	Asteraceae	Telgangi, Bhujli	Common
41.	Artemisia dubia Wallich ex.Besser	Asteraceae	Joon, krinidru	Common
42.	Artemisia parviflora Roxb.	Asteraceae	Joon, Tethwan	Common
43.	Aster diplostephioids C.B.Clark	Asteraceae	Tarakpushp, phullala	Abundant
44.	Carpesium abrotanoides Linn.	Asteraceae	Lihur	Common
45.	Picris hieracioides Linn.	Asteraceae	Trumbadu	Rare
46.	Saussurea albescens (DC)Sch.Bip.	Asteraceae	Baklol	Common
47.	Saussurea atkinsonii C.B.Clark	Asteraceae	Lokat, Baklol	Common
48.	Saussurea heteromalla (D.Don)Hand-mazz	Asteraceae	Batola, Dashund	Common
49.	Solidago virgaaurea Linn.	Asteraceae	Thanthaana, Sondandi, Kanakshalakha	Common
50.	Tarracetum dolichophyllum(Kitam)Kitam	Asteraceae	Lidd guggli, chinnparni	Abundant
51.	Taraxacum officinale Webr.	Asteraceae	Handri, Hand, Dullal	Common
52.	Tragopogon dubius Scop.	Asteraceae	Thulkal,Girginok	Common
53.	Tussilago Farfara	Asteraceae	Chilchiloti,	Threatened

	Linn.		Ghudkhura	
54.	Asyneuma thomsonii	Campanulaceae	Branzbooti,Bran zhaak	Threatened
55.	(HK.f.et.Th.)Bornm Campanula aristata Wall	Campanulaceae	Padi-branz	Common
56.	Campanula cachmeriana Royle.	Campanulaceae	Kashir branz	Common
57.	Campanula lotifolia L.	Campanulaceae	Branz ghainti	Common
58.	Codonopsis ovata Benth.	Campanulaceae	Tokerkachh, Dodad	Threatened
59.	Androsace rotundifolia Hardw.	Primulaceae	Golpattri tuttan	Common
60.	Androsace sempervivoids Jacquem ex Duby	Primulaceae	Ashamkund	Abundant
61.	Primula macrophylla D.Don	Primulaceae	Kaangla-Naakla, Peetsevti	Common
62.	Primula rosea Royle.	Primulaceae	Mundaal, peetsevti	Common
63.	Cynanchum arnottianum Wight.	Asclepiadaceae	Dudhad	Threatened
64.	Cynanchum auriculatum Roly ex	Asclepiadaceae	Dudhad	Threatened
65.	Gantiana marginata (. Don) Griseb.	Gentianaceae	Neelkanth, Shirkanth	Common
66.	Nymphoides peltata (S. Gmelin)	Menyanthaceae	Lidd khur	Common
67.	Asperugo procumbens L.	Boraginaceae	-	Common
68.	Cynoglossum lanceolatum Forsk.	Boraginaceae	Khitdi	Common
69.	Onosma hispidum Wallich ex.G.Don.	Boraginaceae	Ratanjot, loljad	Threatened
70.	Veronica biloba Linn.	Scrophulariaceae	Titni	Common
71.	Veronica persica Poiret.	Scrophulariaceae	Ashvashaak	Common
72.	Pedicularis pectinata Wallich ex.Benth	Scrophulariaceae	Kankatyukaparn, shaluth	Common
73.	Orobanche solmsii C.B.Clark ex. Hook.f.	Orobanchaceae	Lothus, Jadkhaar	Common
74.	Petracanthus utricifolius (Kuntze) Bremek.	Acanthaceae	Pardaad,Mauhwa , Kunchpushp	Common
75.	Verbena officinalis Linn.	Verbenaceae	Bareen	Abundant
76.	Nepeta erecta (Benth)	Lamiaceae	Neelpat, Bidaal	Common

	Benth.		Parnaas			
77.	Nepeta lacvigata	Lamiaceae	Neelpat,	Common		
	(D.Don.) Hand-Mazz.		Gandhsoi			
78.	Rumex acetosa Linn.	Plygonaceae	Ulloh, Tsoktsin	Common		
79.	Rumex nepalensis Sprengel.	Plygonaceae	Ubaj, Chooka	Abundant		
80.	Euphorbia helioscopia L.	Euphorbiaceae	Dudhi, Gur sutchsul, Heerusi	Common		
81.	Euphorbia plorifera hook f. & Thomus	Euphorbiaceae	Dudhli, Dudhi	Common		
82.	Parieteria lusitanica linn	Urticaceae	-	Common		
83.	Epipactis royleana Lindley.	Orchidaceae	Amarkand,phullc hamba	Common		
84.	Spiranthes sinensis (pers)ames.	Orchidaceae	Muchhmarool, Amarkand	Abundant		
85.	Iris germanica L.	Iridaceae	Majaarmund, Sosem	Common		
86.	Hemerocallis fulva Linn.	Liliaceae	Riudd, Sunaari	Common		
87.	Juncos articulatus Linn.	Juncaceae	Pranad, Tillar	Common		

ANNEXURE 9

	Population of t	he revo	enue villa	ages su	rroun	ding the	Dachi	gam Na	ational P	ark					
	Name of the	Population APL			Population BPL		Population ST			Total No. of Households					
S.No	Panchayat Halqa	Male	Female	Total	Male	Female	Total	Male	Female	Total	Total	APL	BPL	ST	Total
1	Dara A	291	201	492	120	80	210	210	167	377	1079	80	70	30	180
2	Dara B	400	364	764	250	150	400	-	-	-	1164	149	124	-	273
3	Faqir Gujri A	75	59	134	1136	940	2076	1211	999	2210	2210	-	-	335	335
4	Faqir Gujri B	58	53	111	1007	948	1955	1065	1001	2066	2066	-	-	217	217
5	Gandtal	778	635	1413	501	441	942	-	-	-	2355	270	219	-	489
6	Khimber	875	860	1735	880	850	1730	47	33	80	3545	245	215	17	477
7	Theed A	468	450	918	441	399	840	175	125	300	2058	145	134	52	331
8	Theed B	602	550	1152	340	310	650	-	-	-	1802	131	105	-	236
9	Syed Pora	928	850	1778	550	449	999	-	-	-	2777	265	208	-	473
10	Total	4475	4022	8497	5225	4567	9802	2708	2325	5033	19056	1285	1075	651	3011

ANNEXURE - 10

Poaching and natural death of wild animals from last five years

Year	Animal	Poaching	Natural death	Accidental Death	Total mortality	Remarks
2015-16	Asiatic black bear	-	-	-	-	
	Jackal	-	-	-	-	
	Leopard cat	-	-	-	-	
2016-17	Asiatic black bear	-	-	1	1	
	Monkey	-	-	1	1	
	Jackal	-	-	1	1	
2017-18	Asiatic black bear	-	2	-	2	
	Porcupine	-	1	-	1	
	Leopard Cat	-	-	1	1	
2018-19	Asiatic black bear	-	1	1	2	
	Leopard Cat	-		1	1	
	Leopard	-	1	1	2	
2019-20	Asiatic black bear	-	-	1	1	
	Leopard	-	-	-	-	
	Hangul	-	-	1	1	

ANNEXURE - 1.

Gazette notifications on Dachigam National Park

1141105 HIGENESS' GOVERNMENT, JAMMU & KAS OHIEF SECRETARIAT. (General Department.) mendment to Notifications under the Game Preservation Act 5. TITEOT-1998. (1) Memorandum No. F/427/43 dated 25-6-45 from the Development. Ministor (2) ORDER No. 710 -C of 1945 . Dated 17 -7 . 194 5. The notifications forming an ennexures to this order az senctioned and it is directed that W be published in the Government Gazette. By order in Council. Confirmed. PRINE MINIS -12 PSC at MAHABAJA. 461-0

THE HIGINESS ' GOWERNE NT. JAMMU AND KASHMIB.

NOTIFICATION Z

In exercise of the powers conferred by sub-section (3) of section 1 of the Jamma and Kashmir Game Preservation Act, 1998, the section are pleased to exampt the following Game Sanctuary and Game Baserves from the provisions of section 6 of the said tot to this extent that grazing therein may be permitted by the Chief Concervator of Forests.

GAVE SANCTUARY.

Chumnei basin in Arau valley as delineated in the map bereto ennoxed.

OALE RESERVES.

Janmu Province

Jasrota Forest I and II including Bagni Block- An area near Kathua in the Kathua Forest Division.

- -1. Delsar Rakh.
- -2. Earh Rakh.
- .3. Gurarh Rakh.
- A. Vansar (Sagoon Rakh).
- -5. Lansar (Tunnel Rakh).
 - 6. Karen Rakh.
- 7. Khori Rakh.
- -8. Agra Chak Rakh.
- -9. Badyal Rakh.
- 10. Vakwal Rakh.

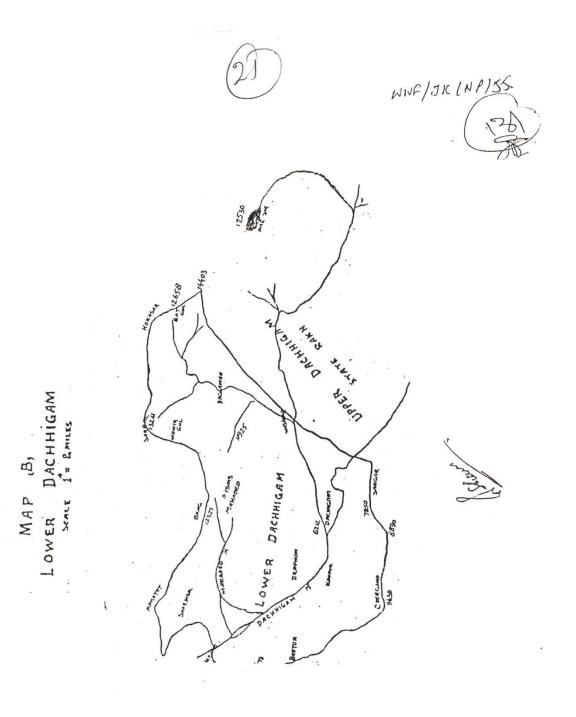
11. Ramagar Rakh.

Kashmir Province.

1. Chashmashahi Rakh.

2. Ovra Rakh in Lidder Valley.

- 5. Khirram Fakh (Big Game area outside the State Rakh as delineated in map A hereto annexed).
- 4. Lower Dachhigam Rakh, (as delineated in the map B herete annexed).
- 5. Ajjas Big Game area (as delineated in map & hereto annexed)
- 6. Thajiwas Nullah (as delineated in mep D hereto an exed).
- 7. Laiparian a shakk.



GOVERNMENT OF JANHU AND KASHMIR CIVIL SECTT: FOREST DEPARTMENT.

Subject :-National Parks, Sanctuaries and Game Reserves in the Jammu & Kashmir State.

Reference:- Cabinet Decision No:35 dated 2.2.1981

Government order No: FST/ 2 A of 1981 Dated 4th Feb. 1981

In the interest of wild Life Preservation and Revelopment sanction is accorded to notify the following areas as Mational Parks, Sanctuaries, Game Reserves and Man & Biosphere Reserve under Section 17(1) of J&K. Wild Life (Protection) Act of 1973.

I-WAI TOWAL FARKS:

- 1. Dachigam Nationab Park-Kashmir
- 2. Rishtwar High Altitude Nationao Park-Jainnu 3. Fiemis High Altitude-National Park Leh

II-WIDL LIFE SANCFUARIES:

- 1. Overa Wild Life Sanctuary-Kashmir

- Overa Wild Life Sanctuary-Kashmir
 Ramnagar Wild Life Schotuary-Jammu
 Nandni Wild Life Sanctuary-Jammu
 Surinsar Mansar Patwar Wild Life Sonctuary, Janmu
 Trikute (Vishnov-Devi)Wildlife Schotuary-Jammu.

III-GAME RESERVES

- 1. Bhahu Gare Reserve-Jammu 2. Jawahar Tunnel Game Reserve-Jammu
- 3. Thian Game Reserve-Jammu
- 4. Sudh Mahadev Game, Reserve-Jammu
- 5. Shang Game Reserve-Leh
- 6. Sabu Chakore Reserve-Leh 7. Kanji Game Reserve-Leh
- 8. Bodhkharbu Game Reserve-Kargil

IV- WET LAND RESERVES :

1. Shallabugh Wetland Reserve-Kashmir

- 2. Pargwal setland Reserve-Jammu
- 3. Garuana Reserve Janmu

4. Sangral wetland Reserve Jammu

5. Kukrian Wetland Reserve-Jammu

(continued on page 2)

Fage (2) of Govt. order NO:FST/ 20 of 1981 dated 4.2.1981

1. 194. 1 6. Nanga Wetland Reserve Jammu 7. Chanthan, Wetland Reserve Leh 8. Sumarary Wetland Reserve Leh 9. Noorichan Wetland Reserve Leh - 10. Chashul Wetland Reserve Leh / 11. Honlay Wetland Reserve Leh. V. MAN AND BIOSPHERE RESERVE: 1. Overa Man and Biosphere Reserve-Kashmir 2. Gulmarg Bissphere Reserve-Kashmir. The Chief Wild Lize Warden/Deputy Chief Wild Life Warden should examine the possibility of starting a Zoo in Jammu. Govt. of Fy order of/Jammu & Kashmir. (J. P. Kesar) (1.2-51 Secretary to Government Forest Department. No 11 FST/GP-9/80 dated 4th Feb. 1981 412 The states Copy forwarded to the :-Chief wild Dife Warden. Jammu for information and necessary action .: 2. Deputy Chief Wild Life Warden, Srinagar for information and necessary action. 3. Director of Information Jak Jammu for inf. 4. Secretary to Government General Deptt; (with three S.C) 5. Secretary to Governor for information 6. Secretary to Chief Minister for information 7. Pvt.Secy to Forest Minister for inf. of FM 8. PA to Deputy Forest Minister for inf. of Deputy FM 9. Stock File/Master file(Personal Section)

Office of the District Magistrate Pulwama.

<u>N</u>Q.<u>T</u>IFIQA<u>T</u>Q

Whereas the Govt. under SR0-134 dated: 10.4.1990 has declared the area with the following location and specifica--tion of Bachigam as a National park.

Situation:- Dachigam is 21 Km, from Srinagar in North-east, whereas the nearst airport(Damoodar) and rail head (Jammu) stand 32 and 315 Kms. away respectively.

Now in accordance with Sec. 20 of wild lafe protection Act 1978 and rules made thereunder. I Shah Latief Deputy Commissioner Pulwama hereby issue this notice/proclamation to settle the rights and concessions of the said National Park to the extent of area 62.95 square Km. within the jurisdiction of Tral range of District Pulwama.

Accordingly all intrested parties having any rights or concessions in the said area may in person or through atorrney intimate the same for consideration and disposal under law by or before 10.10.1999.

Issued under my hand and seal.

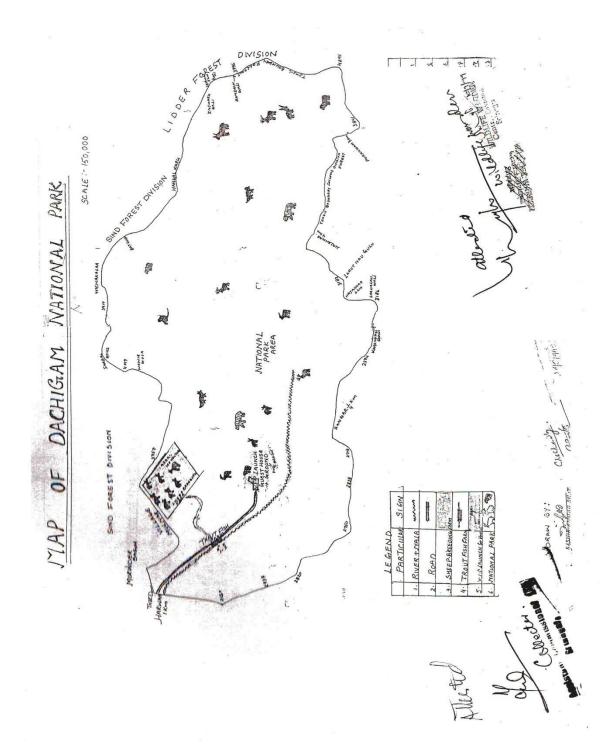
A KIN (Tech

(shah Latief) Deputy Commissioner Pulwama. Dtd:-29-9-1999

 Chief Wild Life Warden Jak Srinagar, Regional Wild Life Warden Kmr. region for information. Dro Forest Divn. Tral for information. Tensildar Tral for information and vide publicity. Tensildar Tral for information and vide publicity. Manager Govt. Press. Kmr. for publication in Govt. Gazette.

At a por ling of letter endorsed to with the warden with the provident for information in far hildlofe Warden the low too

MIM



GOVERNMENT OF JEMMU AND KASHMIR CIVIL SECTT: FOREST DEPAREMENT

the activ 1 1

Notification 199 Jammu, tha 10th April

SRO : 134 :- . Thereas, it appears to the Government that the area appelified in Annemire 'A' to this Notifi-. Gation by reason of ... Its seelsgiesi; foundly flarel, geomorphological association needed to be constituted as Duchtgam Mational Park for surposed of protecting, propogating and developing wildlife therein and its environment.

Now, therefore, in exercise of the powers conferred by Section 35 of the Jamma and Kashmir Wildlife Protection Act, 1978, the Government hereby declare its intention to constitute the said area as a National Park - course Dary and you

1

By order of the Governor. • i si n

ACTOR ASSURATE Sd/

Commr./Secretary to Govt, Forest Department. labore ne - -Whe Cover

Copy for information and necessary action to the .- ! Sceretary to Government Law Department. (w5.s.c.),
 Secretary to Government Revenue Department.
 Chief Wildlife Warden Srinager.

· Main Decrement

- 4. Deputy Commissioner, concerned District;
- 5. Manager Government Press, Jammu for publication in

12-14

Under Secretary to Govt, Forest Department,

04 *G/M*

Nonfrection III

16-14

WWF/JKINP/SS

ADDENIAU TO SECTION 59 OF NOTIFICATION 4 OF THE GAME ACT.

In exercise of the powers conferred by section 26 of the Jammu and Kashmir Game Propervation Act 1998, the Government are pleased to direct that the following further amendment shall be made in the Fules contained in Notification 4 issued under the said Act. namely:-

In rule 59 of the said Rules the full point at the end aball be deleted and the following provise shall be added thereto, namely:-

> Provided that Hygam, Mirgund, Pampur, Karanobu, Maniboog and Chundara Game Reserved shall be treated as reserved areas for the purposes of allotment of shooting therein and issue of permits therefor."

. Umla and Nomo.

65

~5. Bazgo and Myel.

-6. Eikir and Suspul and Valh-Drokpa.

7. Hemis Shupka, Nullah and Khalsi. . Dimkar and Hanu.

. Hemiskit and Wanla. 10. Iluchi and Lardu. 1 fi La

_11. The watershed of the Zaskar and Marka river including the Skew Nullah. 12. Rumpakh.

WWF / JKINP

13. Stock and Shang.

14. Цавьо.

AE. Shera and Lookey.

AS. Kaucok

WHRF JKINPY

11. Wuyan Chikor Area situated between Khrew and Khunmoo

Note:- Only two shoots will be permitted in Ajjas Chikor Area at the discretion of the Guico Warden after Hig Highness the Maharaja Bahadur leaves for Jamma. No permits will be issued for Muyan Chikor area after snowfall.

SCHEDULE &

1. The tritutarios of the Indus from Dumbochik to Keyul. 2. The astershed of the Keyul river as far as its junction, wi the Indus, below this all tributaries, of the Indus as far as big bend of the river at Dungti.

3. Hanle river basin as far as south of Hangle Lonastory.

4. Hanle river basin south of (3).

5. The tributaries of the Indus between the Hunle river and -

6. The country lying between 3 and 4 on the east 5 on the north and 6 on the west.

7. The basin of the Salt Lakes and tributaries of

the Indus between (and including) the Puga river as far as the water of the Tiri Foo.

-8. The basin of the Tgomoriri Lakes and the Phirsi Nullah. -9. The Tiri Foo and the country lying to the north

baunded by Indus on the north and east, the Leh Kulu road on

the west'and the watershed of Taoker Gaup plain on the south.

/10. The watershed of the Zera and Rukhchea South.

_11. The watershed of the Marka river.

12. The Karnah Nullah.

-13. The triangular area lying between Choosbal on the

noth, the Frontier on the east, the watershed of the Choosbal river and Chamtnag Foo on the west and the Indus on the south from Chamtnag to Dungti.

- 14. The catchment area of Tanso rivor.

_15. The Changehenne area.

SCHEDULE B

. The Igu and Chimre Nullah.

2. Nag and Sabu.

13. Phyana und Thro

CLASS B (2)

Kashmir Province.



to Chashmashahi Rakh.

ii. Ovra Rakh in Lidder Valley.

His Khirfam Bakh (Big Game area outside the State Bakh as delineated in the map A hereto annexed).

iv. Lower-Dachhigam Rakh (an deline ated in the map B here to annexed).) deleted & omilled

Ti. Thajiwas Mullah as delineated in map (hereto annexed).

Jamin Province.

/1. Dalsar Rakh.

11. Varh Rakh.

111. Gurarh Rakh.

iv. Lansar (Sagoon Rakh).

A. L'ansar (Tunnel Rakh).

vi, Koran Rakh.

Tii. Kheri Rakh.

vili. Agra Chak Bakh.

1r. Badyal Pakh.

I. Lakwal Hakh.

ri. Ramagar Rukh.

Note: - Shooting or killing of pigs within miles of the Game Reserves Class B is prohibited.

CLASS O

Kashmir Province.

A. Hygam Jhil.

Vii. Wirgund Jhil.

/111. The Pempur, Karanchu, Maniboog and Chandara Jhile.

III. HE SERVED AREAS

Kashmir Province.

i. Dara Chikor Area. L

. Nishat Chikor Area.

-121. Bren Chikor Area.

Ir. Zewan area delineated in map E.

T. Khirram Chikor Area, outside the State Rakh as delineated in map. F.

/rl. Ajjas Chikor Area.

NOTIFICATION 2

and Kashmir Game Preservation Act, 1998, and in supersession of Wotification NO: 2 appended to the said Act, the Government are pleased to declare the following areas as Came Sanctuaries, Game Beserves and Reserved Areas respectively, namely:-

WHF/JK/NP/

I. GAVE SANCTUARTES.

Kashmir Province.

1, Rajparian and Bewai Basins in Nowbug Valley.

/ii. Shankaracharya hill. M

111. Chumai basin in Arau valley. 17. Jack gam as differentia in The Map arhered herele. Jamma Province.

1. Sommjani and Sapphire mines Nullah in Kishtwar.

_ ii, Pond near Sri Gouri Sankar in Kishtwar.

iii. Places sacred to all communities.

Ladakh

A. Khushmul and Yinu basins in Baltistan.

Ai, Askor Nullah in Randu, Baltistan,

II.GALLE RESERVES

CLASS A

Kashmir Province

1. Achhabal. Rakh,

Ai. Chhatarpul Nullah in Sindh Valley.

All. Wangat Nullah in Sindh Valley.

Av. Kendi and Khras Nulleh in the Uri Tohsil the lower boundary of which is the new road to Haji Pir.

Ar. Astors shooting area as specified in Schedule A.

vi. Karinag and Kafirkhan area including Salkhala, the Koji and Shamsburry Rakha.

Jauna Province

/1. Shashera Forest- An area near Rajori in the Mirpur Forest Division.

/ 11. Jhallangar Forest- An area near Reasi in the Reasi Forest Division.

/iii. Jesrota Forest I and II including Bagni Block- An area

Office of the Deputy Commissioner, Srinagar.

-:0:-

tification No: ted:-

In exercise of the powers conferred upon me Vide Government Order No: FST/20/1981 dated :- Ist Feb. 1981 issued by the Government under the Jammu and Kashmir Wildlife (Protection) Act 1978, I, Omar Jan, Deputy Commissioner, Srinagar, hereby order and declare the below noted area as National Park in Srinagar

District :-

S.NO.	Name of the Bonational Park	oundaries	
1.	Lower Dachigam Part of Dachigam National Park Kashmir.	 Khyakhas Gali Sangari Barobal Harwan Reserve Gandbal Mahadav Top Sarbal Hokersar. 	Tehsil Srinager.

Objection if any with regard to entitlement in the land coming under the above mentioned area will be received from int. the landowners/interested persons in the above area within a pariod of two months from the date of publication of this notification in the Government Gazettee, No objection, whatscever, will be entertained after the exp of the above mentioned period.

> sd/-(Omar Jan.) Deputy Commissioner, Srinagar.

NO:- 453-55/SQ Dated:-20-7-1983.

Copy to the :-

a an a B

- Regional Wildlife Warden Srinagar for inf. This is in ref. to his letter No:768-69/WLK dt:23-6-1983. He will give wide publicity to this notification for publication of the same 1. in the local Newspapers.
- Tehsilder Srinager for inf. and n/a with the remark that the he will give wide publicity to this notification in the adjust adjacent villages and through the Revagencies. conserved Numberdars and village Guards)and-arrange sufficient copies of notification to be pasted at conspicious places in all theadjacent villages. 2
- Manager Govtt. Press Sgr. for publication of the notification 3. in the Govtt, Gazettee.

Fage (2) of Govt. order NO:FST/ 20 of 1981 dated 4.2.1981

6. Nanga Wetland Reserve Jammu 7. Chanthan Wetland Reserve Leh 8. Sumarary Wetland Reserve Leh 9. Noorichan, Wetland Reserve Leh - 10. Chashul Wetland Reserve Lehy - 11. Honlay Wetland Reserve Leh. V. MAN AND BIOSPHERE RESERVE: 1. Overa Man and Biosphere Reserve-Kashmir 2. Gulmarg Biosphere Reserve-Keshmir. The Chief Wild Lire Warden/Deputy Chief Wild Life Warden should examine the possibility of starting a Zoo in Jammu. Govt. of Fy order of/Jammu & Kashmir. (J. P. Kesar) (1.2-5.1 Secretary to Government Forest Department. No 11 FST/GP-9/80 dated 4th Feb. 1981 the go the states Cropy forwarded to the :-Chief Wild Dife Warden. Jammu for information and necessary action .: 2. Deputy Chief Wild Life Warden, Srinagar for information and necessary action. 3. Director of Information Jak Jammu for inf. 4. Secretary to Government General Deptt. (with three S.C) 5. Secretary to Governor for information 6. Secretary to Chief Minister for information

- 7. Pvt.Secy to Forest Minister for inf. of FM 8. PA to Deputy Forest Minister for inf. of Deputy FM 9. Stock File/Master file(Personal Section)

Government of Jammu and Kashmir. Civil Sectt: Forest Department.

Organisational set up of the Wildlife Protection

Subject

Department. GOVERNMENT ORDER NO: 128 -FST OF 1991. -5 -1991. DATED:-13 Sanction is ac orded to the organisational set up (with jurisdiction) of the Wildlife Protection Department where in addition to the Chief Wildlife Warden, the Department will have three Regional Wildlife Wardens (at mresent DCF), one each for Jammu Region, Kashmir Valley and Ladakh Region, and oach Region will have Divisions. (under ACF/Wilddife Warden) and then. each Division as Ranges under detailed below:-(a) Wildlife Region i/ Wildlife Warden Chinab Valley Jammu. Headquarter Kishtwar. ii/ Wildlife Warden, Jammu East Headquarter Kathua (Mansar till accommodation arranged at Kathua) i/ Wildlife Warden North (Kashmir) Headquarter Sopore.. (b) Wildlife Region . Kashmir. 11/ Wildlife Warden South (Kashmir) Headquarter Lijbehara. Viii/ Wildlife Warden Central Headquarter Srinagar, He will also assist the Chief Wildlife Warden in day to-day work besides field work. i/ Wildlife Warden, Leh. (c) Wildlife He gion Ladakh (Leh) ii/ Wildlife Warden, Kargil. Hq. Leh. Each Wildlife Warden will have the following Ranges under them: -

(a) Wildlife Warden Chenab <u>Valley (Kishtwar).</u>
i/ Kishtwar Wildlife Range with Headguarter at Parimahal (Ikhala)
ii/ Sirchi Wildlife Range (Hdgr. Yordoo).
Kishtwar High Altitude National Park (Detween Hanzal to Yurdoo)

contd p.2

(b) Wildlife Warden Jammu (B Hdgr, Kathua (Mansar til <u>accommodation arranged)</u>	
i/ Mansar Wildlife Range (Hdgr. Mansar)	
ii/ Jammu Wildlife Range (Hgr. Jammu)	<pre>i/ Ramnagar Wildlife- Sanctuary, ii/ Nandni Wildlife Sanctuary. iii/ Dahu Wildlife Sanctuary. iv/ Mahamaya City Forest (Proposed). v/ KuRarian Wetland Reserve. vi/ Pargwal Wetland Reserve. vii/ Nanga Wetland Reserve. vii/ Gurana Wetland Reserve.</pre>
iii/ Jasrota Wildlife Ran (Hqr. Jasrota)	ge i/ Jasrota Wildlife Sanctuary, ii/ Thei Wetland Reserve. ii/ Sangral Wetland Reserve,
iv/ Rajouri Poonch Wildli: Range.	fe This Range is yet to be surveyed.
(c) Wildlife Warden North, (k Hdqr, Sopore/Daramulla.	(ashmir)
i/ Wildlife Range Baramu	ulla. 1/ Lachipora Wildlife Sanctuary. 11/ Limber Wildlife Sanctuary. 11/ Naganari/ Wildlife Reserve. 11/ Sheeri Wildlife Reserve. 11/ Sheeri Wildlife Reserve. 11/ Nambla Wildlife Reserve. 11/ Kanispora Wildlife Reserve. 111/ Gantamulla Wetland Reserve.
ii/ Wular Wildlife Range Sopore.	<pre>i/ Hygam Wetland Reserve. ii/ Wular Lake and adjacent Wetland. iii/ Zawoora Wildlife Reserve, iv/ Harwan Wildlife Reserve. v/ Zalura Wildlife Reserve. vi/ Watlab (Kunis) Wildlife Reserve. vi1/ Ajas Wildlife Reserve. vi1/ Gurez Area.</pre>
iii/ Lolab Valley Wildlife Range, Kupwara.	Kairan, Machal and Lolab Area. (To be surveyed and till then post of Wular Wildlife Range as additional charge)
iv/Lakes Wildlife Range, Hokra≴∞2	i/ Hokra Wetland Reserve. 11/ Mirgund Wetland Reserve. 11/ Nadroo Wetland Reserve. 11/ Narkara Wetland Reserve.

-:2:-

(a) W	ildlide Warden South (Kash	nmir)
H	/ Lidder Valley Wildlife Range. Hgr. Fahalgam (Summer) Cvera (Winter)	 1/ Overa Wildlife Sanctuary. ii/ Aru Wildlife Sanctuary. iii/ Chumbrai Wildlife Reserve. ix/ Khiram Wildlife Reserve. W Pahalgam and Aishmuqam. Chakore areas.
11	/ Tral Wildlife Range Tral.	1/ Shikargah Wildlife Reserve. 11/ Dannyar Wildlife Reserve. 11/ Khanagund Wildlife Reserve. iv/ Chakore Reserve Tral.
11:	L/ Dringi Wildlife Range Hgr. Kukarnag.	<pre>1/ Daksum (Rajparian) Wildlife Sanctuary ii/ Achhabal Wildlife Sanctuary. 1ii/ Sof Chakore Reserve. ivg Tunnel Chakore Reserve.</pre>
1	v/ Pirpanjal Wildlife Ran Hqr. Shopian.	ge i/ Hirpora Wildlife Sanctuary. ii/ Yousmarg Areas. ii/ Wetlands falling within the tensils of Pulwama and Shopian.
(e)	Wildlife Warden Central	
1	Hgr. Srinadar. i/ Sindh Valley Wildlife Range. Hgr: Ganderbal.	<pre>1/ Thajwas Wildlife Sanetuary. 1i/ Shalabugh Wetland Reserve. 1ii/ Chattergul Reserve. iv/ Wangat Reserve. v/ Anchar Reserves.</pre>
1	11/ National Park Range Hgr. Dachigam	<pre>i/ Dachigam National Park. ii/ Dara Wildlife Reserve. ii/ Nishat Wildlife Reserve. iv/ Dal areas. v/ City Forest National Park. vi/ Cheshmachahi Reserve. vi/ Shankracharya Sanctuary. vii/ Shankracharya Sanctuary. vii/ Drain Wildlife Reserve. ix/ Harwan.</pre>
1	11/ Khrew Wildlife Range Hgr. Khrew.	 17 Khonmoh Wildlife Reserve, 11/ Khrew Wildlife Reserve, 11/ Chatlam Wetland Reserve, 1v/ Manibugh Wetland Reserve, v/ Kranchoo Wetland Reserve, vi/ Chakore Reserve Wuyan, between Khrew and Khunmoo,
(f)	Wildlife Warden, Leh.	
a B	i/ Leh Wildlife Range, Leh.	 i/ Hemis High Altitude National Park. ii/ Proposed Rizong Wildlife Sanctuary. iii/ Shang Wildlife Reserve. iv/ Sabu Chakore R serve.
2		

- 11/ Changthang Wildlife Range, Hqr. XNyoma.
- iii/ Nubra Wildlife Range Hqr. Diskit;

(g) Wildlife Warden, Kargil.

i/ Kargil Wildlife - Range, Kargil.

11/ Zanskar Wildlife Range

Hgr. Padam.

- i/ Changthang Cold Desert Wildlife Sanctuary. ii/ Proposed Gya-Miru Wildlife
- Sanctuary.
- ii/ Noorichan Wetland Reserve. iv/'Hanlay Wetland Reserve.

- v/ Che shul We tland Reserve. vl/ Pangong We tland Reserve. vii/ Tsomarari We tland Reserve.
 - 1/ Karakoram (Nobra Shayok) Wildlife Sanctuary.
- i/ Kanji Wildlife Reserve. 'ii/ Lodh Kharbo Wildlife Reserve. iii/ Proposed Shimsha Kharboo Wildlife Reserve.

- Wildlife Reserve,
- iv/ Proposed Gurgurdoo Wildlife Sanctuary.
- v/ Proposed Umba Wildlife
- Sanctuary. vi/ Proposed Broko Wildlife
- Sanctuary. vii/ Proposéd Nimdum Wildlife
- Sanctuary.

xxxxx 5.8

- i/ Troposed Rangdum Wildlife Sanctuary. .
- ii/ Proposed Lungnag Wildlife
- Sanctuary. iii/ Proposed Tongri Wildlife
- Sanctuary, iv/ Proposed Rezong Wildlife
 - Sanctuary.

The office of the Chief Wildlife Wardan, besides having the Administration, prosecution and Accounts Sections will also have the following sections:-

Research and Survey Unit.

This unit will be responsible for all matters relating to research and survey and will thus have jurisdiction over the whole of the State.

II) Veterinary Unit.

This unit is headed by a Veterinary Asstt: Surgeon and will work directly under the control of the Chief Wildlife Warden.

III) Asstt: Wildlife Warden (HL

He will be incharge of the following job :-

a/ Antipoaching.

IV) Engineering Wing:

Engineering Wing of the Wildlife Department will be headed by the Assistant Engineer and will be incharge of execution of works!

This Government Order is subject to the following conditions:-

1. The Chief Wildlife Warden would neither promote any Officer against the post nor give charge of the higher post than the one is already having and would man this Organization with the existing staff already sanctioned for the Wildlife Protection Department.

2. The jurictions mentioned in the Government Order will be subject to condition that areas have been transferred from the Forest Department to the Wildlife Protection Department and declared as such under proper notification under Wildlife Protection Act.

3. No interwing adjustments/transfers within the Wildlife Protection Department will be allowed without approval of the AdmnsDepartment if such wing has not been sanctioned.

4. Staff for Engineering, Legal and Accounts Wings would not be recruited directly and would be taken on deputation from the concerned Department.

5. Preference would be given to the staff from the Forest Department to man the Organisation.

5. No achoc amointments would be made against vacant. sanctioned pests without an roval of the adminiperartment. By Order of the Government of Jammu and Kashmir.

> Sd/-(N. R. Gupta) Commr/Secretary to Government Forest Department

NO: FST-9/WL/90 DATED: 13-5-1991
Copy fortheformation and necessary action to the:Pr.Chief Conservator of Forests, Srinagar.
Chief Wildlife Warden, Srinagar.
Chief Conservator of Forests, Jammu/Kashmir.
Pvt.Secretary to Advisor(H).
P.A.to Commr/Secretary(Forests).
Government Order File.
Monday Return File(w.3.s.c).
Stock File.

Acquininel 12,15/11

Under Sepretary to Government Forest-Department

Deckay

Office of the District Magistrate Srinagar.

The Commissioner/Secretary to Government, Forest Department, Civil Secretariat, Jammu.

Subject: Determination of rights and acquisition of land or rights in Dachigam National Park, District Srinagar through proclamation and completion of further proceedings for issue of final notification by the Government.

Whereas, in exercise of powers conferred by Section 35 of the Jammu and Kashmir Wildlife Protection Act, 1978 Government of Jammu and Kashmir vide S.R.O 134 Dated: 10-04-1990 declared its intention to constitute the following area as Dachigam National Park:

North: Dara Block, Sindh Forest Division and Overa Aru Wildlife Sanctuary.

South: Ridges of Cheshmashahi Forests and Khonmor-Khrew Forests and Ridges of Hajin, Naristan and Zowistan forests.

East: Lake Tarsar and Overa - Aru Wildlife Sanctuary.

West: Harwan water reservoir and slopes of mountain range from Harwan reservoir overlooking villages of Shalimar, Ishbar Nishat Sangri to Cheshmashahi (Zabarwan) overlooking Dal Lake.

Area: Encompassing an area over 141.0 Sq.Kms roughly rectangular in shape approximately 23.50 Kms. long and 6.0 Kms. wide.

Legal Perspective: The park was a private Rakh of the then Maharaja prior to independence, and enjoyed the status of a Game Reserve till 1951, when it was upgraded into a Sanctuary vide notification No: 276-CP of 1951, Dated: 14-03-1951.In the Year 1981 a cabinet sanction was accorded to raise its status to a National Park vide Govt. Order No: FST/20 of 1981, Dt: 04-02-1981,

Map: The Map annexure to the notification attested by Joint party of Revenue Department officials and Wildlife Protection Department officials based on their Joint Inspection is enclosed as **Annexure A**.

Whereas, the process for issuance of proclamation under section 20 of Jammu & Kashmir Wildlife Protection Act, 1978 (Amended up to 2002) was initiated and notification of proclamation was issued by this office vide endorsement No:892-98/SQ/Misc. Dt:23-X-2007.

Whereas, this office in pursuance of section 21 cf Jammu and Kashmir Wildlife Protection Act, 1978 (Amended up to 2002) has inquired into:

- a) The claim preferred before this office under clause (b) of section 20, and
- b) The existence of right mentioned in section 18 and not claimed under clause (b) of section 20, and the same was ascertained from the records of the State Government.

Whereas, within the limits and boundaries of the proposed National Park, Dachigam as defined in S.R.O 134 Dated:10-04-1990 no temporary or permanent settlements exists, and this has been ascertained from the records and the also evidences collected in this regard. However some Government establishments and assets of various other Departments exist as per the following Detail:

i) Sheep Breeding Farm (Sheep Husbandry Department) 100 hectare

(As reported by the Wildlife Warden Central Division, Srinagar a cabinet decision No: 53/3 Dt: 18-04-2005 is in place for shifting of Sheep Breeding Farm from Dachigam National Park).

ii) V.I.P Guest House and compound (Hospitality & Protocol Department) 5 Hectare

(As reported by the Wildlife Warden Central Division, Srinagar this establishment is very old one and its continuance in the park confines no longer hinder the objective of declaring finally Dachigam a National Park)

iii) Laribal Trout Fish Farm (Department of Fisheries) 1 Hectare and 5 Kanals,

(As reported by the Wildlife Warden Central Division, Srinagar this project is also old one and its continuance in the park confines no longer hinder the objective of declaring finally Dachigam a National Park)

Whereas, under section 23 there is no claim to a right of any person/s in or over any land referred to in section 18 for the area under question and no acquisition of right is involved.

Whereas, the proceedings as contemplated under section 20, section 21 section 22 and section 23, (except clause (c) of subsection 2 of section 23), section 24 (A) and section 35 (sub section 2,3,4) of Jammu and Kashmir Wildlife Protection Act, 1978(Amended upto 2002) the process of determination of rights and acquisition of land or rights in Dachigam National Park through proclamation and completion of further proceedings and duties of the undersigned as collector is completed and under section 35 sub section 4 clause (a) (b) all the rights in respect of land within the limits and boundaries as defined in the Map (Annexure A) have now become vested with the

Government for issue of final notification to declare Dachigam finally as National Park under section 35 of The Jammu and Kashmir Wildlife Protection Act-1978 (Amended up to 2002).

Now therefore, in view of the above and as a compliance to the Order of the Hon'ble Supreme Court Dated 21-11-2005 and 29-08-2006 in the I.A.No 2 of the Writ Petition (Civil) No: 337/1995 Centre for Environment Law, WWF V/S union of India and others It is recommended that the area of Dachigam with following details may be declared finally as Dachigam National Park :

North: Dara Block, Sindh Forest Division and Overa Aru Wildlife Sanctuary.

South: Ridges of Cheshmashahi Forests and Khonmoh-Khrew Forests and Ridges of Hajin, Naristan and Zowistan forests.

East: Lake Tarsar and Overa -Aru Wildlife Sanctuary.

West: Harwan water reservoir and slopes of mountain range from Harwan reservoir overlooking villages of Shalimar, Ishbar Nishat Sangri to Cheshmashahi (Zabarwan) overlooking Dal Lake.

Area: Encompassing an area over 141.0 Sq.Kms roughly rectangular in shape approximately 23.50 Kms. long and 6.0 Kms. wide.

Map: The Map annexure to the notification attested by Joint party of Revenue Department officials and Wildlife Protection Department officials shall form annexure to the final notification.

(Mohd Rajab Bhat)KAS

Collector/Assistant Commissioner R

Srihagar

No: 1670-75 MUL Dt: 89 -12 -09 Copy to the:

- 1) Principal Chief Conservator of Forests (Wildlife) Department of Wildlife Protection J&K, Jammu.
- 2) Divisional Commissioner Kashmir, Srinagar.
- 3) Deputy Commissioner Srinagar.
- 4) Conservator of Forests (Wildlife)/Regional Wildlife Warden Kashmir Region.
- 5) Wildlife Warden, Central Srinagar
- 6) Tehsildar North Srinagar.

REGD. No. D. L.-33004/99



सी.जी.-डी.एल.-अ.-10062021-227469 CG-DL-E-10062021-227469

असाधारण EXTRAORDINARY

भाग II—खण्ड 3—उप-खण्ड (ii) PART II—Section 3—Sub-section (ii)

प्राधिकार से प्रकाशित PUBLISHED BY AUTHORITY

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अधिसूचना

नई दिल्ली, 7 जून, 2021

का.आ. 2184(अ).—अधिसूचना का निम्नलिखित प्रारूप, जिसे केन्द्रीय सरकार, पर्यावरण (संरक्षण) अधिनियम, 1986 (1986 का 29) की धारा 3 की उपधारा (2) के खंड (v) और खंड (xiv) तथा उपधारा (3) के साथ पठित उपधारा (1) द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए, जारी करने का प्रस्ताव करती है को पर्यावरण (संरक्षण) नियमावली 1986 के नियम 5 के उपनियम (3) की अपेक्षानुसार, जनसाधारण की जानकारी के लिए प्रकाशित किया जाता है जिनके उससे प्रभावित होने की संभावना है, और यह सूचित किया जाता है कि उक्त प्रारूप अधिसूचना पर, उस तारीख से, जिसको इस अधिसूचना को अंतर्विष्ट करने वाले भारत के राजपत्र की प्रतियां जनसाधारण को उपलब्ध करा दी जाती हैं, साठ दिन की अवधि की समाप्ति पर या उसके पश्चात् विचार किया जाएगा;

ऐसा कोई व्यक्ति, जो प्रारूप अधिसूचना में अंतर्विष्ट प्रस्तावों के संबंध में कोई आपत्ति या सुझाव देने का इच्छुक है, वह विनिर्दिष्ट अवधि के भीतर, केन्द्रीय सरकार द्वारा विचार किए जाने के लिए अपनी आपत्ति या सुझाव सचिव, पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय, इंदिरा पर्यावरण भवन, जोर बाग रोड, अलीगंज, नई दिल्ली-110003 को लिखित रूप में या ई-मेल esz-mef@nic.in पर भेज सकता है।

प्रारूप अधिसूचना

दाचीगाम राष्ट्रीय उद्यान, थजवास (बालटाल) वन्यजीव अभयारण्य एवं ओवेरा-अरू वन्यजीव अभयारण्य 769 वर्ग किलोमीटर के कुल क्षेत्रफल में फैला हुआ है और केंद्र शासित क्षेत्र जम्मू और कश्मीर के कश्मीर प्रांत में श्रीनगर, गंडेरबल और अनंतनाग जिलों में स्थित हैं।

और, दाचीगाम राष्ट्रीय उद्यान जो 141.00 वर्ग किलोमीटर क्षेत्रफल से युक्त है अधिसूचना सं.एस.आर.ओ: 134 तारीख 10 अप्रैल, 1990 द्वारा राष्ट्रीय उद्यान के रूप में अधिसूचित किया गया, ओवेरा अरू वन्यजीव अभयारण्य जो 425 वर्ग किलोमीटर क्षेत्रफल से युक्त है, एस.आर.ओ:154 तारीख 19 मार्च, 1987 द्वारा वन्यजीव अभयारण्य के रूप में अधिसूचित किया गया एवं थजवास (बालटाल) वन्यजीव अभयारण्य जो 203 वर्ग किलोमीटर क्षेत्रफल से युक्त है, एस.आर.ओ: 158 तारीख 19 मार्च, 1987 द्वारा वन्यजीव अभयारण्य के रूप में अधिसूचित किया गया।

और, दाचीगाम राष्ट्रीय उद्यान श्रीनगर शहर से उत्तर-पूर्व में 21 किलोमीटर की दूरी में स्थित है। उद्यान औसत समुद्र तल से ऊपर 1600 मीटर से 4250 मीटर की ऊंचाई के बीच ग्रेट जानस्कर पर्वत श्रेणी में स्थित है और केंद्रीय हिमालयन धुरी के उत्तर पश्चिम उपखंड बनाता है। दाचीगाम हंगुल (कश्मीर लाल हिरण) के अंतिम जीवनक्षम और स्थानिक जनसंख्या के वास के लिए प्रसिद्ध है जो दक्षिण-पूर्व एशिया में बचा हुआ एकमात्र वास स्थल है। इस उद्यान का ऐसा गौरव है कि इसे देश में सर्वोत्तम प्रबंधित राष्ट्रीय उद्यान होने का पुरस्कार प्रदान किया जा सकता है।

और, थजवास (बालटाल) वन्यजीव अभयारण्य श्रीनगर से उत्तर-पूर्व में 21 किलोमीटर की दूरी में स्थित है। अभयारण्य 34°37′ उ अक्षांश और 74°29′ से 74°36′ पू देशांतर के बीच स्थित है और समुद्र तल से ऊपर 3015 मीटर से 5466 मीटर की तुंगीय श्रेणी कवर करता है। इसमें सिंध वन संभाग के वन कम्पार्टमेंट सं.56/एस से 62/एस तक शामिल हैं। कश्मीर कस्तूरी मृग (मोस्यूस कूपरेयूस) और हिमालयन ब्राऊन भालू (अरसस अर्कटोस) इस क्षेत्र के आकर्षक मुख्य जीवजंतु है। अभयारण्य अन्य महत्त्वपूर्ण वन्यजीव क्षेत्रों जैसे अरू, ऊपरी दाचीगाम और सिंध वन के साथ जुड़ा हुआ है। वन्यजीव अभयारण्य 'सोनमार्ग' की बड़ी-बड़ी बर्फीली चोटियों और सिंध नदी से घिरा हुआ है, जो कि इसकी ट्राउट और महसीर जनसंख्या के लिए प्रसिद्ध है। थजवास ग्लेशियर पर्यटकों के लिए आकर्षण केंद्रों में से एक है, जिसमें पर्यटक ग्रीष्म ऋतु में पर्यटन आते हैं।

और, ओवेरा-अरू वन्यजीव अभयारण्य श्रीनगर के दक्षिण-पूर्व से 76 किलोमीटर की दूरी में स्थित है। यह 33°55'0"उ से 34°20'0" उ अक्षांश और 75°5'0" पू से 75°32'30" पू देशांतर के बीच स्थित है और कश्मीर घाटी के अनंतनाग जिला के अंतर्गत आता है। ओवेरा-अरू अभयारण्य के वन अनेक झीलों और ग्लेशियरों से समृद्ध है, जो कि जल का बहुमूल्य स्त्रोत है, यह जल कई धाराओं को पुष्ट करता है जो धाराएं परिधि के निकट स्थित ग्रामों के नीचे की ओर बहती है।

और, दाचीगाम राष्ट्रीय उद्यान रॉजर्स ईटी एल., 2002 द्वारा सूचित जैव-भौगोलिक वर्गीकरण के 2ए प्रांत के अंतर्गत आता है। परिशोधित चैम्पियन और सेठ (1968) के अनुसार दाचीगाम राष्ट्रीय उद्यान की वनस्पति विशिष्ट रूप से हिमालयन आर्द्र समशीतोष्ण वन, उप-अल्पाइन वन और अल्पाइन वन प्रकार है और आर्द्र समशीतोष्ण पर्णपाती वन, पर्रोटिया (पोहू) झाड़ी वन, पश्चिम हिमालयन निचला स्तर ब्लू पाइन वन, पश्चिमी मिश्रित शंकुधारी वन, पर्णपाती अल्पाइन झाड़ी, पश्चिम हिमालयन उप-अल्पाइन ब्रीच-रहोडोडेनड्रोन वन, ड्वॉर्फ जूनीपर झाड़ी, शुष्क समशीतोष्ण झाड़ी वर्गीकृत किए जा सकते हैं।

और, दाचीगाम राष्ट्रीय उद्यान के कुछ विशिष्ट वनस्पति और जीवजंतु है जिसमें *उल्मस वाल्लिचिअना, सैलिक्स* अल्बा, पोपुलुस स्पा., प्रूनस आर्मेनिया, क्यूरकस रोबर, रोबिना प्सेउडोअकेशिया, पेर्रोटीओपसिस जेकाइमोंटिअना, रोसा वेब्बिअना, रूबस निवेउस, ऐस्कुलुस इंडिका, जगलांस रेगिया, पाइनस ग्रिफ्फिथी, एंगारडा (लयचनिस्कोर्नारिया (एल.) डीसर)., बाजारदांतु (पोटेंटिल्ला अट्रोसांगुइंनालोड्ड.), तरूम्बादु (पिक्रिशियरकीओइड्स), घुड़खुरा (तुस्सिलागो फार्फेरा), डोडड (कोडोनोप्सिस ओवेटे), रत्नजोत (ओनोसमाहिस्पिडम वल्लीचेक्स), कश्मीर रेड हिरन (केरवुस हंग्लुहांगलु.), कश्मीर कस्तूरी हिरन (मोस्चुस कुपरेउस), सामान्य तेंदुआ (पेन्थेरा प्रड्यूस), हिमालयन ब्राउन भालू (उरसुस अरक्टोस इसाबेल्लिनुस), एशियाई ब्लैक भालू (उरसुस थिअटानुस), कश्मीर ग्रे लंगूर (सेम्नोपिथेकस अजाक्स), हिमालयन ग्रिफ्फोन गिद्ध (जिप्स हिमालयेंसिस), बिग्रडिड गिद्ध (गयपेटस बारबेटस), कश्मीर फ्लाईकैचर (फिकेडुला सुबरूबरा), आदि शामिल है।

और, थजवास (बालटाल) वन्यजीव अभयारण्य का क्षेत्र सालभर, अधिकतर मोटी बर्फ से कवर रहता है। वृक्ष प्रजातियां जैसे एबिइस पिंड्रो, बेतुला उलटिलिस, जगलांस रेगिया और पिकेया स्पा. वृक्ष वनस्पति को संघटित करता है। क्षेत्र इंडीगोफेरा हेतरांथ, बेरबेरिइस लयकिकम, और रोसा वेब्बिअना जैसी मुख्य झाड़ियों से घिरा हुआ है। क्षेत्र की महत्त्वपूर्ण जीवजंतु प्रजातियां ग्रे लंगूर (प्रस्वटीस इंटेल्लुस), रहेसुस मकाक (मकाका मुलाट्टा), सामान्य तेंदुआ (पेन्थेरा प्रड्यूस), स्नो तेदुआ (पेन्थेरा यूनिका), तेंदुआ बिल्ली (फेलिस बेन्गालेंसिस), सियार (कैनिस ऑरियस), रेड लोमड़ी (वुल्पेस वुल्पेस), हिमालयन ब्राउन भालू (उरसूस अरक्टोस), एशियाटिक ब्लैक भालू (उरसूस थिबेटानुस), येल्लो थ्रोटेड मार्टीन (मारटीस फ्लाविगुला), लॉग-टेल्ड मर्मोट (मन्नोटा बोबक), रोलेस पिका (ओचोटोना रोयलेइ), एशियाई इबेक्स (कपरा सिबरीका), कश्मीर मुस्क हिरन (मोस्चुस कुपरेउस) आदि हैं।

और, ऊंचाई, आकृति और मृदा में भिन्नता के कारण, ओवेरा-अरू वन्यजीव अभयारण्य में प्रत्यक्ष वनस्पति की विविधता है। अभयारण्य की वनस्पति मुख्यत: नालों के निकट निचला ऊंचे स्थान में कैल (पाइनस *ग्रिफ्फिथी*) के साथ फर (एबीस् पीड्राव) है। भौतिक विविधताओं पर वन प्रकार तटीय वनस्पति (औसत समुद्र तल से ऊपर 1600-2300 मीटर), शंकुधारी वन: (औसत समुद्र तल से ऊपर 2300-3000 मीटर), अल्पाइन झाड़ी और चरागाह (औसत समुद्र तल से ऊपर 3000-3500 मीटर के परे), रॉक फेस: (औसत समुद्र तल से ऊपर 3500 मीटर के परे) पाए जाते हैं। ओवेरा-अरू वन ग्रेट औषधीय मूल्य की कई पौधे की प्रजातियों के साथ समृद्ध है। क्षेत्र में उगने वाले वन में कुछ औषधीय पौधें हैं जिसमें अकोनितम हेटेरोफयल्लुम, अरनेबिया बेंथामि, अरटेमिसिया अबसिंथियम, बेरबेरिस लीसियम, बेरगेनिया लिंगुलाटा, डातुरा स्तरामोनियम, डोओस्कोर अडेलटोआईडिया, लवातेरा कासमेरिअना, सौस्सुरेया कोस्तुस और ताक्यस वाल्लिचिना शामिल हैं।

और, ओवेरा-अरू वन्यजीव अभयारण्य रॉजर्स और पनवार (1998) के द्वारा किए गए जैव-भौगोलिक सीमांकन के अनुसार हिमालयन जोन के उत्तर-पश्चिम प्रांत (प्रांत 2ए) के अंतर्गत आता है। इस प्रांत में संपूर्ण कश्मीर घाटी सम्मिलित है, समशीतोष्ण और उप-उष्णकटिबंधीय जलवायु कश्मीरी स्टैग एवं हंगुल (केरवुस हंगलु हंगलु), कश्मीर मस्क हिरन (मोस्चुस कुपरेउस), हिमालयन ब्लैक भालू (उरसूस थिबेटानुस), हिमालयन ब्राउन भालू (उरसुस अरक्टोस), सामान्य तेंदुआ (पेन्थेरा प्रड्यूस), हिमालयन ग्रे लंगूर (प्रेस्बटीस अजाक्स), रीसस मकाक (मकाका मुलाट्टा), रेड लोमड़ी (वुल्पेस वुल्पेस), ब्राउन मुस्क श्रेव (करोकिडुरा मुरीना), येल्लो थ्रोटेड मार्टीन (मारटेस फ्लाविगुला), लॉग-टेल्ड मर्मोट (मारमोट हिमालियना), कश्मीर वेमपॉयर(मेरगाडेर्मा स्पेकटरूम), लेइसलेर हेयरी–अरमेड बेट (निकतालुस लेस्सलेरी), कश्मीर हाउस रेट (रट्टुस रट्टुस), बिरच माउस (सिक्इस्टा इंडिका), कश्मीर फ्लाई गिलहरी (इओगलाउकोमयस फिम्बरिअतुस), सेरोव (कापरिकोरनिस सुमात्रेनिस), रोयले पिका (ओचोटोना रोयेली), हिमालयन ग्रिफ्फोन गिद्ध (जिप्स हिमालयेंसिस), बियरडिड गिद्ध (गयपैतुस बारबेतुस), कश्मीर फ्लाईकैचर (फिकेडुला सुबरूबरा) आदि द्वारा विशिष्ट है।

और, दाचीगाम राष्ट्रीय उद्यान, ओवेरा-अरू वन्यजीव अभयारण्य और थजवास वन्यजीव (बालटाल) अभयारण्य की प्राकृतिक सीमाएं भू-दृश्य स्तर में जुड़ती है। दाचीगाम राष्ट्रीय उद्यान की सीमा उत्तर और उत्तर-पूर्वी भाग पर ओवेरा-अरू वन्यजीव अभयारण्य के साथ मिलती है जबकि ओवेरा-अरू वन्यजीव अभयारण्य की सीमा उत्तर और उत्तर-पूर्वी भाग पर थजवास वन्यजीव अभयारण्य के साथ मिलती है। संरक्षित क्षेत्र समृद्ध जैव-विविधता और पशुओं, पक्षियों और वनस्पति की कुछ महत्त्वपूर्ण/ स्थानिक प्रजातियों की अच्छी जनसंख्या का भू-दृश्य बनाता है। प्रस्तावित पारिस्थितिकी संवेदी जोन इन क्षेत्रों को एक इकाई बनाता है और इन क्षेत्रों में जैव- विविधता को पनपने के लिए जीन धारा प्रवाह करने में उपयोगी है।

और, दाचीगाम राष्ट्रीय उद्यान, थजवास (बालटाल) वन्यजीव अभयारण्य और ओवेरा-अरू वन्यजीव अभयारण्य के चारों ओर के क्षेत्र को, जिसका विस्तार और सीमाएं इस अधिसूचना के पैराग्राफ 1 में विनिर्दिष्ट हैं, पारिस्थितिकी, पर्यावरणीय और जैव-विविधता की दृष्टि से पारिस्थितिकी संवेदी जोन के रूप में सुरक्षित और संरक्षित करना तथा उक्त पारिस्थितिकी संवेदी जोन में उद्योगों या उद्योगों की श्रेणियों के प्रचालन तथा प्रसंस्करण को प्रतिषिद्ध करना आवश्यक है;

अतः अब, केन्द्रीय सरकार, पर्यावरण (संरक्षण) नियमावली, 1986 के नियम 5 के उपनियम (3) के साथ पठित पर्यावरण (संरक्षण) अधिनियम, 1986 (1986 का 29) (जिसे इस अधिसूचना में इसके पश्चात् पर्यावरण अधिनियम कहा गया है) की उपधारा (1) तथा धारा 3 की उपधारा (2) के खंड (v) और खंड (xiv) एवं उपधारा (3) के द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए, जम्मू और कश्मीर केंद्र शासित प्रदेश के दाचीगाम राष्ट्रीय उद्यान, थजवास (बालटाल) वन्यजीव अभयारण्य और ओवेरा-अरू वन्यजीव अभयारण्य की सीमा के चारों ओर 0 (शून्य) से 9.90 किलोमीटर तक विस्तारित, क्षेत्र को दाचीगाम राष्ट्रीय उद्यान, थजवास (बालटाल) वन्यजीव अभयारण्य और ओवेरा-अरू वन्यजीव अभयारण्य के पारिस्थितिकी संवेदी जोन (जिसे इसमें इसके पश्चात् पारिस्थितिकी संवेदी जोन कहा गया है) के रूप में अधिसूचित करती है, जिसका विवरण निम्नानुसार है, अर्थात् :-

1. पारिस्थितिकी संवेदी जोन का विस्तार और सीमा.-(1) पारिस्थितिकी संवेदी जोन का विस्तार 137.75 वर्ग किलोमीटर के साथ दाचीगाम राष्ट्रीय उद्यान, थजवास (बालटाल) वन्यजीव अभयारण्य और ओवेरा-अरू वन्यजीव अभयारण्य की सीमा के चारों ओर 0 (शून्य) से 9.90 किलोमीटर तक विस्तृत है जैसा कि पारिस्थितिकी संवेदी जोन की सीमा पहलगाम और नूनवान कैम्प के महत्त्वपूर्ण पर्यटन गंतब्य स्थान, प्रसिद्ध वार्षिक तीर्थयात्रा अमरनाथ यात्रा के बेस कैम्प के साथ होते हुए जाती है, पारिस्थितिकी संवेदी जोन का शून्य विस्तार ओवेरा-अरू वन्यजीव अभयारण्य के दक्षिण और दक्षिण-पश्चिम भाग की ओर है। इसके अतिरिक्त, पहलगाम क्षेत्र पर्यटन बुनियादी विकास के लिए उच्च आवश्यकता के अंतर्गत है और पहलगांव विकास प्राधिकरण के लिए स्थानीय क्षेत्र के रूप में विकास अधिनियम के अंतर्गत अधिसूचित है। क्षेत्र बड़ी जनसंख्या का वासस्थल है और इसमें बुनियादी संरचना भी है।

दिशा	विस्तार	अवस्थान
	(किलोमीटर में)	
उत्तर	0.25	सिंध नाला
उत्तर पूर्व	1	बालटाल
पूर्व	1	शेषनाग
दक्षिण पूर्व	1	बरारीपत्थर
दक्षिण	0	ओवेरा
दक्षिण पश्चिम	9.9	वाहाबखर
पश्चिम	7.5	करन महल
उत्तर पश्चिम	1	सोममस
ए	1	ए) बथयन
बी	1.5	बी) नगंदर
सी	3.3	सी) जानातरग
डी	4.95	डी) पखीरिन

विभिन्न दिशाओं (किलोमीटर) में पारिस्थितिकी संवेदी जोन का विस्तार नीचे दिया गया है:-

(2) दाचीगाम राष्ट्रीय उद्यान, थजवास (बालटाल) वन्यजीव अभयारण्य और ओवेरा-अरू वन्यजीव अभयारण्य और इसके पारिस्थितिकी संवेदी जोन की सीमा का विवरण **अनुलग्नक-I** के रूप में संलग्न है।

(3) सीमा विवरण और अक्षांशों और देशांतरों के साथ पारिस्थितिकी संवेदी जोन को सीमांकित करते हुए दाचीगाम राष्ट्रीय उद्यान, थजवास (बालटाल) वन्यजीव अभयारण्य और ओवेरा-अरू वन्यजीव अभयारण्य के मानचित्र **अनुलग्नक–IIक,** अनुलग्नक–II<mark>ख, अनुलग्नक –IIग और अनुलग्नक–IIघ</mark> के रूप में संलग्न है।

(4) दाचीगाम राष्ट्रीय उद्यान, थजवास (बालटाल) वन्यजीव अभयारण्य और ओवेरा-अरू वन्यजीव अभयारण्य और पारिस्थितिकी संवेदी जोन की सीमा के भू- निर्देशांकों की सूची **अनुलग्नक-III** की सारणी **क** और सारणी **ख** में दी गई है।

(5) मुख्य बिंदुओं पर भू-निर्देशांकों के साथ पारिस्थितिकी संवेदी जोन के अंतर्गत आने वाले ग्रामों की सूची **अनुलग्नक– IV** के रूप में संलग्न है।

2. पारिस्थितिकी संवेदी जोन के लिए आंचलिक महायोजना.–(1) केंद्र शासित प्रदेश सरकार, द्वारा पारिस्थितिकी संवेदी जोन के प्रयोजन के लिए, राजपत्र में अंतिम अधिसूचना के प्रकाशन की तारीख से दो वर्ष की अवधि के भीतर, स्थानीय व्यक्तियों के परामर्श से और इस अधिसूचना में दिए गए अनुबंधों का पालन करते हुए, केंद्र शासित प्रदेश सरकार के सक्षम प्राधिकारी के अनुमोदनार्थ एक आंचलिक महायोजना बनाई जायेगी।

- (2) केंद्र शासित प्रदेश सरकार द्वारा पारिस्थितिकी संवेदी जोन के लिए आचंलिक महायोजना इस अधिसूचना में विनिर्दिष्ट रीति से तथा प्रासंगिक केंद्रीय और राज्य विधियों के अनुरूप तथा केंद्र शासित प्रदेश सरकार द्वारा जारी दिशा निर्देशों, यदि कोई हों, के अनुसार बनायी जाएगी।
- (3) आंचलिक महायोजना में पारिस्थितिकी और पर्यावरण संबंधी सरोकारों को शामिल करने के लिए इसे केंद्र शासित प्रदेश सरकार के निम्नलिखित विभागों के परामर्श से बनाया जाएगा, अर्थात्:-
 - (i) पर्यावरण;
 - (ii) वन;
 - (iii) कृषि;
 - (iv) राजस्व;
 - (v) शहरी विकास;
 - (vi) पर्यटन;
 - (vii) ग्रामीण विकास;
 - (viii) सिंचाई और बाढ़ नियंत्रण;
 - (ix) प्रदूषण नियंत्रण बोर्ड;
 - (x) नगरपालिका;
 - (xi) पंचायती राज; और
 - (xii) लोक निर्माण विभाग।
- (4) जब तक इस अधिसूचना में विनिर्दिष्ट न हो, आंचलिक महायोजना में वर्तमान में अनुमोदित भू-उपयोग, अवसंरचना और क्रियाकलापों पर कोई प्रतिबंध नहीं लगाया जाएगा तथा आचंलिक महायोजना में सभी अवसंरचनाओं और क्रियाकलापों में सुधार करके उन्हे अधिक दक्ष और पारिस्थितिकी-अनुकूल बनाने की व्यवस्था की जाएगी।
- (5) आंचलिक महायोजना में वनरहित और अवक्रमित क्षेत्रों के सुधार, विद्यमान जल निकायों के संरक्षण, जलग्रहण क्षेत्रों के प्रबंधन, जल-संभरों के प्रबंधन, भू-जल के प्रबंधन, मृदा और नमी के संरक्षण, स्थानीय जनता की

आवश्यकताओं तथा पारिस्थितिकी एवं पर्यावरण के ऐसे अन्य पहलुओं की व्यवस्था की जाएगी जिन पर ध्यान दिया जाना आवश्यक है।

- (6) आंचलिक महायोजना में सभी विद्यमान पूजा स्थलों, ग्रामों एवं शहरी बस्तियों, वनों की श्रेणियों एवं किस्मों, कृषि क्षेत्रों, ऊपजाऊ भूमि, उद्यानों एवं उद्यानों की तरह के हरित क्षेत्रों, बागवानी क्षेत्रों, बगीचों, झीलों और अन्य जल निकायों की सीमा का सहायक मानचित्र के साथ निर्धारण किया जाएगा और मौजूदा और प्रस्तावित भू-उपयोग की विशेषताओं का ब्यौरा भी दिया जाएगा।
- (7) आंचलिक महायोजना में पारिस्थितिकी संवेदी जोन में होने वाले विकास का विनियमन किया जाएगा और सारणी में यथासूचीबद्ध पैराग्राफ 4 में प्रतिषिद्ध एवं विनियमित क्रियाकलापों का पालन किया जाएगा। इसमें स्थानीय जनता की आजीविका की सुरक्षा के लिए पारिस्थितिकी-अनुकूल विकास का भी सुनिश्चय एवं संवर्धन किया जाएगा।
- (8) आंचलिक महायोजना, क्षेत्रीय विकास योजना की सह-कालिक होगी।
- (9) अनुमोदित आंचलिक महायोजना, निगरानी समिति के लिए एक संदर्भ दस्तावेज होगी ताकि वह इस अधिसूचना के उपबंधों के अनुसार निगरानी के अपने कर्तव्यों का निर्वहन कर सके ।

3. **केंद्र शासित प्रदेश सरकार द्वारा किए जाने वाले उपाय.-** केंद्र शासित प्रदेश सरकार इस अधिसूचना के उपबंधों को प्रभावी बनाने के लिए निम्नलिखित उपाय करेगी, अर्थात्:-

(1) **भू-उपयोग.–** (क) पारिस्थितिकी संवेदी जोन में वनों, बागवानी क्षेत्रों, कृषि क्षेत्रों, मनोरंजन के लिए चिन्हित उद्यानों और खुले स्थानों का वृहद वाणिज्यिक या आवासीय परिसरों या औद्योगिक क्रियाकलापों के लिए प्रयोग या संपरिवर्तन अनुमत नहीं किया जाएगा:

परंतु पारिस्थितिकी संवेदी जोन के भीतर ऊपर भाग (क), में विनिर्दिष्ट प्रयोजन से भिन्न प्रयोजन के लिए कृषि और अन्य भूमि का संपरिवर्तन, निगरानी समिति की सिफारिश पर और क्षेत्रीय नगर योजना अधिनियम तथा यथा लागू केन्द्रीय सरकार एवं केंद्र शासित प्रदेश सरकार के अन्य नियमों एवं विनियमों के अधीन सक्षम प्राधिकारी के पूर्व अनुमोदन से तथा इस अधिसूचना के उपबंधों के अनुसार स्थानीय निवासियों की निम्नलिखित आवासीय जरूरतों को पूरा करने के लिए अनुमत किया जाएगा जैसे:-

- (i) विद्यमान सड़कों को चौड़ा करना, उन्हें सुदृढ़ करना और नई सड़कों का निर्माण करना;
- (ii) बुनियादी ढांचों और नागरिक सुविधाओं का संनिर्माण और नवीकरण;
- (iii) प्रदूषण उत्पन्न न करने वाले लघु उद्योग;
- (iv) कुटीर उद्योग एवं ग्राम उद्योग; पारिस्थितिकी पर्यटन में सहायक सुविधा भण्डार और स्थानीय सुविधाएं तथा गृह वास; और
- (v) पैराग्राफ-4 में उल्लिखित बढ़ावा दिए गए क्रियाकलापः

परंतु यह भी कि क्षेत्रीय शहरी नियोजन अधिनियम के अधीन सक्षम प्राधिकारी के पूर्व अनुमोदन के बिना तथा केंद्र शासित प्रदेश सरकार के अन्य नियमों एवं विनियमों एवं संविधान के अनुच्छेद 244 के उपबंधों तथा तत्समय प्रवृत्त विधि, जिसके अंतर्गत अनुसूचित जनजाति और अन्य परंपरागत वन निवासी (वन अधिकारों की मान्यता) अधिनियम, 2006 (2007 का 2) भी आता है, का अनुपालन किए बिना वाणिज्यिक या औद्योगिक विकास क्रियाकलापों के लिए जनजातीय भूमि का प्रयोग अनुमत नहीं होगा: परंतु यह भी कि पारिस्थितिकी संवेदी जोन के अंतर्गत आने वाली भूमि के अभिलेखों में हुई किसी त्रुटि को, निगरानी समिति के विचार प्राप्त करने के पश्चात्, केंद्र शासित प्रदेश सरकार द्वारा प्रत्येक मामले में एक बार सुधारा जाएगा और उक्त त्रुटि को सुधारने की सूचना केंद्रीय सरकार के पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय को दी जाएगी:

परंतु यह भी कि उपर्युक्त त्रुटि को सुधारने में, इस उप-पैरा में यथा उपबंधित के सिवाय, किसी भी दशा में भू-उपयोग का परिवर्तन शामिल नहीं होगा।

(ख) अनुप्रयुक्त या अनुत्पादक कृषि क्षेत्रों में वनीकरण तथा पर्यावासों की बहाली के कार्यकलापों से पुन: वनीकरण के प्रयास किए जाएंगे।

(2) **प्राकृतिक जल स्रोत.**- सभी प्राकृतिक जलमार्गों के जलग्रहण क्षेत्रों की पहचान की जाएगी और आंचलिक महायोजना में उनके संरक्षण और बहाली की योजना सम्मिलित की जाएगी और केंद्र शासित प्रदेश सरकार द्वारा दिशा-निर्देश इस रीति से तैयार किए जाएंगे कि उसमें ऐसे क्षेत्रों में या उसके पास विकास क्रियाकलापों को प्रतिषिद्ध और निर्बंधित किया गया हो।

(3) **पर्यटन एवं पारिस्थितिकी पर्यटन.–** (क) पारिस्थितिकी संवेदी जोन में सभी नए पारिस्थितिकी पर्यटन क्रियाकलाप या विद्यमान पर्यटन क्रियाकलापों का विस्तार पारिस्थितिकी संवेदी जोन संबंधी पर्यटन महायोजना के अनुसार अनुमत होगा।

- (ख) पारिस्थितिकी पर्यटन महायोजना केंद्र शासित प्रदेश सरकार के पर्यावरण और वन विभाग के परामर्श से पर्यटन केंद्र शासित प्रदेश विभाग द्वारा बनायी जाएगी।
- (ग) पर्यटन महायोजना आंचलिक महायोजना का घटक होगी।
- (घ) पर्यटन महायोजना पारिस्थितिकी संवेदी जोन की वहन क्षमता के आधार पर तैयार की जायेगी।
- (ङ) पारिस्थितिकी पर्यटन संबंधी क्रियाकलाप निम्नानुसार विनियमित किए जाएंगे, अर्थात्:-
 - (i) संरक्षित क्षेत्र की सीमा से एक किलोमीटर के भीतर या पारिस्थितिकी संवेदी जोन की सीमा तक, इनमें जो भी अधिक निकट हो, किसी होटल या रिजॉर्ट का नया सन्निर्माण अनुमत नहीं किया जाएगाः परंतु यह पारिस्थितिकी पर्यटन सुविधाओं के लिए संरक्षित क्षेत्र की सीमा से एक किलोमीटर की दूरी से परे पारिस्थितिकी संवेदी जोन की सीमा तक पूर्व परिभाषित और अभीहित क्षेत्रों में पर्यटन महायोजना के अनुसार, नए होटलों और रिजॉर्ट की स्थापना अनुमत होगी;
 - (ii) पारिस्थितिकी संवेदी जोन के अन्दर सभी नए पर्यटन क्रियाकलापों या विद्यमान पर्यटन क्रियाकलापों का विस्तार, केन्द्रीय सरकार के पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय द्वारा जारी दिशानिर्देशों तथा पारिस्थितिकी पर्यटन, पारिस्थितिकी-शिक्षा और पारिस्थितिकी-विकास पर बल देने वाले राष्ट्रीय व्याघ्र संरक्षण प्राधिकरण द्वारा जारी पारिस्थितिकी पर्यटन संबंधी दिशानिर्देशों (समय-समय पर यथा संशोधित) के अनुसार होगा;
 - (iii) आंचलिक महायोजना का अनुमोदन होने तक, पर्यटन के विकास और विद्यमान पर्यटन क्रियाकलापों के विस्तार को वास्तविक स्थल-विशिष्ट संवीक्षा तथा निगरानी समिति की सिफारिश के आधार पर संबंधित विनियामक प्राधिकरणों द्वारा अनुमत किया जाएगा और पारिस्थितिकी संवेदी जोन में किसी नए होटल/ रिजॉर्ट या वाणिज्यिक प्रतिष्ठान का निर्माण अनुमत नहीं होगा।

(4) **प्राकृतिक विरासत.–** पारिस्थितिकी संवेदी जोन के अंतर्गत आने वाले बहुमूल्य प्राकृतिक विरासत के सभी स्थलों जैसे कि जीन पूल रिजर्व क्षेत्र, शैल संरचना, जल प्रपात, झरने, दर्रे, उपवन, गुफाएं, स्थल, वनपथ, रोहण मार्ग, उत्प्रपात आदि की पहचान की जाएगी और उनकी सुरक्षा एवं संरक्षण के लिए आंचलिक महायोजना के भाग के रूप में एक विरासत संरक्षण योजना बनायी जाएगी। (5) मानव निर्मित विरासत स्थल.- पारिस्थितिकी संवेदी जोन में भवनों, संरचनाओं, कलाकृति-क्षेत्रों तथा ऐतिहासिक, स्थापत्य संबधी, सौंदर्यात्मक और सांस्कृतिक महत्व के क्षेत्रों की पहचान की जाएगी और उनके संरक्षण के लिए आंचलिक महायोजना के भाग के रूप में एक विरासत संरक्षण योजना बनायी जाएगी।

(6) **ध्वनि प्रदूषण.**- पर्यावरण अधिनियम के अधीन ध्वनि प्रदूषण (विनियमन और नियंत्रण) नियम, 2000 में नियत उपबंधों के अनुसार पारिस्थितिकी संवेदी जोन में ध्वनि प्रदूषण की रोकथाम और नियंत्रण किया जाएगा ।

(7) **वायु प्रदूषण.**- पारिस्थितिकी संवेदी जोन में, वायु प्रदूषण का निवारण और नियंत्रण, वायु (प्रदूषण निवारण और नियंत्रण) अधिनियम, 1981 (1981 का 14) और उसके अधीन बनाए गए नियमों के उपबंधों के अनुसार किया जाएगा ।

(8) **बहिस्राव का निस्सारण.**- पारिस्थितिकी संवेदी जोन में उपचारित बहिस्राव का निस्सरण, पर्यावरण अधिनियम और उसके अधीन बनाए गए नियमों के अधीन आने वाले पर्यावरणीय प्रदूषण के निस्सरण के लिए साधारण मानकों या केंद्र शासित प्रदेश सरकार द्वारा नियत मानकों, जो भी अधिक कठोर हो, के उपबंधों के अनुसार होगा।

(9) ठोस अपशिष्ट.- ठोस अपशिष्ट का निपटान एवं प्रबन्धन निम्नानुसार किया जाएगा:-

- (क) पारिस्थितिकी संवेदी जोन में ठोस अपशिष्ट का निपटान और प्रबंधन भारत सरकार के पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय की समय-समय पर यथा संशोधित अधिसूचना सं. का.आ. 1357(अ), दिनांक 8 अप्रैल, 2016 के तहत प्रकाशित ठोस अपशिष्ट प्रबंधन नियम, 2016 के उपबंधों के अनुसार किया जाएगा; अकार्बनिक पदार्थो का निपटान पारिस्थितिकी संवेदी जोन से बाहर चिन्हित किए गए स्थानों पर पर्यावरण-अनुकूल रीति से किया जाएगा;
- (ख) पारिस्थितिकी संवेदी जोन में मान्य प्रौद्योगिकियों का प्रयोग करते हुए विद्यमान नियमों और विनियमों के अनुरूप ठोस अपशिष्ट का सुरक्षित और पर्यावरण अनुकूल प्रबंधन अनुमत किया जायेगा।

(10) जैव चिकित्सा अपशिष्ट.- जैव चिकित्सा अपशिष्ट का प्रबंधन निम्नानुसार किया जाएगा:-

- (क) पारिस्थितिकी संवेदी जोन में जैव चिकित्सा अपशिष्ट का निपटान भारत सरकार के पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय की समय–समय पर यथा संशोधित अधिसूचना सं.सा.का.नि 343 (अ), तारीख 28 मार्च, 2016 के तहत प्रकाशित जैव चिकित्सा अपशिष्ट प्रबंधन नियम, 2016 के उपबंधों के अनुसार किया जाएगा।
- (ख) पारिस्थितिकी संवेदी जोन में मान्य प्रौद्योगिकियों का प्रयोग करते हुए विद्यमान नियमों और विनियमों के अनुरूप जैव चिकित्सा अपशिष्ट का सुरक्षित और पर्यावरण अनुकूल प्रबंधन अनुमत किया जायेगा।

(11) प्लास्टिक अपशिष्ट का प्रबंधन.- पारिस्थितिकी संवेदी जोन में प्लास्टिक अपशिष्ट का प्रबंधन, भारत सरकार के पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय की समय-समय पर यथा संशोधित अधिसूचना सं.सा.का.नि 340(अ), तारीख 18 मार्च, 2016 के तहत प्रकाशित प्लास्टिक अपशिष्ट प्रबंधन नियम, 2016 के उपबंधो के अनुसार किया जाएगा।

(12) **निर्माण और विध्वंस अपशिष्ट का प्रबंधन.-** पारिस्थितिकी संवेदी जोन में निर्माण और विध्वंस अपशिष्ट का प्रबंधन, भारत सरकार के पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय की समय-समय पर यथा संशोधित अधिसूचना सं.सा.का.नि 317(अ), तारीख 29 मार्च, 2016 के तहत प्रकाशित संनिर्माण और विध्वंस अपशिष्ट प्रबंधन नियम, 2016 के उपबंधों के अनुसार किया जाएगा।

(13) **ई–अपशिष्ट.-** पारिस्थितिकी संवेदी जोन में ई–अपशिष्ट का प्रबंधन, भारत सरकार के पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय द्वारा प्रकाशित तथा समय-समय पर यथा संशोधित ई–अपशिष्ट प्रबंधन नियम, 2016 के उपबंधों के अनुसार किया जाएगा।

(14) **सड़क-यातायात.-** सड़क-यातायात को पर्यावास-अनुकूल तरीके से विनियमित किया जाएगा और इस संबंध में आंचलिक महायोजना में विशेष उपबंध शामिल किए जाएंगे। आंचलिक महायोजना के तैयार होने और केंद्र शासित प्रदेश सरकार के सक्षम प्राधिकारी से अनुमोदित होने तक, निगरानी समिति प्रासंगिक अधिनियमों और उनके तहत बनाए गए नियमों एवं विनियमों के अनुसार सड़क-यातायात के अनुपालन की निगरानी करेगी।

(15) **वाहन जनित प्रदूषण.-** वाहन जनित प्रदूषण की रोकथाम और नियंत्रण लागू विधियों के अनुसार किया जाएगा और स्वच्छतर ईंधन के उपयोग के लिए प्रयास किए जाएंगे।

(16) औद्योगिक ईकाइयां.- (क) सरकारी राजपत्र में इस अधिसूचना के प्रकाशन की तारीख को या उसके बाद पारिस्थितिकी संवेदी जोन में किसी नए प्रदूषणकारी उद्योग की स्थापना की अनुमति नहीं होगी।

- (ख) केन्द्रीय प्रदूषण नियंत्रण बोर्ड द्वारा फरवरी, 2016 में जारी समय-समय पर यथा संशोधित मार्गदर्शक सिद्धान्तों में उद्योगों के वर्गीकरण के अनुसार, जब तक कि अधिसूचना में इस प्रकार विनिर्दिष्ट न हो, पारिस्थितिकी संवेदी जोन के भीतर केवल गैर- प्रदूषणकारी उद्योगों को अनुज्ञात किया जाएगा और इसके अतिरिक्त, गैर प्रदूषणकारी कुटीर उद्योगों को बढ़ावा दिया जाएगा।
- (17) पहाड़ी ढलानों का संरक्षण.- पहाड़ी ढलानों का संरक्षण निम्नानुसार किया जाएगा:-
 - (क) आंचलिक महायोजना में पहाड़ी ढलानों के उन क्षेत्रों को दर्शाया जाएगा जिनमें किसी भी संनिर्माण की अनुज्ञा नहीं होगी;
 - (ख) जिन ढलानों या विद्यमान खड़ी पहाड़ी ढलानों में अत्यधिक भू-क्षरण होता है उनमें किसी भी संनिर्माण की अनुज्ञा नहीं होगी।

4. पारिस्थितिकी संवेदी जोन में प्रतिषिद्ध या विनियमित किए जाने वाले क्रियाकलापों की सूची- पारिस्थितिकी संवेदी जोन में सभी क्रियाकलाप, पर्यावरण अधिनियम और उसके अधीन बने नियमों के उपबंधों जिसमें तटीय विनियमन जोन, 2011 एवं पर्यावरणीय प्रभाव आकलन अधिसूचना, 2006 शामिल है सहित वन (संरक्षण) अधिनियम, 1980 (1980 का 69), भारतीय वन अधिनियम, 1927 (1927 का 16), वन्यजीव (संरक्षण) अधिनियम, 1972 (1972 का 53) तथा उनमें किए गए संशोधनों के अनुसार शासित होंगे और नीचे दी गई सारणी में विनिर्दिष्ट रीति से विनियमित होंगे, अर्थात्:-

क्र. सं.	क्रियाकलाप	टिप्पणी	
	-	क. प्रतिषिद्ध क्रियाकला प	
1.	वाणिज्यिक खनन, पत्थर उत्खनन	(क) पारिस्थितिकी संवेदी जोन के अंतर्गत वास्तविक स्थानीय	
	और अपघर्षण इकाइयां ।	निवासियों की घरेलू आवश्यकताओं जिसमें मकानों के संनिर्माण या	
		मरम्मत के लिए धरती को खोदना सम्मिलित है, के सिवाय सभी	
		प्रकार के नए और विद्यमान खनन (लघु और वृहत खनिज), पत्थर	
		उत्खनन और अपघर्षण इकाइयां तत्काल प्रभाव से प्रतिषिद्ध होंगी;	
		(ख) खनन प्रचालन, 1995 की रिट याचिका (सिविल) सं. 202 में	
		टी.एन. गौडाबर्मन थिरुमूलपाद बनाम भारत संघ के मामले में	
		माननीय उच्चतम न्यायालय के आदेश 4 अगस्त, 2006 और 2012	
		की रिट याचिका (सिविल) सं. 435 में गोवा फाउंडेशन बनाम	
		भारत संघ के मामले में तारीख 21 अप्रैल, 2014 के आदेश के	
		अनुसरण में होगा ।	
2.	प्रदूषण (जल, वायु, मृदा, ध्वनि,	पारिस्थितिकी संवेदी जोन में कोई नया उद्योग लगाने और वर्तमान	

सारणी

10		JF INDIA : EXTRAORDINARY [PART II—SEC. 3(11)]	
	आदि) उत्पन्न करने वाले उद्योगों की	प्रदूषणकारी उद्योगों का विस्तार करने की अनुमति नहीं होगीः	
	स्थापना ।	परन्तु यह कि केन्द्रीय प्रदूषण नियंत्रण बोर्ड द्वारा फरवरी, 2016 में	
		परन्तु यहाक कन्द्राय प्रदूषण नियत्रण बाड द्वारा करपरा, 2010 न जारी समय-समय पर यथा संशोधित मार्गदर्शक सिद्धान्तों में उद्योगों के	
		वर्गीकरण के अनुसार, जब तक कि अधिसूचना में ऐसा विनिर्दिष्ट न हों,	
		पारिस्थितिकी संवेदी जोन के भीतर गैर-प्रदूषणकारी उद्योगों को	
		अनुज्ञात किया जाएगा और इसके अतिरिक्त गैर-प्रदूषणकारी कुटीर	
		उद्यागों को बढ़ावा दिया जाएगा।	
3.	बड़ी जल विद्युत परियोजनाओं की	प्रतिषिद्ध।	
	स्थापना।	<u> </u>	
4.	किसी परिसंकटमय पदार्थ का प्रयोग	प्रतिषिद्ध।	
	या उत्पादन या प्रस्संकरण । प्राकृतिक जल निकायों या भूमि क्षेत्र	प्रतिषिद्ध।	
5.	में अनुपचारित बहिस्रावों का	त्रातापद्धा	
	निस्सरण ।		
6.	नई आरा मिलों की स्थापना।	पारिस्थितिकी संवेदी जोन के भीतर नई और विद्यमान आरा मिलों का	
		विस्तार अनुमत नहीं होगा ।	
7.	ईंट भट्टों की स्थापना करना।	प्रतिषिद्ध।	
8.	जलावन लकड़ी का वाणिज्यिक	प्रतिषिद्ध।	
	उपयोग ।		
9.	पोलिथीन बैगों का प्रयोग ।	प्रतिषिद्ध।	
10.	पर्यटन से संबंधित अन्य क्रियाकलाप	प्रतिषिद्ध।	
	जैसे गर्म वायु, गुब्बारें आदि द्वारा		
	राष्ट्रीय उद्यान क्षेत्र के ऊपर से उड़ना		
	जैसे क्रियाकलाप करना। 		
		. विनियमित क्रियाकलाप प्राणिकिक क्रियाकलाप	
11.	हाटला आर रिसाटा का वाणिज्यक स्थापना ।	पारिस्थितिकी पर्यटन क्रियाकलापों हेतु लघु अस्थायी संरचनाओं के	
		निर्माण के सिवाय, संरक्षित क्षेत्र की सीमा से एक किलोमीटर के भीतर	
		या पारिस्थितिकी संवेदी जोन की सीमा तक, इनमें जो भी अधिक निकर दो, तम सामित्रिक दोरलों और निर्मोगे की रूपमान अनुमन	
		निकट हो, नए वाणिज्यिक होटलों और रिर्सोटो की स्थापना अनुमत जनीं तोगी	
		नहीं होगी: एउंच गंग्रधिन क्षेत्र की गीएए से एक किसोगीस्ट नानर स	
		परंतु, संरक्षित क्षेत्र की सीमा से एक किलोमीटर बाहर या पारिस्थितिकी संवेदी जोन की सीमा तक, इनमें जो भी अधिक निकट	
		हो, पर्यटन महायोजना और लागू दिशानिर्देशों के अनुसार सभी नए	
		पर्यटन क्रियाकलाप करने या विद्यमान क्रियाकलापों का विस्तार करने	
		की अनुज्ञा होगी ।	
12.	संनिर्माण क्रियाकलाप ।	(क) संरक्षित क्षेत्र की सीमा से एक किलोमीटर के भीतर या	
		पारिस्थितिकी संवेदी जोन के विस्तार तक जो भी निकट हो, किसी भी	
		प्रकार का वाणिज्यिक संनिर्माण अनुमत नहीं किया जाएगा:	
		परंतु स्थानीय लोगों को पैराग्राफ 3 के उप पैराग्राफ (1) में सूचीबद्ध	
		क्रियाकलापों सहित उनके उपयोग के लिए उनकी भूमि में स्थानीय	
		निवासियों की आवासीय आवश्यकताओं को पूरा करने लिए संनिर्माण	
		करने की अनुमति भवन उपविधियों के अनुसार दी जाएगी।	
		परन्तु ऐसे लघु उद्योगों जो प्रदूषण उत्पन्न नहीं करते हैं, से संबंधित	
		संनिर्माण क्रियाकलाप विनियमित किए जाएंगे और लागू नियमों और	

		विनियमों, यदि कोई हों, के अनुसार सक्षम प्राधिकारी की पूर्व अनुमति से ही न्यूनतम पर रखे जाएंगे । (ख) एक किलोमीटर से आगे आंचलिक महायोजना की अनुसार विनियमित होंगे ।
13.	गैर प्रदूषणकारी लघु उद्योग।	फरवरी, 2016 में केन्द्रीय प्रदूषण नियंत्रण बोर्ड द्वारा जारी, समय- समय पर यथा संशोधित उद्योगों में वर्गीकरण के अनुसार गैर- प्रदूषणकारी उद्योग और अपरिसंकटमय, लघु और सेवा उद्योग, कृषि, पुष्प कृषि, बागवानी या पारिस्थितिकी संवेदी जोन से देशी सामग्री से उत्पादों को उत्पन्न करने वाले कृषि आधारित उद्योग सक्षम प्राधिकारी द्वारा अनुज्ञात होंगे।
14.	वृक्षों की कटाई ।	(क) केन्द्र शासित सरकार के सक्षम प्राधिकारी की पूर्व अनुमति के बिना वन भूमि या सरकारी या राजस्व या निजी भूमि पर वृक्षों की कटाई नहीं होगी ।
		(ख) वृक्षों की कटाई केंद्रीय या संबंधित केन्द्र शासित प्रदेश के अधिनियम या उसके अधीन बनाए गए नियमों के उपबंधों के अनुसार विनियमित होगी ।
15.	वन उत्पादों और गैर काष्ठ वन उत्पादों का संग्रहण ।	लागू विधियों के अधीन विनियमित होगा ।
16.	विद्युत और संचार टॉवर लगाने, तार-बिछाने तथा अन्य बुनियादी ढांचे की व्यवस्था ।	लागू विधियों के अधीन विनियमित होगा (भूमिगत केबल बिछाने को बढ़ावा दिया जाएगा)।
17.	नागरिक सुविधाओं सहित बुनियादी ढांचा।	लागू विधियों, नियमों और विनियमनों और उपलब्ध दिशानिर्देशों के अनुसार न्यूनीकरण उपाय किए जाएंगे।
18.	विद्यमान सड़कों को चौड़ा करना, उन्हें सुदृढ बनाना और नई सड़कों का निर्माण।	लागू विधियों, नियमों और विनियमनों और उपलब्ध दिशानिर्देशों के अनुसार न्यूनीकरण उपाय किए जाएंगे।
19.	पहाड़ी ढलानों और नदी तटों का संरक्षण।	लागू विधियों के अधीन विनियमित होगा ।
20.	रात्रि में वाहन यातायात का संचलन।	लागू विधियों के अधीन वाणिज्यिक प्रयोजन के लिए विनियमित होगा ।
21.	स्थानीय जनता द्वारा अपनायी जा रही वर्तमान कृषि और बागवानी पद्धतियों के साथ डेयरियां, दुग्ध उत्पादन, जल कृषि और मत्स्य पालन।	स्थानीय जनता के प्रयोग के लिए लागू विधियों के अधीन अनुमत होंगे।
22.	प्राकृतिक जल निकायों या भू क्षेत्र में उपचारित अपशिष्ट जल/बहिर्स्राव	जल निकायों में उपचारित अपशिष्ट जल/बहिर्म्राव के निस्सरण से बचा जाएगा और उपचारित अपशिष्ट जल के पुनर्चक्रण और पुन:उपयोग के
	का निस्सरण ।	प्रयास किए जाएंगे अन्यथा उपचारित अपशिष्ट जल/बहिर्स्राव का निस्सरण लागू विधियों के अनुसार विनियमित किया जाएगा।
23.	सतही और भूजल का वाणिज्यिक प्रयोग एवं निष्कर्षण ।	लागू विधियों के अधीन विनियमित होगा ।
24.	फर्मों, कारपोरेट और कंपनियों द्वारा	स्थानीय आवश्यकताओं को पूरा करने के अलावा लागू विधियों के

	बड़े पैमाने पर वाणिज्यिक पशुधन	अधीन विनियमित (अन्यथा उपबंध को छोड़कर) होंगे ।
	संपदा और कुक्कुट फार्मों की	
	स्थापना ।	
25.	कृषि और अन्य उपयोग के लिए खुले	विनियमित एवं सम्बद्ध प्राधिकारी द्वारा क्रियाकलापों की सख्ती से
	कुंआ, बोर कुंआ, आदि ।	निगरानी की जाएगी।
26.	ठोस अपशिष्ट का प्रबंधन।	लागू विधियों के अधीन विनियमित होगा ।
27.	विदेशी प्रजातियों को लाना।	लागू विधियों के अधीन विनियमित होंगे ।
28.	पारिस्थितिकी पर्यटन।	लागू विधियों के अधीन विनियमित होगा ।
29.	वाणिज्यिक संकेत बोर्ड और होर्डिंग	लागू विधियों के अधीन विनियमित होगा ।
	का प्रयोग ।	
30.	प्रवासी चरवाहा ।	लागू विधियों के अधीन विनियमित होगा ।
31.	नए होटलों और लॉज के विद्यमान	लागू विधियों के अनुसार विनियमित होगा ।
	परिसरों में बाड लगाना ।	
		ग. संवर्धित क्रियाकलाप
32.	वर्षा जल संचय ।	सक्रिय रूप से बढ़ावा दिया जाएगा ।
33.	जैविक खेती।	सक्रिय रूप से बढ़ावा दिया जाएगा ।
34.	सभी गतिविधियों के लिए हरित	सक्रिय रूप से बढ़ावा दिया जाएगा ।
	प्रौद्योगिकी का अंगीकरण ।	
35.	ग्रामीण कारीगरी सहित कुटीर	सक्रिय रूप से बढ़ावा दिया जाएगा ।
	उद्योग।	
36.	नवीकरणीय ऊर्जा और ईंधन का	बायोगैस, सौर प्रकाश इत्यादि को सक्रिय बढ़ावा दिया जाएगा।
	प्रयोग ।	
37.	कृषि वानिकी ।	सक्रिय रूप से बढ़ावा दिया जाएगा ।
38.	बागान लगाना और जड़ी बूटियों का	सक्रिय रूप से बढ़ावा दिया जाएगा ।
	रोपण ।	
39.	पारिस्थितिकी अनुकूल यातायात	सक्रिय रूप से बढ़ावा दिया जाएगा ।
	का प्रयोग ।	
40.	कौशल विकास ।	सक्रिय रूप से बढ़ावा दिया जाएगा ।
41.	अवक्रमित भूमि/वनों/ पर्यावासों की	सक्रिय रूप से बढ़ावा दिया जाएगा ।
	बहाली ।	
42.	पर्यावरण के प्रति जागरुकता।	सक्रिय रूप से बढ़ावा दिया जाएगा ।
	1	

5. पारिस्थितिकी-संवेदी जोन अधिसूचना की निगरानी के लिए निगरानी समिति.- पर्यावरण (संरक्षण) अधिनियम, 1986 की धारा 3 की उपधारा (3) के तहत इस अधिसूचना के उपबंधों की प्रभावी निगरानी के लिए केन्द्रीय सरकार एतद्वारा एक निगरानी समिति का गठन करती है, जो निम्नलिखित से मिलकर बनेगी, अर्थात्:

क्र.सं.	निगरानी समिति का गठन	पद
1.	संभागीय आयुक्त, कश्मीर	अध्यक्ष;
2.	जम्मू और कश्मीर सरकार द्वारा नामित किए जाने वाले पारिस्थितिकी और पर्यावरण के क्षेत्र में एक विशेषज्ञ	सदस्य;
3.	जम्म-कश्मीर सरकार द्वारा नामित पर्यावरण संरक्षण के क्षेत्र में काम करने वाले गैर-सरकारी	सदस्य;
	संगठन का एक प्रतिनिधि	
4.	जम्मू और कश्मीर जैव विविधता परिषद का एक प्रतिनिधि	सदस्य;
5.	उपायुक्त, श्रीनगर	सदस्य;

6.	उपायुक्त, गंदरबल	सदस्य;
7.	उपायुक्त,अंनतनाग	सदस्य;
8.	उपायुक्त, पुलवामा	सदस्य;
9.	उपायुक्त, श्रीनगर	सदस्य;
10.	निर्देशक पर्यटन, कश्मीर	सदस्य;
11.	उपाध्यक्ष, श्रीनगर विकास प्राधिकरण	सदस्य;
12.	क्षेत्रीय निर्देशक, जम्मू-कश्मीर राज्य प्रदूषण नियंत्रण बोर्ड, श्रीनगर	सदस्य;
13.	वरिष्ठ नगर नियोजक, कश्मीर	सदस्य;
14.	संभागीय वन अधिकारी, सिंध वन संभाग	सदस्य;
15.	संभागीय वन अधिकारी, लिड्डेर वन संभाग	सदस्य;
16.	संभागीय वन अधिकारी, अवंतीपुरा	सदस्य;
17.	संभागीय वन अधिकारी, शहरी वानिकी श्रीनगर	सदस्य;
18.	मुख्य कार्यकारी अधिकारी, सोनमर्ग विकास प्राधिकरण	सदस्य;
19.	मुख्य कार्यकारी अधिकारी, पहलगाम विकास प्राधिकरण	सदस्य;
20.	वन्यजीव वार्डन, केन्द्रीय संभाग	सदस्य;
21.	वन्यजीव वार्डन, दक्षिण संभाग	सदस्य;
22.	क्षेत्रीय वन्यजीव वार्डन, कश्मीर	सदस्य-सचिव

6. विचारार्थ विषय:- (1) निगरानी समिति इस अधिसूचना के उपबंधों के अनुपालन की निगरानी करेगी।

- (2) निगरानी समिति का कार्यकाल अगले आदेश होने तक होगा, परंतु यह कि समिति के गैर-सरकारी सदस्यों को समय-समय पर केन्द्र शासित सरकार सरकार द्वारा नामनिर्दिष्ट किया जाएगा।
- (3) पारिस्थितिकी संवेदी जोन में भारत सरकार के तत्कालीन पर्यावरण और वन मंत्रालय की अधिसूचना सं. का.आ. 1533(अ), तारीख 14 सितंबर, 2006 की अनुसूची में सम्मिलित और पारिस्थितिकी संवेदी जोन में आने वाले क्रियाकलापों और इस अधिसूचना के पैराग्राफ 4 के अधीन सारणी में यथा विनिर्दिष्ट प्रतिषिद्ध गतिविधियों के सिवाय आने वाले ऐसे क्रियाकलापों की वास्तविक विनिर्दिष्ट स्थलीय दशाओं के आधार पर निगरानी समिति द्वारा संवीक्षा की जाएगी और उक्त अधिसूचना के उपबंधों के अधीन पूर्व पर्यावरण अनापत्ति लेने के लिए केन्द्रीय सरकार के पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय को निर्दिष्ट की जाएंगी।
- (4) इस अधिसूचना के पैरा 4 के अधीन सारणी में यथा विनिर्दिष्ट प्रतिषिद्ध क्रियाकलापों के सिवाय, भारत सरकार के तत्कालीन पर्यावरण और वन मंत्रालय की अधिसूचना संख्या का.आ. 1533(अ), तारीख 14 सितंबर, 2006 की अधिसूचना के अनुसूची के अधीन ऐसे क्रियाकलापों, जिन्हें सम्मिलित नहीं किया गया है, परंतु जो पारिस्थितिकी संवेदी जोन में आते हैं, ऐसे क्रियाकलापों की वास्तविक विनिर्दिष्ट स्थलीय दशाओं के आधार पर निगरानी समिति द्वारा संवीक्षा की जाएगी और उसे संबद्ध विनियामक प्राधिकरणों को निर्दिष्ट किया जाएगा।
- (5) निगरानी समिति का सदस्य-सचिव या संबंधित उपायुक्त ऐसे व्यक्ति के विरूद्ध, जो इस अधिसूचना के किसी उपबंध का उल्लंघन करता है, पर्यावरण अधिनियम की धारा 19 के अधीन परिवाद दायर करने के लिए सक्षम होगा।

- (6) निगरानी समिति संबंधित विभागों के प्रतिनिधियों या विशेषज्ञों, औद्योगिक संघों के प्रतिनिधियों या संबंधित पक्षों को, प्रत्येक मामले मे आवश्यकता के अनुसार, अपने विचार-विमर्श में सहायता के लिए आमंत्रित कर सकेगी।
- (7) निगरानी समिति प्रत्येक वर्ष 31 मार्च की स्थिति के अनुसार अपनी वार्षिक कार्रवाई रिपोर्ट राज्य के मुख्य वन्यजीव वार्डन को, **अनुलग्नक V** में दिए गए प्रपत्र के अनुसार, उस वर्ष की 30 जून तक प्रस्तुत करेगी ।
- (8) केन्द्रीय सरकार का पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय निगरानी समिति को उसके कृत्यों के प्रभावी निर्वहन के लिए ऐसे निदेश दे सकेगा जो वह उचित समझे ।

7. अतिरिक्त उपाय.- इस अधिसूचना के उपबंधों को प्रभावी बनाने के लिए केंद्रीय सरकार और संघ राज्य सरकार, अतिरिक्त उपाय, यदि कोई हों, विनिर्दिष्ट कर सकेंगी ।

8. उच्चतम न्यायालय, आदि के आदेश.- इस अधिसूचना के उपबंध भारत के माननीय उच्चतम न्यायालय या उच्च न्यायालय या राष्ट्रीय हरित अधिकरण द्वारा पारित किए गए या पारित किए जाने वाले आदेश, यदि कोई हो, के अध्यधीन होंगे ।

[फा. सं. 25/19/2020-ईएसजेड]

डॉ. सतीश चन्द्र गढ़कोटी, वैज्ञानिक 'जी'

अनुलग्नक- I

क्र.सं.	मानचित्र पर चिन्हित र्बिदु	देशांतर	अक्षांश	संरक्षित क्षेत्र की सीमा से (मीटर) से दूरी	विवरण	औचित्य
1	ए50	75° 16' 8.283" पू	34° 18' 39.590" उ	50	सिंध नदी	
2	ए51	75° 16' 46.896" पू	34° 18' 21.339" उ	1000	थजवास खुला राजस्व भूमि	
3	ए52	75° 19' 19.800" पू	34° 17' 44.505" उ	50	इचामार्ग	
4	ए53	75° 21' 38.536" पू	34° 16' 19.145" उ	50	सेरबल ग्राम, सिंध नदी	
5	ए54	75° 25' 2.957" पू	34° 14' 1.062" ਤ	50	डोमेल वन, सिंध नदी	
6	ए57	75° 32' 56.026" पू	34° 8' 59.234" उ	50	नीछांग, अल्पाइन चरागाह	
7	ए58	75° 33' 4.452" पू	34° 6' 46.073" उ	1000	अल्पाइन चरागाह	
8	ए59	75° 31' 58.324" पू	34° 5' 25.254" उ	1000	गुदी गली, अल्पाइन	

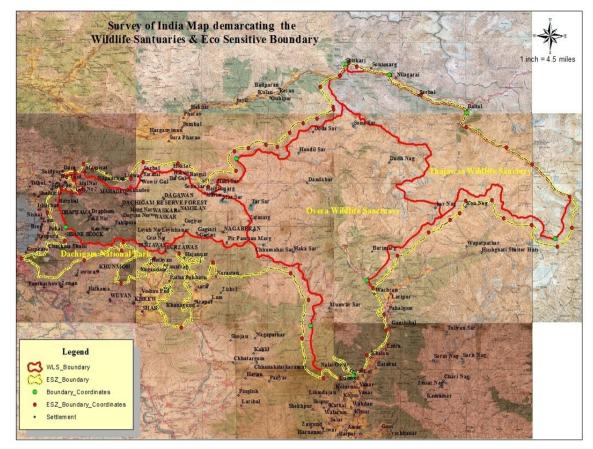
केंद्र शासित क्षेत्र जम्मू एवं कश्मीर में दाचीगाम राष्ट्रीय उद्यान, थजवास (बालटाल) वन्यजीव अभयारण्य और ओवेरा-अरू वन्यजीव अभयारण्य के पारिस्थितिकी संवेदी जोन की सीमा का विवरण

				1	
					चरागाह
9	ए60	75° 30' 2.620" पू	34° 6' 57.756" उ	1000	वाहाबल टॉप,
					अल्पाइन
					चरागाह
10	ए62	75° 27' 0.738" पू	34° 8' 45.686" उ	1000	छूट पास,
					अल्पाइन
					चरागाह
11	ए65	75° 23' 51.681" पू	34° 7' 20.121" उ	1000	राजदान नार,
					अल्पाइन
					चरागाह
12	ए47	75° 14' 57.887" पू	34° 15' 28.761" उ	1000	गंज वन, सिंध
					नदी
13	ए49	75° 15' 27.980" पू	34° 17' 43.399" ਤ	50	सिंध नदी
14	ए48	75° 14' 0.162" पू	34° 16' 52.517" उ	1000	को 53/एस,
					अल्पाइन
					चरागाह
15	ए46	75° 15' 0.579" पू	34° 15' 15.824" उ	1000	को 53/एस,
					अल्पाइन
					चरागाह
16	ए45	75° 13' 44.791" पू	34° 14' 36.938" उ	1000	को 53/एस,
					अल्पाइन
					चरागाह
17	ए44	75° 12' 42.317" पू	34° 14' 17.449" उ	1000	को 53/एस,
					अल्पाइन
					चरागाह
18	ए43	75° 11' 39.926" पू	34° 13' 34.687" उ	1000	को 49/एस,
					अल्पाइन
					चरागाह
19	ए42	75° 10' 45.063" पू	34° 12' 35.890" उ	1000	को 45/एस,
					अल्पाइन
					चरागाह
20	ए41	75° 9' 52.727" पू	34° 12' 45.375" उ	1000	को 44/एस,
					अल्पाइन
					चरागाह
21	ए40	75° 8' 33.037" पू	34° 12' 30.866" ਤ	1000	को 41/एस,
					अल्पाइन
					चरागाह
22	ए39	75° 7' 28.585" पू	34° 12' 16.430" उ	1000	को 39/एस,
					अल्पाइन
					चरागाह
23	ए38	75° 7' 36.922" पू	34° 10' 53.455" उ	1000	को
					34/एमबीएल,
					अल्पाइन

					चरागाह	
24	ए37	75° 5' 29.651" पू	34° 9' 43.646" उ	1000	होका सर,	
					अल्पाइन	
					चरागाह	
25	ए36	75° 3' 12.504" पू	34° 11' 25.097" ਤ	1000	सूरा फाराव वन,	
00	-05			4000	सिंध 	
26	ए35	75° 0' 34.233" पू	34° 11' 28.442" ਤ	1000	लीदवस, अन्यपदन	
					अल्पाइन चरागाह	
27	ए34	74° 59' 38.049" पू	34° 10' 18.195" उ	1000	लीदवस,	
	2 -				अल्पाइन	
					चरागाह	
28	ए79	75° 3' 18.035" पू	34° 4' 56.242" उ	500	अंदरहजन नार,	
					वन क्षेत्र, हजन्नर	
29	ए78	75° 5' 52.795" पू	34° 4' 16.200" उ	1000	को 22/तरल वन	
					क्षेत्र, पम्बच खोद	
30	ए77	75° 11' 46.294" पू	34° 3' 30.857" उ	1000	को 13/तरल वन	
					क्षेत्र	
31	ए76	75° 13' 5.262" पू	34° 1' 34.853" उ	1000	को 24/ वन क्षेत्र	
32	ए75	75° 12' 37.170" पू	33° 58' 49.146" उ	1000	को 3 वन क्षेत्र,	
					वटवगर	
33	ए74	75° 14' 14.892" पू	33° 55' 58.452" उ	1000	को 51/एल वन	
					क्षेत्र	
34	ए73	75° 15' 30.813" पू	33° 55' 55.489" ਤ	0	को 50/एल,	ओवरा गाग
					ओवूर ग्राम	ग्राम बस्तियों
						को अलग
						करने की
						सीमांकन <u>े</u>
05	-70			0		रेखा पहले से ही
35	ए72	75° 17' 10.532" पू	33° 56' 32.440" उ	0	को 45/एल, पर्यटन केंद्र का	पहल स हा पर्यटक
					पयटन कद्र का विकास	स्थल के
						रूप में
						विकसित
						किया गया और बाड़
						जार बाड़ के साथ
						कवर है।
36	ए71	75° 17' 31.151" पू	33° 57' 35.646" उ	0	खेलन वन	बाड़ के
						साथ कवर
						ग्राम चरित्रणें
						बस्तियों को अलग
						ગય બહામ

						करने की सीमांकन रेखा
37	ए70	75° 19' 0.106" पू	33° 59' 24.096" ਤ	0	ममल वन, पहलगाम का विकास	पहले से ही पर्यटक स्थल के रूप में विकसित किया गया और बाड़ के साथ कवर है।
38	ए69	75° 18' 51.004" प्	34° 0' 32.169" ਤ	0	ममल ग्राम	ममल की ग्राम बस्तियों को अलग करने की सीमांकन रेखा
39	ए68	75° 18' 0.230" पू	34° 2' 26.202" उ	0	वचरन, लीडडेर नाला	लीडुर नाला घाटी को अलग करती है।
40	ए67	75° 19' 52.326" पू	34° 4' 47.318" उ	1000	को 19/एल, वन क्षेत्र, संगम	
41	ए66	75° 22' 12.778" पू	34° 6' 27.186" उ	1000	को 16, अल्पाइन चरागाह, सरनर	
42	ए64	75° 24' 34.558" पू	34° 7' 48.950" उ	1000	को 12/एल, अल्पाइन चरागाह	
43	ए63	75° 25' 2.139" पू	34° 8' 42.470" उ	1000	राबे मार्ग, अल्पाइन चरागाह	
44	ए61	75° 27' 55.499" पू	34° 7' 26.880" उ	1000	अस्तन, अल्पाइन चरागाह	
45	ए55	75° 28' 5.746" पू	34° 12' 32.350" उ	50	नगीन पत्थर	
46	ए 56	75° 30' 4.375" पू	34° 11' 18.399" उ	50	पंजतरनी, अमरनाथ गुफा की ओर रास्ता	
47	ए33	74° 56' 42.915" पू	34° 10' 57.894" उ	1000	दारा नाला, दारावन, वन	
48	ए32	74° 56' 3.905" पू	34° 11' 20.590" उ	1000	तुलापत्थर नाला, खुला वन	

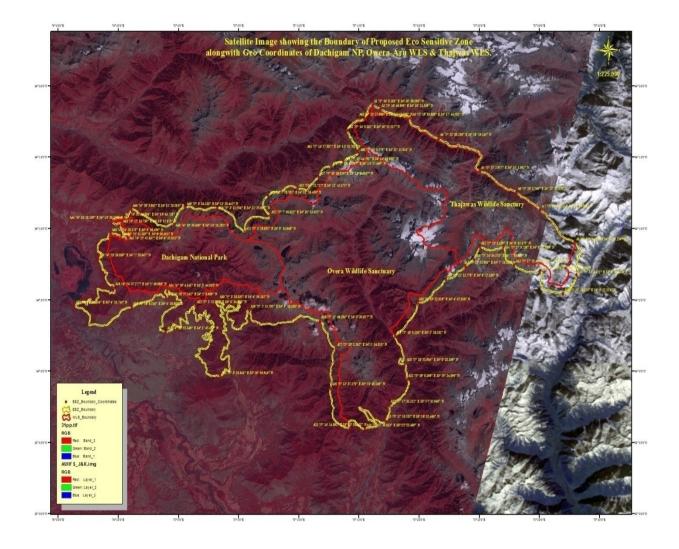
49	ए31	74° 55' 24.996" पू	34° 10' 43.726" उ	200	चाक-आई-दारा
					ग्राम
50	ए30	74° 54' 28.109" पू	34° 10' 30.176" उ	200	मुरीन्दर बाग
					ग्राम, जल
					निकाय
51	ए29/1	74° 55' 16.730" पू	34° 10' 15.073" उ	200	कृषि भूमि,
					नूथीड ग्राम
52	ए29	74° 55' 47.637" पू	34° 9' 21.851" उ	200	महादेव नार,
					कृषि भूमि
53	ए28	74° 55' 11.105" पू	34° 9' 20.101" ਤ	200	मावसकोल
54	ए27	74° 54' 20.173" पू	34° 9' 38.496" उ	200	पी डब्ल्यू डी जल
					टैंक एवं जलाशय
55	ए55	74° 53' 19.039" पू	34° 7' 50.947" उ	500	बारोबल, चट्टानी
					क्षेत्र
56	ए56	74° 54' 37.277" पू	34° 5' 49.986" उ	500	सुमेर नार,
					चट्टानी
57	ए57	74° 51' 20.334" पू	34° 4' 33.714" उ	500	गोप्बल नार,
					मिश्रित वन, सैंट
					बाबा
					गुलाम्दीनशाह
58	ए58	74° 56' 6.516" पू	34° 4' 26.605" उ	500	खुली झाड़ी
59	ए59	74° 58' 57.542" पू	34° 5' 8.609" उ	1000	सांगरी, मिश्रित
					वन
60	ए60	74° 59' 4.141" पू	34° 5' 44.018" उ	500	पहल चाक, वन
					क्षेत्र, दून एन
61	ए61	74° 58' 55.146" पू	34° 2' 45.453" उ	500	बाथयन, वन
-	, - , -				क्षेत्र
62	ए62	75° 1' 25.038" पू	34° 4' 34.850" ਤ	500	सरदालौनर, वन
	,				क्षेत्र
63	ए63	75° 3' 28.841" पू	33° 59' 36.914" उ	1000	को 24/तरल वन
					क्षेत्र, सराय बून
					5 9 9 9 9 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7



मुख्य अवस्थानों के अक्षांश और देशांतर के साथ दाचीगाम राष्ट्रीय उद्यान, थजवास (बालटाल) वन्यजीव अभयारण्य और ओवेरा-अरू वन्यजीव अभयारण्य के पारिस्थतिकी संवेदी जोन का अवस्थान मानचित्र

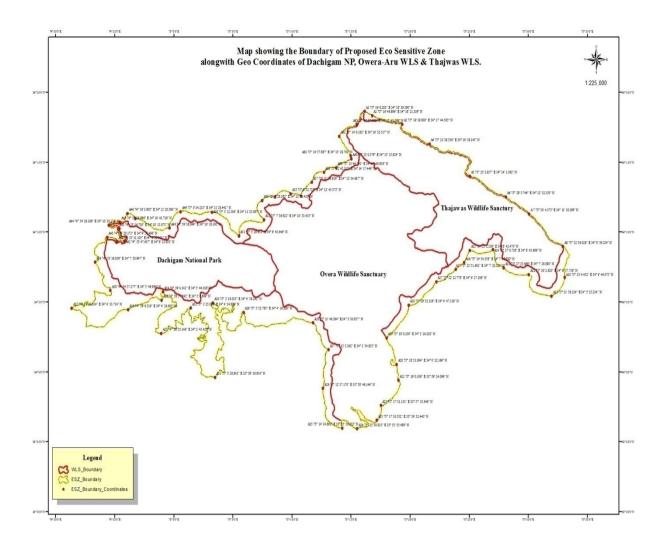
अनुलग्नक -II ख

मुख्य अवस्थानों के अक्षांश और देशांतर के साथ दाचीगाम राष्ट्रीय उद्यान, थजवास (बालटाल) वन्यजीव अभयारण्य और ओवेरा- अरू वन्यजीव अभयारण्य के पारिस्थतिकी संवेदी जोन की सीमाओं को दर्शाने वाला सैटेलाइट मानचित्र



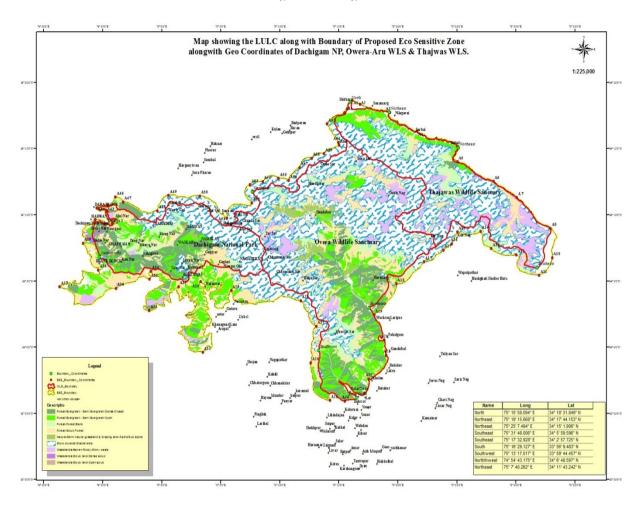
अनुलग्नक -II ग

मुख्य अवस्थानों के अक्षांश और देशांतर के साथ दाचीगाम राष्ट्रीय उद्यान, थजवास (बालटाल) वन्यजीव अभयारण्य और ओवेरा- अरू वन्यजीव अभयारण्य के पारिस्थतिकी संवेदी जोन का मानचित्र



अनुलग्नक -ll घ

दाचीगाम राष्ट्रीय उद्यान, थजवास (बालटाल) वन्यजीव अभयारण्य और ओवेरा- अरू वन्यजीव अभयारण्य के पारिस्थतिकी संवेदी जोन का भूमि उपयोग भूमि कवर मानचित्र



अनुलग्नक -III

 क. दाचीगाम राष्ट्रीय उद्यान, थजवास (बालटाल) वन्यजीव अभयारण्य और ओवेरा-अरू वन्यजीव अभयारण्य के संरक्षित क्षेत्र के भू-निर्देशांक को दर्शाने वाली सारणी

क्र.सं.	नाम	देशांतर	अक्षांश
1	उत्तर	75° 15' 58.094" पू	34° 18' 31.849" उ
2	उत्तर-पूर्व	75° 19' 15.668" पू	34° 17' 44.153" उ
3	उत्तर-पूर्व	75° 25' 7.494" पू	34° 15' 1.906" उ
4	दक्षिण-पूर्व	75° 31' 48.006" पू	34° 5' 59.596" उ
5	दक्षिण-पूर्व	75° 17' 32.928" पू	34° 2' 57.725" उ
6	दक्षिण	75° 16' 29.127" पू	33° 56' 9.483" उ
7	दक्षिण-पश्चिम	75° 13' 17.017" पू	33° 59' 44.457" उ
8	उत्तर-पश्चिम	74° 54' 43.175" पू	34° 6' 48.597" उ
9	उत्तर-पूर्व	75° 7' 40.262" पू	34° 11' 43.242" उ

ख. दाचीगाम राष्ट्रीय उद्यान, थजवास (बालटाल) वन्यजीव अभयारण्य और ओवेरा-अरू वन्यजीव अभयारण्य की पारिस्थितिकी संवेदी जोन सीमाओं के भू-निर्देशांक को दर्शाने वाली सारणी

क्र.सं	देशांतर	अक्षांश	संरक्षित क्षेत्र (मीटर) से दूरी	विवरण
1	75° 16' 8.283" पू	34° 18' 39.590" उ	50	सिंध नदी
2	75° 16' 46.896" पू	34° 18' 21.339" उ	1000	थजवास खुला राजस्व भूमि
3	75° 19' 19.800" पू	34° 17' 44.505" उ	50	इचामार्ग
4	75° 21' 38.536" पू	34° 16' 19.145" उ	50	सेरबल ग्राम, सिंध नदी
5	75° 25' 2.957" पू	34° 14' 1.062" उ	50	डोमेल वन, सिंध नदी
6	75° 32' 56.026" पू	34° 8' 59.234" उ	50	निछांग, अल्पाइन चरागाह
7	75° 33' 4.452" पू	34° 6' 46.073" उ	1000	अल्पाइन चरागाह
8	75° 31' 58.324" पू	34° 5' 25.254" उ	1000	गुइडी गली, अल्पाइन चरागाह
9	75° 30' 2.620" पू	34° 6' 57.756" उ	1000	वाहाबल टॉप, अल्पाइन चरागाह
10	75° 27' 0.738" पू	34° 8' 45.686" उ	1000	छुट पास, अल्पाइन चरागाह
11	75° 23' 51.681" पू	34° 7' 20.121" उ	1000	राजदान नार, अल्पाइन चरागाह
12	75° 14' 57.887" पू	34° 15' 28.761" उ	1000	गंज वन, सिंध प्रभाग
13	75° 15' 27.980" पू	34° 17' 43.399" ਤ	50	सिंध नदी
14	75° 14' 0.162" पू	34° 16' 52.517" ਤ	1000	को 53/एस, अल्पाइन चरागाह
15	75° 15' 0.579" पू	34° 15' 15.824" ਤ	1000	को 53/ एस, अल्पाइन चरागाह
16	75° 13' 44.791" पू	34° 14' 36.938" ਤ	1000	को 53/ एस, अल्पाइन चरागाह
17	75° 12' 42.317" पू	34° 14' 17.449" ਤ	1000	को 53/ एस, अल्पाइन चरागाह
18	75° 11' 39.926" पू	34° 13' 34.687" उ	1000	को 49/ एस, अल्पाइन चरागाह
19	75° 10' 45.063" पू	34° 12' 35.890" उ	1000	को 45/ एस, अल्पाइन चरागाह
20	75° 9' 52.727" पू	34° 12' 45.375" ਤ	1000	को 44/ एस, अल्पाइन चरागाह
21	75° 8' 33.037" पू	34° 12' 30.866" ਤ	1000	को 41/ एस, अल्पाइन चरागाह
22	75° 7' 28.585" पू	34° 12' 16.430" उ	1000	को 39/ एस, अल्पाइन चरागाह
23	75° 7' 36.922" पू	34° 10' 53.455" ਤ	1000	को 34/एमबीएल, अल्पाइन चरागाह
24	75° 5' 29.651" पू	34° 9' 43.646" उ	1000	होका सार, अल्पाइन चरागाह
25	75° 3' 12.504" पू	34° 11' 25.097" ਤ	1000	सुराफराओ वन, सिंध
26	75° 0' 34.233" पू	34° 11' 28.442" उ	1000	लिदवास, अल्पाइन चरागाह
27	74° 59' 38.049" पू	34° 10' 18.195" उ	1000	लिदवास, अल्पाइन चरागाह
28	75° 3' 18.035" पू	34° 4' 56.242" ਤ	500	अंदरहजन नार, वन क्षेत्र, हजन्नर
29	75° 5' 52.795" पू	34° 4' 16.200" उ	1000	को 22/तरल वन क्षेत्र, पम्बच खोद
30	75° 11' 46.294" पू	34° 3' 30.857" उ	1000	को 13/तरल वन क्षेत्र
31	75° 13' 5.262" पू	34° 1' 34.853" उ	1000	को 24/वन क्षेत्र

				[
32	75° 12' 37.170" पू	33° 58' 49.146" उ	1000	को 3 वन क्षेत्र, वटवगर
33	75° 14' 14.892" पू	33° 55' 58.452" उ	1000	को 51/एल वन क्षेत्र
34	75° 15' 30.813" पू	33° 55' 55.489" उ	0	को 50/एल, ओवूर ग्राम
35	75° 17' 10.532" पू	33° 56' 32.440" उ	0	को 45/एल, पर्यटन केंद्र का विकास
36	75° 17' 31.151" पू	33° 57' 35.646" उ	0	खेलान वन
37	75° 19' 0.106" पू	33° 59' 24.096" उ	0	ममल वन, पहलगाम का विकास
38	75° 18' 51.004" पू	34° 0' 32.169" उ	0	ममल ग्राम
39	75° 18' 0.230" पू	34° 2' 26.202" उ	0	वचरन, लीडडेर नाला
40	75° 19' 52.326" पू	34° 4' 47.318" उ	1000	को 19/एल, वन क्षेत्र,संगम
41	75° 22' 12.778" पू	34° 6' 27.186" उ	1000	को 16, अल्पाइन चरागाह, सरनर
42	75° 24' 34.558" पू	34° 7' 48.950" उ	1000	को 12/एल, अल्पाइन चरागाह
43	75° 25' 2.139" पू	34° 8' 42.470" उ	1000	राबेमार्ग, अल्पाइन चरागाह
44	75° 27' 55.499" पू	34° 7' 26.880" उ	1000	अस्तानमार्ग, अल्पाइन चरागाह
45	75° 28' 5.746" पू	34° 12' 32.350" उ	50	नागिनपत्थर
46	75° 30' 4.375" पू	34° 11' 18.399" उ	50	पंजतरनी, अमरनाथ गुफा की ओर रास्ता
47	74° 56' 42.915" पू	34° 10' 57.894" ਤ	1000	दारा नाला, दारावन, वन
48	74° 56' 3.905" पू	34° 11' 20.590" उ	1000	तुलापत्थरनाला, खुलावन
49	74° 55' 24.996" पू	34° 10' 43.726" उ	200	चाक-आई-दारा ग्राम
50	74° 54' 28.109" पू	34° 10' 30.176" उ	200	मुरीनदेरबाग ग्राम, जल निकाय
51	74° 55' 16.730" पू	34° 10' 15.073" उ	200	कृषि भूमि, नूथिड ग्राम
52	74° 55' 47.637" पू	34° 9' 21.851" उ	200	महादेव नार, कृषि भूमि
53	74° 55' 11.105" पू	34° 9' 20.101" उ	200	मवासकोल
54	74° 54' 20.173" पू	34° 9' 38.496" उ	200	पीडब्ल्यूडी जल टैंक एवं जलाशय
55	74° 53' 19.039" पू	34° 7' 50.947" उ	500	बारोबल, चट्टानी क्षेत्र
56	74° 54' 37.277" पू	34° 5' 49.986" उ	500	सुमेर नार, चट्टानी
57	74° 51' 20.334" पू	34° 4' 33.714" उ	500	गोपबाल नार, मिश्रित वन, सैंट बाबा गुलाम्दीनसाह
58	74° 56' 6.516" पू	34° 4' 26.605" उ	500	खुली झाड़ी
59	74° 58' 57.542" पू	34° 5' 8.609" उ	1000	संगरी,मिश्रित वन
60	74° 59' 4.141" पू	34° 5' 44.018" उ	500	पहल चाक, वन क्षेत्र, दून एन
61	74° 58' 55.146" पू	34° 2' 45.453" उ	500	बथयान, वन क्षेत्र
62	75° 1' 25.038" पू	34° 4' 34.850" उ	500	सरदालौनर, वन क्षेत्र
63	75° 3' 28.841" पू	33° 59' 36.914" उ	1000	को 24/तरल वन क्षेत्र, सराई बून

अनुलग्नक -IV

भू-निर्देशांकों के साथ दाचीगाम राष्ट्रीय उद्यान, थजवास (बालटाल) वन्यजीव अभयारण्य और ओवेरा-अरू वन्यजीव अभयारण्य के पारिस्थितिकी संवेदी जोन के अंतर्गत आने वाले ग्राम की सूची

दाचीगाम राष्ट्रीय उद्यान, थजवास **(**बालटाल) वन्यजीव अभयारण्य और ओवेरा-अरू वन्यजीव अभयारण्य के प्रस्तावित पारिस्थितिकी संवेदी जोन के अंतर्गत आने वाले निम्नलिखित ग्राम/नगरी:

<u>भू-निर्देशांकों के साथ पारिस्थितिकी संवेदी जोन के विस्तार के अंतर्गत आने वाले ग्रामों की सूची</u> (दाचीगाम राष्ट्रीय उद्यान)

दिशा	ग्राम का नाम	अक्षांश (उ)	देशांतर (पू)
उत्तर		-	-
	मम्राथ	34° 10' 46.41" ਤ	74° 56' 10.36" पू
	दारा	34° 10' 58.48" उ	74° 54' 27.36" पू
उत्तर-पश्चिम	फकीर गुज्जारी	34° 11' 54.55" उ	74° 54' 53.87" पू
	मुलनार	34° 9' 45.42" उ	74° 54' 2.18" पू
	हरवान	34° 9' 31.7" ਤ	74° 53' 41.81" पू
	इसहबार	34° 8' 4.38" उ	74° 52' 47.33" पू
पश्चिम	पोहल	34° 6' 24.67" उ	74° 53' 23.31" पू
-	लाम	34° 7' 0.65" ਤ	74° 53' 1.38" पू
	संगरी	34° 5' 52.46" उ	74° 58' 49.51" पू
-	चेक	34° 5' 0.38" ਤ	75° 0' 12.08" पू
दक्षिण	बैथिन	34° 4' 13.27" उ	74° 01' 5.79" पू
-	नर्गिदेर	34° 04' 11.972" उ	75° 02' 16.717" पू
-	जनातरग	34° 03' 54.355" उ	75° 02' 35.909" पू
	अरीपाल	34° 0' 59.80" उ	74° 04' 22.20" पू
दक्षिण-पूर्व	हजीनार	34° 04' 37.87" उ	75° 03' 43.49" पू
F	नारीस्तान	34° 4' 21.13" उ	74° 0' 22.28" पू
पूर्व	शून्य	-	-

भू-निर्देशांकों के साथ पारिस्थितिकी संवेदी जोन के विस्तार के अंतर्गत आने वाले ग्रामों की सूची

<u>(ओवेरा-अरू वन्यजीव अभयारण्य)</u>

दिशा	ग्राम का नाम	अक्षांश (उ)	देशांतर (पू)
उत्तर		-	-
उत्तर-पश्चिम		-	-
पश्चिम		-	-
दक्षिण	ओवेरा	33° 56' 9.483" उ	75° 16' 29.127" पू
दाक्षण	दारवोन	34° 18' 15.91" उ	75° 13' 01.67" पू

दक्षिण-पूर्व	-	-
पूर्व	-	-

<u>भू-निर्देशांकों के साथ पारिस्थितिकी संवेदी जोन के विस्तार के अंतर्गत आने वाले ग्रामों की सूची</u>

<u>(थजवास (बालटाल) वन्यजीव अभयारण्य)</u>

दिशा	ग्राम का नाम	अक्षांश (उ)	देशांतर (पू)
उत्तर		-	-
उत्तर -पश्चिम	सरबल	ਤ 34º 10'59.14"	पू 75º 00'42.77''
उत्तर -पाश्चम	सोनमर्ग	ਤ 34º 18'15.91"	पू 75º 17'59.45''
पश्चिम	शुटकारी	ਤ 34º 18'31.85"	पू 75º 15'39.61''
दक्षिण		-	-
दक्षिण-पूर्व		-	-
पूर्व		-	-

अनुलग्नक-V

की गई कार्रवाई संबंधी रिपोर्ट का प्रपत्रः

- 1. बैठकों की संख्या और तारीख ।
- बैठकों का कार्यवृत : (कृपया मुख्य उल्लेखनीय बिंदुओं का वर्णन करें । बैठक के कार्यवृत को एक पृथक अनुलग्नक में प्रस्तुत करें) ।
- 3. पर्यटन महायोजना सहित आंचलिक महायोजना की तैयारी की स्थिति ।
- भू-अभिलेखों की स्पष्ट त्रुटियों के सुधार के लिए निबटाए गए मामलों का सार (पारिस्थितिकी-संवेदी जोन वार)। विवरण अनुलग्नक के रुप में संलग्न करें।
- 5. पर्यावरण प्रभाव आकलन अधिसूचना, 2006 के अधीन आने वाली गतिविधियों से संबंधित संवीक्षा किए गए मामलों का सार।(विवरण एक पृथक अनुलग्नक के रूप में संलग्न करें)।
- पर्यावरण प्रभाव आकलन अधिसूचना, 2006 के अधीन न आने वाली गतिविधियों से संबंधित संवीक्षा किए गए मामलों का सार। (विवरण एक पृथक अनुलग्नक के रूप में संलग्न करें)।
- 7. पर्यावरण (संरक्षण) अधिनियम, 1986 की धारा 19 के अधीन दर्ज की गई शिकायतों का सार।
- 8. कोई अन्य महत्वपूर्ण मामला।

MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

NOTIFICATION

New Delhi, the 7th June, 2021

S.O.2184(E).—The following draft notification, which the Central Government proposes to issue in exercise of the powers conferred by sub-section (1), read with clause (v) and clause (xiv) of sub-section (2) and sub-section (3) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986) is hereby published, as required under sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, for the information of the public likely to be affected thereby; and notice is hereby given that the said draft notification shall be taken into consideration on or after the expiry of a period of sixty days from the date on which copies of the Gazette containing this notification are made available to the public;

Any person interested in making any objections or suggestions on the proposals contained in the draft notification may forward the same in writing, for consideration of the Central Government within the period so specified to the Secretary, Ministry of Environment, Forest and Climate Change, Indira Paryavaran Bhawan, Jorbagh Road, Aliganj, New Delhi-110 003, or send it to the e-mail address of the Ministry at esz-mef@nic.in

Draft Notification

WHEREAS, the Dachigam National Park, Thajwas (Baltal) Wildlife Sanctuary & Overa-Aru Wildlife Sanctuary is spread over the total area of 769 square kilometres located in the Srinagar, Ganderbal and Anantnag Districts in Kashmir province of Union Territory of Jammu and Kashmir.

AND WHEREAS, the Dachigam National Park comprising an area of 141.00 square kilometres has been notified as National Park vide notification no. S.R.O:134 dated 10thApril, 1990., The Overa Aru Wildlife Sanctuary comprising an area of 425 square kilometres has been notified as Wildlife Sanctuary vide S.R.O: 154 dated 19th March 1987 & Thajwas (Baltal) Wildlife Sanctuary comprising an area of 203 Square kilometres has been notified as Wildlife Sanctuary notified vide S.R.O: 158 dated 19th March 1987.

AND WHEREAS, the Dachigam National Park is located at a distance of 21 kilometre North-East from Srinagar city. The park lies in the great Zanskar mountain range between an altitude of 1600 metres to 4250 meters above mean sea level and forms the North-West branch of the Central Himalayan axis. The Dachigam is famous for harbouring the last viable and endemic population of Hangul (Kashmir red deer), the only abode left in South-East Asia. The park has the prestige to be the recipient of the award for the best managed National Park in the country.

AND WHEREAS, the Thajwas (Baltal) Wildlife Sanctuary is located at a distance of 21 kilometer North-East from Srinagar. The sanctuary lies between 34°37' N Latitude and 74°29' to 74°36' E Longitude and covers an altitudinal range of 3015 meters to 5466 meters above mean sea level. It comprises of forest compartment numbers from 56/S to 62/S of Sindh Forest Division. The main faunal attraction of this area is the Kashmir Musk deer (*Moschus cupreus*) and Himalayan brown bear (*Ursus arctos*). The sanctuary is connected with other important wildlife areas, like Aru, Upper Dachigam and the Sind forest. The Wildlife Sanctuary is flanked by the large snow laden peaks of 'Sonamarg' and the Sindh River, which is famous for its trout and mahseer population. Thajwas glacier is one of the tourist attraction visited by tourists in the summer months.

AND WHEREAS, the Overa-Aru Wildlife Sanctuary is located at a distance of 76 kilometres from South-East of Srinagar. Itlies between 33°55'0"N to 34°20'0" N Latitude and 75°5'0" E to 75°32'30" E Longitude and falls in the Anantnag District of the Kashmir Valley. The forests of Overa-Aru sanctuary are blessed with a number of lakes and glaciers, which happen to be invaluable sources of water, feeding numerous streams that flow down into the villages situated near the periphery.

AND WHEREAS, the Dachigam National Park comes under 2A province of bio-geographic classification as suggested by Rodgers et al., 2002. As per revised Champion and Seth (1968) the vegetation of Dachigam National Park is typically Himalayan moist temperate forest, sub-alpine forest and alpine forest type and can be classified into moist temperate deciduous forest, Parrotia (pohu) scrub forest, west Himalayan low level blue pine forest, western mixed coniferous forest, deciduous alpine scrub, west Himalayan sub-alpine birch-rhododendron forest, dwarf juniper scrub, dry temperate scrub.

AND WHEREAS, some of the notable flora and fauna of the Dachigam National Park include Ulmus wallichiana, Salix alba, Populus sp., Prunus armeniaca, Quercus robur, Robina pseudoacacia, Parrotiopsis jacquemontiana, Rosa webbiana, Rubus niveus, Aesculus indica,Juglans regia, Pinus griffithi, Angaarda (Lychniscornaria (L.)Desr)., Bajardantu(Potentilla atrosanguinaLodd.), Trumbadu (Picrishieracioides), Ghudkhura (Tussilago farfara), Dodad (Codonopsis ovate), Ratanjot (Onosmahispidum wallichex), Kashmir Red Deer (Cervus hangluhanglu.), Kashmir Musk Deer (Moschus cupreus), Common Leopard (Panthera pardus), Himalayan Brown Bear(Ursus arctos isabellinus), Asiatic Black Bear (Ursus thibetanus), Kashmir Gray Langur (Semnopithecus ajax), Himalayan Griffon Vulture (Gyps himalayensis), Bearded Vulture (Gypaetus barbatus), Kashmir Flycatcher (Ficedula subrubra), etc.

AND WHEREAS, the area of Thajwas Wildlife (Baltal) Sanctuary is covered mostly under thick snow, round the year. The tree species such as *Abies pindrow, Betula ultilis, Juglans regia* and *Picea* sp. constitute the major assemblage of tree flora. *Indigofera hetranth, Berberies lycicum,* and *Rosa webbiana* constitute the major shrub cover of the area. The important faunal species of the area are Grey Langur (*Presbytis entellus*), Rhesus Macaque (*Macaca mulatta*), Common Leopard (*Panthera pardus*), Snow Leopard (*Panther unica*), Leopard Cat (*Felis bengalensis*), Jackal (*Canis aureus*), Red fox(*Vulpes vulpes*), Himalayan Brown Bear (*Ursus arctos*), Asiatic Black Bear (*Ursus thibetanus*), Yellow throated Martin (*Martis flavigula*), Long-tailed Marmot (*Mannota bobak*), Royle's Pika (*Ochotona roylei*), Asiatic Ibex (*Capra sibrica*), Kashmir Musk Deer (*Moschus cupreus*)etc.

AND WHEREAS, due to variation in altitude, aspect and soil, a diversity of vegetation is discernible in the Overa-Aru Wildlife Sanctuary. The vegetation of the Sanctuary is mainly Fir (*Abis pindrow*) with Kail (*Pinus griffithi*) in the lower elevations near Nallas. On varied physical variations the forest types found are Riverian Vegetation (1600-2300meters above mean sea level), Coniferous Forests:(2300-3000 meters above mean sea level), Alpine Scrubs and Pastures:(Beyond 3000-3500 meters above mean sea level), Rock Faces:(Beyond 3500meters above mean sea level). The Overa-Aru forests are blessed with numerous plant species of great medicinal value. Some of the medical plants growing wild in the area include *Aconitum heterophyllum, Arnebia benthamii, Artemisia absinthium, Berberis lycium, Bergenia lingulata, Datura stramonium, Dioscore adeltoidea, Lavatera cashmeriana, Saussurea costus and Taxus wallichina.*

AND WHEREAS, the Overa-Aru Wildlife Sanctuary falls in the north-west province (Province 2A) of the Himalayan Zone as per the bio-geographic demarcation by Rodgers and Panwar (1998). This province includes the whole Kashmir valley, characterized by temperate and sub-tropical climate Kashmiri stag or Hangul (*Cervus hanglu hanglu*), Kashmir musk deer (*Moschus cupreus*), Himalayan black bear (*Ursus thibetanus*), Himalayan brown bear (*Ursus arctos*), Common leopard (*Panthera pardus*), Himalayan grey langur (*Presbytis ajax*), Rhesus macaque (*Macaca mulata*), red fox (*Vulpus vulpes*), brown musk shrew (*Crocidura murina*), yellow throated martin (*Martes flavigula*), long-tailed Marmot (*Marmot himaliyana*), Kashmir vampire (*Mergaderma spectrum*), Leisler's hairy – armed bat (*Nyctalus lessleri*), Kashmir House Rat (*Rattus rattus*), Birch Mouse (*Sicista indica*), Kashmir flying squirrel (*Eoglaucomys fimbriatus*), serow (*Capricornis sumatraenis*), Roule's pika (*Ochotona royelii*) Himalayan griffon vulture (*Gyps himalayensis*), bearded vulture (*Gypaetus barbatus*), Kashmir flycatcher (*Ficedula subrubra*) etc.

AND WHEREAS, the natural boundaries of Dachigam National Park, Overa-Aru Wildlife Sanctuary and Thajwas Wildlife (Baltal) Sanctuary are connected at landscape level. The boundary of Dachigam National Park on North and North Eastern side merges with Overa-Aru Wildlife Sanctuary while as Overa–Aru Wildlife Sanctuary on its North and North-Eastern side merges with Thajwas Wildlife Sanctuary. The protected areas together form a landscape of rich biodiversity and hold good population of some of the important/endemic species of animals, birds and vegetation. The eco sensitive zone proposed makes these areas as one unit and will help gene flow across these areas to flourish the biodiversity.

AND WHEREAS, it is necessary to conserve and protect the area, the extent and boundaries of Dachigam National Park, Thajwas (Baltal) Wildlife Sanctuary and Overa-Aru Wildlife Sanctuary which are specified in paragraph 1 as Eco-sensitive Zone from ecological, environmental and biodiversity point of view and to prohibit industries or class of industries and their operations and processes in the said Eco-sensitive Zone;

NOW, THEREFORE, in exercise of the powers conferred by sub-section (1) and clauses (v) and (xiv) of sub-sections (2) and (3) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986) (hereafter in this notification referred to as the Environment Act), read with sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, the Central Government hereby notifies an area to an extent varying from 0 (zero) to 9.90kilometers around the boundary of Dachigam National Park, Thajwas (Baltal) Wildlife Sanctuary and Overa-Aru Wildlife Sanctuary, in the Union Territory of Jammu & Kashmir as Dachigam National Park, Thajwas (Baltal) Wildlife Sanctuary and Overa-Aru Wildlife Sanctuary and Overa-Aru Wildlife Sanctuary Eco-sensitive Zone (hereafter in this notification referred to as the Eco-sensitive Zone) details of which are as under, namely:

1. Extent and boundaries of Eco-sensitive Zone. -(1) The Eco-Sensitive Zone shall be of 137.75 square kilometers with an extent 0 (zero) to 9.90 kilometers around the boundary of Dachigam National Park, Thajwas (Baltal) Wildlife Sanctuary and Overa-Aru Wildlife Sanctuary. The zero extent of the Eco-Sensitive Zone is towards South and South-West side of Overa-Aru Wildlife Sanctuary as the Eco-Sensitive Zone boundary passes along the important tourist destination of Pahalgam and Nunwan Camp, the base camp of the famous annual pilgrimage Amarnath Yatra. Further, the Pahalgam area is under high demand for tourist infrastructural development and is notified under the Development Act as the local area for Pahalgam Development Authority. Also, the area has sizeable resident population and infrastructure.

Direction	Extent	Location
	(in kilometers)	
North	0.25	Sindh Nallah
Northeast	1	Baltal
East	1	Sheshnag
Southeast	1	Braripathar
South	0	Overa
Southwest	9.9	Wahabkhar
West	7.5	Karan Mahal
Northwest	1	Somamus
А	1	A) Bathyan
В	1.5	B) Nagandar
С	3.3	C) Zanatrag
D	4.95	D) Pakhirin

Extent of Eco-sensitive zone in different directions (kilometers) as given below:-

- (2) The boundary description of the Dachigam National Park, Thajwas (Baltal) Wildlife Sanctuary and Overa-Aru Wildlife Sanctuary and its Eco-sensitive Zone is appended as **Annexure-I.**
- (3) The maps of the Dachigam National Park, Thajwas (Baltal) Wildlife Sanctuary and Overa-Aru Wildlife Sanctuary demarcating Eco-sensitive Zone along with boundary details and latitudes and longitudes are appended as Annexure-IIA, Annexure-IIB, Annexure-IIC and Annexure-IID.
- (4) Lists of geo co-ordinates of the boundary of Dachigam National Park, Thajwas (Baltal) Wildlife Sanctuary and Overa-Aru Wildlife Sanctuary and Eco-sensitive Zone are given in Table A and Table B of Annexure-III.
- (5) The list of village falling in the Eco-sensitive Zone along with their geo co-ordinates at prominent points is appended as **Annexure-IV**.
- 2. Zonal Master Plan for Eco-sensitive Zone.- (1) The Union Territory Government shall, for the purposes of the Eco-sensitive Zone prepare a Zonal Master Plan within a period of two years from the date of publication of this notification in the Official Gazette, in consultation with local people and adhering to the stipulations given in this notification for approval of the competent authority in the Union Territory.
 - (2) The Zonal Master Plan for the Eco-sensitive Zone shall be prepared by the Union Territory Government in such manner as is specified in this notification and also in consonance with the relevant Central and Union Territory laws and the guidelines issued by the Central Government, if any.
 - (3) The Zonal Master Plan shall be prepared in consultation with the following Departments of the Union Territory Government, for integrating the ecological and environmental considerations into the said plan:-
 - (i) Environment;
 - (ii) Forests;
 - (iii) Agriculture;
 - (iv) Revenue;
 - (v) Urban Development;
 - (vi) Tourism;
 - (vii) Rural Development;
 - (viii) Irrigation & Flood Control;
 - (ix) Pollution Control Board;
 - (x) Municipal;

- (xi) Panchayati Raj; and
- (xi) Public Works Department.
- (4) The Zonal Master Plan shall not impose any restriction on the approved existing land use, infrastructure and activities, unless so specified in this notification and the Zonal Master Plan shall factor in improvement of all infrastructure and activities to be more efficient and eco-friendly.
- (5) The Zonal Master Plan shall provide for restoration of denuded areas, conservation of existing water bodies, management of catchment areas, watershed management, groundwater management, soil and moisture conservation, needs of local community and such other aspects of the ecology and environment that need attention.
- (6) The Zonal Master Plan shall demarcate all the existing worshipping places, villages and urban settlements, types and kinds of forests, agricultural areas, fertile lands, green area, such as, parks and like places, horticultural areas, orchards, lakes and other water bodies with supporting maps giving details of existing and proposed land use features.
- (7) The Zonal Master Plan shall regulate development in Eco-sensitive Zone and adhere to prohibited and regulated activities listed in the Table in paragraph 4 and also ensure and promote eco-friendly development for security of local communities' livelihood.
- (8) The Zonal Master Plan shall be co-terminus with the Regional Development Plan.
- (9) The Zonal Master Plan so approved shall be the reference document for the Monitoring Committee for carrying out its functions of monitoring in accordance with the provisions of this notification.
- **3.** Measures to be taken by the Union Territory Government.-The Union Territory Government shall take the following measures for giving effect to the provisions of this notification, namely:-
 - Land use.- (a) Forests, horticulture areas, agricultural areas, parks and open spaces earmarked for recreational purposes in the Eco-sensitive Zone shall not be used or converted into areas for commercial or residential or industrial activities;

Provided that the conversion of agricultural and other lands, for the purposes other than that specified at part (a) above, within the Eco-sensitive Zone may be permitted on the recommendation of the Monitoring Committee, and with the prior approval of the competent authority under Regional Town Planning Act and other rules and regulations of Central Government or Union Territory Government as applicable and *vide* provisions of this notification, to meet the residential needs of the local residents and for activities such as:

- (i) widening and strengthening of existing roads and construction of new roads;
- (ii) construction and renovation of infrastructure and civic amenities;
- (iii) small scale industries not causing pollution;
- (iv) cottage industries including village industries; convenience stores and local amenities supporting eco-tourism including home stay; and
- (v) promoted activities given in paragraph 4;

Provided further that no use of tribal land shall be permitted for commercial and industrial development activities without the prior approval of the competent authority under Regional Town Planning Act and other rules and regulations of the Union Territory Government and without compliance of the provisions of article 244 of the Constitution or the law for the time being in force, including the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (2 of 2007);

Provided also that any error appearing in the land records within the Eco-sensitive Zone shall be corrected by the Union Territory Government, after obtaining the views of Monitoring Committee, once in each case and the correction of said error shall be intimated to the Central Government in the Ministry of Environment, Forest and Climate Change;

Provided also that the correction of error shall not include change of land use in any case except as provided under this sub-paragraph:

(b) Efforts shall be made to reforest the unused or unproductive agricultural areas with afforestation and habitat restoration activities.

(2) Natural water bodies.-The catchment areas of all natural springs shall be identified and plans for their conservation and rejuvenation shall be incorporated in the Zonal Master Plan and the guidelines shall be drawn up by the Union Territory Government in such a manner as to prohibit development activities at or near these areas which are detrimental to such areas.

- (3) Tourism or eco-tourism.- (a) All new eco-tourism activities or expansion of existing tourism activities within the Eco-sensitive Zone shall be as per the Tourism Master Plan for the Eco-sensitive Zone;
 - (b) the Tourism Master Plan shall be prepared by the Union Territory Department of Tourism in consultation with the Union Territory Departments of Environment and Forests;
 - (c) the Tourism Master Plan shall form a component of the Zonal Master Plan;
 - (d) the Tourism Master Plan shall be drawn based on the study of carrying capacity of the Eco-sensitive Zone;
 - (e) the activities of eco-tourism shall be regulated as under, namely:-
 - (i) new construction of hotels and resorts shall not be allowed within one kilometer from the boundary of the protected area or upto the extent of the Eco-sensitive Zone, whichever is nearer:

Provided that beyond the distance of one kilometre from the boundary of the protected area till the extent of the Eco-sensitive Zone, the establishment of new hotels and resorts shall be allowed only in pre-defined and designated areas for eco-tourism facilities as per Tourism Master Plan;

- (ii) all new tourism activities or expansion of existing tourism activities within the Eco-sensitive Zone shall be in accordance with the guidelines issued by the Central Government in the Ministry of Environment, Forest and Climate Change and the eco-tourism guidelines issued by the National Tiger Conservation Authority (as amended from time to time) with emphasis on eco-tourism, ecoeducation and eco-development;
- (iii) until the Zonal Master Plan is approved, development for tourism and expansion of existing tourism activities shall be permitted by the concerned regulatory authorities based on the actual site specific scrutiny and recommendation of the Monitoring Committee and no new hotel, resort or commercial establishment construction shall be permitted within Eco-sensitive Zone area.
- (4) Natural heritage.- All sites of valuable natural heritage in the Eco-sensitive Zone, such as the gene pool reserve areas, rock formations, waterfalls, springs, gorges, groves, caves, points, walks, rides, cliffs, etc. shall be identified and a heritage conservation plan shall be drawn up for their preservation and conservation as a part of the Zonal Master Plan.
- (5) Man-made heritage sites.- Buildings, structures, artefacts, areas and precincts of historical, architectural, aesthetic, and cultural significance shall be identified in the Eco-sensitive Zone and heritage conservation plan for their conservation shall be prepared as part of the Zonal Master Plan.
- (6) Noise pollution. -Prevention and control of noise pollution in the Eco-sensitive Zone shall be carried out in accordance with the provisions of the Noise Pollution (Regulation and Control) Rules, 2000 under the Environment Act.
- (7) Air pollution.- Prevention and control of air pollution in the Eco-sensitive Zone shall be carried out in accordance with the provisions of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981) and the rules made there under.
- (8) Discharge of effluents.- Discharge of treated effluent in Eco-sensitive Zone shall be in accordance with the provisions of the General Standards for Discharge of Environmental Pollutants covered under the Environment Act and the rules made there under or standards stipulated by the Union Territory Government, whichever is more stringent.
- (9) Solid wastes.-Disposal and Management of solid wastes shall be as under:-
 - (a) the solid waste disposal and management in the Eco-sensitive Zone shall be carried out in accordance with the Solid Waste Management Rules, 2016, published by the Government of India in the Ministry of Environment, Forest and Climate Change *vide* notification number S.O. 1357 (E), dated the 8th April, 2016; the inorganic material may be disposed in an environmental acceptable manner at site identified outside the Eco-sensitive Zone;
 - (b) safe and Environmentally Sound Management of Solid wastes in conformity with the existing rules and regulations using identified technologies may be allowed within Eco-sensitive Zone.
- (10) Bio-Medical Waste.- Bio-Medical Waste Management shall be as under:-
 - (a) the Bio-Medical Waste disposal in the Eco-sensitive Zone shall be carried out in accordance with the Bio-Medical Waste Management Rules, 2016, published by the Government of India in the Ministry of Environment, Forest and Climate Change *vide* notification number G.S.R. 343 (E), dated the 28th March, 2016.

- (b) safe and Environmentally Sound Management of Bio-Medical Wastes in conformity with the existing rules and regulations using identified technologies may be allowed within the Eco-sensitive Zone.
- (11) Plastic waste management.- The plastic waste management in the Eco-sensitive Zone shall be carried out as per the provisions of the Plastic Waste Management Rules, 2016, published by the Government of India in the Ministry of Environment, Forest and Climate Change *vide* notification number G.S.R. 340(E), dated the 18th March, 2016, as amended from time to time.
- (12) Construction and demolition waste management.- The construction and demolition waste management in the Eco-sensitive Zone shall be carried out as per the provisions of the Construction and Demolition Waste Management Rules, 2016 published by the Government of India in the Ministry of Environment, Forest and Climate Change vide notification number G.S.R. 317(E), dated the 29th March, 2016, as amended from time to time.
- (13) E-waste.- The e-waste management in the Eco-sensitive Zone shall be carried out as per the provisions of the E-Waste Management Rules, 2016, published by the Government of India in the Ministry of Environment, Forest and Climate Change, as amended from time to time.
- (14) Vehicular traffic.- The vehicular movement of traffic shall be regulated in a habitat friendly manner and specific provisions in this regard shall be incorporated in the Zonal Master Plan and till such time as the Zonal Master plan is prepared and approved by the competent authority in the Union Territory Government, the Monitoring Committee shall monitor compliance of vehicular movement under the relevant Acts and the rules and regulations made thereunder.
- (15) Vehicular pollution.- Prevention and control of vehicular pollution shall be incompliance with applicable laws and efforts shall be made for use of cleaner fuels.
- (16) Industrial units.- (a) On or after the publication of this notification in the Official Gazette, no new polluting industries shall be permitted to be set up within the Eco-sensitive Zone.
 - (b) Only non-polluting industries shall be allowed within Eco-sensitive Zone as per the classification of Industries in the guidelines issued by the Central Pollution Control Board in February, 2016, as amended from time to time unless so specified in this notification, and in addition, the non-polluting cottage industries shall be promoted.
- (17) Protection of hill slopes.- The protection of hill slopes shall be as under:-
 - (a) the Zonal Master Plan shall indicate areas on hill slopes where no construction shall be permitted;
 - (b) construction on existing steep hill slopes or slopes with a high degree of erosion shall not be permitted.
- 4. List of activities prohibited or to be regulated within Eco-sensitive Zone.- All activities in the Eco-sensitive Zone shall be governed by the provisions of the Environment Act and the rules made there under including the Coastal Regulation Zone, 2011 and the Environmental Impact Assessment Notification, 2006 and other applicable laws including the Forest (Conservation) Act, 1980 (69 of 1980), the Indian Forest Act, 1927 (16 of 1927), the Wildlife (Protection) Act, 1972 (53 of 1972) and amendments made thereto and be regulated in the manner specified in the Table below, namely:-

S. No.	S. No. Activity		Description				
		A.	Prohibited Activities				
1.	Commercial mining, stone quarrying and crushing units.	(a)	All new and existing mining (minor and major minerals), stone quarrying and crushing units shall be prohibited with immediate effect except for meeting the domestic needs of bona fide local residents including digging of earth for construction or repair of houses within Eco- sensitive Zone;				
		(b)	The mining operations shall be carried out in accordance with the order of the Hon'ble Supreme Court dated the 4 th August, 2006 in the matter of T.N. Godavarman Thirumulpad Vs. UOI in W.P.(C) No.202 of 1995 and dated the 21 st April, 2014 in the matter of Goa Foundation Vs. UOI in W.P.(C) No.435 of 2012.				

TABLE

2.	Setting of industries causing pollution (Water, Air, Soil, Noise,	New industries and expansion of existing polluting industries in the Eco-sensitive Zone shall not be permitted:	
	etc.).	Provided that, non-polluting industries shall be allowed within Eco- Sensitive Zone as per classification of Industries in the guidelines issued by the Central Pollution Control Board in February, 2016, as amended from time to time, unless so specified in this notification and in addition, the non-polluting cottage industries shall be promoted.	
3.	Establishment of major hydroelectric project.	Prohibited.	
4.	Use or production or processing of any hazardous substance.	Prohibited.	
5.	Discharge of untreated effluents in natural water bodies or land area.	Prohibited.	
6.	Setting up of new saw mills.	New or expansion of existing saw mills shall not be permitted within the Eco-sensitive Zone.	
7.	Setting up of brick kilns.	Prohibited.	
8.	Commercial use of firewood.	Prohibited.	
9.	Use of polythene bags.	Prohibited.	
10.	Undertaking activities related to tourism like over-flying the national park area by aircraft, hot- air balloons.	Prohibited.	
		B. Regulated Activities	
11.	Commercial establishment of hotels and resorts.	No new commercial hotels and resorts shall be permitted within one kilometer of the boundary of the Protected Area or upto the extent of Eco-sensitive zone, whichever is nearer, except for small temporary structures for Eco-tourism activities:	
		Provided that, beyond one kilometer from the boundary of the protected Area or upto the extent of Eco-sensitive Zone whichever is nearer, all new tourist activities or expansion of existing activities shall be in conformity with the Tourism Master Plan and guidelines as applicable.	
12.	Construction activities.	(a) New commercial construction of any kind shall not be permitted within one kilometer from the boundary of the Protected Area or upto extent of the Eco-sensitive Zone whichever is nearer:	
		Provided that, local people shall be permitted to undertake construction in their land for their use including the activities listed in sub-paragraph (1) of paragraph 3 as per building bye- laws to meet the residential needs of the local residents:	
		Provided that the construction activity related to small scale industries not causing pollution shall be regulated and kept at the minimum, with the prior permission from the competent authority as per applicable rules and regulations, if any.	
		(b) Beyond one kilometer it shall be regulated as per the Zonal Master Plan.	
13.	Small scale non polluting industries.		

	1	
14.	Felling of trees.	(a)There shall be no felling of trees in the forest or Government or revenue or private lands without prior permission of the competent authority in the Union Territory Government.
		(b)The felling of trees shall be regulated in accordance with the provisions of the concerned Central or State Act and the rules made there under.
15.	Collection of Forest Produce or Non-Timber Forest Produce.	Regulated under applicable laws.
16.	Erection of electrical and communication towers and laying of cables and other infrastructures.	Regulated under applicable laws of underground cabling may be promoted.
17.	Infrastructure including civic amenities.	Taking measures of mitigation, as per applicable laws, rules, regulation and available guidelines.
18.	Widening and strengthening of existing roads and construction of new roads.	Taking measures of mitigation, as per applicable laws, rules, regulation and available guidelines.
19.	Protection of Hill Slopes and river banks.	Regulated as per the applicable laws.
20.	Movement of vehicular traffic at night.	Regulated for commercial purpose under applicable laws.
21.	Ongoing agriculture and horticulture practices by local communities along with dairies, dairy farming, aquaculture and fisheries.	Permitted as per the applicable laws for use of locals.
22.	Discharge of treated waste water/effluents in natural water bodies or land area.	The discharge of treated waste water or effluents shall be avoided to enter into the water bodies and efforts shall be made for recycle and reuse of treated waste water. Otherwise the discharge of treated waste water/effluent shall be regulated as per the applicable laws.
23.	Commercial extraction of surface and ground water.	Regulated under applicable laws.
24.	Establishment of large-scale commercial livestock and poultry farms by firms, corporate and companies.	Regulated (except as otherwise provided) as per applicable laws except for meeting local needs.
25.	Open Well, Bore Well, etc. for agriculture or other usage.	Regulated and the activity should be strictly monitored by the appropriate authority.
26.	Solid Waste Management.	Regulated as per the applicable laws.
27.	Introduction of Exotic species.	Regulated as per the applicable laws.
28.	Eco-tourism.	Regulated as per the applicable laws.
29.	Commercial Sign boards and hoardings.	Regulated as per the applicable laws.
30.	Migratory Graziers.	Regulated as per the applicable laws.
31.	Fencing of existing premises of hotels and lodges.	Regulated as per the applicable laws.
		C. Promoted Activities
32.	Rain water harvesting.	Shall be actively promoted.

33.	Organic farming.	Shall be actively promoted.
34.	Adoption of green technology for all activities.	Shall be actively promoted.
35.	Cottage industries including village artisans, etc.	Shall be actively promoted.
36.	Use of renewable energy and fuels.	Bio-gas, solar light etc. shall be actively promoted.
37.	Agro-Forestry.	Shall be actively promoted.
38.	Plantation of Horticulture and Herbals.	Shall be actively promoted.
39.	Use of eco-friendly transport.	Shall be actively promoted.
40.	Skill Development.	Shall be actively promoted.
41.	Restoration of Degraded Land/ Forests/ Habitat.	Shall be actively promoted.
42.	Environmental Awareness.	Shall be actively promoted.

5. Monitoring Committee for Monitoring the Eco-sensitive Zone Notification.- For effective monitoring of the provisions of this notification under sub-section (3) of section 3 of the Environment (Protection) Act, 1986, the Central Government hereby constitutes a Monitoring Committee, comprising of the following, namely:-

S. No.	Constituent of the Monitoring Committee	Designation
1.	Divisional Commissioner, Kashmir	Chairman;
2.	An expert in the area of ecology and environment to be nominated by the Government of Jammu and Kashmir	Member;
3.	One representative of a Non-Governmental Organization working in the field of environment conservation to be nominated by the Government of Jammu and Kashmir	Member;
4.	One representative of Jammu and Kashmir Biodiversity Council	Member;
5.	Deputy Commissioner, Srinagar	Member;
6.	Deputy Commissioner, Ganderbal	Member;
7.	Deputy Commissioner, Anantnag	Member;
8.	Deputy Commissioner, Pulwama	Member;
9.	Muncipal Commissioner, Srinagar	Member;
10.	Director Tourism, Kashmir	Member;
11.	Vice-chairman, Srinagar Development Authority	Member;
12.	Regional Director, J&K State Pollution Control Board, Srinagar	Member;
13.	Senior Town Planner, Kashmir	Member;
14.	Divisional Forest Officer, Sindh Forest Division	Member;
15.	Divisional Forest Officer, Lidder Forest Division	Member;
16.	Divisional Forest Officer, Awantipura	Member;
17.	Divisional Forest Officer, Urban Forestry Srinagar	Member;
18.	Chief Executive Officer, Sonmarg Development Authority	Member;
19.	Chief Executive Officer, Pahalgam Development Authority	Member;
20.	Wildlife Warden, Central Division	Member;
21.	Wildlife Warden ,South Division	Member;
22.	Regional Wildlife Warden, Kashmir	Member Secretary

6. Terms of reference. -(1) The Monitoring Committee shall monitor the compliance of the provisions of this notification.

- (2) The tenure of the Monitoring committee shall be till further orders, provided that the non-official members of the Committee shall be nominated by the Union Territory Government from time to time.
- (3) The activities that are covered in the Schedule to the notification of the Government of India in the erstwhile Ministry of Environment and Forests number S.O. 1533 (E), dated the 14th September, 2006, and are falling in the Eco-sensitive Zone, except for the prohibited activities as specified in the Table under paragraph 4 thereof, shall be scrutinised by the Monitoring Committee based on the actual site-specific conditions and referred to the Central Government in the Ministry of Environment, Forest and Climate Change for prior environmental clearances under the provisions of the said notification.
- (4) The activities that are not covered in the Schedule to the notification of the Government of India in the erstwhile Ministry of Environment and Forest number S.O. 1533 (E), dated the 14th September, 2006 and are falling in the Eco-sensitive Zone, except for the prohibited activities as specified in the Table under paragraph 4 thereof, shall be scrutinised by the Monitoring Committee based on the actual site-specific conditions and referred to the concerned regulatory authorities.
- (5) The Member-Secretary of the Monitoring Committee or the concerned Deputy Commissioner(s) shall be competent to file complaints under section 19 of the Environment Act, against any person who contravenes the provisions of this notification.
- (6) The Monitoring Committee may invite representatives or experts from concerned Departments, representatives from industry associations or concerned stakeholders to assist in its deliberations depending on the requirements on issue to issue basis.
- (7) The Monitoring Committee shall submit the annual action taken report of its activities as on the 31st March of every year by the 30th June of that year to the Chief Wildlife Warden in the Union Territory as per performa appended at **Annexure-V**.
- (8) The Central Government in the Ministry of Environment, Forest and Climate Change may give such directions, as it deems fit, to the Monitoring Committee for effective discharge of its functions.

7. Additional measures.-The Central Government and Union Territory Government may specify additional measures, if any, for giving effect to provisions of this notification.

8. Supreme Court, etc. orders.- The provisions of this notification shall be subject to the orders, if any passed or to be passed by the Hon'ble Supreme Court of India or High Court or the National Green Tribunal.

[F. No. 25/19/2020-ESZ]

Dr. SATISH C. GARKOTI, Scientist 'G'

ANNEXURE-I

BOUNDARY DESCRIPTION OF ECO-SENSITIVE ZONE OF DACHIGAM NATIONAL PARK, THAJWAS (BALTAL) WILDLIFE SANCTUARY AND OVERA-ARU WILDLIFE SANCTUARY IN THE UNION TERRITORY OF JAMMU & KASHMIR

S.No.	Points marked on map	Longitude	Latitude	Distance from PA boundary (meters)	Description	Justification
1	A50	75° 16' 8.283" E	34° 18' 39.590" N	50	Sindh river	
2	A51	75° 16' 46.896" E	34° 18' 21.339" N	1000	Thajwas open revenue land	
3	A52	75° 19' 19.800" E	34° 17' 44.505" N	50	Ichamarg	
4	A53	75° 21' 38.536" E	34° 16' 19.145" N	50	Serbal village, River Sindh	
5	A54	75° 25' 2.957" E	34° 14' 1.062" N	50	Domel forest, River sindh	
6	A57	75° 32' 56.026" E	34° 8' 59.234" N	50	Nichhang, Alpine Pasture	
7	A58	75° 33' 4.452" E	34° 6' 46.073" N	1000	Alpine pasture	

8	A59	75° 31' 58.324" E	34° 5' 25.254" N	1000	Guidi gali,	
9	A60	75° 30' 2.620" E	34° 6' 57.756" N	1000	Alpine pasture Wahabal top,	
					Alpine pasture	
10	A62	75° 27' 0.738" E	34° 8' 45.686" N	1000	Chhut pass,	
				1000	Alpine pasture	
11	A65	75° 23' 51.681" E	34° 7' 20.121" N	1000	Razdan nar,	
12	A47	75° 14' 57.887" E	34° 15' 28.761" N	1000	alpine pasture Ganj forests,	
12	A47	/3 14 3/.00/ E	54 15 26./01 IN	1000	Sindh divn	
13	A49	75° 15' 27.980" E	34° 17' 43.399" N	50	Sindh river	
14	A48	75° 14' 0.162" E	34° 16' 52.517" N	1000	CO 53/S, Alpine	
					Pasture	
15	A46	75° 15' 0.579" E	34° 15' 15.824" N	1000	CO 53/S, Alpine	
					Pasture	
16	A45	75° 13' 44.791" E	34° 14' 36.938" N	1000	CO 53/S, Alpine	
					Pasture	
17	A44	75° 12' 42.317" E	34° 14' 17.449" N	1000	CO 53/S, Alpine	
10		7.50 111 20 02 (1) 5	240 121 24 (0711)	1000	Pasture	
18	A43	75° 11' 39.926" E	34° 13' 34.687" N	1000	CO 49/S, Alpine Pasture	
19	A42	75° 10' 45.063" E	34° 12' 35.890" N	1000	CO 45/S, Alpine	
19	A72	75 10 45.005 E	JH 12 JJ.090 IN	1000	Pasture	
20	A41	75° 9' 52.727" E	34° 12' 45.375" N	1000	CO 44/S, Alpine	
				1000	Pasture	
21	A40	75° 8' 33.037" E	34° 12' 30.866" N	1000	CO 41/S, Alpine	
					Pasture	
22	A39	75° 7' 28.585" E	34° 12' 16.430" N	1000	CO 39/S, Alpine	
					Pasture	
23	A38	75° 7' 36.922" E	34° 10' 53.455" N	1000	CO 34/MBL,	
24	1.27		240.01.42.6468.21	1000	Alpine Pasture	
24	A37	75° 5' 29.651" E	34° 9' 43.646" N	1000	Hoka Sar, Alpine Pasture	
25	A36	75° 3' 12.504" E	34° 11' 25.097" N	1000	Sura Pharao	
23	1150	75 5 12.501 E	51 11 25.057 10	1000	Forest, Sindh	
26	A35	75° 0' 34.233" E	34° 11' 28.442" N	1000	Lidwas, Alpine	
					Pasture	
27	A34	74° 59' 38.049" E	34° 10' 18.195" N	1000	Lidwas, Alpine	
					Pasture	
28	A79	75° 3' 18.035" E	34° 4' 56.242" N	500	Andarhajan Nar,	
					Forest area,	
29	A78	75° 5' 52.795" E	34° 4' 16.200" N	1000	Hajannar CO 22/Tral	
29	A/ð	75 5 52.795 E	54 4 10.200 N	1000	Forest area,	
					Pambach khod	
30	A77	75° 11' 46.294" E	34° 3' 30.857" N	1000	CO 13/Tral	
				*	Forest area	
31	A76	75° 13' 5.262" E	34° 1' 34.853" N	1000	CO 24/Forest	
					area	
32	A75	75° 12' 37.170" E	33° 58' 49.146" N	1000	CO 3 Forest	
22		750 1 41 1 4 000 7	220 55 50 150 15	1000	area, Watwagar	
33	A74	75° 14' 14.892" E	33° 55' 58.452" N	1000	CO 51/L Forest	
34	A73	75° 15' 30.813" E	33° 55' 55.489" N	0	area CO 50/L, Owur	Demarcation
54	A/3	15 15 50.015 E	55 55 55.469 IN	U	village	line separate
					vinage	Settle Village
						of Owura
35	A72	75° 17' 10.532" E	33° 56' 32.440" N	0	CO 45/L,	Already
					Development of	developed as
					tourist hub	tourist place
						and is

						covered with fencing
36	A71	75° 17' 31.151" E	33° 57' 35.646" N	0	Khelan Forest	Demarcation line separate Settle Village is covered with fencing
37	A70	75° 19' 0.106" E	33° 59' 24.096" N	0	Mamal Forest, Development of Pahalgam	Already developed as tourist place and is covered with fencing
38	A69	75° 18' 51.004" E	34° 0' 32.169" N	0	Mamal village	Demarcation line separate Settle Village of Mamal
39	A68	75° 18' 0.230" E	34° 2' 26.202" N	0	Wachran, Lidder Nala	Lidder Nala separate the valley
40	A67	75° 19' 52.326" E	34° 4' 47.318" N	1000	CO 19/L, Forest area, Sangam	
41	A66	75° 22' 12.778" E	34° 6' 27.186" N	1000	CO 16, Alpine Pasture, sarnar	
42	A64	75° 24' 34.558" E	34° 7' 48.950" N	1000	CO 12/L, Alpine Pasture	
43	A63	75° 25' 2.139" E	34° 8' 42.470" N	1000	Rabemarg, Alpine Pasture	
44	A61	75° 27' 55.499" E	34° 7' 26.880" N	1000	Astanmarg, Alpine Pasture	
45	A55	75° 28' 5.746" E	34° 12' 32.350" N	50	Naginpathar	
46	A 56	75° 30' 4.375" E	34° 11' 18.399" N	50	Panjtarni, Way towards Amarnath Cave	
47	A33	74° 56' 42.915" E	34° 10' 57.894" N	1000	Dara Nala, Darawan, Forests	
48	A32	74° 56' 3.905" E	34° 11' 20.590" N	1000	TulapatharNala, Open Forest	
49	A31	74° 55' 24.996" E	34° 10' 43.726" N	200	Chak-i-Dara village	
50	A30	74° 54' 28.109" E	34° 10' 30.176" N	200	Murinderbagh Village, Water body	
51	A29/1	74° 55' 16.730" E	34° 10' 15.073" N	200	Agriculture Land, Nu Thid Village	
52	A29	74° 55' 47.637" E	34° 9' 21.851" N	200	Mahadeo Nar,Agriculture Land	
53	A28	74° 55' 11.105" E	34° 9' 20.101" N	200	MavasKol	
54	A27	74° 54' 20.173" E	34° 9' 38.496" N	200	PWD Water Tank &Reservoir	
55	A55	74° 53' 19.039" E	34° 7' 50.947" N	500	Barobal, Rocky area	
56	A56	74° 54' 37.277" E	34° 5' 49.986" N	500	Sumer Nar, Rocky	
57	A57	74° 51' 20.334" E	34° 4' 33.714" N	500	Gopbal Nar, Mixed Forests, Saint Baba	

					Gulamdinsah
58	A58	74° 56' 6.516" E	34° 4' 26.605" N	500	open scrub
59	A59	74° 58' 57.542" E	34° 5' 8.609" N	1000	Sangri, Mixed
					Forest
60	A60	74° 59' 4.141" E	34° 5' 44.018" N	500	Pahal Chak,
					Forest Area, dun
					Ν
61	A61	74° 58' 55.146" E	34° 2' 45.453" N	500	Bathyan, Forest
					area
62	A62	75° 1' 25.038" E	34° 4' 34.850" N	500	sardalaunar,
					forest area
63	A63	75° 3' 28.841" E	33° 59' 36.914" N	1000	CO 24/Tral
					Forest area,
					Sarai Bun

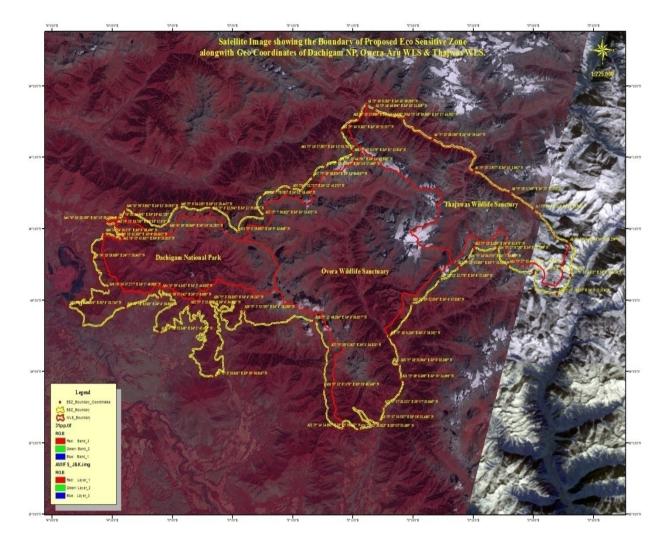
ANNEXURE -II A

LOCATION MAP OF ECO-SENSITIVE ZONE OF DACHIGAM NATIONAL PARK, THAJWAS (BALTAL) WILDLIFE SANCTUARY AND OVERA-ARU WILDLIFE SANCTUARY ALONG WITH LATITUDE AND LONGITUDE OF PROMINENT LOCATIONS



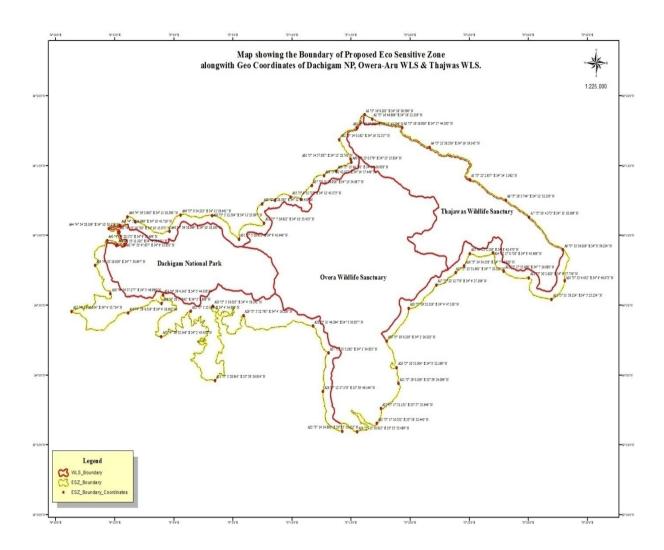
ANNEXURE -II B

SATELLITE MAP SHOWING BOUNDARIES OF ECO-SENSITIVE ZONE OF DACHIGAM NATIONAL PARK, THAJWAS (BALTAL) WILDLIFE SANCTUARY AND OVERA-ARU WILDLIFE SANCTUARY ALONG WITH LATITUDE AND LONGITUDE OF PROMINENT LOCATION



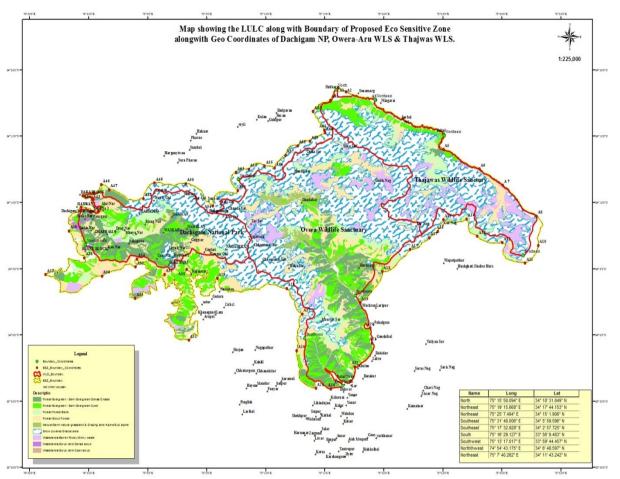
ANNEXURE -II C

MAP OF ECO-SENSITIVE ZONE OF DACHIGAM NATIONAL PARK, THAJWAS (BALTAL) WILDLIFE SANCTUARY AND OVERA-ARU WILDLIFE SANCTUARY ALONG WITH LATITUDE AND LONGITUDE OF PROMINENT LOCATION



ANNEXURE -II D

LAND USE LAND COVER MAP OF ECO-SENSITIVE ZONE OF DACHIGAM NATIONAL PARK, THAJWAS (BALTAL) WILDLIFE SANCTUARY AND OVERA-ARU WILDLIFE SANCTUARY



ANNEXURE -III

A. TABLE SHOWING THE GEO-COORDINATE OF THE PROTECTED AREA OF DACHIGAM NATIONAL PARK, THAJWAS (BALTAL) WILDLIFE SANCTUARY AND OVERA-ARU WILDLIFE SANCTUARY

S. No.	Name	Longitude	Latitude
1	North	75° 15' 58.094" E	34° 18' 31.849" N
2	North-East	75° 19' 15.668" E	34° 17' 44.153" N
3	North-East	75° 25' 7.494" E	34° 15' 1.906" N
4	South-East	75° 31' 48.006" E	34° 5' 59.596" N
5	South-East	75° 17' 32.928" E	34° 2' 57.725" N
6	South	75° 16' 29.127'' E	33° 56' 9.483" N
7	South-West	75° 13' 17.017" E	33° 59' 44.457" N
8	North-West	74° 54' 43.175" E	34° 6' 48.597" N
9	North-East	75° 7' 40.262" E	34° 11' 43.242" N

B. TABLE SHOWING THE GEO-COORDINATES OF THE ESZ BOUNDARIES OF DACHIGAM NATIONAL PARK, THAJWAS (BALTAL) WILDLIFE SANCTUARY AND OVERA-ARU WILDLIFE SANCTUARY

S.No.	Longitude	Latitude	Distance from PA(meters)	Description
1	75° 16' 8.283" E	34° 18' 39.590" N	50	Sindh River
2	75° 16' 46.896" E	34° 18' 21.339" N	1000	Thajwas Open Revenue Land
3	75° 19' 19.800" E	34° 17' 44.505" N	50	Ichamarg
4	75° 21' 38.536" E	34° 16' 19.145" N	50	Serbal Village, River Sindh
5	75° 25' 2.957" E	34° 14' 1.062" N	50	Domel Forest, River Sindh
6	75° 32' 56.026" E	34° 8' 59.234" N	50	Nichhang, Alpine Pasture
7	75° 33' 4.452" E	34° 6' 46.073" N	1000	Alpine Pasture
8	75° 31' 58.324" E	34° 5' 25.254" N	1000	Guidi Gali, Alpine Pasture
9	75° 30' 2.620" E	34° 6' 57.756" N	1000	Wahabal Top, Alpine Pasture
10	75° 27' 0.738" E	34° 8' 45.686" N	1000	Chhut Pass, Alpine Pasture
11	75° 23' 51.681" E	34° 7' 20.121" N	1000	Razdan Nar, Alpine Pasture
12	75° 14' 57.887" E	34° 15' 28.761" N	1000	Ganj Forests, Sindh Divn
13	75° 15' 27.980" E	34° 17' 43.399" N	50	Sindh River
14	75° 14' 0.162" E	34° 16' 52.517" N	1000	Co 53/S, Alpine Pasture
15	75° 15' 0.579" E	34° 15' 15.824" N	1000	Co 53/S, Alpine Pasture
16	75° 13' 44.791" E	34° 14' 36.938" N	1000	Co 53/S, Alpine Pasture
17	75° 12' 42.317" E	34° 14' 17.449" N	1000	Co 53/S, Alpine Pasture
18	75° 11' 39.926" E	34° 13' 34.687" N	1000	Co 49/S, Alpine Pasture
19	75° 10' 45.063" E	34° 12' 35.890" N	1000	Co 45/S, Alpine Pasture
20	75° 9' 52.727" E	34° 12' 45.375" N	1000	Co 44/S, Alpine Pasture
21	75° 8' 33.037" E	34° 12' 30.866" N	1000	Co 41/S, Alpine Pasture
22	75° 7' 28.585" E	34° 12' 16.430" N	1000	Co 39/S, Alpine Pasture
23	75° 7' 36.922" E	34° 10' 53.455" N	1000	Co 34/Mbl, Alpine Pasture
24	75° 5' 29.651" E	34° 9' 43.646" N	1000	Hoka Sar, Alpine Pasture
25	75° 3' 12.504" E	34° 11' 25.097" N	1000	Surapharao Forest, Sindh
26	75° 0' 34.233" E	34° 11' 28.442" N	1000	Lidwas, Alpine Pasture
27	74° 59' 38.049" E	34° 10' 18.195" N	1000	Lidwas, Alpine Pasture
28	75° 3' 18.035" E	34° 4' 56.242" N	500	Andarhajan Nar, Forest Area, Hajannar
29	75° 5' 52.795" E	34° 4' 16.200" N	1000	Co 22/Tral Forest Area, Pambach Khod
30	75° 11' 46.294" E	34° 3' 30.857" N	1000	Co 13/Tral Forest Area
31	75° 13' 5.262" E	34° 1' 34.853" N	1000	Co 24/Forest Area
32	75° 12' 37.170" E	33° 58' 49.146" N	1000	Co 3 Forest Area, Watwagar
33	75° 14' 14.892" E	33° 55' 58.452" N	1000	Co 51/L Forest Area
34	75° 15' 30.813" E	33° 55' 55.489" N	0	Co 50/L, Owur Village
35	75° 17' 10.532" E	33° 56' 32.440" N	0	Co 45/L, Development of Tourist Hub
36	75° 17' 31.151" E	33° 57' 35.646" N	0	Khelan Forest
37	75° 19' 0.106" E	33° 59' 24.096" N	0	Mamal Forest, Development of

ĺ				Pahalgam
38	75° 18' 51.004" E	34° 0' 32.169" N	0	Mamal Village
39	75° 18' 0.230" E	34° 2' 26.202" N	0	Wachran, LidderNala
40	75° 19' 52.326" E	34° 4' 47.318" N	1000	Co 19/L, Forest Area, Sangam
41	75° 22' 12.778" E	34° 6' 27.186" N	1000	Co 16, Alpine Pasture, Sarnar
42	75° 24' 34.558" E	34° 7' 48.950" N	1000	Co 12/L, Alpine Pasture
43	75° 25' 2.139" E	34° 8' 42.470" N	1000	Rabemarg, Alpine Pasture
44	75° 27' 55.499" E	34° 7' 26.880" N	1000	Astanmarg, Alpine Pasture
45	75° 28' 5.746" E	34° 12' 32.350" N	50	Naginpathar
46	75° 30' 4.375" E	34° 11' 18.399" N	50	Panjtarni, Way Towards Amarnath Cave
47	74° 56' 42.915" E	34° 10' 57.894" N	1000	Dara Nala, Darawan, Forests
48	74° 56' 3.905" E	34° 11' 20.590" N	1000	TulapatharNala, Open Forest
49	74° 55' 24.996" E	34° 10' 43.726" N	200	Chak-I-Dara Village
50	74° 54' 28.109" E	34° 10' 30.176" N	200	Murinderbagh Village, Water Body
51	74° 55' 16.730" E	34° 10' 15.073" N	200	Agriculture Land, Nu Thid Village
52	74° 55' 47.637" E	34° 9' 21.851" N	200	Mahadeo Nar, Agriculture Land
53	74° 55' 11.105" E	34° 9' 20.101" N	200	Mavaskol
54	74° 54' 20.173" E	34° 9' 38.496" N	200	Pwd Water Tank &Reservoir
55	74° 53' 19.039" E	34° 7' 50.947" N	500	Barobal, Rocky Area
56	74° 54' 37.277" E	34° 5' 49.986" N	500	Sumer Nar, Rocky
57	74° 51' 20.334" E	34° 4' 33.714" N	500	Gopbal Nar, Mixed Forests, Saint Baba
			500	Gulamdinsah
58	74° 56' 6.516" E	34° 4' 26.605" N	500	Open Scrub
59	74° 58' 57.542" E	34° 5' 8.609" N	1000	Sangri, Mixed Forest
60	74° 59' 4.141" E	34° 5' 44.018" N	500	Pahal Chak, Forest Area, Dun N
61	74° 58' 55.146" E	34° 2' 45.453" N	500	Bathyan, Forest Area
62	75° 1' 25.038" E	34° 4' 34.850" N	500	Sardalaunar, Forest Area
63	75° 3' 28.841" E	33° 59' 36.914" N	1000	Co 24/Tral Forest Area, Sarai Bun

ANNEXURE -IV

LIST OF VILLAGE FALLING UNDER ECO-SENSITIVE ZONE OF DACHIGAM NATIONAL PARK, THAJWAS (BALTAL) WILDLIFE SANCTUARY AND OVERA-ARU WILDLIFE SANCTUARY ALONG WITH GEO-COORDINATES

The following villages / townships fall within the proposed ESZ of Dachigam National Park, Thajwas (Baltal) Wildlife Sanctuary and Overa-Aru Wildlife Sanctuary:

(Dachigam National Park)						
Direction	Name of the village	Latitude (N)	Longitude (E)			
North	Nil	-	-			
	Mamnath	34° 10' 46.41" N	74° 56' 10.36" E			
North-West	Dara	34° 10' 58.48" N	74° 54' 27.36" E			
North-west	FaqirGujjari	34° 11' 54.55" N	74° 54' 53.87" E			
	Mulnar	34° 9' 45.42" N	74° 54' 2.18" E			
	Harwan	34° 9' 31.7" N	74° 53' 41.81" E			
W/4	Ishbar	34° 8' 4.38" N	74° 52' 47.33" E			
West	Pohal	34° 6' 24.67" N	74° 53' 23.31" E			
	Lam	34° 7' 0.65" N	74° 53' 1.38" E			
	Sangri	34° 5' 52.46" N	74° 58' 49.51" E			
	Check	34° 5' 0.38" N	75° 0' 12.08" E			
South	Bathin	34° 4' 13.27" N	74° 01' 5.79" E			
	Naginder	34° 04' 11.972" N	75° 02' 16.717" E			
	Zanatrag	34° 03' 54.355" N	75° 02' 35.909" E			
	Aripal	34° 0' 59.80" N	74° 04' 22.20" E			
South-East	Hajinar	34° 04' 37.87" N	75° 03' 43.49" E			
	Naristan	34° 4' 21.13" N	74° 0' 22.28" E			
East	Nil	-	-			

List of Villages falling in the extent of the ESZ with Geo-coordinates

Direction	Name of the village	Latitude (N)	Longitude (E)
North	Nil	-	-
North-West	Nil	-	-
West	Nil	-	-
C	Overa	33° 56' 9.483" N	75° 16' 29.127" E
South	Darwon	34° 18' 15.91" N	75° 13' 01.67" E
South-East	Nil	-	-
East	Nil	-	-

<u>List of Villages falling in the extent of the ESZ with Geo-coordinates</u> (Overa-Aru Wildlife Sanctuary)

<u>List of Villages falling in the extent of the ESZ with Geo-coordinates</u> (Thajwas (Baltal) Wildlife Sanctuary)

Direction	Name of the village	Latitude (N)	Longitude (E)
North	Nil	-	-
North -West	Sarbal	N 34 ⁰ 10'59.14''	E 75 [°] 00'42.77''
Norui - west	Sonamarg	N 34 ⁰ 18'15.91''	E 75 [°] 17'59.45''
West	Shutkari	N 34 ⁰ 18'31.85''	E 75 [°] 15'39.61''
South	Nil	-	-
South-East	Nil	-	-
East	Nil	-	-

ANNEXURE -V

Performa of Action Taken Report:-

- 1. Number and date of meetings.
- 2. Minutes of the meetings: (mention noteworthy points. Attach minutes of the meeting as separate Annexure).
- 3. Status of preparation of Zonal Master Plan including Tourism Master Plan.
- 4. Summary of cases dealt with rectification of error apparent on face of land record (Eco-sensitive Zone wise). Details may be attached as Annexure.
- 5. Summary of cases scrutinised for activities covered under the Environment Impact Assessment Notification, 2006 (Details may be attached as separate Annexure).
- 6. Summary of cases scrutinised for activities not covered under the Environment Impact Assessment Notification, 2006 (Details may be attached as separate Annexure).
- 7. Summary of complaints lodged under section 19 of the Environment (Protection) Act, 1986.
- 8. Any other matter of importance.

ANNEXURE 20 Visitor Data for Dachigam National Park

Monthly Data

Year	Month	Local Visitors	Foriegners	Students	Kids	Total
2017	January	12	0	0	3	15
	Febaruary	64	8	35	0	107
	March	83	12	0	5	100
	April	242	44	140	15	441
	May	1121	7	1504	3	2635
	June	778	38	0	0	816
	July	893	34	903	0	1830
	August	670	42	3165	0	3877
	Septembe	854	11	2227	0	3092
	October	424	43	974	0	1441
	Novembe	316	5	178	0	499
	Decembe	287	7	1	0	295
	Total	5744	251	9127	26	15148
2018	January	244	0	171	0	415
	Febaruary	238	18	0	0	256
	March	415	8	57	0	480
	April	1042	25	348	0	1415
	May	1444	12	1040	0	2496
	June	2146	23	216	0	2385
	July	1467	31	857	0	2355
	August	1256	39	0	74	1369
	Septembe	1266	24	7410	0	8700
	October	519	59	749	0	1327
	Novembe	393	29	262	0	684
	Decembe	315	28	128	0	471
	Total	10745	296	11238	74	22353
2019	January	207	5	0	0	212
	Febaruary	131	8	0	0	139
	March	151	7	94	0	252
	April	1322	31	2829	0	4182
	May	1611	17	4093	74	5795
	June	2332	26	1183	225	3766
	July	3132	53	4299	287	7771
	August	189	8	288	9	494
	Septembe		4	0	10	67
	October	115	1	0	17	133
	Novembe		0	0	11	90
	Decembe		12	100	4	204
	Total	9410	172	12886	637	23105
2020	January	97	0	0	1	98
	Febaruary	189	1	28	4	222

March	145	0	0	4	149
April	0	0	0	0	0
May	0	0	0	0	0
June	0	0	0	0	0
July	0	0	0	0	0
August	0	0	0	0	0
Septembe	0	0	0	0	0
October	0	0	0	0	0
Novembe	211	0	0	7	218
Decembe	205	0	0	7	212
Total	847	1	28	23	899

Yealy Data of Visitors

Year	Local Visitors	Foriegners	Students	Kids	Grand total
2017	5744	251	9127	26	15148
2018	10745	296	11238	74	22353
2019	9401	172	12886	688	23147
2020	847	1	28	23	899

ANNEXURE 21

		Cas	es Reported
S. No.	Year	Death	Injury
1	2006-07	6	21
2	2007-08	2	21
3	2008-09	1	32
4	2009-10	3	36
5	2010-11	3	44
6	2011-12	5	71
7	2012-13	1	38
8	2013-14	2	58
9	2014-15	1	17
10	2015-16	0	10
11	2016-17	0	14
12	2017-18	0	5
13	2018-19	2	8
14	2019-20	1	9
15	2020-21	1	12
16	2021-22	0	1
	as on 7/6/2021		
	Total:	28	397

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population monitoring exercise, 2021.Department of Wildlife Protection
fovernment of Jammu and Kashmirhjklzxc

aropasaisi

Hangul is a critically endangered Species as per IUCN, Red List Data, a Schedule I Species in Indian Wildlife Protection Act 1972. The species is under threat based on the vulnerability of population w.r.t population viability and structure, dwindling population, habitat vulnerability and possibility of inbreeding. The species needs a considerable immediate global attention. It is a long ranging species but is now restricted to a small bowl area. The policy decision with regard to this species must be landscape level planning so as to cover as much area as possible based on the past distribution, to help it revive on its own.



Summary:

Hangul (Cervus hanglu hanglu), the state animal of the of UT Jammu and Kashmir is one of the eastern most distributed species of red deer inhabiting the temperate coniferous forests in western Himalayas of Jammu and Kashmir. Hangul is Critically endangered as per IUCN RED LIST DATA and listed under Schedule I of the Indian Wildlife (Protection) Act, 1972. It was once widely distributed in the mountains of Kashmir and parts of Chamba District of Himachal Pradesh in an arc 65km in width to the north and east of Jhelum and lower Chenab rivers. During the recent past, the distribution range of Hangul appears to have been drastically reduced possibly due to habitat fragmentation and associated factors. Some small or relic populations are also reported to be present in some areas in Kupwara, Bandipora, Ganderbal, Pulwama and Anantnag Districts.

Of the present distribution range in Dachigam Landscape(ca. 1,000 km²) *only viable population of Hangul occurs in Dachigam National Park and only some small groups are present in its adjoining protected areas which includes 10 Conservation Reserves (CR), Tral WS and the Overa-Aru Wildlife Sanctuary (WS). within the Dachigam National Park of 141 km²also, the animals are restricting their movements mostly to lower and middle part because of various disturbances in the upper i.e., summer range of this animal. The hangul movement and presence has been recorded in the Tral WS and Wangat CR during recent winter season.*

The Department of Wildlife Protection, Jammu & Kashmir (DWLP) in collaboration with the Wildlife Institute of India (WII) and local research institutions, has been regularly monitoring the Hangul Population in the Dachigam landscape since 2004 through scientific methods that involves participation of researchers, field staff, university students, NGOs and NGIs. Till date nine such annual exercises have been carried out during March of 2004, 2006, 2008, 2009,



2011, 2015, 2017, 2019 and 2021 (Qureshi & Shah, 2004, Qureshi et al. 2009, Charoo et al., 2011, 2015, 2017 and 2019). The Hangul population estimates in the past were 197 (2004), 153 (2006), 127 (2008), 175 (2009), 218 (2011), 183(2015), 214(2017), 237 (2019). In the present population monitoring exercise, 55 Transects (each of average 3km) were traversed and three such repeats were done. Out of the three attempted repeats, only two repeats were considered for data analysis. Based on the direct animal sightings, a mean population number of hangul was estimated to be 261 ± 19.6 individuals. Hangul population is stable but there is no considerable improvement in population because of the various concerns that include:

- Habitat fragmentation and poaching: Degradation owing to the large scale biotic interferences in Hangul's habitat, in the form of excessive livestock grazing in its erstwhile summer habitats, grass cutting, fuel and firewood collection, human trampling owing to men and vehicles of paramilitary (CRPF) forces camped inside Park and employees of more than six other Government departments in lower Dachigam and poaching have contributed largely to the Hangul habitat degradation and hence decline of the Hangul during the recent past.
- Livestock Grazing: Livestock grazing in Upper Dachigam has been considered to prove harmful to Hangul in the long run. Apart from competition for food resources, chances of transmission of disease also exist as there has been confirmed evidence of transmission of John's Disease to Hangul in Dachigam in 1978. The higher parasitic prevalence rate (32.26%) during summer has been attributed possibly to be influenced by cross-species parasitic infection from the livestock when the Hangul shares its habitats with livestock in both lower and upper Dachigam.



- Ecological Threats The recent scientific studies on current Hangul population trend have indicated that the species could go extinct if serious management and Conservation interventions are not made immediately. The studies indicate that besides biotic interferences, some of the major ecological issues, concerning the decline in the population and long-term conservation and survival of the Hangul are Low breeding and disturbed viability. The ideal ratios of 40-50 Male/100 female & above 60 fawn/100 female reported in Red deer populations, however incase of hangul it is significantly skewed
- Predation: The low fawn to female ratio and fawn survival is presumed to be attributed to stress owing to the biotic disturbance in upper Dachigam compounded with nutritional stress and fawn predation by common leopard, Asiatic black bear, jackal, red fox and stray dogs of shepherds and army installations. The predation by leopard and black bear, both of which prey principally on the young deer seems to be the worst threat for. Studies indicate that the predation on Hangul by leopard comprises 60% of biomass of leopard diet which is very high in winter and summer when the Hangul has a limited distributional range to move in Dachigam National Park. The predation, if it continues, will add to the demographic stochasticity and may produce a further future decline in the Hangul population in the future. The information on this aspect is however is inadequate and this is an important grey area of research that will be addressed in the action plan.
- Disturbed Corridors and Landscapes The corridors Surfrao/Akhal and Kangan blocks of Sindh Reserve forest north and north east of Dachigam Dachigam-Tral and Shikargah-Overa south and south east of Dachigam where significant movement of



Hangul is being recorded and validated scientifically by Satellite Telemetry studies and camera trapping by SKUAST-Kashmir and the Department, require a special attention and immediate management and conservation efforts on scientific lines. The continued monitoring and surveys for collecting further baseline information on the habitat conditions and biotic interference in these corridor areas is imperative for enabling re-establishment of these areas as ecologically viable corridors for Hangul movement and reintroduction and to maintain required genetic heterozygosity for population viability.

• Decreased Genetic Heterozygosity The Scientific studies conducted by by SKUAST-Kashmir and WII have indicated a decrease in genetic heterozygosity in Hangul population over a period of time and resultant susceptibility to inbreeding depression resulting from low population size. The sensitivity analysis indicated that there is a 25% chance of extinction in 100 years. Increasing the chance of poaching to 39% with additional winter mortality with a 5% chance of occurrence will substantially increase the extinction risk to 90%. There is as such a dire need for urgent measures to arrest the loss in heterozygosis and declining trend of the Hangul population.

A Conservation Action Plan (CAP) for Hangul has been formulated and needs to be approved and implemented immediately without any further delay. Landscape level planning needs to be strengthened further to connect the erstwhile habitats of hangul on the northern side i.e., Gurez, Tulel. The aim of the CAP is to stop the disturbed trends of population of the species and build better information base for future conservation actions needed for long term survival of the species. Another aspect of the action plan is to identify the historical available habitats



of species for possible actions of wider dispersal and generating mass support for the conservation of Hangul.

The present population monitoring exercise was carried out in the first week of April 2021. Prior to the monitoring exercise, orientation/training program about the technique and hands on training the staff, students and other voluntary members was organized at Dachigam National Park. Detailed presentations were given on the techniques of population estimation, health monitoring, use of GPS and other equipments. All the participants were also given instructions how to fill up the format while sighting the animals. The participants were given demonstration of distinguishing stags from hinds and followers with the herd composition.

Field method

The Dept. of wildlife protection has been carrying Hangul population estimation exercises since a long time. Several methods have been tried to monitor the population of Hangul e.g., Holloway (1971) conducted a systematic count in November 1969 and February 1970. He divided the area into six blocks, each block was scanned by a group of individuals so as to maximize the detection. Gee (1965) guesstimated population size in 1957 and 1965. Schaller



(1969) estimated population during the rut and concluded that rutting period is not good for population estimation.

Holloway's method was adopted largely by the DWLP for Hangul counts. The population monitoring method of DWLP was more or less consistent and enumeration was done largely in mornings excepting in few cases when it was conducted both in morning and evening (DWLP, 1996, 1997, 2000, 2001, 2002, 2003).

However in 2004 the line transect method was standardized by the Department of wildlife Protection with technical support from Wildlife Institute of India to carry out population monitoring of Hangul in and around Dachigam National Park. The area has been surveyed and transects have been established in standard method on the basis of stratified random sampling. In the present exercise same method was employed for the population monitoring of Hangul.

In the present exercise 54 such line transects were walked for the population monitoring exercise and repeated on three days i.e., 04.04.2021, 06.04.2021 and 08.04.2021. However, for estimating mean population size only two counts were taken into account for data analysis.

Analysis

Estimation based on multiple counts

N (mean population) = sum of each count/number of counts= $y\sum Pni/n$

SD (standard deviation)= $\sqrt{\sum (pni-N)^2/n-1}$

SE(Standard Error)= Standard deviation/ \sqrt{n}

Results.

- 1. First count 04.04.2021= 237
- 2. 2^{nd} count 06.04.2021= 285



Mean = 1^{st} day count + 2^{nd} day count /no. of counts = 237+285/2=261

Standard Error (SE) = 19.6

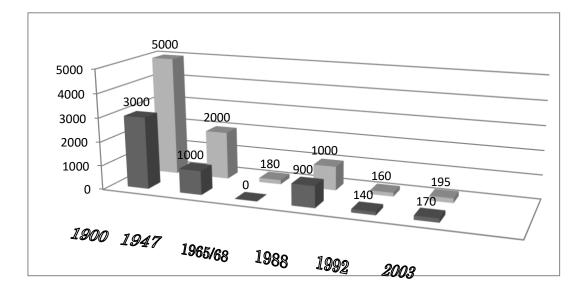


Fig 1. Hangul population trends in Hangul distribution range, 1900 to 2003.

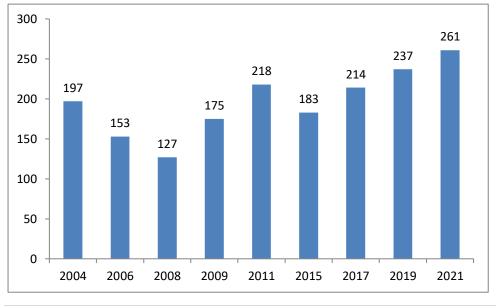




Fig. 2 Hangul population trends in population monitoring in Hangul distribution range surveyed 2004 to 2021.

Table Details	Day	Total	Male	Female	young	unidentified	1: of
	06.04.2021						
		237	22	132	19	64	
	08.04.2021	285					
			18	209	26	32	

Hangul sightings in different Age and Sex Categories duringpopulationmonitoring in Hangul distribution range surveyed, April 2021population

DayMales: 100 FemalesYoung :100 Females



06.04.2021		
	16.6	14.3
08.04.2021		
	8.6	12.4

Table 2: Male: Female and Fawn: Female ratio of Hangul recorded during populationmonitoring in Hangul distribution range surveyed, April 2021.



Year	Sex Ratio (Males:100 Females)	Fawn-Female Ratio (Fawns : 100 Females)
2004	19	23
2006	21	9
2009	26.52	27.82
2011	29.52	25.80
2015	22.33	14.33
2017	15.8	19.1
2019	15.3	9
2021	12.6	13.4

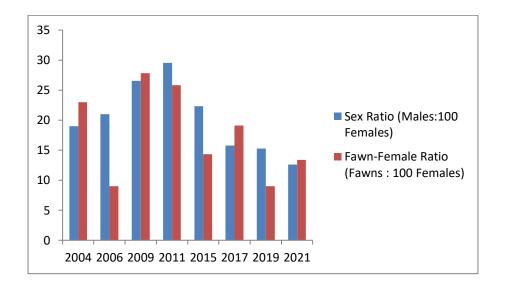


Table and pictorial representation: Comparative male: female and female: fawn ratios of hangul across the years (2004 to 2021).



Conclusion

The present population monitoing exercise results show a marginal increase in population from the 2019 estimates (2019: 237; 2021: 261) however, there is no considerable increase in population numbers. The basic demographic ratio's of male: female and female: fawn ratios's are skewed. The number of hangul which were not distinctly identified by the participants may have also account to the more skewed ratios.

The recent sightings of hangul based on camera trap evidences in Tral Wildlife Sanctuary is encouraging, 12 individuals were camera trapped in recent winter season. Like wise, the photographic evidences captured by the officials of Dept. of Wildlife Protection in Wangat Conservation Reserve also shows that the habitats outside Dachigam National Park can be promising to hold a contiguous population of hangul at Landscape level. The upper reaches of this landscape if properly managed and made available for hangul can have an immense positive impact on hangul interms of increasing the number and sustaining a genetically viable population.

The habitat improvement measures and Landscape level planning approach taken up by the Department in the recent past (shifting of sheep breeding farm, notification of Tral WLS) will have long term conservation benefits for hangul and for other wildlife as well. However, these measures need to be augmented by the exsitu conservation efforts of successful captive breeding. There is still a dearth of vital information on basic ecological knowledge on this important species. Research is needed to understand the skewed demographic ratio's and the reasons associated.



ACKNOWLEDGEMENTS

The present population monitoring exercise is a team effort of the volunteers from different academic and other institutions, frontline staff, officials and the officers of the Wildlife Department.

The Department of Wildlife Protection will like to acknowledge the researchers/volunteers of University of Kashmir, SKUAST-K, Wildlife Trust of India, Wildlife SOS, Wildlife Research & Conservation Fund for active articipation in the present exercise. Thanks are due to the Forest Protection Force officials for being part of this initiative. All the field staff of the DWLP at Central Division, south Division and Shopian Division and associated areas is acknowledged for cooperation during the field exercises. Special thanks are due to Shri Shabir Ahmad, I/C ICT Lab, Department of Forests, J&K for helping with the preparation of maps, digitization of transects/trails and training of participants

A special vote of thanks to Shri Qamar Quereshi, and Dr. Sathya kumar Senior scientists at Wildlife Institute of India, Dehradun who have pioneered this population monitoring exercise and are always there for technical and moral support.



Related Literature :

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12.15 BUDGET (Table 1)

S.No	Component/Activity	1					o4 0034	(Amount	n lakhs)			
	ponent/Activity		YS	z y:	1	1	- f	1 1 1 1 1		¥9	Y10	Tota
	 Second and second se second second seco	Y 1	Y /	Α.	·	gement P			ang sakar			
A.1	Status Surveys in satellite area	s 15.00	10.00	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	30.00
A 2	Status Surveys in middle		0.00	0.00	5.00	0.00	0.00	5.00	0.00	0.00	5.00	20.00
A.3	Surveys for identification of sul		5.00	0.00	0.00	5.00	0.00	0.00	5.00	0.00	0.00	15.00
A4	ung and fawning areas			48.00	0.00	20.00	0.00	25.00	0.00	30.00	0.00	100.00
A 5	Hangul Population monitoring	10.00	0.00	15.00	7.00	0.00	10.00	0.00	12.00	0.00	15.00	49.00
	Hangul population estimation using genetic methods		5.00	0.00			0.00	15.00	0.00	0.00	20.00	52.00
A 6	Population monitoring of large carnivores (Monitoring Preda- tion Factor)	7.00	0.00	0.00	10.00	0.00	0.00	15.00			(0.00	266.0
	Sub Total A	37.00	20.00	20.00	0 22.0	0 25.00	10.0	0 45.00	17.00	30.00	40.00	200.0
		01100	B	. Streng	thening	Wildlife R	esearch			10.00	15.00	210.00
B 1	Development and maintenance of research station at erstwhile	50.00	50.00	25.00	10.00	10.00	10.00	10.00	15.00	15.00	15.00	
B.2	sheep breeding farm Procurement of Hard ware, GIS tools, software/ Camera/camera traps, binoculars, GPS , range finders, Compass, spotting	30.00	30.00	35.00	20.00	15.00	15.00	15.00	10.00	10.00	10.00	190.00
B.3	scope, tripod etc Upgradation of existing Nature	30.00	20.00	10.00	0.00	0.00	10.00	10.00	0.00	0.00	15.00	95.00
D 4	Interpretation Centre Lab facilities at research station	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	100.00
B.4 B.5	Purchase of field and camping gear		0.00	0.00	25.00	0.00	0.00	25.00	0.00	0.00	25.00	100.00
B.6	Investigations on low fawn re-		0.00	10.00	0.00	10.00	0.00	10.00	0.00	10.00	0.00	
B.7	cruitment in <i>hangul</i> population Investigations on <i>hangul</i> habi- tat: Grasslands & woodlands in- cluding use of fire in grassland	10.00	15.00	10.00	0.00	0.00	10.00	15.00	10.00	0.00	0.00	70.00
B.8	management Investigations on Wildlife Health	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00	95.00
B.9	and diseases transmission Investigations on human di- mensions of hangul conserva- tion including rehabilitation of herders/villagers from critical	50.00	50.00	50.00	50.00	50.00	100.00	10.00	10.00	10.00	10.00	390.00
8.10	hangul habitats Investigations on ranging pat- 1	2.00	12.00	12.00	12.00	12.00	15.00	15.00	15.00	15.00	15.00	135.00
	terns of hangul	.00	5.00	5.00	5.00	5.00	10.00	10.00	10.00	10.00	10.00	75.00
.12	Stakeholders meet and Hangul 4		4.00	4.00	4.00	4.00	5.00	5.00	5.00	5.00	5.00	45.00
	Congress Sub Total B 2	41.00	202.00	178.00	144.00	125.00	195.00	146.00	97.00	98.00	129.00	1555.00
	Sub Total B	11100		C. C	apacity E	Building						
.1	Specialized training programs 5. for frontline staff.	00	5.00	5.00	5.00	T	6.00	6.00	6.00	6.00	6.0	55.00
		00	5.00	5.00	5.00	5.00	7.00	7.00	7.00	7.00	7.00	60.00
	-	10.00	10.00	10.00	10.00	10.00	13.00	13.00	13.00	13.00	13.00	115.00
				D. /	Anti-Poa	ching						
	Establishment and maintenance 20	00	20.00	20.00	25.00	25.00	25.00	30.00	30.00	30.00	30.00	255.00



DEPARTMENT OF WILDLIFE PROTECTION J&K GOVT.

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		00.00	00.00								T	
D2	Const. of watch towers	20.00	20.00	20.00	25.00	25.00	25.00	30.00	30.00	30.00	30.00	255.00
D.3	Engagement of Camp labour- ers, hangul rakshaks (300 man- days/year) 50 persons	45.00	45.00	45.00	45.00	45.00	52.50	52.50	52.50	52.50	52.50	487.50
D.4	Purchase/Hiring of patrolling vehicles (9 units new)	25.00	25.00	25.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	145.00
D 5	Engagement of informers (Gathering Intelligence)	15.00	15.00	15.00	15.00	15.00	20.00	20.00	20.00	20.00	20.00	175.00
D 6	Law enforcement awareness drives ,Seminars & Workshops	5.00	5.00	7.00	7.00	7.00	10.00	10.00	10.00	12.00	12.00	85.00
	Sub Total D	130.00	130.00	132.00	127.00	127.00	142.50	152.50	152.50	154.50	154.50	1402.50
			E	E. Infrast	ructure [Developm	ent					
E.1	Establishing Surveillance Quarters and sheds for the project along with ancillaries & maintenance	50.00	20.00	10.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	94.00
E 2	Maintenance of existing staff quarters in <i>hangul</i> distribution areas (nos.)	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	100.00
E 3	Creation/up gradation of mo- torable road network including maintenance(km)		25.00	25.00	15.00	15.00	15.00	10.00	10.00	10.00 *	10.00	160.00
E 4	Creation/up gradation of pa- trolling/ bridle paths (km)	10.00	10.00	10.00	10.00	10.00	15.00	15.00	15.00	15.00	15.00	125.00
E 5	Const. of foot bridges and Han- gul passages	10.00	10.00	10.00	10.00	10.00	15.00	15.00	15.00	15.00	15.00	125.00
E 6	Verification and consolidation boundaries of Dachigam NP and other critical <i>hangul</i> habitats of PAs by way of chain-link fenc- ing 6' height (km)		50.00	50.00	50.00	75.00	75.00	75.00	75.00	75.00	75.00	650.00
E 7	Demarcation of beats and prepara- tion of inventory and stock maps	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	50.00
E 8	Maintenance of patrolling vehicles	10.00	10.00	10.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	65.00
E.9	Const. of staff quarters for watch and ward in existing / new area Headquarters		30.00	30.00	30.00	30.00	10.00	10.00	10.00	10.00	10.00	200.00
E.10	Re-construction of Gutted Pah- lipora Inspection Quarter .	50.00	15.00	0.00	0.00	0.00	10.00	0.00	0.00	0.00	10.00	85.00
	Sub Total E	250.00	185.00	160.00	137.00	162.00	162.00	147.00	147.00	147.00	157.00	1654.00
				F. H	ealth Mo	nitoring						
F:1	Animal Health Care & Diagnos- tic Laboratory		20.00	20.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	130.00
F.2	Purchase of chemical immobi- lization equipment, drugs and medicines		10.00	10.00	10.00	10.00	15.00	15.00	15.00	15.00	15.00	125.00
F.3	Carrying out routine pathologi- cal examination and post mor- tem facilities	5.00	5.00	5.00	5.00	5.00	7.00	7.00	7.00	7.00	7.00	60.00
F.4	Monitoring of animal Health in cluding inoculation of livestock of locals and tribes in collabo- ration with Animal Husbandry Department.	-	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	100.00
	Sub Total F	45.00	45.00	45.00	35.00	35.00	42.00	42.00	42.00	42.00	42.00	415.00
				G. Staff	Welfare a	and amer	ities		1	1		
G.1	Provision for special allowance for the staff deployed in far flung area like Ration/Kerosene Equiv alent to the Ration allowance granted to Security forces in alike situations/ Regular supply of uni form and jungle and gum boots	9 - e	30.00	15.00	0.00	0.00	0.00	5.00	5.00	5.00	0.00	90.00





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\sim -												
G 2	Const. of residential complexe for frontline staff at respectiv headquarters for families an individuals	s 10.00 e d	10 00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	100.00
G 3	Const. of field cum residential units (mobile, temporary and permanent)	5.00	5.00	5.00	5.00	5.00	10.00	10.00	10.00	10.00	10.00	75.00
G 4	Provision for kerosene medi- cines, field kits, torches moun- tain shoes	15.00	15.00	15.00	0.00	0.00	0.00	0.00	0.00	5.00	5.00	55.00
	Sub Total G	60.0	0 60.00	0 45.0	0 15.0	0 15.00	20.00	25.00	25.00	30.00	25.00	320.00
		60.0	0 00.00	-		openditur	es					
H 1	Office expenses (Project Mode)	5.00	5.00	5.00	5.00	5.00	7.00	7.00	7.00	7.00	7.00	60.00
H 2	POL charges (Project Mode)	5.00	5.00	5.00	5.00	5.00	5.0	5.00	5.00	5.00	5.00	50.00
H.3	Travel expenses (Project Mode)		5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	50.00
H 4		3.00	3.00	3.00	3.00	3.00	5.00	5.00	5.00	5.00	5.00	40.00
H 5	Provision for special site-spe- cific protection measures	4.00	4.00	4.00	4.00	4.00	5.00	5.00	5.00	5.00	5.00	45.00
Η 6	Provision for Computer Opera- tor for compiling data (2 person-		2.00	2.00	2.00	2.00	3.00	3.00	3.00	3.00	4.00	26.00
H.7	nel) consolidated wages Travel costs and Meeting Ex- penses of experts (insitu and		5.00	5.00	5.00	5.00	7.00	7.00	7.00	7.00	7.00	60.00
	ex-situ)	29.00	29.00	29.00	29.00	29.00	37.00	37.00	37.00	37.00	38.00	331.00
	Sub Total H	29.00	23.00	20.00		tat Impro	vement					
l.1	Planting of indigenous species (Habitat Food/Cover/Shelter	50.00	50.00	50.00	50.00	50.00	60.00	60.00	60.00	60.00	60.00	550.00
1.2	Management) Pasture Development (Indig- enous Grasses Food & Cover	15.00	15.00	15.00	15.00	15.00	20.00	20.00	20.00	20.00	20.00	175.00
1.3	Management) Soil conservation works: DRSM , Check dams and protection walls (Habitat Rejuvenation)	15.00	15.00	15.00	15.00	15.00	20.00	20.00	20.00	20.00	20.00	175.00
14	Monolick salt and supplementa- ry feed for Hangul during winter.	5.00	5.00	5.00	5.00	5.00	6.00	6.00	6.00	6.00	6.00	61.00 955.00
	Sub Total I	85.00	85.00	85.00	85.00	85.00	106.00	106.00	106.00	106.00	106.00	955.00
					J. Fi	re Protect	tion		1		40.00	100.00
J.1	Creation/ Maintenance of Fire 1 Lines and Fire breaks and Ad- vanced early control burning	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	100.00
J 2	Engaging fire protection maz- 1 doors	0.00	10.00	10.00	10.00	10.00	15.00	15.00	15.00	15.00	15.00	125.00
	Sub Total J	20.00	20.00	20.00	20.00	20.00	25.00	25.00	25.00	25.00	25.00	225.00
		F	Comm	nunity Pa	rticipatio	n (Eco-D						
K.1	Providing of Solar lighting to 2 the locals residing in the fringes	0.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	200.00
	of Hangul Habitats & Dachigam National Park											
К 2	of Hangul Habitats & Dachigam National Park Supply of improved chullas, 2 LPG and Pressure Cookers		20.00	20.00	20.00		25.00	25.00	25.00	25.00	25.00	225.00
К 2 К 3	of Hangul Habitats & Dachigam National Park Supply of improved chullas, 20	0.00		20.00	20.00		25.00	25.00	25.00	25.00	25.00	225.00



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	GRANT TOTAL (A TO M)	1282.0	1126.0	1074.0	949.0	958.0	1137.5	1123.5		1067.5	1104.5	
	Sub Total N	30.00	30.00	30.00	30.00	30.00	50.00	50.00	50.00	50.00	50.00	400.00
N 1	sultative discussions, Public- ity and Awareness material, Documentaries. Nature clubs, Broachers pamphlets, Wildlife week celebrations etc.	30.00	30.00	30.00	30.00	30.00	50.00	50.00	50.00	50.00	50.00	400.00
N 1	Workshops			1	ness and	1	1					
	Sub Total M	155.00	120.00	130.00	105.00	105.00	105.00	105.00	95.00	105.00	95.00	1120.00
M11	Red deer breeding Expertise consultancy/Knowledge shar- ing & visits	10.00	0.00	10.00	0.00	10.00	0.00	10.00	0.00	10 00	0.00	50.00
M.10	Training of animal keeper, wild- life veterinarian and researcher	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	30.00
M.9	Engagement of field /lab assis- tants	5.00	5,00	5.00	5.00	5,00	5.00	5.00	5.00	5.00	5.00	50.00
8 M	Engagement of research fel- lows/assistants	5,00	5.00	5.00	5.00	5.00	7.00	7.00	7.00	7.00	7.00	60.00
M 7	Veterinary care , Medicines & Equipment	10.00	10.00	10.00	10.00	10.00	15.00	15.00	15.00	15.00	15.00	125.00
M 6	Engagement of full-time wildlife veterinarians (Consolidated ba- sis) (2 No's) & Veterinary Assis- tants (2 No's)	20.00	20.00	20.00	20 00	20.00	20.00	20.00	20.00	20.00	20 00	200.00
М 5	Modern reproductive biotech- nologies or assisted reproduc- tive techniques (ART) including artificial insemination (AI), em- bryo transfer (ET), <i>in vitro</i> fer- tilization (IVF), semen/embryo sexing and genome resource banking (GRB).	30.00	30 00	30 00	30.00	20.00	20.00	10.00	10.00	10 00	10 00	200 00
M 4	Development and implementa- tion of collection plan	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	50.00
М 3	Animal fodder and supplemen- tary feed	7.00	7.00	7.00	7.00	7.00	10.00	10.00	10.00	10.00	10.00	85 00
M 2	Animal keepers (Consolidated wages)/Training and skill development	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10 00	10,00	10 00	100.0
M 1	Completion of construction and maintenance of conservation breeding Centre	50 00	25.00	25 00	10.00	10.00	10.00	10.00	10 00	10 00	10 00	170 0
				M	Ex situ	Conserv	ation					
	Sub Total L	75.00	75.00	75.00	75.00	75.00	85.00	85.00	85.00	85.00	85.00	800.00
L 2	Promotion of Small & Cottage Industry for Forest Dwellers	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	250.0
L 1	Alternate Livelihoods & rehabil- itation of Migratory /Other Gra- ziers to persuade for adoption of alternate source of livelihood & promotion thereof		50.00	50.00	50.00	50.00	60.00	60.00	60.00	60.00	60.00	550.0
				L. Alt	ernate Li	velihood	5					
	Sub Total K	115.00	115.00	115.00	115.00	115.00	145.00	145.00	145.00	145.00	145.00	1300
K 6	Information boards, displays brochure, pamphlets, posters	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	100.00
	Workshops/seminars/consulta- tive meet	10.00	10.00	10.00	10.00	10.00	15.00	15.00	15.00	15.00	15.00	125.00



L. HARA



Form 1. Restoration of Habitat: Weed Control, Initial Operation

Sl. no	Location & name of site	Year	Extent of area(ha)	Species of weed	Operation	Total cost	Cost per ha	Remarks
1	2	3	4	5	6	7	8	9
Note:	Location: Operation: Remarks:	Uproo	npartment, site r ting, cutting, bu re of success and	rning, ploughin	g, manual or b	y using animals	or machinery	

Sr. no	Location & name of site	Year	Extent of area(ha)	Complete or partial coverage	Species of weed	Operation	Total cost	Cost per ha	Remarks
1	2	3	4	5	6	7	8	9	10

Form 2. Restoration of Habitat: Weed Control, Subsequent Operation

Note:Location:By compartment, site name or land featureOperation:Operation:Uprooting, cutting, burning, ploughing, manual or by using animals or machinery.Remarks:Percent cover of weed/s before operation, problems, if any

Sr. no	Location & name of site	Year	Extent of area(ha)	Area treated	Operation	Total cost	Cost per ha	Remarks
1	2	3	4	5	6	7	8	9

Note:Location:By compartments, name of site or landmarks and marking of geo coordinatesExtent of area:Total area identified for such treatment. In case of streams or gullies, the length involved.Area Treated:If linear feature then quote length; otherwise area.Operation:Structures involved such as gully plugs, trench-cum-mound, terracing, spurs and bunds etc. quote
quantity nos. and cmt. of earthwork.Remarks:Mention if initial work or maintenance.

Form 4. Restoration of Habitat: Planting, Sowing – Initial Operation

Sl. no	Location	Year	Extent of area(ha)	Species	Planting stock	Spacing	Operation	Total cost	Cost per ha	Remarks
1	2	3	4	5	6	7	8	9	10	11

Note: Location: By compartments, or landmarks and describe the site factors e.g. vegetation cover, soil, perturbations etc.

Planting Stock: Kind and condition e.g. root shoot, naked root seedling, seedlings in polythene bags, age or average size.

Operation: Mention site preparation if any, crowbar holes, pits and pit size, trench, seed sowing (rate), tussock planting (norms), protection measures.

Remarks: Mention operational problems if any.

Sr. no	Location	Year	Extent of area(ha)	Species	Survival%	Casualty replacement	Operation	Total cost	Cost per ha	Remarks
1	2	3	4	5	6	7	8	9	10	11

Note: Location: By compartments, or landmarks.

Casualty replacement: Mention planting stock by species, number & kind (polythene bag, root shoot, rhizome etc.).

Operations: Planting, sowing technique, protection measures.

Remarks: Operational problems, protection problems, any other useful information.

Assess & mention survival percentage & growth before taking up casualty replacement.

Form 6. Restoration of Habitat: Area under Protection/Closure

Sl. no	Location	Year	Extent of area(ha)	Description of site	Regulationsorprotectionmeasures	Response	Remarks
1	2	3	4	5	6	7	8

Note:	Location: Description of site: Regulations &:	By compartment or landmarks % tree, shrub, ground cover, main species, impact of factors causing perturbations. Social fencing, power or other kind of fencing, enforced protection by patrolling, protection measures fire protection etc.
	Response:	To be recorded annually. Consider trend of regeneration, vegetation cover, change in structure and composition, wildlife use index.
	Remarks:	State problems or any other useful information, including alternatives if area is being used by people for specific purposes.

Sl. No	Species	Population estimation	Adult		Sub-ad	lults	Yearlings	Fawns	Cubs	Total	Remarks
		methodology	Male	Female	Male Female						
1	2	3	4	5	6 7	7	8	9	10	11	12

Form 7. Animals: Measuring Trends in Populations (Year)

Note: Population: e.g. pugmark, line transect, scan, roadside counts etc., area covered, sampling intensity, estimation data treatment, extrapolation where involved. In case of indices of density or dung, count mention those figures under the remarks' column; use details as pertinent. Describe age classes for each species.

Remarks: Operational problems, protection problems, any other useful information. Indices of density or dung count details to be recorded here.

Form 8. Animals: New Records

Sl. no	Species	Location	Year	How discovered	Details of age, number, sex	Habitat description	Remarks
1	2	3	4	5	6	7	8

Note: Animals will include vertebrates and invertebrates.

How discovered: Sighting, dead specimen, reliability of sighting, captured specimen, incontrovertible other evidence.

Number, age, sex etc: As applicable to vertebrates.

Habitat description: Broad habitat description such as vegetation, and elements such as water, large old trees, den trees, snags, down log material. Use microhabitat descriptors only if relevant.

Remarks: Any other useful information.

Sl. no	Species	Location	Year	Sex& age	Number	Discovered in what condition	Cause of mortality	Remarks
1	2	3	4	5	6	7	8	9
Note:	•	compartment, la						
		s per parameters	-	-	•		hla namaina asl	lastad whare
	Discovered if	i what condition	n: Carcass, com only some rem			any other recognizated	ole remains col	lected where
	Cause of mor	tality: If knowr	•			disease (following po	ost-mortem resu	lts), old age.

cause difficult to determine, predation etc. Any other useful information.

Remarks:

Form 10. Animals: Mortality Attributed to Poaching or an act of Vandalism

Sr. No	Species	Location	Cause of Morta	ality			Remarks		
1	2	3	Number	Sex	Age	Class	5		
			4	4					

Note:Location: By compartments or landmarks.
Cause of mortality: Whether the animal was intact or remains found, article or trophy to be recorded. Cause if known
e.g. animal snared, shot or poisoned etc.
Remarks: Any other useful information, especially matters of illegal trade.

Sr. no	Range	Month	Category of livestock killed	Location	Numbers	Ex gratia payment (Rs.)	Carnivore involved	No. of cases undecided	Remarks
1	2	3	4	5	6	7	8	9	10

 Note: Category of livestock killed: Buffalo, cow, bullock (adult, sub-adult, and calf), camel, horse, donkey, sheep, goat, poultry etc. Location: Comptt. no. or landmark where killed and the village of the owner. Carnivore involved: Indicate species responsible for the kill if identity is confirmed. No. of cases undecided: Either in progress or dropped. Remarks: Record observations like - attended or unattended animal, killed in forest or waterhole or in the pen/shed,

field and whether kill was in area closed to livestock trespass

Form 12. Animals: Killing of a Human by Wildlife or Injury caused

Sl. no	Range	Month	No. of incidents	No. of people killed sex& age		No. of people injured sex& age		Ex gratia payment (Rs.)
1	2	3	4	5	6	7	8	9

Note:

Location: Location by comptt no., the village to which the person belongs and a description of the circumstances and activity such as - open grassy patch, cutting grass; or under a mahua tree collecting and species flowers etc. Mention species responsible on proof.

Sl. no	Range	Month	The category of property	Extent of damage	Species involved and number	Remarks
1	2	3	4	5	6	7

Form 13. Animals: Wildlife Damage to Private or Public Property

Note:Location: By comptt. no., village survey no., name of village or landmark.
Category of property: e.g. agriculture field-wheat, huts in a village, any kind of vehicle.
Extent of damage: Crop damage by area, estimated loss of produce and monetary loss. Similar yardsticks for other
items like partial or total destruction of huts and belongings with estimated monetary loss.
Remarks:Remarks:Any relevant information or circumstances e.g. a wild elephant was provoked by people.

Form 14. Plants: New Records

Sl. no	Family	Species	Years	Location	Habitat	Status	Remarks
1	2	3	4	5	6	7	8
-	-						

Note: Habitat: Description by vegetation associates at various levels, % canopy closure if relevant, soil/site, microhabitat elements such as higher level of moisture, woody debris or humus etc. Status: A broad idea on its frequency, national status e.g. endangered, rare, endemic etc. Remarks: Any specific information

Form 15. Plants: Disease and Mortality

Sl. no	Species	Location	Year	Particulars of disease morbidity and mortality	Area affected	Remarks
1	2	3	4	5	6	7

Particulars of disease: In case of trees, the mortality by diameter classes and number, symptoms, insect pest activity or any other external indicators if visible, none if not seen. No mortality but infestation detected, mention that as morbidity.

Area affected: In hectares.

Remarks: Any specific environmental condition or site factors you may suspect as being related to the problem or any other useful information.

Form 16. Plants: Illegal and Legal Collection

Sl. no	Species	Years	Location	Details of material	Habitat	Status	Remarks
1	2	3	4	5	6	7	8

Note: Location: By compartments or landmarks.

Details of material: To include timber, firewood, bamboo, NWPs. Plants collected could be of local significance or of trade significance on a national or international scale. Distinguish between legal and illegal activity in the remarks' column.

Quantity: In appropriation units.

Trade particulars: What is traded? Portions partially processed or processed material and where are the major trade centres, known or suspected to be?

Remarks: Any other useful information. Legal collection applies to PA, if permitted for research; to TUZ or to the buffer zone.

Form 17. Grazing of Domestic Livestock

Sl. no	Grazing unit no.	List of villages in the unit	Village wise listed population		Total cattle units grazed		Remarks	
			of cattle	number of cattle grazed	Legal	Illegal		
1	2	3	4	5	6	7	8	

Note:

Remarks:(i) Mention number of cattle immunized against FMD, RP, anthrax as the case might be and the number of cattle without the prophylactic cover.

(i) If grass is allowed to be cut for cattle being stall-fed, mention the village and number of such cattle.

Sl. no	No. of agency	Central or State	Number and name of scheme operated	Physical and financial targets		Area& Location	Remarks
			operated	Given	Achieved		
1	2	3	4	5	6	7	8

Form 18. Inter-Agency Programs: Agencies and Schemes

Note: Name of the scheme: To include all activities in the Govt. sector, i.e. construction, use of resources, development processes etc. mention names of schemes, projects or normal operations. This will address all departments in the management area and those activities outside but capable of influencing the management area. Remarks: Success, adverse impacts, incompatibility with PA management objectives or failures should be mentioned. Detailed notes too go in the PA book.

Form 19.	Programs	of NGOs
----------	-----------------	---------

Sl. no	No. of agency	HQ location	Numberofscheme operated	Physical and financial targets		Area& Location	Remarks	
				Given	Achieved			
1	2	3	4	5	6	7	8	

Note: Remarks: Success or adverse impacts, incompatibility with PA management objectives or failures should be mentioned. Detailed notes to go in the PA book. These programs and activities could be within the management area or those that are outside the management area but are capable of influencing the state of the management area - either complementing the efforts or adversely impacting.

FORM – 20 Developing Infrastructure: Construction of boundaries Fences, CPTs, exclosures, enclosures (New)

	Year	Category of construction	Location	Length (Mt)	Number	Specification	Remarks
Sl. No							
1	2	3	4	5	6	7	8

Location: By compartment or suitable landmark.

Number: In case of enclosures, exclosures, number of pillars etc. as applicable.

Specification: As applicable to the construction: dry rubble, chain linl, local material, height, area, depth width etc.

Remarks: Any other relevant information

Sl. No	Year	Category of construction	Location	Length (Mt)	Number	Specification	Remarks
1	2	3	4	5	6	7	8

FORM – 21 Developing Infrastructure: Construction of boundaries Fences, CPTs, exclosures, enclosures (Existing)

Location: By compartment or suitable landmark.

Number: In case of enclosures, exclosures, number of pillars etc. as applicable.

Specification: As applicable to the construction: dry rubble, chain linl, local material, height, area, depth width etc. Remarks : Any other relevant information

Sl. No	Year	Fire line Category or width	Name of points connected	Length (Mt)	Cost	Remarks
1	2	3	4	5	6	8

FORM – 23 Fire out breaks

Outbreaks of fires	Year	Location	Extant (ha)	Dates	Reason	Estimated loss	Remarks
Detected				Controlle	d		
1	2	3	4	5	6	7	

location : By compartment

Reason : Established or suspected

Estimated Loss: e.g. no. of trees damaged, stacked firewood/timber/bamboo destroyed/damaged by volume and cost, wild animals dead, particulars of sensitivity sites affected, other property or life destroyed.

Remarks: State particularly problems encountered in detection and suppression and any other useful information. State also whether the extent of fire has been mapped.

Sl. No.	Year	Category	Numbers	No. of cases detected	No. of cases under process	No. of cases compounded	Remarks		
Succ	essful			Failure					
1	2	3	4	5	6	7	8		

non PA status under management which do not involve an endangered species.(Schedule-I)

SI. N	Sl. No			No. of recipients of incentives for detecting offences			Kind of award	No. of recipient 6	Remarks 8
1				3			5		
No	Year	Title	Completed	Ongoing	New	Status	Financial outlay (Rs)	Expenditure incurred (Rs)	Remarks
1	2	3	4	5	6	7	8	9	10

FORM – 25 Incentives and awards: Dachigam National Park

FORM – 26 Survey and inventories: Dachigam National Park

Sl. No	Year	Title of survey, inventory activity	Completed	Ongoing	New	By PA	By other agency	Remarks
1	2	3	4	5	6	7	8	9

FORM– 27 The Monitoring programmes:

Sl. No	Year	Title of the programme	Date of initiation	Responsible agency	Technique	Status of collaboration and analysis of data	Remarks
1	2	3	4	5	6	7	9

FORM – 28 Eco development programmes: Targets and implementation

Sl.	Year	Nature of the	Sector	Target	Achievements	Village	Remarks
No		programme	(Central/State) or	set		(buffer/enclaved)	
			NGO sponsored				
Phy	sical	Financial		Physical	l	Financial	

Biogas plants, livestock improvement, establishment and development of sericulture, revival of local skills such as handicraft, waterharvesting systems, adult education. Etc.

Village: Site where programmes is being implimented-whether buffer or inside PA.

Remarks: State problems, state failures and thereof, reasons for not attaining targets, for non-implementation or deviation etc. State whether it is on the right tracks in context of achievement of objectives

Form 29. Construction*/Maintenance* Of Infrastructure: Roads & Bridges

Sl. no	Category	Range	Surface	Name & Number	Length covered (km)	Cross drainage works, bridges or culverts with types	
1	2	3	4	5	6	7	8

Note: Category of road: National highway, State highway, district road etc. public road, forest road or open only to managers should be stated. Surface type: Black topped metal, earth etc. Applies to roads.

Name or nmber: As the case may be.

Cross drainage type: e.g. for culverts - box, hume pipe culverts etc.

Bridge type: Wooden trestle, suspension, metal multi span, masonry arch etc.

Status: Work completed or ongoing. State also the agency responsibility; state whether operational or non-operational.

Strike out which is not applicable. Use separate forms as required; for construction & for maintenance details.

Sr. No.	District	Sector/Central/State/ Other (Specify)	Agency & Work area/speciality	Program coverage	Agreed input and mechanism	Financial implications /investment & source
1	2	3	4	5	6	7

Form 30. Connecting Multi-Agency Programs In Landscape Based Planning Partners During Year:

Note: Col 4: Main agency agenda e.g. livestock production, health, education, irrigation etc.

Col. 5: Indicate by either administrative unit e.g. tehsil, or number of villages i.e. target

Col. 6: what has the agency agreed on to deliver? How? through agency plan/ scheme?

Form 31. Monitoring Extent a	and Quality of Multi	-Agency Programs Year
I of m 51. Monitoring Extent a	ma Quanty of Main	ingency integration i car

Sr. No.	District	Sector/Central/State/ Other (Specify)	Agency	Objectives & targets	Achievement & standard	Constraints	Extent of Investment	Remarks
1	2	3	4	5	6	7	8	9

Note: Col 6. The standard of achievement to be based on (i) verification of targets (ii) perception of satisfaction of people and their own assessment

Col. 7 (i) as reported by agency (ii) as perceived by people concerned



Management Plan For CONSERVATION RESERVES AROUND Dachigam National Park (2020 - 2030)



ALTAF HUSSAIN (SFS) Wildlife Warden Central Division



MANAGEMENT PLAN OF



CONSERVATION RESERVES AROUND DACHIGAM NATIONAL PARK

(2020 - 2030)

ALTAF HUSSAIN (SFS) Wildlife Warden Central

CONTENTS

INRODUCTION TO CONSERVATION RESERVES	1 – 3
CHAPTER ONE	4 - 26
1.1 INTODUCTION	
1.2 VEGETATION OF KHREW CONSERVATION RESERVE	
1.3 FAUNA OF KHREW CONSERVATION RESERVE	
1.4 PROBLEMS IN MANAGEMENT OF KHREW CONSERVATION	
RESERVE	
1.5 MANAGEMENTAL INTERVENTIONS OF THE KHEW	
CONSERVATION RESERVE	
CHAPTER TWO	27 – 46
2.1 INTRODUCTION	
2.2 VEGETATION OF KHONMOH CONSERVATION RESERVE	
2.3 FAUNA OF THE KHONMOH CONSERVATION RESERVE	
2.4 PROBLEMS IN MANAGEMENT OF KHONMOH	
CONSERVATION RESERVE	
2.5 MANAGEMENTAL INTERVENTIONS OF	
THE KHONMOH CONSERVATION RESERVE	
CHAPTER THREE	47 – 69
3.1 INTRODUCTION	
3.2 VEGETATION OF THE BRAIN NISHAT CONSERVATION	

RESERVE

3.3 FAUNA OF BRAIN NISHAT CONSERVATION RESERVE

3.4 PROBLEMS IN MANAGEMENT OF BRAIN NISHAT

CONSERVATION RESERVE

3.5 MANAGEMENTAL INTERVENTIONS OF THE

BRAIN NISHAT CONSERVATION RESERVE

CHAPTER FOUR

70 - 90

4.1 INTRODUCTION

4.2. VEGETATION OF THE KHIMBER DARA

AND SHARAZBAL CONSERVATION RESERVE

4.3 FAUNA OF KHIMBER DARA AND SHARAZBAL

CONSERVATION RESERVE

4.4 PROBLEMS IN MANAGEMENT OF

KHIMBER DARA AND SHARAZBALCONSERVATION RESERVE

4.5 MANAGEMENTAL INTERVENTIONS OF THE KHIMBER

DARA AND SHARAZBALCONSERVATION RESERVE





CONSERVATION RESERVES

Conservation Reserves are the protected areas that typically act as buffer zone or corridors or simply connectors or migration corridors between the established national parks or wildlife sanctuaries. The Conservation Reserves can be declared by the state governments in any of the areas owned by the government, particularly areas adjacent to the national parks and wildlife sanctuaries. The Conservation Reserves are declared after consultation with the local communities. These are declared in areas linking one protected area with other protected areas. The Conservation Reserves are declared for protecting landscape, flora, fauna and the wildlife habitat. The rights of the people living inside a conservation Reserves if any are not affected.

These protected area categories were first induced in the Indian Wildlife Protection Act 2002, amendment of the 1972, Indian wildlife Protection Act. The declaration and management of the conservation reserves is governed by the section 36 of the Indian wildlife Protection Act 1972. As per the Indian Wildlife Protection Act 1972 Section 36 A (1), the state government after consultation with local communities declare any area owned by the government particularly areas adjacent to national parks or wildlife sanctuaries or those which link one protected area with other one as conservation reserves for protecting landscapes, seascapes, flora and fauna in their natural habitat: provided that where conservation reserve includes any land owned by the central government its prior concurrence shall be obtained before making such declarations. These areas of the protected area category were added because of the reduced protection in and around the existing or proposed protected areas due to private ownership of land and land use.

Four Conservation Reserves namely Khonmoh Conservation Reserve, Khrew Conservation Reserve, Brain Conservation Reserve and Khimber Dara and Sharazbal Conservation Reserve surround the Dachigam National Park. The Dachigam National Park along the other protected areas surrounding it form greater Dachigam landscape.





Name of Conservation Reserve	Area (Km ²)	Notification
Khonmoh CR	67	Schedule vide C.O NO: 710 - C of 1945,17 - 07 - 45
Khrew CR	50.25	Schedule vide C.O NO: 710 - C of 1945,17 - 07 - 45
Brain Nishat CR	15.75	Notification vides C.O. 710 - C of 1945,17 - 07 - 45
Khimber Dara Sharazbal CR	34	Schedule vide C.O NO: 710 - C of 1945,17 - 07 - 45

These conservation Reserves form important corridors of prime wildlife species particularly Hangul in the greater Dachigam Landscape and are important in its long-term survival. These conservation reserves surrounding the Dachigam National Park acts as buffer, absorb all the biotic and abiotic pressures, and directly protect the core of the Dachigam National park from the adverse effects. Thus, the management of these conservation reserves is of prime importance as they act as shield to core habitat of the RET species of Dachigam National Park. The current management plan will have a special focus on the management of these Conservation reserves in view of the services rendered towards the sustainable ecosystem services and the protection of the RET species by these Conservation reserves.





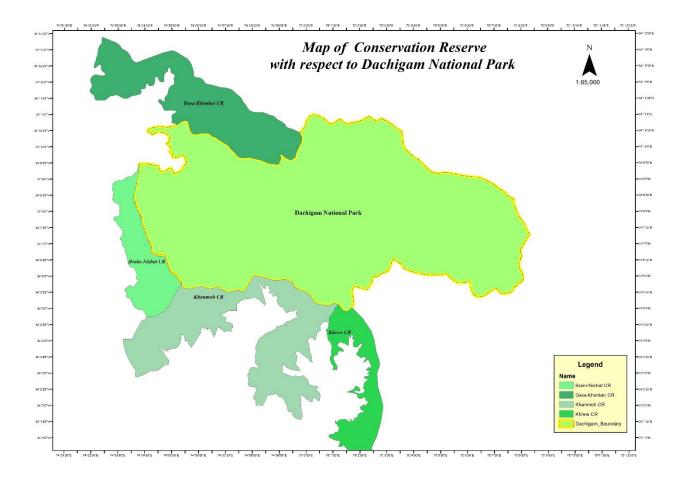


Fig.1. Map showing the Dachigam National Park with the surrounding Conservation Reserves





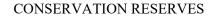
CHAPTER ONE

KHREW CONSERVATION RESERVE

1.1. INTRODUCTION

The Khrew Conservation Reserve is located in the South – East of the Dachigam Nation Park. The Khrew Conservation Reserve was notified as the Conservation reserve on 17 - 07 - 1945 vide cabinet notification No. 710 – C of 2945 (G.G) of 17 - 07 - 1945 (Annexure 1). The Khrew Conservation Reserve encompasses an area of 50.25 Km². The Khrew conservation Reserve is located 23 Km from the Srinagar city. The Wuyan in the west, Ladhu in the South, Shar – E – Shalli in the South – East bound the Khrew Conservation Reserve. The Conservation Reserve is bounded in Eastern, North – Eastern and Northern side by Satapokren, Zangtrang, and Nagendar and Bathen beat of the conservation reserve. Some lofty mountainous peaks in the North – western, North – Eastern and South – Eastern direction, bound the Khrew conservation Reserve. The Khrew conservation Reserve harbors a great deal of biodiversity and is important wildlife corridor in the greater Dachigam landscape. The Khrew conservation Reserve is unique in harboring a great deal of the avian diversity. Besides having importance with regard to wildlife and biodiversity, the Khrew Conservation Reserve is having archeological importance as a place having Cambrian era of the fossils in the areas of the wasturwan.

The Khrew Conservation Reserve experiences temperate climatic conditions with great monthly variation in the air temperature over the year. The minimum temperature of the conservation reserve drops below the 0^oC in the winter months and sometimes falls up to -5° C to -7° C (Source: IMD, Srinagar). The Ground Frost is the common phenomena observed in the Khrew conservation Reserve during the cold chilly winter season. The summers in the area are pleasant and the maximum temperature during the summer season may go up to 32° C. The minimum and maximum temperature range (in extreme variations) is from -5° C to 32° C.







The snow is the main source of the precipitation. The maximum rainfall occurs between the months of July – September. The Khrew conservation Reserves receives an average annual rainfall of near about 700 mm (Source: IMD, Srinagar).

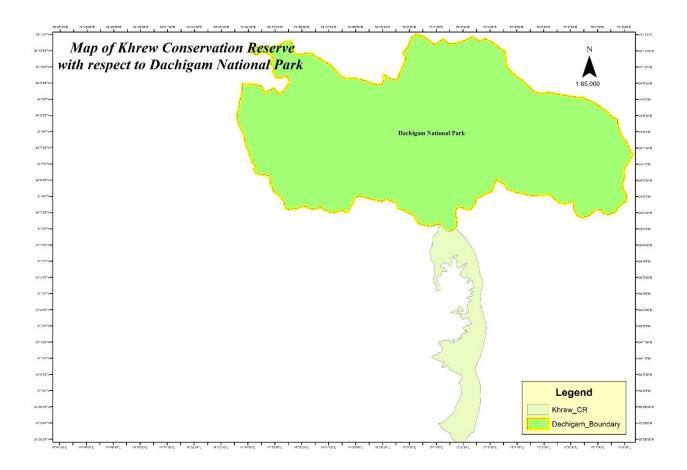


Fig.2. Location of Khrew Conservation Reserve with respect to Dachigam National Park

Being surrounded by the industrial units particularly the cement plant units, the nature and characteristic of the pollutants vary with change in the atmospheric humidity. The fog is regular feature of the conservation reserve as industrial units and cement plants are surrounding it producing number of gaseous pollutants. The fog creates possibility for the suspended particles





to coalesce and enhance the chemical reactions of the gaseous pollutants. The maximum humidity is recorded during winter season (December, January) and in summer (July, August, September).

The Khrew conservation Reserve is surrounded by the various industrial units and cement plants, the wind speed and wind direction are crucial in dispersion of the atmospheric pollutants and therefore the Air Quality Index (AQI) is low. The physical description of sound concerns its loudness as function of frequency. The noise in general is sound composed of many frequency components of various levels of loudness, distributed over the audible frequency range. The noise pollution is one of the disturbing phenomena faced by the faunal and avian diversity of the Khrew Conservation Reserve.

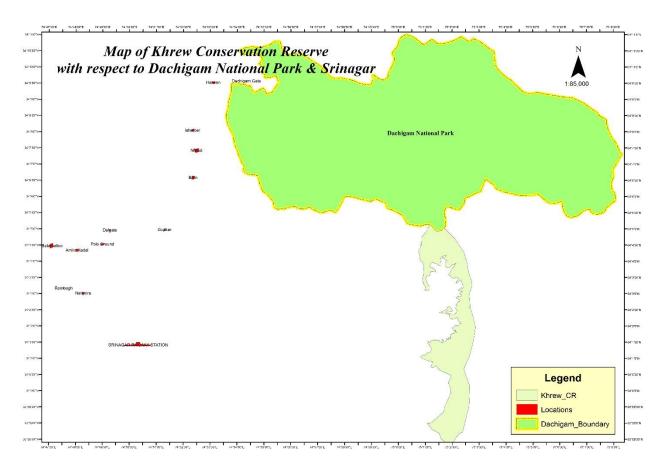


Fig. 3. Location of Khrew Conservation Reserve with respect to Srinagar and Dachigam National Park





The texture of the soils in the Khrew Conservation Reserve is sandy loam. The pH of the soils is slightly alkaline. The Khrew Conservation Reserve is having rocky soils with less soil depth. The most the soils of Khrew conservation Reserve are having their origin from the potassium bearing minerals and thus have a high potassium content in them. The rocks in the conservation reserve are mainly composed of limestone, sandstone and shale, which are having crystalline structure. Some of the rocks of the Khrew conservation Reserve are millions of years old of Pre – Cambrian and Cambrian era. Some of the oldest fossils in the history of humankind are reported from rocks of wasturwan area of the Khrew Conservation Reserve.

The Khrew Conservation Reserve is extremely rich in biodiversity and acting as an important wildlife corridor particularly of the RET species of the greater Dachigam landscape. It is important corridor of the animals such as "Critically Endangered" Hangul (*Cervus hanglu hanglu*), Asiatic Black Bear (*Ursus thibetanus*) and other such species. The Khrew Conservation reserve is having a very luxuriant vegetation comprising of both coniferous and broadleaved species. The dominant conifers include Blue Pine (*Pinus wallichiana*), and in some areas Deodar (*Cedrus deodara*), and Himalayan Yew (*Taxus wallichiana*). The broadleaved trees include *Ailanthus altisima*, *Populas cilita*, *Ulmus wallichiana*, *Robinia pseudoacacia*, *Salix alba*, *Celtis australis*, *Fraxinus hookeri etc*.

1.2. VEGETATION OF KHREW CONSERVATION RESERVE

The Khrew Conservation Reserve comprises of the six beats *viz.*, Badalaw, Khudalaw, Nagendar, Wahabshab and Ladhu. The Khrew Conservation Reserve has luxuriant vegetation comprising both of the coniferous and broadleaved vegetation. There is herbaceous ground cover vegetation comprising of many shrubs, herbs and many grasses. There is great variation in the vegetation of the Khrew conservation Reserve as all the beats of the conservation reserve are located distinctly from each other having differences in the slope, aspect, soil and other geographical attributes. There is luxuriant coniferous vegetation in the beats of Badalaw, Khudalaw and Nagendar with Blue Pine (*Pinus wallichiana*) as the dominant conifer with overall good regeneration rate. The beats of Bathen and Ladhu are composed of mixed vegetation. The main conifers include *Pinus wallichiana*, *Cedrus deodara*, *Abies pindrow* and *Picea smithiana*. The broadleaved vegetation comprise of species such as *Aseculas indica*,





Ailanthus altisima, Populas cilita, Rhus succedanea, Ulmus villosa, Ulmus wallichiana, Salix alba, Morus alba, Juglunas regia, Morus nigra and Ulmus villosa.

The overall vegetation of the Khrew conservation Reserve falls under the Temperate, sub – alpine and alpine under the new and revised classification of Champion and Seth classification (Champion and Seth, 1968). The vegetation of the Khrew Conservation Reserve can be classified into following major types:-

- Coniferous
- Mixed coniferous and broadleaved
- Broadleaved Deciduous Forest
- Scrub and grasslands
- Alpine pasture

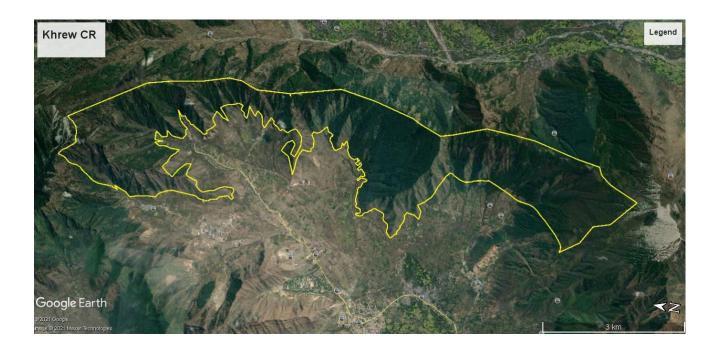


Fig.4. vegetation of Khrew Conservation Reserve through Google Earth





CONIFEROUS VEGETATION

The Khrew conservation Reserve has very rich and luxuriant coniferous vegetation. The areas such as Badalaw, Khudalaw, Nagendar and Wahabshab are predominantly rich in coniferous vegetation. The Himalyan Blue Pine (*Pinus wallichiana*) is the dominant conifer of the Khrew Conservation reserve.



Fig.5. Coniferous vegetation of Khrew Conservation Reserve

As the Himalayan Blue Pine (*Pinus wallichiana*) prefers and prospers in the sandy loam soils, the soils of Khrew Conservation Reserve are the perfect adobe for the growth and development of the *Pinus wallichiana*. The *Pinus wallichiana* has excellent regeneration rate in the Khrew conservation reserve particularly in the Badalaw and Khudalaw areas. A regeneration sampling





assessment survey carried out in case of *Pinus Wallichiana* during the formation of current management plan by this division shows excellent regeneration of the *Pinus wallichiana* in the conservation reserve (Fig.2).

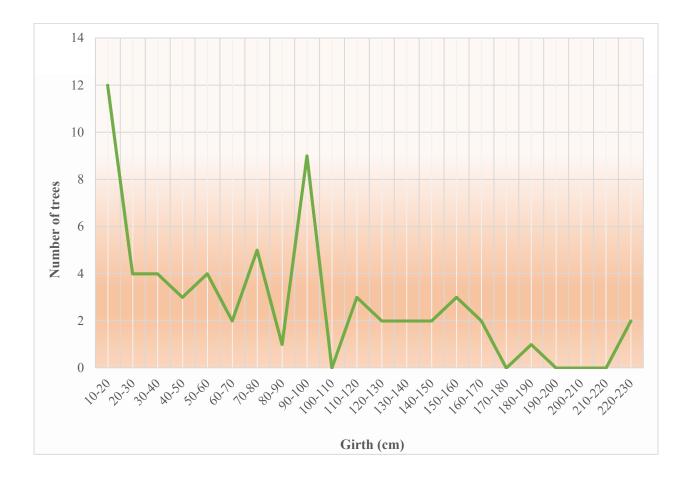


Fig.6. Graph showing the girth class distribution of *Pinus wallichiana* in Khrew conservation Reserve

The above graph depicts that most of the trees fall under the girth class distribution of less than 100 cm which an excellent sign regarding the regeneration of the coniferous tree. The





young regeneration of the coniferous trees particularly the *Pinus wallichiana* is important for the healthy and sustainable ecosystem of the Khrew Conservation Reserve.

The *Pinus wallichiana* forms pure patches at most of the places in the Khrew conservation Reserve and its pure patches are found in the altitude between 1800 – 3000 m. At many places, the *Pinus wallichiana* is intercepted with many broadleaved species such as *Aseculas indica, Parrotiopsis jacquemontiana*, and many *Prunus* Species. The ground cover in the patches and vegetation of *Pinus wallichiana* include *Prunus tomentosa, Rubus niveus, Berberis lyceum, Rosa webbiana, Vibernum grandiflorum, Rosa brunonii* and many other shrub species.

This type of habitat is extremely important for the survival of the majority of the animal species found in the Khrew Conservation Reserve. It is perfect habitat for the "Critically Endangered" Hangul (*Cervus hanglu hanglu*), Asiatic Black Bear (*Ursus thibetanus*), "Endangered" Himalayan Grey Langur (*Semnopithecus ajax*), Rhesus Macaque (*Macaca mulata*), besides many other small mammal species such as Himalyan Yellow throated Martin (*Martes flavigula*). This type of habitat also harbors a great deal of avian diversity.

MIXED CONIFEROUS AND BROADLEAVED

This type of vegetation is reported in the low-lying areas of the Khrew Conservation Reserve. This type of plant community is usually found between 1700 - 2100 m, but this type of association may be found in the higher altitudes as well. The Canopy of this type of the forest is composed of the tall trees while as understory is composed of many shade tolerant species, which grow well in such type of the environment.







Fig.7. Mixed coniferous vegetation of Khrew Conservation Reserve

The coniferous tree component mostly include Himalyan Blue pine (*Pinus wallichiana*), Himalayan Yew (*Taxus wallichiana*), in higher altitudes Deodar (*Cedars deodar*), *Picea smithiana* and *Abies pindrow*. The broadleaved component mostly include tree species such as *Aseculas indica*, *Morus alba*, *Morus nigra*, *Salix alba*, *Populas cilita*, *Juglunas regia*, *Celtis australis*, *Celtis Caucasia* and many other such species. The ground flora of such forest community is composed of the species such as *Rosa webbiana*, *Rosa indica*, *Indigofera heterantha*, *Berberis lyceum*, *Berberis artista*, *Vibernum grandiflorum*, *Rubus niveus* etc. This forest community forms an important habitat for most of the faunal diversity of the Khrew Conservation Reserve as it provides food and other sources round the year. This type of habitat is perfect for the charismatic animals such as Hangul, Black Bear, Common Leopard, Himalayan Grey Langur, Rhesus macaque and other small animals. This type of forest community is an adobe to the avian diversity and the birds found here include Himalayan Monal (*Lophophorus impejanus*), Koklas pheasant (*Pucrasia macrolopha*), Spectacled Finch, Kashmir flycatcher, Tytler's leaf warbler, Orange Bullfinch and Kashmir Nutach.





DECIDOUS BROADLEAVED FOREST

This type of forest is found along the seasonal nallahs of the Khrew Conservation Reserve. This type of forest community is mainly composed of the deciduous broadleaved trees. The broadleaved deciduous forest is an important component of the Khrew Conservation reserve and plays a crucial role in the winter survival of the many animal species. This type of forest community is usually found between 1600 – 2500 m elevations. There is great stratification found in the Broadleaved deciduous forest with upper canopy formed by the tall and lanky trees, while middle story is composed of the saplings of many trees and the ground strata is formed by the many shrubs. The trees of this community mainly include trees such as *Quercus robur*, *Morus alba, Morus nigra, Robinia pseudoacacia, Salix alba, Salix nigra, Ailanthus altisima, Aseculas indica, Juglunas regia, Juglunas nigra, Rhus succedanae* and *Populas alba*. Several shrubs such as *Indigofera heterantha, Berberis lyceum, Berberis aristata, Rubus niveus, Rosa webbiana* and *Vibernum grandiflora* intercept the forest community.



Fig.8. Broadleaved Deciduous Forest





SCRUB AND GRASSLANDS

The Grasslands and the scrubs are the vast stretch of lands found mostly on the southern aspects of the Khrew Conservation reserve. These stretches are literally devoid of any tree cover except at certain places where they are intercepted by the trees species such as *Robinia Pseudoacacia*, *Parrotiopsis jacquemontiana*, *Prunus ceracifera*, *Celtis australis* and *Ulmus spp*. These scrubs and grasslands have very rich and diversified ground flora and medicinal plants. The ground flora mainly consists of the species such as *Indigofera heterantha*, *Rosa webbiana*, *Rubus niveus*, *Rosa brunonii*, *Koleuria cristata*, *Lonicera quinquelocularis*, *Geranium nepalensis*, *Dispsacus mitis*, *Dactylis gloerate*, *Colchicum luteum*, *Stipa sibirca*, *Zizyphus anathera*, *Fragaria versa* and *Kocleuria cristata* sparsely cover the vast stretches of the scrub and grasslands. The broadleaved species such as *Ailanthus altisima*, *Robinia pseudoacacia* and *Vibernum grandiflora* are found in patches in these scrub and grasslands of the Khrew Conservation Reserve.









These scrubs and grasslands are very rich in the herbs and medicinal plants such as *Primula spp., Anemone spp., Fritillaira spp., Iris spp.* and *Gentiana spp.* This type of habitat is extremely important for the survival of the most species particularly RET species of the conservation Reserves. The scrub and grasslands also harbor a great deal of variety of birds. The main birds found in this area include Chukar partridge, Koklas pheasant, Fire fronted siron and Rufous bellied niltava, variegated laughing thrush, breaded vulture, long – legged vulture and many others.

ALPINE PASTURES

The alpine pastures of the Khrew Conservation Reserve are found in the upper elevations usually between 3500 – 4000 m. These vast alpine pastures composed of many mesophytic perineal herbs. The herbs of this area mainly comprise of many Rananculaceae, Cruciferae, and Compsitae family species. These vast alpine meadows and pastures serve as important food reserve during the summer time for Kashmir stag (*Cervus hanglu hanglu*) and Himalyan Musk Deer (*Moschus cupreus*). The meadows are composed of perennial mesophytic herbs with very little grasses. The conspicuous amongst the herbs are *Primula spp., Anemone spp., Fritillaira imperialis, and Iris spp., Gentiana spp.* with many Rananculaceae, Cruciferae, and Compsitae and Caryophyllaceae species. The alpine pastures form most important habitat for the critically endangered Hangul (*Cervus hanglu hanglu*) as it serves as food reservoir particularly during the summer season. The management of this habitat is of the core importance for the long-term survival and conservation of the Hangul (*Cervus hanglu hanglu*) as well Himalayan Musk Deer (*Moschus cupreus*).

1.3. FAUNA OF KHREW CONSERVATION RESERVE

The Khrew Conservation reserve is extremely rich and diverse in the faunal diversity. The diversity of the Khrew Conservation Reserve is reflected by the presence of many species of vertebrates, invertebrates, squamate reptiles, diverse and varied insects and butterflies and great avian diversity. The Khrew Conservation Reserve is home to large number of species belonging to various phyla of vertebrates represented by mammals, birds and reptiles. The Khrew





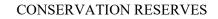
conservation reserve is an important corridor of the RET species in the greater Dachigam Landscape. It holds viable population of Hangul (*Cervus hanglu hanglu*), Asiatic Black Bear (*Ursus thibetanus*), Common Leopard (*Panthera pardus*), Himalayan Grey Langur (*Semnopithecus ajax*), Rhesus macaque (*Macaca mulata*) and many other small mammals. The Khrew conservation Reserve serves as an important corridor for the seasonal, altitudinal and habitual migration of the species present in the greater Dachigam landscape. The Khrew conservation Reserve serves as an important corridor for the Hangul in its relic habitat of greater Dachigam landscape. The proper maintenance, protection and management of the Khrew Conservation Reserve in general and the corridors in particular will greatly serve in devising the long term strategies for the conservation of the RET species in general and Hangul in particular.

1.4. PROBLEMS IN MANAGEMENT OF KHREW CONSERVATION RESERVE

i. Industries: - There are various industrial units particularly the cement plants present in the vicinity of the Khrew Conservation Reserve acquiring the raw materials from the area through stone quarrying and mining. These industries emit various type of air pollutants having indirect and direct effects on the health of wildlife and the forest ecosystems. The pollutants such as smog, Sulphur dioxide and other particulate matter decrease the air quality.



Fig.10. Cement factories as source of Air pollution in Khrew conservation Reserve







ii. Stone quarrying, Mining and Habitat degradation: - The industrial units particularly the cement plants acquire raw material by stone quarrying and mining in the vicinity of the Khrew Conservation Reserve. The mining and stone quarrying results in deep gorges, which are usually impossible to conquer and cross for most of the animals. The stone quarrying and mining results in habitat degradation and habitat fragmentation, often dividing the wild populations into the smaller ones. This is a Human – caused habitat loss and are primary drivers of the population decline. It increases vulnerability of the wild populations by reducing the space and resources available to them by increasing the likelihood conflict with the humans. The stone quarrying and mining renders the vast large habitats to smaller habitats. The smaller habitats support smaller populations which are unlikely to survive and likely to go extinct.



Fig.11. Stone quarrying as source of Habitat degradation





- iii. Grazing: The grazing is most persistent threat faced by the wildlife habitats and as such is still illegally persistent in the Khrew Conservation Reserve. The migrant grazers like Gujjars and Bakarwals with the herds of livestock pass through the Khrew Conservation Reserve and use it as the grazing route to venture in highland pastures of the Dachigam National Park. Tough the nomadic people do not settle in the Conservation Reserve for grazing but is frequently used route to venture in to the alpine pastures of Dachigam National Park. The strict vigilance and setting up of proper anti grazing camps at the appropriate places and critical locations will be of immense managmental intervention in regulating the apprehensions of grazing in Dachigam National Park and reducing the biotic pressures for the long term survival of the "Critically Endangered" Hangul and other RET species of the greater Dachigam landscape.
- iv. Poaching: The poaching is the major threat faced by majority of the species in general and RET species in particular. Owing to the great diversity of the mammals and birds particularly of the RET species there are always apprehensions of poaching, particularly when the area of conservation reserve is bounded by huge zone of influence and surrounded by the industrial units. The Khrew conservation reserve serves as important corridor for the Hangul, the conservation, protection and maintenance of this important corridor will be of great significance for the long – term survival of the Hangul and other RET species.
- v. Fire: The fire is the single dominant factor of the forest destruction. The fire in Khrew Conservation Reserve is mostly reported in the scrub and grasslands. The proper laying and alignment of the fire lines and fire paths is crucial in mitigating the adverse effects of the forest fires.
- vi. Water scarcity: The Khrew Conservation reserve does not have a perineal source of water and managing the water for the wildlife is a great managmental task in the Khrew conservation reserve. The waterholes are to be constructed either in areas of having animal movement, based on physical presence or in signs.





1.5. MANAGEMENTAL INTERVENTIONS OF THE KHEW CONSERVATION RESERVE

1.5.1. HABITAT MANAGEMENT AND IMPROVEMENT

The wild animals have specific requirements that their habitat must provide including food and water for nourishment, cover from weather and predators, space to gather food, attract mates and safe corridor between the habitats.

The following prescriptions will be followed during the plan period as a part of the Habitat management and improvement:

- Artificial waterholes to be constructed in areas with little or no accessibility of animal to the natural water sources based on the studies of the animal movement or rutting or other activity in that area. As the Khrew Conservation Reserve is lacking a perineal water source, the artificial waterholes can play a crucial role in the habitat management and improvement of the Khrew Conservation Reserve.
- Plantation of the trees particularly the fruit bearing in the areas devoid of such plantation or less regeneration rate. The fruit bearing trees will be in mixture with the coniferous trees. The beats of Ladhu and Wahabshab will be prioritized.
- Eradication of the weeds and unpalatable grasses such as *Solenanthus circinatus, Stipa siberica, Euphorbia spp., Isodon plectranthus* and other such species in the animal habitat and corridors which are unpalatable to the animals.
- Identification, protection, improvement, maintenance, and the mapping of important wildlife corridors passing through Khrew Conservation Reserve.
- Planting of indigenous nutritive grass species such as Red and white clover in place of unpalatable species in the grass and scrubland areas of the Khrew conservation reserve.
- Construction of check dams the check dams will be constructed using the locally available materials in the high priority areas.
- DRSM works should be used to create bunds in order to prevent the divergence of water, which can be effectively used for management of the artificially created waterholes.





1.5.2 BOUNDARY DELINATION AND FENCING

The most the area of the Khrew conservation Reserve is properly and digitally demarcated. However, at certain places the proper digital demarcation is yet to take place. In the Khrew Conservation Reserve, there are always apprehensions of encroachment by the industrial and mining units owing to the presence of rich lime and shale deposits. During the current management plan period following prescriptions are proposed regarding the boundary delineation and boundary fencing:

- Coordination should be established with the Revenue authorities, social forestry and forest department for proper correction of records pertaining to land and boundaries of the conservation reserve. In addition to this status of land around the conservation, reserve should also be evaluated in order to monitor the activities in adjoining areas.
- Proper demarcation of the areas where demarcation is still pending using the GPS and GIS technology.
- Proper fencing of the boundary at the strategic points. The type of fencing may depend on the area concerned. The proper fencing around the boundaries will greatly help in mitigating any apprehension of encroachment.
- Name of block, compartment number and number of pillar should be inscribed on the pillars and record maintained in the office. Wildlife warden, Range officers should regularly check these boundaries during their routine inspection of the area

1.5.3 CONTROL OF GRAZING AND OTHER BIOTIC PRESSURES

The Khrew Conservation Reserve is an important corridor and frequently used grazing route by the nomadic tribal people with herds of livestock to venture into the highland pastures of the Dachigam National Park. The proper control, management and vigilance of these commonly used grazing routes will not only decrease the biotic pressure on the conservation reserve but also in highland pastures of the Dachigam National Park. The presence of livestock greatly increase the competition for the food and space and are a potent source of the infectious diseases, which are communicable to the wild animals.





The following prescriptions are proposed during the plan period to control the pressure of grazing:

- Mapping of the grazing routes commonly followed by the grazers through Khrew conservation reserve as it will be of great help to control the grazing by setting up grazing camps at appropriate places.
- As the menace of illegal grazing is more persistent during the summer season, grazing camps will be setup at all vulnerable places.
- A proper survey of livestock population in the zone of influence should be initiated to formulate a scheme for immunization of livestock
- Providing proper incentives, medicine, flashlights and proper gears to the staff performing duties at anti grazing camps.
- The grazing check post will be installed at specific strategic points.

1.5.4 CONTROL OF POACHING

Owing to the continuous and strict patrolling of the frontline staff, the apprehensions of the poaching have been greatly reduced largely. However, owing to the great diversity of the mammals and birds particularly of the RET species there are always chances of poaching, particularly when the area of conservation reserve is bounded by huge zone of influence and surrounded by the industrial units. The Khrew conservation reserve serves greatly as important corridor to the Hangul, the conservation, protection and maintenance of this important corridor will be of great significance for the long – term survival of the Hangul and other RET species.

The following prescriptions will be followed during the current management plan to control any apprehensions of poaching:

 Anti- poaching camps will be setup in critical locations especially in upper reaches in both summer and winter. These camps will have a special focus on the corridors used by the animals particularly Hangul to ensure a safe passage in its landscape habitat. The beats such as Badalaw, Khudalaw and Nagendar will be prioritized in anti – poaching camps.





- The Range officer will divide areas into patrolling units and communicate the perambulation schedule to the field staff on monthly basis for implementation under intimation to wildlife warden office.
- All existing patrolling paths will be cleared once a year at least to provide safe movement to field staff for patrolling.
- Proper mapping of these paths will be done and if required new alignment of patrolling paths for effective patrolling will be done.
- Providing all basic logistic to field staff such as wireless equipment, if possible, flashlights and cells, GPS, binoculars, camera summer and winter gears etc.
- The Range officer will conduct frequent checks followed by surprise checks by wildlife warden.
- All the people living in the fringe areas of the Khrew conservation reserve and having firearms will be necessarily made to register with the concerned police station. There is strong need to create database of all those persons who own firearms. This will serve as great check on poaching apprehensions. There is a need for strict compliance of provisions suggested in different sections of the Indian Wildlife Protection Act, 1972.

1.5.5 FIRE MANGEMENT

Fire is one the major destructive factors which greatly hampers the wildlife habitat. Therefore, fire management has to be given central focus in order to manage and mitigate its effects. The following are general Strategies for implementation of fire protection measures in the Khrew Conservation Reserve:

- The fire lines will be created and maintained in all the fir prone areas especially in the scrub and grasslands, which are considered comparatively more fire prone than other areas. The creation of fire lines will be prioritized in all beats of the conservation reserves.
- The fire protection camps will be used for the camping of firefighting squad during the fire season. Temporary structures will be set up in all fire vulnerable areas to detect and prevent the spread of fire from the human habitation around the conservation reserve.





- A team shall be put at constant patrolling around and in close proximity of industrial units which frequented by many people and vehicles.
- The fire watchtowers shall setup in all the fire prone areas and will be maintained periodically.
- Firefighting squads will be engaged throughout the season for efficient fire protection activities.
- The members of the participatory fire management will be from the fringe areas and will be involved in participatory fire management.
- Awareness campaigns are essential for preventing fire. Wildlife Warden will arrange awareness and training for the staff, local dependents before the fire season every year.
- Awareness campaigns may be arranged for the people of fringe areas, school, colleges, and people's representatives on the impact of fires on forests and wildlife. This may be done by mass involvement of people in procession, talks, information display boards hoardings, banners, street play etc.
- Training programmes for staff, and other members of the community involved in fire protection shall be organized and liasioning in this regard shall developed with department of fire and Emergency.
- The equipments like gumboots; fire resistant suit etc. may be procured and made available to the fire management groups.
- Incidents of fire shall be documented and shall be reported promptly to regional wildlife warden and Chief Wildlife Warden. Controlled pre-burning areas will be mapped and GPS documented to assess their impact and to streamline future activities.

1.5.6 HUMAN – WILDLIFE CONFLICT

During the current plan period, the following strategies are proposed to mitigate the Human – wildlife conflict in the Khrew Conservation Reserve:-

- Fencing of the areas of conservation reserve close to the human habitations and industrial units
- Formation of rapid response teams to tackle the ever increasing Human wildlife conflict effectively



- Encourage the people of the fringe areas for crop insurance to reduce of the loss of crop raiding by the wild animals
- Grant the exgratia in case of human injuries and mortalities without much delay
- Education and awareness among the people of fringe areas regarding the Human wildlife conflict and its mitigation measures
- Maintenance and procurement of the tranquilizing guns and other equipments and accessories
- Maintenance of the vehicle in Human wildlife conflict and POL
- Maintenance of old trap cages and procurement of new ones

1.5.7 INFRASTRUCTURE AND CAPACITY DEVELOPMENT

The infrastructure development is very important for the effective management of the wildlife-protected areas. At present, there are three staff quarters, one newly constructed watchtower and historical Tipon shed at Khrew Conservation Reserve. Almost all the staff quarters present in the Khrew conservation Reserve are in bad shape, are inhabitable and in dire need of renovation.







Fig.12. Staff Quarter Nagendar Khrew Conservation Reserve

During the current plan period, it is proposed to renovate all the existing infrastructure buildings and staff quarters, besides to construct new ones for the effective management of the Khrew Conservation Reserve.

Besides certain bridges / culverts will constructed and maintained over the plan period.

1.5.7. ECO – TOURISM DEVELOPMENT

The Khrew conservation Reserve not only is extremely rich in the biodiversity and is important from the biodiversity conservation point of view. It has extremely important significance from the religious, cultural and archeological point of view. These all factors are the driving force in projecting the Khrew conservation Reserve as an important eco – tourism destination. To harness the Eco – tourism potential of the Khrew Conservation Reserve the following perceptions are proposed during the current plan period:





- The trekking routes will be identified and developed in the Khrew Conservation Reserve as it has vast potential of the Nature based trekking. The trekking routes will particularly developed in Wahabshab and wasturwan areas.
- Protection and education oriented limited trekking, trekking and camping programmes for school and college students
- To regulate and re orient tourism in such a way so as it make it more educative and compatible with the goal of conservation





CHAPTER TWO KHONMOH CONSERVATION RESERVE

2.1 INTRODUCTION

The Khonmoh Conservation Reserve lies south – east of the Dachigam National Park. The Khonmoh conservation Reserve comprise of the area of approximately 67 Km². The Khonmoh Conservation reserve lies at 25 Km from Srinagar city. The Khonmoh Conservation Reserve comprise of six beats namely Khar Hajin, Chak, Sangri, Zawur, Safad Bal and Dater Pathri. Before declaration of the conservation reserve Khonmoh was a hunting reserve or 'Rakh' of the Maharaja of the erstwhile of the princely state of the Jammu and Kashmir. The Khonmoh conservation Reserve was declared as conservation Reserve on 17 - 07 - 1945 vide cabinet notification Schedule || vide C.O. No. 710 – C of 1945, 17 - 07 - 1945. The declaration of the Khonmoh area as Conservation Reserve was an immense boost for the survival of many endangered species particularly "Critically Endangered" Hangul (*Cervus hanglu hanglu*). The soil depth in most of the areas of the Khonmoh conservation reserve is shallow with a soil depth of less than 25 cm. The soil mainly contains sedimentary rocks composed of sandstone and limestone. The soils usually are mixed and composed of calcium carbonate and silicon dioxide and impregnated with huge amount of Quartz.

The Khonmoh conservation Reserve in general shows conspicuous physiographic variations comprising high hills, mountain ranges and alluvial tracts. Most of the areas comprised of the high hills characterized by hilly rugged and undulating topography. The flat alluvial terrain and Kerawas are of Pliocene to Pleistocene era. The conservation reserve is bounded by the Great Himalayas on the South Eastern, Northern, and North Western side, Jhelum River in the South bound the conservation reserve and it extends and form the contiguous portion of the Kashmir Valley in the West. The highest peak is 5148 m above mean sea level. There are many hilltops in the eastern part of the conservation reserve with an average height of 3,000 to 4,500 m above the mean sea level. Alluvial fans are predominant feature occurring at





foothills. In the Valley portion, typical Karewa tablelands are noticed. These tablelands are flat at the top with a very gentle slope towards the valley in the periphery portion the Kerawas about against the mountains.

The weather conditions of the Khonmoh conservation Reserve like other parts of the valley is temperate with chilling winters and cool summers. The snow is main source of the precipitation in the Khonmoh Conservation Reserve. The Khonmoh Conservation Reserve does

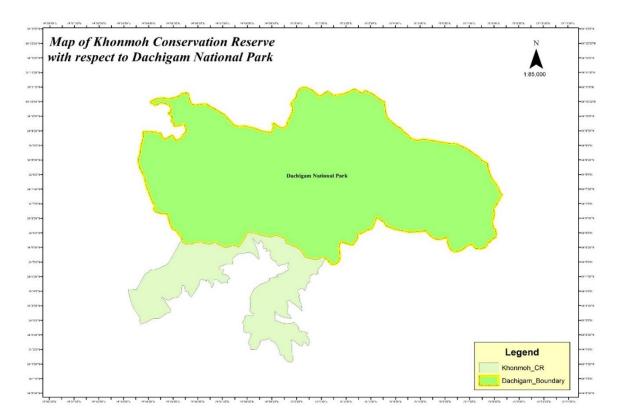


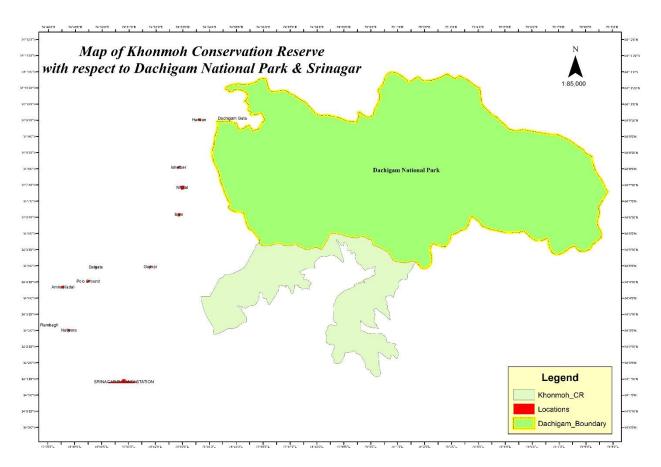
Fig.13. Location map Khonmoh Conservation Reserve with respect to Dachigam National Park

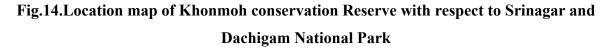
not have permanent source of the water and managing the water for the wildlife species is of prime importance. The management of water and the construction of the waterholes to make water availability to faunal and avian diversity of the conservation reserve form an integral managerial activity in the Khonmoh Conservation Reserve. There are many seasonal nallahs and





streams flowing across the Khonmoh conservation Reserve. The main nallahs flowing through the Khonmoh conservation reserve include Han Khul Nallah, Postul nallah and Guryul nallah, which are all seasonal. These nallahs get flow only on the onset of rains or on melting of snow. Besides the seasonal nallahs, there are small springs flowing through the conservation reserve.





2.2. VEGETATION OF KHONMOH CONSERVATION RESERVE

The Khonmoh conservation Reserve comprise of the six beats namely Khar Hajin, Chak, Sangri, Zawur, Safad Bal and Dater Pathri. The Khonmoh conservation reserve is having a very rich, varied and luxuriant vegetation ranging from the herbaceous ground flora to the lofty pine trees. All the beats of the Khonmoh conservation reserve are having their own characteristic features with respect to vegetation owing to varying aspects, slopes, topography and altitude. The





beats such as Khar Hajin, Chak, Sangri and Dater Pathri are having a very rich and varied vegetation while as the Beats such as Safad Bal and Zawur are devoid of the tree vegetation but rich in the herbaceous ground vegetation.

The vegetation of the Khonmoh conservation Reserve can be divided in to the following types based on the new and revised classification of Champion and Seth (Champion and Seth, 1968).

- Riverine Vegetation
- Coniferous vegetation
- Mixed coniferous vegetation
- Temperate Deciduous Broadleaved vegetation
- Mixed broadleaved and coniferous vegetation
- Grasslands and scrubs

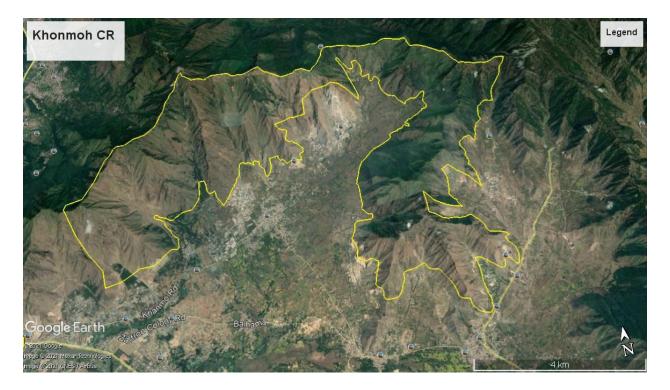


Fig.15. vegetation map of Khonmoh Conservation Reserve through Google Earth





RIVERINE VEGETATION

The Riverine vegetation is mainly confined along the different seasonal nallahs flowing in the various beats of the Khonmoh conservation Reserve. This is mainly a successional forest type whose succession is mainly determined by the various local edaphic and the climatic conditions. The soils in the riverine areas are more luxuriant and fertile as compared to rest areas. The riverine forest type is mainly composed of the broadleaved vegetation. The species reported in the riverine forest area include Parrotiopsis jacquemontiana, Ailanthus altisima, Aseculas indica, Rhus succedanae, Acer cesium, Morus alba, Salix alba, Salix nigra Morus nigra, Robinia pseudoacacia, Juglunas regia, Juglunas nigra and Populas alba. In the upper reaches in the Dater Pathri beat, there are some pure patches of the Himalayan yew (Taxus wallichiana). There is specific area called Postul nallah, which is extremely rich in the Himalayan Yew vegetation. Similarly, along the Han Khul nallah of the Khar Hanjin beat there pure patches of the Indian Horse Chestnut (Aseculas indica). There is a luxuriant under growth found in the riverine forest area and the undergrowth mainly is composed of Indigofera heterantha, Rosa webbiana, Berberis lyceum, Berberis aristata, Rubus niveus and Vibernum grandiflorum. A vegetative sampling assessment carried out by the Department of wildlife protection shows that the riverine vegetation has an excellent regeneration rate and the forest ecosystem is in a healthy condition. The riverine vegetation is an important regarding the wildlife species present in the area particularly during the winter season when the resources in other forest types are in lowest ebb. The Himalayan Grey Langur (Semnopithecus ajax), Asiatic Black Bear (Ursus thibetanus) and Hangul (Cervus hanglu hanglu) mainly occupy this type of habitat. Besides animals, the riverine forest type harbors a great variety of the avian diversity.









Fig.16. Rich and varied Riverine vegetation of Khonmoh Conservation Reserve

CONIFEROUS VEGETATION

The coniferous forest mainly composed of the Himalayan Blue pine (*Pinus wallichiana*), Deodar (*Cedrus deodara*) and Himalayan Yew (*Taxus wallichiana*). The Blue is the most dominant conifer in this type of vegetation. This forest type lies at an altitudinal zone between 1900 - 3400 m. The Blue pine sometimes comes in pure patches even in open areas and scrubs. This type of forest area is mainly reported in the beats of Khar Hanjin, Upper reaches of the Dater Pathri beat while as the beats of Chak and Sangri are extremely rich in coniferous vegetation. In the areas of Ring Pathri and Sheikh Van, the Himalayan Blue pine form pure patches.





Figure 17. The coniferous vegetation dominated by Blue pine of Khonmoh Conservation Reserve

The Blue pine forms an association with the shrubs such as *Rosa webbiana*, *Prunus ceracifera*, and *Berberis lyceum*. The coniferous forest forms an important habitat for animals such as Asiatic Black Bear, Himalayan Yellow Throated Martin, and Kashmir Musk Deer. Besides animals, it forms the breeding ground for the variety of the birds and harbors a deal of the avian diversity.

MIXED CONIFEROUS FOREST

The mixed coniferous forest type is distributed in the upper elevations of the Khonmoh conservation Reserve ranging from 2800 - 3400 m. The areas of the Khonmoh conservation





Reserve that are exposed to the sunlight and precipitation are dominated by the *Pinus wallichiana* and *Cedrus deodara* while as the less exposed and sun shaded areas of the Khonmoh conservation Reserve are dominated by the species like *Abies pindrow*. The dominant species of this forest community are *Pinus wallichiana*, *Abies pindrow*, *Cedrus deodara* and *Taxus wallichiana*. This forest community is mainly intercepted by the species such *Isodom plectranthoides*, *Indigofera heterantha*, *Rosa macrophylla*, *Rosa webbiana*, *Berberis lyceum* and *Vibernum grandiflorum*. This forest community of mixed coniferous forest forms the core area of the Khonmoh conservation Reserve.



Figure 18. The mixed Coniferous vegetation of Khonmoh conservation Reserve





TEMPERATE DECIDOUS FOREST

The temperate deciduous forest are mainly composed of the deciduous broadleaved trees. This forest community forms an important component of the Khonmoh conservation Reserve and is very crucial for the survival of the animals as well as avian diversity. The trees of this community mainly include trees such as *Quercus robur, Morus alba, Morus nigra, Robinia pseudoacacia, Salix alba, Salix nigra, Ailanthus altisima, Aseculas indica, Juglunas regia, Juglunas nigra, Rhus succedanae* and *Populas alba.* Several shrubs such as *Indigofera heterantha, Berberis lyceum, Berberis aristata, Rubus niveus, Rosa webbiana* and *Vibernum grandiflora* intercept the forest community. The temperate deciduous forest forms an important feeding and breeding habitat of the most the faunal diversity found in the conservation reserve.



Figure 19. Temperate deciduous forest area of the Khonmoh Conservation Reserve







GRASSLANDS AND SCRUBS

The temperate grasslands and scrubs are the vast stretches of the open lands particularly in the beats of the Zawur and Safad Bal. These two beats are literally devoid of the tree vegetation but have luxuriant ground vegetation. The area of these two beats have vast stretches of the grasslands and scrublands and mainly lies at altitudinal range of 1800 - 2800 m. These grass and scrublands are at places intercepted by the broadleaves particularly Robinia pseudoacacia, Parrotiopsis jacquemontiana, Prunus ceracifera, Celtis australis and Ulmus spp. These scrubs and grasslands are having diversified ground flora and include many xerophytic species. The ground flora mainly consists of the species such as Indigofera heterantha, Rosa webbiana, Rubus niveus, Rosa brunonii, Koleuria cristata, Lonicera quinquelocularis, Geranium nepalensis, Dispsacus mitis, Dactylis gloerate, Colchicum luteum, Stipa sibirca, Zizyphus anathera, Fragaria versa and Kocleuria cristata sparsely cover the vast stretches of the scrub and grasslands. Besides these, there are many species of the families of Rananculaceae, Cruciferae, Compsitae and Caryophyllaceae. The Guryul nallah flowing through the Safad Bal has luxuriant vegetation of the broadleaved species such as Ailanthus altisima, Robinia pseudoacacia and Vibernum grandiflora. The source of the water in the Guryul nallah are two water, springs which provide water not only to the wildlife creatures of the conservation reserve but is the main source of drinking water to the people of Khonmoh and industrial units present in the area.

These scrubs and grasslands are very rich in the herbs and medicinal plants such as *Primula spp., Anemone spp., Fritillaira spp., Iris spp.* and *Gentiana spp.* This type of habitat is extremely important for the survival of the most species particularly RET species of the conservation Reserves. This habitat is extremely important for many animal species as it serves source of food reservoir particularly during the summer season. The management of this habitat is extremely important as it is under constant grazing pressure from the cattle of migrant tribe's men during the summer season. The management of this type of the herds of the nomads trespass through this area to venture in the alpine pastures of the Dachigam National Park. Thus, the proper management and strict vigil of these grazing routes of this habitat and area in the Khonmoh conservation Reserve will reduce the pressure on the alpine





and sub – alpine pastures of the Dachigam National Park, which in turn will be very helpful in the long-term survival of the Hangul.

The scrub and grasslands also harbor a great deal of avian diversity. The main birds found in this area include Chukar partridge, Koklas pheasant, Fire fronted siron, Rufous bellied niltava, variegated laughing thrush, Breaded vulture, long – legged vulture and many others.











Figure 20. The scrub lands of the Khonmoh Conservation Reserve

2.3. FAUNA OF THE KHONMOH CONSERVATION RESERVE

The Khonmoh conservation Reserve is extremely rich in the faunal diversity and harbors a great variety of the vertebrates, invertebrates and squamate reptiles. The Khonmoh conservation Reserve is home to large number of species belonging to the various phyla of vertebrates, represented by the birds, mammals and reptiles. It holds a viable population of the "Critically Endangered" Hangul (*Cervus hanglu hanglu*), Asiatic Black Bear (*Ursus thibetanus*), Common Leopard (*Panthera pardus*), Himalayan Grey Langur (*Semnopithecus ajax*), Himalyan Yellow Throated Martin (*Martes flavigula*), Rhesus Macaque (*Macaca mulata*) and Kashmir Musk Deer (*Moschus cupreus*). The Khonmoh Conservation Reserve serves as an important corridor for the seasonal migration of the animals particularly Hangul in its relic





habitat of the greater Dachigam landscape. The maintenance and protection of the Khonmoh conservation Reserve and projecting it as an important corridor of the RET species of the greater Dachigam Landscape will greatly serve in the long – term conservation of the RET species particularly the Hangul.

2.4. PROBLEMS IN MANAGEMENT OF KHONMOH CONSERVATION RESERVE

The Khonmoh conservation Reserve faces a great deal of problems and managing these problems is a great managmental task.

- 1. Industries: There are various industrial units located in close proximity of the Khonmoh Conservation Reserve. These industrial units mainly include the cement plants, which acquire the raw material from the vicinity area through quarrying and mining by blasting the area. The blasting sounds in these quarrying sites is huge disturbance to both the animals and the avian diversity of the Khonmoh conservation Reserve. Beside the Air Quality Index (AQI) of the area is bad as the cement factories and other industrial units emit many pollutants. The mining activities carried out by the industrial units particularly the cement plants for raw material like lime and sand stone increases the chances of the wildlife habitat degradation in the Khonmoh conservation reserve. These mining activities have devastating effects particularly on the important corridors of the Hangul. The mining activities and the air pollution of these industrial units should be properly regulated by forming a proper liaison between the Department of wildlife protection, Department of Geology and Mining and the Pollution control Broad.
- 2. Stone quarrying and mining: Numerous industrial units and cement factories, which acquire raw material through quarrying and mining near conservation reserve, which results in habitat fragmentation and degradation, surround the Khonmoh Conservation Reserve. These activities of stone quarrying and mining for rich lime stone, sand stone and shale are responsible for the encroachment apprehensions in the conservation reserve.
- 3. **Grazing** :- The problem of the grazing is still persistent in some areas of the Khonmoh conservation Reserve particularly the beats of Safad Bal and Zawur are still used as grazing routes by both the local and the migrant grazers. The migrant grazers like Gujjars and





Bakarwals with thousands of their livestock folks tress pass through the conservation reserve to venture in to the alpine pastures of the Dachigam National Park. The strict vigilance and setting up of proper anti – grazing camps at the appropriate places will be of immense importance on regulating the apprehensions of grazing in Dachigam National Park and reducing the biotic pressures for the long – term survival of Hangul and other RET species of the greater Dachigam landscape.

- 4. **Poaching:** owing to the continuous and strict patrolling of the frontline staff, the apprehensions of the poaching have been greatly reduced largely. However, owing to the great diversity of the mammals and birds particularly of the RET species there are always chances of poaching, particularly when the area of conservation reserve is bounded by huge zone of influence and surrounded by the industrial units. The Khonmoh conservation reserve serves greatly as important corridor to the Hangul, the conservation, protection and maintenance of this important corridor will be of great significance for the long term survival of the Hangul and other RET species.
- 5. Boundary Delineation :- The areas of the Khonmoh conservation Reserve is rich in the mineral deposits such as lime stone, sand stone, shale and other such minerals which are extensively used by the cement factories as the raw material hence there are always apprehensions of the encroachment around the conservation reserve. There should be proper and well-established liasioning between the Department of Wildlife Protection and Department of Geology and Mining to control the apprehensions of the encroachment in and around the conservation reserve.

2.5. MANAGEMENTAL INTERVENTIONS OF THE KHONMOH CONSERVATION RESERVE

2.5.1. BOUNDARY DELINATION AND FENCING

The most the area of the Khonmoh conservation Reserve is properly and digitally demarcated. However, at certain places the proper digital demarcation is yet to take place. During the current management plan period following prescriptions are proposed regarding the boundary delineation and boundary fencing:





- Proper demarcation of the areas where demarcation is still pending using the GPS and GIS technology
- Proper fencing of the boundary at the strategic points. The type of fencing may depend on the area concerned. The proper fencing around the boundaries will greatly help in mitigating any apprehension of encroachment.
- Name of block, compartment number and number of pillar should be inscribed on the pillars and record maintained in the office. Wildlife warden, Range officers should regularly check these boundaries during their routine inspection of the area
- Coordination should be established with the Revenue authorities and forest department for proper correction of records pertaining to land and boundaries of the conservation reserve. In addition to this status of land around the conservation, reserve should also be evaluated in order to monitor the activities in adjoining areas.
- Proper liaison between Department of Wildlife Protection and Department of Geology and Mining to sort out status of leased out land and to control the apprehensions of the encroachment by the industrial units for acquiring raw material. The Department of Wildlife Protection should well intimidated in advance before issuing any lease on mining or quarrying.

2.5.2. CONTROL OF GRAZING AND OTHER BIOTIC PRESSURES

The Khonmoh conservation Reserve is an important grazing corridor and frequently used route by the nomadic grazers to tress pass in to the upper alpine pastures of the Dachigam National Park. The proper management and strict vigilance of the grazing routes of the Khonmoh conservation reserve will greatly help in reducing the biotic pressure in the greater Dachigam landscape. The frequently used route by the nomadic grazers is from Khonmoh through Safad Bal to Brain Nishat who eventually venture in the upper alpine pastures of the Dachigam National park. These livestock thus increase the competition in food as well as the shelter as wild animals are forced to share common niche with the livestock. Besides these livestock are a potent source of the infection, which is communicable to the wildlife species, particularly the **"Critically Endangered"** Hangul.





The following prescriptions are proposed during the plan period to control the pressure of grazing:

- Mapping of the grazing routes commonly followed by the grazers through Khonmoh conservation reserve as it will be of great help to control the grazing by setting up grazing camps at appropriate places.
- As the menace of illegal grazing is more persistent during the summer season, grazing camps will be setup at all vulnerable places.
- A proper survey of livestock population in the zone of influence should be initiated to formulate a scheme for immunization of livestock.
- Providing proper incentives, medicine, flashlights and proper gears to the staff performing duties at anti grazing camps.
- Proper liasioning with the district administration to avert the grazing routes through conservation reserve and into the Dachigam National Park

2.5.3. CONTROL OF POACHING

- Anti- poaching camps will be setup in critical locations especially in upper reaches in both summer and winter. These camps will have a special focus on the corridors used by the animals particularly Hangul to ensure a safe passage in its landscape habitat.
- The Range officer will divide areas into patrolling units and communicate the perambulation schedule to the field staff on monthly basis for implementation under intimation to wildlife warden office.
- All existing patrolling paths will be cleared once a year at least to provide safe movement to field staff for patrolling.
- Proper mapping of these paths will be done and if required new alignment of patrolling paths for effective patrolling will be done.
- Providing all basic logistic to field staff such as wireless equipment, if possible, flashlights and cells, GPS, binoculars, camera summer and winter gears etc.
- The Range officer will conduct frequent checks followed by surprise checks by wildlife warden.





• All the people living in the fringe areas of the Khonmoh conservation reserve and having firearms will be necessarily made to register with the concerned police station. There is strong need to create database of all those persons who own firearms. This will serve as great check on poaching apprehensions. There is a need for strict compliance of provisions suggested in different sections of the Indian Wildlife Protection Act, 1972.

2.5.4. HABITAT MANAGEMENT AND IMPROVEMENT

The following prescriptions will be followed during the plan period as a part of the Habitat management and improvement:

- Artificial waterholes to be constructed in areas with little or no accessibility to animals to the natural water sources based on the studies of the animal movement or rutting or other activity in that area. This managmental intervention regarding the habitat management is very crucial in the Khonmoh conservation reserve as there is no perineal water source available in the protected area and all the nallahs and streams flowing through the conservation reserve are seasonal and rain fed.
- Plantation of the trees particularly the fruit bearing trees in the areas devoid of such plantation or less regeneration rate. The fruit bearing trees will be planted in mixture with the coniferous trees.
- Eradication of the weeds and unpalatable grasses such as *Solenanthus circinatus, Stipa siberica, Euphorbia spp., Isodon plectranthus* and other such species in the animal habitat and corridors which are unpalatable to the animals
- Plantation of indigenous grass species through patch sowing and seed balls
- Identification, protection, improvement and maintenance and the mapping of important wildlife corridors passing through the Khonmoh conservation reserve
- Planting of indigenous nutritive grass species such as Red and white clover in place of unpalatable species in the grass and scrub land areas of the Khonmoh conservation reserve
- Construction of check dams the check dams will be constructed using the locally available materials in the high priority areas.





• DRSM works should be used to create bunds in order to prevent the divergence of water which can be effectively used for management of the artificially created waterholes

2.5.5. FIRE MANGEMENT

The fire is one the major destructive factors which greatly hampers the wildlife habitat. Therefore, fire management has to be given central focus in order to manage and mitigate its effects. The fire is said to be **"Good Servant, but Bad Master"**, that is if used as control burning can be a great managemental tool but if uncontrolled it can have devastating effects on the wildlife habitat.

The following are general Strategies for implementation of fire protection measures in the Khonmoh conservation reserve:

- The fire lines will be created and maintained in all the fire prone areas especially in the scrub and grasslands, which are considered comparatively more fire prone than other areas.
- The fire protection camps will be used for the camping of firefighting squad during the fire season. The temporary structures will be set up in all fire vulnerable areas to detect and prevent the spread of fire from the human habitation around the conservation reserve.
- A team shall be put at constant patrolling around and in close proximity of industrial units which frequented by many people and vehicles.
- The fire watchtowers shall setup in the fire prone areas and will be maintained periodically.
- Firefighting squads will be engaged throughout the season for efficient fire protection activities.
- The members of the participatory fire management will be from the fringe areas and will be involved in participatory fire management.
- Awareness campaigns are essential for preventing fire. Wildlife Warden will arrange awareness and training for the staff, local dependents before the fire season every year.





- Awareness campaigns may be arranged for fringe area people, school, colleges, and people's representatives on the impact of fires on forests and wildlife. This may be done by mass involvement of people in procession, talks, information display boards hoardings, banners, street play etc.
- Training programmes for staff, and other members of the community involved in fire protection shall be organized and liasioning in this regard shall developed with department of fire and Emergency.
- The equipments like gumboots; fire resistant suit etc. may be procured and made available to the fire management groups.
- Incidents of fire shall be documented and shall be reported promptly to regional wildlife warden and Chief Wildlife Warden. Controlled pre-burning areas will be mapped and GPS documented to assess their impact and to streamline future activities.
- Controlled pre burning of the grasslands to avoid accidental and sudden destructive effects of the uncontrolled fire

2.5.6. HUMAN – WILDLIFE CONFLICT

Large number of villages and industrial units surrounds the Khonmoh Conservation Reserve. Owing to such huge zone of influence, there are always apprehensions of the Human – wildlife conflict. The Khonmoh conservation Reserve is one of the important corridors of animals such as Asiatic Black Bear and Common Leopard, which are commonly involved in the Human – wildlife conflict.

During the current plan period, the following strategies are proposed to tackle the everincreasing Human – wildlife conflict:-

- Formation of Rapid response team equipped with latest tools
- To grant exgratia in case of injuries or mortalities without much delay
- Encourage people in the fringe areas of the conservation reserve for crop insurance
- Proper fencing of the conservation reserve near close Human habitations
- Maintenance of old trap cages and procurement of new ones
- Maintenance of vehicles used in Human wildlife conflict and their POL
- Procurement of the Tranquilizing guns, medicines and other equipments





• Education and mass awareness among the people especially those living in the fringe areas of the conservation reserve

2.5.7. INFRASTRUCTURE AND CAPACITY DEVELOPMENT

At present, there is one building in the Khonmoh conservation reserve, which serves office as well as the staff quarter. During the plan period, it is proposed to construct the following infrastructure for better management of the protected area.

- Anti poaching control room / staff quarter 1 in number
- Fire watch tower at Chak two in number
- Common staff quarter of Khar Hanjin and Dater Pathri one in number

Besides certain bridges / culverts will constructed and maintained over the plan period.

2.5.7. ECO – TOURISM DEVELOPMENT

There is great scope for the eco – tourism development activities in the Khonmoh conservation Reserve.

- Action plan for existing trekking routes shall be put in action and identification of new ones along with the camping sites should be done
- The beat of Safad Bal will be developed as trekking destination which has huge potential to be one of the best trekking destinations of Kashmir
- Protection and education oriented limited trekking, trekking and camping programmes for school and college students





CHAPTER THREE

BRAIN NISHAT CONSERVATION RESERVE

3.1 INTRODUCTION

The Brain Nishat Conservation Reserve is one of the important buffer zones surrounding the Dachigam National Park. The Brain Nishat Conservation Reserve was notified as the conservation reserve on 17 - 07 - 1945 vide cabinet order number 710 - C of 1945, 17 - 05 -1945. The Brain Nishat Conservation Reserve encompasses an area of 15.75 Km². It lies approximately 14 Km from the heart of Srinagar city. The Brain Nishat conservation Reserve comprises of three beats viz, Brian, Nishat and Shalimar. The entire conservation reserve of Brain Nishat is located on the scenic and beautiful Zabarwan hills. Some of the historical monuments and famous Mughal gardens surround the Brain Nishat Conservation reserve. The Brain Nishat Conservation Reserve is an important component and corridor of the Greater Dachigam Landscape. It harbors a great deal of the diversity in the floral and faunal components. The protection, maintenance and development of the Brain Nishat conservation Reserve is very crucial in determining the long - term survival of the most of the RET species and the "Critically Endangered" Hangul (Cervus hanglu hanglu) in particular as it is most commonly and most frequently used corridor in the greater Dachigam Landscape owing its close proximity to the Dachigam National Park. Besides having a great diversity of the floral and faunal components, it is unique in the avian diversity including both indigenous and migratory birds.

The Brain Nishat Conservation Reserve experience a temperate climate with great monthly variation in the air temperature and humidity. There are generally four seasons experienced in the conservation reserve *viz*, spring, summer, autumn, winter. There is a great





variation in the precipitation and dryness received by the conservation reserve over the year. The snow is the main source of the precipitation in the Brain Nishat Conservation Reserve. Besides this there are perineal water streams flowing through the conservation reserve. The minimum temperature of the conservation reserve fall below the 0^{0} C and in winter months may fall as low as -6^{0} to -8^{0} C. The maximum temperature in the conservation reserve id received during the summer month and may reach to 32^{0} C. Thus, the minimum and maximum temperature range (In extreme variations id from -6^{0} C to 32^{0} C.

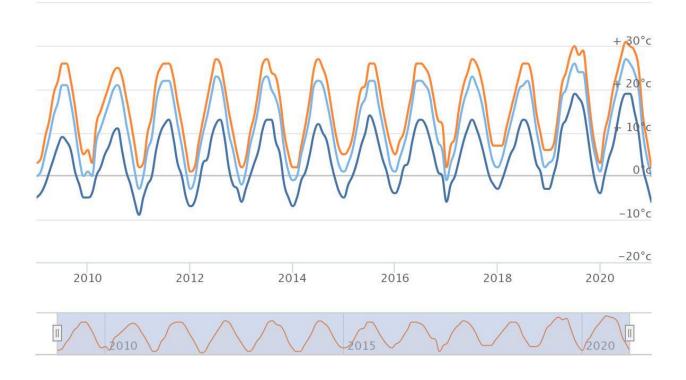


Fig.21. Average Temperature of the Brain Nishat Conservation Reserve over past 10 years

The Snow is the main source of precipitation and is received in the winter season from the months of November to March. The meteorological data obtained from the IMD Srinagar shows that maximum snow is recorded during the month of January followed by December and February. The Brain Nishat conservation reserve receives an approximate average annual rainfall





of 550 mm. The maximum rainfall is received during the spring and winter months particularly during the months of February, March, April and May.

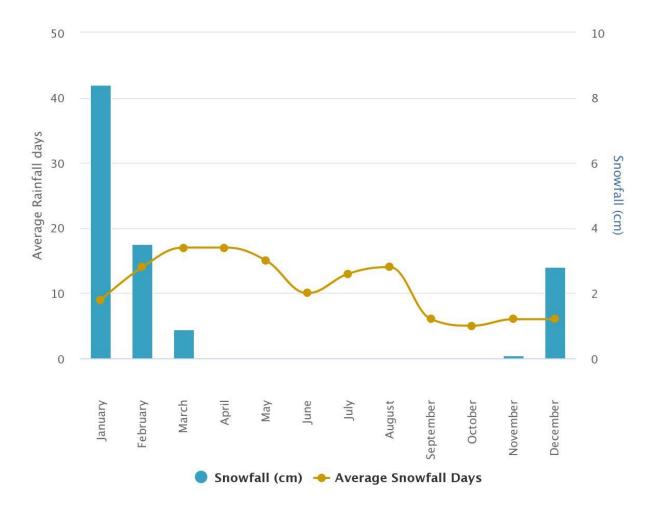


Fig 22. Average snowfall in Brain Nishat Conservation Reserve

The soils of the Brain Nishat Conservation Reserve are the course-grained soils having little or no cohesiveness and are often called as Granular. As these soils are unable to hold the





moisture there are always chances of slides in the area. The Brain Nishat conservation Reserve lies in the lap of the great Himalyan range, which are considered to be the youngest mountain ranges in the world, and thus the soils are pre – mature. The soils in the certain riverine areas are loamy to sandy loam, which support a luxuriant broadleaved vegetation. However, at most of the areas it is devoid of tree cover as the soils are less cohesive mixed with small rocky elements. These support mostly certain limited number of vegetation particularly scrubs and bushy type of vegetation.

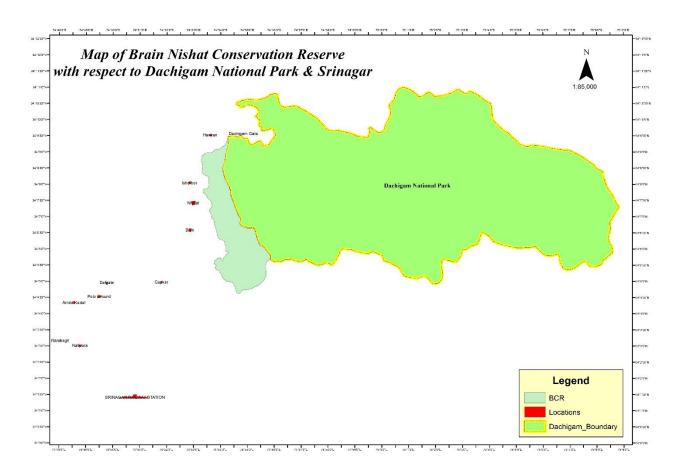


Fig.23. Location of Brain Nishat Conservation Reserve with respect to Dachigam National Park and Srinagar





The Brain Nishat Conservation reserve lies in close proximity of the Dachigam National Park and is an important habitat and wildlife corridor in the greater Dachigam landscape and is very rich in the biodiversity.

The Brain Nishat Conservation Reserve is an important habitat and corridor for the species such as Hangul (Cervus hanglu hanglu), Asiatic Black Bear (Ursus thibetanus), and Kashmir Musk Deer (Moschus cupreus). It also holds a viable population of Himalayan Grey Langur (Semnopithecus ajax), Rhesus macaque (Macaca mulata), Red Fox (Vulpes vulpes), Golden Jackal (Canes aureus). The Brain Nishat Conservation Reserve also holds a good population of the small mammals such as Himalayan Yellow Throated Martin (Martes flavigula), Himalayan weasel (Mustela altaica), Himalayan Marmot (Mormota himalayana) and Indian Grey Mongoose (Herpestes edwardsi). The Brain Nishat Conservation Reserve is rich in the floral diversity having the floral range from xerophytic species in the scrub areas to the broadleaved vegetation in the riverine areas and nallahs, luxuriant coniferous vegetation on the hilltops. The close proximity of the Brain Nishat Conservation Reserve to the Dachigam National Park along with the number of Mughal gardens surrounding the conservation reserve it attracts a considerable number of Eco - tourists. The lush green forests of the Brain Nishat Conservation Reserve on the Zabarwan hills is great treat and serve as the lungs of the Srinagar city. The Brain Nishat Conservation Reserve is one the prime catchment areas of the world famous Dal Lake.





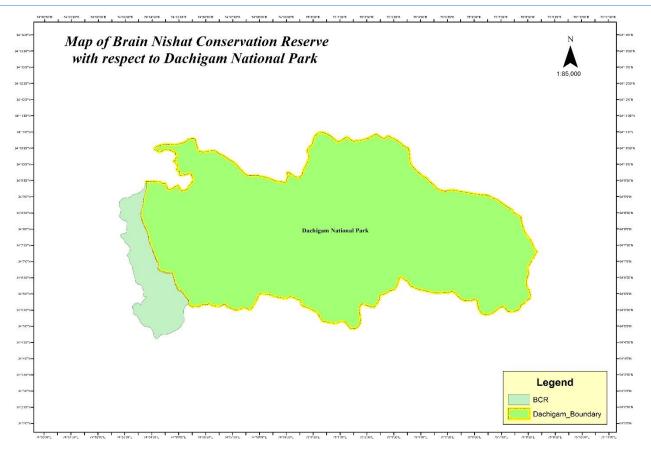


Fig.25.Location of Brain Nishat Conservation Reserve with respect to Dachigam National Park

3.2. VEGETATION OF THE BRAIN NISHAT CONSERVATION RESERVE

The Brain Conservation Reserve comprises of three beats *viz*, Brain, Nishat and Shalimar. All the beats of the Brain Nishat Conservation Reserve are having a different vegetation ranging from the xerophytic species in the scrub areas, broadleaved vegetation in the riverine areas and coniferous vegetation in the hills. It also have a great vegetation in sub – alpine regions in the form of Rhododendron and Betula species. The alpine pasture areas are extremely rich in the herbaceous vegetation. The dominant conifers include Himalayan Blue Pine (*Pinus wallichiana*), Deodar (*Cedrus deodara*), Himalayan Yew (*Taxus wallichiana*), *Picea simthana* and *Abies pindrow*. The conifers particularly the *Pinus wallichiana* avoid the southern aspects of the Brain Nishat conservation Reserve but a luxuriant vegetation is found on the other





aspects of the conservation reserve. The broadleaved vegetation mainly include the species such as *Salix alba*, *Populas cilita*, *Morus alba*, *Morus nigra*, *Salix tetrasperma*, *Ailanthus altisima*, *Rhus succedanae*, *Celtis australis*, *Celtis Caucasia*. The sub – alpine areas are rich in species like Rhododendron (*Rhododendron arboretum*), Himalayan Birch (*Betula utilis*). The tree vegetation of the Brain Nishat Conservation Reserve is intricately intercepted by the shrub species such as *Vibernum grandiflorum*, *Indigofera heterantha*, *Parrotiopsis jacquemontiana*, *Rubus niveus*, *Rosa webbiana*, *Rosa indica*, *Berberis lyceum*, *Berberis aristata*, and many other such species. The alpine and sub – alpine areas are very rich in medicinal and other grass species.



Fig.26. Vegetation map of Brain Nishat conservation Reserve through Google Earth

The vegetation of the Brain Nishat Conservation Reserve can be grouped as Temperate, Sub – alpine and alpine as per new and revised classification of the Champion and Seth (Champion and Seth, 1968). The vegetation of the Brain Nishat Conservation Reserve can be broadly classified as:

- Broadleaved Deciduous vegetation
- Coniferous Vegetation
- Scrubs and grasslands
- Subalpine vegetation





BROADLEAVED DECIDOUS VEGETATION

The broadleaved deciduous vegetation is mostly found along the nallahs and other riverine areas. This forest type is mostly composed of the broadleaved species, which shed their leaves annually. This type of forest community of mostly dominant in the altitudinal range of 1800 - 2400 m. The dominant trees of this community mainly include trees such as Quercus robur, Morus alba, Morus nigra, Robinia pseudoacacia, Salix alba, Salix nigra, Ailanthus altisima, Aseculas indica, Juglunas regia, Juglunas nigra, Rhus succedanae and Populas alba. Several shrubs such as Indigofera heterantha, Berberis lyceum, Berberis aristata, Rubus niveus, Rosa webbiana and Vibernum grandiflora intercept the forest community. The Broadleaved deciduous vegetation is an important component of the habitat and food resource of the majority of the wild animal species. It is important source of food and shelter to the species such as "Critically Endangered" Hangul (Cervus hanglu hanglu), Endangered Himalayan Grey Langur (Semnopithecus ajax), Black Bear (Ursus thibetanus) and other small mammals. The Broadleaved deciduous forests also harbor a great deal of the avian diversity and the common birds reported in this forest type include Streaked Laughing Thrush, Variegated Laughing Thrush, Plain Mountain Thrush, Orange Bullfinch, Mistle Thrush, Cinereous Tit, Green Backed Tit, Plumbeous water Redstart, Himalayan Blue tail, Himalayan woodpecker and many other avian species.





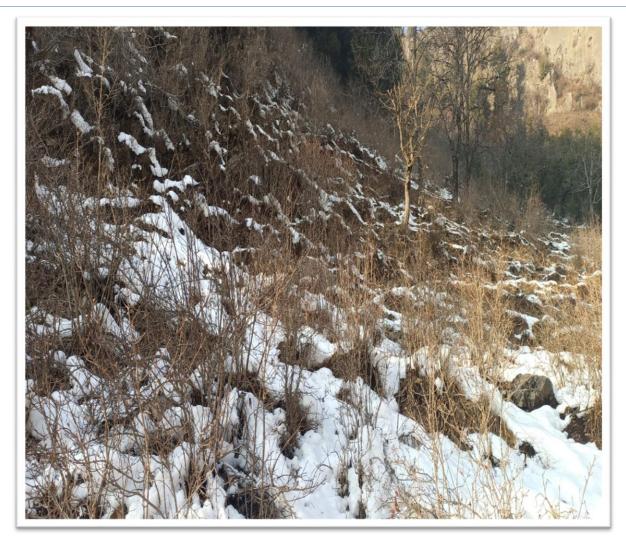


Fig. 27. Broadleaved riverine vegetation of the Brain Nishat Conservation Reserve

CONIFEROUS VEGETATION

The Brain Nishat Conservation reserve has good coniferous vegetation and the hilltops are mostly dominated by many coniferous species. The coniferous vegetation in the Brain Nishat Conservation Reserve is not continuous one but are mostly found in patches. The beat of Brain and the areas of Samel nallah and Gobel nallah are extremely rich in the coniferous vegetation. The Himalayan Blue Pine (*Pinus wallichiana*) is the most dominant conifer of the Brain Nishat conservation Reserve. The patches of the Pinus wallichiana are reported in the altitudinal zone of 1900 – 2600 m particularly along the North – west direction. A good regeneration rate of the





coniferous vegetation is an excellent indication of the long – term sustainable ecosystem as *Pinus wallichiana* is having highest Important Value Index (IVI) among the tree species in the greater Dachigam landscape. At many places the patches of the *Pinus wallichiana* is intercepted by many broadleaved species such as *Parrotiopsis jacquemontiana*, *Juglunas regia*, *Rhus succedanae*, *Aseculas indica*, *Ailanthus altisima* and many other *Prunus* species. These tree species are intercepted by many shrub species such as Himalayan Ivy (*Hedera nepalensis*), *Indigofera heterantha*, *Berberis lyceum*, *Berberis aristata*, *Rosa webbiana*, *Rubus niveus* and many other such species.

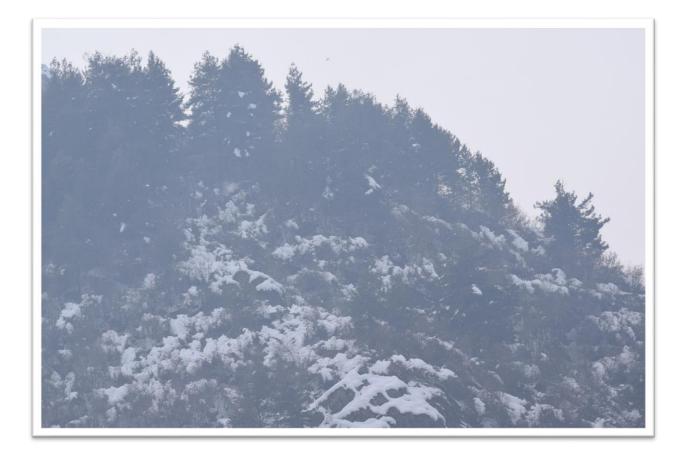


Fig.28. Coniferous vegetation of Brain Nishat Conservation Reserve

The coniferous vegetation of is very important habitat for most the fauna of the Brain Nishat Conservation Reserve particularly the Kashmir Musk Deer (*Moschus cupreus*) which is peculiar





feature of this conservation reserve. The other animals found in this type of habitat include Hangul (*Cervus hanglu hanglu*), Black Bear (*Ursus thibetanus*) and many other smaller mammals such as Himalayan yellow Throated Martin (*Martes flavigula*), Himalayan weasel etc. This type of habitat is also rich in the avian diversity and commonly found birds include Koklas pheasant, Himalayan Monal, Himalyan Black Bulbul, Kashmir flycatcher, Kashmir Nutach and many other such bird species.

SCRUB AND GRASSLANDS

The scrubs and grasslands are the vast stretches of lands usually devoid of the tree component but rich in the shrub, herb and other bushy vegetation. This type of vegetation is most prominent in the south - west aspects of the conservation reserve with an average altitudinal range from 1800 – 2800 m. The scrub and grasslands are most conspicuous features of the Nishat and Shalimar beats of the Brain Nishat conservation reserve. At many places, the thickets of the broadleaved species comprising of Chinar (Plantis orientalis), Robinia pseudoacacia, Celtis australis, and Ulmus wallichinea intercept these scrubs and grasslands. The scrubs and grasslands are extremely rich and diversified in herbaceous and shrub components. The commonly found species include Indigofera heterantha, Rosa webbiana, Rubus niveus, Rosa burnonii, Kocleuria cristata, Lonicera quingelocularis, Geranium nepalensis, Dipsacus mitis, Dactylis gloerate, Colchicum luteum, Stipa sibirica, Zizypus anathera, Fragaria verca, Kocleuria cristata sparsely cover these open stretches. The scrub and grassland areas of the Brain Nishat conservation reserve are very important from the managmental point of view as these are the common routes followed by the nomadic grazers to venture into the high land pastures of the Dachigam National Park. The temperate grasslands and scrublands form an important habitat and food source for many animal species. There have been fire incidences in recent past in the habitats of temperate grasslands and scrublands. The Conservation and well maintenance of this habitat will be very helpful in the long-term conservation of the Hangul. The scrub and grasslands are important habitat of the avian diversity found in the Brain Nishat Conservation Reserve.







Fig. 29. The scrub vegetation of Brain Conservation Reserve





SUBALPINE VEGETATION

It is the vegetation zone found above the mountain belt but below the alpine pasture belt. This type of vegetation is found on an elevation of more than 3500 m altitude. The dominant tree species of this forest community include *Betula utilis*, *Rhododendron anthopogon*, *Syringa emodi*, and *Juniperus recura*. The dominant shrub species of the Sub – alpine vegetation of the Brain Nishat Conservation Reserve include the species such as *Fragaria vesca*, *Stachys sericea*, *Sieversa* etc. The presence of the Himalayan Birch (*Betula utilis*) is the conspicuous feature of this type forest community. The sub – alpine forest and pastures of the Brain Nishat Conservation Reserve serves important grazing ground and corridor for the "Critically Endangered" Hangul (*Cervus hanglu hanglu*) and "Endangered" Kashmir Musk Deer (*Moschus cupreus*).

3.3. FAUNA OF BRAIN NISHAT CONSERVATION RESERVE

The Brain Nishat Conservation Reserve is very diverse in harboring the biodiversity and is an important and frequently used corridor by all the RET species of the greater Dachigam Landscape particularly the Hangul, Black Bear and Common Leopard. Its diversity is reflected by the presence of the many species of the vertebrates, invertebrates and vast variety of insects and butterflies. The Brian Nishat conservation reserve also harbors great avian diversity, which include both the indigenous and migratory species. The Brain Nishat conservation Reserve is an important habitat and corridor for the variety of species. It holds populations of Hangul (*Cervus hanglu hanglu*), Black Bear (*Ursus thibetanus*), Common Leopard (*Panthera pardus*), and Kashmir Musk Deer (*Moschus cupreus*). It is frequently used corridor for the brain Nishat Conservation Reserve and projecting it as the main corridor of the greater Dachigam landscape will greatly help in devising the long – term strategies for the RET species of the greater Dachigam landscape.





3.4. PROBLEMS IN MANAGEMENT OF BRAIN NISHAT CONSERVATION RESERVE

The managmental problems faced by the Brain Nishat Conservation Reserve are as follows:

3.4.1. Boundary Delineation demarcation and fencing:-

The major constraint in the management of the Brain Nishat Conservation Reserve is the boundary delineation, demarcation and Fencing. The lack of demarcation has greatly increased the apprehensions of the encroachments in the conservation reserve. The orchards lying close to the conservation reserve serve as agency of problems as the owners are always having ill ambitions of encroachments. The proper delineation, demarcation and fencing of the conservation reserve will be great boon in the management of this conservation reserve.

3.4.2 Human – wildlife Conflict:-

With increasing human population and pressure on the forests the Human – wildlife and subsequent interactions are increasing day by day. Human-wildlife conflict in Kashmir region of UT Jammu & Kashmir is a conservation concern that increasingly threatens the continued existence of some species like leopard and Black bear. The increasing population with subsequent encroachment on wild land has resulted in close proximity between humans and wild animals, which most often results in a negative outcome for humans, wildlife or both. The need to handle conflict has become a challenging job for the department. The Brain Nishat conservation has strategic importance as it lies close to the Srinagar city and mitigating the Human – wildlife conflict in such as huge zone of influence is great managmental challenge. The ranging of the wild animals particularly Black Bear and Common leopard outside the natural habitat is major cause of the Human – wildlife conflict around the famous Dal lake as well as Srinagar city.

3.4.3 Poaching: -

Although the poaching has drastically came down owing to the strict vigilance and patrolling by the frontline staff of the Department, however there are always the apprehensions of the





poaching particularly the RET species as the conservation reserve is surrounded by huge zone of influence. There is need of strict vigilance and protection in the Brain Nishat conservation reserve as it an important wildlife corridor in the greater Dachigam landscape.

3.4.4. Grazing and other Biotic pressure:-

The Brain Nishat conservation Reserve faced great biological pressures from the livestock of the nomadic grazers particularly during the summer season. The Brain Nishat is the commonly used grazing route by these nomadic grazers who venture into the highland pastures of the Dachigam National Park. These herds of livestock not only increase the competition in the food and space but are also a potent source of the diseases, which are communicable to the wild animal species. The strict vigilance, management and divergence of the herds of livestock grazing routes avoiding through the conservation reserve will greatly enhance the food resource of the greater Dachigam landscape, decrease competition in food and space and will be helpful in devising the long – term strategies for the conservation of the RET species.

3.4.5. FIRE:-

The scrub and grasslands areas of the Brain Nishat Conservation Reserve area are susceptible to fires particularly during the dry season. The uncontrolled fires in the conservation reserve may also pass to the Dachigam area, which can cause a considerable damage to the flora as well as fauna. The proper laying of fire, fire paths and the control burning will be of great managmental help in mitigating the adverse effects of the uncontrolled fires.

3.4.6. Boundary demarcation and delineation:-

There is an ambiguity in the in the boundary delineation of the conservation reserve. The boundaries of the conservation reserve are to be carefully checked and clearly mapped used the GIS and GPS technology. All the existing boundary pillars in the artificial boundaries to be regularly checked and new pillars in the artificial boundaries to be regularly checked and new pillars should be erected on compartments and blocks wherever required to avoid confusion. Beat maps showing clear boundaries and other important features should be maintained.





3.4.7. Lack of co - ordination between various line departments:-

Liaison should be established with the Revenue authorities, forest department for proper correction of records relevant to lands allotted to the park management for different uses. Liaison with Revenue department will be helpful in clarify the confusions on the protected area boundaries.

3.5. MANAGEMENTAL INTERVENTIONS OF THE BRAIN NISHAT CONSERVATION RESERVE

3.5.1. HABITAT MANAGEMENT AND IMPROVEMENT

The wildlife habitat management is the manipulation or protection of the wild population to achieve a specific goal. The habitat management include the protection, maintenance and development of the habitat, enhancement of the food resources and availability, water management, eradication of the weeds and other unpalatable grasses.

During the current plan period, the following prescriptions will be followed for the enhancement of the habitat in the Brain Nishat Conservation reserve:-

- Identification, protection, improvement, maintenance, and the mapping of important wildlife corridors passing through Brian Nishat Conservation Reserve.
- DRSM works should be used to create bunds in order to prevent the divergence of water, which can be effectively used for management of the artificially created waterholes. The DRSM and check dams will specifically constructed in the Gobel nallah and Samel nallah.
- Artificial waterholes to be constructed in areas with little or no accessibility of animal to the natural water sources based on the studies of the animal movement or rutting or other activity in that area. Artificial waterholes can play a crucial role in the habitat management and improvement of the Brain Nishat Conservation Reserve.
- Plantation of the trees particularly the fruit bearing in the areas devoid of such plantation or less regeneration rate. The fruit bearing trees will be in mixture with the coniferous trees.





- Eradication of the weeds and unpalatable grasses such as *Solenanthus circinatus, Stipa siberica, Euphorbia spp., Isodon plectranthus* and other such species in the animal habitat and corridors which are unpalatable to the animals.
- Planting of indigenous nutritive grass species such as Red and white clover in place of unpalatable species.

3.5.2 BOUNDARY DELINATION AND FENCING

The most the area of the Brain Nishat conservation Reserve is properly digitally demarcated. However, at certain places the proper digital demarcation is yet to take place. During the current management plan period following prescriptions are proposed regarding the boundary delineation and boundary fencing:

- Proper demarcation of the areas where demarcation is still pending using the GPS and GIS technology.
- Proper fencing of the boundary at the strategic points. The type of fencing may depend on the area concerned. The proper fencing around the boundaries will greatly help in mitigating any apprehension of encroachment.
- Name of block, compartment number and number of pillar should be inscribed on the pillars and record maintained in the office. Wildlife warden, Range officers should regularly check these boundaries during their routine inspection of the area.
- Coordination should be established with the Revenue authorities, social forestry, Urban forestry and forest department for proper correction of records pertaining to land and boundaries of the conservation reserve. In addition to this status of land around the conservation, reserve should also be evaluated in order to monitor the activities in adjoining areas.

3.5.4 HUMAN – WILDLIFE CO – EXISTENCE

The Brain Nishat conservation reserve has very high intensity of the Human – wildlife conflict intensity owing to the close proximity to the vast tourist spots as well as Srinagar city. The following strategies are prescribed for effective mitigation of the Human – wildlife conflict;-





- Injury and death compensation cases shall be disposed off on top priority in a hustle free manner
- Rapid response teams shall be formulated to deal with human wildlife conflict in such a way that response time should appreciably decrease
- Each rapid response team must be equipped with a well maintained vehicle/ truck which can carry small and large animal trap cages
- Formulation of policy for compensation in case of crop damage

3.5.3. CONTROL OF GRAZING AND OTHER BIOTIC PRESSURES

The Brian Nishat Conservation Reserve is an important corridor and frequently used grazing route by the nomadic tribal people with herds of livestock to venture into the highland pastures of the Dachigam National Park. The proper control, management and vigilance of these commonly used grazing routes will not only decrease the biotic pressure on the conservation reserve but also in highland pastures of the Dachigam National Park. The proper control park. The presence of livestock greatly increase the competition for the food and space and are a potent source of the infectious diseases to the wild animals.

The following prescriptions are proposed during the plan period to control the pressure of grazing:

- Mapping of the grazing routes commonly followed by the grazers through Brian Nishat conservation reserve as it will be of great help to control the grazing by setting up grazing camps at appropriate places.
- As the menace of illegal grazing is more persistent during the summer season, grazing camps will be setup at all vulnerable places.
- A proper survey of livestock population in the zone of influence should be initiated to formulate a scheme for immunization of livestock.
- Providing proper incentives, medicine, flashlights and proper gears to the staff performing duties at anti grazing camps.
- The grazing check post will be installed at specific strategic points.





3.5.4. CONTROL OF POACHING

Owing to strict patrolling and vigilance by field staff of the department as well as proactive role played by the higher authorities, the poaching instances have come down to zero. However, threat perception persists particularly regarding the RET species of the greater Dachigam landscape. Therefore, the department has to equip itself adequately for all the meet challenges. It will require regular reinforcement and improvement of existing infrastructure and other measures. The Brain Nishat conservation reserve serves greatly as important corridor to the Hangul, the conservation, protection and maintenance of this important corridor will be of great significance for the long – term survival of the Hangul and other RET species.

The following prescriptions will be followed during the current management plan to control any apprehensions of poaching:

- Anti- poaching camps will be setup in critical locations especially in upper reaches in both summer and winter. These camps will have a special focus on the corridors used by the animals particularly Hangul to ensure a safe passage in its landscape habitat.
- The Range officer will divide areas into patrolling units and communicate the perambulation schedule to the field staff on monthly basis for implementation under intimation to wildlife warden office.
- All existing patrolling paths will be cleared once a year at least to provide safe movement to field staff for patrolling.
- Proper mapping of these paths will be done and if required new alignment of patrolling paths for effective patrolling will be done.
- Providing all basic logistic to field staff such as wireless equipment, if possible, flashlights and cells, GPS, binoculars, camera summer and winter gears etc.
- The Range officer will conduct frequent checks followed by surprise checks by wildlife warden.
- All the people living in the fringe areas of the Brain Nishat conservation reserve and having firearms will be necessarily made to register with the concerned police station. There is strong need to create database of all those persons who own firearms. This will





serve as great check on poaching apprehensions. There is a need for strict compliance of provisions suggested in different sections of the Indian Wildlife Protection Act, 1972.

3.5.5 FIRE MANGEMENT

The fire is one the major destructive factors which greatly hampers the wildlife habitat. Therefore, fire management has to be given central focus in order to manage and mitigate its effects. The following are general Strategies for implementation of fire protection measures in the Brain Nishat Conservation Reserve:

- The fire lines will be created and maintained in all the fir prone areas especially in the scrub and grasslands, which are considered comparatively more fire prone than other areas.
- The fire protection camps will be used for the camping of firefighting squad during the fire season. Temporary structures will be set up in all fire vulnerable areas to detect and prevent the spread of fire from the human habitation around the conservation reserve.
- A team shall be put at constant patrolling around and in close proximity of industrial units which frequented by many people and vehicles.
- The fire watchtowers shall setup in the fire prone areas and will be maintained periodically.
- Firefighting squads will be engaged throughout the season for efficient fire protection activities.
- The members of the participatory fire management will be from the fringe areas and will be involved in participatory fire management.
- Awareness campaigns are essential for preventing fire. Wildlife Warden will arrange awareness and training for the staff, local dependents before the fire season every year.
- Awareness campaigns may be arranged for fringe area people, school, colleges, and people's representatives on the impact of fires on forests and wildlife. This may be done by mass involvement of people in procession, talks, information display boards hoardings, banners, street play etc.





- Training programmes for staff, and other members of the community involved in fire protection shall be organized and liasioning in this regard shall developed with department of fire and Emergency.
- The equipments like gumboots; fire resistant suit etc. may be procured and made available to the fire management groups.
- Incidents of fire shall be documented and shall be reported promptly to regional wildlife warden and Chief Wildlife Warden. Controlled pre-burning areas will be mapped and GPS documented to assess their impact and to streamline future activities.

3.5.6 INFRASTRUCTURE AND CAPACITY DEVELOPMENT

The infrastructure development plays a pivotal role in the management and conservation of the wildlife-protected areas. At present, there are two staff quarters at the Brain Nishat conservation reserve – one newly constructed staff quarter at Brain and other old one at Shalimar. The staff quarter located at Shalimar is inhabitable and is in dire need of renovation. During the current plan period, it is proposed to renovate all the existing infrastructure buildings and staff quarters, besides to construct new ones for the effective management of the Brain Nishat Conservation Reserve.

Besides certain bridges / culverts will constructed and maintained over the plan period.







Fig.30. Newly constructed Staff quarter at Brain (Brain Nishat Conservation Reserve)



Fig.31. old staff quarter at Shalimar (Brain Nishat Conservation Reserve)





3.5.7 ECO – TOURISM DEVELOPMENT

Being located close to the Srinagar city there is an unregulated flow of tourists to the Brain Nishat conservation reserve. The close proximity to the Srinagar city, surrounded by the famous Mughal gardens and being main catchment of the world famous Dal lake are the factors making the Brain Nishat conservation reserve as an attractive Eco – tourism destination.

To harness the Eco – tourism potential of the Brain Nishat Conservation Reserve the following perceptions are proposed during the current plan period:

- The major trekking routes will be identified and developed in the Brain Nishat Conservation Reserve particularly in the Nishat beat to harness the vast potential of Eco – tourism and develop it as hub of nature based trekking.
- Protection and education oriented limited trekking, trekking and camping programmes for school and college students
- Implementation of eco-development activities, which will encourage alternative livelihood and resource use, conservation and protection of the protected area.
- Provide assistance for village eco-development program, which specify measurable feat by villagers to strengthen conservation efforts.





CHAPTER FOUR

KHIMBER DARA AND SHARAZBAL CONSERVATION RESERVE

4.1. INTRODUCTION

The Dara Khimber and Sharazbal Conservation Reserve is an important is an important buffer zone and wildlife corridor of the Dachigam National Park. The Dara Khimber and Sharazbal conservation reserve was declared as the conservation reserve on 17 - 07 - 19945 vide cabinet order number Notification || vide C.O. NO: 710 - C of 1945, 17 - 07 - 45. The Dara Khimber and Sharazbal encompasses an area of 34 Km². It lies at an approximate distance of the 20 Km from the heart of Srinagar city. The mountain peaks originating at the Khimber Dara and Sharazbal Conservation Reserve encompass the Dachigam National Park form its natural boundaries. The mountains originating in the conservation reserve have an average altitude of 2600 m to 3200 m. The entire conservation of the Khimber Dara and Sharazbal conservation reserve is located on the picturesque and scenic Zabarwan hills. The Khimber Dara and Sharazbal Conservation Reserve lies in close proximity of the Dachigam National Park and forms an important habitat and corridor of the greater Dachigam landscape. The Khimber Dara and Sharazbal Conservation Reserve harbors a great diversity in the floral and faunal component. The protection, maintenance and development of the Khimber Dara and Sharazbal Conservation Reserve is very crucial in determining the long – term survival of the most of the RET species and the "Critically Endangered" Hangul (Cervus hanglu hanglu) in particular as it is most commonly and most frequently used corridor in the greater Dachigam Landscape owing its close proximity to the Dachigam National Park. Besides having a great diversity of the floral and faunal components, it is unique in the avian diversity including both indigenous and migratory birds.





The climate of the Khimber Dara Sharazbal Conservation Reserve experiences temperate type of climate with high degrees of variation in the precipitation and dryness. The conservation reserve experiences two spells of the dryness one in June and another in September – November. There are generally four seasons experienced in the conservation reserve *viz*, spring, summer, autumn, winter. There is a great variation in the precipitation and dryness received by the conservation reserve over the year. The snow is the main source of the precipitation in the Khimber Dara and Sharazbal Conservation Reserve. There are several perineal water streams and nallahs flowing through the conservation reserve such as Darnar nallah and Dara nallah flowing through the Khimber Dara and Sharazbal Conservation Reserve. The minimum temperature of the conservation reserve fall below the 0^oC and in winter months may fall as low as -5° to -8° C. The maximum temperature in the conservation reserve id received during the summer month and may reach to 32° C.

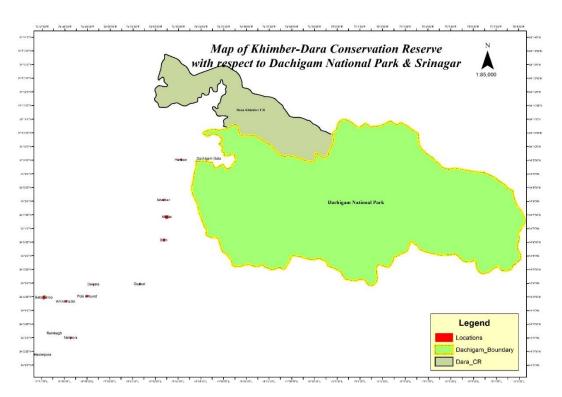


Fig.32. Map showing the location of Khimber Dara and Sharazbal Conservation Reserve with respect to Srinagar and Dachigam National Park







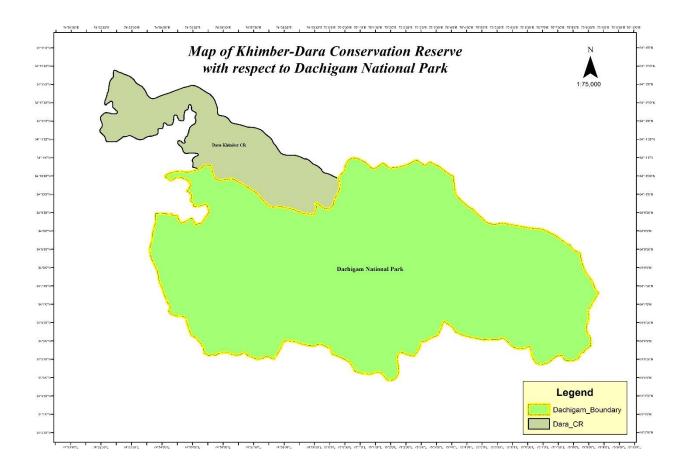


Fig.33. Map showing the location of Khimber Dara and Sharazbal Conservation Reserve with respect to Dachigam National Park

The Snow is the main source of precipitation and is received in the winter season from the months of November to March. The meteorological data obtained from the IMD Srinagar shows that maximum snow is recorded during the month of January followed by December and February. The Khimber Dara and Sharazbal Conservation reserve receives an approximate average annual rainfall of 550 mm. The maximum rainfall is received during the spring and winter months particularly during the months of February, March, April and May.

The Khimber Dara and Sharazbal conservation Reserve lies in the lap of the great Himalyan range, which are considered to be the youngest mountain ranges in the world, and thus the soils are pre – mature. The soils of the Khimber Dara and Sharazbal conservation Reserve are sandy loam to clayey loam with excellent texture and cohesiveness in most of the places except





in certain places of the Khimber area. The soils of the Khimber Dara and Sharazbal have good retentivity and thus have excellent vegetation gradient. However, at most of the areas in Khimber area it is devoid of tree cover as the soils are less cohesive mixed with small rocky elements mixed. These type of soils support mostly certain limited number of vegetation particularly scrubs and bushy type of vegetation.

The Khimber Dara and Sharazbal Conservation reserve lies in close proximity of the Dachigam National Park and is an important habitat and wildlife corridor in the greater Dachigam landscape. It is very rich in the biodiversity and harbors great diversity of the RET species.

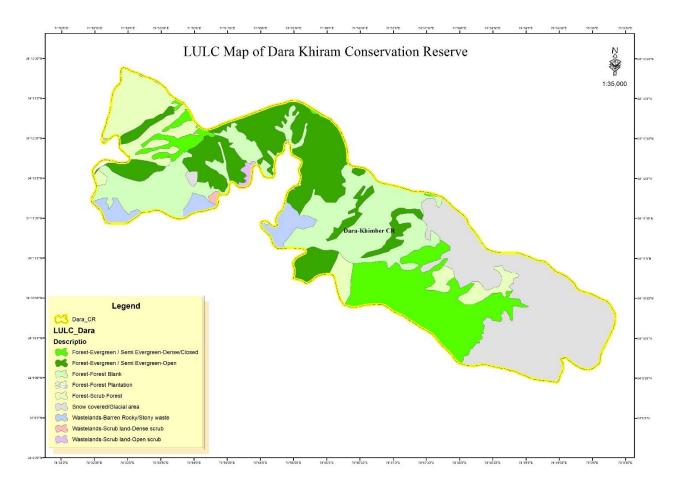


Fig.34. Land use and Land cover map of Khimber Dara and Sharazbal Conservation Reserve





The Khimber Dara Sharazbal Conservation Reserve is an important habitat and corridor for the species such as Hangul (*Cervus hanglu hanglu*), Asiatic Black Bear (*Ursus thibetanus*), and Kashmir Musk Deer (Moschus cupreus). It also holds a viable population of Himalayan Grey Langur (Semnopithecus ajax), Rhesus macaque (Macaca mulata), Red Fox (Vulpes vulpes), Golden Jackal (Canes aureus). The Khimber Dara Sharazbal Conservation Reserve also holds a good population of the small mammals such as Himalayan Yellow Throated Martin (Martes flavigula), Indian Porcupine (Hystrix indica), Himalayan weasel (Mustela altaica), Himalayan Marmot (Mormota himalayana) and Indian Grey Mongoose (Herpestes edwardsi). The Khimber Dara and Sharazbal Conservation Reserve is rich in the floral diversity having the floral range from xerophytic species in the scrub areas to the broadleaved vegetation in the riverine areas and nallahs, luxuriant coniferous vegetation on the hilltops of the Zabarwan. The close proximity of the Khimber Dara and Sharazbal Conservation Reserve to the Dachigam National Park along with the picturesque hills surrounding the conservation reserve and being one of the main catchments of the world famous Dal Lake, it attracts a considerable number of Eco – tourists. The lush green forests of the Khimber Dara and Sharazbal Conservation Reserve on the Zabarwan hills is great treat and serve as the lungs of the Srinagar city.

4.2. VEGETATION OF THE KHIMBER DARA AND SHARAZBAL CONSERVATION RESERVE

The areas of the Khimber Dara and Sharazbal conservation Reserve are having a distinct location and has a vast array of the vegetation gradients. Its unique vegetation ranges from the broadleaved riverine trees to the xerophytic scrubs species, from the lush green coniferous trees to the sub – alpine shrub species. The areas of the Khimber Dara and Sharazbal conservation reserve are extremely rich in the coniferous vegetation and stands above the all. The dominant conifers include Himalayan Blue Pine (*Pinus wallichiana*), Deodar (*Cedrus deodara*), Himalayan Yew (*Taxus wallichiana*), *Picea simthana* and *Abies pindrow*. Among all the coniferous species, the *Pinus wallichiana* is most commonly found and dominant conifer. The broadleaved vegetation mainly include the species such as *Salix alba*, *Populas cilita*, *Morus alba*, *Morus nigra*, *Salix tetrasperma*, *Ailanthus altisima*, *Rhus succedanae*, *Celtis australis*, *Celtis Caucasia*. The sub – alpine areas are rich in species like Rhododendron (*Rhododendron*)





arboretum), Himalayan Birch (*Betula utilis*). The tree vegetation of the Khimber Dara and Sharazbal Conservation Reserve is intricately intercepted by the shrub species such as *Vibernum grandiflorum*, *Indigofera heterantha*, *Parrotiopsis jacquemontiana*, *Rubus niveus*, *Rosa webbiana*, *Rosa indica*, *Berberis lyceum*, *Berberis aristata*, and many other such species. The alpine and sub – alpine areas are very rich in medicinal and other grass species.



Fig.35. Vegetation map of Khimber Dara and Sharazbal conservation Reserve through Google Earth

The vegetation of the Khimber Dara and Sharazbal Conservation Reserve can be grouped as Temperate, Sub – alpine and alpine as per new and revised classification of the Champion and Seth (Champion and Seth, 1968). The vegetation of the Khimber Dara and Sharazbal Conservation Reserve can be broadly classified as:

- Broadleaved Deciduous vegetation
- Mixed coniferous
- Coniferous Vegetation
- Scrubs and grasslands





• Subalpine vegetation

BROADLEAVED DECIDOUS VEGETATION

The broadleaved deciduous vegetation is mostly found along the nallahs and other riverine areas. This forest type is mostly composed of the broadleaved species, which shed their leaves annually. This type of forest community of mostly dominant in the altitudinal range of 1800 - 2400 m. The dominant trees of this community mainly include trees such as Quercus robur, Morus alba, Morus nigra, Robinia pseudoacacia, Salix alba, Salix nigra, Ailanthus altisima, Aseculas indica, Juglunas regia, Juglunas nigra, Rhus succedanae and Populas alba. Several shrubs such as Indigofera heterantha, Berberis lyceum, Berberis aristata, Rubus niveus, Rosa webbiana and Vibernum grandiflora intercept the forest community. The low-lying areas of the Sed nar, Padshapal and Fakir Gujri areas are very rich in such type of vegetation. The Broadleaved deciduous vegetation is an important component of the habitat and food resource of the majority of the wild animal species. It is important source of food and shelter to the species such as "Critically Endangered" Hangul (Cervus hanglu hanglu), Endangered Himalayan Grey Langur (Semnopithecus ajax), Black Bear (Ursus thibetanus) and other small mammals. The Broadleaved deciduous forests also harbor a great deal of the avian diversity and the common birds reported in this forest type include Yellow bellied blue magpie, Streaked Laughing Thrush, Variegated Laughing Thrush, Plain Mountain Thrush, Orange Bullfinch, Mistle Thrush, Cinereous Tit, Green Backed Tit, Plumbeous water Redstart, Himalayan Blue tail, Himalayan woodpecker and many other avian species.

CONIFEROUS VEGETATION

The Khimber Dara and Sharazbal Conservation reserve has good coniferous vegetation and the hilltops are mostly dominated by many coniferous species. The coniferous vegetation in the Khimber Dara and Sharazbal Conservation Reserve is not continuous one but are mostly found in patches. The Himalayan Blue Pine (*Pinus wallichiana*) is the most dominant conifer of the Khimber Dara and Sharazbal conservation Reserve. The patches of the Pinus wallichiana are reported in the altitudinal zone of 1800 – 2600 m particularly along the North – west direction. A good regeneration rate of the coniferous vegetation is an excellent indication of the long – term sustainable ecosystem as *Pinus wallichiana* is having highest Important Value Index (IVI)





among the tree species in the greater Dachigam landscape. At many places the patches of the *Pinus wallichiana* is intercepted by many broadleaved species such as *Parrotiopsis jacquemontiana*, *Juglunas regia*, *Rhus succedanae*, *Aseculas indica*, *Ailanthus altisima* and many other *Prunus* species. These tree species are intercepted by many shrub species such as Himalayan Ivy (*Hedera nepalensis*), *Indigofera heterantha*, *Berberis lyceum*, *Berberis aristata*, *Rosa webbiana*, *Rubus niveus* and many other such species.

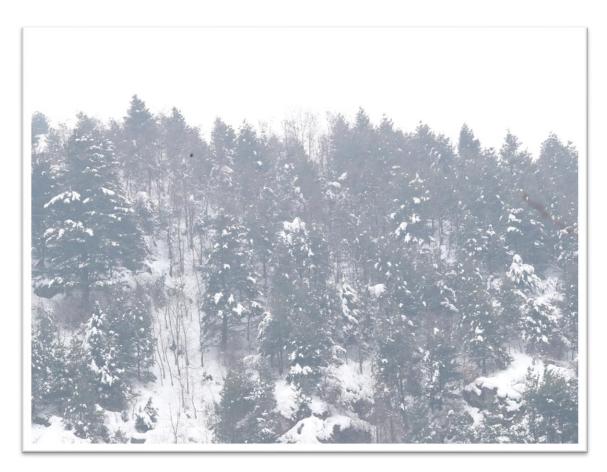


Fig 36. Coniferous vegetation of Khimber Dara and Sharazbal conservation reserve

The coniferous vegetation of is very important habitat for most the fauna of the Khimber Dara and Sharazbal Conservation Reserve particularly the Kashmir Musk Deer (*Moschus cupreus*) which is peculiar feature of this conservation reserve. The other animals found in this type of habitat include Hangul (*Cervus hanglu hanglu*), Black Bear (*Ursus thibetanus*) and many other smaller mammals such as Himalayan yellow Throated Martin (*Martes flavigula*), Himalayan weasel etc. This type of habitat is also rich in the avian diversity and commonly





found birds include Koklas pheasant, Himalayan Monal, Himalyan Black Bulbul, Kashmir flycatcher, Kashmir Nutach and many other such bird species.

MIXED CONIFEROUS FOREST

The mixed coniferous forest type is distribute in the upper elevations of the Khimber Dara and Sharazbal conservation Reserve ranging from 2800 – 3400 m. The areas of the Khonmoh conservation Reserve that are exposed to the sunlight and precipitation are dominated by the *Pinus wallichiana* and *Cedrus deodara* while as the less exposed and sun shaded areas of the Khonmoh conservation Reserve are dominated by the species like Abies pindrow. The dominant species of this forest community are *Cedrus deodara*, *Pinus wallichiana*, *Abies pindrow* and *Taxus wallichiana*. This forest community is mainly intercepted by the species such *Isodom plectranthiodes*, *Indigofera heterantha*, *Rosa macrophylla* and *Vibernum grandiflorum*.

SCRUB AND GRASSLANDS

The scrubs and grasslands are the vast stretches of lands usually devoid of the tree component but rich in the shrub, herb and other bushy vegetation. This type of vegetation is most prominent in the south - west aspects of the conservation reserve with an average altitudinal range from 1800 - 2800 m. The scrub and grasslands are most conspicuous features of the Khimber Dara and Sharazbal conservation Reserve. At many places, the thickets of the broadleaved species comprising of Chinar (Plantis orientalis), Robinia pseudoacacia, Celtis australis, and Ulmus wallichinea intercept these scrubs and grasslands. The scrubs and grasslands are extremely rich and diversified in herbaceous and shrub components. The commonly found species include Indigofera heterantha, Rosa webbiana, Rubus niveus, Rosa brunonii, Kocleuria cristata, Lonicera quinquelocularis, Geranium nepalensis, Dipsacus mitis, Dactylis gloerate, Colchicum luteum, Stipa sibirica, Zizyphus anathera, Fragaria verca, Kocleuria cristata sparsely cover these open stretches. The scrub and grassland areas of the Khimber Dara and Sharazbal conservation reserve are very important from the managmental point of view as these are the common routes followed by the nomadic grazers to venture into the high land pastures of the Dachigam National Park. The temperate grasslands and scrublands form an important habitat and food source for the "Critically Endangered" Hangul. There have





been fire incidences in recent past in the habitats of temperate grasslands and scrublands. The Conservation and well maintenance of this habitat will be very helpful in the long-term conservation of the Hangul. The scrub and grasslands are important habitat of the avian diversity found in the Khimber Dara and Sharazbal Conservation Reserve.

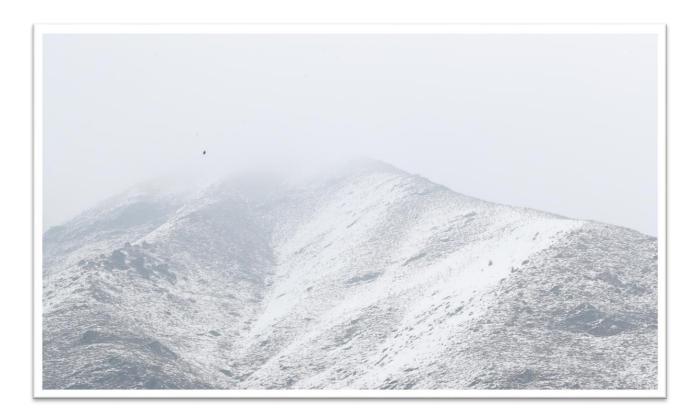


Fig.37. Scrub vegetation area of Khimber Dara and Sharazbal Conservation Reserve





SUBALPINE VEGETATION

It is the vegetation zone found above the mountain belt but below the alpine pasture belt. This type of vegetation is found on an elevation of more than 3500 m altitude. The dominant tree species of this forest community include *Betula utilis*, *Rhododendron anthopogon*, *Syringa emodi*, and *Juniperus recura*. The dominant shrub species of the Sub – alpine vegetation of the Khimber Dara and Sharazbal Conservation Reserve include the species such as *Fragaria vesca*, *Stachys sericea*, *Sieversa* etc. The presence of the Himalayan Birch (*Betula utilis*) is the conspicuous feature of this type forest community. The sub – alpine forest and pastures of the Khimber Dara and Sharazbal Conservation Reserve serves important grazing ground and corridor for the "**Critically Endangered**" Hangul (*Cervus hanglu hanglu*) and "**Endangered**" Kashmir Musk Deer (*Moschus cupreus*).

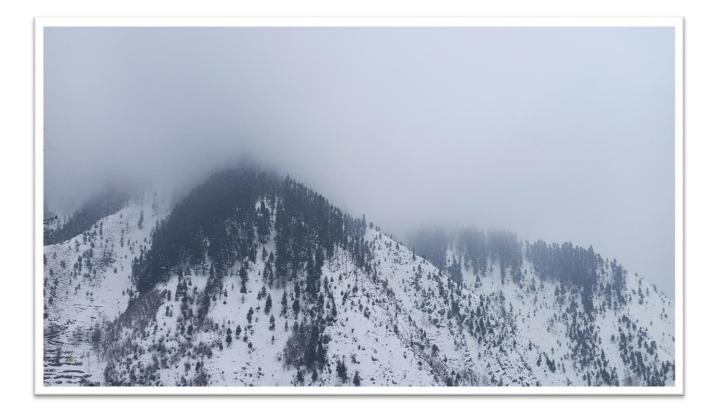


Fig.38. Patchy coniferous vegetation of Fakir Gujri





4.3. FAUNA OF KHIMBER DARA AND SHARAZBAL CONSERVATION RESERVE

The Khimber Dara and Sharazbal conservation Reserve is having a biodiversity. Its biodiversity is reflected by the presence of vast number of species belonging to the phyla of vertebrates, invertebrates, reptiles and varied number of species belonging to the insecta and other phyla. The Khimber Dara and Sharazbal conservation Reserve harbors a great avian diversity. Owing to the close proximity to the Dachigam National Park, the Khimber Dara and Sharazbal conservation Reserve is an important habitat and corridor of the RET species of the greater Dachigam landscape. The Khimber Dara and Sharazbal conservation Reserve is an important habitat and corridor of the variety of species. It holds populations of Hangul (*Cervus hanglu hanglu*), Black Bear (*Ursus thibetanus*), Common Leopard (*Panthera pardus*), and Kashmir Musk Deer (*Moschus cupreus*). It is frequently used corridor for the habitual, seasonal, altitudinal migration. The proper protection, maintenance and development of the Khimber Dara and Sharazbal Conservation Reserve and projecting it as the main corridor of the greater Dachigam landscape.

4.4 PROBLEMS IN MANAGEMENT OF KHIMBER DARA AND SHARAZBALCONSERVATION RESERVE

4.4.1. Fire wood collection:-

The Khimber Dara and Sharazbal Conservation Reserve has a good zone of influence. The people living in the fringe areas of the conservation reserve are mostly poor and dependent on the forest areas for firewood. This firewood collection particularly in the conservation area has increased the Human – wildlife conflict manifold.

4.4.2 Apprehensions of the Timber smuggling:

One of the main managmental challenge faced by the Dara Khimber and Sharazbal conservation Reserve is the apprehensions of the timber smuggling. As the conservation reserve has connecting link with Sindh Forest division, it is commonly followed route to smuggle the timber to Srinagar city.





4.4.3 Human - wildlife Conflict:-

The Human – wildlife conflict is one the main causes of concern for both the locals and the department. In recent years, there been an increase in the Human – wildlife conflict cases in the Khimber Dara and Sharazbal conservation Reserve. The Black Bear and common leopard are mostly the animals involved in the conflict. This Human – wildlife conflict has two-way effect. On the one side, there are crop damages, injuries and deaths on other hand animals greatly suffer as they are either killed in retaliation or seriously injured.

4.4.4 Grazing and other biotic pressure:-

The Khimber Dara and Sharazbal conservation Reserve faced great biological pressures from the livestock of the nomadic grazers particularly during the summer season. The Khimber Dara and Sharazbal is one of the commonly used grazing routes used by these nomadic grazers who venture into the highland pastures of the Dachigam National Park. These herds of livestock not only increase the competition in the food and space as wild animals are forced to share same niche but are also a potent source of the diseases, which are communicable to the wild animal species. The strict vigilance, management and divergence of the herds of livestock grazing routes avoiding through the conservation reserve will greatly enhance the food resource of the greater Dachigam landscape, decrease competition in food and space and will be helpful in devising the long – term strategies for the conservation of the RET species.

4.4.5. Boundary demarcation and delineation:-

There is an ambiguity in the in the boundary delineation of the conservation reserve. The boundaries of the conservation reserve are to be carefully checked and clearly mapped used the GIS and GPS technology. All the existing boundary pillars in the artificial boundaries to be regularly checked and new pillars in the artificial boundaries to be regularly checked and new pillars in the artificial boundaries to be regularly checked and new pillars should be erected on compartments and blocks wherever required to avoid confusion. Beat maps showing clear boundaries and other important features should be maintained.

4.4.6. Lack of co - ordination between various line departments:-





Liaison should be established with the Revenue authorities, forest department, social forestry and Jal Shakti for proper correction of records relevant to lands allotted to the park management for different uses. Liaison with Revenue department will be helpful in clarify the confusions on the protected area boundaries.

4.4.7. FIRE:-

The scrub and grasslands areas of the Khimber Dara and Sharazbal Conservation Reserve area are susceptible to fires particularly during the dry season particularly the Khimber area as it is rich in grassland and scrubs. The uncontrolled fires in the conservation reserve may also pass to the Dachigam area, which can cause a considerable damage to the flora as well as fauna. The proper laying of fire, fire paths and the control burning will be of great managmental help in mitigating the adverse effects of the uncontrolled fires.

4.4.8. Poaching: -

Although the poaching has drastically came down owing to the strict vigilance and patrolling by the frontline staff of the Department, however there are always the apprehensions of the poaching particularly the RET species as the conservation reserve is surrounded by huge zone of influence. There is need of much vigilance and protection in the Khimber Dara and Sharazbal conservation reserve as it an important wildlife corridor in the greater Dachigam landscape.

4.5. MANAGEMENTAL INTERVENTIONS OF THE KHIMBER DARA AND SHARAZBALCONSERVATION RESERVE

4.5.1. HUMAN – WILDLIFE CO – EXISTENSE:-

The Human – wildlife conflict is one the great managmental intervention particularly when the wild habitats are shrinking and apprehensions of encroachments are increasing day by day. The following prescriptions are suggested during the current management plan for effective mitigation of Human – wildlife conflict around the Khimber Dara and Sharazbal Conservation Reserve:-

• Damage to the crop, livestock should be adequately compensated





- Injury or death of people due to attack by wild animals should be immediately attended and compensation/ ex-gratia is to be provided soon after the incident
- Crop insurance awareness among the farmers of the fringe areas
- A flying squad in each range will be formed entirely to manage crop damage by wild animals during orchid food harvesting. The squad will patrol the vulnerable locations from evening till morning and will be equipped with fire arms, fire crackers and other tools necessary to drive the wild animals from human habitations and crop fields to park. The vehicle for flying squad will be kept ready in good condition with enough POL for the above-mentioned specific period.
- Cattle proof fencing at strategic points

4.5.2 HABITAT MANAGEMENT AND IMPROVEMENT

The wildlife habitat management is the manipulation or protection of the wild population to achieve a specific goal. The habitat management include the protection, maintenance and development of the habitat, enhancement of the food resources and availability, water management, eradication of the weeds and other unpalatable grasses.

During the current plan period, the following prescriptions will be followed for the enhancement of the habitat in the Khimber Dara and Sharazbal Conservation reserve:-

- Identification, protection, improvement, maintenance, and the mapping of important wildlife corridors passing through Khimber Dara and Sharazbal conservation Reserve.
- DRSM works should be used to create bunds in order to prevent the divergence of water, which can be effectively used for management of the artificially created waterholes. The DRSM and check dams will specifically constructed in the Sed nar and Nag nar areas as they face heavy runoff during the rains.
- Artificial waterholes to be constructed in areas with little or no accessibility of animal to the natural water sources based on the studies of the animal movement or rutting or other activity in that area. Artificial waterholes can play a crucial role in the habitat management and improvement of the Khimber Dara and Sharazbal Conservation Reserve.





- Plantation of the trees particularly the fruit bearing in the areas devoid of such plantation or less regeneration rate. The fruit bearing trees will be in mixture with the coniferous trees.
- Eradication of the weeds and unpalatable grasses such as *Solenanthus circinatus, Stipa siberica, Euphorbia spp., Isodon plectranthus* and other such species in the animal habitat and corridors which are unpalatable to the animals.
- Planting of indigenous nutritive grass species such as Red and white clover in place of unpalatable species.

4.5.3 BOUNDARY DELINATION AND FENCING

The most the area of the Khimber Dara and Sharazbal conservation Reserve is properly digitally demarcated. However, at certain places the proper digital demarcation is yet to take place. During the current management plan period following prescriptions are proposed regarding the boundary delineation and boundary fencing:

- Proper demarcation of the areas where demarcation is still pending using the GPS and GIS technology.
- Proper fencing of the boundary at the strategic points. The type of fencing may depend on the area concerned. The proper fencing around the boundaries will greatly help in mitigating any apprehension of encroachment.
- Name of block, compartment number and number of pillar should be inscribed on the pillars and record maintained in the office. Wildlife warden, Range officers should regularly check these boundaries during their routine inspection of the area.
- Coordination should be established with the Revenue authorities, social forestry and forest department for proper correction of records pertaining to land and boundaries of the conservation reserve. In addition to this status of land around the conservation, reserve should also be evaluated in order to monitor the activities in adjoining areas.





4.5.3. CONTROL OF GRAZING AND OTHER BIOTIC PRESSURES

The Khimber Dara and Sharazbal Conservation Reserve is an important corridor and frequently used grazing route by the nomadic tribal people with herds of livestock to venture into the highland pastures of the Dachigam National Park. The proper control, management and vigilance of these commonly used grazing routes will not only decrease the biotic pressure on the conservation reserve but also in highland pastures of the Dachigam National Park. The presence of livestock greatly increase the competition for the food and space and are a potent source of the infectious diseases to the wild animals.

The following prescriptions are proposed during the plan period to control the pressure of grazing:

- Mapping of the grazing routes commonly followed by the grazers through Khimber Dara conservation reserve as it will be of great help to control the grazing by setting up grazing camps at appropriate places.
- As the menace of illegal grazing is more persistent during the summer season, grazing camps will be setup at all vulnerable places.
- A proper survey of livestock population in the zone of influence should be initiated to formulate a scheme for immunization of livestock.
- Providing proper incentives, medicine, flashlights and proper gears to the staff performing duties at anti grazing camps.
- The grazing check post will be installed at specific strategic points.

4.5.4. CONTROL OF POACHING

Owing to strict patrolling and vigilance by field staff of the department as well as proactive role played by the higher authorities, the poaching instances have come down to zero. However, threat perception persists particularly regarding the RET species of the greater Dachigam landscape. Therefore, the department has to equip itself adequately for all the meet challenges. It will require regular reinforcement and improvement of existing infrastructure and other measures. The Khimber Dara and Sharazbal conservation reserve serves greatly as important corridor to the Hangul, the conservation, protection and maintenance of this important





corridor will be of great significance for the long – term survival of the Hangul and other RET species.

The following prescriptions will be followed during the current management plan to control any apprehensions of poaching:

- Anti- poaching camps will be setup in critical locations especially in upper reaches in both summer and winter. These camps will have a special focus on the corridors used by the animals particularly Hangul to ensure a safe passage in its landscape habitat.
- The Range officer will divide areas into patrolling units and communicate the perambulation schedule to the field staff on monthly basis for implementation under intimation to wildlife warden office.
- All existing patrolling paths will be cleared once a year at least to provide safe movement to field staff for patrolling.
- Proper mapping of these paths will be done and if required new alignment of patrolling paths for effective patrolling will be done.
- Providing all basic logistic to field staff such as wireless equipment, if possible, flashlights and cells, GPS, binoculars, camera summer and winter gears etc.
- The Range officer will conduct frequent checks followed by surprise checks by wildlife warden.
- All the people living in the fringe areas of the Khimber Dara and Sharazbal conservation reserve and having firearms will be necessarily made to register with the concerned police station. There is strong need to create database of all those persons who own firearms. This will serve as great check on poaching apprehensions. There is a need for strict compliance

of provisions suggested in different sections of the Indian Wildlife Protection Act, 1972.

4.5.4. ECO – DEVELOPMENT

The following Eco – developmental activities are proposed for effective Eco – developmental activities to reduce the dependency on the natural forests of the conservation reserves:-





- Non-consumptive use of protected area through eco-tourism
- Encourage people for indigenous firewood plantation like *Salix alba, Robinia pseudoacacia, Populas spp.* and other such species having calorific value to reduce dependency on forests for fire wood
- Provisions for providing subsidized LPGs and solar lantern to fringe community which can be decisive step to decrease the overall fire and cooking wood dependency on the forests of conservation reserves
- Assist the tribal people in enhancing the income from agriculture by facilitating workshops involving relevant departments

4.5.5. FIRE MANGEMENT

The fire is one the major destructive factors which greatly hampers the wildlife habitat. Therefore, fire management has to be given central focus in order to manage and mitigate its effects. The following are general Strategies for implementation of fire protection measures in the

Khimber Dara and Sharazbal Conservation Reserve:

- The fire lines will be created and maintained in all the fir prone areas especially in the scrub and grasslands, which are considered comparatively more fire prone than other areas.
- The fire protection camps will be used for the camping of firefighting squad during the fire season. Temporary structures will be set up in all fire vulnerable areas to detect and prevent the spread of fire from the human habitation around the conservation reserve.
- A team shall be put at constant patrolling around and in close proximity of industrial units which frequented by many people and vehicles.
- The fire watchtowers shall setup in the fire prone areas and will be maintained periodically.
- Firefighting squads will be engaged throughout the season for efficient fire protection activities.





- The members of the participatory fire management will be from the fringe areas and will be involved in participatory fire management.
- Awareness campaigns are essential for preventing fire. Wildlife Warden will arrange awareness and training for the staff, local dependents before the fire season every year.
- Awareness campaigns may be arranged for fringe area people, school, colleges, and people's representatives on the impact of fires on forests and wildlife. This may be done by mass involvement of people in procession, talks, information display boards hoardings, banners, street play etc.
- Training programmes for staff, and other members of the community involved in fire protection shall be organized and liasioning in this regard shall developed with department of fire and Emergency.
- The equipments like gumboots; fire resistant suit etc. may be procured and made available to the fire management groups.
- Incidents of fire shall be documented and shall be reported promptly to regional wildlife warden and Chief Wildlife Warden. Controlled pre-burning areas will be mapped and GPS documented to assess their impact and to streamline future activities.

4.5.6 INFRASTRUCTURE AND CAPACITY DEVELOPMENT

The infrastructure development plays a pivotal role in the management and conservation of the wildlife-protected areas. At present, there is one staff quarters at the Khimber Dara and Sharazbal conservation reserve. The staff quarter is inhabitable and is in dire need of renovation. During the current plan period, it is proposed to renovate all the existing infrastructure buildings and staff quarters, besides to construct new ones for the effective management of the Khimber Dara and Sharazbal Conservation Reserve.

- Construction of check posts at strategic points to control the apprehensions of the timber smuggling
- Besides certain bridges / culverts will constructed and maintained over the plan period.





4.5.7 ECO – TOURISM DEVELOPMENT

Being located close to the Srinagar city there is an unregulated flow of tourists to the Khimber Dara and Sharazbal conservation reserve. The close proximity to the Srinagar city, surrounded by the famous Mughal gardens and being main catchment of the world famous Dal lake are the factors

making the Khimber Dara and Sharazbal conservation reserve as an attractive Eco – tourism destination.

To harness the Eco – tourism potential of the Khimber Dara and Sharazbal Conservation Reserve the following perceptions are proposed during the current plan period:

- The major trekking routes will be identified and developed in the Khimber Dara and Sharazbal Conservation Reserve particularly in the Khimber and Marg area to harness the vast potential of Eco tourism and develop it as hub of nature based trekking.
- Protection and education oriented limited trekking, trekking and camping programmes for school and college students
- Implementation of eco-development activities, which will encourage alternative livelihood and resource use, conservation and protection of the protected area.
- Provide assistance for village eco-development program, which specify measurable feat by villagers to strengthen conservation efforts.

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Present status of Wildlife Conservation Reserves under the Jurisdiction of Wildlife Division Central Srinagar Department of Wildlife Protoction Government of Jammu & Kashmir.

<mark>s</mark> s	Name	Reference to the Notification No. Dated	District	Administrative Control	Area in Sq.Kms
-	Dachigam National Park	S.R.O 134 Jammu the 10 th April, 1990.	Srinagar and Pulwama	Wildlife Department	141
N	City Forest National Park	SRO No: 472; dated:22-07-1986	do	Royal Spring Golf Course	8.84
ω	Thajwas(Baltal) Wildlife Sanctuary	S.R.O 156 dated 19-03-1987	Ganderbal	Wildlife Department	210

Present status of National Parks and Wildlife Sanctuaries under the Jurisdiction of Wildlife Division Central Srinagar Department of Wildlife Protection Government of Jammu & Kashunir.

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ANNEXURE 4

CHECKLIST OF THE FLORA OF CONSERVATION RESERVES AROUND DNP

S. No	Tree	Family	Local Name	Status
1.	Aesculus indica	Sapindaceae	Haan Doon	Common
2.	Acer caesium	Sapindaceae	Chaind, Tilpattar	Common
3.	Abies pindrow	Pinaceae	Silver fir, Budul,	Common
	_		Taleesha	
4.	Betula utilis	Betulaceae	Bhojpater	Uncommon
5.	Celtis australis	Cannabaceae	Brimij	Common
6.	Celtis caucasica	Cannabaceae	Brimij	Common
7.	Euonymus	Celastraceae	Tran, Lichhoi	Uncommon
	fimbriatus			
8.	Euonymus	Celastraceae	Sheelkul,	Uncommon
	hamitonianus		Chhalchhattar	
9.	Juglans regia	Juglandaceae	Doon	Common
10.	Juglans nigra	Juglandaceae	Doon	Common
11.	Morus nigra	Moraceae	Tul	Common
12.	Morus indica	Moraceae	Tul	Common
13.	Morus alba	Moraceae	Tul	Common
14.	Parrotiopsis	Hamamelidaceae	Hatab	Common
	jacquemontiana			
15.	Pinus wallichiana	Pinaceae	Blue pine	Common
16.	Populus cilita	Salicaceae	Himalayan poplar	Common
17.	Populus deltiodes	Salicaceae	Eastern cotton	Common
			wood	
18.	Populus alba	Salicaceae	White poplar	Common
19.	Platanus orientalis	Platanaceae	Chinar, Boone	Common
20.	Platanus	Platanaceae	Safad Boone,	Common
	occidentalis		Chinar	
21.	Prunus ceracifera	Rosaceae	Chaier, wild	Common
			apricot	
22.	Prunus armeniaca	Rosaceae	Apricot	Common
23.	Pyrus malus	Rosaceae	Apple	Common
24.	Quercus robur	Fagaceae	Oak, Vilaiti, Banj	Common
25.	Robinia	Fabaceae	Kikar	Common
	pseudoacacia			
26.	Rhus succedanae	Anacardiaceae	Arkhor	Common
27.	Salix alba	Salicaceae	White willow	Common
28.	Salix babylonica	Salicaceae	Majno, weeping	Common
			willow	
29.	Salix tetrasperma	Salicaceae	Indian willow	Common
30.	Salix caprea	Salicaceae	Goat willow	Common

CHEKLIST OF TREES

31.	Taxus wallichiana	Taxaceae	Postul	Endangered
32.	Ulmus wallichiana	Ulmaceae	Bren	Vulnerable
33.	Ulmus villosa	Ulmaceae	Bren	Common

CHECKLIST OF SHRUBS

S. No	Shrub	Family	Local name	Status
1.	Berberis aristata	Berberidaceae	Kawdach	Common
2.	Berberis lyceum	Berberidaceae	Kawdach	Common
3.	Chaerophyllum aromaticum	Apiaceae	Chikmi, Neochha	Common
4.	Daphne mucronata	Thymelaeaceae	Kaapshadi, Kachlum	Common
5.	Gaultheria trichophylla	Ericaceae	Gandhpuri booti, Gandhpura	Common
6.	Hydrangea macrophylla	Hydrangeaceae	Himgainda	Common
7.	Indigofera heterantha	Fabaceae	Krass	Common
8.	Juniperus communis	Cupressaceae	Bethri, Bethur, Hapusha	Common
9.	Juniperus recura	Cupressaceae	Palash, Bithur	Common
10.	Lonicera quinquelocularis	Caprifoliaceae	Bakkadu, Paakhar	Common
11.	Rosa webbiana	Rosaceae	Jungli gulaab	Common
12.	Rosa antennifer	Rosaceae	Jhaanshi, chhanchh	Common
13.	Rubus pungens	Rosaceae	Chhansh, Jhaansh	Common
14.	Rubus ulmifolius	Rosaceae	Jhaanshi, Chhansh	Common
15.	Rubus niveus	Rosaceae	Hill raspberry	Common
16.	Rhododendron anthopogon	Ericaceae	Nchhni, Inga	Common
17.	Sorbaria tomentosa	Rosaceae	Karukni, Kidsungal	Common

CHECKLIST OF CLIMBERS

S. No	Climbers and	Family	Local name	Status
	Twiner			
1.	Aralia cachmerica	Araliaceae	Khori, Albo	Common
2.	Dioscorea deltoides	Dioscoreaceae	Kreensh, Krees	Threatened
3.	Hedera nepalensis	Araliaceae	Kateembri, Karoori,	Common
			Agraanth	
4.	Potentialla reptans	Rosaceae	Creeping	Common
			tormentil	

5.	Rosa brunonii	Rosaceae	Arwl, Kreech	Common
6.	Sibbaldia cuneata	Rosaceae	Sinja, chukadu	Common
7.	Smilax vaginata	Smilacaceae	Thir, Cheenmool	Common
8.	Smilax aspera	Smilacaceae	Kaldaaioon,	Common
			Atkeer	

CHECKLIST OF GRASSES AND SEDGES

S. No	Grasses & Sedges	Family	Common name	Status
1.	Carex stenophylla	Cyperaceae	Phikal	Common
2.	Kobresia laxa	Cyperaceae	Kubber	Threatened
3.	Scripus setaceus	Cyperaceae	Kaseru, Ghussad	Common
4.	Eriocaulon cinereun	Eriocaulaceae	Irka	Common
5.	Agrostis pilosula	Poaceae	Ghaas	Abundant
6.	Datylis glomerata	Poaceae	Trakkad, Panjaghaas	Common
7.	Digitaria sanguinalis	Poaceae	Chhal, Trakkad	Common
8.	Phleum alpinum	Poaceae	Jaamno gha	Common
9.	Poa alpine Linn.	Poaceae	Humulu, Shaadal ghass	Common

CHECKLIST OF HERBS

S. No	Herb	Family	Common name	Status
1.	Anemone obtusiloba	Rananculaceae	Rattan jot	Uncommon
2.	Aquilegia pubiflora wallich	Rananculaceae	Sita di panni	Uncommon
3.	Aquilegia fragrance. Benth	Rananculaceae	Maime hait, kalumb	Common
4.	Clath alba camb.	Rananculaceae	Tahool , Ashpmaar	Common
5.	Clematis connata	Rananculaceae	Hathkad bel, Dhanvati	Common
6.	Clematis montana	Rananculaceae	Dashraanth , Dudh chivara	Common
7.	Delphinium denudatum wallich	Rananculaceae	Nirbis , Nirvisha	Common
8.	Delphinium roylei munz	Rananculaceae	Nirbis ,Nirvisha	Common
9.	Thalictrum minus L	Rananculaceae	Peeli bani, Haichinsah	Common
10.	Thalictrum	Rananculaceae	Mamira ,Pinjaari	Uncommon

	pedunculatum Edqew.			
11.	Viola sylvatica	Violaceae	Nunposh	Common
12.	Arenaria serpylliofolia Linn.	Cryophyllaceae	Letarluni	Uncommon
13.	Lychnis cornaria (L.)Desr.	Cryophyllaceae	Laltraukal, Angaarda	Threatened
14.	Hypericum perforatum L.	Hypericaceae	Basantadu, Basanti	Common
15.	Tribulus terresteris L.	Zygophyllaceae	Bhakhada, Tirkundi	Common
16.	Impatiens bicolor Royle.	Balsaminaceae	Trul, Hajlu,	Common
17.	Lathyrus emodi (Wall.ex.Fritsch)Ali	Fabaceae	Khukni, Triputa	Abundant
18.	Lathyrus pratensis Linn.	Fabaceae	Khukni	Common
19.	Lotus corniculatus	Fabaceae		Common
20.	Genum elatum Wallich.	Rosaceae	Gogji mool, Bhadrashaak	Common
21.	Potentilla atrosanguina Lodd.	Rosaceae	Bajardantu, Rolu	Threatened
22.	Astilbe rivularis Buch.Ham.Ex.D.Don.	Saxifragaceae	Pothi	Common
23.	Sexifraga Sibirica	Saxifragaceae		Common
24.	Sedum adenotrichum Wall.Ex.Edgew.	Crassulaceae	Dazanposh	Abundant
25.	Epilobium parviflorum Schreb.	Onagraceae	Mellu, Loontar jadi	Common
26.	Bupleurum swatianum Nasir.	Apiaceae	Zardzaari, Shashparni	Common
27.	Chaerophyllum acuminatum Lindley.	Apiaceae	Chikmi, Neochha	Common
28.	Chaerophyllum reflexum Lindley.	Apiaceae	Jadgagari, Mukhach	Common
29.	Ferula jaeschkeana Vatke.	Apiaceae	Haput Kanphur, Hinga, Ghud- kaindal	Common
30.	Heracleum lantum Michx.	Apiaceae	Shuriyal, Phulao,	Common
31.	Chaerophyllum villosum Wall.ex.DC.	Apiaceae	Mukhach	Common
32.	Pimpinella diversifolia DC.	Apiaceae	Jehn,tirua	Common
33.	Scandix pecten- veneris L.	Apiaceae	Indusaag , Kachhidana	Common
34.	Seseli libanotis	Apiaceae	Sappad gajari	Common

	(L)W.Koch.			
35.	Vicatia coniifolia DC.	Apiaceae	Shila dhaniya	Abundant
36.	Asperrula	Rubiaceae	Machheet,	Common
	oppositifolia		Chhalmajeeth	
	Regal. &Schmalth.			
37.	Gallium asperuloides	Rubiaceae	Machheetu	Common
	edgew			
38.	Gallium vernum Linn.	Rubiaceae	Peela machete	Common
39.	Anaphalis	Asteraceae	Bhojli,Kinja	Common
	margaritacea(L)Benth			
40.	Anaphalis nepalensis	Asteraceae	Telgangi, Bhujli	Common
	(Sprengel)Hand.			
41.	Artemisia dubia	Asteraceae	Joon, krinidru	Common
	Wallich ex.Besser			
42.	Artemisia parviflora	Asteraceae	Joon, Tethwan	Common
	Roxb.			
43.	Aster diplostephioids	Asteraceae	Tarakpushp,	Abundant
	C.B.Clark		phullala	
44.	Carpesium	Asteraceae	Lihur	Common
	abrotanoides Linn.			
45.	Picris hieracioides	Asteraceae	Trumbadu	Rare
	Linn.			
46.	Saussurea albescens	Asteraceae	Baklol	Common
	(DC)Sch.Bip.			
47.	Saussurea atkinsonii	Asteraceae	Lokat, Baklol	Common
	C.B.Clark			
48.	Saussurea	Asteraceae	Batola, Dashund	Common
	heteromalla			
	(D.Don)Hand-mazz			
49.	Solidago virgaaurea	Asteraceae	Thanthaana,	Common
	Linn.		Sondandi,	
			Kanakshalakha	
50.	Tarracetum	Asteraceae	Lidd guggli,	Abundant
	dolichophyllum(Kitam		chinnparni	
)Kitam			
51.	Taraxacum officinale	Asteraceae	Handri, Hand,	Common
	Webr.		Dullal	_
52.	Tragopogon dubius	Asteraceae	Thulkal,Girginok	Common
-•	Scop.		, <u> </u>	
53.	Tussilago Farfara	Asteraceae	Chilchiloti,	Threatened
	Linn.		Ghudkhura	
54.	Asyneuma thomsonii	Campanulaceae	Branzbooti,Bran	Threatened
	(HK.f.et.Th.)Bornm	Sumpunulueede	zhaak	I in cutofied
55.	Campanula aristata	Campanulaceae	Padi-branz	Common
<i>JJ</i> .	Wall	Campanulaceae	I aur-oranz	Common

56.	Campanula cachmeriana Royle.	Campanulaceae	Kashir branz	Common
57.	Campanula lotifolia L.	Campanulaceae	Branz ghainti	Common
58.	Codonopsis ovata Benth.	Campanulaceae	Tokerkachh, Dodad	Threatened
59.	Androsace rotundifolia Hardw.	Primulaceae	Golpattri tuttan	Common
60.	Androsace sempervivoids Jacquem ex Duby	Primulaceae	Ashamkund	Abundant
61.	Primula macrophylla D.Don	Primulaceae	Kaangla-Naakla, Peetsevti	Common
62.	Primula rosea Royle.	Primulaceae	Mundaal, peetsevti	Common
63.	Cynanchum arnottianum Wight.	Asclepiadaceae	Dudhad	Threatened
64.	Cynanchum auriculatum Roly ex	Asclepiadaceae	Dudhad	Threatened
65.	Gantiana marginata (. Don) Griseb.	Gentianaceae	Neelkanth, Shirkanth	Common
66.	Nymphoides peltata (S. Gmelin)	Menyanthaceae	Lidd khur	Common
67.	Asperugo procumbens L.	Boraginaceae	-	Common
68.	Cynoglossum lanceolatum Forsk.	Boraginaceae	Khitdi	Common
69.	Onosma hispidum Wallich ex.G.Don.	Boraginaceae	Ratanjot, loljad	Threatened
70.	Veronica biloba Linn.	Scrophulariaceae	Titni	Common
71.	Veronica persica Poiret.	Scrophulariaceae	Ashvashaak	Common
72.	Pedicularis pectinata Wallich ex.Benth	Scrophulariaceae	Kankatyukaparn, shaluth	Common
73.	Orobanche solmsii C.B.Clark ex. Hook.f.	Orobanchaceae	Lothus, Jadkhaar	Common
74.	Petracanthus utricifolius (Kuntze) Bremek.	Acanthaceae	Pardaad,Mauhwa , Kunchpushp	Common
75.	Verbena officinalis Linn.	Verbenaceae	Bareen	Abundant
76.	Nepeta erecta (Benth) Benth.	Lamiaceae	Neelpat, Bidaal Parnaas	Common
77.	Nepeta lacvigata (D.Don.) Hand-Mazz.	Lamiaceae	Neelpat, Gandhsoi	Common
78.	Rumex acetosa Linn.	Plygonaceae	Ulloh, Tsoktsin	Common
79.	Rumex nepalensis	Plygonaceae	Ubaj, Chooka	Abundant

	Sprengel.			
80.	Euphorbia helioscopia L.	Euphorbiaceae	Dudhi, Gur sutchsul, Heerusi	Common
81.	Euphorbia plorifera hook f. & Thomus	Euphorbiaceae	Dudhli, Dudhi	Common
82.	Parieteria lusitanica linn	Urticaceae	-	Common
83.	Epipactis royleana Lindley.	Orchidaceae	Amarkand,phullc hamba	Common
84.	Spiranthes sinensis (pers)ames.	Orchidaceae	Muchhmarool, Amarkand	Abundant
85.	Iris germanica L.	Iridaceae	Majaarmund, Sosem	Common
86.	Hemerocallis fulva Linn.	Liliaceae	Riudd, Sunaari	Common
87.	Juncos articulatus Linn.	Juncaceae	Pranad, Tillar	Common

ANNEXURE 3

Checklist of the Mammals of Conservation reserves around DNP

S. No	Common Name	Scientific Name
1.	Hangul or Kashmir Stag	Cervus hanglu hanglu
2.	Common Leopard	Panthera pardus
3.	Asiatic Black Bear	Ursus thibetanus
4.	Red Fox	Vulpes vulpes
5.	Jackal	Canis aureus
6.	Kashmir Musk Deer	Moschus cupreus
7.	Himalayan Yellow-throated Marten	Martes flavigula
8.	Himalayan Weasel	Mustela sibirca
9.	Long-Tailed Marmot	Marmota caudata
10.	Indian Porcupine	Hystrix indica
11.	Himalayan Grey Langur / Kashmir Grey Langur	Semnopithecus ajax
12.	Rhesus macaque	Macaca mulata
13.	Grey Mongoose	Herpestes edwardsi

ANNEXURE 2

<u>Checklist of bird species recorded in Conservation Reserves around</u> <u>DNP</u>

S.NO.	Name of Species	Scientific Name	Status
			(IUCN)
	Fam	ily Accipitridae	
1.	Black Kite	Milvus migrans	LC
2.	Eurasian Sparrow Hawk	Accipiter nipus	LC
3.	Himalayan griffon vulture	Gyps himalayensis	NT
4.	Oriental Honey Buzzard	Pernis ptilorhynchus	LC
5.	Shikra	Accipiter badius	LC
6.	Goshawk	Accipiter genitilis	LC
7.	Himalayan Buzzard	Buteo burmanicus	LC
	Family Fa	alconidae	LC
8.	Common Kestrel	Falco tinnunculus	LC
9.	Eurasian hobby	Falco subbuteo	LC
	Family Ph	asianidae	LC
10.	Chukar	Alectoris Chukar	LC
	Fam	ily Columbidae	
11.	Rock Pigeon	Columba livia	LC
12.	Oriental Turtle Dove	Streptopelia orientalis	LC
13.	Eurasian Collared Dove	Streptopelia decaocto	LC
	Fan	nily Psittacidae	
14.	Rose-Ringed Parakeet	Psittacula krameri	LC

	Far	nily Strigidae	
5.	Little Owl	Athene noctuna	LC
	Fa	mily Aodidae	
16.	Himalayan Swiftlet	Aerodramus brevirostris	LC
17.	Alpine Swift	Tachymarptis melba	LC
18.	Common Swift	Apus apus	LC
19.	House Swift	Apus nepalensis	LC
	Fam	ily Coraciidae	
20.	European Roller	Coracias garrulus	LC
	Fan	nily Upupidae	
21.	Common Hoopoe	Upupa epops	LC
	Fa	mily Picidae	
22.	Eurasian Wryneck	Jynx torquilla	LC
23.	Scaly-Bellied Woodpecker	Picus squamatus	
24.	Himalayan Woodpecker	Dendrocopos himalayensis	LC
	Fan	nily Alaudidae	
25.	Crested Lark	Galerida cristata	LC
26.	Oriental Skylark	Alauda gulgula	LC
	Famil	ly Hirundinidae	
27.	Dusky Crag Martin	Ptyonoprogne concolor	LC
28.	Barn Swallow	Hirundo rustica	
29.	Striated Or Red rumped	Cecropis daurica	
	Swallow		
	1		

30.	Eurasian Golden Oriole	Oriolus oriolus	LC
	Far	nily Surnidae	
31.	Common Starling	Strunus vulgaris	LC
32.	Common Myna	Acridotheres tristis	LC
33.	Jungle Myna	Acridotheres fuscus	LC
	Far	nily Corvidae	
34.	Yellow-Billed Blue	Urocissa flavirostris	LC
	Magpie		
35.	House Crow	Crovus splendenus	LC
36.	Large-Billed Crow	Crovus macrorhynchos	LC
37.	Kashmir Nutcracker	Nucifraga multipunctata	LC
38.	Eurasian Jackdaw	Coloeus monedula	LC
39.	Common Raven	Covus corax	LC
40.	Jungle Crow	Crovus culminatus	LC
41.	Carrion crow	Crovus corone	LC
42.	Red billed cough	Pyrrhocorax pyrrhocorax	LC
	Famil	ly Pycnonotidae	
43.	White-Cheeked Bulbul	Pycnontus leucogenys	LC
	(Himalayan Bulbul)		
44.	Black Bulbul	Hypsipetes leucocephalus	LC
45.	Striated Laughing Thrush	Grammatoptila striatus	LC
46.	Variegated Laughing	Trochalopteron varriegatum	LC
	Thrush		
47.	Streaked Laughing Thrush	Trochalopteron lineatum	LC

	Family Muscicapidae					
48.	Kashmir Red breasted	Ficedula subrubra	LC			
	Flycatcher					
49.	Little-Pied Flycatcher	Ficedula westermanni	LC			
50.	Ultra marine Flycatcher	Ficedula superciliaris	LC			
51.	Slaty Blue Flycatcher	Ficedula tricolor	LC			
52.	Verditer Flycatcher	Emyias thalassinus	LC			
53.	Grey-Headed canary	Culicicapa ceylonensis	LC			
	Flycatcher					
54.	Indian Paradise Flycatcher	Tersiphone paradisi	LC			
55.	Blue whistling Thrush	Myophonus caeruleus	LC			
56.	Blue-Capped Redstart	Phoenicurus coeruleocephala	LC			
57.	White-Winged Redstart	Phoenicurus erythrogastrus	LC			
58.	Plumbeous Water Redstart	Phoenicurus fuliginosus	LC			
59.	Orange-Flanked Bush	Tarsiger rufilatus	LC			
	Robin (Himalayan Blue					
	tail)					
60.	Black Redstart	Phoenicurus ochruros	LC			
61.	Blue Rock Thrush	Monticola solitarius	LC			
	Family	y Phylloscopidae				
62.	Tickell's Leaf Warbler	Phylloscopus affinis	LC			
63.	Sulphur-Bellied Warbler	Phylloscopus griseolus	LC			
64.	Yellow-Browed Warbler	Phylloscopus inornatus	LC			
65.	Whistler's warbler	Phylloscopus whistleri	LC			

66.	Lemon-Rumped Warbler	Phylloscopus chloronotus	LC
67.	Blyth's Leaf Warbler	Phylloscopus reguloides	LC
68.	Gold Crest	Regulus regulus	LC
69.	Common Chiffchaff	Phylloscopus collybita	LC
70.	Grey hooded warbler	Phylloscopus xathoschistos	LC
	Family T	urdinae	
71.	Grey-Winged Blackbird	Turdus boulboul	LC
72.	Scaly Thrush	Zoothera dauma	LC
73.	Chestnut Thrush	Turdus rubrocanus	LC
74.	Mistle Thrush	Turdus viscivorous	LC
75.	Tickell's Thrush	Turdus unicolor	LC
76.	Alpine Thrush	Zoothera mollissima	LC
	Fam	ily Prunillidae	
77.	Alpine Accentor	Prunella collaris	LC
78.	Altai Accentor	Prunella himalayana	LC
79.	Black Throated accentor	Prunella atrogularis	LC
80.	Rufous breasted accentor	Prunella strophiata	LC
	Family F	Paridae	
81.	Grey Tit	Melaniparus afer	LC
82.	Green-Backed Tit	Parus monticolus	LC
83.	Crested Tit	Lophophanes cristatus	LC
84.	Himalayan Black lored Tit	Machlolophus xanthogenys	LC
85.	White-Throated Bush Tit	Aegithalos niveogularis	LC
86.	Coal tit	Periparus ater	LC

87.	Cinereous tit	Parus cinereus	LC
88.	Black Throated Bush Tit	Aegithalos concinnus	LC
	Fa	mily Sittidae	I
89.	European Nuthatch	Sitta cashmirensis	LC
	(Kashmir Nuthatch)		
90.	White-Cheeked Nuthatch	Sitta leucopsis	LC
	Far	nily Certhidae	
91.	Hodgson's Tree Creeper	Certhia familiaris	LC
92.	Himalayan Tree Creeper /	Certhia himalayana	LC
	Bar tailed tree creeper		
	Fam	ily Motacillidae	
93.	Grey Wagtail	Motacilla cinerea	LC
	Fami	ly Zosteropidae	
94.	Indian White Eye	Zosterops palpebrosus	LC
	Fan	nily Passerinae	
95.	House Sparrow	Passer domesticus	LC
96.	Russet Sparrow	Passer cinnamomeus	LC
97.	Eurasian Tree Sparrow	Passer montanus	LC
	Family	v Campephagidae	
98.	Scarlet Minivet	Pericrocotus speciosus	LC
99.	Long-Tailed Minivet	Pericrocotus ethologus	LC
100	Small Minivet	Pericrocotus cinnamomeus	LC
100.			
100.	Fami	ily Emberizidae	

102.	White-Capped Bunting	Emberiza stewarti	LC
103.	Grey-Necked Bunting	Emberiza buchanani	LC
104.	Rock Bunting	Emberiza cia	LC
105.	Chestnut eared Bunting	Emberiza fucata	LC
	Fam	ily Fringillidae	
106.	Orange bullfinch	Pyrrhula aurantiaca	LC
107.	Spectacled Finch	Callacanthis burtoni	LC
108.	Black & Yellow grosbeak	Mycerobas icterioides	LC
109.	Blyth's Rose Finch	Carpodacus grandis	LC
110.	Common Rose Finch	Carpodacus erythrinus	LC
111.	Himalayan Gold Finch	Carduelis carduelis	LC
112.	Yellow Breasted Green	Chloris spinoides	LC
	Finch		
113.	Pink Browed Rose Finch	Carpodacus rodochroa	LC
114.	Fire fronted serin	Serinus pasillus	LC
115.	Plain Mountain Finch	Leucosticte nemoricola	LC
	Fami	ly Muscicapidae	
116.	Siberian Stonechat	Saxicola maurus	LC
117.	Grey Bush chat	Saxicola ferreus	LC
118.	Blue throat	Luscinia svecica	LC
119.	Blue Fronted Redstart	Phoenicurus frontalis	LC
120.	Rufous bellied Niltava	Niltava sundara	LC
	Famil	y Tichodromidae	
121.	Wall creeper	Tichodroma muraria	LC

Family Dicruridae					
122.	Ashy Drongo	Dicrurus leucophaeus	LC		
	Family Leiothrichidae				
123.	Red billed Leiothrix	Leiothrix lutea	LC		