Management Plan

Of

Col. Sher Jung National Park

(2018-19 to 2027-28)

Wildlife Wing of Himachal Pradesh Forest Department

Management Plan

of

Col. Sher Jung National Park

Himachal Pradesh

(2018-19 to 2027-28)

Prepared By: Wildlife Division Shimla

Commissioned By: Wildlife Wing, Himachal Pradesh Forest Department

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and Chief Wildlife Warden HP Shimla

Management Plan

of

Great Sand Dunes National Park

and Preserve

2022-2032

Prepared by the Chief Conservator of Forests (WL)
and Chief Conservator of Forests (Social Forestry)

Acknowledgements

Col. Sher Jung National Park is located at Simbalbara in the state of Himachal Pradesh at the boundary of Himachal Pradesh with Haryana. The National Park lies adjacent to Kalesar National Park of Haryana, which lies to its southeast. Kalesar Sanctuary lies adjacent to Kalesar National Park. The area of these two protected areas from Haryana is about 133 Sq. km. Together these three protected areas form a large interstate conservation unit in Shivaliks. It provides home to a variety of endemic flora and fauna. The Government of Himachal Pardesh declared it as a National Park in 2013 and final Notification under wild life (Protection) Act, 1972 was issued in 2013 to this effect, taking into consideration it's ecological, faunal, floral, geomorphologic, natural and zoological significance.

This management plan is the revision of the previous plan which expired in 2012-13 and has been prepared for a period of 10 years w.e.f. 2018-19 to 2027-28. The emphasis has been on the protection and improvement of the habitat with a view to conserve the rich biodiversity existing in the National Park. The natural habitats have been proposed to be developed keeping in view the requirements of the native fauna. The prescription of the management plan has been made keeping them in view. Different measures have also been proposed to eliminate the decimating and the limiting factors like the occurrence of forest fires, scarcity of water in the peak summer season and biotic pressure. Emphasis has also been laid for educating the people and making them aware about the significance of conserving the wildlife. Research and training has also been given due priority for the better management of the National Park and also providing learning opportunities to the field staff.

This management plan would have been incomplete without the valuable suggestions, guidance and words of advice from Sh. R. C. Kang,IFS PCCF(Wildlife) Himachal Pradesh, Sh. Nagesh Guleria, IFS (CCF Wildlife HQ) and Dr. Sushil Kapta, IFS (CCF South).

I would like to place on record the efforts put in by Smt. Anita Bhardwaj, ACF wildlife for writing this document. Efforts done by entire staff of Simbalbara Range for providing valuable inputs are also appreciated.

This management plan will definitely contribute towards achieving the long-term goal of maintaining viable wild populations in the Col. Sher Jung National Park.

Rajesh Sharma, HPFS
Divisional Forest Officer
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CONTENTS

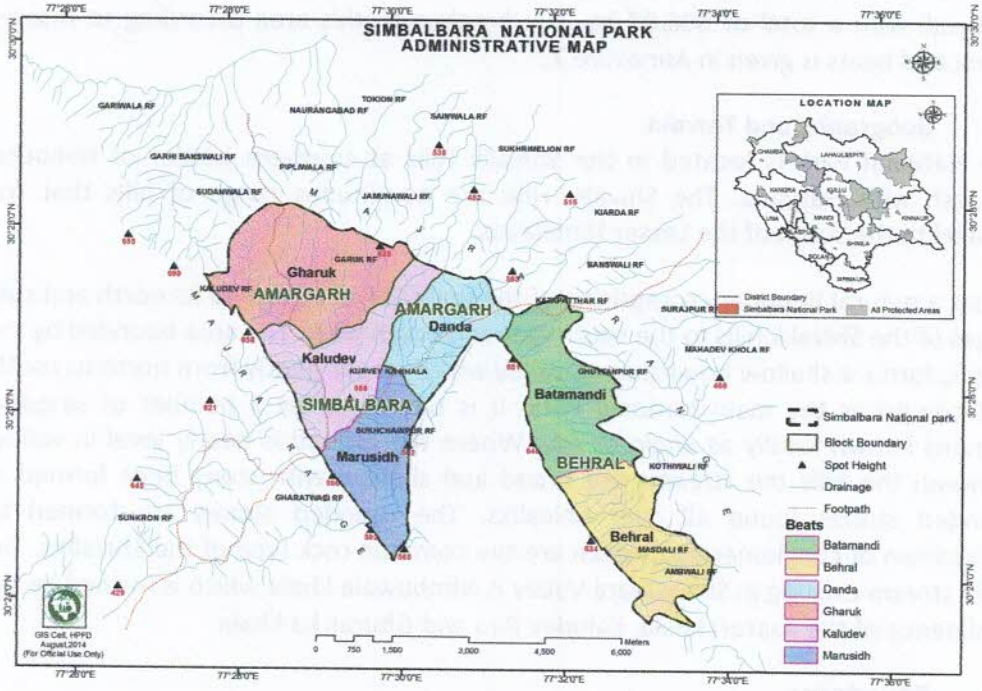
Chapter 1

Introduction

1.1 Name and Location

Col. Sherjung National Park is located at Simbalbara in the state of Himachal Pradesh on the boundary of Himachal Pradesh and Haryana. The National Park lies in Paonta Sahib Tehsil of Sirmour District. It is under administrative control of DFO, Wildlife Shimla. It lies between 30^0 24' N and 30^0 28' N latitude and 77^0 28' E and 77^0 32' E longitudes and is covered in Survey of India Toposheet Numbers 53 F-7 and 53 F-11 in 1:50,000 scale. The National Park has an area of 27.88 Sq. km. It consists of one Range, Simbalbara Range, with Headquarter at Amargarh. The National Park map is given in Figure 1.1.

Fig 1.1 : **Administrative map of Col. Sher Jung National Park**



The National Park lies adjacent to Kalesar National Park of Haryana, which lies to its southeast. The Kalesar National Park, Haryana is adjacent to it. Together these protected areas form a large interstate conservation unit in this part of the Shivalik.

It was first notified in 1958 under Indian Forest Act, 1927 for a period of 10 years vide notification no. Ft. 4/56 dated February 8, 1958 (Annexure 1) as a wildlife sanctuary. It was again notified under the India Forest Act, 1927 vide HP Government notification No. 5-1/72-SF dated June 29, 1972 (Annexure 2). The preliminary notification of the Protected Area under wildlife (Protection) Act 1972 was made vide Government of Himachal Pradesh notification No. 5-11/70-SF dated

March 27, 1974 (Annexure 3). It was finally notified; under Wildlife (Protection) Act vide H.P. Government Notification No. FFE-B-F (6)- 27/99 dated 1/11/99 (Annexure 4). The intention notification of Simbalbara Wildlife Sanctuary to convert it into national park was notified on 28th July 2010 (Annexure 5). The final notification to convert the Sanctuary into National Park was issued on June 7, 2013 (Annexure 6). In the meeting of State Wildlife Board held during December, 2013 it was decided to change the name of the National Park as Col. Sher Jung National Park.

The National Park Headquarter is at Amargarh, which is located at a distance of 1 km from Village Puruwala along the Puruwala – Simbalbara road. Puruwala lies on the Paonta Sahib - Nahan Highway at a distance of 10 Km from Paonta Sahib. Simbalbara Forest Rest House is located at a distance of 12 km from Amargarh.

1.2 Constitution and Extent

Initially it comprised of 5 reserve forests namely Marusidh, Kaludev, Danda Sukhchainpur, Karwa ka khala and Ghurak with a total area of 1922 ha. The additional area included to form National Park comprises of 5 Reserve Forests namely RF Kata Pathar, R.F. Gutanpur, R.F. Khothewali, R.F. Mastali, and R.F. Ambwali with a total of 886.87 ha. The breakup of this area according to reserve forest and beats is given in Annexure 7.

1.3 Geography and Terrain

The National Park is located in the Shivalik Hills at southern border of Himachal Pradesh with Haryana. The Shivalik Hills are continuous range of hills that run parallel to the south of the Lesser Himalayas.

It has a natural boundary comprising of the main Shivalik ridge to its north and sub-ridges of the Shivalik hills to the south east and south west. The area bounded by the ridges, forms a shallow bowl-shaped valley which slopes gently from north to south, and comprises the main National Park. It is bifurcated by a number of seasonal streams known locally as *khala or rau.* Where the ground is nearly level in valleys between the hills the streams are broad and shallow with stony beds formed of rounded stones found all over Shivaliks. The rounded stones are formed by breakdown of conglomerates, which are the common rock type of the Shivaliks. The main stream existing in Simbalbara Valley is Nimbuwala khala which is formed by the confluence of the Asarori khala, Kaludev Rau and Ghurak ka khala.

1.4 Boundaries

The National Park is contiguous with Kalesar National Park, Darpur, Majra and Nagli Reserve forests in Haryana. These areas hold a substantial population of wild life. This stretch of forest is vital for long term conservation of wildlife species in this area. The final notification under section 35 of Wild Life Protection Act, 1972 to add 886.87 ha. area into the existing sanctuary and convert it into National Park had been done on 7th June 2013 Vide Notification No. FFE-B-F(6)-11/2005=II/Simbalbara. As per notification the boundaries of the National Park are as follows

North- Main Shivalik Ridge of existing Simbalbara Wildlife Sanctuary upto compartment No. 3 of Kata Pathar.

East- Compartment Nos. 3,4,5,6,7 of RF Kattapathar – Khalli marked with single ring around trees at d.b.h. and compartment No.2 of Kattapathar , C-7 Paniwali khalli with rings (Painted) around the trees d.b.h. compartment Nos. 1,6,10,14,17,18,19 (part) of RF Guttanpur C-1 Khalli bifurcated from sampon wali khalli marked with single painted rings around trees at d.b.h. C-6 khalli ridge marked with single rings around trees above d.b.h. C-10, 14 and 19 Compartment Nos. 1,2,8 of RF KothewaliC-2 & 8 Khalli marked with single ring around trees at above d.b.h. Compartment Nos. 3,5,6,7,8,9,10 of RF Mastali- Satiwala village and Yamuna Nagar road compartment Nos. 1,2,3 of Ambwali- Ambwali Khalli with rings around trees.

South- Last point of Marusidh Reserve Forest of existing WLS (Marusidh Mazaar) along with Haryana border along the boundary of Kalesar National Park of Haryana Government Forests upto Ambwali RF C-3.

West – Boundary line between Himachal and Haryana

1.5 Approach and Access

The National Park is approachable from Puruwala Village on the Paonta Sahib – Nahan Highway. The Range Headquarter is at Amargarh. The distance from Puruwala to entry point of National Park is 1km and from there to Simbalbara is another 11km. There is an exit gate at National Park that leads to Pillodi Village to the south of the National Park. The distance to various towns from Simbalbara Rest House is given in Table 1.1.

Table 1.1: Distance of Simbalbara from Important Towns and Cities

Town/ City	Distance from Simbalbara (km)
Paonta Sahib	22
Nahan	50
Dehradun	70
Yamuna Nagar	75
Chandigarh	120
Delhi	300

1.6 Geology, Rock and Soil

The Shivaliks is low hill range running parallel to the Himalayas from Pakistan in the west to Sikkim in the East. It consists of steep hills of alluvial deposits mixed with rounded stones formed of sedimentary rock, either sandstone or lime stones, that are formed by breakdown of conglomerates. At some places there is a plain valley between the Shivaliks and the lesser Himalayas, about 10 to 20 km wide, known locally as Doon. At other places the two ranges come together without a gap.

The Shivaliks are formed of alternate beds of hard clays, sandstone, conglomerates and sand. Due to very loose formation with sparse vegetation cover that has been indiscriminately grazed, browsed and lopped, the Shivaliks are easily eroded and bowl shapped streams locally known as khalas have been formed. The soil is poor in humus, shallow and interbedded with stones. Naked vertical faced hillocks a common sight in the Shivaliks.

National Park consists of a gently slopping valley bounded by the steep ridges of the Shivaliks with altitude ranging from 350 m to 700 m above mean sea level. As for rest of Shivalik, the soil is intermixed with round stones formed of sandstone limestone. The rising banks of the dry nalas supporting vegetation are clay whereas, the lower valley is sandy. The bouldery and sandy formations have the water holding capacity. The Kaludev, Ghurak ka khala and Asarori khala have oozing fresh water spring along their bed. These form a shallow perennial stream near Simbalbara Rest House. Otherwise there is a general shortage of water in the National Park.

1.7 Climate and Rainfall

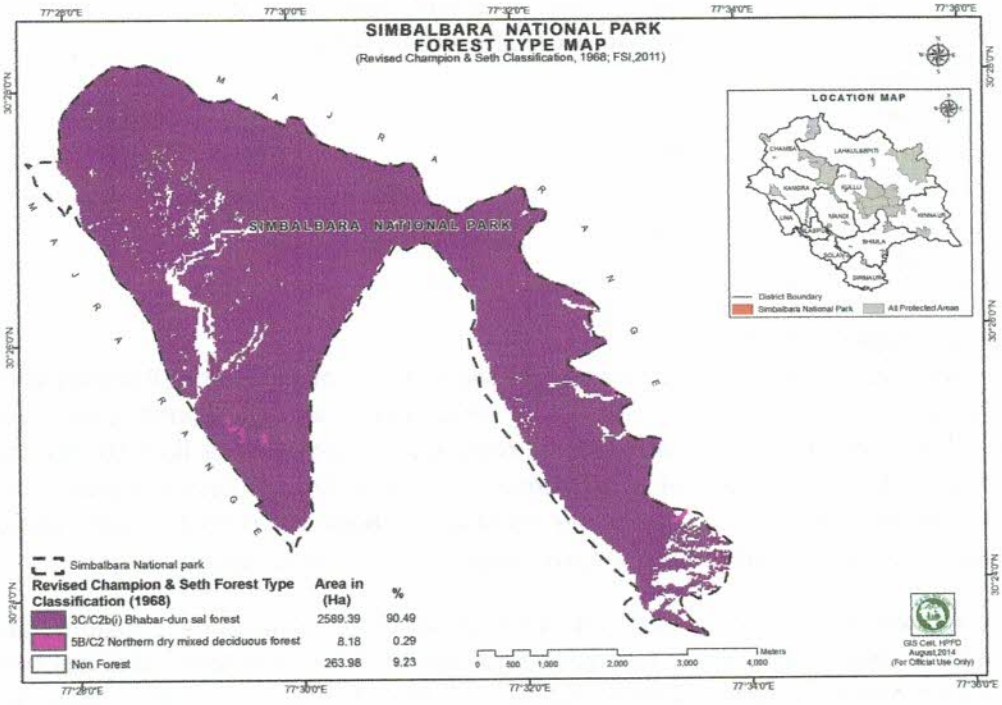
The climate of Simbalbara is tropical with hot summers and mid winters. The temperature goes up to a maximum of 46^0C in summer and a minimum 10^0 C in winter. The rainfall is received in monsoon and the average annual rainfall is 25.6mm at Paonta Sahib. The rainfall pattern is typical monsoon type with rainfall concentrated from July to September (See Annexure 12 for monthly distribution of rainfall).

1.8 Forests and Vegetation

The forest types found in the National Park may be categorized under the following main groups:

(i) Subgroup 3C/C2: Northern Tropical Moist Deciduous Forest 3C/C2a: Moist Shivalik Sal.

(ii) Subgroup 5B/C1: Northern Tropical Dry Deciduous Forest 5B/C1a Dry Shivalik Sal forests.

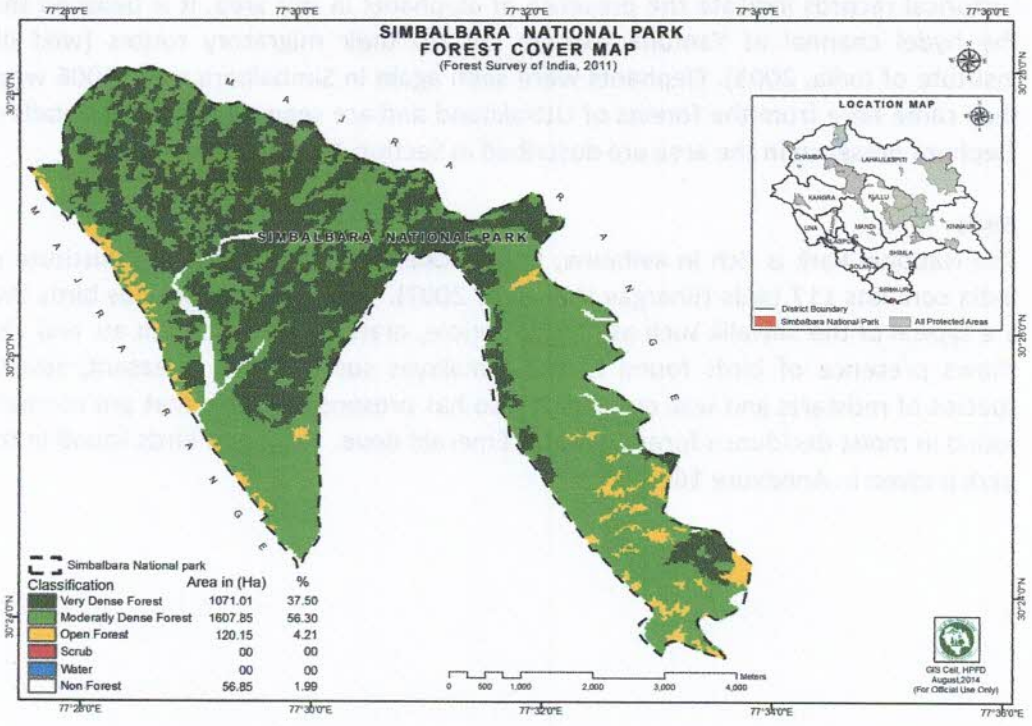


The area supports low quality sal typical of Bhabbar Sal Zone. Efforts were made in the sixties to plant bamboo and eucalyptus in the area, which is visible in the form of numerous eucalyptus plantations in the park. There are also some plantations of

Bamboo (*Dendrocalamus strictus*) and *Bambusa* spp which is not indigenous to the park. The major species found in the area are:

Canopy	:	Sal, Sain
Understorey	:	Sandan, Rohini, Mahua, Tendu, Aonla and Amaltas
Undergrowth	:	Basuti, Clerodendron sp., Karipatta and Lantana
Ridges	:	Sandan, Chhal, Buchanania lanzan, Toon and Tendu
Riverside	:	Jamun
Climbers	:	Malihan, Gauj

The vegetation types found in the National Park are sal forest, mixed intersperse with grassy slopes, riverine mixed forest, pine mixed woodland, mixed forest with khair plantation and eucalyptus plantation in riverine area (Wildlife Institute of India, 2003).



1.9 Biogeographic Zone

The National Park is situated at the intersection of three biogeographic zones, Zone 2- Himalyan zone, zone 4- Arid zone and Zone 7- Gangetic Plain (Rodgers and Panwar 1988). The flora and fauna show affinities to Western Himalayas, Punjab Plains and Upper Gangetic Plains.

1.10 Wildlife found in the National Park

Mammals

Numerous mammal species are found in the National Park. The list of mammals found in the National Park is given in Annexure 15.

There are very rare reports of the tiger. Probably they come here occasionally from Kalesar National Park. The main predator in the National Park is the Leopard.

Sambar and barking deer are found in all parts of the National Park. Chital are found in small numbers on the blanks of the Kaludev Rau near Simbalbara. They may be a natural population or introduced in the past. This is said to be westernmost population of the Chital in the Himalayan foothills. Goral are found on the steep ridges of the Shivalik hills. These ridges are located all along the boundary of the National Park hence the distribution of goral is mostly along the park boundary. Goral is classified as near threatened as per the red data list and its protection is an important function of this National Park.

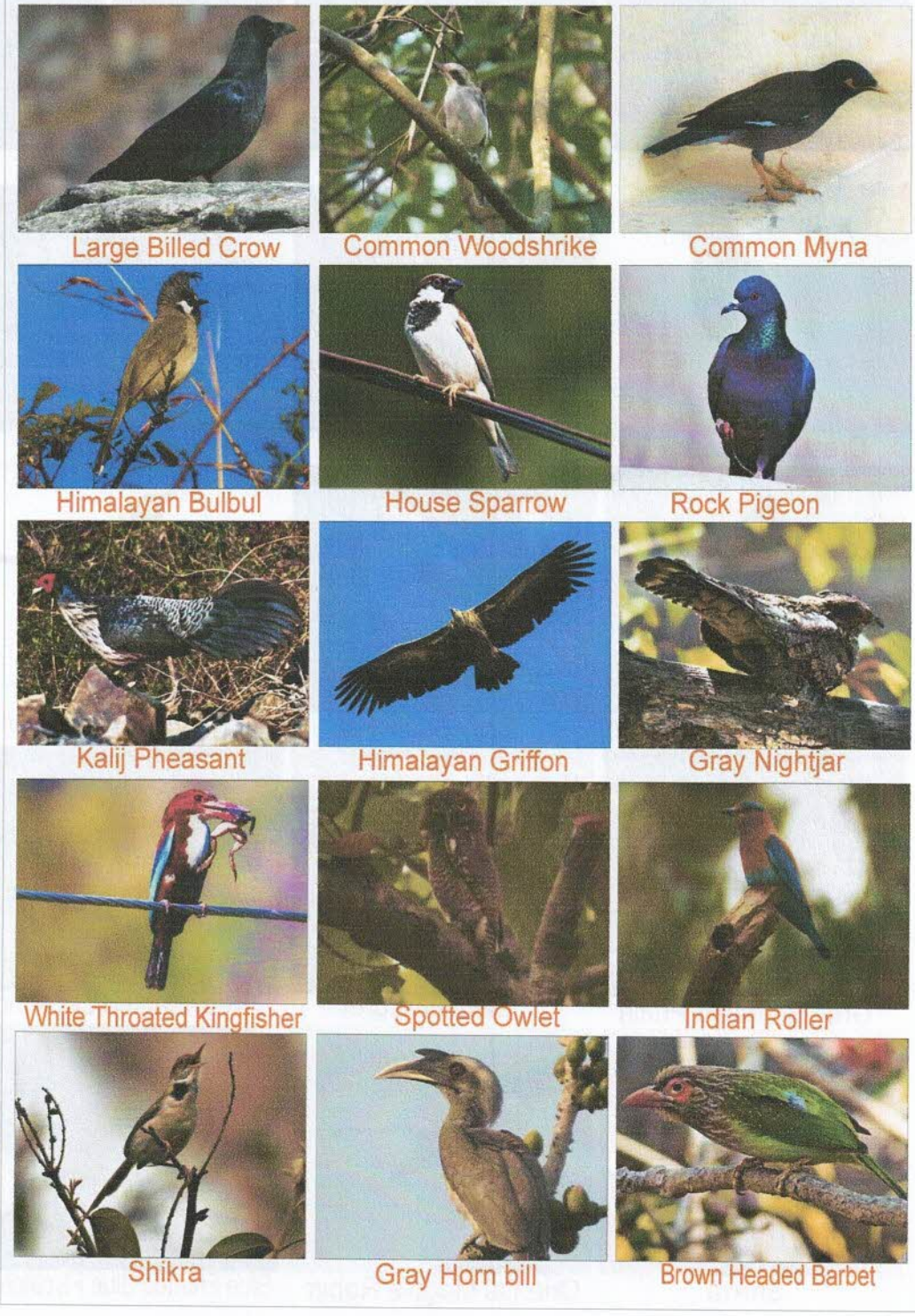
There is rare sighting of the Nilgai mainly on the boundary with Kalesar National Park. The langur is distributed throughout the National Park and the Rhesus macaque is also fairly common.

Historical records indicate the presence of elephants in this area. It is believed that the hydel channel at Yamuna barrage cut off their migratory routes (wild life Institute of India, 2003). Elephants were seen again in Simbalbara since 2006 when they came here from the forests of Uttrakhand and are seen till date. The details of Elephant presence in the area are described in Section 2.15.

Birds

The National Park is rich in avifauna; the checklist prepared by wildlife Institute of India contains 117 birds (Bhargav V.K. et al, 2007). The National Park has birds that are typical of the Shivalik such as Maroon oriole, orange headed thrush etc and also shows presence of birds found in the Himalayas such as Kalij pheasant, several species of redstarts and wall creeper. It also has presence of birds that are normally found in moist deciduous forests such as Emerald dove. The list of birds found in the park is given in Annexure 16.

Pictures of some of the common birds found in the park are as follows:

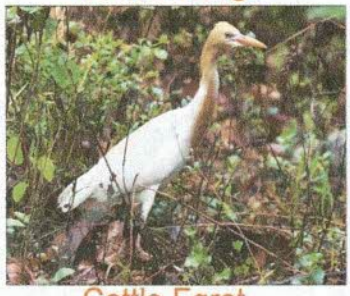


Brown Hawk Owl

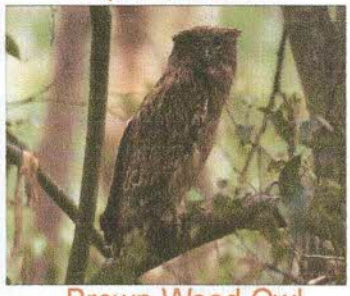
Black Drongo

Spotted Dove

Crested Bunting



Cattle Egret



Brown Wood Owl

Rufous Fronted Redstart

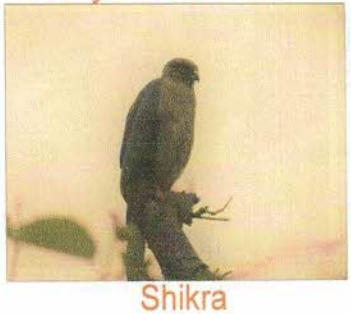
Gray Bushchat

Green Bee Eater

Gray Breasted Prinia

Medium Egret

Red Wattled Lapwing



Shikra

Oriental Magpie Robin

Blue Fronted Blue Flycatcher

Gray Wagtail

Indian Peafowl

Pied Bushchat

Yellow Footed Green Pigeon

Jungle Myna

Fulvous Breasted Woodpecker

White Rumped Shama

Purple Sunbird

Red Rumped Swallow

Long Tailed Shrike

White Eyed Buzzard

Siberian Stonechat

Plumbous Redstart

Red Jungle Fowl

Pied Hornbill

Amphibians and Reptiles

There is no information on amphibians and reptiles found in the National Park. There is need for a thorough survey to fulfil this need.

Invertebrates

Seventy species of butterflies are found in National Park (Kittur Swati et al 2006). The list of butterflies found in Simbalbara is given in Annexure 17.

Tiger beetles are a group of predatory beetles belonging to the family Cicindelidae of suborder Adepaga of the order Coleoptera (beetles). Sixteen species of tiger beetles are found in the Park (Uniyal V.P. and Vinay Bhargav, 2007). The list of tiger beetles found in the park alongwith four other sites is given in Annexure 18. Park shows the highest species richness of tiger beetles among all the sites.

1.11 Large Mammal Ecology of the Park

In the absence of Tiger, the Leopard is the top carnivore in the park. Considering the ecology of large mammals every protected area depends on one or more herbivore species that are found in the large numbers to form the lowermost stratum of the biological pyramid. The wild boar is found in large numbers all over the park and it is possible that the wild boar may perform this function. However, the wild boar is fierce in defense and it is uncertain if the leopard has a high enough success rate in hunting wild boar. The other herbivore that can form the main prey base of the leopard is the barking deer. This is an unusual situation and ecology of the wild boar and its main predator at Simbalbara will be an interesting and useful subject for study.

Sal forests in the Shivalik are often not very productive in terms of terrestrial herbivore populations. In fact, the grasslands found along streams are far more productive in this respect. It is often the main habitat of the chital in Himalayan foothills and Tarai region. Large blank spaces, serving as grassy meadows, are required for the chital. There are hardly any such meadows in the National Park. Such meadows can be found mainly on the banks of khalas. The main part of the National Park is on sloping terrain and the khalas need fairly flat terrain to spread and form flat beds. Asarodi khala begins to spread only near Simbalbara and the meadow there serves as a habitat for the chital. The Nimbuwala khala, which is formed by the confluence of Kaludev Khala and Asarodi khala flows outside the National Park between Gharatwali and Sunkron forests. The Nimbowala khala is wide and its banks have grassy patches. However, the banks of this stream are occupied by Pillodi village. If this area becomes available it has potential to become an excellent habitat for chital.

1.12 Buffer Zone and Connectivities

The National Park is well buffered on all sides. It is bordered by forests of Kalesar National Park to the southeast and by forests of Majra Range of Paonta Sahib Division to the north.

The National Park, together with Kalesar National Park and Kalesar sanctuary forms a large conservation unit. Protection of this interstate conservation unit will benefit

the wildlife of the Shivaliks, which needs protection in Himachal Pradesh and Haryana.

1.13 Cultural Values of the National Park

The National Park does not have any major temples, places of worships or monuments inside it. It has a small tomb, called Kaludev Mazar, of a saint named Kaludev, after which Kaludev beat is named. There is another Mazar of saint named Marusidh at Simbalbara on a rocky outcrop in the middle of the Rau. There is a waterspout connected to a perennial spring at the base of the mazar which exudes water like a tap.

1.14 Statement of Significance

The National Park has several important values from various perspectives. These values are identified and categorized below:

Conceptual

- Paonta Valley, in which the park is located, is the westernmost limit of sal in India and the Chital in the Shivalik.

Biological

- Col. Sher Jung National Park alongwith Kalesar National Park and Kalesar Sanctuary forms a large well-protected protection unit in the Shivaliks of Haryana and Himachal Pradesh.
- Col. Sher Jung National Park is the only National Park in the Shivaliks in Himachal Pradesh having well protected sal forests that supports associated fauna.

Ecological services

- The National Park lies in the watershed of the Yamuna River and regulates the runoff of precipitation into Yamuna.
- It protects the soil in the geologically fragile and erosion prone Shivaliks.

Recreational

- The National Park offers opportunities for wildlife tourism to nature lovers from nearby towns like Nahan, Paonta Sahib and Dehradun.

Research and Education

- The National Park has potential for research on a variety of subjects of biological importance.
- It has potential for conservation education of local community, including the nearby towns of Paonta Sahib and Nahan.

Chapter 2

History of Management and Present Practices

2.1 Past Administrative History

The National Park was maintained as a hunting ground for the Maharaja of Sirmour in the erstwhile Sirmour State and was therefore well protected with restricted felling of sal and sain. It was later a part of Paonta Forest Division before being transferred to Shimla Wildlife Division.

2.2 Timber Operations including Bamboo and Firewood Harvesting

Heavy felling of trees of canopy species was carried out from 1968 to 1977. This has resulted into intrusion of unpalatable species such as *Mallotus phillipinensis* and *Lantana camara* as natural regeneration of sal is missing. The natural blanks and degraded areas were planted with Bamboo, Eucalyptus and Popular. Eucalyptus and Popular did not show good results but bamboo has done well. No felling has been carried out after 1977.

2.3 Silvicultural Treatment

There are a large number of eucalyptus plantations inside the National Park that were planted from 1968 to 1977. Eucalyptus is an exotic species and does not have much ecological value in terms of providing resources for faunal groups such as insects, birds and mammals. Most of the plantations are in plain areas near the riversides.

There are a number of bamboo plantations done in the National Park. There is a large patch of bamboo plantation in Simbalbara. There is also plantation of Bambusa spp. in Danda Sukhchainpur beat near the main road. The Bamboo provides, browsing for herbivores such as Barking Deer and Sambar. However, its density is too high at some places so it prevents any undergrowth from coming up in its dense shade. The bamboo plantation of Danda Sukhchainpur provided a food resource for elephants during their stay in the Park.

2.4 Rights and Leases

There is no village inside the National Park. The National Park is not burdened by rights of local people since all rights have already been settled. No lease has been allotted to local people in the Park area.

2.5 Internal Administrative Boundaries

The National Park is divided into three blocks Simbalbara, Amargarh and Behral, each headed by a Block officer. Simbalbara Block is divided into Kaludev and Marusidh Beats while Amargarh block is divided into Danda Sukhchainpur and Ghurak Beats whereas Behral Block consists of Behral and Bata Mandi beats. Each beat is headed by a forest guard. The Headquarters of these administrative units is given in Table 2.1. The Headquarter of Ghurak Beat is at Naurangabad, which is quite far from Amargarh, the block and range Headquarter. Hence communication and coordination with this beat is difficult.

Table 2.1: Internal Administrative Units

Block	Beat	Headquarter
Simbalbara		Simbalbara
	Marusidh	Simbalbara
	Kaludev	Simbalbara
Amargarh		Amargarh
	Danda Sukhchainpur	Amargarh
	Ghurak	Naurangabad
Behral		Behral
	Behral	Behral
	Bata Mandi	Bata Mandi

2.6 Sanctioned Posts

There are 12 sanctioned posts in the National Park including 1 Range officer, 3 Deputy Rangers, 6 Forest Guards and 1 Animal Attendent.

2.7 Protection Practices

Patrolling

There is only one road passing through the National Park. Patrolling is carried out on foot by the Park staff. Night patrolling is also carried out occasionally by the staff for preventing poaching. During 2007-08 a system of group patrolling was introduced in the sanctuary for improved protection and monitoring of wild animal populations. This has proved to be effective for patrolling and also upgrading of knowledge and capacity building of field staff.

89 wildlife offence cases have been detected in recent years. All the incidences are of small and petty nature i.e. lopping, grazing and collection of fuel wood. Details of the cases are given in Annexure 27.

There are two rifles with the range office but the guns are not carried to the field and not used. The staff is not trained in operating the rifles.

Checkpost

There is an unmanned gate to the park at Simbalbara on the Puruwala Simbalbara road and a checkpost at Amargarh.

Water Resources

A number of water resources of various types have been created inside the National Park such as cemented ponds, earthen ponds, earthen dams and water harvesting structures. The list of water sources created in the past is given in Annexure 11.

2.8 Infrastructure inside the park

The infrastructure inside the National Park consists of Range Office cum Residence, Block Forest Officer quarter, forest guard quarters, rest houses, watch towers and water holes. During 2007-08 a deep borewell was commissioned which provides sufficient water for use in the forest colony at Amargarh. There are two Forest Rest

Houses in the park viz., Amargarh FRH and Simbalbara FRH. A detailed list of building in this park is given in Annexure 32.

Impact of Human presence around the National Park

Local Villages

There are no villages inside the National Park. Pillodi is the only village adjacent to the Park. It is located to the south of the National Park. Pillodi village has a large cattle population. The livestock of the village normally grazes in Sunkron and Gharatwali forest. These forests are somewhat poor fodder resources because of intense livestock pressure. For this reason, the households living near Simbalbara let their cattle into the Park through the Simbalbara gate. Sometimes they leave their buffalos for grazing inside the Park and take them back only when they become pregnant. This is a permanent source of conflict between Pillodi villagers and Park officials.

The villagers sometimes take their cattle through the Park and leave them for grazing in Kalesar National Park. Pillodi villagers use some of the trails inside the Park for moving to Kalesar National park for labour work for the Haryana Forest Department. Movement of people and livestock through the Park creates disturbance along the route to Kalesar National Park.

Puruwala village is located to the north of the Park. People of Puruwala graze their cattle in forests of Majra Range between Puruwala and Simbalbara. Sometimes their cattle also stray into the Park.

Presence of Pillodi village puts pressure on the Park mainly because of grazing of their livestock. Grazing by cattle occurs over much of the park area, mostly due to buffalos and cows from Pillodi and Puruwala Villages.

The local villagers have no official rights for collection of any forest produce from the Park. However, there is some pressure for firewood collection in the Park from Pillodi and Puruwala villages. There is regular traffic of people from Pillodi Village on motor cycle and bicycle that go to Puruwala and Majra to sell milk.

Migratory Graziers

Two gaddis and two gujars are issued grazing permits by DFO Paonta every year in Sukraon and Gharatwali RFs. The gaddies are permitted to bring 470 and 500 livestock respectively and the Gujar's are permitted to bring 5 buffalos each. Their name and permitted livestock are given Annexure 23.

Earliar the gaddies used to cross the Park for reaching Sunkron and Gharatwali RF's entering at Amargarh and exit at Simbalbara. But after the ban of Hon'ble Supreme Court on grazing inside the National Park, graziers are not allowed to cross trough the Park and now they have started using the alternate route via Majra Range for reaching the Pillodi.

2.9 Weed Infestation

There is high presence of weeds in parts of the Park. The main weeds are *Lantana, Eupatorium, Parthenium hysterophorus* (congress grass) and *Xanthium strumarium*

(Bokhru). *Clerodendron* which is naturally found and is unpalatable species is also found in high density in the forest. *Solanum* spp. is found in some areas. *Lantana* and *Eupatorium* is found all over the park in open areas as well as under tree conopy. Bokhru and congress grass are found mainly in open spaces, especially in the stream beds and stream banks. Weed presence reduces the habitat quality of the park as it reduces fodder availability for herbivores. This has an adverse impact on herbivore populations and can result in low population of carnivores such as the leopard and tiger. Weed infestation therefore, has an impact on all levels of the biological pyramid pertaining to terrestrial mammals. Weed density is known to increase due to high level of livestock grazing.

2.10 Tourism in the National Park

The tourism level in the Park is quite low. Earlier the forest rest house at Simbalbara was in a dilapidated condition and not suitable for receiving tourists. The rest house has been renovated and is now well suited for tourists. It is possible for tourists to use the Simbalbara resthouse for day visits or to halt for the night. Improvement of the rest house will provide a boost to tourism inside the Park.

A chital enclosure was created in 1990-91 at Simbalbara at a short distance from the rest house to enable tourists to watch chital and also for chital breeding. The area of the chital enclosure is 4 ha. This enclosure is not being used now. Watch towers have been created at Simbalabara (Kalu dev beat), in Ghurak beat and Marusidh RF to give tourists opportunity of sighting wildlife. Details of watch-towers are given in Annexure 31.

2.11 Soil Erosion

The streams inside the sanctuary are prone to erosion because of the fragile geology of the Shivaliks. Erosion of the banks of the Asraodi Khala is quite high. In some places the banks of the rau have been eroded by 5m to 15m in the 2007-08 rainy season because of high rainfall.

Erosion of banks and expansion of the rau is a natural phenomenon and not a result of faulty land management. Hence it should not be considered a cause of worry. The erosion of the steep clayey ridges of the Shivalik is also normal erosion. There is sporadic gully formation at a few places in the forests that needs to be controlled.

2.12 Fire Protection

The reserved forests around the Park are prone to fires in summer. These fires occasionally spread to the National Park and harm Park vegetation and wildlife. Since the fires are generally grounds fires, the damage to the tree crop is not severe. However, fires damage the shrub layer and tree regeneration which reduces tree density in the long run. Damage to shrub layer alters the compositon of the shrub layer and may affect the herbivore ecology of the region. Fires destroy small fauna including small mammals, birds, reptiles, amphibians and other micro fauna. Hence fire is normally considered harmful for the National Park ecology.

Protection against fires is an important activity in the Park. There is 14.8 km long fireline inside the Park. All firelines are being maintained regularly. Fire tracing is

also carried out around pathways and roadside. Labourers are employed for fire protection during the fire session from 1st April to June 30th. Fire protection teams are established and they are deployed at fire watch points on high ridges on the boundary of the Park. If fire is detected outside Park the concerned forest authorities are informed about it so that the fire is extinguished before it reaches the Park.

2.13 Trekking and Awareness Programme

Trekking and awareness programme are arranged by the Simbalbara Range for school children from Pillodi and Paonta Sahib town on the occasion of Wildlife week every year. They are asked to write an essay on their learning from the programme and asked to participate in a quiz on wildlife and the best students are given prizes. The school children enjoy the programme.

2.14 Presence of Elephants in the Park

Elephant presence has been reported from the park for many years. They are reported to have entered from Uttrakhand via Behral Village, forests of Paonta Forest Division and Kalesar National Park. They have moved continuously from one place to another and stayed in Himachal Pradesh only for a short period. The details of their visits to the National Park are given in Table 2.2. So far they have caused minor damage to crops or not harmed human being during their stay in Himachal Pradesh.

Park has perennial water sources in Danda Sukhchainpur RF and Kaludev RF and also bamboo plantations. This may have created a favourable habitat for elephants as compared to Kalesar National Park of Haryana which has a relative shortage of water resources. Bamboo plantation has been carried out in many areas during 2006-07. This may encourage elephants to stay there in the long run.

Table 2.2 Movement Pattern of Elephant around the Simbalbara National Park

Date	Description
21/2/06	Report of lone tusker in Danda Sukhchainpur Forest of Simbalbara Sanctuary
May 2006	Dung and footprints of elephants seen around Simbalbara FRH
5/7/06	7 elephants seen in Simbalbara Sanctuary
11 & 12/7/06	7 elephants – Simbalbara and Paonta forests
13/7/06	7 elephants- Sukho Meloin (Majra Range) 8 elephants seen in Kalesar Sanctuary of Haryana with one one calf
28&29/8/06	7 elephant including 1 calf seen in Kaludev forest
30/9/06	Report of lone tusker in Danda Sukhchainpur Forest of Simbalbara Sanctuary
28/1/2007 & 6/2/2007	Report of lone tusker in Danda Sukhchainpur Forest of Simbalbara Sanctuary
27/1/2008 & 28/1/2008	Report of lone tusker in Danda Sukhchainpur Forest of Simbalbara Sanctuary

30/9/2008 & 7/1/2008	Report of lone tusker in RF Kaludev
3/3/2009 & 10/3/2009	Report of lone tusker in Danda Sukhchainpur Forest, RF Kaludev
24/3/2009 & 6/4/2009	Report of lone tusker in Simbalbara Sanctuary and RF Suddanwala of Majra Range
7/7/2009 & 12/7/2009	Report of lone tusker in Simbalbara Nursery and Kalesar National Park
6/8/2009	Report of lone tusker near Simbalbara Nursery
16/9/2009 & 17/9/2012	Report of lone tusker near Simbalbara Nursery
25/8/2009 - 15/9/2012	Report of lone tusker in Danda Sukhchainpur Forest of Simbalbara Sanctuary
2/10/2012 – 5/10/2012	Report of lone tusker in Danda Sukhchainpur Forest of Simbalbara Sanctuary
18/11/13	Report of lone tusker in Kaludev Reserve Forest of Sher Jung National Park
22/1/14	Report of lone tusker in Danda Sukhchainpur Forest of Sher Jung National Park
15/3/14	Report of lone tusker in Danda Sukhchainpur Forest of Sher Jung National Park
25/8/14	Report of lone tusker in Kaludev RF Forest of Sher Jung National Park
12/2/15	Report of lone tusker near Simbalbara Nursery
13/6/15	Report of lone tusker in Kaludev RF Forest of Sher Jung National Park
5.9.2015	Report of three elephant seen in Danda Sukhchainpur with one calf
12.9.2015	Report of three elephant seen near Haryana boundary with one calf
18.11.2015	Report of lone tusker in Kaludev RF Forest near old nursery at Simbalbara
21.11.2015	Reorpt of lone tusker in RF Kaludev near Gullor
22.05.2016	Report of lone tusker in RF Danda Sukhchainpur near Mehre wala
28.05.2016	Report of lone tusker near Simbalbara nursery
11.08.2016	Report of lone tusker at staff quarter at Simbalbara
21.03.2017	Report of lone tusker at staff quarter at Simbalbara
10.04.2017	Report of lone tusker in RF near Danda Sukhchainpur near Haryana boundary
06.07.2017	Report of lone tusker in RF Ambwali C3 near water tank
18.08.2017	Report of one elephant in RF Kaludev Gharuk beat near Hoddikhala
28.09.2017	Report of lone tusker in RFGharuk near Kaludev Majar
22.11.2017	Report of lone tusker in staff quarter in Simbalbara
05.12.2017	Report of lone tusker in Danda Sukhchainpur
18.01.2018	Report of lone tusker in RF Danda Sukhchainpur near Ogal Amb road
23.07.2018	Report of lone tusker in RF Danda Sukhchainpur near Badi Johar

2.15 Assessment of works carried out inside the park

Plantation Work

Plantations have been carried out inside the Park on a regular basis for the past few years, in flat locations and along stream banks. The main species planted have been bamboo, jamun. Some plantations are exclusively bamboo or jamun plantations. Others are mixed plantations including bamboo, jamun, aonla, mango, guava, harar and bahera. Bamboo is growing well on the stream banks. The details of plantation work in the past five years are given in Annexure 14.

Tree plantation on the stream banks can be counter productive. The stream banks are productive areas, producing grass for herbivores. Planting them over with trees, will reduce their potential for grass growth and reduce fodder availability for herbivores.

On the whole the tree canopy in the Park is fairly closed. Blanks are found only at a few locations. Plantation is unnecessary. The blanks will be taken over by trees growth by a process of natural succession. Planting trees will change the tree composition in the sanctuary and produce an artificial composition, which may not be suitable for the wildlife in the Park. Blank spaces in some areas are being taken over by *Mallotus*, which is considered an unpalatable species for herbivores. However, this is a natural process and there is no need to interfere with it.

Weed Removal

Removal of lantana bushes was carried out almost every year as per the availability of funds. In this activity lantana bushes are uprooted manually and stacked upside down. This is a useful activity as it served to rid the Park of undesirable weeds and should be continued.

Creation of water resources

Various types of water harvesting structures have been constructed in the Park. Some of them have been successful while many other have been unsuccessful in retaining water. Cemented ponds hold water but the water gets dirty and dries up. Earthen structures are more natural and water in these structures remains relatively clean.

Water harvesting structure constructed around pernennial springs such as at Kaludev and Danda Sukhchainpur are very effective in retaining water and are useful for wildlife. This site at Danda Sukhchainpur is favourable for elephants where they come because of water availability. Cement check dams on seasonal streams are found to be unsuccessful. There is always some seepage hence water does not remain for long after the stream dries. Water retention structures on perennial springs were found to be most successful because the seepage was replenished by inflowing water from the spring.

Future water retention structure should be constructed after observing success and failure of previous efforts. Water retention structure should be site specific. Site

selection is very important and the structure should be designed considering the needs of each site.

Road Maintenance

Road maintenance consists of maintenance of the Puruwala – Simbalbara Road which is the only road inside the Park. This is a regular activity of the Park. It is a useful activity and is important for proper functioning of the Park. It is also important for travel by people of Pillodi Village for whom it is the main access road.

Construction of Tent Platforms

A camping site has been created in Danda Sukhchainpur Beat. Ten tent platforms have been constructed at this site inside the forest. The platforms have been used for camping by groups of students in programmes organized by the Park authorities; however, this is rarely used.

Tenting Site at Danda Sukhchainpur

There are certain drawbacks associated with this camping site. A camping site in the middle of the forest can create disturbance to wildlife. Camping in the forest in tents may be unsafe because of possibility of dangerous encounters with wild animals. This is especially true considering that the camping site is located far from any forest chowki or other forest establishment and may be used for lodging school children. Lodging facilities inside PA's are being discouraged in many protected areas.

However, keeping in view the safety of the tourists staying inside the camp the area has been solar fenced. Tenting plateforms has been repaired.

Soil Conservation work

Soil Conservatoin work done in the Park consists of spurs constructed for preventing erosion of stream banks. The spurs have been constructed mainly on Kaludev Nala which is subject to high level of erosion. While the spurs have been partially effective in halting the rate of erosion, many of them have been undercut and washed away while a few have been partially undercut and may get washed away in the next monsoon.

Fire line Maintenance

Firelines maintenance is carried out regularly. The activity is necessary for controlling fires inside the National Park and is very effective in controlling fires. New fire lines have been created at few places. This is also essential for protection of the Park.

Community works

Borewells with handpumps and latrines were created in Pillodi. Eight such units were created along the length of the Village, one for every kilometer. This activity was much appreciated by Pillodi residents.

Training Workshops

A training workshop on monitoring techniques was conducted at Simbalbara in May 2007. It was conducted by Wildlife Institute of India. It was attended by 12 participants including Range Officer and Deputy Rangers from the Park, and Forest Guards from Park and Churdhar Sanctuary. The training was very useful for introducing participants to field techniques of wildlife monitoring. The training included theoretical and practical modules. Some of the techniques described in this workshop have been adopted for wildlife monitoring in Simbalbara.

Recently in January 2018, an ungulate survey has been carried out under the guidance of Wildlife Institute of India, which was part of state-wide population estmation drive. Training for this was imparted to the staff by a scientist from Wildlife Institute of India Dehradun.

Trekking and Awareness Programme

The trekking and awareness programme for school children are organized every year on the occasion of Wildlife-week, which are very helpful for creating awareness on importance of wildlife and also creates publicity for the Park. It also ensures involvement of Park staff with public, which is beneficial for conservation. Such programme should be held every year.

Infrastructure Development

A facility consisting of a gate, chain-link fencing and barrage on Nimbuwala Khala was constructed at Simbalbara in 2006-07 for prevailing cattle of Pillodi Village from entering the Park. This was effective for a few months but the barrage was damaged during the monsoon and cattle can now come and go freely.

Simbalbara rest house was renovated in 2016-17 at a cost of Rs. 2.0 lakh. This was a very useful activity and the renovated rest house is very useful for accommodating officers on tour and tourists.

A three-suite rest house was constructed at Amargarh in 2006-07. This rest house is very useful for accommodating officers, especially during the monsoon, when Simbalbara is inaccessible and as additional accommodation for tourists when Simbalbara Rest house is full.

Equipment and Vehicle Purchases

One motor cycle was purchased in 2006-07. Other equipment purchased includes binoculars and GPS. All these equipments have been found to be very useful for Park management.

Wildlife Monitoring and Population Estimation

Wildlife monitoring has been carried out by two methods in the past, block count and animals encounter rate.

In the block count method, the Park was divided into blocks. Park staff and hired labourers walk along the border of the block and count in the animals as they are flushed. Most of the routes are along natural features such as waterways and trails. Standard techniques of block count method are used to eliminate double counting.

The block count method is not considered to be accurate because of problems of double counting and missing counting.

The second monitoring method practiced is animal encounter rate. Trails have been laid in the Park for this purpose. The length of the trails is about 5 km each. Each trail is walked by the Park staff and volunteers and animal seen/observed during walk are recorded. This exercise is carried out once a month. Animal signs observed on the walk, including scats of carnivores and tracks of herbivores and carnivores are also recorded. This method is an index-based method. The number of animals of each species seen and the number of signs of each species is an index of the population. This method yields index of population density. It does not yield the absolute population. If repeated over the years it yields population trends in animal population with fair accuracy.

2.16 Realignment of boundaries

The Sanctuary has been converted into National Park by including additional areas in the sanctuary. An area of 887.86 ha of Paonta Forest Division bordering Kalesar National Park has been included.

Table 2.3 Resevered Forest Area added in the National park

Name of Forest Block	Area (Ha.)
Katta Pathar	145.04
Ghuttanpur	274.48
Kothewali	123.24
Mastali	225.38
Ambwali	119.72
Total	**887.86**

An additional area consisting of Sunkron and Ghartwali forests from Paonta Forest Division is proposed for addition in the National Park. The proposed area of the conservation unit will become 4275.31 ha.

Table 2.4 Resevered Forest Area proposed for addition in the National Park.

Name of Forest	Area (Ha)
Gharatwali	609.33
Sunkron	806.12
Total	1465.45

2.17 Proposed Eco- Sensitive Zone

An area of 31.24 Km^2 area (16.27 Km^2 Forest land and 14.97 Km^2 Private land) with extent varying from zero to 8095.25 m has been proposed as Eco-Sensitive Zone and is under consideration with Government of India. The area of ESZ is as shown in the map below.

Commercial mining, stone quarrying, setting up new saw mills, setting up of industries, new major hydroelectric projects, fishing, muck disposal, establishment of large-scale commercial livestock and poultry farms by firms, setting up of kilns etc have been prohibited in the proposed Eco-sensitive Zone. Activities like establishment of hotels and resorts, widening of roads, construction and repair of civic amenities, cottage industries, homestays, felling of trees, erection of electrical lines, communication towers, collection of fodder, change of agriculture system, extraction of ground water, vehicular traffic at night, introduction of exotics, collection of NTFP, solid waste management, eco-tourism etc have been regulated. However, emphasis will be on promoting certain activities like agriculture and horticulture practices, dairy farming, aquaculture, fishries, organic farming, rain water harvesting, use of renewable energy and fuels, agro-forestry, use of eco-friendly transport, skill development, restoration of degraded habitats, environmental awareness.

Chapter 3

The Protected Area and the Interface Land Use

3.1 Villages in Zone of influence

There are 33 villages in the vicinity of the park. The list of these villages is given in Annexure 24. In practical terms only Pillodi village situated to the south of the National Park is nearest to the Park and has a significant impact on it. The other village with some or lesser influence on the Park is Puruwala located to the east of the Park on the Paonta Sahib Nahan Highway.

3.2 Socio-economics of Pillodi Village

Pillodi is the only village bordering the Park. On all other sides the National Park is bordered by forests of Paonta Forest Division.

Pillodi's location is quite peculiar. It is sandwiched between Sher Jung National Park on the north and Haryana state on the south in a small triangular portion of Himachal Pradesh, extending into Haryana. It is spread over a length of 8 km all along the banks of Nimbuwala Khala starting from Simbalbara on the north to the Haryana border on the south. There is no village of Himachal Pradesh near Pillodi though there are many villages of Haryana to its south.

The only approach road to Pillodi from Paonta Sahib –Nahan highway is the Puruwala-Simbalbara road via Amargarh. The village does not have a permanent road running through it because of Nimbuwala Khala. The river bed is used as a fair weather road. The village is practically cut off from Himachal Pradesh during the monsoon rains. Pillodi is also approachable from the Haryana side. Here also the road is not very good and is difficult to negotiate in the rainy season.

Pillodi Village has a human population of nearly 2300. The population of Pillodi is mostly Muslim. The present villagers relate that their ancestors came from Village Nagli in Haryana and settled here about 100 to 120 years back. Their main occupation is agriculture. The main crop they grow is rice, maize and wheat. The detailed land use classification of the village is given in Table 3.1

Table 3.1: Land use breakup of Pillodi Village

Land Use Category		Area (Bigha	Area (ha)
Mauja (Cultivable)		1362.9	109.03
Irrigated	: 175.9 bigha		
Rainfed	: 384.7 bigha		
IIn Class (poor Quality)	: 802.13 bigha		
Gair Mauja (Uncultivable)		3654.3	292.34
Waste land	: 525.17 bigha		
Jungle – jhadi	: 2287.6 bigha		
Road , constr., Streams	: 841.0 bigha		
Total		**5017.2**	**401.37**

People depend on animal husbandry to supplement their income. Most households own cows, bullocks and buffalos. They sell milk at Rs. 45 a litre at Puruwala and Majra. They also make khoya by boiling the milk. Animal husbandary is not very profitable as the expenses of animal feed and labour cost are high. Many families keep livestock for milk production mainly for self consumption.

The major problem for the people is the poor transport and accessibility. They have to walk 25 to 30 km to reach Paonta Sahib. They find it difficult to get daily jobs while living in the village. Youths from Pillodi are often forced to work outside the village to earn some income. Some work in Haryana for felling eucalyptus and poplar trees in plantations or as labourers in plantations. Some work in territorial forest division and a few works in Park. Many of them stay outside the village for a few months every year. The villagers had arranged a pickup vehicle to transport job holders to the work place but found it too expensive.

The village has school till the 10^{th} standard and most village children attend the school.

People get their firewood from Sunkron and Gharatwali RFs. They want grazing and TD rights in these forests.

A few Gaddis and Gujars were granted grazing rights in these forests in 1979. The local people feel the graziers are damaging the forests. Goats are especially harmful to the forests. Overgrazing by goats has created weed infestation in the forest. Moreover, the local people feel that goats and sheep also bring weeds with them by seed dispersal mechanism consisting of seeds that stick to the hair of goat and sheep.

3.3 Wildlife Human Conflict

The villagers of Pillodi face human-wildlife conflict of various kinds. The main conflict they face is crop damage by wild boar and Rhesus macaques. Wild boars and monkeys cause considerable damage to their crops. Maize is heavily damaged by wild boar. Crop damage by wild boar is an old problem. Crop damage by monkeys is a recent phenomenon, about 15 years old. It started since the time monkeys caught in cities were released here. At present people protect crops from wild animals keeping dogs and keeping night watch.

Cattles belonging to Pillodi villagers are rarely killed by leopard inside the Park and in the reserved forest outside the Park. Animals killed inside the Park are not eligible for compensation.

The villagers of Behral, Satiwala and Bata Mandi Village face the problem of elephant entering into their fields while coming from Uttrakhand forest or Rajaji National Park and cause damage to their crops such as sugarcane, paddy, wheat and other orchard crops.

All animals killed outside the Park are in the purview of the territorial forest division and not the responsibility of Park authority.

3.4 NTFP Collection

Local people do not have any rights over forest produce in the Park. No NTFP Collected from the park by residents of Pillodi village or any other village. Culturally also these villagers are not accustomed to collection of NTFP from forests.

3.5 People's Requirements

The life of the local people is closely linked to the forests because of their various dependencies. Local people have several expectations from Park authority with regards to fulfillment of their needs from the forest as well as development activities. Some of their expectations are given below.

Most pressing demand of the villegers of Pillodi is for a permanent road from Puruwala to the end of Pillodi Village. The village is about 8 km long settled along the banks of Nimbuwala Khala. They want a regular bus service to the Village. They want TD rights in Sunkraon and Gharatwali forest. At present they do not have TD rights.

Villegers of Pillodi are willing to resettle outside the Park if they are offered a satisfactory resettlement package.

Chapter 4

Vision, Objective, Issues and Problems

4.1 Vision Statement

A vision statement is useful in stating the direction of management and what National Park would like to become or known as. The vision statement for Col. Sherjung National Park is as follows –

To be a well- protected National Park in the Shivalik that is part of an integrated conservation unit with Kalesar sanctuary and National Park of Haryana free of human pressure, with an undisturbed, well protected ecosystem, that is home to an assemblage of species typical of the Shiwaliks.

4.2 Management Objectives

The following are the management objectives for achieving the vision statement:

i. To relieve the Park from anthropogenic pressures such as grazing
ii. To provide high level of protection to the park and minimize poaching.
iii. To have a thriving well managed mammal population.
iv. To have professional management in the Park based on scientific methods and research inputs.
v. To have well managed wildlife tourism that provides a rich experience for tourists.
vi. To provide opportunities for staff to have professional development in the field.
vii. To conserve bio-diversity of the protected area.

4.3 Issues and Problems

The issues, problems and constraints for each of the above objective are discussed in this section.

i. **Relieve anthropogenic pressure on Park**
The dependence of Pillodi Villagers on the Park for grazing their cattle is an intractable problem, so also Village Puruwala. The presence of permit holders in Sukron and Gharatwali forests gives them opportunity for grazing their goats

ii. **Protection in the Park**
The people in the region are in the habit of keeping guns and have a liking for hunting

iii. **Achieving a thriving mammal population**

Being a small Park there are limited options in terms of habitat availability and variability. Mammal population is constrained by the Park size.

iv. **To have professional management**

The field staff does not have much exposure to scientific management concepts.

v. **To have well managed tourism**

Tourists need to have good wildlife sightings to encourage tourism. This is possible only when the Park has a healthy ecosystem and a thriving mammal population.

vi. **Professional development of field staff**

This needs a concerted effort on part of the senior officers to create quality upgradation of the field staff, through regular training and exposure visits. It also needs intelligent good quality staff with a desire to learn and upgrade their knowledge.

Chapter 5

Management Strategies

5.1 Management Philosophy

At the outset it would be appropriate to discuss the philosophy or the approach towards management of the Park. Some of ideas are discussed in this section. The management strategy prescribed in this management plan is based on the philosophy outlined in this section.

Degree of Intervention

In general, a policy of low intervention in natural biological processes has been followed in this management plan. The floral and faunal assemblage of the park has arisen through years of evolution and adaptation to a natural set of condition. All life forms are dependent on each other in a complex web of life. The chain of interdependence is too complex to be understood in totally. Tampering with this natural ecosystem out of insufficient understanding may create a chain of event that we do not understand and may have long-term undesirable effects. Management therefore, is mostly directed towards reducing human influence that may create undesirable impact on the flora and fauna.

At the same time a totally hands-off approach can not be justified since the Park ecosystem has already been altered by human influence over the years. In situations where the cause and effect relationship are well understood it may be justifiable to carry out interventions that help to mitigate an altered natural feature of the ecosystem or for achieving specific management objectives. This implies a good understanding of the ecology of the Park at the habitat level, species level, forestry, hydrology and other discipline.

Today's protected areas are often like islands in human altered landscape. In the distant past, when the species and ecosystems evolved, the natural checks and balance functioned effectively and the ecosystem was at a stable equilibrium. Today such checks do not exist. This is especially true for animal populations. Hence the Park fauna inevitably spill out into the human landscape creating conflict. In such situations interventions such as population management may be necessary to manage the problem.

Issues of small protected areas

Small protected areas have some unique issues. Firstly, small populations in such PA's are subject to population fluctuations that my lead to loss of species. Secondly it may be difficult to maintain the complete assemblage of herbivore species in such PA's to support a sufficient population of the apex predators. Thirdly small PA's may provide limited tourism opportunities. These problems are sought to be addressed

in this management plan. Specific interventions may be needed to address these issues that may not be necessary or advisable in larger protected areas.

Functions of the Park Authorities

Probably the most important role of the Park authority is that of protection of the Park. This role, if implemented effectively, is in itself sufficient to relieve the Park ecosystem of a majority of its constraints and ensure its well being.

The influence of the human population belonging to the surrounding village and towns, on the Park, is very significant. Management of this influence is the second important function of the Park authorities. The Park authority is the interface between the Park and the local people. Its effectiveness in this function determines how well the pressures on the Park are managed.

The third important role is that of monitoring the main biological components of the Park. Monitoring is a very important tool for understanding dynamics of the Park ecosystem. It helps in understanding the status of various floral and funal elements. The most important component is often the population of large mammals and bird speices with small populations. These generally occur in relatively small populations subject to fluctuations and are at high risk from poaching. Hence it should form the most important component of monitoring. The other components may be monitored based on need.

Other important functions are implementation of various habitat amelioration works, creation and maintenance of infrastructure, staff management, management of tourism and revenue collection.

The management strategies adopted in this management plan are described under the above categories.

5.2 Thrust Areas for Management

Thrust areas for management are identified in this section for the period of this management plan. This will help in directing efforts in important areas of the park management. The thrust areas are given below:

i. Strengthening patrolling and protection in the Park.
ii. Minimising the biotic pressure of migratory permit holders and local people on the Park.
iii. Strengthening the monitoring mechanism.
iv. Strengthening the interface with local people.
v. Adding to the knowledge of biodiversity of the Park.
vi. Development of tourism in this Park.
vii. Professional development of Park staff.
viii. Protection of breeding sites

5.3 Strengthening the Protection Mechanism

Patrolling Practices

Regular partrolling is the best means of maintaining protection inside the Park. The present patrolling system in the Park should be continued. Group patrolling should be encouraged. This practice will give moral support to the field staff and give them confidence in dealing with poachers. Night patrolling is of utmost importance and should be carried out regularly since most poaching activities take place at night.
Group patrolling will not be effective unless it is well implemented. Patrolling schedule should be made by the Range Officer, both for day and night patrolling. It should be followed by the park staff and regularly cross- checked by the Range Officer.

Vehicle Purchase

At present the Park is equipped with one motor cycle. Since col. Sher Jung National Park is at border it would be very useful for the Park to have a jeep for patrolling. A jeep for group patrolling is urgently required which will be much more effective in controlling poaching. Adjoining Kalesar National Park and Sanctuary have a number of jeeps. Hence purchase of jeep should be strongly considered. Simbalbara Block and Behral Block do not have motor cycle at present. Motor cycle should be provided to the Simbalbara and Behral block officers to help in patrolling.

Fire arms

Fire arms are a useful deterrent measure for controlling poaching in the Park. It is suggested that the block officer should carry a gun with him while patrolling. The gun needs to be used only rarely if at all. However, possession of a gun will give confidence to the field staff in dealing with poachers and other people involved in illicit activities in the Park.

A training workshop should be conducted for all field staff in handling of fire arms by the experts from the police department. An annual refresher course should be conducted to ensure upgradation in skills. A schedule should be decided for annual or biannual maintenance of the guns in the possession of the Park authority.

Check posts

Manned check posts should be set up at Simbalbara. The entry gates at Simbalbara should be registered to give it legal status. Two forest assistants on daily wages or on contract basis are proposed for manning the check post. Entry of every person and vehicle should be recorded at the check posts.

Incentive to informers for Prevention of Poaching

Secret funds should be kept at the disposal of the Range Forest Officer for paying informers. Informers should be paid on the need basis in consultation with the DFO. This is a very useful means for keeping a check on poaching activities in the Park.

5.4 Managing Human Pressure on the Park

Presence of Permit Holders

This refers to the Gaddies and Gujars having permits for Sunkron and Gharatwali forests

Immediate Action

(i) Permit holders should be allowed to pass through the park only through Amargarh gate. They should not be allowed to enter the park at any other point. DFO Paonta Sahib Division should decide their route in consultation with Park authority.

(ii) Their livestock should be counted and only permitted number of livestock should be allowed to pass through the park.

(iii) They should be allowed to enter the Park at day break and must exit the Park within a reasonable period of a few hours.

(iv) While passing through the Park their livestock should not be allowed to stray from the road.

(v) While staying in the permitted forests they should not be allowed to stray from the road.

(vi) Similar rules should be followed while they are returning from the Gharatwali and Sunkron forests.

(vii) It should be ensured that animals which are tress passing the Park from the surrounding forest should be vaccinated.

Long Term Solution

(i) Presence of permit holders, especially gaddis, in Sukraon and Gharatwali forests adjacent to the Park, is a serious problem for the park. Permission of permit holders to graze their livestock inside Sukraon and Gharatwali forests should be cancelled and they should be given alternate forest areas for grazing their livestock.

(ii) Village Pillodi should be resettled at a new location outside Sunkron and Gharatwali forests.

(iii) Sunkron and Gharatwali forests should be included in the National Park.

5.5 Infrastructure Development

The following additional infrastructure is proposed in the Park:

(i) Forest guard quarter at Amargarh for forest guard of Ghurak beat: 1 No.

(ii) Checkposts at Amargarh and Simbalbara: 2 Nos.

(iii) Community Training Centre containing lecture/ meeting hall and dormitories needs to be constructed at Amargarh.

(iv) Interpretation centre and small library needed at Amargarh.

5.6 Creation of Water Resources

Marusidh and Kaludev Beats have sufficient water resources at present. Danda Sukhchainpur and Ghurak beats are deficient in water resources, especially near the boundaries of the Park which is at a height and the terrain is sloping. Water resources should be created in these beats. One water retention structure should be constructed in Danda Sukhchainpur Beat and one in Marusidh beat. These should be spaced out so that they serve areas where water availability is low, such as at the base of the ridges. The type of water retention structure will depend on the site condition.

5.7 Soil Conservation

As discussed earlier the soil erosion witnessed in the streambeds is a natural feature of the Shivaliks. Hence soil conservation works such as construction of spurs for its control should be taken up.

A small level of soil erosion, primarily gully formation, takes place inside the Park. Gullies should be differentiated from natural stream and nullahs that are a natural feature in hilly terrain. Gullies are often formed on plain terrain because of loss of vegetative cover and swift flow of water. A gully generally has a clear head which keeps on travelling upward due to erosion. The best means to stabilize gullies is by vegetative means and stone pitching. Grass tussocks such as khus grass or local grass with strong roots should be planted on the gully sides and the gully head. The tussocks will take root and protect the soil from erosion. Stabilisation of the gully head is very important. Stone pitching may be combined with vegetative methods for stabilizing gully heads.

5.8 Equipment and Vehicle Purchase

The forest department staff should have good quality field equipment for working in the forest area. Hence the following equipment is proposed for procurement. The need for jeep and motor cycle has been discussed in section 5.3. The purchase of canvas tents is being recommended as discussed in section 6.4

Table 5.1: Equipment to be purchased

Equipment	Quantity	Purpose
Computer	1	Range Office
Binoculars	4	For issue to Range office Block officer and forest gurds
Digital Camera	4	For each beat
GPS	4	For each beat
Motor cycle	2	Simbalbara Block and Amargarh Block
Jeep	1	Range Office
Canvas Tents	4	Lodging visitors at camp site
Tranquilizing equipments	1 set	Range Office

5.9 Development of Communication System

At present there is no telephone at Amargarh or Simbalbara. There should be good communication facilities at both these places. An internet connection should also be obtained for email communication and browsing at the range office. Email will be helpful for visitor's bookings.

Since most of field staff own mobile phones, support is provided to each field staff @Rs. 200/- per month towards defrayment of mobile bills by the DFO every year during fire season. With the rapidly improving mobile network in the state, this innovative intervention seems to be very effective in providing instant and reliable communication between places and staff. It is therefore, strongly recommended that provision for mobile connectivity be made every year under the CSS for protection of PA's.

5.10 Weed Control

Weeds are a serious problem in the Park. A systematic weed eradication programme should be carried. Weed infested areas in the Park should be identified, their area estimated and marked on a map. Weeds such as *Ageratum conizoides* (Neela Phulnu) Lantana, Bokhru and Parthenium should be uprooted and dried or burnt. This should be combined with strict control on grazing, especially by goats and sheep. Otherwise the weed eradication programme will be useless. Since the weeds come back to a cleared area due to sprouting of their seeds the weed eradication programme should be followed up for 3 to 5 years in each area for complete eradication of the weeds.

5.11 Tree Plantation

As discussed in Section 2.15 there is not much need for tree plantation in the Park. In fact, tree plantation may be counter productive in some areas. Hence no plantation is proposed for the duration of this management plan. Some fodder species need to be identified and maintained at browsing height or pollarded. Species like Ficus, Zizyphus, Gauj, Maljhan, Grewia, Karonda etc. should be encouraged for herbivorus.

5.12 Fire Protection

Firelines are adequare in Danda Sukhchainpur beat Marusidh beat and Ghurak Beat. There is need for a fireline in Kaludev Beat on border with Haryana and parts of Nahan Division. The required additional length of fire line is about 8 km.

Temporary huts/ shelters should be created at vantage points on the top of the ridges to keep watch on the ridge. Three or four such points should be selected for keeping fire watch through out the fire season. Each watch point should be manned by three fire watchers. In case of fire one of them should go to the nearest forest establishment to inform about the fire. The fire watchers should be provided with mobile phones issued for the fire season.

The question remains, however to develop a rapid response system to quickly arrest and put out fires when and wherever they occur. It appears that this would be quite difficult in Simbalbara. There are no villages or habitations nearby and in any case past experience shows that most people are reluctant to pitch into putting out forest fires. It would therefore, appear that in the short term an effective network of firelines (big and small) that are regularly monitored and cleaned during and before the dry season is maintained and sufficient provision is made in the annual budget for this. Record of fires needs to be maintained rigorously.

5.13 Creation of meadows

Purpose of meadow creation

Chital are highly visible herbivores that attracts tourist to the park. This species plays an important role in the ecosystem of Indian forests as a prey base for large carnivores. Since Simbalbara is the western most habitat of the Chital special efforts need to be made to conserve the Chital in this Park.

Since Col. Sher Jung National Park is a small Park, the variety of habitats is limited and the area available in habitats suitable for chital is very small. Creation of habitats those are suitable for chital would increase their population. Encouragement of chital in Simbalbara would increase the herbivore biomass in the Park and benefit the apex carnivores such as leopard and tiger. It would increase the attractiveness of the National Park for tourists since chital is a highly visible and charismatic species.

Chital are fond of edge habitat, viz. the boundary of forests and grass lands. Meadows in the forest are a favoured habitat of chital. A habitat with a patchwork of forest and grassy meadow is ideal for chital. Where the habitat is suitable chital are found in high densities. They are found plentifully in the Shivalik landscape in the flat valleys between mountain ridges on the flat grassy pastures on the banks of streams. Such areas in the Shivalik support high density of chital.

In Simbalbara Chital are found in small numbers on flat areas, either on stream banks or on ridge. (There are some flat patches on top of the ridges).

There are very few grassy patches in Sher Jung National Park. The khala beds normally have such grassy banks where the landscape is flat but, in the Park, the khalas flow mostly on slopping terrain downstream, where the khala can spread and create grassy banks, but this stretch of the stream is occupied by village Pillodi.

Procedure for meadow creation and maintenance

It is proposed to create grassy opening in the park by active habitat manupulation. This would be carried out in two different areas.

As discussed above eucalyptus plantations are not conducive habitats for most faunal groups in the Park. Hence it is suggested that clear felling should be carried out in some patches creating openings in the forest. Such fellings should be created

on plain ground preferably near the stream bank. Eucalyptus tree stumps should be uprooted to prevent coppicing.

The area of an individual patch should be about 0.5 to 1 ha. Such opening should be created in two or three eucalyptus plantations every year. Every year some areas should be felled in each plantation. There should be a gap of 50 to 100 m between successive openings. In this manner 1 to 2 ha area of eucalyptus plantations should be felled every year for the period of this management plan.

Some area should be clear felled near the bank of the Asarori Khala in the area of the old deer breeding enclosure. Here two or three patches should be clear felled each with an area of 0.5 ha in area.

Grass will come up in these opening due to availability of sunlight. Left to nature the openings will soon be colonized by shrubby and woody species. Hence meadow maintenance operations should be carried out in these patches to maintain the opening in a grassy state. This operation may be carried out either by control burning or uprooting of woody regeneration.

Control burning should be carried out in cold weather in winter or early spring to prevent excessive burning and damage to soil. The opening will be maintained as meadows by annual controlled burning.

Manual uprooting of woody regeneration in the meadows is also effective in maintenance of meadows. It is safer than controlled burning but is a little costlier because of manual labour for uprooting of weeds.

Effectivness of both the technique should be evaluated over the period of this management plan.

Monitoring of meadows

The meadows should be monitored for presence of herbivores using a proper monitoring protocol. Monitoring will determine the success of the intervention. Each meadow should be given a name or number. Each meadow should be visited once a month on a particular day in the early morning and the number of herbivores seen in the meadow should be counted. Since the meadows are small it should be possible to count the approximate number of animals by visual estimation. Regular monitoring will be able to establish the degree of success of the intervention.

5.14 Management of Elephants

No special efforts should be made to encourage elephants to stay in the Park. On the other hand, active driving operations should also not be carried out. They should be allowed to come and go as per their choice. Their presence in the Park should be monitored carefully. The sex and age wise composition of the group should be observed and recorded. The elephant group should be carefully tracked and regular observations should be made of their movement patterns. A report of their stay in

the National Park should be made every year and sent to the Division headquarter and CWLW.

5.15 Organisation

The headquarter of Ghurak beat should be shifted from Naurangabad to Amargarh to improve coordination and efficiency in functioning

At present the name of RFs and beats are the same. This creates considerable confusion. The beats should be renamed so as to remove confusion.

Some additional staff is proposed in Table 5.2 for additional function proposed in this management plan.

Table 5.2 propose Additional Staff

Post	No.
Forest assistance for manning proposed checkposts at Amargarh and Simbalbara. These may be on daily wages	2
Peon	1
Chowkidar for Amargah and Simbalbara rest house	2

5.16 Procurement of Toposheet Maps of the Park

At present the Park does not have printed park map cum topsheets however, GIS based digitization of the Park boundaries has been done. A park toposheets should be created showing all administrative boundaries to each scale 1:25000, 1:50000, 1:15000 and 1:5000. One cloth- lined map should be disturbed to each guard and block officer. Since the park is quite small it is not necessary to distribute beat maps to each forest guard.

The map should have a square grid marked on it with an interval of approximately 0.005 degree (1.12 cm). Each grid should be numbered horizontally from A to Z and vertically in numbers 1, 2, 3 etc. Each square on the grid can be represented as a combination of an alphabet and a number such as A1, B5, and G9 etc. If a location has to be specified on the map it can be specified in terms of the square grid number. This will be useful in accurately specifying and recording locations of any observation made in the field.

5.17 Realignment and Management of New Areas added after Realignment

The Park boundary has been realigned to include compartments of katta patthar, Ghuttanpur, Kothewali, Mastali and Ambwali forests with an area of 887.86 ha to convert the Simbalbara sanctuary into Sher Jung National Park. Sukron and Gharatwali forests with in area of 1465.45 ha should also be included in the Park. The proposal should be revised to make these forests areas into the Park. Pillodi village should be resettled at a new location preferably in the same district and Tehsil.

Some principles of aligning park boundaries as follows:

1. As far as possible protected areas should be compact in shape, i.e. it should not be long and thin. Compact boundaries have a small edge (boundary length). This reduces sanctuary problems due to external influences.
2. Park should be as large as possible. This enables large animal populations ensuring long term viability and stability.

Col. Sher Jung is a small National Park. The proposed additions to the park will give it a long thin shape. From both the perspective stated above there are grounds for increasing the size of the park and improving its shape, subject to practical realities such as availability of area. The surrounding forests of Paonta Sahib Division should be surveyed and attempts should be made to increase the size of the national park, beyond the present proposals outlined in Section 2.17, if suitable area is available.

5.18 Proposal for Resettlement of Pillodi Village

Presence of Pillodi Village will be in contradiction with the principles of the Park. Presence of Pillodi Village near the national park creates pressure of cattle grazing on national park resources. The pressure is much higher in Sukraon and Gharatwali forests and it will not be possible to have proper management of these forest areas as Park. Hence it will be appropriate to resettle Pillodi Village outside the present location.

Pillodi Villagers face considerable difficulty at the present location of the village and are willing to be resettled at a location with better accessibility provided they are offered a satisfactory resettlement package. Hence it is proposed that they should be resettled at a new site. Proper procedures should be followed such as entering into a dialogue with them on the point, deciding a proper resettlement package obtaining their consent for relocation, identifying a new site for their resettlement and obtaining necessary funds for resettlement.

5.19 Coordination with Kalesar National Park

There should be coordination with Kalesar National Park and Sanctuary for management issues of the Park. The man issues that need to be addressed are:

i) Protection from poaching, intelligence gathering and exchange of information.
ii) Anthropogenic pressures due to movement of people for labour work in Kalesar National Park, and livestock grazing.
iii) Fire control and protection.
iv) Movement of elephants
v) Other mutual issues

Periodic meetings should be held with authorities of Kalesar National Park to achieve these goals. Periodicity of the meetings may be three monthly or half yearly. Telephonic contact should also be kept with them.

Chapter 6

Tourism Interpretation and Environment Education

6.1 Tourism Goals and Strategy

Successful and well managed tourism in the park is one of the objectives of the Park Authorities. Tourism in the park will boost the profile of the park. It will create awareness about wildlife conservation among the general population. It will help to gain support for various conservation issues faced by the park. The villages nearest to the park are Pillodi and Puruwala. Tourism in the park is likely to benefit these villages provided they are involved in tourism.

Success of wildlife tourism inside the park depends on good experience of tourists. Good management of the park, especially reduction in human pressure, minimizing weeds and high level of protection, are essential for improving wildlife sightings.

Tourism at Sher Jung National Park should be aimed toward tourists from nearby town and cities such as Paonta Sahib, Nahan, Shimla, Dehradun, Chandigarh, Delhi etc.

6.2 Philosophy of Tourism in Sher Jung

Every site needs to have its own tourism philosophy to define the manner in which tourism will be developed in the park.

Some thinking is required regarding the type of tourism to be promoted. Sher Jung is a small National Park. Hence more emphasis should be on promoting tourism mostly on foot such as nature walks and treks. Trekking inside the park should be along established routes so that wild animals are not disturbed. The number of trek and number of participants in group should be regulated. Beside trekking route, Safari with open jypsy can be stated for enriching visitor's experience.

Secondly a decision is necessary about the agency that will be responsible for executing tourism in the sanctuary. Typically, agencies executing tourism in protected areas are the Forest Department, external tour operators, hotel owners and local people and the tourism business is divided between them in some combination or proportion. Ecotourism in its true sense implies that the benefits of tourism will go to the local people. This will also motivate them to place higher value on the park and protect it more actively. In the Park the infrastructure belongs entirely to the Forest Department. It is therefore; proposed that tourism in the park will be a partnership between the Forest Department and the local people. The Forest Department will provide the infrastructure while the local people will act as guide for the tourists and get some income.

6.3 Nature of Tourism to be promoted

Tourism in park should focus on large mammals found in the park as far as the general tourist is concerned. Tourists interested in other faunal groups of vertebrates and invertebrates are likely to be few in number.

Road tourism should be limited in the park. A vehicle drive may be permitted on the designated road in the morning and evening hours may be started for visitors. Other than this the outings should concentrate on guided walks and treks in the park on designated trails.

Tourism in the park should be promoted on foot along many trails of the park specially on Simbalbara to Dhaulakuan and Amargarh to Maru Sidh Temple. Goral watching by climbing to one of the convenient ridges is also feasible provided it does not cause too much disturbance to the gorals. Goral watching should be carried out in small groups.

Guides from village Pillodi should be engaged at Sher Jung for taking tourists around the park. Guides from Puruwala Village should be engaged at Amargarh. A list of guides should be maintained and a roster system should be adopted for allotting guides to tourist groups.

At present further infrastructure development in the park is not necessary except for watchtowers, safari road and trails.

6.4 Tourism Centres

The main tourism centres shall be Simbalbara followed by Amargarh. Tourists will visit Simbalbara and halt at the rest house there. Tourists can be accommodated at Amargarh when Simbalbara rest house is full.

Camping sites

Recently a camp site has been prepared at Amargarh. This site will be especially useful for housing school and college children. Tent platforms have been constructed. Water supply and bathroom facilities should be provided at the camp site. Canvas tents should be purchased for setting up at the camp site. In addition to this another camping site at RF Kaludev about 3-4 kilometers from Simbalbara should be developed for campers. Since Simbalbara is situated in forested area the campers will get an experience of living inside the forest.

6.5 Publicity

Col. Sher Jung National Park should be publicized as a tourist destination. Information on the park should be put up on the website of the Forest Department including contact details such as address, telephone number and email addresses. Press releases should be made about the park as a tourism destination. Tour operators should be contacted and informed about the park. Programmes should be organized for local schools and colleges.

6.6 Conducting Tourism in the Park

Identification of Trails

Trails should be identified for wildlife sighting inside the park. These should be given clear names for identification. A brief description should be written about the main features of each trail, including the wildlife likely to be seen on the trail.

Table 6.1 Suggested List of Trails for Tourism

Sr. No.	Trekking Route	Distance (Km)
1	Dhaulakuvan –Simbalbara	12 km
2	Majra-Simbalbara	12 km
3	Simbalbara to Karwe ka khala	2 km
4	Simbalbara to Marusidh	2 km
5	RF Ghurak	3km
6	Marusidh khala to Marusidh Ridge	2 km

Activities for Tourists

The main activities for tourists should be as follows:

- Walks along nature trails.
- Night halt in watch tower for interested tourists.
- Morning and evening safari along the road.

6.7 Park Literature

Broachers/ pamphlets about the park should be printed for distribution to tourists. The brochure should give the trekking map of the park including trails, list of wild animals, birds and plants. It should inform tourists about the rules to be followed in the park.

6.8 Signage

Adequate signage needs to be developed in the park. Signboards should be put up at Amargarh Range office, Amargarh gate, Amargarh- Simbalbara, Simbalbara gate and Simbalbara rest house. Some points for inclusion in the signboards are as follows –

- Name and area of the park
- Map of the park
- Park geography and geology
- Wildlife (mammals and prominent birds) found in the park
- Rules and regulations
- Fire safety

It would be ideal to develop a proper signage plan by a professional agency including the location of each signboard, content and design of each signboard. The actual signage put up will be as per the signage plan.

6.9 Development of Interpretation Centre

An interpretation centre should be developed at Amargarh. The inerpretatoin centre should perform the following functions -

(i) Create awareness about the park values.
(ii) Inform people about the biodiversity of the park.
(iii) Educate people to follow park rules.

Design and development of the interpretation centre should be entrusted to professional organization.

6.10 Capacity Building

Guides should be trained in conducting tourism around the park. The main skills for which they need to be trained are as follows:

- Knowledge of animals, birds and plants in the park.
- Wildlife interpretation skills.
- Basic principles of safety while escorting tourists.
- Cleanliness and prevention of littering.

Forest guards and Deputy Ranger should also be trained in these skills so that they can act as resource persons for future trainings and escort tourists when occasion demands. Escorting tourists should not be a regular duty of the forest staff or daily wagers of the Forest Deparrtment as this will result in neglect of their regular duties. The staff at Simbalbara and Amargarh rest house should be trained in basic hospitality skills by professionals, either private hoteliers or trainers from the Tourism Department.

6.11 Environment Education

There are many villages in and around Col.Sher Jung National Park. There is heavy biotic pressure on the natural resources of park. Lack of awareness among the local people is a big hurdle in achieving various objectives of management. If people are made aware of the values of their environment then they would rally for the cause of conservation. Through environment education (EE) programs designed for different target groups this objective can be realized effectively.

EE has to be planned for specific target groups and to address prominent problems. Accordingly, the following objectives for EE are set forth:

- Ensure that target groups realize that in the short run as well as in the long run it is in their interest that forests are properly conserved.
- Advocate that target groups have to play a role in keeping environment intact.
- Inform appropriately each Target group that every benefit that they derive from nature has a price tag. If they accept and play a role in conserving these it will be rewarding.
- Establish that the Forest Department and other Target groups understand each other's strengths, limitations and conservation processes in a positive spirit.

6.11.1 Target Groups:

Following target groups are identified:

- Communities living in and around the park.
- School children in and around the park.
- College and university students.
- Line Departments.
- Public leaders in and around the park.

6.11.2.1 Startegy for each target group

1. Communities living in and around park:

These forms a major stakeholder group in the forests, as the forest ecosystem is very much a part of their routine and traditional lifestyle. The major occupation of villagers is agriculture and animal husbandry.

Approach for Environmental Education:

1. EE programmes will be in short duration units. These units may be one in a fortnight.
2. Lean season with evening hours would be the best time to communicate and educate them.
3. Groups are to be made of a variety of classes ie Males, females, occupations etc.

Messages/Themes:

- Relationship between forests and people's livelihood opportunities
- Role of forest in soil and water conservation. How forests can reduce the impact of natural calamities.
- What is biological diversity? What is the role of forests in conserving biodiversity?
- Why is PA created? PA's in the HP, its legal and policy aspects.
- Threats to environment and forests.
- Ecologically friendly practices, their uses, experiences and other benefits.
- Man-animal conflict. Wild animals are not to be seen as problematic animals. Highlight the role they are playing in maintaining the eco-system.
- What is sustainabale livelihood? Their occupations and practices in environmental context.
- Importance of water conservation/ keeping water sources clean

Media:

In order to convey above messages following media may be used:

- Visitor centre cum information centre should be established in Tourism zones. These centres can be appropriately named in local language. These will have reading material in the form of booklets, photo text panels, leaflets etc and a small exhibition with lots of interactive models and Environmental Education games.

These centres can also become a forum for:

- Regular Forest Department-people interaction.
- For reaching out to carry EE Programmes with communities in and around PA's.
- Inter-village interactions with a view to share information on wildlife, forest and its conservation.
- Day in a village programmes on the theme of "Van Bachao, Gaun Bachao" will be organized in the month of October. This programme can have local villagers rally accompanied by frontline staff, teachers and school children-through a village with appropriate slogans, playcards and messages. After completion of rally a meeting can be organized by RFO and sometimes officers of the rank of DFO.
- All the designated days relating to environment and forests should be celebrated in all the villages-with a view to create an understanding of creation of such days worldwide in order to conserve environment and natural resources. Leaflets developed on significance of each day may be distributed to public. Rallies and meetings may be conducted.

The list of these days is given below:

- World Wetlands Day- 2 February
- World Forestry Day-21 March
- World Day for Water- 22 March
- International day for Biological Diversity-22 May
- World Environment day -5 June
- Van Mahotsava-July/Aug each year
- Wildlife week- 2-8 October
- A reader friendly booklet based on Forest, Environment, Ecological concepts to be developed in local language. This should not be more than 30 pages, with simple language and lots of pictures.
- A very attractive calendar in local language with photographs of wildlife, mountains, landscapes etc with short conservation message of the month to be developed.
- Film shows may be organized on various occasions to create awareness.
- Nukkad natak is also an effective method of raising awareness. The dramas should be performed in local languages.
- Frequent Pro- environment articles in local news paper may be ensured.

2 **School children**

There is a need to have a dedicated state scheme for creation of nature awareness in the schools (both rural and urban areas). This may be designed after discussion with Department of Education and even some selected schools in rural and urban areas. However following strategy may be adopted for raising awareness among school children in and around the Park.

Schools in Rural areas

The children studying in rural schools form a very important target group since they are to be tomorrow's most important stakeholders in nature conservation. They need to be groomed for two main reasons: one, to cater to the future population of the village which will impact Forest ecology, two, they could be an effective carrier of nature conservation messages to their older relatives, specially their parents. Though the facilities in local rural schools are of average standard, there is a great potential in doing various Environment Education activities in schools. The teachers there are a key target group and can be oriented and trained in carrying out EE programmes with students on regular basis. Children in their impressionable age should be oriented with an aptitude towards forest and wildlife.

Approach:

- The EE programme should be activity oriented rather than being conventional teaching type. The programmes should have a lot of fun element in it. Teachers may be trained by various agencies like WWF India, Zoo outreach Prog, CEE etc.
- The teachers should play a role of facilitators and help children to explore and learn through experience.
- EE programmes should be linked to syllabus wherever possible.
- An attempt will be made to promote "children to parents" learning approach.

Themes:

- Importance and value of forest to surrounding areas.
- Environmental concepts such as food chain, interdependence, carrying capacity, wildlife management and so on.
- Importance of various environment related days.
- What is Protected Area and why is it created?
- Role and structure of Forest Department.
- Management and conservation efforts in PA's.
- Rights and responsibilities of people towards Forests and wildlife.
- What is climate change? How will it affect us? What can be done at their level to reduce its impact?

Media:

- Study tour for children to the PA accompanied by trained interpreters/nature guides.
- Exposure visits to various zoos for school children. Every child should get a chance to participate at least once during their schooling.
- Writing pro-conservation slogans on classroom walls. Formation of eco-clubs in each school. At least Five-day training programme for the school children on EE.
- Each programme to have at least two teachers from each school. The total number of participants to be restricted to 25. At a later stage regular refresher training can also be organized.

- Paintings on forest and wildlife can be developed by school children and can be permanently displayed in schools.
- A manual for teachers on EE activities may be developed.
- A medicinal plant garden may be established in each school displaying name, uses etc of the plant.
- Name plates may be put on Flora growing in the school campus.
- All environments related days may be celebrated.

3 **College and university students:**

College and University students are also an important target group. Involving youth in nature awareness will definitely pay in conservation. The energy and enthusiasm of young people will result in better conservation action. There are many colleges like Govt. Degree College Paonta Sahib, Govt. Degree College Nahan near the park. Awareness about conservation among the students of these colleges and other private colleges and institutes will be created.

Message/Theme:

- What is biological diversity? Why is it important? What is the role of forests in conserving biodiversity?
- Various ecological concepts like food chain, interdependence, carrying capacity, wildlife management, animal behaviour and so on.
- What is global warming and climate change? How they can contribute to reduce impact of climate change?
- Threats to environment and forests.
- Role and structure of Forest Department.
- Why is PA created? PA's in the Himachal Pradesh, its legal and policy aspects
- Solid waste management
- Conserving water

Media:

- Involving students of college/ existing youth clubs in Plantation activities and wildlife census activities and giving certificates for the same.
- Cleanliness activities in and around college campus may be organised from time to time by college students to raise awareness.
- Rallies may be organized on various days relating to nature and environment (list already mentioned earlier)
- Trekking cum exposure activities may be organized for them in various PA's.
- Special Lectures may be organized from time to time on various environment conservation topics.
- Leaflets containing conservation message may be distributed to the students.
- Conservation messages may be written on the walls of the college/hostel buildings in the campus.
- Arboretum/ Medicinal plant gardens may be established/developed in the campus.
- Name plates may be put on flora growing inside the campus.

4 Line departments:

Line departments need to be sensitized towards nature conservation issues. This will definitely help in developing better interdepartmental working atmosphere and networking.

Message/Theme:

1. What is biological diversity? Why it is important? What is the role of forests in conserving biodiversity?
2. What is global warming and climate change? How they can contribute to reduce impact of climate change?
3. Establish that the Forest Department and other Departments understand each other's strengths, limitations and conservation processes in a positive spirit.

Media:

- Divisional level /range level workshops may be organised every year and various issues relating to nature conservation may be discussed there.
- Exposure visit may be organized to the park.

5 Village leaders:

Village leaders can influence and raise further awareness among general public if they themselves are clear and convinced with the whole issue. It would be good to win their support first to have more people supporting conservation later.

Message/Theme:

1. Relationship between forests and people's livelihood opportunities
2. Role of forests in soil and water conservation. How forests can reduce the impact of natural calamities.
3. What is biological diversity? What is the role of forests in conserving biodiversity?
4. Why are PA's created? PA's in Hmachal Pradesh, their legal and policy aspects.
5. Threats to environment and forests.
6. Ecologically friendly practices, its uses, experiences and other benefits.
7. Man - animal conflict. Wild animals not to be seen as problematic animals. Highlight the role they are playing in maintaining the eco-system.
8. What is sustainable livelihood? Their occupations and practices in environmental context.
9. Rights and responsibilities of people towards nature conservation.
10. Solid waste management
11. Water conservation/keeping water sources clean

Media:

- Exposure visits to the sanctuary.
- Workshop on environmental issues.

6.11.3 Execution of different activities:

As far execution of above listed activities for different target groups is concerned properly trained manpower is an essential pre-requisite. Field level staff is already overburdened with various activities. So, in such a scenario it would be pertinent to identify the agencies that will carry out these activities.
Following agencies may be involved after being trained properly through agencies like Center for Environment Education, Ahmedabad, Zoo Outreach Organisation, and WWF India:

- Interpretors or Nature Guides may be trained for each of the identified Eco-Treks. Educated Unemployed Local youth may be trained in carrying out various awareness activities. During tourist season they can work with Tourist and in the lean season they may be involved with Nature awareness activities for general public. This will not only ensure nature awareness but will also provide livelihood for a longer period.
- Kala Jatha – a group of few young people may be trained to give conservation message by carrying out Dramas/Folk songs in the form of Nukkad Natak. One such group exists in GHNP. These people may be involved to carry out their activities in local language in different villages round the year. This will not only ensure nature awareness but will also provide livelihood to these people for a longer period.
- Enthusiastic School/College Teachers may be trained and involved with these activities.
- Volunteers/Retd Forest officers, if any, may also be involved

6.11.4 Monitoring and evaluation:

At present there is no effective monitoring and evaluation of various tourism and interpretation facilities. Monitoring is very important for any program as it not only tells how far we have succeeded but also helps in making timely corrections and improvements. Following steps may be taken to make it in place:

1. Feedback forms may be distributed to the tourists at the time of their entry in the park and may be collected when they leave. This feedback form may ask them about various interpretation program and any suggestions to be added.
2. Visitor centre may have a visitor feedback register to comment which will help in monitoring and evaluation.
3. Nature guides may be monitored and evaluated randomly from time to time.
4. Diaries may be made available to all the nature guides and its monitoring may be done regularly by one of the staffs.

Chapter 7

Eco-development

7.1 Introduction

Eco-development may be defined as a site-specific package of measures promoting sustainable use of land and other resources, as well as on farm and off farm income generation activities which are not deleterious to PA values (Panwar, 1991).
In this chapter an indicative plan is being given which will work as a guideline for the management for further comprehensive eco-development plan.

7.2 Eco-development zone

An eco-sensitive zone has been proposed under EPA, 1986. This Eco-senstive zone will overlap with eco-development zone. It consists of Majra range of Paonta Forest Division around and a strip of around 2 to 4 Km around the boundary of the park. There are 4 villages in the eco-development zone (list of RF and villagers included in the zone has been given in annexure 35 and 36). The draft proposal of Eco-zone is under consideration with Govt. of India, which is to be notified under Enviornment Protection Act 1986 under sub-rule (3) of rule 5 of Enviornment Protection Rules 1986.

7.3 Philosophy of Interaction with Local Community

Presence of human population near the park is an unavoidable reality. The presence of local people impacts the park biotic components in a number of ways described in previous chapters. It is important to manage the interaction of the community with the park so that the most beneficial results are obtained for the people as well as for the park.

Interactions with local community are often ad hoc and without a fixed policy and direction. Therefore, true progress is not achieved in co-operative efforts. Conflicts arise because proper communication does not take place. Taking this into consideration some objectives of interaction with the local community are described in this section. Dealing with local people with well-defined objectives and direction will help to achieve progress in the relationship with local people.

The objectives of the interactions with local community shall be as follows: -

i. Create awareness about park values among local people.
ii. Obtain cooperation from local community for park management.
iii. Give benefit to local people from the park, especially the poor and women.

Resolution of various issues and conflicts, that the park authority may have with local people and vice versa.

7.4 Occupation and forest dependency

Most of the people in eco-development zone are dependent on forests of Sher Jung National Park for their subsistence by collecting fuel wood, grass, grazing of cattle.

Their basic occupation is agriculture and for this they keep number of cattle. Many of the cattle are useless and predominantly the cattle sheep reared are of local breeds. The major agricultural crops of the area are wheat, paddy along with some sugarcane.

The economic base of people residing around the protected area can be broadly categorized as people who are heavily dependant on natural resources, small scale & marginal farmers and unskilled labourers. The people from villages depend upon the forest for the collection of firewood and grass. Some people from these villages occasionally go to the interior for grazing their cattle.

The table below shows the seasonal pattern of use vis-a–vis the primary activities in which the people are occupied throughout the year:

Month	Agriculture Operation	Forestry operations	NTFP Collection
Januaruy	Preparation of Sugarcane Sowing	Forest protection, Plantation, census anti-poaching activities and nursery works	Fuelwood and dry leaves collection
February	Sugarcane Sowing	Forest protection, Plantation, census anti-poaching activities nursery works	Fuelwood collection
March	do	Forest protection Nursery works	Fuelwood collection
April	Harvesting of wheat	Forest protection, Fire protection Nursery Works	
May	Harvesting of wheat	Forest protection, fire protection, nursery work	
June	Sowing of paddy	Forest protection, fire protection	
July	Sowing of paddy	Forest protection, plantation, nursery work	
August		Forest protection, plantation	Grass, fodder and bauhinia leaves collection for fodder
September		Forest protection, soil conservation	Grass, fodder and bauhinia leaves collection fuelwood collection
October	Preparation of the field for sowing of wheat	-	Grass, fodder and bauhinia leaves collection, fuelwood collection
November	Harvesting of paddy, fields for sowing of wheat and sowing of wheat	Forest protection	Fuelwood collection
December	Sowing of wheat, Harvesting of Sugarcane	Forest protection, census, anti-poaching	Grass, fuelwood collection

7.5 Past and Current Eco-development activities

In the past very, less attention has been given towards the Eco-development in the park. There is absence of Eco-development plan in the park. No Eco-development committees have been formed in the past years hence there are no site-specific micro-plans for eco-development. Though there is large population in the Eco-Senstive Zone and adjoining areas scanty amount has been spent on eco-developmental activities in the past years.

Yearwise money spent on various eco-development activities in the park:

Sr.No	Year	Activity	Amount (Rs)
1	1997-98	Sulabh Sauchalya	50,000
2	2007-08	Energy plantation in Palhori Village	48,600

Activities of eco-development have been carried out as per the funds allotted in the Centrally Sponsored schemes.

The reasons for poor attention towards eco-development may be due to

- Non-internalization of eco-development concept within the forest department resulting in inadequate support from within the department.
- Lack of EDCs.
- Lack of sufficient awareness among the local people about the concept of eco-development and its objectives.
- Absence of mechanism to link the programmes with district administration and lack of awareness among district administration and political groups about eco-development programme.
- Lack of site specific microplans.
- Preoccupation of staff with familiar works.
- Irregular and erratic fund flow
- Ad hoc mechanism at all levels of implementation.

7.6 Proposed eco-development

7.6.1 Goal

The long-term goal of the plan is to minimize the park-people interface conflicts in Sher Jung National Park and ensure the preservation of the bio-diversity and other natural resources of Sher Jung National Park through the participation of local people.

7.6.2 Issues

Various issues which affect the goal may be grouped into three main categories. These are

- Number of Villages on the periphery of the Park.
- Collection of fuelwood and grass and grazing by the villagers.
- Human-wildlife conflict i.e. monkey, nilgai, wildboar and elephant

7.6.3 Objectives

- To reduce dependency of people on the park for fuelwood and grazing.
- To promote and ensure sustainable tourism in the park.

- To conclusively settle the issue of grazier especially migratory grazier as per the provisions of the law.
- To settle the human wildlife conflict.

Each of these broad objectives can be broken up into clear cut objectives further. First objective can be broken into three clear cut objectives, which are:

- To provide alternative job/ work to dependent community.
- To provide alternative to fuelwood and fodder.
- To create EDCs in eco-development zone.

Second objective can be seen further as:

- To develop better coordination between various agencies.
- To promote local culture and values.
- To ensure maximum visitor satisfaction.
- To ensure proper dissemination of information.

Third objective can be seen as:

- To declare the part of national park with villages as buffer zone/eco-
- development/ eco-senstive zone at the earliest
- To carry out various ecodevelopment activities as per microplan
- To educate the staff and management on recent acts and policies
- To involve and inform locals and their representatives in the process

Fourth objective can also be seen as:

- To reduce the impact of PA on people and vice versa
- To provide the compensation to the affected villagers immediately
- To raise awareness among the locals
- To solicit cooperation of other stakeholders

7.6.4 Broad Strategies:

7.6.4.1 Broad Strategies to reduce dependency for fuelwood and grazing are:

- Alternative source of livelihood may be explored. Machines for making dried pattals may be provided.
- Trainings for capacity building of the local people will be organized. Training may be given on dried pattal making, making different products from bhabar grass.
- Subsidized LPG connections & pressure cookers will be distributed to the people to reduce their dependency on the park.
- Fuelwood production by raising fast growing spp (Energy plantation) will be done through EDCs.
- Appropriate awareness programmes will be organized for different target groups.
- Seeds of fodder species like Sorghum, Maize, Barseem may be distributed.
- Fast growing species like Leucaenea, Kachnar etc. will be done through EDCs.
- Chaf cutters may be distributed.
- People may be encouraged to grow various commercial medicinal plants on their land.

- Seminars/ workshops/ meetings with concerned departments like agriculture; veterinary and rural development will be organized to ensure proper coordination.
- Stall feeding will be encouraged.
- New EDCs and user groups will be formed to encourage institution building for conservation of resources of the park.

7.6.4.2 Broad Strategies for managing eco-tourism in sustainable manner:

- Involving local people in eco-tourism.
- Adequate trainings will be provided to nature guides and host community for managing eco-tourism activities.
- Essential infrastructure will be put in place to provide the basic facilities to the tourists.
- Rules and responsibilities will be specified clearly to different stakeholders.
- By studying and exploring different activities for all class of visitors to increase visitor satisfaction.
- By developing existing interpretive facilities to maximise their use by the visitors.
- By providing information vouchers to the visitors to ensure proper dissemination of the information.

7.6.4.3 Broad Strategies to settle the issue of human wildlife conflict:

- Paying the compensation as early as possible to win goodwill of people
- To raise awareness among the local people
- To carry out regular meetings with local people
- To encourage stall feeding
- Stakeholders will be identified and involved in mitigating the man-wildlife conflict.
- Some proactive measures such as identification of rogue animals, their tracking and if needed their elimination may be undertaken.
- Deterrents such as making sounds at night, beating drums, lighting a fire etc may be of some use especially in elephant prone areas.
- Crop insurance has also a lot of promise to solve the issue of man-animal conflict. Possibility of paying a portion of the insurance premium by the management for poor villagers can be explored.
- Chemical restraint may be used to solve this problem. It is recommended that the management should be well equipped for chemical restraint which may be needed for straying or trapped wild animals in village or habitations.

7.6.4.4 Broad Strategies to settle the issue of Villages around the Park:

1. Dialogue will be conducted with communities for declaring it as a buffer-zone/ eco-development zone/ Eco-senstive zone
2. Various eco-development committees and microplans will be formed and eco-development activities will be carried out as specified in the micro-plans
3. Training and workshops on new acts, recent amendments and policies will be organized to increase the awareness.

4. Meetings and interactions with people and representatives will be organized regularly to have a constant dialogue with people to win their confidence and make their doubts clear.
5. Alternative source of livelihood with conservation linkages will be provided to win their goodwill and reduce dependency on resources of the park.

7.6.5 Monitoring and evaluation

Constant monitoring and timely evaluation help the management in assessing the success and failure of a particular strategy or set of strategies. Timely modifications in the strategies may be made accordingly. The monitoring and evaluation can be done in-house or by external agencies.

7.6.5.1 Achievement of annual physical and financial targets

Monitoring of achievement of physical and financial targets will be done yearly by staff implementing the activities and will be supervised by the higher officers. Yearwise information will be recorded in proforma given below and reason will be discussed and amicable solution for that will be sorted out at DFO and CF level and will be implemented in the next year.

7.6.5.2. Proforma

Name of activity	Proposed targets		Achieved Targets		Gaps if any in achievement		Reasons
	Physical target	Financial target	Physical target	Financial target	Physical target	Financial target	
1.---- 2.------ 3.-------							

7.6.5.3 Monitoring of impacts of eco-development activities on PA and its surroundings

The impacts on PA and surroundings will be monitored by comparison of base line information with information collected in subsequent years.

Impact on PA

- Degradation of habitat--------By habitat evaluation techniques
- Offence cases----------From records
- Cases of wild fires----------From records

Impact on surroundings

- Crop damage----------By survey
- Cattle lifting----------From records
- Human injuries and death------From records

The robustness and functions of EDC will be monitored by participation of members, lones repayment and mutual trust building and their direct participation in combating forest fires and forest offences.

7.6.5.4 Stakeholder mapping

Stakeholder mapping will be an effective monitoring tool. It will be done time to time to find out the change in the relationships of various stakeholders with the Sher Jung National Park as a result of various management initiatives.

Stakeholder mapping for the park has been done. It will act as a baseline with which the situation from time to time may be compared and strategies be formed accordingly.

Stakeholders identified are

- Local villagers
- Forest Department
- PRIs
- Media
- Politicians
- Veterinary Department
- Scientific community
- Tourists

Table Showing Power and Stake of different stakeholders:

Stake Power	LOW	HIGH
LOW	Veterinary deptt, Scientific community	PRIs, Media, Politicians
HIGH	Local villagers, Tourists	Forest Department

It is clear from the analysis that we have to work closely with stakeholders having high and medium stakes and low power like local villagers, tourists etc. Stakeholders with low power and high stakes like Politicians and media etc need to be kept informed. The stakeholders with high power and high stakes also need to be monitored though not much intensive efforts are required in that case.

The relationship of different stakeholders is depicted in the stakeholder map. It is clear from the map that veterinary deptt and scientific community is having good positive relationship with the park. Media, Politicians, hoteliers, Pilgrims, tourists etc are having love and hate relationship which needs to be made positive. Efforts are needed to reduce their negative impacts. Local villagers are also having some negative impact on the park which may be turned to positive with some management interventions like alternate livelihood opportunities, creation and strengthening of EDCs, awareness creation etc.

7.6.6 Responsibilities of various participating agencies and groups

To carry out any activity successfully all partners should take the responsibility of piece of task of that activity. The responsibilities are given below:

Responsibility of PA staff

- To provide budget in time
- To provide technical knowhow
- Carryout all activities as per schedule
- Understand the problems of villagers

Responsibilities of villagers

- Participate actively in all the activities
- Provide appropriate site for EDC meeting and attend all the meetings regularly
- Help park authorities in extinguishing forest-fires
- To help park authority in prevention of any type of forest offence

7.7 Involvement of Local People in Conservation Activities

Desire for conservation comes from appreciation of wildlife and its importance. Appreciation for wildlife can come from personal experience of wildlife in natural situation. Therefore, local people, especially school and college children, should be involved in treks, outings and various field programs. If local people can be made conservationists the job of the sanctuary authority will be a lot easier. Wildlife NGOs should be involved in spreading awareness and conservation message among local people. If possible, nature clubs can be started for local children and youths.

Local youths and college students should also be involved in wildlife monitoring programme on a voluntary basis. Collaborative programmes of various kinds should be started for schools, colleges and local bodies depending on their inclination.

7.8 Formation of coordination Committee

In order to take various issues related to interactions with local people a coordination committee is proposed consisting of representative of local people and representatives of the park. Only those villages that are adjacent to the park and impact the park (in this case Pillodi and Puruwala) shall be included in the coordination committee. Since both the villages are on the opposite side of the park and their issues are different, two coordination committee may be formed at the discretion of the DFO (Wildlife) Shimla Division. Each village shall contribute two members to the committee. The composition of the coordination committee shall be as follows

1. DFO (Wildlife), Shimla Division (President)
2. Range Forest Officer Simbalbara Range (Chairman)
3. All Dy. Rangers (One of them shall be Member Secretary)
4. All Forest Guards
5. Two members each from each village
6. Representative of district administration and government line departments, equivalent to RFO in rank, at the discretion of the President.
7. One or more NGO representatives at the discretion of the President.

The following shall be the main function of the coordination committee:

i. To resolve issues of the national park such as grazing, firewood collection, lopping etc.
ii. To seek opinion of people about implementation of development works.
iii. To arrange joint programmes and functions, especially awareness programmes

iv. To discus modalities for tourism and coordinate tourism in the park.
v. To involve local people in monitoring activities of the park.
vi. To gain cooperation of people for controlling poaching.
vii. To discuss issues of resettlement of Pillodi Village (if the suggestion finds approval of the government)

The committee shall meet once in three months on a pre-decided day of month. The President shall attend at least one meeting in a year. The proceedings of each meeting shall be recorded in detail by the member secretary.

The decision taken during the committee meetings maybe communicated to each village through meetings conducted by the forest guard and the village representatives.

Chapter 8

Monitoring, Research and Training

8.1 Considerations in Design of Monitoring Programme

The main target of the monitoring program is large terrestrial mammals. These include leopard, goral, barking deer, sambar, langur and rhesus macaque.

Some of the methods that can be used for monitoring are described in the following sections. The techniques described can be divided into index-based monitoring techniques and absolute population estimation techniques. Monitoring by index-based techniques yields trends in populations. Monitoring must be carried out for a few years before clear population trends emerge. Absolute population estimation techniques can give estimates of population within error margins.

The techniques described assume an even distribution of animals. Species with clumped populations or high habitat specificity, such as goral, may require different monitoring techniques.

8.2 Synopsis of Monitoring Techniques

Animal encounter rate

In this method network of routes are marked inside the park that are well dispersed inside the park. The route should not follow the main trails only but should pass through the undisturbed parts of the forest where probability of encounters is higher. Each route should be about 4 to 5 km long. The total length of routes inside the park should be sufficient to give reliable results. These routes should be regularly walked at fixed hours in the morning and evening, when animal visibility is higher, and animal encountered along the route should be recorded. This exercise should be carried out regularly throughout the year, say once in a month. The encounter rate of a species is defined as:

$$\text{Encounter rate (i)} = \frac{\text{Number of animal sighted of ith species}}{\text{Total length of routes walked x no. of times walked}}$$

The encounter rate is an index of population density. If the exercise is carried out every year we can get reliable population trends. However, this exercise can not give estimate of absolute population.

Sign encounter rate

The sign encounter rate relies on sighting/ collection of animal signs. It is useful for monitoring carnivore population, since their scats are highly visible. Sign encounter routes are laid as above. Since there is no compulsion on walking during morning hours or evening the length of the route can be increased to 10 km. The route should be broad and clear with no vegetation growth so that scat can be spotted easily. Heavy human traffic should not be there on the route so that scats are not

trampled. These routes are also walked a number of times in a year and scats of leopard, bear and other carnivores with highly visible scats, are collected.

$$\text{Scats encounter rate (i)} = \frac{\text{Number of Scats sighted of ith species}}{\text{Total length of routes walked x no. of times walked}}$$

The scat encounter rate is an index of population density. It is possible to obtain population trends if this exercise is carried out every year. The exercise also can not give estimates of absolute population. It is less reliable than animal encounter rates which relies on direct sightings. However, it is useful for monitoring population trends in species wherein sightings are very low, such as leopards.

Leopard scat collected during the exercise can be analysed by microscopic examination of hair or prey in the scat samples to determine the dietary pattern of leopards.

Pellet densities

This method is used for monitoring populations of ungulates by estimating density of their dung pellets. Pellet densities are estimated by laying plots in the forests all over the park and counting the pellet piles in each plot. The plots should be laid in the same season and month every year. This method is fairly simple but it can not give absolute population estimates.

Line transect sampling

Line transect sampling is used for estimating absolute densities of wild animal populations. A number of straight lines known as transects, are laid in the forest in a scientifically designed pattern. Each transect has a fixed length, generally 3 to 4 km, and a fixed orientation. Transects are clearly marked by marking the trees along the transect in red or yellow paint. Bush cutting is necessary only if undergrowth is very thick. An estimated 15 to 25 transects should be laid with a total length of 50 to 100 km.

These transects are walked by observers according to a specific sampling design and observations of each animals sighting are recorded. The distance of the group is estimated by a range finder and a compass bearing is taken for each encounter. This data is used to estimate the perpendicular distance of the animal from the transect. In this manner all transects are walked and animal sightings recorded. All transects must be walked number of times so that sufficient observations are obtained to make reliable population estimates. If number of observations are low, reliable estimates can not be made. Typically, 5 to 10 repetitions may be necessary. It may be possible to carry out the sampling monthly rounds of observations without much loss of accuracy.

Line transect sampling requires a high level of training of the observers for proper recording of observations such as compass bearings and distance estimation by range finder. It is also a fairly laborious technique. The advantage is that it can give reliable estimates of animal populations.

Design and laying out of line transect needs considerable efforts. These transects need to be remarked annually if they are to be used on a repetitive basis. Considerable effort is also needed in carrying out observations. Nature enthusiast volunteers from nearby towns and even youth from local villages may be invited to participate in the monitoring exercise. If necessary laboures may be engaged for making the observations.

Population Estimation by waterhole count

Waterhole count is a traditional method used in India for estimating wildlife populations. The Waterhole count is not useful if there are extended waterbodies such as perennial streams or lakes since it is difficult to count animals all along such extended water bodies. It is carried out at the peak of summer, either in May or June depending on the date of arrival of monsoon.

Well-camouflaged machans are built on trees near all perennial water sources including natural and artificial waterholes. Hides are made if it is not possible to have machans. A team of three persons keeps watch at each waterhole for 24 hours and records the mammals and large birds such as peafowl coming to drink water at the waterhole. The total count of animal of each species for all waterholes is the population of that species. The method suffers from some uncertainties but is nevertheless a useful method of population estimation.

Pugmark method for monitoring leopard populations

The pugmark method has been traditionally used for estimating tiger populations in protected areas in India. It has not been regularly used for estimating leopard populations but the technique can easily be used for estimating leopard population also. Since leopard pugmarks are smaller, there is greater possibility of marking mistakes in identification since small mistake in tracing can alter the shape of the pugmark. Hence greater care needs to be exercised in tracing pugmarks.

To achieve proper impressions of the pugmarks, it should be on a hard surface with a thin layer of fine dust. These conditions are achieved on forest roads and trails in summer. Hence pugmark census is generally carried out in the month of May.

The original pugmark method relied on tracing on glass plates, which created possibility of error while tracing. Digital cameras can be used for taking photographs that can later be converted to pugmark outlines after transferring to the computer. This can increase reliability of the method. Afternatively there are special optical instrument that can increase the accuracy of the tracing and minimize errors.

The pugmarks census is carried out over a period of a few days, generally a week. All forest roads and trails are searched intensively for pugmarks during this period. In a small National Park like Sher Jung a shorter population estimation survey of 3 to 4 days should be sufficient.

Population estimation of Leopards by DNA analysis of scats

DNA analysis of leopard scats can be used for population estimation. The technique requires collection of fresh scats and its preservation by an appropriate method. DNA analysis is carried out in specially- equipped laboratories.

8.3 Recommended Population Estimation and Monitoring methods

The animal encounter rate and the sign encounter rate technique have been used in past. Staff of the park was trained by the Wildlife Institute of India. These techniques were continued for quite some time and then discontinued. Both these techniques should be revived. Animal signs survey and animal encounter survey at the same time should be avoided because both these surveys need attention in different direction and vital information may be missed. They should be carried out separately.

The pugmark method should be used for estimating leopard population. Training in the proper technique is very important to prevent the staff from making mistakes. One pugmark census should be conducted under the guidance of an expert with training at the start of the exercise. This will ensure that the staff is well trained in the technique.

The line transect method should be started for population estimation in the park. Design of the line transect network is very important. A well-designed line transect network should be laid in the park area. The length of each transect should be 3 to 4 km. Detailed design of a line transect network is beyond the scope of this management plan. It should be carried out by trained personnel after preliminary field survey followed by a computerized design by the distance 5.0 software. Implementation should also be carried out with the help an expert.

The transect lines should be walked once a month. Training in recording observations is very important. The staff should be well trained in making observations at the beginning of the exercise. The training should be reinforced by refresher training sessions once every few months. Hired manpower may be necessary for line transect surveys since every transect needs to be walked by two people. Educated and intelligent young men should be identified and hired from Pillodi and the same persons should be engaged for the monthly walks. Volunteers from nearby towns of Paonta Sahib and Nahan may also be called for the line transects exercise. Care should be taken that they are well trained.

Data analysis also needs training and should be carried out initially by an expert in line transect analysis.

The water holes count should be carried out during peak summer every year in May or June for population estimation of herbivores in the park.

8.4 Monitoring During Regular Walks

Animal encounters and animals sign observed during regular patrolling walks should be recorded in specified formats. The animal signs recorded shall be mainly leopard pug marks and well- preserved leopard scats.

8.5 Research Needs in the Park

Park managers often function in an information vacuum. Research in a park can contribute considerably to effective management of the park by providing useful information on the biological features of the park.

A few studies have been carried out by wildlife Institute of India in Sher Jung Park, mainly M.Sc. dissertations. These studies are a very useful contribution to the knowledge about the park. However, the findings of these studies have not found reflection in park management and some of the reports of previous studies are not available. Efforts should be made to keep a copy of all studies in the park library so that these are available to the park managers.

The list of studies carried out so far is given below:

a. A study of habitat uses and activity pattern by Anand Pendharkar (M.Sc. Dissertation, 1993)
b. A study of tiger beetles in Shivalik of Himachal Pradesh (Uniyal V.P. and Vinay Bhargav, 2007)
c. A study of Phylloscopus warblers by Maushumi Ghosh (M.Sc. Dissertation, 2006)
d. A study of butterflies of Simbalbara (Swati Kittur et al, 2006)

The subject of research studies may be carried out according to the preferences of the researcher. Some important areas for research in the park are

(i) Surveys of mammals, reptiles and amphibians
(ii) Studies on prey-predator ecology.
(iii) Corridor studies and other landscape level planning.

8.6 Training Needs

Training is very important tool for capacity building and improving the professionalism of park staff. The park staff while carrying on their normal protection duties also needs to develop an understanding of various issues related to park management at a professional level. Capacity building in this regard can best be achieved through training designed for this purpose.

Improving the knowledge and capacity of staff has several benefits. It helps them to carry out their duty with an increased understanding and awareness and hence with increased dedication. It gives them more confidence in their work. This helps them to deal with various stakeholder groups, such as local people and tourists, with more confidence. Improved skills and knowledge will improve their productivity and quality of output.

Some areas where training will benefit the staff are as follows;

i. Knowledge and identification of mammal species found in the park, habit of species, biology and ecology of important species
ii. Identification of bird species found in the park
iii. Knowledge of reptile and amphibian species found in the park
iv. Knowledge and identification of plants, including medicinal plants found in the park

v. Park ecology, interdependence of plant and animal species
vi. Monitoring methods, population estimation methods
vii. Anti-poaching skills and documentation of offence cases
viii. Wild life interpretation skills
ix. Wild life tracking and field signs
x. Conflict resolution skills for dealing with local people
xi. Weapon training
xii. Controlled burning techniques
xiii. Nursery techniques
xiv. Darting and trapping wild animals
xv. Use of instruments such as compass, binoculars, digital camera, GPS etc.
xvi. Computer literacy

Field staff should be given small projects on which they should collect information from the field such as information on mammal, bird or plant species. They should make write- ups and give presentation on their project.

Training should also be imparted to local people, particularly guides and tour operators, with the intention of upgrading their skills for tourism. Some training subjects are:

(i) Park rules
(ii) Skills of setting up camp
(iii) Skills of dealing with tourists
(iv) Interpretation skills
(v) Basic information on identification of species, tracks and signs, habits of species

Professional organization should be involved in developing and conducting training programme. Officers of the department should also be involved in training programmes.

Chapter 9

The Budget

9.1 Expenditure in Previous years

Expenditure in Sher Jung National Park has been under the major components: Habitat Improvement, Forest Protection, Soil Conservation Work, Ecodevelopment Work, Training and Workshops, Infrastructure, Equipment, Miscellaneous and Recurring Expenditure. The breakup of proposed expenditure from 2018-19 to 2027-28 is given below.

9.2 Proposed Budget

The proposed budge for the park given in below. The suggested annual budget ranges from 42.90 lacs to 134.00 lacs. The items covered include the prescriptions made in this management plan. Routine expenditure such as staff salaries has not been included. The budget is indicative in nature, based on approximate costs. The park authority may propose an accurate budget based on actual costs and expenditure.

Year wise breakup of activities to be carried out during the years 2018-19

Sr.No	Item of Work	Qty.	Rate per unit	Amt (Rs) In lacs	Location
	(A) Habitat Improvement				
1	Removal of lantana bushes				
	1st year	5ha	0.25	1.25	Danda, Marusidh Gharuk, Kaludev
	2nd year	-	-	-	,,
	3rd year	-	-	-	,,
	4th year	-	-	-	,,
2	Providing salt licks	2No	0.10	0.20	,,
3	Creation /maintenance of meadow by clear-felling eucalyptus plantations	LS	LS	5.0	,,
4.	Enrichment Planting / Maintenance	10ha	0.25	2.5	,,
	(B) Forest Protection				
1	Maintenance of Fire lines.	20km	0.75	1.5	,,
2	Anti-poaching / fire prevention	LS	LS	2.0	,,
3	Maintenance of patrolling paths	LS	LS	2.0	,,
4	Incentive to informers	LS	LS	0.5	-
5	Creation /maintenance of check posts	2	2.0	4.0	Amargarh/Simbalbara
	(c) Soil and water conservation Works				
1	Creation / maintenance of water Resources	2	0.20	4.0	
2	Gully/nalla Stablization	LS	LS	5.0	Danda, Marusidh Gharuk, Kaludev
3	Desilting /maintenance water ponds	10No.	0.10	1.0	,,
4	Creation /maintenance of Wallow ponds for Sambhar	5No	0.20	1.0	,,
	(D) Eco- Development Activities				
1	Repair /Maint. Puruwala Simbalbara road	12Km	LS	5.0	Puruwala Simbalbara road
2	Eco development works in villages	LS	LS	5.0	Village around the park
	(E) Training and Workshops				
1.	Education and Awareness	LS	LS	1.0	Village around the Park
2	Wildlife Week Celebration	LS	LS	0.5	School around the park
3	Training workshops for field staff by professional agency	LS	LS	2.0	Park
	(F) Infrastructure				
1	Forest Guard /BO Quarter in Amargarh /Simbalbara	1No	20.0	20.0	Simbalbara
2	Const. / maintenance of fire watch tower	1 No.	6.0	6.0	Danda Sukhchainpur
3	Creation /upgradation /maintenance of interpretation	1	15.0	15.0	Amargarh

	centre				
4	Creation/ maintenance of community training centre	1	10.0	10.0	"
5	Maintenance of existing building	LS	LS	5.0	"
	(G) Equipment				
1	Purchase of binoculars	4	LS	0.50	For use in Sher Jung Park
2	Purchase of Computer+ internet	1	LS	1.0	For Range Office
3	Purchase of GPS	4No.	LS	0.50	For use in field work
4	Purchase of Motor cycle	2	0.60	1.20	For using patrolling
5	Purchase of Jeep	1	7.0	7.0	For patrolling
6	Purchase of Canvas Tents	4		0.50	Amargarh
7	Purchase of Digital Cameras				
	Tourism Development				
1	Consultancy for Development of Signage Plan	LS	LS	1.0	Sher Jung National Park
2	Implementation of Signage System/ gate	LS	LS	1.0	"
3	Training for guides	LS	LS	0.50	"
4	Maintenance of paths	LS	LS	1.0	Inside the park
5	Development/ maintenance of Camping site at Amargarh	1No	LS	2.0	Amargarh
6	Purchase of Tents and camping material	LS	LS	0.50	"
7	Printing publicity literature	LS	LS	0.50	Sher Jung National Park
8	Website development	LS	LS	3.0	"
9	Rest house maintenance	LS	LS	3.0	Simbalbara/ Amargarh
	Monitoring and Population Estimation				
1	Project for implementation of a monitoring system	-	-	-	
2	Annual population monitoring exercise	LS	LS	1.0	Sher Jung National Park
3	Development of gridded topographic map	LS	LS	0.5	"
	(H) Misc.				
1	Mobile connectivity to line staff	LS	-	0.5	For Staff
2	Cattle Protection wall	1	LS	5.0	Simbalbara
3	Cattle Pond	2 No.	-	4.0	Amargarh /Simbalbara
	Total			127.42	

Year wise breakup of activities to be carried out during the years 2019-20

Sr. No	Item of Work	Qty.	Rate per unit	Amt (Rs) In lacs	Location
	(A) Habitat Improvement				
1	Removal of lantana bushes				
	1st year	5ha	0.25	1.25	Danda, Marusidh Gharuk, Kaludev
	2nd year	5ha	0.40	2.00	,,
	3rd year	-	-	-	,,
	4th year	-	-	-	,,
2	Providing salt licks	2No	0.10	0.20	,,
3	Creation /maintenance of meadow by clear-felling eucalyptus plantations	LS	LS	5.0	,,
4.	Enrichment Planting / Maintenance	10ha	0.25	2.5	,,
	(B) Forest Protection				
1	Maintenance of Fire lines.	20km	0.75	1.5	,,
2	Anti-poaching / fire prevention	LS	LS	2.0	,,
3	Maintenance of patrolling paths	LS	LS	2.0	,,
4	Incentive to informers	LS	LS	0.5	-
5	Creation /maintenance of check posts	2	0.10	0.20	Amargarh/Simbalbara
	(c) Soil and water conservation Works				
1	Creation / maintenance of water Resources	LS	LS	2.0	
2	Gully/nalla Stablization	LS	LS	5.0	Danda, Marusidh Gharuk, Kaludev
3	Desilting /maintenance water ponds	LS	LS	1.0	,,
4	Creation /maintenance of Wallow ponds for Sambhar	LS	LS	0.20	,,
	(D) Eco- Development Activities				
1	Repair /Maint. Puruwala Simbalbara road	12Km	LS	5.0	Puruwala Simbalbara road
2	Eco development works in villages	LS	LS	5.0	Village around the National Park
	(E) Training and Workshops				
1.	Education and Awareness	LS	LS	1.0	Village around the Park
2	Wildlife Week Celebration	LS	LS	0.5	School around the park
3	Training workshops for field staff by professional agency	LS	LS	2.0	National Park
	(F) Infrastructure				
1	Forest Guard /BO Quarter in Amargarh /Simbalbara	1No	15.0	15.0	Naurangabad
2	Const. / maintenance of fire watch tower	1No.	LS	0.50	Danda Sukhchainpur
3	Creation /upgradation /maintenance of interpretation	1	LS	10.0	Amargarh

	centre				
4	Creation/ maintenance of community training centre	1	LS	5.0	"
5	Maintenance of existing building	LS	LS	5.0	"
	(G) Equipment				
1	Purchase of binoculars	-	-	-	For use in National Park
2	Purchase of Computer+ internet	-	-	-	For Range Office
3	Purchase of GPS	-	-	-	For use in field work
4	Purchase of Motor cycle	-	-	-	For using patrolling
5	Purchase of Jeep	-	-	-	For patrolling
6	Purchase of Canvas Tents	-	-	-	Amargarh
7	Purchase of Digital Cameras	-	-	-	
	Tourism Development				
1	Consultancy for Development of Signage Plan	-	-	-	National Park
2	Implementation of Signage System/ gate	-	-	-	"
3	Training for guides	LS	LS	0.50	"
4	Maintenance of paths	LS	LS	1.0	Inside the National Park
5	Development/ maintenance of Camping site at Amargarh	1No	LS	2.0	Amargarh
6	Purchase of Tents and camping material	-	-	-	"
7	Printing publicity literature	-	-	-	National Park
8	Website development	-	-	-	"
9	Rest house maintenance	LS	-	0.50	Simbalbara/ Amargarh
	Monitoring and Population Estimation				
1	Project for implementation of a monitoring system	-	-	-	
2	Annual population monitoring exercise	LS	LS	1.0	National Park
3	Development of gridded topographic map	-	-	-	"
	(H) Misc.				
1	Mobile connectivity to line staff	LS	LS	0.5	For Staff
2	Cattle Protection wall	-	-	-	Simbalbara
3	Cattle Pond	-	-	-	Amargarh /Simbalbara
	Total			79.85	

Year wise breakup of activities to be carried out during the years 2020-21

Sr. No	Item of Work	Qty.	Rate per unit	Amt (Rs.) In lacs	Location
	(A) Habitat Improvement				
1	Removal of lantana bushes				
	1st year	5ha	0.25	1.25	Danda, Marusidh Gharuk, Kaludev
	2nd year	5ha	0.40	2.00	,,
	3rd year	5ha	0.07	0.35	,,
	4th year	-	-	-	,,
2	Providing salt licks	-	-	-	,,
3	Creation /maintenance of meadow by clear-felling eucalyptus plantations	LS	LS	2.0	,,
4.	Enrichment Planting / Maintenance	10ha	0.25	2.5	,,
	(B) Forest Protection				
1	Maintenance of Fire lines.	20km	0.75	1.5	,,
2	Anti-poaching / fire prevention	LS	LS	2.0	,,
3	Maintenance of patrolling paths	LS	LS	2.0	,,
4	Incentive to informers	LS	LS	0.5	-
5	Creation /maintenance of check posts	LS	LS	0.10	Amargarh/Simbalbara
	(C) Soil and water conservation Works				
1	Creation / maintenance of water Resources	LS	LS	1.0	
2	Gully/nalla Stablization	LS	LS	4.0	Danda, Marusidh Gharuk, Kaludev
3	Desilting /maintenance water ponds	LS	LS	1.0	,,
4	Creation /maintenance of Wallow ponds for Sambhar	LS	LS	0.20	,,
	(D) Eco- Development Activities				
1	Repair /Maint. Puruwala Simbalbara road	12Km	LS	6.0	Puruwala Simbalbara road
2	Eco development works in villages	LS	LS	5.0	Village around the park
	(E) Training and Workshops				
1.	Education and Awareness	LS	LS	0.50	Village around the park
2	Wildlife Week Celebration	LS	LS	0.50	School around the National Park
3	Training workshops for field staff by professional agency	LS	LS	1.0	National Park
	(F) Infrastructure				
1	Forest Guard /BO Quarter in Amargarh /Simbalbara	-	-	-	Naurangabad
2	Const. / maintenance of fire watch tower	-	-	-	Danda Sukhchainpur
3	Creation /upgradation /maintenance of interpretation	-	-	-	Amargarh

	centre				
4	Creation/ maintenance of community training centre	-	-	-	,,
5	Maintenance of existing building	LS	LS	5.0	,,
	(G) Equipment				
1	Purchase of binoculars	-	-	-	For use in National Park
2	Purchase of Computer+ internet	-	-	-	For Range Office
3	Purchase of GPS	-	-	-	For use in field work
4	Purchase of Motor cycle	-	-	-	For using patrolling
5	Purchase of Jeep	-	-	-	For patrolling
6	Purchase of Canvas Tents	-	-	-	Amargarh
7	Purchase of Digital Cameras	-	-	-	
	Tourism Development				
1	Consultancy for Development of Signage Plan	-	-	-	National Park
2	Implementation of Signage System/ gate	-	-	-	,,
3	Training for guides	-	-	-	,,
4	Maintenance of paths	LS	LS	1.0	Inside the National Park
5	Development/ maintenance of Camping site at Amargarh	-	-	-	Amargarh
6	Purchase of Tents and camping material	-	-	-	,,
7	Printing publicity literature	-	-	-	National Park
8	Website development	-	-	-	,,
9	Rest house maintenance	LS	LS	2.0	Simbalbara/ Amargarh
	Monitoring and Population Estimation				
1	Project for implementation of a monitoring system	-	-	-	
2	Annual population monitoring exercise	LS	LS	1.0	National Park
3	Development of gridded topographic map	-	-	-	,,
	(H) Misc.				
1	Mobile connectivity to line staff	LS	LS	0.5	For Staff
2	Cattle Protection wall	-	-	-	Simbalbara
3	Cattle Pond	-.	-	-	Amargarh /Simbalbara
	Total			42.90	

Year wise breakup of activities to be carried out during the years 2021-22

Sr. No	Item of Work	Qty.	Rate per unit	Amt (Rs) In lacs	Location
	(A) Habitat Improvement				
1	Removal of lantana bushes				
	1st year	5ha	0.25	1.25	Danda, Marusidh Gharuk, Kaludev
	2nd year	5ha	0.40	2.00	,,
	3rd year	5ha	0.07	0.35	,,
	4th year	5ha	0.05	0.25	,,
2	Providing salt licks	-	-	-	
3	Creation /maintenance of meadow by clear-felling eucalyptus plantations	LS	LS	2.0	
4.	Enrichment Planting / Maintenance	20ha	-	3.0	
	(B) Forest Protection				
1	Maintenance of Fire lines.	20km	0.10	2.0	,,
2	Anti-poaching / fire prevention	LS	LS	2.5	,,
3	Maintenance of patrolling paths	LS	LS	2.5	,,
4	Incentive to informers	LS	LS	0.5	-
5	Creation /maintenance of check posts	LS	LS	0.20	Amargarh/Simbalbara
	(C) Soil and water conservation Works				
1	Creation / maintenance of water Resources	LS	LS	1.5	
2	Gully/nalla Stablization	LS	LS	4.5	Danda, Marusidh Gharuk, Kaludev
3	Desilting /maintenance water ponds	LS	LS	1.5	,,
4	Creation /maintenance of Wallow ponds for Sambhar	LS	LS	0.20	,,
	(D) Eco- Development Activities				
1	Repair /Maint. Puruwala Simbalbara road	12Km	LS	7.0	Puruwala Simbalbara road
2	Eco development works in villages	LS	LS	6.0	Village around the Park
	(E) Training and Workshops				
1.	Education and Awareness	LS	LS	0.50	Village around the park
2	Wildlife Week Celebration	LS	LS	0.75	School around the Park
3	Training workshops for field staff by professional agency	LS	LS	1.50	National Park
	(F) Infrastructure				
1	Forest Guard /BO Quarter in Amargarh /Simbalbara	-	-	-	Naurangabad
2	Const. / maintenance of fire watch tower	-	-	-	Danda Sukhchainpur
3	Creation /upgradation /maintenance of interpretation	-	-	-	Amargarh

	centre				
4	Creation/ maintenance of community training centre	-	-	-	"
5	Maintenance of existing building	LS	LS	6.0	"
	(G) Equipment				
1	Purchase of binoculars	-	-	-	For use in Park
2	Purchase of Computer+ internet	-	-	-	For Range Office
3	Purchase of GPS	-	-	-	For use in field work
4	Purchase of Motor cycle	-	-	-	For using patrolling
5	Purchase of Jeep	-	-	-	For patrolling
6	Purchase of Canvas Tents	-	-	-	Amargarh
7	Purchase of Digital Cameras	-	-	-	
	Tourism Development				
1	Consultancy for Development of Signage Plan	-	-	-	National Park
2	Implementation of Signage System/ gate	LS	LS	1.0	"
3	Training for guides	LS	LS	0.50	"
4	Maintenance of paths	LS	LS	1.5	Inside the park
5	Development/maintenance of Camping site at Amargarh	-	-	-	Amargarh
6	Purchase of Tents and camping material	-	-	-	"
7	Printing publicity literature	LS	LS	1.0	National Park
8	Website development	-	-	-	"
9	Rest house maintenance	LS	LS	2.0	Simbalbara/ Amargarh
	Monitoring and Population Estimation				
1	Project for implementation of a monitoring system	-	-	-	
2	Annual population monitoring exercise	LS	LS	1.5	National Park
3	Development of gridded topographic map	-	-	-	"
	(H) Misc.				
1	Mobile connectivity to line staff	LS	LS	0.75	For Staff
2	Cattle Protection wall	-	-	-	Simbalbara
3	Cattle Pond	2	LS	0.50	Amargarh /Simbalbara
	Total			54.75	

Year wise breakup of activities to be carried out during the years 2022-23

Sr. No	Item of Work	Qty.	Rate per unit	Amt AZV(Rs) In lacs	Location
	(A) Habitat Improvement				
1	Removal of lantana bushes				
	1st year	5ha	0.30	1.50	Danda, Marusidh Gharuk, Kaludev
	2nd year	5ha	0.50	2.50	,,
	3rd year	5ha	0.08	0.40	,,
	4th year	5ha	0.06	0.30	,,
2	Providing salt licks	-	-	-	,,
3	Creation /maintenance of meadow by clear-felling eucalyptus plantations	LS	LS	2.5	,,
4.	Enrichment Planting / Maintenance	20ha	-	3.5	,,
	(B) Forest Protection				
1	Maintenance of Fire lines.	20km	0.15	3.0	,,
2	Anti-poaching / fire prevention	LS	LS	3.0	,,
3	Maintenance of patrolling paths	LS	LS	3.0	,,
4	Incentive to informers	LS	LS	0.50	-
5	Creation /maintenance of check posts	LS	LS	0.20	Amargarh/Simbalbara
	(C) Soil and water conservation Works				
1	Creation / maintenance of water Resources	LS	LS	2.0	
2	Gully/nalla Stablization	LS	LS	5.0	Danda, Marusidh Gharuk, Kaludev
3	Desilting /maintenance water ponds	LS	LS	2.0	,,
4	Creation /maintenance of Wallow ponds for Sambhar	LS	LS	0.30	,,
	(D) Eco- Development Activities				
1	Repair /Maintenance of Puruwala Simbalbara road	12Km	LS	8.0	Puruwala Simbalbara road
2	Eco development works in villages	LS	LS	6.5	Village around the park
	(E) Training and Workshops				
1.	Education and Awareness	LS	LS	1.0	Village around the park
2	Wildlife Week Celebration	LS	LS	0.80	School around the park
3	Training workshops for field staff by professional agency	LS	LS	2.0	National Park
	(F) Infrastructure				
1	Forest Guard /BO Quarter in Amargarh /Simbalbara	-	-	-	Naurangabad
2	Const. / maintenance of fire watch tower	LS	LS	1.0	Kaludev /Ghurak
3	Creation /upgradation	LS	LS	2.0	Amargarh

	/maintenance of interpretation centre				
4	Creation/ maintenance of community training centre	1	LS	2.0	"
5	Maintenance of existing building	-	-	-	"
	(G) Equipment				
1	Purchase of binoculars	2	LS	0.50	For use in park
2	Purchase of Computer+ internet	-	-	-	For Range Office
3	Purchase of GPS	2	LS	1.0	For use in field work
4	Purchase of Motor cycle	-	-	-	For using patrolling
5	Purchase of Jeep	-	-	-	For patrolling
6	Purchase of Canvas Tents	-	-	-	Amargarh
7	Purchase of Digital Cameras	4	LS	2.0	
	Tourism Development				
1	Consultancy for Development of Signage Plan	-	-	-	National park
2	Implementation of Signage System/ gate	LS	LS	1.5	"
3	Training for guides	LS	LS	0.75	"
4	Maintenance of paths	LS	LS	2.0	Inside the park
5	Development/ maintenance of Camping site at Amargarh	-	-	-	Amargarh
6	Purchase of Tents and camping material	-	-	-	"
7	Printing publicity literature	LS	LS	1.0	National Park
8	Website development	-	-	-	"
9	Rest house maintenance	LS	LS	2.5	Simbalbara/ Amargarh
	Monitoring and Population Estimation				
1	Project for implementation of a monitoring system	-	-	-	
2	Annual population monitoring exercise	LS	LS	2.0	National Park
3	Development of gridded topographic map	-	-	-	"
	(H) Misc.				
1	Mobile connectivity to line staff	LS	LS	0.80	For Staff
2	Cattle Protection wall	-	-	-	Simbalbara
3	Cattle Pond	-	-	-	Amargarh /Simbalbara
	Total			67.05	

Year wise breakup of activities to be carried out during the years 2023-24

Sr. No	Item of Work	Qty.	Rate per unit	Amt (Rs) In lacs	Location
	(A) Habitat Improvement				
1	Removal of lantana bushes				
	1st year	5ha	0.30	1.50	Danda, Marusidh Gharuk, Kaludev
	2nd year	5ha	0.50	2.50	,,
	3rd year	5ha	0.08	0.40	,,
	4th year	5ha	0.06	0.30	,,
2	Providing salt licks	2No	LS	0.80	,,
3	Creation /maintenance of meadow by clear-felling eucalyptus plantations	LS	LS	3.0	,,
4.	Enrichment Planting / Maintenance	20ha	-	4.0	,,
	(B) Forest Protection				
1	Maintenance of Fire lines.	20km	0.15	4.0	,,
2	Anti-poaching / fire prevention	LS	LS	3.5	,,
3	Maintenance of patrolling paths	LS	LS	3.5	,,
4	Incentive to informers	LS	LS	0.50	-
5	Creation /maintenance of check posts	LS	LS	0.40	Amargarh/Simbalbara
	(C) Soil and water conservation Works				
1	Creation / maintenance of water Resources	LS	LS	2.5	
2	Gully/nalla Stablization	LS	LS	5.5	Danda, Marusidh Gharuk, Kaludev
3	Desilting /maintenance water ponds	LS	LS	2.5	,,
4	Creation /maintenance of Wallow ponds for Sambhar	LS	LS	0.40	,,
	(D) Eco- Development Activities				
1	Repair /Maint. Puruwala Simbalbara road	12Km	LS	9.0	Puruwala Simbalbara road
2	Eco development works in villages	LS	LS	7.0	Village around the park
	(E) Training and Workshops				
1.	Education and Awareness	LS	LS	1.5	Village around the park
2	Wildlife Week Celebration	LS	LS	1.0	School around the park
3	Training workshops for field staff by professional agency	LS	LS	2.5	National Park
	(F) Infrastructure				
1	Forest Guard /BO Quarter in Amargarh /Simbalbara	-	-	-	Naurangabad
2	Const. / maintenance of fire watch tower	-	-	-	Kaludev /Ghurak
3	Creation /upgradation /maintenance of interpretation	LS	LS	2.5	Amargarh

	centre				
4	Creation/ maintenance of community training centre	1	LS	2.5	"
5	Maintenance of existing building	LS	LS	5.0	"
	(G) Equipment				
1	Purchase of binoculars	-	-	-	For use in National Park
2	Purchase of Computer+ internet	-	-	-	For Range Office
3	Purchase of GPS	-	-	-	For use in field work
4	Purchase of Motor cycle	-	-	-	For using patrolling
5	Purchase of Jeep	-	-	-	For patrolling
6	Purchase of Canvas Tents	-	-	-	Amargarh
7	Purchase of Digital Cameras	-	-	-	
	Tourism Development				
1	Consultancy for Development of Signage Plan	-	-	-	National Park
2	Implementation of Signage System/ gate	-	-	-	"
3	Training for guides	-	-	-	"
4	Maintenance of paths	LS	LS	2.5	Inside the park
5	Development/ maintenance of Camping site at Amargarh	LS	LS	1.0	Amargarh
6	Purchase of Tents and camping material	LS	LS	1.0	"
7	Printing publicity literature	LS	LS	1.5	National Park
8	Website development	-	-	-	"
9	Rest house maintenance	LS	LS	3.0	Simbalbara/ Amargarh
	Monitoring and Population Estimation				
1	Project for implementation of a monitoring system	-	-	-	
2	Annual population monitoring exercise	LS	LS	2.5	National Park
3	Development of gridded topographic map	-	-	-	"
	(H) Misc.				
1	Mobile connectivity to line staff	LS	LS	1.0	For Staff
2	Cattle Protection wall	-	-	-	Simbalbara
3	Cattle Pond	-	-	-	Amargarh /Simbalbara
	Total			78.80	

Year wise breakup of activities to be carried out during the years 2024-25

Sr. No	Item of Work	Qty.	Rate per unit	Amt (Rs) In lacs	Location
	(A) Habitat Improvement				
1	Removal of lantana bushes				
	1st year	5ha	0.40	2.0	Danda, Marusidh Gharuk, Kaludev
	2nd year	5ha	0.60	3.0	,,
	3rd year	5ha	0.09	0.45	,,
	4th year	5ha	0.07	0.35	,,
2	Providing salt licks	-	-	-	,,
3	Creation /maintenance of meadow by clear-felling eucalyptus plantations	LS	LS	3.5	,,
4.	Enrichment Planting / Maintenance	20ha	-	4.5	,,
	(B) Forest Protection				
1	Maintenance of Fire lines.	20km	0.15	5.0	,,
2	Anti-poaching / fire prevention	LS	LS	4.0	,,
3	Maintenance of patrolling paths	LS	LS	4.0	,,
4	Incentive to informers	LS	LS	0.50	-
5	Creation /maintenance of check posts	LS	LS	0.50	Amargarh/Simbalbara
	(C) Soil and water conservation Works				
1	Creation / maintenance of water Resources	LS	LS	3.0	
2	Gully/nalla Stablization	LS	LS	6.0	Danda, Marusidh Gharuk, Kaludev
3	Desilting /maintenance water ponds	LS	LS	3.0	,,
4	Creation /maintenance of Wallow ponds for Sambhar	LS	LS	0.50	,,
	(D) Eco- Development Activities				
1	Repair /Maint. Puruwala Simbalbara road	12Km	LS	10.0	Puruwala Simbalbara road
2	Eco development works in villages	LS	LS	7.5	Village around the park
	(E) Training and Workshops				
1.	Education and Awareness	LS	LS	2.0	Village around the park
2	Wildlife Week Celebration	LS	LS	1.5	School around the park
3	Training workshops for field staff by professional agency	LS	LS	2.5	National Park
	(F) Infrastructure				
1	Forest Guard /BO Quarter in Amargarh /Simbalbara	-	-	-	Naurangabad
2	Const. / maintenance of fire watch tower	-	-	-	Kaludev /Ghurak
3	Creation /upgradation /maintenance of interpretation	-	-	-	Amargarh

	centre				
4	Creation/ maintenance of community training centre	-	-	-	"
5	Maintenance of existing building	LS	LS	6.0	"
	(G) Equipment				
1	Purchase of binoculars	-	-	-	For use in park
2	Purchase of Computer+ internet	-	-	-	For Range Office
3	Purchase of GPS	-	-	-	For use in field work
4	Purchase of Motor cycle	-	-	-	For using patrolling
5	Purchase of Jeep	-	-	-	For patrolling
6	Purchase of Canvas Tents	-	-	-	Amargarh
7	Purchase of Digital Cameras	-	-	-	
	Tourism Development				
1	Consultancy for Development of Signage Plan	-	-	-	National park
2	Implementation of Signage System/ gate	LS	LS	1.0	"
3	Training for guides	-	-	-	"
4	Maintenance of paths	LS	LS	3.0	Inside the park
5	Development/ maintenance of Camping site at Amargarh	-	-	-	Amargarh
6	Purchase of Tents and camping material	-	-	-	"
7	Printing publicity literature	LS	LS	2.0	National park
8	Website development	-	-	-	"
9	Rest house maintenance	LS	LS	3.5	Simbalbara/ Amargarh
	Monitoring and Population Estimation				
1	Project for implementation of a monitoring system	-	-	-	
2	Annual population monitoring exercise	LS	LS	3.0	National park
3	Development of gridded topographic map	-	-	-	"
	(H) Misc.				
1	Mobile connectivity to line staff	LS	LS	1.0	For Staff
2	Cattle Protection wall	-	-	-	Simbalbara
3	Cattle Pond	-	-	-	Amargarh /Simbalbara
	Total			83.30	

Year wise breakup of activities to be carried out during the years 2025-26

Sr. No	Item of Work	Qty.	Rate per unit	Amt (Rs.) In lacs	Location
	(A) Habitat Improvement				
1	Removal of lantana bushes				
	1st year	5ha	0.40	2.0	Danda, Marusidh Gharuk, Kaludev
	2nd year	5ha	0.60	3.0	,,
	3rd year	5ha	0.09	0.45	,,
	4th year	5ha	0.07	0.35	,,
2	Providing salt licks	-	-	-	,,
3	Creation /maintenance of meadow by clear-felling eucalyptus plantations	LS	LS	3.5	,,
4.	Enrichment Planting / Maintenance	20ha	-	5.0	,,
	(B) Forest Protection				
1	Maintenance of Fire lines.	20km	0.15	5.0	,,
2	Anti-poaching / fire prevention	LS	LS	4.5	,,
3	Maintenance of patrolling paths	LS	LS	4.5	,,
4	Incentive to informers	LS	LS	0.75	-
5	Creation /maintenance of check posts	LS	LS	0.50	Amargarh/Simbalbara
	(C) Soil and water conservation Works				
1	Creation / maintenance of water Resources	LS	LS	3.5	
2	Gully/nalla Stablization	LS	LS	6.5	Danda, Marusidh Gharuk, Kaludev
3	Desilting /maintenance water ponds	LS	LS	3.5	,,
4	Creation /maintenance of Wallow ponds for Sambhar	LS	LS	0.60	,,
	(D) Eco- Development Activities				
1	Repair /Maint. Puruwala Simbalbara road	12Km	LS	12.0	Puruwala Simbalbara road
2	Eco development works in villages	LS	LS	8.0	Village around the park
	(E) Training and Workshops				
1.	Education and Awareness	LS	LS	2.5	Village around National park
2	Wildlife Week Celebration	LS	LS	2.0	School around the park
3	Training workshops for field staff by professional agency	LS	LS	3.0	National Park
	(F) Infrastructure				
1	Forest Guard /BO Quarter in Amargarh /Simbalbara	-	-	-	Naurangabad
2	Const. / maintenance of fire watch tower	LS	LS	1.5	Kaludev /Ghurak
3	Creation /upgradation /maintenance of interpretation	LS	LS	3.0	Amargarh

	centre				
4	Creation/ maintenance of community training centre	LS	LS	3.0	"
5	Maintenance of existing building	LS	LS	6.5	"
	(G) Equipment				
1	Purchase of binoculars	-	-	-	For use in park
2	Purchase of Computer+ internet	-	-	-	For Range Office
3	Purchase of GPS	-	-	-	For use in field work
4	Purchase of Motor cycle	-	-	-	For using patrolling
5	Purchase of Jeep	-	-	-	For patrolling
6	Purchase of Canvas Tents	-	-	-	Amargarh
7	Purchase of Digital Cameras	-	-	-	
	Tourism Development				
1	Consultancy for Development of Signage Plan	-	-	-	National park
2	Implementation of Signage System/ gate	-	-	-	"
3	Training for guides	-	-	-	"
4	Maintenance of paths	LS	LS	3.5	Inside the park
5	Development/ maintenance of Camping site at Amargarh	LS	LS	2.0	Amargarh
6	Purchase of Tents and camping material	LS	LS	1.0	"
7	Printing publicity literature	LS	LS	2.0	Simbalbara Sanctuary
8	Website development	-	-	-	"
9	Rest house maintenance	LS	LS	4.0	Simbalbara/ Amargarh
	Monitoring and Population Estimation				
1	Project for implementation of a monitoring system	-	-	-	
2	Annual population monitoring exercise	LS	LS	3.5	National park
3	Development of gridded topographic map	-	-	-	"
	(H) Misc.				
1	Mobile connectivity to line staff	LS	LS	1.5	For Staff
2	Cattle Protection wall	-	-	-	Simbalbara
3	Cattle Pond	2	LS	1.0	Amargarh /Simbalbara
	Total			103.65	

Year wise breakup of activities to be carried out during the years 2026-27

Sr. No	Item of Work	Qty.	Rate per unit	Amt (Rs.) In lacs	Location
	(A) Habitat Improvement				
1	Removal of lantana bushes				
	1st year	5ha	0.40	2.0	Danda, Marusidh Gharuk, Kaludev
	2nd year	5ha	0.60	3.0	"
	3rd year	5ha	0.09	0.45	"
	4th year	5ha	0.07	0.35	"
2	Providing salt licks	-	-	-	"
3	Creation /maintenance of meadow by clear-felling eucalyptus plantations	LS	LS	4.0	"
4.	Enrichment Planting / Maintenance	20ha	-	5.5	"
	(B) Forest Protection				
1	Maintenance of Fire lines.	20km	0.15	5.5	"
2	Anti-poaching / fire prevention	LS	LS	5.0	"
3	Maintenance of patrolling paths	LS	LS	5.0	"
4	Incentive to informers	LS	LS	0.75	-
5	Creation /maintenance of check posts	LS	LS	0.60	Amargarh/Simbalbara
	(C) Soil and water conservation Works				
1	Creation / maintenance of water Resources	LS	LS	4.0	
2	Gully/nalla Stablization	LS	LS	7.0	Danda, Marusidh Gharuk, Kaludev
3	Desilting /maintenance water ponds	LS	LS	4.0	"
4	Creation /maintenance of Wallow ponds for Sambhar	LS	LS	0.70	"
	(D) Eco- Development Activities				
1	Repair /Maint. Puruwala Simbalbara road	12Km	LS	13.0	Puruwala Simbalbara road
2	Eco development works in villages	LS	LS	8.0	Village around the park
	(E) Training and Workshops				
1.	Education and Awareness	LS	LS	2.5	Village around the park
2	Wildlife Week Celebration	LS	LS	2.5	School around the park
3	Training workshops for field staff by professional agency	LS	LS	3.5	National Park
	(F) Infrastructure				
1	Forest Guard /BO Quarter in Amargarh /Simbalbara	-	-	-	Naurangabad
2	Const. / maintenance of fire watch tower	LS	LS	2.0	Kaludev /Ghurak
3	Creation /upgradation /maintenance of interpretation	-	-	-	Amargarh

	centre				
4	Creation/ maintenance of community training centre	-	-	-	"
5	Maintenance of existing building	LS	LS	7.0	"
	(G) Equipment				
1	Purchase of binoculars	-	-	-	For use in National Park
2	Purchase of Computer+ internet	-	-	-	For Range Office
3	Purchase of GPS	-	-	-	For use in field work
4	Purchase of Motor cycle	-	-	-	For using patrolling
5	Purchase of Jeep	-	-	-	For patrolling
6	Purchase of Canvas Tents	-	-	-	Amargarh
7	Purchase of Digital Cameras	-	-	-	
	Tourism Development				
1	Consultancy for Development of Signage Plan	-	-	-	National Park
2	Implementation of Signage System/ gate	LS	LS	2.0	"
3	Training for guides	LS	LS	1.0	"
4	Maintenance of paths	LS	LS	4.0	Inside the National park
5	Development/ maintenance of Camping site at Amargarh	LS	LS	2.5	Amargarh
6	Purchase of Tents and camping material	LS	LS	1.0	"
7	Printing sanctuary publicity literature	LS	LS	2.5	National Park
8	Website development	-	-	-	"
9	Rest house maintenance	LS	LS	4.5	Simbalbara/ Amargarh
	Monitoring and Population Estimation				
1	Project for implementation of a monitoring system	-	-	-	
2	Annual population monitoring exercise	LS	LS	4.0	National Park
3	Development of gridded topographic map	-	-	-	"
	(H) Misc.				
1	Mobile connectivity to line staff	LS	LS	1.5	For Staff
2	Cattle Protection wall	-	-	-	Simbalbara
3	Cattle Pond	2	LS	1.5	Amargarh /Simbalbara
	Total			110.85	

Year wise breakup of activities to be carried out during the years 2027-28

Sr. No	Item of Work	Qty.	Rate per unit	Amt (Rs.) In lacs	Location
	(A) Habitat Improvement				
1	Removal of lantana bushes				
	1st year	5ha	0.50	2.5	Danda, Marusidh Gharuk, Kaludev
	2nd year	5ha	0.70	3.5	"
	3rd year	5ha	0.10	0.50	"
	4th year	5ha	0.08	0.40	"
2	Providing salt licks	-	-	-	"
3	Creation /maintenance of meadow by clear-felling eucalyptus plantations	LS	LS	4.5	"
4.	Enrichment Planting / Maintenance	20ha	-	6.0	"
	(B) Forest Protection				
1	Maintenance of Fire lines.	20km	0.15	6.0	"
2	Anti-poaching / fire prevention	LS	LS	6.0	"
3	Maintenance of patrolling paths	LS	LS	6.0	"
4	Incentive to informers	LS	LS	1.0	-
5	Creation /maintenance of check posts	LS	LS	0.80	Amargarh/Simbalbara
	(C) Soil and water conservation Works				
1	Creation / maintenance of water Resources	LS	LS	5.0	
2	Gully/nalla Stablization	LS	LS	7.5	Danda, Marusidh Gharuk, Kaludev
3	Desilting /maintenance water ponds	LS	LS	5.0	"
4	Creation /maintenance of Wallow ponds for Sambhar	LS	LS	0.80	"
	(D) Eco- Development Activities				
1	Repair /Maint. Puruwala Simbalbara road	12Km	LS	15.0	Puruwala Simbalbara road
2	Eco development works in villages	LS	LS	8.5	Village around the park
	(E) Training and Workshops				
1.	Education and Awareness	LS	LS	3.0	Village around the park
2	Wildlife Week Celebration	LS	LS	3.0	School around the park
3	Training workshops for field staff by professional agency	LS	LS	4.0	National Park
	(F) Infrastructure				
1	Forest Guard /BO Quarter in Amargarh /Simbalbara	-	-	-	Naurangabad
2	Const. / maintenance of fire watch tower	LS	LS	2.5	Kaludev /Ghurak
3	Creation /upgradation /maintenance of interpretation	LS	LS	3.0	Amargarh

	centre				
4	Creation/ maintenance of community training centre	LS	LS	3.0	"
5	Maintenance of existing building	LS	LS	8.0	"
	(G) Equipment				
1	Purchase of binoculars	-	-	-	For use in the park
2	Purchase of Computer+ internet	-	-	-	For Range Office
3	Purchase of GPS	-	-	-	For use in field work
4	Purchase of Motor cycle	-	-	-	For using patrolling
5	Purchase of Jeep	-	-	-	For patrolling
6	Purchase of Canvas Tents	-	-	-	Amargarh
7	Purchase of Digital Cameras	-	-	-	
	Tourism Development				
1	Consultancy for Development of Signage Plan	-	-	-	National Park
2	Implementation of Signage System/ gate	LS	LS	2.0	"
3	Training for guides	LS	LS	1.0	"
4	Maintenance of paths	LS	LS	5.0	Inside the sanctuary
5	Development/ maintenance of Camping site at Amargarh	LS	LS	3.0	Amargarh
6	Purchase of Tents and camping material	LS	LS	2.0	"
7	Printing sanctuary publicity literature	LS	LS	3.0	National Park
8	Website development	-	-	-	"
9	Rest house maintenance	LS	LS	5.0	Simbalbara/ Amargarh
	Monitoring and Population Estimation				
1	Project for implementation of a monitoring system	-	-	-	
2	Annual population monitoring exercise	LS	LS	4.5	National Park
3	Development of gridded topographic map	-	-	-	"
	(H) Misc.				
1	Mobile connectivity to line staff	LS	LS	1.5	For Staff
2	Cattle Protection wall	-	-	-	Simbalbara
3	Cattle Pond	2	LS	1.5	Amargarh /Simbalbara
	Total			134.00	

Annexure – 1

Preliminary Notification of the Sanctuary
(Published during the year 1958 and republished during the year 1972 vide Govt. Notification No. 5 -1/72 - SF dated 29/6/72)

Shimla, - 29th July 1958

No. Ft. 45-4/56. With reference to the Himachal Pradesh Administration (Forest Department) Notification No. Ft. 45-4/56 dated the 8th February, 1958, in exercise of the powers under the Forest Act, 1927, and rule (6) of the Rules for the regulation of hunting, shooting, fishing , the poisoning of water and the setting of the traps or snares in the forests of Himachal Pradesh notified vide Himachal Pradesh Government Notification No. Ft. 85-1/58 dated the 15th September, 1949, and section 8 of the Punjab Wild Birds and Wild Animals Protection Act II of 1933, and Rule No. 10 (v) of the rules known as Himachal Pradesh Wild Birds and Wild Animals Protection Rules notified vide Himachal Pradesh Government Notification No. Ft. 85-1/8 dated the 15th September, 1949, the Lieutenant Governor, Himachal Pradesh, is pleased to declare the areas noted in the following proforma under column No. 8 as general purpose Game Sanctuary, column No. 6 as Buffer Belt in which hunting, shooting, killing or capturing, and setting of traps or snares shall be prohibited for ten years and Col. No. 9 as Sanctum Sanctorum for a period of 5 years with immediate effect. The same having been previously published in Himachal Pradesh Rajpatra dated 22/2/1958, vide Notification No. Ft. 45-4/56 dated 8/2/58.

PROFORMA

Sr. No	Name of (a) Distt. (b) Div. (c) Range, (d) Sanc-tuary	Name and Comptt. Nos. of reserved and protected forest of Game Sanctuary.	Area in acres,	Situation of the sanctuary area	Name of Forest and other areas around the Game Sanctuary to act as Buffer
1.	2.	3.	4.	5.	6
a)	Sirmour	Kaludev No.28	944	North : Main ShiwalikRidge	North: Kirda A No.17(a),Kirda No.17,Badighati A 16
b)	Nahan	Karwe-ka-khalla No. 29	618	East : Punjab Govt.Forests	No. 16,Sukhi Malion A(15) and Sukhi Malion 29
c)	Majra No 14				Paniwali No 13
d)	Simbal bara	Danda-Sukhcha inpur No. 30	1788	South : Portion of Punjab Govt. Forest and	" Jamanwali" No. 12 Bherewala No. 11 Sainwala No. 10

	Marusidh No. 31	185	Gharatwali Forest No. 32	Tokion No. 9 South-Gharatwali No. 32	
Chachroli)	Gharuk No.27	1223	West Sunkron Forests	Boundary of Punjab Govt.Forest	(
	Total	4758		Range near Village Doharpur and Village Tichori.	

East- Boundary line of Kalaser Forest of Punjab Govt. Game Sanctuary , Banswali No. 18 (a) and No. 18 Katapathar A No. 19 (a) and No. 19 Surajpur No. 20, Mahadev-ka-khala A No. 21 (a), Ghotampur No. 22, Kohtawali A No. 23, (a) and Kothawali No. 23, Mast Ali No. 24, Ambwali A No. 25, (a) and Ambwali No. 25, "Konch- beli " No. 26.West : Pipalwali No. 8 , Naurang-bad No.7 " ,Sindwala" No. 6, Garhi-Banswali No. 5 (a) , Gortu No. 5, Dhaula-kuwan (Ranpatiwala) No. 4 (a), Kolar- Karondewali No. 4, Ghariwala No. 3, Darranwala No.2, Kolar-Bidanwala No. 1, Sunkron No. 33, Nogli Ki khol(boundary of Zamindari Forest Punjab), Haripur-Lohgarh, No. 34, Village Lohgarh and villages Jheel and Haripur.

Area of forests etc. In acres	Simple situation of the Buffer Belt	Name of forests of sanctum-sanctorum	Area in acres	Situation
7	8	9	10	11
1335	North. Bata Nadi from khala katasan upto khaire Dhaula Kuan and then Nahan-Paonta Motor Road upto its Crossing with Bata Nadi East : Bata Nadi crossing Nahan-Paonta Motor Road Upto Satiwala village and Village Behral and Jamuna River upto Punjab boundary	Danda Sukh chainpur No. 30 and Marusidh No. 31	1973	Situated inside theGame Sanctuary
6253.61	South : Punjab Forests and Territory.			
1349.25	West : Khala Haripur and Khali Katasan.			

8947.86				

DEFINITION:-

a) Game Sanctuary:- The extraction of Forests produce from and traffic in game sanctuary not deterimental to the preservation of wild birds and wild animals, may be permitted by the Divisional Forest Officer concerned in consultation with the Wild Life Warden, but grazing cultivation or habitation therein except orders of the Chief Conservator of Forests or any other Gazatted Officers empowered in this behalf.

(b) Buffer Belt :- It shall be an area contiguous to a Game Sanctuary where all concessions granted to or rights of Zamidars inhabited in the buffer belt area, shall be reserved and protected except that no hunting and shooting of protected species of Wild Birds and Wild Animals, except those declared as vermin for the legitimate crop-protection will be permitted.

(ii) No professional grazing will be allowed to establish their cattle pans.

(iii) This shall be an area where from and to protected Wild Animals and Wild Birds can easily migrate according to climatic changes e.g. Summer Season, Snowfall or Winter season etc.

(c) Sanctum Sanctorum :- It shall be an area within Sanctuary where normal forest operations shall be restricted to ensure nursing of wild life undisturbed by human activities for 5 years , with effect from the issue of this Notification , subject to extension of period, change of this area.....which shall be duly notified by the Government.

This area shall be known as " Abhayaranya "

Annexure 2

Renotificaiton under Indian Forest Act in 1972

HIMACHAL PRADESH GOVERNMENT FOREST DEPARTMENT NOTIFICATION

No. 5-1/72-SF, dated Simla-2 the 29th June, 1972.

In exercise of the powers conferred under Section 26(1)(i) and (d) of the Indian Forest Act, 1927 (XVI of 1927) and rule (6) (i) of Rules for Regulating of Hunting, Shooting, Fishing the Poisoning of water and the Setting of Traps or Snares in the Forests of Himachal Pradesh, notified vide H.P. Administration No. Ft.45-II/55 dated the 4th March, 1958 and section 8 of the Punjab Wild Birds and Wild Animals Protection Act 1933 (II of 1933) and Rule No. 10(b) of the Rules known as Himachal Pradesh, wild birds and wild animals Protection Rules notified vide Himachal Pradesh Administration Notification No. Ft. 85-1/48, dated 15th September, 1949, the Governor Himachal Pradesh is pleased to declare the areas of Simbal-bara Forests Wild Life Sanctuary, for a period of 10 years as noted in the following performa and notice is hereby given that the said proposal shall be taken in to consideration three weeks after the date of this notification and any objections or suggestions received by the Chief Conservator of Forests, Himachal Pradesh, Shimla, before then, will be considered:-

Proforma

Sr No	Name of a) District b) C) Divison c) Range d) Sanctuary	Name and compartment No of reserved ad protected forests of game sanctuary	Area in acres	Situation of the sanctuary area	Name of the forests and other areas around the same sanctuary to act as butter belt
1	a) Sirmour b) Nahan c) Majra d) Simbalbara	Kaludev No. 28 Karwa ka khala 29 Danda sukhchainpur No 30 Marusidh No. 31 Gharuk No. 27	944 617 1788 185 123	North main Shiwalik ridge East – Haryana Govt. Forests South- Portion of Haryana Govt.forests and Gharatwali forest No.32 West: Sukron forests	North: Kirda A No. 17 (a) Kirda No. 17 Badighati A16(a) and badighati no1 Sukh-malion A (15) and Sukh malion No. 14 Paniwali No. 13 jananwala No 12 Behrewala No.11 Sainwala No 10. Tokiyon No.9 South Gharatwali No. 32 boundary of Haryana Govt. forests

					(Chachhrauli range near Village Dohapur and Village Tichori) East Boundary line or Kalesar forests of Haryana Govt. Game sanctuary Banswali No. 18 (a) and No. 18 Katapahtar A No. 19 (a) and No. 19 Surajpur No.20, Manadev ka khala A No. 21 (a) Mahadev ka khala No. 21, Ghuttanpur No. 22, Kothewali A No. 23(a) and Kothewali No. 23, Mastawali No. 24 Ambwali A No. 25 (a) and Ambwali No. 25 Konch beli No. 26 West:- Pipwali No. 8, Naurangabad No. 7,Sudan-wala No. 6, Garhi -Bans wali No.5 (a), Gortu No. 5, Dhaula-Kuan,(Ranpatiwala) No.4(a), Kolar-arondewali No.4, Ghariwala No. 3, Darranwala No. 2, Kolar -Bidanwala No.1, Sunkron No. 33,Nogli kikhol (boundary of Zamindari Forest Haryana) Haripur - Logarh, No. 34 village Logarh and villages Jheel and Haripur.

S.No	Area of forests etc. in acres	Simple situation of the buffer belt	Name of forest of sanctum sanctorum	Area in acres	Situation
	1,335.00	North:- Bata Nadi from Khala Katasan upto Khaire Dhaulakuan and then Nahan-Paonta - Motor road upto its crossing with bata nandi	"Danda-sukh-chainpur No. 30 and Marusidh No.31.	1973	Situated inside the game sanctuary
	6,253.61	East:- Bata-Nadi crossing Nahan-Paonta motor road up Upto Satiwala village and village Behral and Yamuna River upto Haryana			
	1,349.25	South :- Haryana forests and territory			
	8,937.86	West:- Khala Haripur and Khali Katasan			

DEFINITION:-

a) Sanctuary:- The extraction of Forests produce from and traffic in game sanctuary not detrimental to the preservation of wild birds and wild animals, may be permitted by the Divisional Forest Officer concerned in consultation with the Wild Life Warden, but grazing cultivation or habitation therein except orders of the Chief Conservator of Forests or any other Gazatted Officers empowered in this behalf.

b) Buffer-belt:- i)It shall be an area contiguous to a Game Sanctuary where all concessions granted to or rights of Zamindars inhabited in the buffer-belt area, shall be reserved and protected except that no hunting and shooting of protected species of wild birds and wild animals except those declared as vermins for the legitimate crop-protection will be permitted.

ii) No professional graziers will be allowed to establish their cattle pans.

iii) This shall be an area where from and to protected wild animals and wild birds can easily migrate according to climate changes e.g. Summer season, snow-fall or winter season etc.

c) Sanctum-San-It shall be an area within sanctuary where normal forest operations shall be restricted to ensure ctorum:-nursing of wild life undisturbed by human activities for 5 years with effect from the issue of this notification, subject to extension of period, change of this area which shall be duly notified by the Government.

This area shall be known as "Abhayaranya".

Secretary (Forests) to the
Government of Himachal Pradesh

No. 5-1/72-SF, dated Simla - 2 the 29th June, 1972.
Copy forwarded to the :-

1. Manager Govt. H.P. Press, Simla for publication in H.P.Rajpatra.
2. Chief Conservator of Forests, H.P. Simla.1.
3. Deputy Commissioner Sirmur Distt. at Nahan alonwith 20 spare copies of the notification.
4. Conservator of Forests, Development Circle alongwith 10 spare copies of notification.
5. Conservator of Forests, Nahan Circle , Nahan with 10 spare copies of the notification.
6. Wild Life Warden, H.P. alongwith 20 spare copies of the notification for information and necessary action.

Sd/-
Deputy Secretary (Forests) to the
Government of Himachal Pradesh

Annexure 3

Preliminary Notifictaion under Wild life (Protection) Act in 1974

GOVERNMENT OF HIMACHAL PRADESH

FOREST DEPARTMENT

No.5- 11/70-SF Dated Shimla-2, the 27th March, 1974.

NOTIFICATION

Whereas the Government of Himachal Pradesh State after due consideration is of the view that the areas mentioned in the Schedule below are of adequate ecological, faunal, floral, Geomorphological, natural or natural or zoological significance ;

Now therefore, in exercise of the powers conferred on him under section 18 of the Wild Life (Protection) Act, 1972, the Governor , Himachal Pradesh is pleased to declare the aforesaid areas as sanctuaries for t he purpose of protecting, propagating or developing Wild Life or its environment

SCHEDULES

Sr. No.	Name of the	Name of a) District b) Division c) Range	Situation of the Sanctuary
1. to 8.		XXXX	XXXX
9.	Simbalbara	a) Sirmour b) Nahan c) Majra	North : Main Shiwalik ridge East: Bordering Haryana Govt. Forests South: Portion of Govt. forests and Gharatwali forests No. 32 West: Boundary line between Haryana and Himahcal
10 to 17	XXXX	XXXX	XXXX

By order Sd/
(P.K. Matto)
Secy. (Forests) to the
Govt. of Himachal Pradesh

Annexure 4

Final Notification under Wildlife (Protection)Act in 1999

(Authoritative English text of this Department Notification Number FFF-B-F (6) - 27/99, dated 1-11-1999 as required under clause (3) of Article 348 of constitution of India)

GOVERNMENT OF HIMACHAL PRADESH
FOREST DEPARTMENT

No. FFE-B-F (6) -27/99 Dated Shimla-2, the 1st Nov., 1999

NOTIFICATION

Whereas Notification under section 18 of the wildlife (Protection) Act, 1972 was issued vide Government Notification No. 5-11/70- SF dated 27-3-1974 declaring its intention to constitute Simbalbara Sanctuary in District Sirmour.

And whereas proclamation as required under section 21 of the said act was published in the regional language and circulate in every Town & Village covered by the above Notification on 3-3-1998. No objection whatsoever were received from the public within the prescribed period . It is , therefore, felt that there is no need either to exclude or include any land from the limits of the sanctuary and consequently no action is required to be taken under section 24 and 25 of the Act;

And whereas the Governor, Himachal Pradesh considers that Simbalbara Sanctuary is of adequate ecological, faunal, geomrophological, natural or zoological significance.

Now, therefore, the Governor, Himachal Pradesh in exercise of the powers vested in her under section (26-A) of the said Act please to declare Simbalwara area as Sanctuary with immediate effect for the purpose of protecting , propagating or developing wildlife or its environment.

The limit of the area of the sanctuary shall be as under:-

North	:-	Main Shivalik Ridge
East	:-	Bordering Haryana Government forests
South	:-	Portion of Haryana Government forests and Gharatwali forests No 32
West	:-	Boundary line between Himachal and Haryana
Area	:-	19 Sq. km

By order

Sd/-

Commissioner –cum-Secretary (FIS)
To the Government of Himachal Pradesh

Endst. No. FFE- B-F (6) 27/99 dated Shimla 2, the 1st Nov. 1999.

Copy forwarded for favour of information and necessary action to :

1. All the Administrative Secretaries to the Govt. of H.P.
2. All the Divisional Commissioner in Himachal Pradesh
3. All the Heads Department in Himachal Praesh
4. The principal chief conservator of Forest , H.P. Shimla -1
5. The Chief Wildlife Warden, H.P. Shimla- 1
6. All the Deputy Commissioner in Himachal Pradesh
7. The controller printing and stationary department H.P Shimla 171005 for publication Rajpatra. Five copies of the Rajprata be sent to his department.
8. All Chief Conservator of Forest, in Himachal Pradesh .
9. All Chief Conservator of Forest, Officer (Wildlife) in H.P.
10. Guard File. (100 spare copies).

Secretary (Forest)
To the Government of Himachal Pradesh

Intention Notification of National Park under Wild Life (Protection) Act in 2010 (Authoritative English Text of this Department Notification No. FEE-B-F (6) 11/2005, dated 28th July 2010 as required under Article 348(3) of the Constitution of India)

GOVERNMENT OF HIMACHAL PRADESH
DEPARTEMENT OF FORESTS

No. FFE-B-F(6)11/2005 Dated Shimla-2,the 28th July 2010

NOTIFICATION

Whereas, the Governor, Himachal Pradesh, after careful consideration is or the view that the areas mentioned in the schedule below are of adequate ecological, faunal, floral, geomorphological, natural or Zoological significance.

Now, therefore, the Governor, Himachal Pradesh in exercise of powers vested in her under Section 35 (1) of the Wildlife (Protection) Act, 1972 is pleased to declare her intention to convert the existing Simbalbara sanctuary having an area of 19 including an area of 8.88 Sq km to proposed Simbalbara National Park having total area of 27.88 Sq. km. for the purpose of protecting, propagating or developing wildlife, or its environment.

SCHEDULE

Sr.No.	Name of WL sanctuary to be extended	Constituents i) District ii) Division	Proposed boundaries of the area constitute as inclusion to the Simbalbara Wildlife Sanctuary to constitute new Simbalbara National Park
1	Simbalbara	i) Sirmour ii) Shimla (WL) & Paonta	**North**: - Main Shivalik Ridge of existing Simbalbara Wildlife Sanctuary upto compartment No. 3 of Kata Pathar. **East** – Compartment Nos. 3,4,5,6,7 of RF Kata Pathar – Khail marked with single ring around trees at d.b.h. and compartment No.2 of Kathaphatar , C-7 Paniwali khalli with rings(Painted) around the trees d.b.h. compartment Nos. 1,6,10,14,17,18,19(part) of RF Guttanapur C-1 Khalli bifurcated from sampon wali khali marked with single painted rings around trees at d.b.h. C-6 khalli ridge marked with single rings around trees above d.b.h. C-10, 14 and 19 Compartment Nos. 1,2,8 of RF KothiwaliC-2 & 8 Khalli marked with single ring around trees at above d.b.h. Compartment No.s 3,5,6,7,8,9,10 of RF Mastali- Satiwala village and Yamuna Nagar road

			compartment Nos. 1,2,3 of Ambwali-Ambwali Khalli with rings around trees. **South-** Last point of Marusidh Reserve Forest of existing WLS (Marusidh Mazaar) alongtwith Haryana border along the boundary of Kalesar National park of Haryana Government Forests upto Ambuali RF C.3 **West –** Boundary line between Himachal and Haryana of Simbalbara Wildlife Sanctuary.

Area:- This new area of 8.8 Sq. km and existing 19 Sq. km. of Wildlife Sanctuary Simbalbara shall constituted a new Simbalbara Park

By order
Sd/-
Addl. Chief Secretary (IAS) of
the Government of Himachal Pradesh

Endst. No. FFE- B-F (6) 11/2005 dated Shimla 2, the 28th July, 2010.
Copy forwarded for favour of information and necessary action to:

1. All the Administrative Secretaries to the Govt. of H.P. Shimla-2
2. All the Divisional Commissioner Shimla, Mandi & Dharamshala H.P.
3. All the Heads Department of Himachal Pradesh
4. The principal chief conservator of Forest, H.P. Shimla -1
5. The Principal Chief Conservator of Forests (Wildlife) H.P. Shimla-1
6. The Conservator of Forests (Wildlife) (North) Dharamshala.
7. The Conservator of Forests (South) Shimla H.P.
8. The Conservator of Forests GHNP Shamshi, Kullu
9. All the Deputy Commissioner in Himachal Pradesh
10. All the CCF/CHs/ DFOs in H.P.
11. The Commissioner, Municipal Corporation, Shimla.
12. The Comptroller, H.P. Printing & Stationary Department Shimla -5 for publication in the Rajpatra (Extra ordinary) Five Copies of the Rajpatra be sent to this Department.
13. Guard File.

Deputy Secretary (Forests)
To the Government of Himachal Pradesh

Final Notification under Wildlife (Protection) Act in 2013

(Authoritative English Text of this Department Notification No.FFE-B-F(6)11/2005-II, Dated June 7, 2013 as required under article 348(3) of the Constitution of India)

GOVERNMENT OF HIMACHAL PRADESH
DEPARTEMENT OF FORESTS

No. FFE-B-F(6)-11/2005-II/Simbalbara Dated Shimla-2, the June 7,2013

NOTIFICATION

Whereas a Notification under section 26A of the Wildlife (Protection) Act, 1972 (53 of 1972) was issued vide Government Notification No. FFE-B-F(6)27/99 dated 1.11.99, to declare Simbalbara as Wildlife Sanctuary comprising an area of 19.00 Sq.Km

And whereas, the matter with regard to rationalization of the Wildlife Sanctuaries and National Parks in Himachal Pradesh was under consideration of the Hon'ble Supreme Court in IA No. 139/2010 in Writ Petition Civil No. 337 of 1995 titled Centre for Environmental Law, WWF-I Versus Union of India & Others;

And whereas, in pursuance to the Hon'ble Supreme Court order dated May 7, 2010, the State Government issued intention Notification under section 18 of the Wildlife (Protection) Act, 1972, in respect of Wildlife Sanctuaries and National Parks for which rationalization had been proposed;

And whereas, intention Notification under 35 (1) of the Wildlife (Protection) Act, 1972 was issued vide Notification FFE-B-F(6)-11/2005 dated July28, 2010, to constitute an area of 27.88 sq. km as Simbalbara National Park by including an area of 8.88 sq. km to the existing Simbalbara Wildlife Sanctuary area of 19.00 sq.km;

And whereas, the Hon'ble Supreme Court vide order dated 05/08/2011, further directed the State Government to follow the procedure laid down under Section 18 to 26A and 35 of the Wildlife (Protection) Act, 1972, before issuance of final Notification under Section 26A of the Wildlife (Protection) Act, 1972, which procedure was duly followed;

And whereas, as a consequence of rationalization of boundaries of Simbalbara Wildlife Sanctuary, an additional area of 8.88 sq.km. is hereby included. The total area of 27.88 sq. km. (19.00 sq.km + 8.88 sq.km.) is also upgraded from Simbalbara Wildlife Sanctuary into a National Park after rationalization;

Now, therefore, the Governor Himachal Pradesh in exercise of the powers vested in her under Section 35 (4) of the Act ibid is pleased to declare the aforesaid area of 27.88 sq. km. as "**Simbalbara National Park**" with immediate effect for the purpose of protecting, propagating and developing wildlife and its environment;

The limits of the Simbalbara National Park shall be as under:

SCHEDULE

Sr.No.	Name of National Park	Constituents i) District ii) Division	Boundaries of Simbalbara National Park
1	Col. Sher Jung National Park	i) Sirmour ii) Shimla (WL) & Paonta	North: - Main Shivalik Ridge of existing Simbalbara Wildlife Sanctuary upto compartment No. 3 of Kata Pathar. East – Compartment Nos. 3,4,5,6,7 of RF Kata Pathar – Khail marked with single ring around trees at d.b.h. and compartment No.2 of Kathaphatar, C-7 Paniwali khalli with rings(Painted) around the trees d.b.h. compartment Nos. 1,6,10,14,17,18,19 (part) of RF Guttanapur C-1 Khalli bifurcated from sampon wali khali marked with single painted rings around trees at d.b.h. C-6 khalli ridge marked with single rings around trees above d.b.h. C-10, 14 and 19 Compartment Nos. 1,2,8 of RF KothiwaliC-2 & 8 Khalli marked with single ring around trees at above d.b.h. Compartment No.s 3,5,6,7,8,9,10 of RF Mastali- Satiwala village and Yamuna Nagar road compartment Nos. 1,2,3 of Ambwali-Ambwali Khalli with rings around trees. **South-** Last point of Marusidh Reserve Forest of existing WLS (Marusidh Mazaar) along with Haryana border along the boundary of Kalesar National park of Haryana Government Forests upto Ambuali RF C.3 **West** – Boundary line between Himachal and Haryana of Simbalbara Wildlife Sanctuary. Boundary as per scale 1:15000

This area is situated within the Geo co-ordinates **North** $30^0 28' 13''$ N & $77^0 28' 43''$ E, **East** $30^0 24' 15''$ N & $77^0 33' 55''$ E, **South** $30^0 23' 31''$ N & $77^0 33' 44''$ E and **West** $30^0 27' 26''$ N & $77^0 27' 40''$ E Survey sheet No.53F/7 & 53 F/11 Scale 1:50000.

Area of Simbalbara National Park = 27.88 sq.km.

By order
Sd/-
Principal Secretary (Forest) to
the Government of Himachal Pradesh.

Endst No. As above

Dated Shimla 2, the 7th June, 2013.

Copy forwarded for favour of information and necessary action to:

1. All the Administrative Secretaries to the Govt. of H.P. Shimla-2
2. All the Divisional Commissioner Shimla, Mandi & Dharamshala H.P.
3. All the Heads Department of Himachal Pradesh
4. The Principal Chief Conservator of Forest, H.P. Shimla -1
5. The Principal Chief Conservator of Forests (Wildlife) H.P. Shimla-1
6. The Conservator of Forests (Wildlife) (North) Dharamshala
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8. The Conservator of Forests GHNP Shamshi, Kullu
9. All the Deputy Commissioner in Himachal Pradesh
10. All the CCF/CHs/ DFOs in H.P.
11. The Commissioner, Municipal Corporation, Shimla.
12. The Controller, H.P. Printing & Stationary Department Shimla -5 for publication in the Rajpatra (Extra ordinary) Five Copies of the Rajpatra be sent to this Department.
13. Guard File.

Under Secretary (Forests) to the Government of Himachal Pradesh.

Annexure 7

Area Statement

RF's	Beats						Total
	Marusidh	Kaludev	Danda Sukhchainpur	Ghurak	Bata Mandi	Behral	
Marusidh	75.00 ha						75.00 ha
Kaludev		175.40 ha		205.60 ha			381.00 ha
Danda Sukhchinpur	430.90 ha		291.10 ha				722.00 ha
Karwa ka Khala		250.00 ha					250.00 ha
Ghurak				494.00 ha			494.00 ha
Katta Pather					145.04 ha		145.04 ha
Ghuttanpur					274.48 ha		274.48 ha
Kothewali						123.24 ha	123.24 ha
Mastali						225.38 ha	225.38 ha
Ambwali						119.72 ha	119.72 ha
Total	505.90 ha	425.40 ha	291.10 ha	699.60 ha	419.52 ha	468.34 ha	2809.86 ha

Annexure 8

Sanctioned posts in the National Park

Post	Nos.
Forest Rangers	1
Deputy Rangers	3
Forest Guards	6
Animal Attendant	2
Forest Workers	2
Mali	1

Annexure 9

List of Survey of India Toposheets covering the National Park

Sr. No.	Sheet No	Scale
1	53F-7	1:50,000
2	53F-11	1:50,000

Annexure 10

List of Perennial Natural Water Source

Sr. No.	Description
1	Nimbuwala Khala at Marusidh Mazar
2	Small Springs in Asarodi Khala, Ghurak ka Khala, Kaludev ka Khala

Annexure 11

List of Artificial Water Sources

Sr No	Beat	RF	Description	No.
1	Kaludev	Kaludev	Earthen Pond	11
2	"	Kurve ka khal	Cemented Pond	4
3	Marusidh	Marusidh	Earthen pond	1
4	"	"	Cemented pond	1
5	"	Danda Sukhchainpur	Earthen pond	6
6	"	"	Cemented pond	1
7	Dada Sukhchainpur	"	Earthen pond	3
8	"	"	Cemented pond	1
9	"	"	Water Harvesting structure	
10	Ghurak	Kaludev	Cemented pond	1
11	"	Ghruak	"	1
12	"	"	Earthen pond	5
13	"	"	Cemented waterhole	10
14	"	"	Water harvesting structure	2

Annexure 12

Average monthly rainfall (mm) at Paonta Sahib

Year	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
2014	10	20	40	-	18	7	993	482	242	-	-	111	1915
2015	82	-	-	-	3	152	485	711	162	-	12	65	1672
2016	-	122	60	-	37	114	916	595	289	3	16	166.6	2318
2017	-	50	36	3	8	250	193	318	73	-	3	61.0	995
Avg	23.0	48.0	34.0	0.8	16.5	130.8	646.8	526.6	191.5	0.8	7.8	100.9	1725.6

Annexure 13

List of Salt Licks

Sr. No.	Beat	RF	Type	No.
1	Kaludev	Kaludev	Natural	1
2	Ghurak	Ghurak	Natural	1
3	Danda Sukhchainpur	Ogal Aam	Artificial	2
4	"	Asarodi	Artificial	1
5	"	Bridge No. 1	Artificial	1
6	Marusidh	Dadu Pani	Artificial	1
7	"	Marusidh	Cemented (broken)	2
8	"	"	Mota Bamboo	1

Annexure 14

List of plantations in the Park from 2013-14 to 2017-18

Year	Location	Area (ha)	Cost (Rs.)	Species	No.
2013-14	RF Kaludev, Karwe ka khala, Danda Sukhchainpur Danda Sukchainpur	20 ha 5 ha	366000 80000	Bamboo, Arjun, Jamun, Amla Behera, Aonla, Jamun, Jamoya, mango, Guava	20950 7500
2014-15	RF Danda,	13ha	466900	Bamboo, Amla, Sain, Kachnar	13700
2015-16	RF Danda, RF Kaludev, RF Gharuk	15ha	382000	Bamboo, Amla, Amaltas, Jamun, Kachanar, Sheesam, sain, Lasunia	22300
2016-17	RF Danda, RF Sukhchainpur, RF Gharuk, RF Karwe ka khala	25 ha	548583	Bamboo, Jamun, Amla, Sarpgandha, Kachnar, Guava	19000
2017-18	RF Danda Sukhchainpur, RF Gharuk, RF Kaludev, RF Marusidh	16 ha	399700	Jamun, kachnar, Bamboo, Amla, Guava, Arjun	17000

List of Mammals Found in Park

Sr.No.	Common Name	Local Name	Scientific Name	Schedule
1	Leopard	Baghera	*Panthera Pardus*	I
2	Jungle Cat	Ban Billa	*Felis chaus*	II
3	Jackal	Geedad	*Canis aureus*	II
4	Himalaya Palm Civet	Kothiya, Shikralu Katheli	*Paguma larvata*	II
5	Yellow Throated Marten		*Martes flavigula*	II
6	Sambar	Sambar	*Axis unicolor*	
7	Spotted Deer	Chital	*Axis axis*	
8	Barking Deer	Kakkad	*Muntiacus muntjac*	III
9	Blue Bull	Nilgai		
10	Goral	Ghoral	*Nemorrhaedus goral*	III
11	Wild Pig	Sooar	*Sus Scrofa*	
12	Common Langur	Langur	*Presbytes entellus*	II
13	Rhesus Macaque	Bandar	*Macaca mulatta*	II
14	Porcupine	Shail	*Hystrix indica*	IV

Source : Field Staff of Sher Jung National Park

Annexure 16

List of Birds of Sher Jung National Park
(Source : Bhargav V.K. et. Al, 2007, Indian Forester, Vol. 133, No. 10

Sr. No.	Order	Family	Scientific name	Common name	Winter	Summer
1	2	3	4	5	6	7
1.	Galliformes	Phasianidae	*Gallus gallus*	Red Junglefowl	*	*
2.			*Lophura leucomelanos*	Kalij Pheasant		*
3.			*Pavo cristatus*	Indian Peafowl	*	*
4.	Piciformes	Picidae	*Dendrocopos canicapillus*	Grey-capped pygmy Woodpecker	*	*
5.			*Dendrocopos macei*	Fulvous-breasted Woodpecker	*	
6.			*Chrysocolaptes lucidus*	Greater Flameback	*	*
7.		Megalaimidae	*Megalaima zeylanica*	Brown-headed Barbet		*
8.	Bucerotiformes	Bucerotidae	*Anthracoceros albirostris*	Oriental Pied Hornbill	*	*
9.			*Ocyceros birostris*	Indian Grey Hornbill	*	*
10.	Upupiformes	Upupidae	*Upupa epops*	Common Hoopoe	*	*
11.	Coraciiformes	Coraciidae	*Coracias benghalensis*	Indian Roller		*
12.		Alcedinidae	*Alcedo atthis*	Common Kingfisher		*
13.		Halcyonidae	*Halcyon capensis*	Stork-billed Kingfisher	*	*
14.			*Halcyon smyrnensis*	White-throated Kingfisher	*	*
15.		Cerylidae	*Megaceryle lugubris*	Crested Kingfisher	*	*
16.		Meropidae	*Merops orientalis*	Green Bee-eater		*
17.			*Merops leschenaulti*	Chestnut-headed Bee-eater		*
18.	Cuculiformes	Cuculidae	*Cuculus canorus*	Eurasian Cuckoo		*
19.			*Cuculus micropterus*	Indian Cuckoo		*
20.			*Eudynamys scolopacea*	Asian Koel		*

Contd..

1	2	3	4	5	6	7
21.			*Hierococcyx varius*	Common Hawk Cuckoo		*
22.			*Oxylophus jacobinus*	Pied Cuckoo	*	
23.			*Surniculus lugubris*	Drongo Cuckoo		*
24.		Centropodidae	*Centropus sinensis*	Greater Coucal		*
25.	Psittaciformes	Psittacidae	*Psittacula cyanocephala*	Plum-headed Parakeet	*	*
26.			*Psittacula krameri*	Rose-ringed Parakeet	*	*
27.	Strigiformes	Strigidae	*Glaucidium cuculoides*	Asian Barred Owlet	*	*
28.			*Glaucidium radiatum*	Jungle Owlet		*
29.			*Ninox scutulata*	Brown Hawk Owl		*
30.			*Otus sunia*	Oriental Scops Owl		*
31.		Caprimulgidae	*Caprimulgus macrurus*	Large-tailed Nightjar		*
32.			*Caprimulgus indicus*	Grey Nightjar		*
33.			*Caprimulgus asiaticus*	Indian Nightjar		*
34.	Columbiformes	Columbidae	*Chalcophaps indica*	Emerald Dove		*
35.			*Columba livia*	Blue Rock Pigeon	*	*
36.			*Streptopelia chinensis*	Spotted Dove		*
37.			*Streptopelia decaocto*	Eurasian Collared Dove		*
38.			*Streptopelia orientalis*	Oriental Turtle Dove		*
39.			*Treron phoenicoptera*	Yellow-footed Green Pigeon		*
40.	Ciconiiformes	Charadriidae	*Charadrius dubius*	Little-ringed Plover		*
41.			*Vanellus duvaucelii*	River Lapwing	*	
42.			*Vanellus indicus*	Red-wattled Lapwing	*	*
43.		Accipitridae	*Accipiter badius*	Shikra		*
44.			*Aquila vindhiana*	Tawny Eagle		*
45.			*Gyps indicus*	Long-billed Vulture	*	
46.			*Haliastur indus*	Brahminy Kite		*

Contd.

1	2	3	4	5	6	7
47.			*Neophron percnopterus*	Egyptian Vulture	*	*
48.			*Spilornis cheela*	Crested Serpent Eagle	*	*
49.		Falconidae	*Falco tinnunculus*	Common Kestrel	*	*
50.		Ardeidae	*Egretta garzetta*	Little Egret	*	*
51			*Bubulcus ibis*	Cattle Egret	*	*
52.			*Nycticorax nycticorax*	Black-crowned Night Heron		*
53	Passeriformes	Pittidae	*Pitta brachyura*	Indian Pitta		*
54.		Irenidae	*Chloropsis aurifrons*	Golden-fronted Leafbird		*
55.		Corvidae	*Aegithina tiphia*	Common Iora		*
56.			*Coracina melanoptera*	Black-headed Cuckooshrike		*
57.			*Corvus macrorhynchos*	Large-billed Crow		*
58.			*Dendrocitta formosae*	Grey Treepie	*	
59.			*Dendrocitta vagabunda*	Rufous Treepie	*	*
60.			*Dicrurus caerulescens*	White-bellied Drongo		*
61.			*Dicrurus hottentottus*	Spangled Drongo	*	*
62.			*Dicrurus macrocercus*	Black Drongo	*	*
63.			*Hemipus picatus*	Bar-winged Flycatcher-shrike	*	*
64.			*Oriolus traillii*	Maroon Oriole	*	
65.			*Oriolus xanthornus*	Black-Hooded Oriole	*	*
66.			*Pericrocotus cinnamomeus*	Small Minivet		*
67.			*Pericrocotus ethologus*	Long-tailed Minivet	*	
68.			*Pericrocotus flammeus*	Scarlet Minivet	*	
69.			*Rhipidura albicollis*	White-throated Fantail	*	
70.			*Rhipidura aureola*	White-browed Fantail		*
71.			*Rhipidura hypoxantha*	Yellow-bellied Fantail	*	
72.			*Tephrodornis gularis*	Large Woodshrike	*	*

Contd

1	2	3	4	5	6	7
73.			*Tephrodornis pondicerianus*	Common Woodshrike		*
74.			*Terpsiphone paradisi*	Asian Paradise-flycatcher		*
75.			*Urocissa erythrorhyncha*	Red-billed blue Magpie		*
76.		Muscicapidae	*Chaimarrornis leucocephalus*	White-capped Water Redstart	*	
77.			*Copsychus malabaricus*	White-rumped Shama		*
78.			*Copsychus saularis*	Oriental Magpie Robin		*
79.			*Culicicapa ceylonensis*	Grey-headed Canary Flycatcher	*	
80.			*Cyornis rubeculoides*	Blue-throated Flycatcher		*
81.			*Cyornis tickelliae*	Tickell's Blue Flycatcher		*
82.			*Ficedula parva*	Red-Throated Flycatcher	*	
83.			*Myophonus caeruleus*	Blue Whistling Thrush	*	
84.			*Niltava macgrigoriae*	Small Niltava	*	
85.			*Niltava sundara*	Rufous-bellied Niltava	*	
86.			*Rhyacornis fuliginosus*	Plumbeous Water Redstart	*	
87.			*Saxicola caprata*	Pied Bushchat	*	
88.			*Turdus boulboul*	Grey-winged Blackbird	*	
89.			*Zoothera citrine*	Orange-headed thrush	*	
90.		Sturnidae	*Acridotheres tristis*	Common Myna		*
91		Sittidae	*Sitta himalayensis*	White-tailed Nuthatch		*
92.		Certhiidae	*Tichodroma muraria*	Wallcreeper	*	
93.			*Certhia himalayana*	Bar-tailed Treecreeper	*	
94.		Paridae	*Parus major*	Great Tit	*	*
95.		Hirundinidae	*Hirundo smithii*	Wire-tailed Swallow		*
96.		Pycnonotidae	*Hypsipetes leucocephalus*	Black Bulbul	*	
97.			*Pycnonotus cafer*	Red-vented Bulbul	*	*
98.			*Pycnonotus leucogenys*	Himalayan Bulbul	*	*

Contd...

1	2	3	4	5	6	7
99.			*Pycnonotus melanicterus*	Black-crested Bulbul		*
100.		Cisticolidae	*Prinia hodgsonii*	Grey-breasted Prinia		*
101.		Zosteropidae	*Zosterops palpebrosus*	Oriental White-eye	*	*
102.		Sylviidae	*Acrocephalus dumetorum*	Blyth's Reed Warbler		*
103.			*Orthotomus sutorius*	Common Tailorbird	*	*
104.			*Pellorneum ruficeps*	Puff-throated Babbler		*
105.			*Phylloscopus maculipennis*	Ashy-throated Warbler	*	
106.			*Seicercus burkii*	Golden-spectacled Warbler	*	
107.			*Seicercus xanthoschistos*	Grey-hooded Warbler	*	
108.			*Turdoides striatus*	Jungle Babbler	*	*
109.		Nectariniidae	*Aethopyga siparaja*	Crimson Sunbird	*	*
110.			*Dicaeum agile*	Thick-billed Flowerpecker		*
111.			*Dicaeum concolor*	Plain Flowerpecker		*
112.			*Nectarinia asiatica*	Purple Sunbird		*
113.		Passeridae	*Motacilla alba*	While Wagtail	*	
114.			*Motacilla cinerea*	Grey Wagtail	*	*
115.			*Motacilla maderaspatensis*	White-browed Wagtail	*	
116.			*Passer domesticus*	House sparrow	*	*
117.			*Petronia xanthocollis*	Chestnut-shouldered Petronia		*
					63	88

Annexure 17

List of Butterflies found in Sher Jung National Park

Sr. No.	Scientific Name	Common Name	Eucalyptus	Euc.-Sal Mix	Sal	Sal Mixed
	Family Papilionidae					
1	Papilio clytia clytia	Common Mime				*
2	Papilio clytia dessimilis	Common Mime		*	*	*
3	Papilio demoleus	Lime Butterfly	*	*		*
4	Papilio polytes	Common Mormon	*	*	*	*
5	Pathysa nomius	Spot Sword tail			*	*
	Family Pieridae					
6	Anaphaeis aurota	Pioneer		*		
7	Catopsilia Pomona	Common Emigrant	*	*	*	*
8	Catopsilia pyranthe	Mottled Emigrant	*	*	*	*
9	Capora nerissa	Common Gull	*	*	*	*
10	Colotis etriad	Small Orange Tip			*	
11	Delias etrida	Common Jezebel	*	*	*	
12	Eurema blanda	Three spot grass yellow	*	*	*	
13	Eurema brigitta	Small grass yellow	*	*		
14	Eurema hecabe	Common grass yellow	*	*	*	*
15	Eurema laeta	Spotless grass yellow	*	*	*	
16	Leptosia nina	Psyche	*	*		
17	Pieris canidia	Indian cabbage white		*		
	Family-Lyacaenidae					
18	Abisara Lyacaenidae	Plum Judy		*	*	
19	Actolepis puspa	Common Hedge blue	*			*
20	Arhopala amantes	Large Oak Blue	*	*	*	*
21	Camena amantes	Broad Tail Royala		*		
22	Castalius rosimon	Common Pierrot	*	*	*	
23	Curetis dentate	Angled sunbeam				*
24	Chilades pandava	Plains Cupid			*	
25	Euchyrsops cnejus	Gram Blue	*	*	*	
26	Freyeria trochylus	Grass Jewel		*	*	
27	Lampudes boeticus	Pea Blue	*	*		
28	Larathura sp.	Oak Blue Species	*	*	*	*
29	Pseudozizeeria maha	Pale Grass Blue	*	*	*	
30	Rapala irobus	Indian Red Flash		*		
31	Spsindasts valcans	Common Silverline	*			*
32	Zizeeria Karsandra	Dark Grass Blue	*	*		
	Family Nymphalidae					
33	Cupha erymanthis	Rustic	*	*	*	
34	Cynthia Cardui	Painted lady	*	*		
35	Cyrestis thyodamas	Common Map			*	*
36	Danaus geulia	Common Tiger	*	*	*	*
37	Danaus chrysippus	Plain Tiger	*	*	*	*
38	Elymnias hypermnestra	Common Palmfly			*	
39	Euploea Core	Common Crow	*	*	*	*
40	Euploea mulciber	Striped Blue Crow	*	*	*	*
41	Euthalia aconthea	Common Baron			*	
42	Euthalia labenlina	Gaudy Baron				*
43	Eathalia nais	Baronet	*	*	*	*

44	Hypolimnas bolina	Great Eggfly				*
45	Hypolimnas misippus	Danaid Eggfly			*	
46	Junonia almanac	Peacock pansy	*	*		
47	Junonia hierta	Yellow Pansy	*	*		*
48	Junonia iphita	Chocolate Soldier	*			
49	Junonia lemonias	Lemon pansy	*	*	*	*
50	Junonia orithya	Blue Pansy	*	*	*	*
51	Kalima inachus	Orange Oak Leaf	*		*	*
52	Kanishaka eanace	Blue Admiral			*	*
53	Limentis Procris	Commander				*
54	Melanitis leda	Common Evening Brown	*	*	*	
55	Myscatesis perseus	Common bush brown	*	*	*	
56	Naptis hylas	Common sailor	*	*	*	*
57	Pantoporia hordonia	Common Lascar				*
58	Parantica aglea	Glassy Tiger	*	*	*	*
59	Phalanta alcippe	Small Leopard				*
60	Phalanta phalantha	Common Leopard	*	*	*	*
61	Polyura athamas	Common Nowab				*
62	Tanaecia lepidea	Grey Count				*
63	Tirumala linniace	Blue Tiger	*	*		
64	Ypthima asterope	Common Three Ring	*			
65	Ypthima baldus	Common Five Ring	*	*		
	Family- Hesperidae					
66	Hyarotis adrastus	Three Flitter			*	
67	Matapa aria	Common Redeye	*			
68	Notocrypta feisthameli	Spotted Demon	*	*		
69	Sarangesa dasahara	Common Small Flat			*	
70	Taractrocera maevius	Common Grass dart		*		

Annexure 18

List of Tiger Beetles found in Sher Jung National Park

Sr. No.	Species	Sher Jung National Park
1	*Calochroa*	1
2	*Calomera angulata*	1
3	*Calomera plumigera*	1
4	*Calomera chloris*	1
5	*Cosmodela intermedia*	1
6	*Cylindera spinolae*	1
7	*Cylindera bigemina*	1
8	*Cylindera grammophora*	1
9	*Cylindera subtilesignata*	1
10	*Cylindera venosa*	1
11	*Ifasina viduata*	1
12	*Jansenia chloropleura*	1
13	*Lophyra striolata*	1
14	*Myriochila melancholica*	1
15	*Neocollyris saphyrina*	1
16	*Neocollyris bonellii*	1
	Total	16

List of Plants found in Col. Sher Jung National Park

Sr. No.	Botanical Name	Local Name
	Tree	
1	*Acacia catechu*	Khair
2	*Aegle marmelos*	Bel
3	*Albizzia procera*	Safed sirus
4	*Anogeissus latifolia*	Chaal
5	*Bauhinia variegate*	Kachnar
6	*Bauhinia sp.*	Chakera
7	*Cassia fistula*	Amaltas
8	*Cordia dichotoma*	Lasora
9	*Dalberiga sisoo*	Shisham
10	*Dendrocalamus strictus*	Bans
11	*Emblica officinalis*	Aonla
12	*Ficus glomerata*	Gular
13	*F. roxburghii*	Tirmal/ Feguda
14	*F. religiosa*	Pipul
15	*Grewia oppositifolia*	Bihul/ Dhaman
16	*Grewia elastica*	Bihul
17	*Lannea grandis*	Jhingan
18	*Mallotus philippinensis*	Kamela/ Rohini
19	*Mangifera indica*	Aam
20	*Melia azaderach*	Drek
21	*Morus alba*	Shahtoot
22	*M. serrata*	Tootri
23	*Phoenix homilis*	Khajoor
24	*Pyrus pashia*	Kainth
25	*Terminalia arjuna*	Arjun
26	*Bombax ceiba*	Simbal
27	*Shorea robusta*	Sal
28	*Syzgium cumini*	Jamun
29	*T. bellerica*	Bahera
30	*T. tomentosa*	Sain
31	*T. chebula*	Harrar
32	*Z. jujbua*	Ber
33	*Cedrella toona*	Toon
34	*Nyctanthes arbor-tristis*	Harsingar
35	*Semicarpus anacardium*	Bhilwa
36	*Ougeninia dalbergioides*	Sandan
37	*Mitragyna parviflora*	Kaimb
38	*Adina cordifolia*	Haldu
	Shurbs and Herbs	
39	*Adhatoda vasica*	Basuti
40	*Agave americana*	Ramban
41	*Cannabis sativa*	Bhang

42	*Carissa opaca*	Karaunda
43	*Indigofera geradiana*	Kathi
44	*Lantana camara*	Phul lakri
45	*Vitex negundo*	Bana
46	*Woodfordia floribunda*	Dhawi
47	*Murraya koenigi*	Karipata
48	*Dhatura suaveolens*	Dhatura
49	*Indigofera hirsute*	Kali Kathi
50	*Solanum indicum*	Bantamaku
51	*S. verbascifolium*	Bantamaku
52	*Xanthium strumarium*	Bokhru
	Climbers	
53	*Bauhinia vahili*	Maljhan
54	*Milletia auriculata*	Gauj
55	*Pueraria tuberose*	Sirali
56	*Lovanthus ligustrinus*	Banda
	Grasses	
57	*Cynododn dactylon*	Doob
58	*Chrysopogon mainatus*	Dholu
59	*Ischaemum angustifolium*	Bhabbar

Annexure 20

List of Plant species that serve as Food to Wild Herbivores

Sr. No.	Botanical Name	Local Name	Parts eaten
1	*Acacia catechu*	Khair	Leaves
2	*Bauhinia variegate*	Kachnar	Leaves
3	*Grewia oppositifolia*	Bihul	Leaves
4	*Grewia elastica*	Bihul	
5	*Morus alba*	Bihul	Leaves
6	*Terminalia tomentosa*	Shahtoot	Leaves
7	*Zizyphus jujube*	Ber	Leaves, root, fruits
8	*Anogeissus lastifolia*	Chhal	Leaves
9	*Ougeinia dalbergiodes*	Sandan	Leaves
10	*Bauhinia vahlii*	Maljhan	Leaves
11	*Ficuls glomerata*	Gular	Fruits
12	*Diospyros melanoxylon*	Tendu	Fruits
13	*Semicarpus anacardium*		Fruits
14	*Bombax ceiba*	Simbal	Flowers
15	*Ficus cunia*	Jarfal	Fruits
16	*Garuga pinnaata*	Kharpet	Leaves
17	*Pueraria tuberose*	Sirali	Root
18	*Carissaopaca*	Karaunda	Fruits , leaves

Annexure 21

List of Plant species of Ethnobotanical Value (List of Medicinal plants)

Sr. No.	Botanical Name	Local Name
1	*Adhatoda vasica*	Basuti
2	*Agave americana*	Ramban
3	*Cannabis sativa*	Bhang
4	*Carissa opaca*	Karaunda
5	*Dhatura suaveolens*	Dhatura
6	*Indigofera geradiana*	Kathi
7	*Indigofera hirsute*	Kali Kathi
8	*Lantana camara*	Kesu, Phul Lakari
9	*Murraya koenigii*	Tindra, Gandhela
10	*Solanum indicum*	Bantamaku
11	*Solanum verbascifolium*	Bantamaku
12	*Vitex negundo*	Bana
13	*Woodfordia floribunda*	Dhawi
14	*Semicarpus anacardium*	Bhilawa
15	*Terminalia chebula*	Harar
16	*T. bellerica*	Bahera
17	*Emblica officinalis*	Aonla
18	*Calotropis procera*	Aak
19	*Melia azaderach*	Darek, Bakain
20	*Acacia catechu*	Khair
21	*Eugenia jambolana*	Jamuna
22	*Mucuna prurita*	Kaunch
23	*Cassia fistula*	Amaltas
24	*Holarrhena antiysenterica*	Kura, kurchi
25	*Terminalia arjuna*	Arjun
26	*Bassia latifolia*	Mahua
27	*Cordia oblique*	Lasoda
28	*Ficus religiosa*	Bargad
29	*Cassia tora*	Panwar
30	*Aegle marmelos*	Bill, Bael

Annexure 22

Results of Census in Col. Sher Jung National Park

Year	Sambar	Goral	Barking Dear	Wild Boar	Leopard	Jackal	Chital	Nilgai
1988	29	42	5	91	1	1	-	-
1990	2	21	4	-	-	-	-	-
1991	16	30	22	8	2	3	-	-
1992	34	25	45	61	1	-	-	-
1993	12	66	31	37	-	3	3	-
1994	38	34	49	92	-	-	-	-
1995	20	29	26	68	2	-	-	-
1997	21	58	36	123	4	-	-	5
1998	49	64	53	169	8	-	19	14
1999	73	79	67	199	12	-	33	17
2002	71	64	97	203	18	47	91	12
2005	70	89	65	210	-	-	44	-
2010	12	5	3	16	-	-	18	-

Note : Method used in block count along 40 permanent lines

Annexure 23

List of Forest Nurseries

Sr. No.	Name
1	Simbalbara
2	Amargarh

List of Villages in Buffer Zone of the Park with Human Population, Cattle population and Agriculture Area

Sr. No.	Name of Village	Human Population	Cattle Population	Agricultural Area(ha)
1	Jamnighat	253	297	93
2	Jheel Bankawara	312	405	176
3	Charnawala	161	164	67
4	Haripur	660	651	213
5	Lohgarh	396	747	105
6	Kodewala	313	264	99
7	Sukhchainpur	427	364	36
8	Kolar	2890	1296	463
9	Ghunglo	322	363	90
10	Rampur Banjaran	1583	397	150
11	Bharapur	1397	449	189
12	Rampur Majri	1593	816	299
13	Dhaulakuan	2036	1086	455
14	Tokiyon	1724	605	133
16	Sainwala	1239	596	190
17	Bherampur Salamatpur	1008	295	
18	Majra	3923	323	190
19	Jagatpur	1048	307	59
20	Fatehpur	903	490	129
21	Misserwala	4755	1473	224
22	Pipliwala	677	233	112
23	Johron	631	427	71
24	Kirtpur	1571	466	204
25	Melion	1039	347	76
26	Puruwala	2357	403	210
27	Amargarh	958	639	83
28	Surajpur	1406	461	164
29	Patlion	3508	592	117
30	Ghuttanpur	987	592	69
31	Satiwala	689	384	107
32	Behral	1151	687	153
33	Pillodi	1853	1626	115
	Total			

Note:- Cattle population includes, cows, oxen, calves, buffalos, goats, sheep, camels, and mules.

Annexure 25

List of Migratory Graziers in Sukron and Gharatwali Forests

Sr. No.	Name	Premitted Livestock
1	Sayadev (Kinnaur District)	470 (120 goats, 200 sheep, 75 kids, 75 lambs)
2	Gopal Bhagat (Kinnaur District)	500
3	Banni S/o Sh. Bhau	5 buffalos
4	Liaqat S/o Sh. Bhau	5 buffalos
5	Ramesh	
6	Bharat Singh	
7	Lal Hussain	

Annexure 26

List of persons Holding Firearm License within 10 km of the Park boundary

Sr. No.	Name	Village
1	Sh. Prihi Chand S/o Sh. Banta Ram	Johron
2	Sh. Chetru Ram S/o Sh. Jeeto Ram	Johron
3	Sh. Gariboo Ram S/o Sh. Gonda	Johron
4	Sh. Tunia Ram S/o Sh. Borol	Johron
5	Sh. Gopal Chand S/o Sh. Mansa Ram	Puruwala
6	Sh. Geeta Ram S/o Sh. Nikhu Ram	Patlion
7	Sh. Chattar Singh S/o Sh. Sahib Ram	Jagatpur
8	Sh. Munshi S/o Sh. Ramjan	Patlion
9	Sh. Puran Singh S/o Sh. Babloo	Puruwala
10	Sh. Atma Singh S/o Sh. Diwan Singh	Puruwala
11	Sh. Sawarn Singh S/o Sh. Puran Singh	Puruwala
12	Sh. Balwan Singh S/o Sh. Prem Singh	Puruwala
13	Sh. Pyara Lal S/o Sh. Sadhu Singh	Puruwala
14	Sh. Succha Singh S/o Sh. Ranjeet Singh	Puruwala
15	Sh. Raghubir Singh S/o Sh. Sadhu Singh	Puruwala
16	Sh.Mani Ram S/o Mathu Ram	Surajpur
17	Sh. Teoi S/o Sh. Kana	Surajpur
18	Sh. Sudarshan Singh S/o Sh. Gian Singh	Johron
19	Sh. Mohd. Sadiq S/o Sh. Hamid Khan	Johron
20	Sh. Mangat Ram S/o Sh. Babu Ram	Johron
21	Sh. Chet Ram S/o Sh. Sangara Ram	Johron
22	Sh. Kishan S/o Sh. Polu	Patlion
23	Sh. Rati Ram S/o Sh. Lal Singh	Patlion
24	Sh. Khan Singh S/o Sh. Kartara Singh	Patlion
25	Sh. Hardhas Singh S/o Sh. Prem Singh	Patlion
26	Sh. Naranjan Singh S/o Sh. Harnam Singh	Patlion
27	Sh. Sunder Singh S/o Sh. Bhagat Singh	Patlion
28	Sh. Chaman Singh S/o Sh. Mangat Singh	Amargarh
29	Sh. Rakha S/o Sh. Sunder Singh	Amargarh
30	Sh. Bhagwan Singh S/o Sh. Sunder Singh	Surajpur
31	Sh. Charan Singh S/o Sh. Sher Singh	Ghuttanpur
32	Sh. Gurdas S/o Sh. Ram Ditta	Ghuttanpur
33	Sh. Nant Ram S/o Sh. Dev Ditta	Ghuttanpur
34	Sh. Gafur Mohd. S/o Sh. Ibrahim	Ghuttanpur
35	Sh. Telu Ram S/o sh. Dulia Ram	Ghuttanpur
36	Sh. Hem Raj S/o Sh. Atru	Surajpur
37	Sh. Gangbir Singh S/o Sh. Lal Singh	Misserwala
38	Sh. Fagu S/o Sh. Naidu	Misserwala
39	Sh. Ashrafdeen S/oSh. Mohd. Baks	Misserwala
40	Sh. Mohd. Ashak S/o Sh. Abdula	Misserwala
41	Sh. Mosum Ali S/o Sh.Harda Faqir	

42	Sh. Ram Singh S/o Sh. Shabu	Misserwala
43	Sh. Bashir S/o Shs. Asmali	Misserwala
44	Sh. Kamrudin S/o Sh. Sadhudeen	Misserwala
45	Sh. Fajaldeen S/o Sh.Habib Khan	Misserwala
46	Sh. Shamshudeen S/o Sh. Rahim Bakas	Misserwala
47	Sh. Abdul Mazid S/o Sh. Noor Bakas	Misserwala
48	Sh. Mohmad S/o Sh. Ali Sher	Misserwala
49	Sh. Apomed Ali S/o Sh. Mamudeen	Misserwala
50	Sh. Khairdeen S/o Sh. Abdul Aziz	Misserwala
51	Sh. Rahimdeen S/o Sh. Rahima	Pillodi
52	Sh. Bega S/o Sh. Mamudeen	Misserwala
53	Sh. Tula Khan S/o Sh. Nathu Khan	Pillodi
54	Sh. Kaimdeen Khan S/o Sh. Nanu	Pillodi
55	Sh. Shukdardeen S/o Sh. Rahim Panja	Pillodi
56	Sh. Jiwanu S/o Sh. Shanta	Pillodi
57	Sh. Karam Chand S/o Sh. Gonda Ram	Pillodi
58	Sh. Mehru S/o Sh. Shankru	Pillodi
59	Sh. ChatruS/o Sh. Diwana	Pillodi
60	Wali Mohd. S/o Sh. Dassondi	Pillodi
61	Sh. Amar Singh S/o Sh. Bhag Singh	Kiyarda
62	Sh. Ganga S/o Sh. Shiv Ram	Kiyarda
63	Sh. Udey Ram S/o Sh. Kanku	Kiyarda
64	Sh. Rakha Ram S/o Sh. Anat Ram	Kiyarda
65	Sh. Amla S/o Sh. Basanta	Kiyarda
66	Sh. Ruldu Ram S/o Sh. Chharga	Kiyarda
67	Sh. Bhagi Ram S/o Sh. Shiv Ram	Kiyarda
68	Sh. Jagdish Chand S/o Sh. Pratap Chand	Naya Gaon
69	Sh. Niranjan Baksh S/o Sh. Rahim Bakas	Naya Gaon
70	Sh. Nathu S/o Sh. Rahim Bakas	Majra
71	Sh. Lekh Raj S/oSh. Thakur Tulsi Ram	Majra
72	Sh. Phool Chand S/o Sh. Sunder Lal	Majra
73	Sh. Radha Kishan S/o Sh. Nand Lal	Majra
74	Sh. Narender Bahadur S/o Col. Niro Singh	Majra
75	Sh. Rishi Lal S/o Sh. Ram Narain	Majra
76	Sh. Sukh Ram S/o Sh. Kirpa Ram	Majra
77	Sh. Rakhu Ram S/o Sh. Matu	Melion
78	Sh. Jasmer S/o Sh. Karta Ram	Melion
79	Sh. Noor Khan S/o Sh. Karimudeen	Melion
80	Sh. Mamudeen S/o Sh. Karmudeen	Melion
81	Sh. Shrif S/o Sh. Alladiya	Melion
82	Sh. Abdul Gafoor S/o Sh. Peer Baksh	Melion
83	Sh. Gulam Mohd. S/o Sh. Sonda Khan	Melion
84	Sh. Udhya S/o Sh. Atma Singh	Melion
85	Sh. MohtuS/o Sh. Lalle	Fatehpur
86	Sh. Dalel Singh S/o Sh. Acchru Ram	Fatehpur
87	Sh. Joti Ram S/o Sh. Devi Chand	Fatehpur
88	Sh. Gorkhu Ram S/o Sh. Roop Chand	Fatehpur
89	Sh. Hari Singh S/o Sh. Bhura Ram	Fatehpur

90	Sh. Bahadur Singh S/o Sh. Bhura Ram	Fatehpur
91	Sh. Ram Swaroop S/o Sh. Naku Ram	Jagatpur
92	Sh. Dafada Babu S/o Sh. Bheroo	Jagatpur
93	Sh. Chuhar S/o Mod Ram	Jagatpur
94	Sh. Nathu S/o Sh. Ajrali	Jagatpur
95	Sh. Gurdyal Singh S/o Sh. Maya Ram	Tokiyon
96	Sh. Roop Chand S/o Shs. Maya Ram	Tokiyon
97	Sh. Atma Ram S/o Sh. Puran Dutt	Parduni
98	Sh. Raja Ram S/.o Sh. Mola Ram	Behrampur
99	Sh. Shera S/o Sh. Chajju	Behrampur
100	Sh. Rikhi Ram S/o Sh. Ami Chand	Behrampur
101	Sh. Atma Ram S/o Sh. Gonder	Behrampur
102	Sh. Ram Dyal Khatta S/o Sh. Durga Dass	Tokiyon
103	Sh. Prithi Chand S/o Sh. Uttam Chand	Tokiyon
104	Sh. Janki Ram S/o Sh. Narain Singh	Parduni
105	Sh. Sahoria Khan S/o Sh. Sadhor	Sainwala
106	Sh. Umra S/o Sh. Manu	Sainwala
107	Sh. Anant Ram S/o Sh. Uttam Singh	Sainwala
108	Sh. Begga S/o Sh. Sahib	Sainwala
109	Sh. Cheeta Ram S/o Sh. Gainda	Sainwala
110	Sh. Om Prakash S/o Sh. Banta	Behrampur
111	Sh. Banta S/o Sh. Faqira	Behrampur
112	Sh. Hardev S/o Sh. Sawan Ram	Sainwala
113	Sh. K.S. Kundala S/o Sh. Faqir chand	Kolar
114	Sh. Hari SinghS/o Sh. Sunder Ram	Kolar
115	Sh. Pratap Singh S/o Sh. Man Sing	Kolar
116	Sh. Sukhdev Singh S/o Sh. Bija Ram	Kolar
117	Sh. Ishar Singh S/o Sh. Todu	Kolar
118	Sh. Bhagtu S/o Sh.s Gangu	Kolar
119	Sh. Jolpain S/o Sh. Gainda	Kolar
120	Sh. Ram Saroop S/o Sh. Rama Nand	Kolar
121	Sh. Baru S/o Sh. Sadhu	Kolar
122	Sh. Ganga Singh S/o Sh. Meen Singh	Kolar
123	Sh. Gobind S/o Sh. Gopal Singh	Kolar
124	Sh. Nathu Singh S/o Sh. Atma Ram	Kolar
125	Diwan Singh S/o Sh. Thola	Kolar
126	Sh. Lal Singh S/o Sh. Jai Pal	Kolar
127	Sh. Sahjar Singh S/o Sh. Balbir Singh	Kolar
128	Sh. Bhagat Ram S/o Sh. Anant Ram	Dhaulakuan
129	Sh. Mangat Ram S/o Sh. Haka Ram	Dhaulakuan
130	Sh. Ram Asra S/o Sh. Kalyan	Dhaulakuan
131	Sh. Landa S/o Sh. Gobinda	Dhaulakuan
132	Sh. Data Ram S/o Sh. Nanku	Behrampur
133	Sh. Tunia Ram S/o Sh. Maya	Dhaulakuan
134	Sh. HariyaS/o Sh. Lachhman	Dhaulakuan
135	Sh. BabuS/o Sh. Ruldu	Dhaulakuan
136	Sh. Sucha Singh S/o Sh. Darbara Singh	Bata Mandi
137	Sh. Fatu Mohd. S/o Sh. Nathu	

138	Sh. Ram Kishan S/o Sh. Munshi	Bata Mandi
139	Sh. Molar Ram S/o Sh. Daulat Ram	Bata Mandi
140	Sh. Sahib Singh S/o Sh. Gurcharan Singh	Bata Mandi
141	Sh. Thandu Ram S/o Daliya	Bata Mandi
142	Sh. Amar Singh S/o Sh. Pratap Singh	Behral
143	Sh. Bhajan Singh S/o Maha Singh	Behral
144	Sh. Naranjan Singh S/o Sh. Bhola Singh	Behral
145	Sh. Laskhar Singh S/o Sh. Joaga Singh	Behral
146	Sh.Sohan Singh S/o Gurmukh Singh	Behral
147	Sh. Onkar Singh S/o Ishwar Singh	Behral
148	Sh. Ram DiyaS/o Sh. Mehar Singh	Behral
149	Sh. Fateh Singh S/o Sh. Kundan Singh	Behral
150	Sh. Prem Singh S/o Nathu Ram	Behral
151	Sh. Puran Singh S/o Sh. Uttam Singh	Behral
152	Sh. BalkuS/o Sh. Munshi	Behral
153	Sh. Hirda Ram S/o Sh. Ram Dyal	Behral
154	Sh. Sumer Chand S/o Sh. Mohar Singh	Behral
155	Sh. Rajinder Singh S/o Sh. Atma Singh	Behral
156	Sh. Rupinder Singh S/o Sh. Ram Singh	Behral
157	Sh. Ujagar Singh S/o Sh. Ram Singh	Behral
158	Sh. Lashkar Singh S/o Sh.Joga Singh	Behral
159	Sh. Lachhman Singh S/o Sh. Joga Singh	Behral
160	Sh. Chattar Singh S/o Sh. Gurdit Singh	Behral
161	Sh. Bhajjan Singh S/o Sh. Mehar Singh	Behral
162	Sh. Charan Singh S/o Sh. Puran Singh	Surjapur
163	Sh. Jasbir Singh S/o Sh. Data Ram	Dhaulakuan
164	Sh. Hawan Singh S/o Sh. Nand Lal	Kolar
165	Sh. Vinay Kumar S/o Sh. Gopal	Parduni
166	Sh. Rameshwar Chaudhary S/o Sh. Sheru Ram	Dhaulkuan
167	Sh. Shakil Mohd. S/o Sh. Gafur Mohd.	Ghuttanpur
168	Sh. Ravinder Kumar S/o Sh. Darshan Lal	Kolar
169	Sh. Hemant Kumar Verma S/o Sh. Surender Pal Verma	Majra
170	Sh. Jaswinder Singh S/o Sh. Gurmeet Singh	Behral
171	Sh. Ramesh Chand S/o Sh. Kartara Ram	Parduni
172	Sh. Rishi Prakash S/o Sh. Jai Singh	Surajpur
173	Sh. Tarsem Singh S/o Sh. Teja Singh	Patlion
174	Sh. Sushil Kumar S/o Sh. Tehal Singh	Batamandi
175	Sh. Rajinder Pal S/o Sh. Janki Ram	Sainwala
176	Sh. Hussan Singh S/o Sh. Dhani Ram	Majra

Annexure 27

Offence Cases

Sr No	Year	Description	Total		Status
			No	Amount (Rs)	
1	2015-16	Illicit felling - 1 No Grazing - 27 No Lopping - 3 No Fuel wood - 8 No	39	10904.00	All cases have been compounded
2	2016-17	Illicit felling - Nil Grazing -21 No Lopping - 8 No Fuel wood - 4 No	33	12970.00	-----do-------
3	2017-18	Illicit felling - Nil Grazing -12 No Lopping - 5 No Fuel wood - No	17	9200.00	-----do-------

Annexure 28

List of Manned and Unmanned Barriers

Sr. No.	Location	Remarks
1	Amargarh	Unmanned
2	Simbalbara	Unmanned

Annexure 29

List of Roads and Paths

Sr. No.	Name of Road	Length (Km)	Description
1	Puruwala-Simbalbara road	12	Kachha Road
2	Simbalbara to Karwe ka khala	2	Bridle path
3	Simbalbara to Marusidh	2	Bridle path
4	RF Ghurak	3	Bridle path
5	Marusidh khala to Marusid Ridge	2	Inspection path

Annexure 30

List of Firelines

Sr. No.	Year of Creation	Length (Km)	Location
1	1988-89	1	Kala kund to Banswali
2	1989-90	10	Danda Sukhchainpur (6.5km)
			Kaludev (3km)
			Ghurak (0.5km)
3	1992-93	1.3	RF Danda Sukhchainpur
4	2001-02	2.5	Tokyion Ghat to Karwe ka khala

List of Watchtowers

Annexure 31

Sr. No.	Location	Beat	Type	No.	Contr. Year
1	Ghurak ka khala	Gurak beat	Wooden	1	1992-93
2	Kaludev ka khala	Kaludev beat	Cemented	1	2001-02
3	RF Danda Sukhchainpur	Marusidh beat	Wooden	1	1986-87
4	RF Marusidh	Marusidh beat		1	1994-95

List of Building in National Park

Annexure 32

Sr. No.	Name of Building	Location	Year of construction	No.
1	Range office cum residence	Amargarh	1988-89	1
2	B.O. Quarter	Amargarh	1994-95	1
3	F.G. Hut	Amargarh	1987-88	1
4	Old F.G. Hut	Amargarh	1977-78	1
5	Type I Quarter	Amargarh	1987-88	1
6	Range Store	Amargarh	1987-88	1
7	F.G. Hut	Nurangbad	1988-89	1
8	F.G. Ht	Naurangabad	1990-91	1
9	Old F.G. Hut	Simbalbara	1977-78	1
10	F.G. Hut	Simbalbara	1987-88	1
11	Type 1 Quarter	Simbalbara	1987-88	1
12	Seed Store	Simbalbara	1987-88	1
13	FRH	Simbalbara	1957	1
14	Inspection Hut	Amargarh	2006-07	1
15	Gang Hut	Simbalbara	2010-11	1

Annexure 33

List of Field Equipment

Item	No.
Single Barrel Rifle	2
GPS	1
Binoculars	4
Trap Camera	5

Annexure 34

List of Vehicle

Vehicle Type	Year of purchase
1 Motor Cycle	2006-07

Annexure 35

List of RF included into sanctuary to convert to national park

Sr. No.	Name of RF
1	RF Kattapather
2	RF Ghuttanpur
3	RF Kothewali
4	RF Mastali
5	RF Ambwali

Annexure 36

List of RF included in Eco-Sensitive Zone of the Park

S.No.	Name of Forest Division	Name of Forest Range	Name of Reserve Forest
1	Paonta Sahib	Majra	RF Garhi
2	Paonta Sahib	Majra	RF Garhi Banswali
3	Paonta Sahib	Majra	RF Naurangabad
4	Paonta Sahib	Majra	RF Sudanwala
5	Paonta Sahib	Majra	RF Behrewala
6	Paonta Sahib	Majra	RF Tokiyon
7	Paonta Sahib	Majra	RF Sainwala
8	Paonta Sahib	Majra	RF Paniwali
9	Paonta Sahib	Majra	RF Jamunwali
10	Paonta Sahib	Majra	RF Sukhi Melion
11	Paonta Sahib	Majra	RF Badi Ghati
12	Paonta Sahib	Majra	RF Kiyarda
13	Paonta Sahib	Majra	RF Banswali
14	Paonta Sahib	Majra	RF Katta Pathar
15	Paonta Sahib	Majra	RF Surajpur
16	Paonta Sahib	Majra	RF Mahadev
17	Paonta Sahib	Majra	RF Ghuttanpur
18	Paonta Sahib	Majra	RF Kothewali
19	Paonta Sahib	Majra	RF Mastali
20	Paonta Sahib	Majra	RF Ambwali
21	Paonta Sahib	Majra	RF Konch Beli

Annexure 37

List of Villagers included into ECO Zone of Park

Sr. No.	Name of Village
1	Pillodi
2	Naurangabad Gujjar Colony
3	Ghuttanpur
4	Behral

Annexure 38

Format for recording field observation

Data Sheet-1

Data sheet for Leopard & other Carnivore Sign Encounter Rate

Observer Name:_____ Date:_____
Start Time:_____ End Time:_____
Begin GPS: Lat:_____ N, Long:_____ E,
Forest Circle _____ Forest Division:_____
Range:_____ Beat:_____
Total Kms. Walked:___Km. Time Spent in any other activity___Min.

Sr. No.	^Carnivore Species	*Sign Type	Forest Type	Terrain Type	Remarks
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

^Carnivore Species to be recorded: Leopard
*Sign Types to be recorded are pugmark, scats, scraps, rake, vocalization, and direct sighting.

Data Sheet-2

Encounter Rate on Line Transects

Observer name: ..... Start Time: .....
Date: ..... End Time: .....
ID No. of Line Transect: ..... Total Length: ..... Km
Forest Circle: ..... Forest Division: .....
Range: ..... Beat: .....
Transect Forest Type: ..... Transect Terrain Type: .....
Weather condition: Cloudy/ Clear Sky
Beginning GPS Lat: .....N Long: .....E
End GPS Lat: .....N Long: .....E

Sr. No.	Time	*Species	Total Number (Adult&Young)	Young	Forest Type	Terrain Type	Remarks
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

*Species that need to be recorded on the transect: Goral, Barking Deer, Sambar, Langoor, and other mammalian species seen.

Data Sheet-3A

VEGETATION

Name of Observer: .....
Date: .....
Forest Circle: .....
Forest Division: .....
Range:.....
Beat:.....
ID No. of Line Transect: .....

Distance of the plot from beginning of transect in metres	**Canopy Cover** (0-1)	**Tree Species** (Descending Order of Abundance, all veg.>6ft.)					**Shrub Species** (Descending Order of Abundance, all veg.>20 cm &<6 ft.)					**Shrub Abundance** 0 to 4, 0-absent,4 - very high	**Weed/ Invasive Species**(Descending Order of Abundance)			**Remarks**
		1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**		**1**	**2**	**3**	

0-absent to 4-very high

Data Sheet-3B

Recording Ground Cover (1 m radius or 2m diameter plot)

Name of Observer:.................. Date: ....

Forest Circle: .... Forest Division:..............

Range: .... Beat: ....

Distance of the plot from beginning of transect in meters	Dry leaf litter %	Ground Cover (The following 5 columns should total 100%)					Grass Species (Report in descending order of numbers)			Herb Species (Report in descending order of numbers)			Remarks
		Dry Grass %	Green Grass %	Herb(Small Plants) %	Weeds %	Bare Ground %	1	2	3	1	2	3	

ID No. of Line Transect: ....

Data Sheet-4
Pellet Counts of Ungulates

Name of Observer: .....
Forest Circle: .....
Range: .....
ID No. of Line Transect: .....

Date: .....
Forest Division: .....
Beat: .....

Distance of the plot from beginning of transect in metres	Forest Type	Terrain Type	Goral	Barking Deer	Langoor	Porcupine	Cattle	Goat & Sheep	Other Wild Animals/	Other Domestic Livestock
*Present/Absent										

To the best of your knowledge do the above mentioned species occurs in the sampled beat irrespective of whether their dung was recorded or not.

1. Do goat/ sheep graze in the sampled area?

2. In case pellets are obtained in large piles then these could be categorised into the following categories:

No. of Pellets	Category
50-100	A
100-200	B
>200	C

Data Sheet-5

Bird Count using Variable Radius Point Count Method

Date: .... Time: .... Place: ....
Location:....... Climate: ..... Transect Name: ....
Starting Time: .... End Time: ...... Length of Transect: ......
Altitude: .... Habitat: Natural/Plantation

Plot No.	Species	Numbers	Perpendicular Distance	Activity	Remarks

Data Sheet 6

Line Transect: Ungulates & other mammals

Transect No. | Name: | Date:
Weather: | Length of Transect: | Area:
Bearing: | Time Start: | Time End:
Terrain: Hills/ Plain

Time	Species	No.	Left/Right	Sighting Angle	Angular Sighting Distance	Remarks (Age&Sex etc.)

Data Sheet 7
Estimating relative abundance of animals based on pellet/dung density

Team: Date: Starting Time: End Time:
Place: Terrain: Bearing: Weather:

Plot No.	No. Of Goral Pellets	No. of Barking Deer Pellets	No. Cattle Dung

Method: Circular plot-(10 m^2) Belt Transect-(2x 30m)
Barking Deer: 20-26 Pellet groups/day/per deer
Goral: 20-26 ? pellets groups/day/goral

Data Sheet 8

Road side habitat and animal monitoring

Team: Date: Starting Time: End Time:
Place: Terrain: Bearing: Weather:

500m Segment	Animals			Vegetation Type		Terrain Type		Presence of		Livestock	Visibility	
	Species	No	PSD	L	T	L	R	Water	Human		L	R

Vegetation Type:
Terrain types: (Plain, Undulating, Hilly) L-Left side, R-Right side, PSD-Perpendicular sighting distance

Data Sheet 9
Block Count (Ungulates & other major mammals)

Team: Date: Starting time: End time:
Place: Weather: Bearing: Area:

Time	Species	No.	Adult		Y	UN	Movement (L/R)	Remarks	
			M	F					

Data Sheet 10

Reptile Quantification (Encounter rate method)

Date: Time: Place: Location:
Climate: Transect Name: Starting Time: End Time:
Area covered: Altitude: Habitat/Undisturbed/Partially disturbed

S No	Species	Numbers	Microhabitat	Activity

Annexure 39

Control Forms

Form 1:

Creation of new artificial waterbodies

Sr. No.	Category	Year	Location	Cost	Performance
1	2	3	4	5	6

Note:
Category: Masonry anicut, earthen bund, lined depression, borewell and pump, reservoir, spring fed, aquifer; permanent or temporary
Location: By compartment or by a named feature and name given if any
Performance: Successful, partially successful, failure (give reason for the latter two)

Form 2:

Maintenance of Waterbodies: Natural

Sr. No.	Category	Perennial or Seasonal	Location	Year	Nature of work	Cost	performance
1	2	3	4	5	6	7	8

Note:
Category: Spring, seep, natural depression, a flowing stretch, reservoir
Location: By compartment or by a named feature and name given if any
Nature of work: Desilting, provision of apron, any other category
Performance: Successful, partially successful, failure (reason for the last two)

Form 3:

Maintenance of waterbodies: Artificial

Sr. No.	Category	Perennial or Seasonal	Location	Year	Nature of work	cost	Performance
1	2	3	4	5	6	7	8

Note:
Category: Masonry anicut, earthen bund, lined depression, spring fed, aquifer etc.
Location: By compartment or named feature and name given if any.
Year: Year of maintenance, with year of establishment in parenthesis
Nature of work: Desilting, repairing leaks, closing anicut openings, any other work.
Performance: Successful, partially successful, failure (reason for the latter two).

Form 4:

Restoration of Habitat: Weed control, Initial Operation

Sr. 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: By compartment, site name or land feature
Operation: Uprooting, cutting, burning, ploughing, manual or by using animals or machinery
Remarks: Measure of success and/or problem faced.

Form 5:

Restoration of Habitat: Weed Control, Subsequent Operations

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

Note:
Location: by compartment, site name or land feature
Operation: Uprooting, cutting, burning, ploughing, manual or by using animals or machinery.
Remarks: Percent cover of weeds before operation, problems, if any.

Form 6:

Restoration of Habitat: Control of Regeneration of Woody species in Grasslands

Sr. No.	Location & Name of site	Year	Extent of area (ha)	Species Controlled	Operation	Total cost	Cost per ha	Remarks
1	2	3	4	5	6	7	8	9

Note:
Location: By compartment, site name, etc.
Species controlled: List of species.
Operation: Uprooting, cutting, burning etc. manual or mechanised methods.
Remarks: The measure of success, suitability of methods, problems encountered.

Form 7:

Restoration of Habitat: Prescribed Burning

Sr. No.	Location & Name of Site	Year	Extent of area (ha)	Area treated (ha)	Period	Total cost	Cost per ha	Remarks
1	2	3	4	5	6	7	8	9

Note:

Location: By compartment or name of site.

Period: Date of starting operation and completion.

Remarks: Mention resultant structure e.g. a mosaic, % burnt, % intact.

Problems encountered in conducting the operation e.g. fire escape.

Form 8:

Restoration of Habitat: Soil Conservation Measures- Initial Operations and Subsequent Maintenance

Sr. No.	Location & name of site	Year	Extent of area(ha)	Area treated	operations	Total Cost	Cost per ha	Remarks
1	2	3	4	5	6	7	8	9

Note:
Location: by compartments, name of site or landmarks.
Extent 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 m^3 of earthwork.
Remarks: Mention if initial work or maintenance.

Form 9

Restoration of Habitat: Planting, Sowing, etc.

Sr. No.	Location	Year	Extent of area (ha)	Species	Planting Stock	Spacing	Operations	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), and protection measures.
Remarks: Mention operational problems if any.

Form 10:

Animals: Measuring Trends in Population

Sr. No.	Species	Population estimation methodology	Adult		Sub-adults		Yearlings	Fawns	Cubs	Total	Remarks
			Male	Female	Male	Female					
1	2	3	4	5	6	7	8	9	10	11	12

Note:
Population estimation: e.g. pugmark, line transect, roadside count etc., area covered, sampling intensity, data treatment, extrapolation where involved. In case of indices of density or dung count, mention those figures under the remarks column. 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 11:

Animals: New Records

Sr. No.	Species	Location	Year	How Discovered	Detail of Number, age, 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 habitat descriptors only if relevant.
Remarks: Any other useful information.

Form 12:

Animals: Mortality other than that attributable to an offence

Sr. 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:
Location: By compartment, landmark etc.
Sex & age: As per parameters for age class. Sex, if possible to identify.
Discovered in what condition: Carcass, complete or partial. Skull or any other recognisable remains collected where only some remains of an animal are found.
Cause of mortaility: If known e.g. territorial fight, accident, possible disease(following post-mortem results), old age, cause difficult to determine, predation etc.
Remarks: Any other useful information.

Form 13:

Animals: Mortality Attributed to Poaching or an act of Vandalism

Sr. No.	Species	Location	Cause of Mortality				Remarks
			Number	Sex	Age	Class	

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.

Form 14:

Animals: Killing of human by wildlife or injury caused

Sr. No.	Range	Month	No. of incidents	No. of people killed, age & sex	Location, circumstances & species	No. of people injured, age and sex	Location circumstances and species	Ex gratia payment (Rs)
1	2	3	4	5	6	7	8	9

Note: Location, circumstances and species: Location by Compartment Number, activity, species responsible on proof.

Form 15:

Plants: New Records

Sr. No.	Family	species	Year	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 16:

Plants: Disease and Mortality

Sr. No.	Species	Location	Year	Particulars of disease morbidity & mortality	Area affected	Remarks
1	2	3	4	5	6	7

Note:
Location: By compartment or landmarks.
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.

Form 17:

Construction/Maintenance of Infrastructure: Roads & Bridges (existing/ new)

Sr. No.	Category	Range	Surface	Name or number	Length covered (km)	Cross drainage works, bridges	Total cost and status
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 Number: As the case may be.

Cross drainage type: e.g. culverts, hume pipe culvert etc.

Bridge type: Wooden trestle, suspension, metal multi span, masonry arch etc.

Status: Work completed or ongoing. State also the agency responsible; state whether operational or non-operational.

Form 18:

Construction/ Maintenance of Infrastructure: Buildings (existing/ new)

Sr. No.	Range	Nature of the Building	Location	Type of construction	Numbers	Total cost	Status
1	2	3	4	5	6	7	8

Note: Nature of the building: e.g. residential, office, store, chauki, watch tower, tourist facility, hide, barrier, patrolling camp (temporary or permanent) etc. Location: By compartment or landmark as appropriate. Type of construction: Masonry (brick/stone), log or wooden, metal, local material etc.
Status: Completed or ongoing.

Form 19:

Development/ Maintenance of Infrastructure: Vehicles (Existing/ New)

Sr. No.	Kind of Vehicle	Number	HQ if any	Intended use	Cost	Remarks
1	2	3	4	5	6	7

Note: Kind of vehicle: Jeep, motorcycle, bicycle etc.
Intended use: Management support, patrolling/ anti-poaching, tourism etc.
Remarks: Any other useful information. Mention written off vehicles.

Form 20:

Developing Infrastructure: Construction of Boundaries, fences etc. (Existing/ New)

Sr. No.	Category of Construction	Range	Location	Length(m)	Numbers	Specifications	Remarks
1	2	3	4	5	6	7	8

Note: Category: Kind of boundary e.g. compartment, block, zone etc. In case of fences: barbed wire fence, inter-linked chain fence, others.
Location: By compartment or suitable landmark.
Numbers: Number of pillars etc.
Specification: As applicable to the construction: dry rubble, chain link, local material, height, area, depth, width etc.
Remarks: Any other relevant information.

Form 21:

Developing Infrastructure: Fire lines (Existing/ New)

Sr. No.	Range	Fire line category and width	Name of points connected	Length(m)	Cost	Remarks
1	2	3	4	5	6	7

Note: Category: Main or subsidiary etc.

Form 22:

Tourism

Sr. No.	The category of visitors by month & number			Children	Foreigners	Indian		Revenue
	Adult					Rural	Urban	
	Month	Male	Female					
1	2	3	4	5	6	7	8	9

Form 23:

Eco-tourism: Visitors Aspirations

Visitor Category						Number								
Indian			Foreigners											
Male	Female	Children	Male	Female	Children		Plants	Bird watching	Animal sighting	Photography	Scenic places	Historical sites	Trekking	Other
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Form 24:

Outbreak of Fires

Sr. No.	Year	Location	Extent(ha)	Dates		Reasons	Estimated loss	Remarks
				Detected	Controlled			
1	2	3	4	5	6	7	8	9

Note: Location: By compartment
Reasons: Established or suspected
Estimated loss: e.g. number of trees damaged wild animal's dead, particulars of sensitive 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 fires has been mapped.

Form 25:

Offence cases detected

Sr. No.	Year	Category	Numbers	Number of cases decided		Number of cases under process	Number of cases compounded	Remarks
				Successful	Failure			
1	2	3	4	5	6	7	8	9

Note:
Category: e.g. illegal cutting of trees, illegal fire-wood, poaching, encroachment, illegal cattle grazing etc.
Remarks: Any other useful information.

Form 26:

Survey and Monitoring

Sr. No.	Title of survey, inventory activity	Completed	ongoing	New	By PA	By other agency	Remarks
1	2	3	4	5	6	7	8

Form 27:

Eco - development Programme: Targets and Implementation

Sr. No.	Nature of the Programme	Sector (Central/State) or NGO sponsored	Target set		Achievements		Village	Remarks
			Physical	Financial	Physical	Financial		
1	2	3	4	5	6	7	8	9

Note:

Nature of the programme: e.g. pasture development, fodder plantations, livestock improvement, revival of local skills such as handicraft, water harvesting systems etc.
Remarks: State problems, state failures and reasons thereof, reasons for not attaining targets, for non-implementation or deviation etc.

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