Management Plan

Of

Majathal Wildlife Sanctuary

Himachal Pradesh

(2017-18 to 2026-27)

Prepared by: Wildlife Division Shimla

Commissioned by: Wildlife Wing, HPFD

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ACKNOWLEDGEMENTS

Majathal Wildlife Sanctuary is situated in sub-Himalayan region in Solan and Shimla districts of Himachal Pradesh. It provides home to variety of endemic flora and fauna. The Government of Himachal Pradesh declared its intention to notify it as a Sanctuary in 1974 and taking into consideration its ecological, faunal, floral, geo-morphological, natural or zoological significance final Notification under Wild Life (Protection) Act, 1972 was issued in 2013 to this effect.

This Management Plan is the revision of the existing plan which expired on 31-3-09 and has been prepared for a period of 10 years w.e.f. 2017-2018 to 2026- 2027 with a provision of mid-term review. The emphasis has been laid on the protection and improvement of the habitat with the view to conserve the rich biodiversity existing in the Sanctuary. The natural habitats have been proposed to be developed keeping in view the requirements of the native fauna. The key species of this Sanctuary is Goral and the Cheer Pheasants which have been listed in IUCN Red Data Book as threatened and vulnerable species. The prescription of the Management Plan has been made keeping these main species 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 so that the Sanctuary sustains the ecology, local economy and becomes an asset to local people. Research and training has also been given due priority for the better management of Sanctuary and also providing learning opportunities for the field management staff.

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

I would like to place on record the endeavours of Ms Anita Bhardwaj HPFS, also the co-author of this management plan for shaping this document. Efforts done by entire staff of Majathal Range specially Sh Ganpat Ram DR for providing valuable information and photographs are also appreciated.

This Management Plan will definitely contribute towards achieving the long term goal of maintaining viable wild population in the Majathal Wildlife Sanctuary of Himachal Pradesh.

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Contents

Chapter 1

Introduction

1.1 Name and Location

Majathal Wildlife Sanctuary is named after one of its major Demarcated Protected Forest *viz.* Majathal DPF**.** Apart from DPF Majathal, the area of the Sanctuary also includes Harsang Baghal Demarcated Protected Forest of Baghal area and Harsang Bhajji Demarcated Protected Forest of Bhajji area alongwith numerous small UPFs (Appendix 1 & 2). This area was initially declared as Majathal Wildlife Sanctuary under Wildlife (Protection) Act, 1972 vide HP Government Notification No.5-11/70 dated 27.3.1974 and thereafter considering its ecological, faunal, floral, geomorphological, natural and zoological significance it was finally declared vide HP Government Notification No.FFE-B-F (6)-23/1999-II dated 30th Nov.,2013 (Appendix 3).

Major Part of the Sanctuary falls in Arki -Sub Division of Solan District and remaining part falls under Shimla Rural Sub- Division (Sunni Tehsil) of Shimla District.The location co-ordinates and altitudinal range are as under.

Latitude: **31°-15'-00" to 31°-18''-45" North**
Longitude: **76°-56'-45" to 77°-02' -18" East**
Altitude Range: **575 to 1975 m**

The Headquarter of Majathal Wildlife Sanctuary is at Chandi as it comes under Chandi Wildlife Range as per administrative set up. Head Quarter is connected by motor road. The distances to other important towns from Chandi are as under:-

Kalka	90 Kms
Shimla	50 Kms
Bilaspur	55 Kms
Darlaghat	18 Kms

1.2 Constitution and Extent

The total area of the sanctuary is 37.71 Sq Km which includes privately owned *ghasnis* also. The area of the sanctuary as per land use is given in Appendix 5. The breakup of sanctuary area owned by Himachal Pradesh Forest Department according to beats and blocks is given in the **Appendix 5**.

1.3 Geography, Rock, Soil and Terrain

The area falls within the mid Himalayan ranges of Himachal Pradesh. It has numerous steep ridges and deep V-Shaped valleys which are the important feature of the landscape. The rocks are formed of shale, slate and sand stone etc. The soil is hard, clayey loam, shallow to very

shallow with exposed rocks at places. Depth varies usually with slope. The soil profiles met with in the area are generally well developed.

The terrain is tough. The slopes on the northern and eastern aspects towards river Satluj are steep while southern and western slopes are not so steep. The altitude varies between 575 m to 1975 m above sea level.

1.4 Boundaries

Majathal Wildlife Sanctuary is roughly rectangular in shape. It is surrounded by Kunihar Division, Shimla Territorial Division and Suket Division. The boundaries of Majathal Wildlife Sanctuary are as follows:

North: Starting from Jandoi excluding the Skor DPF but including the Banaula DPF, Skor UPF along Southern boundary of Skor DPF and then turns towards western boundary of Skor DPF and then upstream the Skor nalla and across the ridge and down stream of a tributary flowing to Ban Khad including the Khatpul PF and Siarli PF upto near Dhawarlu village of the DPF Siarli.
East: From end of Southern boundary of the existing village Surgdwari and Jandrer Dhar upto starting point of Northern boundary above
South: From Panseraghat on the DPF boundary of Khatpul south side excluding the habitation of Sirali spring and Matrech village but including Matrech UPF upto DPF Banaula Western Boundary than on the same DPF boundary upto existing boundary of WLS on the path ridge via Tansi.
West: From the end of Northern boundary on the Sialri and Khatpul western boundary upto Panseraghat.

1.5 Approach and Access

This Sanctuary can be approached from the Head Quarter at Chandi (a small village on Western boundary of Sanctuary) on foot only. Though the HQ is well connected by road and is about 12 Kms from Kararaghat (a small place nearly 40 Km from Shimla on Shimla-Bilaspur State Highway) there exists a network of trekking paths to find access to various forest areas and habitats inside the Sanctuary. Another access also exists from Sunni area to reach south-eastern side of the Sanctuary by road to further find access on foot from the confluence of Sainj and Sutlej River at Mandrech.There are few buses plying on the above mentioned motor roads.

The distance to various towns from Majathal Sanctuary is given in the Table 1.1.

Table 1.1: Distance of various towns from Majathal Wildlife Sanctuary

Town/City	Distance from Majathal Wildlife Sanctuary(km)
Shimla	50
Chandigarh	100
Delhi	400
Kalka	90
Bilaspur	55
Darlaghat	18

Trekking Routes within Majathal Wildlife Sanctuary

(i) Chandi to Harsang Dhar 6 Km

(ii) Chandi to Badu Bara/Surg Dwari 12 Km

The nearest air-strip is at Jubbar Hatti 55 Km from sanctuary headquarter. The nearest railway stations are at Shimla and Kalka. Shimla is connected by Kalka-Shimla small gauge railway line. The nearest railway station on broad gauge railway line is at Kalka

Climate and Rainfall

The climate of Majathal is sub-tropical with cold winter. The temperature goes up to a maximum of 40^{o} C in summer and a minimum of 1^{0}C in winter. The rainfall is received in monsoon. The rainfall pattern is typical monsoon type with rainfall concentrated from July to September.

Rainfall Pattern and Distribution

The seasons are well defined. The winter lasts upto February, springs from February to March whereas, summer from April to June. Rainy season ranges from July to September and autumn from October to December. Snowfall occurs in winter on the ridges of Harsang Dhar and Surag Dwari in Majathal DPF. The change over from winter to summer is gradual.

Rainfall

The area receives rain during the monsoon from July to middle of September and from end of December to middle of March with snowfall in reaches above 1700 m elevation. April, May, June, October and November are dry months. Average monthly rainfall varies from minimum of 17 mm in April to maximum of 214 mm in July.

MONTH	2012	2013	2014	2015	2016
January	0	N/A	11.5	6	10
February	100.2	57.8	29.3	76.7	39
March	140	0	24.3	0	11
April	6	N/A	12	0	31
May	35.9	N/A	24.2	35.3	58
June	84	N/A	54.2	191	163
July	202.7	109.9	214.6	208.1	150.8
August	184.1	139.3	159.5	179.9	348
September	36.9	400	293.5	121	48
October	0	77.4	6.4	13	0
November	0	0	6	11	0
December	12.8	0	0	59	18

Temperature

Data in respect of temperature is given below in table. Summers are hot and winters are cold. Frost is common throughout the tract during the winter months.

Parameter	Period	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Min Temp	2006 - 2015	C°	3.8	5.3	10	15	19.3	22	21.7	21	19.2	15	8.7	5.3
Mean Temp	2006 - 2015	C°	9.3	11	16	22	26	27	25.8	25	23.8	21	15	11
Max Temp	2006 - 2015	C°	15	17	22	29	32.7	33	29.9	29	28.5	27	22	17
Wet	2006 - 2015	Days	2.3	2.7	3	2	2	5	10.7	11	4.8	0.8	0.6	0.9
Precipitation	2006- 2015	mm	22	40	28	17	28.5	92	204	182	125	10	10	9.7

Humidity
Atmospheric humidity goes up during monsoon that commences from July and ends in the mid of September.

Wind
Light winds of 4 to 7 kms/hour velocity can be generally felt in the area. At rare occasions only due to some temperature and pressure differences in the atmosphere there are some gentle to moderate winds of 10 to 15 kms/hour velocity.

Drought
Drought like conditions occur during March, April, May and June and again during October, November and habitat is vulnerable to forest fires. During these months water shortage is experienced and as a result the wildlife is some time noticed to migrate to nearby areas having water sources/ Nallas like Bushar, Pazina, Sarro, Sainj Khad and Satluj River etc within the sanctuary. Prolonged droughts during summer before the start of monsoons some time results in serious fire hazards throughtout the sanctuary. The perennial streams are also affected during the droughts and the quantity of water flow is reduced drastically.

1.6 Forests and Vegetation

The sanctuary area consists of a wide altitudinal range varying from 575 m to 1975 m above mean sea level. The sanctuary has a subtropical monsoon climate. Himalayan Chir Pine (*Pinus roxburghii*), Ban Oak (*Quercus leucotrichophora)* forests and sub tropical *Euphorbia* scrub are the major vegetation types (**Champion and Seth, 1968**). The slopes are sparsely forested with Chir Pine and Ban Oak, and mostly dominated by grassy tracts, often extending continuously from the ridge-tops down to about 1,000 m (**Garson 1983**). The sanctuary has rich flora and fauna. Deodar is the dominant species of Harsang Baghal and DPF Majathal. Other species include Ban-oak, Kail, Chir, Kainth, Khair, Kachnar, Daroo, Paja, Shisham, Sanan, Jamun, Tor, Fegra, Amaltas, Trimble, Mango, and Bihul etc. Shrubs include Berberis, Rosa, Rubus, Karonda, Indigofera etc. Ground flora includes various grass species, variety of ferns and vascular herbs.

The whole area of the sanctuary has very good vegetation in the form of mixed forests, while the open wasteland is covered with grass along with shrubs. Wild animals get enough food in the various types of vegetation found in the sanctuary. The cultivated crops near the main habitat are also sometimes predated by Sambar, Barking Deer and Gorals.

According to H.G. Champion and S.K.Seth's classification, the following forest types are found with this Sanctuary:-

Group 5: Type 5B/C2 Northern dry mixed deciduous forests
Group 9: Type 9/C1 Himalayan Sub Tropical Pine forests
Group 12: Sub Type 12/C1a Ban Oak Forests.

List of flora found in Majathal Wildlife Sanctuary is given in appendix 7.

1.7 Bio geographic Zone

The sanctuary lies in the bio geographic zone 2-Himalayan Zone according to Rodgers and Panwar, 1988 classification of the Bio geographic zones of India.

1.8 Fauna Found in the Sanctuary

Fauna

The sanctuary is known to harbour an exceptional variety of wildlife considering the fact that the area has been disturbed because the sanctuary has numerous villages within its boundary and along the periphery.

Cheer Pheasant

This Sanctuary provides the world's most important refuges to the IUCN Red Data Listed 'vulnerable' Cheer Pheasant. The pilot survey conducted in April, 1983 reported highest density of 24 pairs per sq km of this species (**Garson, P.J 1983**). Other pheasant species include Indian Red Jungle Fowl, Indian Pea Fowl and White Crested Kaleej. Leopard (*Panthera pardus*) is the main mammalian predator.

Besides Leopard other predators include Himalayan Black bear (*Selenarctos thibetanus*), Himalayan Yellow-throated marten (*Martes flavigula*), Jungle cat (*Felis chaus*). Lammergeier (*Gypaetus barbatus,)*, a potential avian predator is also reported to be found in the Sanctuary.

The potential prey base found is the Goral (*Nemorhaedus goral*). Goral is the most abundant followed by Barking deer *(Muntiacus muntjak*). More than 300 sightings of Goral have been recorded in a study of six months (Mishra,1993, Mishra and Johnsingh,1996). Sambhar (*Cervus unicolor*), Wild pig (*Sus scrofa)*, common langur (*Presbytis entellus),* Porcupine (Hystrix *indica)* and Rhesus macaque (*Macaca mulatta)* are also found in the Sanctuary. One hundred and four species of birds were also identified in this Sanctuary (WII, 2012). Few roosting sites and a breeding colony of Himalayan Griffon Vulture (*Gyps himalayensis*) also been noticed in the recent past. The key species are briefly described as under.

Herbivores

Goral (*Nemorhaedus goral*): Goral is one of spectacular Goat-Antelope and the key species found in this Sanctuary. The goral is classified as low risk, near threatened by the IUCN (1996). The goral is considered to be a "goat-antelope", sharing characteristics of both the true goats and sheep, and antelope. Resembling a goat, the goral extend its distribution from shivalik zone into the middle Himalayan zone. It is usually associated in small parties of four to eight, feeding on rugged grassy hill side in the morning and evening. The Goral sighting points are at Surag Dwari, Jandred Dhar, Badu Bara Temple, Harsang Dhar, Neodi, Darwa Kot etc.

Goral

Barking deer *(Muntiacus muntjac*): The Barking Deer is found in isolation. They prefer dense forest area. The sighting points of Barking Deer are Jandred Dhar, Paryab, Kangri, UF Medrech, Kayari and Pajina, UF Chilla etc.

Barking Deer

Omnivores

Himalayan Black Bear (*Selenarctos thibetanus*): This animal commonly inhabits oak forests and dense bushes along nallahs. It is considered as a vicious animal by the villagers for its raids on the village cultivation. Their activities are reduced considerably during winter.

Himalayan Black Bear

Carnivores

Leopard (*Panthera pardus*): This member of cat family is a sleek, short haired and agile animal with a fulvous bright or fulvous coat marked with close set rosettes. It has adapted itself to the forested area as well as in open countryside and also to rocks and scrubs. It is known to lift sheep, goats and cattle from open cattle shed. The sighting points are Neodi, Surg Dwari, Harsang Dhar, Rudal, Madrech, Chilla, Kiari, Darwa Kot, Johar etc.

Leopard Cat (*Felis bengalensis*): No leopard cat has been sighted but as per evidences available, it appears that they exist in the Sanctuary.

Primates

Common langur (*Presbytis entellus)*: There are large numbers of langurs found in the Sanctuary area. The main areas inhabitated are Kayari, Chilla, Mandrech, Badu Bara and Chanda Nalla. The large groups of langur are sighted in Majathal DPF C 3 near Badu Bara Temple and Talab, etc.

Rhesus macaque (*Macaca mulatta)*: There is large number of Monkeys found all over the Sanctuary. They prefer to live near the cultivation. The main sighting places are Darwa Kot, Kayari, Madrech Harsang Dhar Johar, Neodi, Majathal DPF, Pazina etc. Estimation of monkey population has been done which shows a decreasing trend:

Date of Estimation	Range	Beat	No. of troops	Total Adult	Total infant	G.Total
27.6.2010	Chandi	Harsang Bhajji	4	107	29	136
27.6.2010	Chandi	Chandi	4	60	14	74
		Total	**8**	**167**	**43**	**210**
23 - 24 .2.2012	Chandi	Harsang Bhajji	3	32	11	43
23 - 24 .2.2012	Chandi	Chandi	3	40	14	54
		Total	**6**	**72**	**25**	**97**

Large Rodents

Flying Squirrel (*Petaurista* species): They have been sighted in Majathal DPF, Harsang Baghal DPF etc.

Porcupine (Hystrix *indica)*: It is strictly nocturnal. They have been sighted in Kiari, Chilla, Madrech, DPF Harsang Baghal, Harsang Bhajji, Neodi Chil Plantations, and Majathal DPF etc.

Pheasants

Cheer Pheasant (*Catreus wallichii*): This is a pheasant of grasslands found on sunny hillside between 1400- 1900 m. It is known as "Cheer" locally. The sighting places of Cheer pheasant are in Kangri Dhar, Badu Bara (Near Talab), Surg Dwari ridge in Majathal DPF, Harsang Baghal DPF in front of Rudal village, Neodi etc.

Indian Peafowl (*Pavo cristatus*): The sighting places of Pea cock are Mandrech, Pazina Nalla, Kayari Nalla, Chilla, Sarro khad etc. They prefer habitat near cultivated lands.

Indian Peafowl

Red Jungle Fowl (*Gallus gallus*): This species prefers bushy habitat along nalla and open perch on branches of trees in the lower area of Sanctuary. The main sighting places are in Pazina Nalla, Harsang Dhar, Kiari etc.

White Crested Kalij (*Lophura leucomelana*): Local people call them Kulsha. It is found all over the Sanctuary area. The main sighting places are Pazina UF near Badu Bara Temple, Harsang Dhar, Kiari and DPF Harsang Baghal along Nallas.

Black Frankolin

Black Frankolin (*Francolinus francolinus*): They prefer to live near cultivation. It is found all over the Sanctuary area. The main sighting places are Pazina, Kayari, Bambeli, Harsang Dhar, Darwa Kot etc.

Birds

The sanctuary is rich in avifauna. The sanctuary has birds that are typical of the Himalayan region. Birds of sanctuary include Specked Wood- pigeon, Himalayan Woodpecker, Yellow-billed magpie, Black crested tit, Green backed tit etc, Blue Whistling Thrush. The list of birds found in the sanctuary is given in the Appendix 8.

Important Bird Area

Majathal Wildlife Sanctuary has been designated as Important Bird Area by Birdlife International. The selection of Important Bird Areas (IBAs) has been a particularly effective way of identifying conservation priorities. IBAs are key sites for conservation – small enough to be conserved in their entirety and often already part of a protected-area network. The Sanctuary may be one of the most important sites in Himachal Pradesh for Cheer pheasant *Catreus wallichii*, and the only site present within the Sutlej catchment. Seven species of Galliformes have been reported from this area. The sanctuary fulfills IBA criteria A1 (Threatened species) and A2 (Endemic Bird Area: 128 Western Himalaya). Critically endangered Oriental White-backed Vulture (*Gyps bengalensis) and* vulnerable Cheer Pheasant *(Catreus wallichii)* are found in this sanctuary. In this IBA, the main biome is Sino-Himalayan Subtropical Forest (Biome-8), which occurs between 1,000 to 2,000 m.

As Birdlife International does not have a detailed checklist of this site, it is assumed that there would be some more 'Restricted Range' species, especially small forest birds, than we know as of now. More detailed work is needed on the bird fauna of this site. Presently, it is considered as a 'Data Deficient' site.

Amphibians and Reptiles

There is little information on Amphibians and Reptiles found in the sanctuary. An extensive survey to fulfil this need is required. List of reptiles known to present in Majathal is given in Appendix 9**.**

Lepidoptera

Various species of butterflies are found in the sanctuary. But there is no information about the exact number of species and there is need for a detailed survey.

1.9 Large Mammal Ecology of the Sanctuary

Leopard is at the highest level of biological pyramid. In Majathal Sambar, Goral and Barking deer are found in good numbers all over the sanctuary and form the main prey base for the large carnivore. List of animals found in Majathal Sanctuary is given in Appendix 10.Chir and Oak are the dominant species of the area. Forests are three storeyed. Chir, Deodar and Ban Oak occupy the top canopy, Amaltas, Kainth, Daroo, Paja, Bihul occupy the middle canopy and ground floor is covered by a number of shrub species. Large blank spaces, serving as grassy meadows will go a long way in increasing the prey base for large mammal.

Leopard at Harsang Dhar

1.10 Buffer Zone and Connectivity

The sanctuary is well buffered on western side. It is bordered by forests of Shimla Forest Division, Suket Forest Division and Kunihar Forest Division. Final notification of Eco-Sensitive Zone notification around the sanctuary has been issued. All the activities in this eco-zone will be oriented keeping in view the wildlife of the sanctuary.

1.11 Statement of Significance

The sanctuary has several important values from various perspectives. These values are identified and categorized as follows:

Ecological Services
The sanctuary lies in the watershed of Satluj River and regulates the runoff of precipitation into Satluj.It protects the soil in the geologically fragile and erosion prone Himalayas.

Biological
Majathal sanctuary is among the finest forest of mixed broad-leaved species that supports the associated fauna. It supports good population of Sambar, Barking Deer and Goral.

Mythological
Two famous temples viz Harsang temple (believed to be realated to Mahabharta Kaal) and Badu Bara temple are located inside the sanctuary.

Harsang Temple

Badu Bara Temple

Conceptual
The area supports very high number of species of floral and faunal importance.

Recreational
The sanctuary offers opportunities for wildlife tourism to nature lovers of Shimla city as well as tourists coming to Shimla from all over the country. The area is a bird watcher's paradise and is a designated IBA. Probability of sighting animals is good. Scenic landscape of the sanctuary area is awesome and it's a true experience of wilderness.

Research and Education
The sanctuary has potential for research on a variety of subjects of biological importance and ecological monitoring e.g., ethno botany, ethno zoology, forestry, wildlife related or ecosystem related studies etc. It has potential for conservation education for local people and tourists.

Chapter 2

History of Management and Present Practices

2.1 Past Administrative History

The area was transferred to Wildlife Wing during the year 1987-88 and a separate Wildlife Range with its Head Quarter at Piplughat was created. The Head Quarter of Range Office was shifted from Piplughat to Chandi for effective management of the Sanctuary during 1993. Prior to the transfer of area to Wildlife Wing, the Sanctuary was being managed under Kunihar Forest Division.

Prior to the declaration of the area as Sanctuary vide Notification dated 27.3.1974, the areas falling in Solan district were being managed as per the provisions of Kunihar Working Plan and that of the Shimla District were being managed under the provision of Shimla Working Plan. After the area was transferred to wildlife wing during 1987, no commercial felling has been done in the PA. All the forests included in the Majathal Wildlife Sanctuary have since been accorded a very high conservation priority and no commercial harvesting of timber or any other produce has been done.

Presently there is no exploitation on commercial basis. The Apex Court has banned all the activities like removal of dead, dying, diseased, fallen trees, removal of grasses, removal of minor forest produce etc. Earlier the right holder's demands were however met from some forest areas which were kept for the purpose as per the settlement report.

Main operations which are now being carried out are the supplementation of existing regeneration by planting. While carrying out plantations the preference is given to the local fruit and fodder plants which provide food and shelter to the wild animals. In order to recap the degraded soil, soil conservation works like check dams, spurs, gully plugging etc. are carried out. To increase moisture content and to provide drinking water to the wildlife water harvesting structures, water holes/ponds are being constructed. Other operations like cleaning of fire lines are also carried out to check the forest fires.

History of Mangement

The previous management plan (1999-2009) envisaged to conserve the wildlife by developing their natural habitats, to preserve their viable population and educating people about significance of wildlife and principles of co-existence. It further sketched a plan for development of nature tourism in the sanctuary alongwith promoting eco development in and around the sanctuary.

With the passage of time the problems listed in the previous plan have only increased mainly due to increasing human population. There was very strong demand for having basic infrastructure like roads for the villages located in the sanctuary but after rationalization of sanctuary villages have been excluded from the sanctuary and resultant reduction in pressure

for infrastructure development. Efforts have been made to conserve wildlife in the sanctuary, however, further concrete efforts with the help of local people are required to actually meet this goal. One important impact of the previous management plan has been eco development in the area. A number of self help groups were engaged in various activities like fuel, fodder plantations etc. These groups protect these plantations from grazing, fire etc. And in lieu of that they obtain the grass from these closed areas.This has helped the management staff in winning confidence of local people to some extent. Further efforts are required to strengthen this. Local people were provided with energy saving devices (Appendix 17) and this has helped in reducing the burden on forests for firewood.The current plan will further this initiative of involvement of local people that started about a decade ago.

2.2 Classification of Forests

The following forest classes are found in Majathal Wildlife Sanctuary

Area Statement of Majathal Wildlife Sanctuary

Beat	DPF/UPF	Area (in ha)	Non Forest Land	Area (in ha)
Kangri	D-11 Majathal			
Kangri	C1	150.4		
Kangri	C2	184		
Kangri	C3	292.8		
Kangri	C4	304.4		
Kangri	C5	216	Jandred, Sohra	
Kangri	C6	236	Brahmana	49.06
Kangri	C7	108		
Kangri	UPF –Sohra Brahmana	6.9		
Kangri	UPF-Jandred	6.9		
Total		1505.4		49.06
Chandi	D-12 Harsang			
Chandi	C1	170		
Chandi	C2	58		
Chandi	C3	84	Poab, Neodi	32
Chandi	C4	138		
Chandi	C5	102		
Chandi	C6	118		
Chandi	C7	98		
Total		768		32
Harsang Bhajji	D-13 Haskar			
Harsang Bhajji	C1	58		
Harsang Bhajji	C2	68.8		
Harsang Bhajji	C3	75.2		
Harsang Bhajji	C4	78		
Harsang Bhajji	C5	122	Chilla, Mandrech,	
Harsang Bhajji	UPF-Kiari	160	Kiari, Johar,	
Harsang Bhajji	UPF-Chilla	49	Darwakot	76.18
Harsang Bhajji	UPF-Mandrech	37		
Harsang Bhajji	UPF-Darwakot	7		
Total		655		76.18
Labrath	Banaula PF	270.4		
Labrath	Kathpul PF	206.8		
Labrath	Siarli PF	27.2		
Labrath	Matrech PF	96		
Labrath	UPF - Matrech	96		
Labrath	UPF - Bir	42		
Labrath	UPF - sakor	17		
Total		985		
Grand Total		3613.40		157.24

Demarcated Protected Forests In the sanctuary there are 3 Demarcated Protected Forests with an area measuring 2603.6ha.
Un-Demarcated Protected Forests There are 13 Un-demarcated Protected Forests in the sanctuary with an area measuring 1009.8 ha.
Private Lands Private land comprising of 157.24 ha is also part of the sanctuary.
The area is surrounded by 47 villages while 9 villages are within the sanctuary area.

2.3 Rights and Leases

There is no lease case in the PA. Earlier the local people had their rights to timber (TD), fodder, fuel wood collection, grass cutting and grazing etc. in the forests of the PA but now all such rights have been suspended as per the Apex court's orders.

In this Sanctuary the local people were having recorded rights for grazing their live stock as per the settlement reports. In addition to this there were some migratory graziers who also had recorded rights in the settlement to graze their sheep and goats. In lieu of grazing their animals they used to pay nominal grazing fee against the permits. After the enforcement of Hon'ble Supreme Court of India's judgement, all the rights including grazing and grass cutting has already been suspended. This order has helped in reducing the grazing pressure to a great extent but with numerous villages inside the sanctuary it is very difficult to enforce the orders of the Hon'ble Supreme Court regarding grazing and grass cutting. However, the order of suspending timber distribution rights is being fully enforced. People have some resentment against the Hon'ble Supreme Court Judgement suspending their settlement rights and it is creating ill will amongst the local communities.

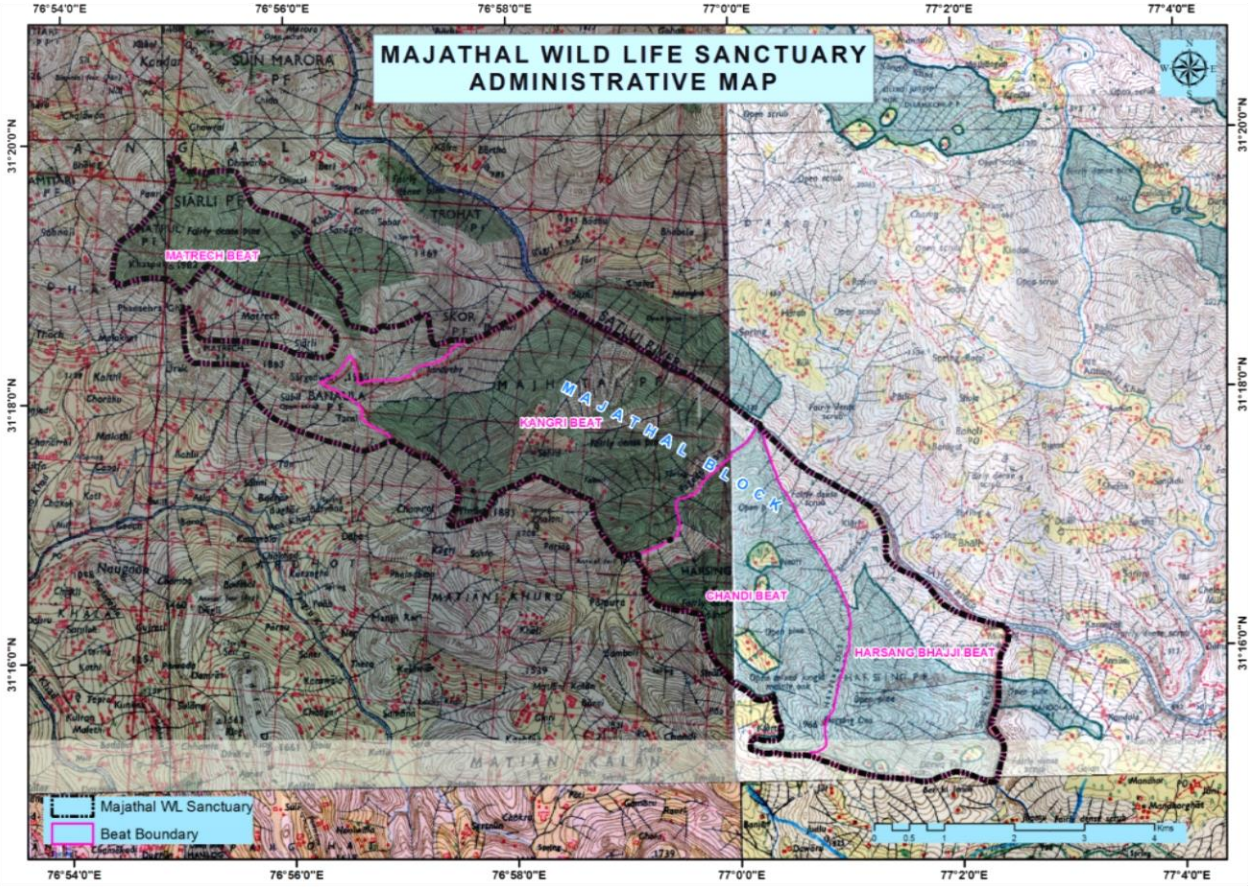
2.4 Internal Administrative Boundaries

The sanctuary comprises of two blocks i.e. Harsang and Kashlog each headed by a Block Officer. Kashlog block is divided into two beats viz. Kangri and Matrech whereas, Harsang block comprises of Chandi and Harsang Bhajji beats. Each beat is headed by a forest guard. The headquarters of these administrative units is given in the Table 2.1.

Table 2.1 Internal Administrative Units

Block	Beat	Headquarter	Forest Area (in ha)
Harsang	Chandi	Kashlog	768
	Harsang Bhajji	Harsang Dhar	655
Kashlog	Kangri	Kangri	1505.4
	Matrech	Labrath	685
	Total		**3613.4**

Administrative Map of Majathal Wildlife Sanctuary



2.5 Sanctioned Posts

The sanctuary comes under wildlife Range Chandi with headquarter at Chandi. The incharge of the sanctuary is Range Officer. There are two blocks and four beats in the whole sanctuary. The block is headed by Block Officer. The beats are headed by the Forest Guards. Presently the staff position is as under:

Designation	Posts
Range Officer	1
Deputy Ranger	2
Forest Guards	4
Mali	1
Peon	1
Beldar	1

2.6 Protection Practices

Patrolling

Patrolling is carried out mostly on foot by the sanctuary staff on the inspection paths which criss cross the entire sanctuary, however; patrolling by boat is also done as some of the areas

Patrolling by boat

are more accessible via Satluj river which passes along the boundary of the sanctuary. Sanctuary staff generally carries out patrolling in groups, which is effective. Sometimes sanctuary staff carries out patrolling individually. Night patrolling is also done occasionally. 105 offence cases of petty nature mostly of lopping have been detected in last 5 years. For protection purpose no weapon has been provided to the field staff.

Water Resources

Several perennial and non-perennial streams, and many springs run through the area.
The list of water resources is given in the Appendix 11.

2.7 Infrastructure inside the Sanctuary

The infrastructure inside the sanctuary consists of Range Office cum Residence, Forest Guard Huts, Block Officer Quarter, Inspection Hut, Chowkidar Hut and Rest House. A detailed list of buildings in the sanctuary is given in the Appendix 12.

2.8 Impact of Human Presence in and Around the Sanctuary

The sanctuary has 56 villages within and along the periphery of the sanctuary and has the population of over seven thousand. For all the routine activities the local people use the sanctuary area. They try to meet their demand of fire wood, grasses, grazing of cattle from the sanctuary area however; regular patrolling by the frontline staff has helped in reducing the pressure on forest. They use all the paths, trekking routes for going from one village to other, to ply their vehicle and for all other activities.

2.9 Migratory Graziers

Earlier Gaddi and Gujjars were issued permits to enter the area but now no permits are being issued. Previously the migratory graziers used to graze their flocks of sheep and goats during winter season. These sheep and goats some time become carrier of many diseases for the wild animals and cause disturbance and also compete for food and water with the wild animals.

2.10 Occurrence and Control of Diseases

Information on epidemics among flora and fauna is not available. The nearest vetrinary institution is located at Darlaghat, 13 Km away.

2.11 Weed Infestation

Various species of weed are present in parts of the sanctuary. The main weeds are Congress grass (*Parthenium hysterophorus*), Lantana (*Lantana camara*) & Kumber (*Biden pilosa*). Weed presence reduces the habitat quality of the sanctuary as it reduces fodder availability for herbivores. This has an adverse impact on herbivore populations and thus on the food chain of carnivores such as the leopard. Weed infestation therefore, has an impact on all levels of the biological pyramid.

2.12 Tourism in the Sanctuary

There are two temples inside the sanctuary area, one at Badu Bara and another at Harsang Dhar. Every year about 10000- 12000 pilgrims visit these two temples. Although nature based tourism is negligible. This area has good potential for eco-tourism but this has to go in harmony with the wildlife management techniques. In fact the maintenance of ecological balance has to be a priority. In this direction already steps have been taken and the necessary facilities and infrastructure are being developed in the area as per the availability of the budget.

2.13 Soil Erosion

The streams inside the sanctuary are prone to erosion like other streams of Himalayan region. Since the area is not well vegetated, the problem of erosion is severe. To control soil erosion and augment moisture, bioengineering works are required to be carried out at some places.

Soil and Moisture Conservation Works carried out at Majathal

2.14 Fire Protection

There are certain areas in Majathal Block which are having the Chir Pine Forests like DPF Harsang Bhajji, Harsang Baghal and Majathal. During summers and long droughts these areas catch fire due to the carelessness of the local people and due to the thick pine needle layer on the ground, the fire spreads rapidly. This fire sometimes is converted into a crown fire and causes irreversible losses. Incidentally the fire season coincides with the breeding season of the animals, particularly the birds. With the crown fires sometimes the birds sitting on the nests are gutted into the fire along with the eggs. This problem is more aggravated particularly in the habitat of the endangered species like cheer pheasants in the sanctuary. The destruction of the birds in the fire put the population growth of this endangered species in a great danger. There is a need to regularly clean the fire lines and inspection paths etc. particularly in the fire season.

Pine needles and other fuel material available in the Chir pine forests are required to be removed during the fire season.

List of Fire Equipments:

Sr. No.	Equipments	Number
1	Dangri	3
2	Fire Rack with handle	3
3	Fire Rack Glass Helmet	3
4	Fire Beater	3
5	Fire Hook	3
6	Fire Steel Handle	3
7	Pick - Axes	3
8	Pithu	3

Protection against fire is given top priority. Labourers are employed for fire protection during the fire season from 15th April-15th June. Fire protection teams are established and they are deployed at various fire sensitive areas. Communities residing on the periphery of the sanctuary boundary are also involved in the fire fighting operations.

2.15 Assessment of Works Carried Out Inside the Sanctuary

Plantation Work

Plantations have been carried out inside the sanctuary on a regular basis for past few years, in blank portions. The main species planted have been Kainth, Daroo, Behra, Aonla, Paja etc. The details of plantation work in the past five years are given in the Appendix 13.

The area of Majathal block is well vegetated except a few blanks which requires to be maintained as grassy blanks, to maintain mosaic of habitats. Tree plantation in these blanks can be counterproductive as it may reduce the availability of grasses for herbivores. However, plantations of fruit species at intermittent places have been done which will go a long way in providing the food to the herbivores and shelter for breeding population of Cheer. Plantation in the blank areas is undesirable. Planting of tree artificially will change the natural species composition, which may not be suitable for the wildlife in the sanctuary.

Weed Control

Removal of weeds could not be done properly due to non availability of sufficient funds in the past. However, efforts are being done to eradicate weeds in the phased manner to improve the species composition of the habitat. Removal of weeds is a useful activity to rid the sanctuary of unpalatable species and should be continued in future also specially in meadows.

Creation of Water Resources

Several Check dams, water ponds and water bodies have been created for tapping the water, which are being used by the wildlife. Some of these structures are perennial and a few get dried up during the summers. In future the water retention structures should be constructed after observing the success of previous structures. Water retention structures should be site specific. Site selection is very important and the structure should be designed considering the need of each site

Soil Conservation Works

Soil conservation works done in the sanctuary consist of construction of check dams and spurs. Check dams have proved to be effective in controlling erosion of streams and gullies. However, more bio-engineering works can be done for soil conservation in the sanctuary area.

Fire line Maintenance

Protection against fire is given top priority. This activity is necessary for controlling fires inside the sanctuary. This is also essential for protection of the sanctuary and its habitat.

Boundary Demarcation

Boundary pillars are in place all along the boundary of the sanctuary but need maintenance. Boundary demarcation is an important activity since it helps to prevent encroachments and boundary disputes.

Training, Exposure Visits and Study Tours

Exposure visits have been organised for teachers and school children in the past. The participants were informed about various aspects of Wildlife and Forestry including identification of flora.

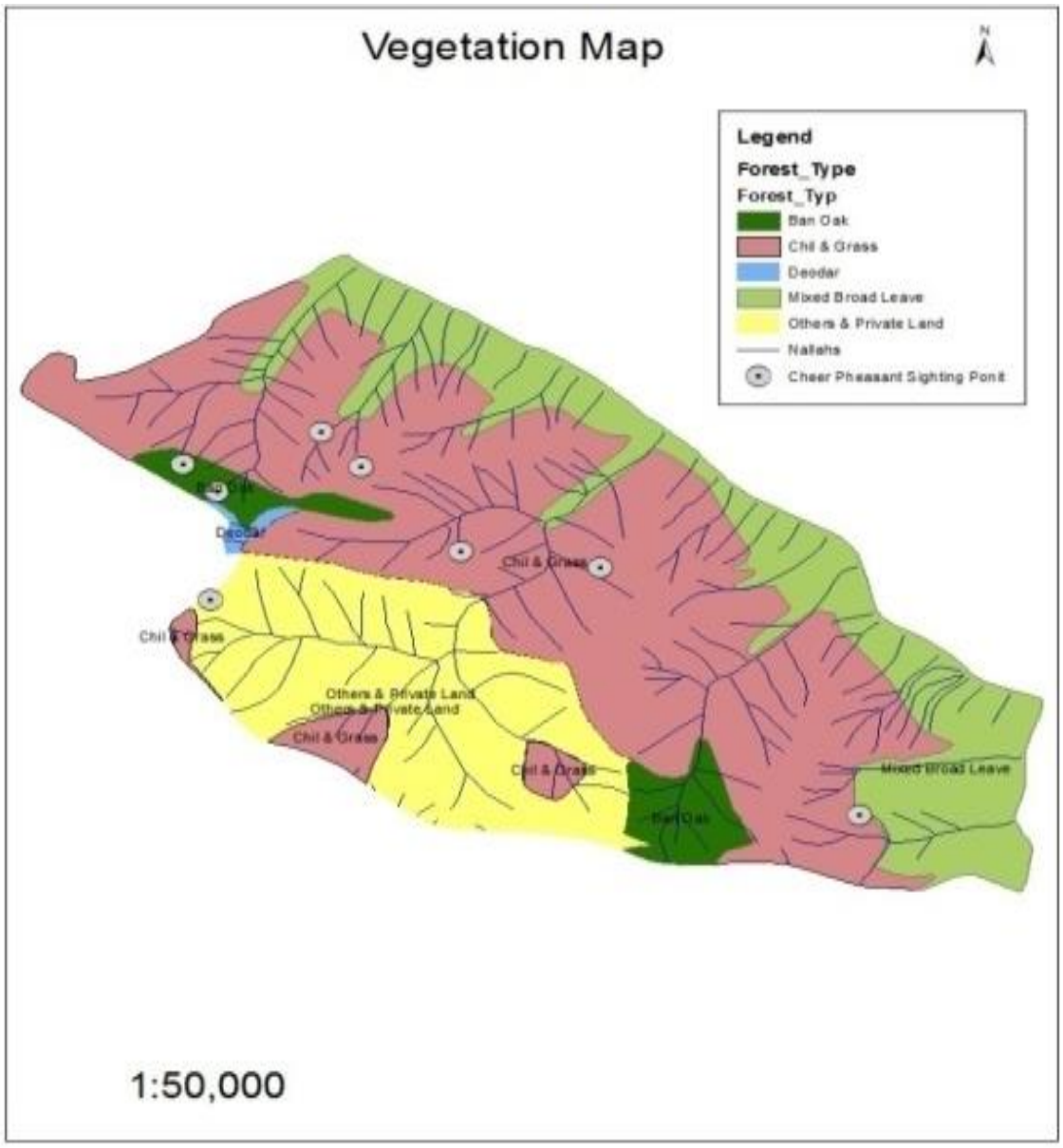
2.16 Equipment and Vehicle Purchase

Five Binoculars and three GPS, seven camera traps and one camera is available with the staff in the sanctuary. Camera has not only helped them in collecting evidence of wildlife presence, but also a useful tool in collecting evidence in wildlife crime cases. However, no vehicle is required as there are no roads inside the sanctuary.

2.17 Wildlife Monitoring and Population Estimation and Research

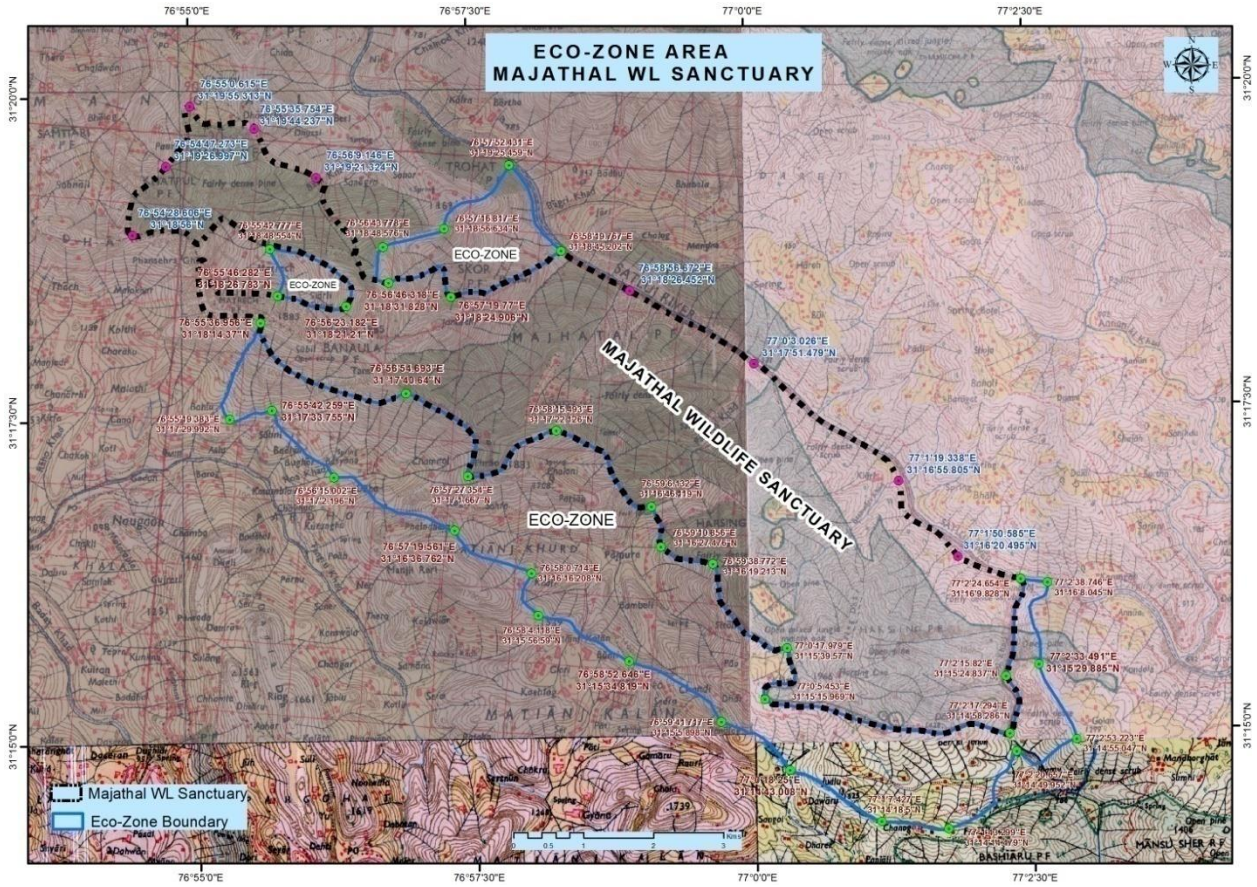
Population Monitoring Under the Himachal Wildlife Project, Dr. P. J. Garson of the University of Newcastle-Upon-Tyne conducted a survey of Cheer and other pheasants in 1983 and reported to have had the highest population density of Cheer Pheasant at 24 pairs/Km^2 (Garson 1983). Survey of Cheer in Majathal by a team of Wildlife Wing during 2008 and 2009 revealed population density of about 4 to 5 pairs/Km^2.

The area under different vegetation types in the sanctuary is given in map below:



2.18 Eco- Sensitive Zone

12.68 Km^2 area (8.36 Km^2 Forest land and 4.32 Km^2 Private land) with extent varying from zero to 2.252 km has been notified as Eco-Sensitive Zone by Government of India on 7th June 2017 as per notification annexed as Appendix 4. The area of ESZ is as shown in the map as follows.



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 notified 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 the Zone of Influence

There are 56 villages in the vicinity of the sanctuary. The list of these villages along with human and cattle population is given in Appendix 14.

3.2 Wildlife Human Conflict

A large number of human wildlife conflict cases have been reported in past especially in Harsang Bhajji and Chandi beats.

Sr.No.	Year	Beats	Kind of animal Killed	Place	Date	Compensation Given (in Rs)
1	2011-12	Kangri	Jersy cow 1	Cow shed	29.10.11	2500
		Kangri	Jersy cow 1	Private land	20.12.11	2500
		Harsang Bhajji	Cow jersy 1	Cow shed	3.2.12	2500
		Chandi	Cow jersy 1	Cow shed	4.1.12	2500
		Harsang Bhajji	Ox Jersy	Cow shed	20.2.12	2500
		Chandi	Cow local breed	Cow Shed	22.1.12	1500
		Kangri	Cow local breed	Cow Shed	6.1.12	1500
		kangri	Cow local breed 2	Cow shed	28.12.11	3000
	2012-13	Harsang Bhajji	Jersy Cow-1	Cow shed	23.4.2012	2500
		Chandi	Jersy cow=1	Pvt. land	2.4.2012	1500
		Harsang Bhajji	Jersy ox 1		30.6.12	2500
		Chandi	Jersy ox=1	Cow shed	22.4.2012	2500
		Chandi	Local ox 1	Cow shed	5.12.12	625
		Chandi	Local cow 1	Cow shed	25.12.12	625
		Kangri	Local ox 1	Cow shed	29.12.12	1250
	2014-15	Harsang Bhajji	Jersy cow	Cow shed	16.8.14	6000
	2015-16	Harsang Bhajji	Jersy cow	Cow shed	13.12.15	6000
		Harsang Bhajji	Woman	UPF Kiari	4.12.15	75000

The table shows that most of the cases of animal attacks have taken place in cowsheds. Infact, most of these cowsheds are either broken or exist only for name sake and leopard obviously comes to these sheds in search of easy food. In fact all these attacks have been done by leopard. Thus the only feasible solution is to make proper cowsheds. Since the place will house several cows that are worth Rs 30,000- 40,000, hence it becomes duty of the owner to protect these animals as well. It has also been seen in several instances that cows that no longer give milk are loosely protected and once attacked by leopard, it fetches some easy money. Such practices must be checked and awareness must be created amongst residents about protecting

the domestic animals. Only in instances wherein after proper protection of animals also, the domestic animal is attacked/ killed, the compensation should be given.

Besides there are a number of gun license holders in and around the wildlife sanctuary (Appendix 15). Thus the field staff must be very vigilant in the area especially during summers to protect pheasants and during winter to protect Goral etc, as these animals may become easy game for locals. A comprehensive anti-poaching protocol should be prepared and followed.

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

3.3 NTFP Collection

Local people do not have any rights over forest produce in the sanctuary. No NTFP is collected from the sanctuary by villagers of the surrounding villages. Culturally villagers of surrounding villages were accustomed to collection of Tor leaves to make Pattals (leaf plates/dunas) from forests but now no tor leaves collection is allowed by the sanctuary authority.

3.4 Bonafide Requirements

The life of the local people is closely linked to the forests because of their various dependencies and this is more so as the area is surrounded by more than 56 villages. Local people have several expectations from the sanctuary authority with regard to fulfilment of fuel wood, fodder, TD rights etc. In the past LPG connections and solar devices shave been provided to reduce the burden on forests. A list of such beneficiaries is given in Appendix 16.

3.5 Involvement of local communities in conservation

Socio-economic profile brought out for this area (Socio-Economic Survey Report, 2008) clearly indicated that out of 223 households surveyed against various poverty indicators, 77 households have been identified as poor. They possess very small, highly fragmented and poorly managed landholdings (typically < 1 hectare) and thus depend for their day to day livelihood needs like grass, fodder, fuel wood, grazing requirements from the Sanctuary. In this situation, where people have limited opportunities, it has been realized that it is nearly impossible to conserve such area without their active involvement.

Moving a step towards sustainable conservation and development, the poor women representing each household have been organized into Self Help Groups (SHGs) and initially 10 SHGs were formed in year 2007. Ambuja Cement Foundation (ACF), a local corporate NGO is also involved in strengthening these SHGs. All the SHGs have opened their bank accounts and started community savings to meet their short term needs on low interest rates. 9 Households have already started improving their income through mushroom cultivation, production of vermi-compost.

To reduce firewood pressure on Sanctuary, Wildlife Wing issued 101 complete Liquid Petroleum Gas connections on cost sharing basis to the identified poor households early in the year 2008. Besides involving in planning different activities, nearly 100 poor women have been involved in

maintaining village paths, afforestation, indigenous plant nursery, forest fire prevention measures and maintaining village ponds etc. during 2008 and 2009.

Nearly 40 students and teachers of different village schools are taken on excursions every year inside the Sanctuary for conservation education during October apart from delivering conservation talks. In talks with local communities focus is on awareness about Indian Wildlife Protection Act, 1972 prohibiting hunting, quoting examples of poachers facing trials and punishments and destructions caused to wildlife by sheer ignorance. Focus is also on advocating religious beliefs and quotes in Hindu Vedic texts which describe association of some spectacular pheasants like Peafowl with Hindu gods and denounce hunting and non-vegetarianism. Killing and consumption of these animals is considered a great sin. Sanctuary authorities are promoting vegetarianism and it seems to have been benefiting conservation of wildlife particularly galliformes.

Nearly ten local men living in environs of Cheer Pheasant habitat, who actually can identify the calls and know this species very well, have been trained and involved in surveying this species during past. Lot more needs to be done with great enthusiasm and we are hoping to save wildlife by carrying this process forward.

Chapter 4

Vision, Objectives, Issues and Problems

4.1 Vision Statement

To be a well protected sanctuary in Lesser Himalayas free from human pressures, with an undisturbed; well protected ecosystem that is home to a variety of species, especially the Cheer pheasant and Goral.

4.2 Objectives of Management

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

- To maintain ecological processes like watershed capability and biodiversity of the area
- To relieve the sanctuary from anthropogenic pressures such as fuel, fodder etc.
- To improve private grasslands as Cheer and Goral Habitats
- To provide high level of protection to the sanctuary
- To have viable and well managed population of mammals,pheasants and other birs
- To have professional management in the sanctuary based on scientific methods and research inputs
- To have well regulated wildlife tourism that provides a rich and truly rewarding experience for the tourists
- To provide opportunities for staff to have professional skills in the field

4.3 Issues and Problems

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

Anthropogenic pressures on sanctuary: As there are 56 villages in and around the sanctuary; the sanctuary is highly vulnerable to biotic pressure.
Improvement of private grasslands as Cheer and Goral Habitat: Private Grasslands are being burnt by the locals to get the flush of new leaves. They should be encouraged to go for controlled burning in patches.
Protection: The people in the region were in the habit of poaching specially pheasants in the past but have now given up. There is also problem of illicit felling in some area.
Viable wildlife population: Being a small sanctuary there are limited options in terms of habitat availability and variability. Wildlife population is constrained by the sanctuary size.
To have professional management: The field staffs needs more exposure to scientific management concepts.
Regulated Tourism: Tourists need to appreciate habitat of wildlife and to have some sightings as well to have a lasting experience. This is possible only when the sanctuary has a viable wildlife population.

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 sanctuary. Some of the 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 has been followed in this management plan. The ecosystem of the sanctuary is the resultant of interaction between biotic and abiotic factors over the years. A slight change may play havoc with the ecosystem. Tampering with this natural ecosystem out of insufficient knowledge or over-enthusiasm may prove to be disastrous and may have long lasting and undesirable impacts.

At the same time 'no intervention' approach may not work since human interference has already deteriorated the natural ecosystem so much that its resilience has weakened. A close watch on the interventions and their effect on the natural ecosystem may prove beneficial in management of the sanctuary and hence in achieving specific management objectives.

Today's protected areas are more like small isolated islands which are not self-sustainable. In the distant past, the natural checks and balances functioned effectively and the ecosystem was in a stable equilibrium. Over the years deterioration of the ecosystem has lowered its resilience. Slight changes in the functioning of natural ecosystem may cause deleterious impact on the animal population and people living in and around the Sanctuary.

Issues of heavily burdened protected areas

Protected areas heavily burdened by anthropogenic pressures have some unique issues. Small animal populations in such sanctuaries are subjected to population fluctuations due to lesser availability of ideal habitats for the wildlife populations, leading to loss of species. Secondly, there are chances of animal population spilling over to surrounding areas. There is difficulty in striking a balance between predator and prey in such areas. Such protected areas may offer limited ideal habitats for the wildlife. Thus, specific interventions may be needed to address their specific issues.

Functions of the Sanctuary Authority

Protection is the first and foremost important role of the sanctuary authority. Protection alone can relive the sanctuary area from a number of biotic constraints.

The influence of the human population belonging to the surrounding villages, on the sanctuary, is very significant. Management of this influence is the second important function of the

sanctuary authority. The sanctuary authority is the interface between the sanctuary and the local people. Its effectiveness in this function determines how well the pressures on the sanctuary are managed.

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

Other important functions are implementations 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 sanctuary management. These thrust areas are given below:

i. Strengthening patrolling and protection in the sanctuary
ii. Minimising the biotic pressure on the sanctuary
iii. Strengthening the monitoring mechanism
iv. Strengthening the interface with local people
v. Adding to the knowledge of the biodiversity of the sanctuary
vi. Development of tourism in the sanctuary
vii. Professional training of sanctuary staff

5.3 Strengthening the Protection Mechanism

Patrolling Practices Regular patrolling is the best means of maintaining protection inside the sanctuary. The present patrolling system should be continued and be strengthened. Group patrolling should be carried out. Patrolling should be carried out in odd hours especially during morning and evening hours. This practice will give moral support to the field staff and give them confidence in dealing with wrong doers.

Night patrolling is of utmost importance and should be carried out regularly since most poaching activities take place at night. Different modes of patrolling should be adopted and should be implemented effectively. Both day and night patrolling schedule should be prepared and be strictly followed.

5.4 Managing Human Pressures on the Sanctuary

Minimizing Biotic Pressure Cattles of the surrounding villages enter the sanctuary area from various villages. Cattles graze inside the sanctuary and compete with the herbivores for food and also spread diseases to the wild animals. In order to check the entry of cattle strict vigil should be kept. Locals of the surrounding villages try to enter inside for collecting fire-wood and fodder for their cattle which can be checked by regular and effective patrolling.

Energy Plantations The dependence of local people on sanctuary is mainly for fuel and fodder demands. Thus a proactive measure should be taken to meet these demands of local people by encouraging them for growing Energy Plantations in their private/ wastelands. These are high density (around 4000/ha) plantations of fast growing species of fuel and fodder. Few species that may be selected for this are Kachnar, Robinia, Shehtoot, and Drek.

List of Nurseries in Majhthal Wildlife Sanctuary

Sr. No.	Nursery	Location	Area(Ha)
1	Kyari	UPF Kyari	0.15
2	Bombely	UPF Bombely	0.2

Bombely Nursery

Kyari Nursery

5.5 Creation of Water Resources

Although, sanctuary area has many perennial streams and many seasonal springs but some more water resources need to be created especially for the lean period. The type of water retention structure will depend on the site condition.

5.6 Soil Conservation

Since, the sanctuary is being managed for conservation of wildlife, soil and moisture conservation works are of utmost importance.
Engineering measures should be supplemented with vegetative measures.

5.7 Equipment and Vehicle Purchase

The staff should have good quality field equipment for working in the forest area.
List of field- equipments available with the staff is as follows:

Sr. No.	Item	Physical
1.	Sleeping Bags	1 No
2.	Binocular	5 No
3.	G.P.S.	3 No
4	Camera Trap	7 No

Further, following equipment is proposed for procurement.
Table 5.1: Equipment to be procured

Equipment	Quantity	Purpose
Lap Top	1	Range office
Binoculars	3	For Range officer, Block officer and Forest guards
Digital Camera	2	For Block Officers
GPS/PDA	2	For Range officer and Block Officer

5.8 Development of Communication System

Most of the field staff owns their own mobile set, and are given mobile allowance during the fire season but they should be given mobile allowances round the year, for better communication.

5.9 Weed Control

Weeds pose a serious problem of fodder availability for herbivores. Therefore, removal of weeds should be given priority. Weeds should be removed physically. No weedicide should be used since they adversely affect several food chains. Many spots are manifested with *Lantana* while others have spread of *Parthenium*. State wide strategy has been made to eradicate invasive alien species and as per strategy the removal must start from areas having less density and spread to areas having high density and spread. The area must then be planted with fast growing species like bamboo that covers the area rapidly and thus does not allow the invasive species to come up again.

5.10 Tree Plantation

Area being moderately dense to dense forest, there is no need for tree plantation in the sanctuary. There are some blanks in the sanctuary but planting of these blanks may prove to be counterproductive as they provide ideal habitat for Cheer pheasant. Therefore, these rocky habitats should be maintained as such. However, some fruit trees should be planted in gaps of the forest areas, as it will provide food for the rich avian-fauna of the area.

5.11 Fire Protection

Sanctuary has 40 km long fire-lines. Fire watchers should be deployed during the fire season. Fire watchers should be provided with mobiles during fire season.

List of Fire-incidences

Year	Area Affected (ha)	Location
2012-13	51	D-12 Harsang Baghal
	1	UPF Pajina
	30	D-12 C-6 Harsang Baghal
	8	D-11 C-1&2 Majathal
2013-14	1749.50	D-11 Majathal, D-12 harsang Baghal, UPF- Kiari, Saryali, D-13 Harsang Bhajji, UPF Chilla & Madrech
2014-15	Nil	
2015-16	Nil	
2016-17	528	UPF madrech and D-13 Harsang Bhajji, D-11 Majathal,D-12 Harsang Baghal

There is a need to develop a rapid response system in case of outbreak of fire. Since people do not get benefits in terms of fuel, fodder and rights from the sanctuary. In such scenario, people are reluctant to put off fire. It therefore, appears that in the short term an effective network of fire lines, which are regularly cleaned during and before the dry season be maintained and sufficient provision, should be made in the annual budget for this. Records of fires need to be maintained rigorously. In addition, the forests near habitats which are prone to fire by locals in hope of good grass growth should be managed for fire protection with aid of local people. Incentive schemes may be initiated in such areas and the villages near forests where no fire takes place should be suitable reawarded.

List of Fire Lines

Sr. No.	Name of Fire Line	Distance (km)
1	Suragdwari – Satluj	6
2	Badubara Suragdwari	3
3	Talab Pazeena	4
4	Kiari Chilla	4
5	Pazeena Harsang Deo	7
6	Neodi Kiari	6
7	Kiary to Harsang	5

5.12 Creation of Grasslands

Purpose of Grassland Creation

Herbivore population including Goral, Sambar and Barking deer is fairly good. Goral usually associate in small parties of four to eight, feeding on rugged grassy hill-sides, or rocky ground in forest whereas, barking deer prefers thickly wooded hills and come out to graze in the outskirts of forest.

Encouraging Goral population in the sanctuary would increase the herbivore biomass in the sanctuary and benefit the apex carnivores.

Procedure for Grassland Creation and Maintenance

It is proposed to restore small grassy openings in the Majathal sanctuary by active habitat manipulation. This should be done in such a way which may not affect the other important ecological function of the sanctuary i.e. watershed capability.

No plantations are to be raised in grasslands. For maintenance of these meadows, manual uprooting of woody vegetation should be done regularly. Control burning of these grassy blanks before onset of breeding season of Cheer pheasant and during winter can be resorted to. For control of weeds the strategies need to mainly employ mechanical methods combined with protection from biotic factors. Impact of control burning on the quality and quantity of grasses should be studied 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. In addition to this floral diversity survey of meadows should be done periodically every year.

5.13 Habitat Management of Key species

Cheer pheasant and Goral are the key species of the Sanctuary. Cheer pheasant generally frequents outer hill ranges of the Himalayas, typically avoiding dense forest and favouring very precipitous terrain with scrub, tall grass and stunted trees, particularly where interspersed with crags.

The Cheer pheasants have specific habitat requirement. Some of the Cheer pockets are there in the Govt. land whereas, others are in the private ghasnis and therefore, requiring different habitat management practices.

The recommended practice on Govt. owned land is to commence and then maintain a programme of rotational scrub clearance by controlled burning, in order to provide sufficient patches of open habitat. Private Ghasnis (grasslands) are recommended to make use of extensive areas of open habitat under cut and headload carrying practices as is already prevalent in some parts, maintained mainly for feeding fodder to domestic animals and grazing.

5.14 Procurement of Toposheet Maps of the Sanctuary

At present the sanctuary does have a sanctuary map cum toposheet at a scale of 1:15000. One cloth-lined map should be distributed to each guard and block officer. Maps have been prepared on GIS as well, the detailed map of each beat should therefore be supplied to each beat guard.

Chapter 6

Tourism Development

6.1 Tourism Goals and Strategy

There are several categories of visitors. Aspirations vary widely. The common man wishes to see spectacular wild animals within the limited time and money he can afford to spend. Some kind of a thrill and picnic is central to most people's aspirations. There of course is a much smaller section of visitors who are well informed and look forward to a rewarding wilderness experience. Nature based tourism in India is mostly mass tourism. But the objective of Majathal Sanctuary is to provide low volume and truly enriching experience of wilderness to the visitors. Wildlife tourism will create awareness about wildlife conservation among masses. It will help to garner support for various conservation issues faced by the sanctuary. Involvement of local youths in the tourism in the long run may benefit them. The inspection/ trekking paths require maintenance. The terrain is tough. The slopes on the North-East aspect towards river Satluj are very difficult to climb. There are only two trekking path.

(I) **Trekking Routes**

(i) Chandi to Harsang Dhar	6 Km
(ii) Chandi to Badu Bara/Surg Dwari	12 Km
(iii) Chandi to Chilla	12 Km

(II) **Inspection Hut Kangri**

There is one inspection hut at Kangri. The construction of new bridle path, resting place and maintenance of old paths is also required.

Good management of the sanctuary, especially reduction of anthropogenic pressures, minimising weeds, enhancement of availability of forage and high level of protection, are essential, for improving wildlife sightings.

List of Watch-towers

Sr. No.	Location
1.	D-11 Majathal
2.	UPF Rudal

Tourism at sanctuary should be aimed at catering to the need of tourists from Shimla town and those coming from other parts of India.

6.2 Philosophy of Tourism in Majathal

Each protected area should have its own tourism policy to define the manner in which tourism will be developed. Wildlife tourism is a double edged sword that needs to be used with care. Tourism on foot on established routes should be encouraged. The number of treks and number of participants in a group should be regulated. There is a need to give some hard thinking about the agency that will be responsible for executing tourism in the sanctuary. However, there is negligible tourism in the sanctuary right now and agency executing the tourism is Forest Department but in future with the increase of tourist influx, communities should be involved so that local people derive benefits from the tourism in the sanctuary. Ecotourism in true sense implies that the benefits of tourism should go to the local people. This will also give them much needed sense of ownership and will help in sanctuary's protection actively. In Majathal the infrastructure belongs entirely to the Forest Department, it is therefore; proposed that tourism in the sanctuary should be a partnership between the Forest Department and the local people. The Forest Department will provide the infrastructure while the local people especially youth will act as nature guides for the tourists and get some income.

6.3 Nature of Tourism to be promoted

Tourism in Majathal sanctuary should focus on natural landscape, serene beauty of the area, bird watching and ecosystem services provided by the forest. Tourism should concentrate on guided walks and treks in the sanctuary on designated trails but should restrict to small groups. This will also increase the chances of sighting mammalian species specially the Goral and Barking Deer. Carrying capacity of the sanctuary should be determined and tourism should be regulated accordingly. No infrastructure should be developed in the sanctuary except staff quarters, observation points (machans) and trails. While developing infrastructure care should be taken that it blends well with the natural surroundings.

6.4 Publicity

Majathal sanctuary should be publicized as a tourism destination. Information on the sanctuary has been put up on the website of the Forest Department including contact details such as address, telephone number and email addresses. Hoisting of separate website for Shimla Wildlife Division, depicting detailed information regarding the sanctuary is under process. Public should be informed about this sanctuary through print media and electronic media. Tour operators should be contacted and informed about the sanctuary. Programmes should be organized for local schools and colleges.

6.5 Conducting Tourism in the Sanctuary

Identification of Trails

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

Activities for Tourists

The main activities for tourists should be as follows:

- Walk along the trekking paths for watching wildlife;
- Walks along the nature trail and bird and flora watching;
- Morning and evening walks along the main road for bird watchers.

6.6 Sanctuary Literature

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

6.7 Signage

Signage needs to be developed in the sanctuary and be placed at vantage points. Some points for inclusion in the signboards are as follows:

- Name and area of the sanctuary
- Wildlife (mammals and prominent birds) found in the sanctuary
- Significance of the sanctuary
- Historical background of the area
- Sanctuary geography and geology
- 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 and content and design of each signboard. The actual signage put up will be as per the signage plan.

6.8 Development of Interpretation Centre

Nature interpretation and conservation education are integral to eco-tourism. Interpretation centres are instrumental in changing the perception of visitors as well as those of the local community in support of conservation. Therefore, to fulfil these twin objectives an interpretation centre-cum-Souvenir Shop should be created at Chandi. The interpretation centre should perform the following functions:

- Create awareness of the sanctuary values
- Inform people about the biodiversity of the sanctuary and it’s conservation
- Educate people to follow certain dos and donts in Sanctuary
- Design and development of the interpretation centre should be entrusted to a professional organization with long term planning.

6.9 Capacity Building

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

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

Forest guards and foresters should also be trained in these skills so that they can act as resource persons for future trainings and escort school children and other nature lovers when occasion demands. However, it must be borne in mind that escorting tourists should not be a regular duty of the forest staff or daily wagers of the Forest Department as this will result in neglect of their regular duties. Local youth should be imparted training so that they can act as tourist guides and earn some money as well. The staff at inspection hut Kangri should be trained in basic hospitality skill by professionals, either private hoteliers or trainers from the Tourism Department.

Chapter 7

Monitoring, Research and Training

7.1 Monitoring Objectives

Monitoring of wildlife population is very important aspect of wildlife management as it reveals the results of the management. Without a clear objective, monitoring may absorb considerable time without achieving anything useful.

Important conservation questions that monitoring could answer include: how is the population of species of conservation interests changing on a site? How are the populations of predator species changing? Where are the most important areas for a species? What are the habitat requirements of a species? How does population respond to changes in the management?

7.2 Considerations in Design of Monitoring Programme

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

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 and cheer may require different monitoring techniques.

7.3 Synopsis of Monitoring Techniques

Monitoring Techniques for Mammals

Some mammal species are obvious and can be readily counted. However, most species are difficult to see. Some of the species of greatest conservation interest are both secretive and occur at low densities. Some of the methods of mammal census are as follows.

Animal Encounter Rate: In this method a network of routes are marked inside the sanctuary that are well dispersed inside the sanctuary. The routes 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 sanctuary 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 animals 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 follows:

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

The encounter rate is an index of population density. If this exercise is carried out every year we can get population trends reliably. However, this exercise cannot give estimates of absolute population.

Sign Encounter Rate: The sign encounter rate relies on sighting/ collection of animal signs. It is useful for monitoring populations, 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 route can be increased to 10 km. The routes should be broad and clear with no vegetation growth so that scats can be spotted easily. Heavy human traffic should not be there on the routes so that scats are not trampled. These routes are also walked a number of times in a year and scats of leopard and other carnivores with highly visible scats, are collected.

$$\text{Scat encounter rate (i)} = \frac{\text{Number of scats sighted of } i^{th} \text{ species}}{\text{(Total length of routes walked X no. of times walked)}}$$

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. This exercise also cannot 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 scats collected during the exercise can be analysed by microscopic examination of hair of prey in the scat samples to determine the dietary pattern of leopards.

Pellet Densities: This method is used for monitoring population of ungulates by estimating density of their dung pellets. Pellet densities are estimated by laying plots in the forest all over the sanctuary and counting the pellet groups in each plot. The pellet groups refer to the small pellets deposited during a single defecation at one place. In this method, the basic assumption is that rate of defecation is constant for the species. The plots should be laid in the same season and month every year. The number of pellet groups divided by the defecation rate gives the number of the total deer population as indicated below:

$$\text{Total Deer Population} = \frac{\text{The number of pellet groups}}{\text{Number of days for the count}}$$

This method is fairly simple but it cannot give absolute population estimates.

Line Transect Sampling: Line transects sampling is used for estimating absolute densities of wild animal populations. A large 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 transect in red or yellow paint. Bush cutting is necessary only if undergrowth is very thick.

These transects are walked by observers according to a specific sampling design and observations of each animal sighting are recorded. The distance of the group is estimated by a rangefinder and a compass bearing is taken for each encounter. This data is used to estimate the perpendicular distance of the animal from transect. In this manner all transects are walked and animal sightings recorded. All transects must be walked a number of times so that sufficient observations are obtained to make reliable population estimates. If number of observations is low, reliable estimates cannot be made. Typically 5 to 10 repetitions may be necessary. It may be possible to carry out the sampling by making 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 rangefinders. It is also a fairly laborious technique. The advantage is that it can give reliable estimates of animal populations.

Design and layout of line transects need considerable effort. 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, labourers 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 water bodies such as perennial streams or lakes since it is difficult to count animal 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 pheasants coming to drink water at the waterhole. The total count of animals of each species for all waterholes is the population of that species. The method suffers from some uncertainties but is nevertheless a useful method for population estimation.

Territory Mapping: Mapping is best for those species that are clearly territorial such as many primates and carnivores. In mapping, the location of sightings and territorial calls are mapped. In many mammals the territory may be held by a group and thus mean group size has also to be determined.

Territory mapping can be better done with the help of radio telemetry. The territory mapping for each animal can be fixed with regular field verification and use of telemetry.

Camera Traps: Camera traps are invaluable, non-invasive and cost effective tools that provide photographic data that can be used to estimate density and abundance of a specific species, proof of presence of species in an area and trends in population change due to anthropogenic pressures, among other data. Camera traps are also very good at offering insights into the behavior of wild animals and revealing new distribution records for a species.

Camera traps are helpful in quantifying the number of different species in an area; this is a more effective method than attempting to count by hand every individual organism in a feild. It can also be useful in identifying new and rare speies that have yet to be well documented. By using camera traps, the well being and survival rate of animals can be observed over time.

Camera traps are helpful in determing behavioural and activity pattern of animals, such as which time of the day they visit mineral licks. Camera traps are also useful to record animal migrations.

Camera traps enable collection of baseline population data on elusive mammals and birds where only estimates-and often just guesses-were possible before.

Pugmark Method for Monitoring Leopard Population: 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 population but the technique can easily be used for estimating leopard populations also. Since leopard pugmarks are smaller there is greater possibility of making mistakes in identification since small mistakes 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 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 tracings 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 the reliability of the method. Alternatively there are special optical instruments that can increase the accuracy of the tracing and minimize errors.

The pugmark 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 sanctuary like Majathal, a shorter census of 2 to 3 days should be sufficient.

Population Estimation of Leopards by DNA Analysis of Scats: DNA analysis of leopard scats can be used for population estimation. DNA analysis can be done by taking mucous layer covering the scat and then analysing it in the laboratory. The technique is still at an experimental stage in the country. The technique may soon become generally available, but it is definitely expensive. The technique requires collection of fresh scat (within 24 hours) and its preservation by an appropriate method. DNA analysis is carried out in specially-equipped laboratories.

Monitoring Techniques for Birds

Birds have the advantages that they are often reasonably conspicuous; have diagnostic calls or songs and many people have the expertise necessary to identify them in the field. As a result of the ease of counting them, birds are good for monitoring environmental change. Monitoring techniques for birds are as follows:

Foot Transects: Counts along transect lines, are useful for estimating relative abundances, as well as for estimating densities.

Line transect is a simple, easy to execute method that can help in obtaining density estimate for pheasants in India. In this method, one walks along a straight line and counts animals on both sides of the line. Line transect could be permanently marked and vegetation trimmed for the observer to walk easily and carefully look for animals. In case of temporary transects, the observer walks in a straight line using a compass on a predetermined bearing. At least 2 or 3 transects of length ranging between 1 and 3 km to be laid in each habitat/area and walked at least 2 or 3 times in a month during the early morning hours. For every sighting, species, number, age and sex (if possible), sighting angle and sighting distance are measured. This information will be useful in calculating the encounter rates and density of pheasants in an area. This technique is best suited for pheasants.

The actual number of birds encountered on transect can act as a simple index of abundance for comparative purposes. Care must; however, be taken to ensure that the visibility in the habitat is similar during all the counts being compared. A decrease in visibility may lead to fewer birds being encountered, even though the actual number may be the same. Since visibility often changes seasonally as a function of the amount of foliage, counting in the same season is an effective way of controlling for visibility. The conspicuousness of a bird also depends on its behaviour; birds, especially males, are highly visible during the breeding season when they are singing and advertising their territories. The best season for counts is thus the breeding season, when birds are most conspicuous.

Point Count: A variation of the transect count is the point count. Here the observer stands at a fixed point for a specific period and count all birds, either within a specified circle (of say 25m or 50 m radius), or as far as birds can be seen (open radius). This is actually like a transect count of length zero. Each individual should be counted just once. It is often sensible to wait 5 minutes before counting so that the birds are less disturbed. The count is for a fixed period of 3-10 minutes depending upon how conspicuous the birds are. The counts should be completed as quickly as possible to reduce the risk of double counting and allow more points to be visited. Points should be at least 200 m apart to prevent double counting.

Point counts are particularly useful in areas of difficult terrain such as hills or swamps, where one cannot easily lay a straight, continuous transect.

Call Count Survey: This method can be used for most of the pheasants which call during morning hours in their breeding season. The counts can be made from strategic point in the habitat of the particular pheasant. The number obtained can be doubled for obtaining the estimate of breeding population.

The counts of calling males assume that all the existing males in the area will call every morning. Cheer pheasants are known to give loud calls and also respond to the playback calls. It is more reliable to count the calls rather than actually counting the birds being very skulking and cryptic pheasant which normally live in the grasses. The sample transects following the natural trails shall be laid in the Known Cheer habitat. Census points on an average distance

varying from 200 m to 400 m shall be marked on the map as well as on the ground on each transect. GPS readings of elevation, latitude and longitude shall also be taken for each census point. Transects shall be laid carefully so as representing the varied habitat used by the Cheer Pheasant to minimize the chances of error. Observers should preferably be local people and local staff shall conduct both dawn and dusk call counts. They will record their observations on a pre designed paper sheet preferably census plot diagram as suggested by A.J.Gaston (1980) which will be supplied to them before hand (Copy of data recording sheet is already given to participants). The transects shall be manned in the season preferably March to June from 60 minutes before until 60 minutes after sunrise and from 60 minutes before until 30 minutes after sunset. Each call shall be equated with a pair. In case of hearing no calls, playback calls can be used for 20 seconds only to hear the response of Cheer.

Good knowledge of the species habitat and ecology is of paramount importance. In this case, the observers preferably local people shall be identified who are familiar with the Cheer calls and can identify this pheasant. To minimize the errors all the identified observers shall be shown the video clips of calling Cheer pheasant and shall be given training on making observations. These observers being the local people shall be kept on official records and shall be used regularly for the future surveys. This method is based on the assumption that every observer identifies the calls of the Cheer Pheasant correctly and every bird is in a pair and gives characteristic calls in the breeding season.

Territory Mapping: This is a standard method of counting birds in most ornithological studies, and regarded as the most reliable. The technique is based on locating singing males in an area on a map. This is done repeatedly (3-4 times) within a limited period (maybe a week, or the breeding season). A composite map is then prepared by overlaying the locations of each separate count. One can then find clusters of locations indicating territories of individual males. The number of each cluster is thus number of territorial males in the area, and assuming all of these are monogamous, one can then estimate the breeding population.

An obvious limitation of this technique is its being restricted only to the breeding season and non-breeding members are left out. The technique also requires skill in identifying territories correctly from clusters (correct mapping) otherwise it can lead to interpretational errors. This would require a degree of familiarity with the general ecology of the species, which would require extra effort. Hence this is of more limited use for a manager, than the generalised transect or point counts.

Encounter Rates: Encounter rate is the simple index for abundance estimation and is expressed as number seen per unit effort. The unit effort could be time spent in intensively searching for animals in an area or it could be the distance travelled in an area intensively searching for animals. Number seen could be based on direct evidences (sightings) or indirect evidences such as calls, droppings and other signs such as digging signs for feeding.

Survey could be done along existing roads, paths, trails, ridges, and nullas or along a predetermined bearing using a compass or GPS. If the distance travelled is measured, then one could use that as effort(ER=number seen/km walked). In cases when distance travelled is not known, one could use the time spent in searching that area as effort (ER=number seen/ time

spent). Indirect evidences such as calls and droppings could also be used, but one should be very careful in identification of calls of different species and calls of different individuals of the same species. Similarly, care should be taken to identify droppings or other signs of a species.

Encounter rates are good for monitoring the abundance of pheasants in an area, if done regularly (monthly/ seasonally/ annually). Comparison of ER of a species in two similar habitats located in different areas could be made. Adequate number of walks per month or season is necessary for calculating mean ER and standard errors. The technique is applicable for most of the pheasants.

Monitoring Techniques for Plants

Vegetation is a major component of wildlife habitat. It is made up of a number of plant communities, which can be distinct entities or more diffuse merging slowly into each other. The value of the habitat for wildlife species is directly linked to the type and variety of plant communities and their conditions. Changes will have a positive or negative effect on the overall quality of a habitat for a particular habitat species.

Assessing and monitoring vegetation as a basis for manipulating it in tune with management objective is one of the important aspect of protected area management. It involves qualitative processes such as floristic inventory and community description as well as quantification of factors such as vegetation cover. Some of the monitoring techniques for plants are as follows:

Total Counts of Plants: Total counts seem easier than they usually are. Unless carried out methodically it is easy to miss individuals or count them twice. One approach is to grid out the entire area and systematically search each grid square, marking each individual with a flag once found. This can be very accurate and provide excellent information on distribution but is time consuming.

Quadrates: Quadrates are the most widely techniques used for the plant census. Quadrates could be rectangular strips, square (10mX10m) or circular (10m radius).

The number of individuals of the species of interest can be counted. It is usual to only count those rooting in the quadrate. Percentage cover may be used for mat-forming species or when it takes too long to count all individuals, but it is less accurate. Percentage cover is often used when the observer can stand above the vegetation or for estimating canopy cover above the observer, but it is difficult to estimate scrub or tall herbaceous vegetation at the observer's height.

Monitoring Environmental Variables

It is often impossible to interpret the changes over a period of time unless there is a programme of monitoring environmental variables. Some of the environmental variables which can be measured are as follows:

Temperature: Maximum-minimum thermometers can be used to give the daily temperature range. They are best located 1.25 m above ground as this is the standard height for meteorology (and thus best for comparison with other sites).

For conservation studies, thermometers are often located in relation to the ecology of the species being studied. Recording of temperature at set intervals is very good for ecological measures of microclimate. For ectotherms in temperate areas, temperature is often critical; sward height, aspect, slope and colour may all have marked effects on the local temperature and detailed measurements can help interpret the ecology and behaviour.

Rainfall: Rain can be collected in open containers, but they are likely to be inaccurate due to evaporation. For accuracy rain-gauge can be used.

$$\text{Rainfall} = \frac{\text{ml or } cm^3 \text{ of rain}}{(\text{Diameter of rim of gauge in cm})^2}$$

A rain gauge should be positioned such that water does not get splashed in and all the standing objects like trees etc. are four times their height away. Rain gauges are usually emptied daily at a fixed time. If visited irregularly then a little oil may be added to reduce evaporation.

Monitoring Human Impact

It is often useful to be able to document human impacts such as the number of offences, number of visitors and mining in the area etc. The approach is same as in monitoring populations or environmental variables. It is necessary to find a sensible sampling regime and a repeatable way of monitoring. Without precise definition it is difficult to distinguish variation in classification from actual changes.

Photographic Monitoring

Photographs are a good way of documenting changes to sites. Photographs are not usually useful for documenting small scale changes for which data from quadrates is usually preferred. Aerial photographs are invaluable for monitoring and documenting gross changes to sites, such as changes in the extent of woodland. A series of photographs may show changes imperceptible to site managers, especially when managers change. Photographs may also be valuable for legal uses although the documentation must then be rigorous. Photographs can be a very dramatic way of illustrating change and problems and are likely to be of more widespread public interest than, presenting data on changes in species composition within a quadrate.

7.4 Recommended Population Estimation and Monitoring Methods

No population estimation is being carried out at present but some should be carried out now onwards.

Cheer pheasant survey should be conducted by **call count method** in all the seasons of the year in pre-identified specific habitats. Radio collaring of the Cheer should be done for their behavioural studies and habitat use pattern.

The **animal encounter rate** and **sign encounter rate** technique should be used. Trails 4 to5 km long should be laid. The trail should be walked on a fixed date once every month. The data collection on the trail should include animal encounter, animal signs and habitat parameters.

Animal sign survey and animal encounter rate survey should be carried out separately. Data analysis should be done carefully.

Camera trap method should be used to supplement density estimation, abundance survey and proof of presence of a species in an area and trends in population change due to anthropogenic pressures.

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.

The **line transect** method should be started for population estimation in the sanctuary. Design of the line transect is very important. A well designed line transect network should be laid in the sanctuary area. The length of each transect should be 3 to 4 km. Due care should be taken in data analysis.

The transect lines should be walked once a month. Training in recording the observations is very important. The staff should be well trained in making observations at the beginning of the exercise. Hired manpower may be necessary for line transect surveys since every transect needs to be walked by two people. Educated and intelligent young people should be identified and hired from the surrounding villages. Volunteers from Shimla town may also be called for the line transect exercise. Care should be taken that they are well trained.

The **point count** method of population estimation of bird should be used. For point count 500 m distance should be divided into 5 segments 100m each. Birds should be counted at 6 points i.e. starting point, 100 m, 200m, 300m, 400m and 500m. Observations like species, number, perpendicular distance and activity should be recorded. Data analysis should be done carefully.

The **territory mapping** method of counting pheasants should be followed. Due care should be taken in identifying the call, recording observation and overlaying the locations on the map.

Line transect method should be used for density estimation of pheasants.

Encounter rate method should be used for relative abundance of the pheasants.

Trap cameras should be fixed at some places to study habitat use of faunal species especially nocturnal ones.

For monitoring plants **circular quadrates** should be laid. Centre point of the quadrate should be fixed and observation should be taken annually on a fixed date of a particular month. Circular plots of 10m radius for trees and sapling, 5m radius for shrubs and seedlings and 1m radius for ground cover should be laid.

The water harvest of each month should be recorded with the help of IPH staff.

Water flow from individual source should be quantified.

7.5 Monitoring During Regular Patrolling Walks

Animal encounters and animal signs 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.

A format for recording such field observations is given in Appendix 17.

7.6 Research Needs in the Sanctuary

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

Research studies may be carried out according to the preferences of the researcher. Some important areas for research in the sanctuary are:

- Surveys of pheasants, mammals, reptiles and amphibians
- Studies on prey-predator ecology
- Corridor studies and other landscape level planning studies

7.7 Training Needs

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

Improving the knowledge and capacity of the 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:

- Knowledge and identification of mammal species found in the sanctuary, habits of species, biology and ecology of important species
- Identification of bird species found in the sanctuary
- Knowledge of reptile and amphibian species found in the sanctuary
- Knowledge and identification of plants, including medicinal plants found in the sanctuary
- Soil and water conservation techniques
- Sanctuary ecology, interdependence of plant and animal species
- Monitoring methods, population estimation methods
- Anti-poaching skills and documentation of offence cases
- Wildlife interpretation skills

- Wildlife tracking and field signs
- Conflict resolution skills for dealing with local people
- Controlled burning techniques
- Nursery techniques
- Darting and trapping wild animals
- Use of instruments such as compass, binoculars, digital camera etc.
- GPS skills
- 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 presentations on their project.
Training should also be imparted to local people, particularly guide and tour operators with the intention of upgrading their skills for tourism. Some training subjects are:

- Sanctuary rules
- Skills of dealing with tourists
- Interpretation skills
- Basic information on identification of species, tracks and signs, habits of species.

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

Chapter 8

Management of Human Interface

8.1 Philosophy of Interaction with Local Communities

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

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:

- Create awareness about sanctuary values among local people
- Obtain cooperation from local community for sanctuary management
- Give benefits to local people from the sanctuary, especially the poor
- Resolution of various issues and conflicts that the sanctuary authority may have with local people and vice versa

8.2 Formation of Coordination Committee

In order to tackle various issues related to interactions with local people a coordination committee is proposed consisting of representatives of the local people and representatives of the sanctuary. Only those villages that are adjacent to the sanctuary and impact the sanctuary shall be included in the coordination committee. Each village shall contribute two members to the committee. The composition of the coordination committee shall be as follows:

- DFO (Wildlife), Shimla Division (President)
- Range Forest Officer Majathal Range
- Dy. Ranger (Member Secretary)
- All Forest Guards
- Two members each from each village
- One or more NGO representatives at the discretion of the President

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

- To resolve issues of the sanctuary.
- To seek opinion of people about implementation of developmental works.

- To arrange joint programmes and functions, especially awareness programmes.
- To discuss modalities for tourism and coordinate tourism in the sanctuary.
- To involve local people in monitoring activities of the sanctuary.
- To gain cooperation of local people for control of illegal activities.

The committee shall meet once in three months on a pre-decided date of the 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 decisions taken during the committee meetings may be communicated in each village through meetings conducted by the forest guard and the village representatives.

8.3 Eco-development Programmes

Eco-development works should be carried out in the local villages by sanctuary authority. This will help in development of the villages and it will also help to gain their cooperation for sanctuary objectives. Some activities that may be carried out are as follows:

- Water conservation structures such as check dams, spur etc
- Irrigation tanks
- Water ponds
- Other activities depending on needs of each village

8.4 Involvement of Local People in Conservation Activities

Desire for conservation comes from appreciation of wildlife and its importance. Appreciation for wildlife can best 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 programmes. If local people can be made conservationist the job of the sanctuary authority will be lot easier. Wildlife NGOs like WWF should be involved in task of spreading awareness and conservation message among local people. If possible nature clubs can be started for local children and youths and well established organisations like NCC and NSS shall be involved in future.

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

8.5 Revival of Women Self Help Groups

Women self help groups were organized in 2007. They did lot of work like plantation, nursery, fire prevention work etc. They need to be reactivated and strengthened.

Chapter 9

The Budget

9.1 Expenditure in Previous years

Expenditure in Majathal Sanctuary has been under the component centrally sponsored scheme Appendix 18.

9.2 Proposed Budget

The proposed budget requirement w.e.f 2018-2019 till 2027-28 yearwise for 10 yers for the sanctuary is given below with a provision of review at midterm. The budget is indicative in nature, based on approximate costs.

2018-2019

Sr. No.	Name of Work	Physical	Rate/Unit (Rs In Lac)	Financial (Rs in lac)
A	**Habitat Improvement**			
1	Raising of Fruit & Fodder Nursery	2 No	0.60	1.20
2	Fruit and Fodder Plantation	6 ha.	0.25	1.5
3	Control of alien invasive species	8 ha.	0.10	0.80
4.	Maintenance of plantation raised during last three years	20 hac.	L/s	0.40
B	**Forest Protection**			
2	Fire fighting measures like cleaning of fire line, const. of new fire line from Bombly to Harsang Bhajji, 6km,engaging fire protection Mazdoor control burning etc.		L/S	1.0
C	**Soil and Moisture Conservation Work**			
1	Improvement of Bio engineering structure	L/S		0.50
2	Improvement of existing water ponds including de-silting and providing of high density poly sheets	1 No	1.00	1.00
D	**Training / Work Shops etc.**			
1	Celebration of Wild Life Week	1	0.50	0.50
2	Office Expenditure, Mobile Connectivity and other contigency		-	0.342
E	**Infrastructure Development**			
1	Improvement of Govt. Buildings including providing toilet facilities to staff quarter.	2	0.30	0.6
F	**Eco-development Activities**			
1	Vaccination and health camps of domestic nomatic cattle.	5 camps	0.02	0.10
G	**Purchase of Equipment**			
1	Camera	4 No	0.15	0.60
2	Bionoculars	8 No	0.05	0.40
H	**Eco-tourism**			
1	Furnishing articles to FRH Piplughat and chandi	2 No.	L/S	0.80
	Grand Total			**9.742**

2019-2020

Sr. No.	Name of Work	Physical	Rate/Unit (Rs In Lac)	Financial (Rs in lac)
A	**Habitat Improvement**			
1	Raising of Fruit & Fodder Nursery	2 No	0.50	1.00
2	Fruit and Fodder Plantation	4 ha	0.25	1.0
3	Control of alien invasive species	10ha	0.10	2.00
4.	Maint. Of old plantation	20 ha.	0.02	0.4
B	**Forest Protections**			
1	Clearance of Fire Line	10 km	0.055	0.55
2	Engagement of Fire Watchers		L/S	0.70
3	Control Burning		L/S	0.60
C	**Soil and moisture Conservation Work**			
1	Bioengineering measures for soil conservation		L/S	1.50
2	Construction of Rain Water Harvesting Structure	1 No	1.00	1.00
D	**Training / Work Shops etc.**			
1	Celebration of Wildlife Week		0.50	0..50
2	Wild Life monitoring exercise		L/S	0.50
3	Training of staff in wildlife management		L/S	0.50
4	Office Expenditure, Mobile Connectivity	-	0.50	0.50
E	**Infrastructure Development**			
1	Improvement of Range Office-cum-Residence	-	0.50	0.50
2	Improvement of staff quarters		L/S	2.00
3	Maintenance of forest inspection paths, and trekking paths		L/S	0.50
F	**Eco-Development**			
1	Community Activities		L/S	0.50
G	**Eco-tourism**			
1	Devolpment of signages		L/S	0.50
	Grand Total			**14.25**

2020-2021

Sr. No.	Name of Work	Physical	Rate/Unit (Rs In Lac)	Financial (Rs in lac)
A	**Habitat Improvement**			
1	Raising of Fruit & Fodder Nursery	2 No	0.50	1.00
2	Fruit and Fodder Plantation	4hac	0.25	1.00
3	Control of alien invasive species	10ha	L/S	1.00
4.	Maint. Of plantation	30 ha.	L/S	0.60
B	**Forest Protections**			
1	Clearance of Fire Line	10km	0.055	0.55
2	Fire Watcher		L/S	1.50
3	Control Burning		L/S	0.50
C	**Soil and Moisture Conservation Work**			
1	Bioengineering measures for soil conservation		L/S	1.00
D	**Training / Work Shops etc.**			
1	Celebration of Wild Life Week	1	0.50	0.50
2	Training of staff in wildlife management		L/S	0.50
3	Wild Life monitoring exercise	1	0.20	0.20
4	Wild Life Awareness		L/S	0.30
5	O,E Mobile Connectivity		0.50	0.50
E	**Infrastructure Development**			
1	Improvement of staff quarters		L/S	1.00
F	**Eco-Development**			
1	Community Activities		L/S	1.0
G	**Eco- Tourism**			
1	Development and maintenance of trails/paths		L/S	0.50
2	Development of sinages and publicity material		L/S	0.25
	Grand Total			**11.9**

2021-2022

Sr. No.	Name of Work	Physical	Rate/Unit (Rs In Lac)	Financial (Rs in lac)
A	**Habitat Imp.**			
1	Raising of Fruit Fodder Nursery	2 No	L/S	1.0
2	Fruit and Fodder Plantation	8ha	0.25	2.00
3	Control of alien invasive species		L/S	1.00
4	Maint. Of last three years plantation	14ha	0.04	0.56
B	**Forest Protection**			
1	Clearance of Fire Line	20	0.06	1.2
2	Engagement of Fire Watcher		L/S	0.80
3	Control Burning		L/S	1.00
C	**Soil and Moisture Conservation Work**			
1	Bioengineering measures for soil conservation		L/S	1.5
D	**Training / Work Shops etc.**			
1	Celebration of Wildlife Week	1 No	0.50	0.50
2	Training of staff in wildlife management	1 No	0.50	0.50
3	Wildlife monitoring exercise		L/S	0.50
4	Office Expenditure, Mobile Connectivity		L/S	0.50
E	**Infrastructure Development**			
1	Improvement of staff quarters		L/S	1.00
2	Maintenance of Inspection path		L/S	0.50
F	**Eco-Development**			
1	Community Activities			0.50
G	**Office Expenses**			
1	Purchase of furniture		L/S	0.50
H	**Eco-tourism**			
2	Development of sinages and publicity material		L/S	0.20
	Grand Total			**13.76**

2022-2023

Sr. No.	Name of Work	Physical	Rate/Unit (Rs In Lac)	Financial (Rs in lac)
A	**Habitat Improvement**			
1	Raising of Fruit Fodder Nursery	2 No	L/S	1.5
2	Fruit and Fodder Plantation	4ha	0.25	1.0
3	Control of alien invasive species	10ha	0.10	1.00
4	Maint. Of old plantation	16hac	0.5	0.80
B	**Forest Protections**			
1	Clearance of Fire Line	10km	L/S	1.00
2	Fire Watcher		L/S	1.00
3	Control Burning		L/S	0.50
C	**Soil and Moisture Conservation Work**			
1	Bioengineering measures for soil conservation		L/S	1.5
D	**Training / Work Shops etc.**			
1	Celebration of Wildlife Week	1	0.50	0.50
2	Population Monitoring Exercise		L/S	0.50
3	Training of staff in wildlife management, population monitoring		L/S	0.50
4	Office Expenditure, Mobile Connectivity		L/S	0.50
E	**Infrastructure Development**			
1	Improvement of staff quarters		L/S	1.50
2	Improvement of,inspection paths and trekking paths		L/S	2.50
F	**Eco-Development**			
1	Community activities		L/S	0.50
	Grand Total			**14.8**

2023-2024

Sr. No	Name of Work	Physical	Rate/Unit (Rs In Lac)	Financial (Rs in lac)
A	**Habitat Improvement**			
1	Raising of Fruit Fodder Nursery	2 No	L/S	1.00
2	Fruit and Fodder Plantation	5 hac	L/S	1.5
3	Control of alien invasive species	10hac	0.10	1.00
4	Maint. Of old plantation	16 hac	L/s	0.80
B	**Forest Protections**			
1	Clearance of Fire Line	10km	L/S	1.00
2	Fire Watcher		L/S	1.00
3	Control Burning		L/S	0.50
C	**Soil and Moisture Conservation Work**			
1	Bioengineering measures for soil conservation		L/S	2.50
D	**Training / Work Shops etc.**			
1	Celebration of Wildlife Week	1	0.50	0.50
2	Population Monitoring Exercise		L/S	0.50
3	Training of staff in wildlife management		L/S	0.50
4	Office Expenditure, Mobile Connectivity		L/S	0.50
5	Review of management plan			2.00
E	**Infrastructure Development**			
1	Improvement of staff quarters		L/S	1.50
2	Improvement of forest inspection paths and trekking routes		L/S	1.50
F	**Eco-Development**			
1	Community activities		L/S	0.50
G	**Eco-tourism**			
1	Development of sinages and publicity material		L/S	0.50
	Grand Total			**17.30**

2024-2025

Sr.No	Name of Work	Physical	Rate/Unit (Rs In Lac)	Financial (Rs in lac)
A	**Habitat Improvement**			
1	Raising of Fruit Fodder Nursery	2 No	L/S	1.5
2	Fruit and Fodder Plantation	6ha	L/s	1.80
3	Control of alien invasive species	10 hac	0.12	1.2
4.	Imp. Of last three years plantation	17hac	0.06	1.02
B	**Forest Protections**			
1	Clearance of Fire Line	10km	0.08	0.8
2	Fire Watcher		L/S	1.00
3	Control Burning		L/S	0.50
C	**Soil and Moisture Conservation Work**			
1	Bioengineering measures for soil conservation		L/S	1.50
D	**Training / Work Shops etc.**			
1	Celebration of Wildlife Week	1	0.50	0.50
2	Training of staff in wildlife management		L/S	0.50
3	Population Monitoring Exercise		L/S	0.50
4	Wild Life Awareness	1	0.50	0.50
5	Office Expenditure, Mobile Connectivity		L/S	0.50
E	**Infrastructure Development**			
1	Improvement of staff quarters		L/S	1.00
2	Improvement of inspection paths and trekking routes		L/S	0.50
F	**Eco-Development**			
1	Community activities		L/S	0.50
G	**Eco-tourism**			
2	Development of publicity material		L/S	0.50
	Grand Total			**14.32**

2025-2026

Sr. No.	Name of Work	Physical	Rate/Unit (Rs In Lac)	Financial (Rs in lac)
A	**Habitat Improvement**			
1	Raising of Fruit Fodder Nursery	2 No	L/S	1.5
2	Fruit and Fodder Plantation	5hac	L/S	1.5
3	Control of alien invasive species	20hac	L/S	2.0
4	Maint. Of old plantation	15hac	L/s	0.90
B	**Forest Protections**			
1	Clearance of Fire Line	10	L/S	1.0
2	Fire Watcher		L/S	1.50
C	**Soil and Moisture Conservation Work**			
1	Bioengineering measures for soil conservation		L/S	2.00
D	**Training / Work Shops etc.**			
1	Celebration of Wildlife Week	1	0.50	0.50
2	Training of staff in wildlife management		L/S	0.50
3	Population Monitoring Exercise		L/S	0.50
4	Wild Life Awareness	1	0.50	0.50
5	Office Expenditure, Mobile Connectivity		L/S	0.50
E	**Infrastructure Development**			
1	Improvement of staff quarters		L/S	0.50
2	Improvement of inspection paths		L/S	0.50
F	**Eco-Development**			
1	Community activities		L/S	1.5
G	**Eco-tourism**			
2	Development of sinages and publicity material		L/S	1.00
	Grand Total			**16.4**

2026-2027

Sr. No.	Name of Work	Physical	Rate/Unit (Rs In Lac)	Financial (Rs in lac)
A	**Habitat Improvement**			
1	Raising of Fruit Fodder Nursery	2 No	L/S	1.5
2	Fruit and Fodder Plantation	6hac	L/S	1.80
3	Control of alien invasive species	20hac	L/S	2.00
4	Maint. Of old plantation	16 hac	L/s	0.96
B	**Forest Protections**			
1	Clearance of Fire Line	46km	L/S	3.70
2	Fire Watcher		L/S	1.50
C	**Soil and Moisture Conservation Work**			
1	Bioengineering measures for soil conservation		L/S	1.50
2	**De-silting of water ponds**	10 No.	0.15	1.50
D	**Training / Work Shops etc.**			
1	Celebration of Wildlife Week	1	0.75	0.75
2	Training of staff in wildlife management		L/S	0.50
3	Population Monitoring Exercise		L/S	0.50
4	Wild Life Awareness	1	0.50	0.50
5	Office Expenditure, Mobile Connectivity		L/S	0.50
E	**Infrastructure Development**			
1	Improvement of forest inspection paths		L/S	3.00
F	**Eco-Development**			
1	Community activities		L/S	2.0
G	**Eco-tourism**			
1	Development of sinages and publicity material		L/S	1.00
	Grand Total			**23.21**

2027-2028

Sr. No.	Name of Work	Physical	Rate/Unit (Rs In Lac)	Financial (Rs in lac)
A	**Habitat Improvement**			
1	Raising of Fruit Fodder Nursery	2 No	L/S	2.00
2	Fruit and Fodder Plantation	5 hac	L/S	1.5
3	Control of alien invasive species	20hac	L/S	2.0
4	Maint. Of last three year plantation	17 hac	L/s	1.02
B	**Forest Protections**			
1	Fire Watcher		L/S	2.00
C	**Soil and Moisture Conservation Work**			
1	Bioengineering measures for soil conservation		L/S	3.00
D	**Training / Work Shops etc.**			
1	Celebration of Wildlife Week	1	0.75	0.75
2	Training of staff in wildlife management		L/S	0.50
3	Population Monitoring Exercise		L/S	0.50
4	Wild Life Awareness	1	0.50	0.50
5	Office Expenditure, Mobile Connectivity		L/S	0.50
E	**Infrastructure Development**			
1	Improvement of staff quarters		L/S	1.5
2	Improvement of forest inspection paths		L/S	1.00
F	**Eco-Development**			
1	Community activites		L/S	2.50
G	**Eco-tourism**			
2	Development of sinages and publicity material		L/S	1.00
	Grand Total			**20.27**

APPENDICES

Appendix 1

List of Demarcated Protected Forests

Sr.No.	Name of Forest	Area (ha)
1.	D-11 Majathal	1491.60
2.	D-12 Harsang Baghal	768
3.	D-13 Haskar(Harsang Bhajji)	402
	Total	**2661.60**

Appendix 2

List of Un-demarcated Protected Forests

S. No.	Name of Forest	Area in hac
1.	Sohra Brahmana	6.90
2.	Kyari	160
3.	Chilla	49
4.	Mandrech	37
5.	Darwakot	7
	Total	**259.90**

Appendix 3

Notification under wildlife (Protection) Act

(Authoritative English Text of this Department Notification No.FFE-B-F(6)23/1999-II, Dated 30th Nov., 2013 as required under Article 348 (3) of the Constitution of India)

GOVERNMENT OF HIMACHAL PRADESH
DEPARTMENT OF FORESTS

No. FFE-B-F (6)-23/1999-II DatedShimla-2, the 30th Nov., 2013

NOTIFICATION

Where as the Governor Himachal Pradesh, after careful consideration is of the view that the areas mentioned in the Schedule below are of adequate ecological, faunal, floral, geomorphological nature and Zoological significance, for the purpose of protecting, propagating and developing wildlife and its environment.

Now, therefore , the goverenor, Himachal Pradesh, in exercise of the powers vested in her under Section 18(1) of the Wildlife (Protection) Act, 1972 (53 of 1972) declare the intention to add an area of 6.85 Sq. Kms. As specified in the said schedule as an extension to the ' **Majathal Wildlife Sanctuary**' notified vide Notification **No. FFE-B-F(^)-11/2005-II- Majathal**, Dated 7th June, 2013 for the aforesaid purpose:

SHEDULE:

Sr. No.	Name of Wildlife Sanctury	Constituents i)District ii)Forest Division	Boundaries of Majathal Wildlife Sanctuary
1.	Majathal Wildlife Sanctuary	i)Solan ii) Shimla(WL) Division	**NORTH**: Starting from Jandoi excluding the Skor DPF, But including the Banaula DPF, Skore UPF along Southern boundary of Skor DPF and then turns towards western boundary of Skor DPF and then upstream the Skor nalla and across the ridge and down stream of a tributary flowing to Ban Khad including the Khatpul PF and Siarli PF upto near Dhawarlu village of the DPF Siarli . **EAST**: From end of Southern boundary of the existing via Surgdwari and Jandrer Dhar upto starting point of Northern boundary above. **SOUTH**: From Panseraghat on the DPF boundary of Khatpul south side excluding the habitation of Siarli spring and Matrech village but including Matrech UPF upto DPF Banaula western boundary than on same DPF Boundary upto existing boundary of WLS on the path ridge via Tansi. **WEST:** From the end of Northern boundary on the Siarli and Khatpul Westren boundary upto Phanseraghat.

Area: This area of 6.85 Sq. Kms. As specified in the above schedule constitute an extension to the existing area of 30.86 Sq. kms.of Majathal Wildlife Sanctuary and the total area of Sanctuary will be 37.71 Sq. Kms. Of Majathal Wildlife Sanctuary and the total area of Sanctuary will be 37.71 Sq. Kms.

By Order

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

Endst. No: As above Dated Shimla -2 the 30th Nov. 2013

Copy forwarded to :-

1. All the Administrative Secretaries to the Govt. of H.P. Shimla-2.
2. All the Divisional Commissioners, Shimla, Mandi & Dharamshala, H.P.
3. All the Heads of Departments of H.P.
4. The Principal Chief Conservator of Forests,H.P. Shimla-1.
5. The Principal Chief Conservator of Forests, (Wildlife) H.P. Shimla-1.
6. All CCFs/DFOs (Wildlife) in H.P.
7. All the Deputy Commissioners in H.P.
8. All the CCFs/CFs/DFOs in H.P.
9. ALR-cum-Under Secretary Law to the Government of Himachal Pradesh.
10. The Controller H.P. Printing & Stationary Department Shimla-5 for publication in the Raj- Patra (Extra-ordinary) Five Copies of the Raj-Patra be sent to this Department .
11. Guard File.

Joint Secretary (Forests)to the
Government of Himachal Pradesh

Final Notification of Eco-Sensitive Zone of Majathal Wildlife Sanctuary

MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

NOTIFICATION

New Delhi, the 7th June, 2017

(Majathal Wildlife Sanctuary, Himachal Pradesh)

S.O. 1813(E).—WHEREAS, a draft notification was published in the Gazette of India, Extraordinary, vide notification of the Government of the India in the Ministry of Environment, Forest and Climate Change wide number S.O. 3332(E) dated the 9th December, 2015, inviting objections and suggestions from all persons likely to be affected thereby within the period of sixty days from date on which copies of the Gazette containing the said notification were made available to the public;

AND WHEREAS, the copies of the Gazette were made available to the public on dated the 9th December, 2015;

AND WHEREAS, no comments/objections and suggestions were received from persons and stakeholders in response to the draft notification;

AND WHEREAS, the Majathal Wildlife Sanctuary located in Solan District, Himachal Pradesh and lying between Latitude $31^0$15' N to $31^0$18' N and Longitude $76^0$57' E to $77^0$02' E is spread over an area of 37.71 Square kilometres.

AND WHEREAS, the flora and fauna represent rich biological significance of this Sanctuary. The key species are Cheer (Catreus wallichii), Leopard (Panthera pardus), Sambar (Rusa unicolor), Ghoral (Naemorhedus sp.), barking deer (Muntiacus sp.), Black Bear (Ursus americanus);

AND WHEREAS, Deodar is the dominant plant species and other species includes Ban-oak (Quercus leucotrichophora), Kail (Pinus sp.), Chir (Pinus roxburghii), Kainth (Pyrus pashia), Cutch tree (Acacia catechu), Kachnar (Bauhinia variegate), Daroo (Berberis aristata), Paja (Prunus cerasoides), Shisham (Dalbergia sissoo), Sanan, Jamun (Syzygium cumini), Fegra (Ficus palmate), Amaltas (Cassia fistula), Mango (Mangifera indica), Bihul (Grewia optiva), etc.

AND WHEREAS, the Majathal Wildlife Sanctuary is bordering the southern bank of river Satluj partly falling in Solan and partly in Shimla District of Himachal Pradesh in Western Himalayan region within an altitude of 575m to 1985m above msl. The area has subtropical Monsoon climate. Himalayan Chir pine (*Pinus Roxburghii*), Ban Oak (*Quercus leucotrichophora*), forest and sub tropical Euphorbia scrub are the major vegetation types. Major habitat in the sanctuary comprises steep south eastern slopes covered with large patches of tall grass sparsely forested with Chir, Ban Oak and mixed broadleaved forests in ravines and low lying areas.

AND WHEREAS, it is necessary to conserve and protect the area the extent and boundaries of which is specified in paragraph 1 of this notification around the boundary of the protected area of Majathal Wildlife Sanctuary as Eco-sensitive Zone from ecological and environmental point of view and to prohibit industries or class of industries or and their operations and processes in the said Eco-sensitive Zone;

NOW THEREFORE, in exercise of the power conferred by sub-section(1) and clauses (v) and (xiv) of sub-section (2) and sub-section (3) of section 3 of the Environment (Protection) Act 1986 (29 of 1986) read with sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, the Central Government hereby notifies an area with an extent ranging from 0 metres to 2 kilometres around the boundary of Majathal Wildlife Sanctuary in the State of Himachal Pradesh as the Majathal Wildlife Sanctuary Eco-sensitive Zone (herein after referred to as the Eco-sensitive Zone) details of which are as under, namely:—

1. Extent and boundaries of Eco-sensitive Zone.—(1)The extent of Eco-sensitive Zone varies from zero to 2.252 kilometres from the boundary of the Majathal Wildlife Sanctuary. zero ESZ towards the North-eastern side of the wildlife sanctuary is due to the presence of precipitous slopes on the river Satluj and towards the North-western side is due to the construction of KOL dam on the river Satluj basin. The area of the Eco- sensitive Zone is 12.68 sq. km.

(2) The map of Majathal Wildlife Sanctuary demarcating the Eco-sensitive Zone along with the geo co-ordinates are appended as **Annexure I**.

(3) The list of villages falling within Eco-sensitive Zone along with geo coordinates of the prominent points is appended as **Annexure II.**

2. Zonal Master Plan for the Eco-sensitive Zone.—(1) The State Government shall, for the purpose of the Eco-sensitive Zone prepare, a Zonal Master Plan, within a period of two years from the date of publication of this notification in the Official Gazette, in consultation with local people and adhering to the stipulations given in this notification.

(2) The Zonal Master Plan so prepared shall commensurate with the stipulation specified in the Notification and include the environmental implications.

(3) The Zonal Master Plan shall be approved by the Competent Authority in the State Government.

(4) The Zonal Master Plan for the Eco-sensitive Zone shall be prepared by the State Government in such manner as is specified in this notification and also in consonance with the relevant Central and State laws and the guidelines issued by the Central Government, if any.

(5) The Zonal Master Plan shall be prepared in consultation with all concerned State Departments, namely:-

(i) Environment;

(ii) Forest;

(iii) Urban Development;

(iv) Tourism;

(v) Municipal;

(vi) Revenue;

(vii) Agriculture;

(viii) Irrigation;

(ix) Public Works Department; and

(x) Himachal Pradesh State Pollution Control Board.

(6) The Zonal Master Plan shall not impose any restriction on the approved existing land use, infrastructure and activities, unless so specified in this notification and the Zonal Master Plan shall factor in improvement of all infrastructure and activities to be more efficient and eco-friendly.

(7) The Zonal Master plan shall provide for restoration of denuded areas, conservation of existing water bodies, management of catchment areas, watershed management, groundwater management, soil and moisture conservation, needs of local community and such other aspects of the ecology and environment that need attention.

(8) The Zonal Master Plan shall demarcate all the existing worshipping places, villages and urban settlements, types and kinds of forests, tribal areas, agricultural areas, fertile lands, green areas such as parks and like places, horticultural areas, orchards, lakes, wetlands and other water bodies and also with supporting maps. The Plan shall be supported by Maps giving details of existing and proposed land use features.

(9) The Zonal Master Plan shall regulate development in Eco-sensitive Zone and shall follow prohibited, regulated and promoted activities specified in the Notification so as to ensure Eco-friendly development for livelihood security of local communities.

(10) The Zonal Master Plan shall be a reference document for the Monitoring Committee for carrying out its functions with respect to the provisions given in this notification.

3. Measures to be taken by State Government.—The State Government shall take the following measures for giving effect to the provisions of this notification, namely:—

(1) **Landuse.**—Forests, horticulture areas, agricultural areas, parks and open spaces earmarked for recreational purposes in the Eco-sensitive Zone shall not be used or converted into areas for commercial or industrial related development activities:

Provided that the conversion of agricultural lands within the Eco-sensitive Zone may be permitted on the recommendation of the Monitoring Committee, and with the prior approval of the State Government, to meet the residential needs of local residents, and for the activities listed in column (2) of the Table in paragraph 4, namely:–

(i) Eco-friendly cottages for temporary occupation of tourists, such as tents, wooden houses, for Eco-friendly tourism activities;

(ii) Widening and strengthening of existing roads and construction of new roads;

(iii) Small scale industries not causing pollution;

(iv) Rainwater harvesting; and

(v) Cottage industries including village industries, convenience stores and local amenities:

Provided further that no use of tribal land shall be permitted for commercial and industrial development activities without the prior approval of the State Government and without compliance of the provisions of article 244 of the Constitution or the law for the time being in force, including the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (2 of 2007):

Provided also that any error appearing in the land records within the Eco-sensitive Zone shall be corrected by the State Government, after obtaining the views of the Monitoring Committee, once in each case and the correction of said error shall be intimated to the Central Government in the Ministry of Environment, Forest and Climate Change:

Provided also that the above correction of error shall not include change of land use in any case except as provided under this sub-paragraph:

Provided also that there shall be no consequential reduction in green area, such as forest area and agricultural area and efforts shall be made to reforest the unused or unproductive agricultural areas.

(2) **Natural Springs.—** The catchment areas of all natural springs shall be identified and plans for their conservation and rejuvenation shall be incorporated in the Zonal Master Plan and the catchment management plan shall be drawn up by the State Government in such a manner as to prohibit or and restrict development activities within the catchment areas.

(3) **Eco-Tourism.—**(a) The activity relating to tourism within the Eco-sensitive Zone shall be as per Eco-Tourism Master Plan, which shall form part of the Zonal Master Plan.

(b) The Eco-Tourism Master Plan shall be prepared by the Department of Tourism, Government of Himachal Pradesh in consultation with Department of Revenue and Forests, Government of Himachal Pradesh.

(c) The Tourism Master Plan shall form a component of the Zonal Master Plan.

(d) The activities relating to tourism shall be regulated as under, namely.—

(i) No new construction of hotels and resorts shall be allowed within 1 km from the boundary of the Majathal Wildlife Sanctuary or upto the extent of the ESZ whichever is nearer. However, beyond the distance of 1 km from the boundary of the Wildlife Sanctuary till the extent of the Eco-Sensitive Zone, the establishment of new hotels and resorts shall be allowed only in pre-defined and designated areas for Eco-tourism facilities as per Tourism Master Plan:

(ii) all new tourism activities or expansion of existing tourism activities within the Eco-sensitive Zone shall be in accordance with the guidelines issued by the Central Government in the Ministry of Environment, Forest and Climate Change and the eco-tourism guidelines issued by National Tiger Conservation Authority (as amended from time to time) with emphasis on eco-tourism;

(iii) until the Zonal Master Plan is approved, development for tourism and expansion of existing tourism activities shall be permitted by the concerned regulatory authorities based on the actual site specific scrutiny and recommendation of the Monitoring Committee.

(4) **Natural Heritage.—**All sites of valuable natural heritage in the Eco-sensitive Zone such as the gene pool reserve areas, rock formations, waterfalls, springs, gorges, groves, caves, points, walks, rides, cliffs, etc. shall be identified and preserved and plan shall be drawn up for their protection and conservation, within six months from the date of publication of this notification and such plan shall form part of the Zonal Master Plan.

(5) **Man-made heritage sites.—**Buildings, structures, artefacts, areas and precincts of historical, architectural, aesthetic, and cultural significance shall be identified in the Eco-sensitive Zone and plans for their conservation shall be prepared within six months from the date of publication of this notification and incorporated in the Zonal Master Plan.

(6) **Noise pollution.—**The Environment Department of the State Government or Bihar State Pollution Control Board shall implement the regulations for control of noise pollution in the Eco-sensitive Zone in accordance with the provisions stipulated of The Noise Pollution (Regulation And Control) Rules, 2000 under the Environment (Protection) Act, 1986.

(7) **Air pollution.—**Regulations for the control of air pollution in the Eco-Sensitive Zone in accordance with the provisions of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981) and rules made thereunder shall be complied with.

(8) **Discharge of effluents.—**The discharge of treated effluent in Eco-sensitive Zone shall be in accordance with the provisions of the General Standards for Discharge of Environmental Pollutants covered under Environmental (Protection) Act, 1986 and rules made therein.–

(9) **Solid wastes.—**Disposal of solid wastes shall be as under:—

(i) the solid waste disposal in Eco-sensitive Zone shall be carried out as per the provisions of the Solid Waste Management Rules, 2016 published by the Government of India in the Ministry of Environment, Forest and Climate Change *vide* notification number S.O. 1357(E), dated the 8th April, 2016 as amended from time to time;

(ii) the inorganic material may be disposed in an environmental acceptable manner at site identified outside the Eco-sensitive Zone;

(iii) no burning or incineration of solid wastes and establishment of landfills shall be permitted in the Eco-sensitive Zone.

(10) **Bio-medical waste.—**The bio-medical waste disposal in the Eco-sensitive Zone shall be carried out as per the provisions of the Bio-Medical Waste Management Rules, 2016 published by the Government of India in the Ministry of Environment, Forest and Climate Change *vide* notification number G.S.R. 343(E), dated the 28th March, 2016, as amended from time to time.

(i) No common treatment facility or incineration shall be permitted within the Eco Sensitive Zone;

(ii) Individual hospitals or private health centres already existing within the Eco Sensitive Zone should provide adequate waste treatment system to avoid adverse impact on the Protected Area.

(11) **Plastic Waste Management**.—The Plastic Waste Management in the Eco-sensitive Zone shall be carried out as per the provisions of the Plastic Waste Management Rules, 2016 published by the Government of India in the Ministry of Environment, Forest and Climate Change vide notification number G.S.R. 340(E), dated the 18th March, 2016, as amended from time to time.

(12) **Construction and Demolition Waste Management**.—The Construction and Demolition Waste Management in the Eco-sensitive Zone shall be carried out as per the provisions of the Construction and Demolition Waste Management Rules, 2016 published by the Government of India in the Ministry of Environment, Forest and Climate Change vide notification number G.S.R. 317(E), dated the 29th March, 2016, as amended from time to time.

(13) **E-waste**.—The E- Waste Management in the Eco-sensitive Zone shall be carried out as per the provisions of the E-Waste Management Rules, 2016 published by the Government of India in the Ministry of Environment, Forest and Climate Change and as amended from time to time.

(14) **Vehicular traffic**.—The vehicular movement of traffic shall be regulated in a habitat friendly manner and specific provisions in this regard shall be incorporated in the Zonal Master Plan and till such time as the Zonal Master plan is prepared and approved by the Competent Authority in the State Government, the Monitoring Committee shall monitor compliance of vehicular movement under the relevant Acts and the rules and regulations made thereunder.

(15) **Industrial units.—**(a) No establishment of new wood based industries within the proposed Eco-sensitive zone shall be permitted except the existing wood based industries set up as per the law.

(b) No establishment of any new industry causing water, air, soil, noise pollution within the proposed Eco-sensitive Zone shall be permitted.

(15) The Central Government and the State Government shall specify other measures, if it considers necessary, in giving effect to the provisions of this notification.

4. List of activities prohibited or to be regulated or promoted within the Eco-sensitive Zone.—All activities in the Eco-sensitive Zone shall be governed by the provisions of the Environment (Protection) Act, 1986 (29 of 1986) and the rules made thereunder and shall be regulated in the manner specified in the Table below, namely:—

Sl. No.	Activity	Remarks
(1)	(2)	(3)
	Prohibited Activities	
1.	Commercial Mining, stone quarrying and crushing units.	(a) All new and existing (minor and major minerals), stone quarrying and crushing units are prohibited with immediate effect except for meeting the domestic needs of bona fide local residents including digging of earth for construction or repair of houses and for manufacture of country tiles or bricks for housing and for other activities. (b) The mining operations shall be carried out in accordance with the order of the Hon'ble Supreme Court dated 04.08.2006 in the matter of T.N. Godavarman Thirumulpad Vs. UOI in W.P.(C) No. 202 of 1995 and dated 21.04.2014 in the matter of Goa Foundation Vs. UOI in W.P.(C) No. 435 of 2012.
2.	Setting of new saw mills.	No new or expansion of existing saw mills shall be permitted within the Eco-sensitive Zone.
3.	Use or production or processing of any hazardous substances.	Prohibited (except as otherwise provided) as per applicable laws.
4.	Setting up of industries causing water or air or soil or noise pollution.	No new industries and expansion of existing polluting industries in the Eco-sensitive zone shall be permitted. Only non-polluting industries shall be allowed within ESZ as per classification of Industries in the Guidelines issued by Central Pollution Control Board in February 2016, unless so specified in this notification. In addition, non-polluting cottage industries shall be promoted.
5.	Establishment of new major hydro-electric projects	Prohibited (except as otherwise provided) as per applicable laws.
6.	Commercial use of firewood.	Prohibited (except as otherwise provided) as per applicable laws.
7.	Use of plastic bags	Prohibited (except as otherwise provided) as per applicable laws.
8.	Undertaking other activities related to tourism like over flying the ESZ area by hot air balloon, helicopter, drones, Microlites, etc.	Prohibited (except as otherwise provided) as per applicable laws.
9.	Fishing	Prohibited (except as otherwise provided) as per applicable laws.
10.	Discharge of untreated effluents in natural water bodies or land area.	Prohibited (except as otherwise provided) as per applicable laws
11.	Muck Disposal	Prohibited (except as otherwise provided) as per applicable laws.
12.	Establishment of solid waste disposal site and common incineration facility for solid and bio medical waste	No new solid waste disposal site and waste treatment/processing facility of solid waste is permitted within Eco sensitive zone. Further installation of common or individual incineration facility for treatment of any form of solid waste generated from industrial process and health establishment or hospitals etc. is Prohibited.
13.	Establishment of large-scale commercial livestock and poultry farms by firms, corporate, companies.	Prohibited (except as otherwise provided) as per applicable laws except for meeting local needs.
14.	Setting up of brick kilns.	Prohibited (except as otherwise provided) as per applicable laws
	Regulated Activities	
15.	Commercial establishment of hotels and resorts.	No new commercial hotels and resorts shall be permitted within one kilometre of the boundary of the Protected Area or upto the extent of Eco-sensitive zone, whichever is nearer, except for small temporary structures for Eco-tourism activities.

		Provided that, beyond one kilometre from the boundary of the protected Area or upto the extent of Eco-sensitive zone whichever is nearer, all new tourist activities or expansion of existing activities shall be in conformity with the Tourism Master Plan and guidelines as applicable.
16.	Construction activities	No new commercial construction of any kind shall be permitted within one Kilometre from the boundary of the Protected Area or upto extent of the Eco-sensitive Zone whichever is nearer: Provided that, local people shall be permitted to undertake construction in their land for their use including the activities listed in sub paragraph (1) of paragraph 6 as per building byelaws to meet the residential needs of the local residents such as: (i) widening and strengthening of existing roads and construction of new roads; (ii) construction and renovation of infrastructure and civic amenities; (iii) cottage industries including village industries; convenience stores & local amenities supporting eco-tourism including home stays; and (iv) Promoted activities listed in this Notification.
17.	Trenching ground	Establishing of new trenching ground is prohibited. Old trenching grounds are to be regulated under applicable laws.
18.	Discharge of treated waste water/effluents in natural water bodies or land area.	The discharge of treated waste water/effluents shall be avoided to enter into the water bodies. Efforts to be made for recycle and reuse of treated waste water. Otherwise the discharge of treated waste water/effluent shall be regulated as per applicable laws.
19.	Air and Vehicular Pollution	Regulated under applicable laws.
20.	Noise pollution	Regulated under applicable laws.
21.	Extraction of ground water	Regulated under applicable laws.
22.	Felling of Trees	(a) There shall be no felling of trees on the forest or Government or revenue or private lands without prior permission of the competent authority in the State Government. (b) The felling of trees shall be regulated in accordance with the provisions of the concerned Central or State Act and the rules made thereunder.
23.	Migratory graziers	Regulated under applicable laws and as per Zonal Master Plan.
24.	Existing establishments	Regulated under applicable laws.
25.	Erection of electrical, insulation of electric lines and communication towers and laying of cables and other infrastructures	Regulated under applicable laws. Underground cabling may be promoted.
26.	Widening and strengthening of existing roads and construction of new roads.	Shall be done with mitigation measures, as per applicable laws, rules and regulation and available guidelines.
27.	Fencing of existing premises of hotels and lodges.	Regulated under applicable laws. In order to allow free movement of wildlife, hotels or other commercial establishments within the ESZ shall not fence their properties with barbed wire and no fence shall be higher than 1 meter. Any existing fence not complying with this stipulation shall be modified as per the time lines mentioned in the Zonal Master Plan.
28.	Public Rights	Regulated under applicable laws
29.	Collection of small Fodder	Regulated under applicable laws
30.	All the way and existing roads will remain as its	Regulated under applicable laws

31.	Drastic change of Agriculture system	Regulated under applicable laws
32.	Commercial use of Natural water Resource including Ground water Harvesting	Regulated under applicable laws
33.	Movement of vehicular traffic at night.	Regulated for commercial purpose under applicable laws.
34.	Introduction of Exotic species.	Regulated under applicable laws.
35.	Commercial Sign boards and hoardings.	Regulated under applicable laws.
36.	Protection of Hill Slopes and river banks	Regulated under applicable laws
37.	Collection of Forest produce or Non-Timber Forest Produce (NTFP).	Regulated under applicable laws.
38.	Infrastructure including civic amenities	Shall be done with mitigation measures, as per applicable laws, rules and regulation and available guidelines.
39.	Open Well, Bore Well etc. for agriculture or other usage	Regulated and the activity should be strictly monitored by the appropriate authority.
40.	Solid Waste Management.	Regulated under applicable laws
41.	Eco-tourism	Regulated under applicable laws
Promoted Activities		
42.	Ongoing agriculture and horticulture practices by local communities along with dairies, dairy farming, aquaculture and fisheries.	Permitted under applicable laws for use of locals.
43.	Organic farming.	Shall be actively promoted.
44.	Adoption of green technology for all activities	Shall be actively promoted.
45.	Small scale non polluting industries.	Non polluting industries termed as White Category as per classification of industries issued by the Central Pollution Control Board in February 2016 and non-hazardous, small-scale and service industry, agriculture, floriculture, horticulture or agro-based industry producing products from indigenous materials from the Eco-sensitive Zone shall be permitted by the competent Authority.
46.	Rain water harvesting	Shall be actively promoted.
47.	Cottage industries including village artisans, etc.	Shall be actively promoted.
48.	Use of renewable energy and fuels	Bio gas, solar light etc. to be actively promoted
49.	Agro-Forestry	Shall be actively promoted.
50.	Use of eco-friendly transport	Shall be actively promoted.
51.	Skill Development	Shall be actively promoted.
52.	Restoration of Degraded Land/ Forests/ Habitat	Shall be actively promoted.
53.	Environmental Awareness	Shall be actively promoted.

5. Monitoring Committee.—The Central Government hereby constitutes a Monitoring Committee for effective monitoring of the Eco-sensitive Zone, which shall comprise of the following, namely:-

(i) Deputy Commissioner, Solan -Chairman;

(ii) An expert in the area of ecology and environment to be nominated by the Government of Himachal Pradesh for three years in each case -Member;

(iii) One representative of Non-governmental Organization (working in the field of environment including heritage conservation) to be nominated by the Government of India for a term of three years in each case -Member;

(iv) Member Secretary or Member, Himachal Pradesh State Biodiversity Board -Member;

(v) Executive Engineer, Himachal Pradesh Pollution Control Board -Member;

(vi) Senior Town Planner -Member;

(vii) Deputy Conservator of Forest (Wildlife), Shimla -Member;

(viii) Divisional Forest Officer (Territorial), Kunihar -Member-Secretary.

6. Terms of Reference.—(1) The tenure of the Monitoring Committee shall be for a period of three years from the date of issue of Notification.

(2) The Monitoring Committee shall monitor the compliance of the provisions of this Notification.

(3) The Monitoring Committee shall not allow the activities that are covered in the Schedule to the notification of the Government of India in the erstwhile Ministry of Environment and Forests number S.O. 1533(E), dated the 14th September, 2006, and are falling in the Eco-sensitive Zone, including the prohibited activities as specified in the Table under paragraph 4 thereof. Only white categories of industries shall be considered as specified in the guidelines issued by the CPCB for "classification of Industries, 2016".

(4) The activities that are not covered in the Schedule to the notification of the Government of India in the erstwhile Ministry of Environment and Forests number S.O. 1533(E), dated the 14th September, 2006 and are falling in the Eco-sensitive Zone, except for the prohibited activities as specified in the Table under paragraph 4 thereof, shall be scrutinised by the Monitoring Committee based on the actual site-specific conditions and referred to the concerned Regulatory Authorities.

(5) The Member Secretary of the Monitoring Committee or the concerned Commissioner shall be competent to file complaints under section 19 of the Environment (Protection) Act, 1986 (29 of 1986) against any person who contravenes the provisions of this notification.

(6) The Monitoring Committee may invite representatives or experts from concerned Departments, representatives from Industry Associations or concerned stakeholders to assist in its deliberations depending on the requirements on issue to issue basis.

(7) The Monitoring Committee shall submit the annual action taken report of its activities as on 31st March of every year by 30th June of that year to the Chief Wild Life Warden of the State under intimation to this Ministry as per proforma appended at **Annexure III**.

8. The Central Government in the Ministry of Environment, Forest and Climate Change may give such directions, as it deems fit, to the Monitoring Committee for effective discharge of its functions.

7. The Central Government and State Government may specify additional measures, if any, for giving effect to provisions of this notification.

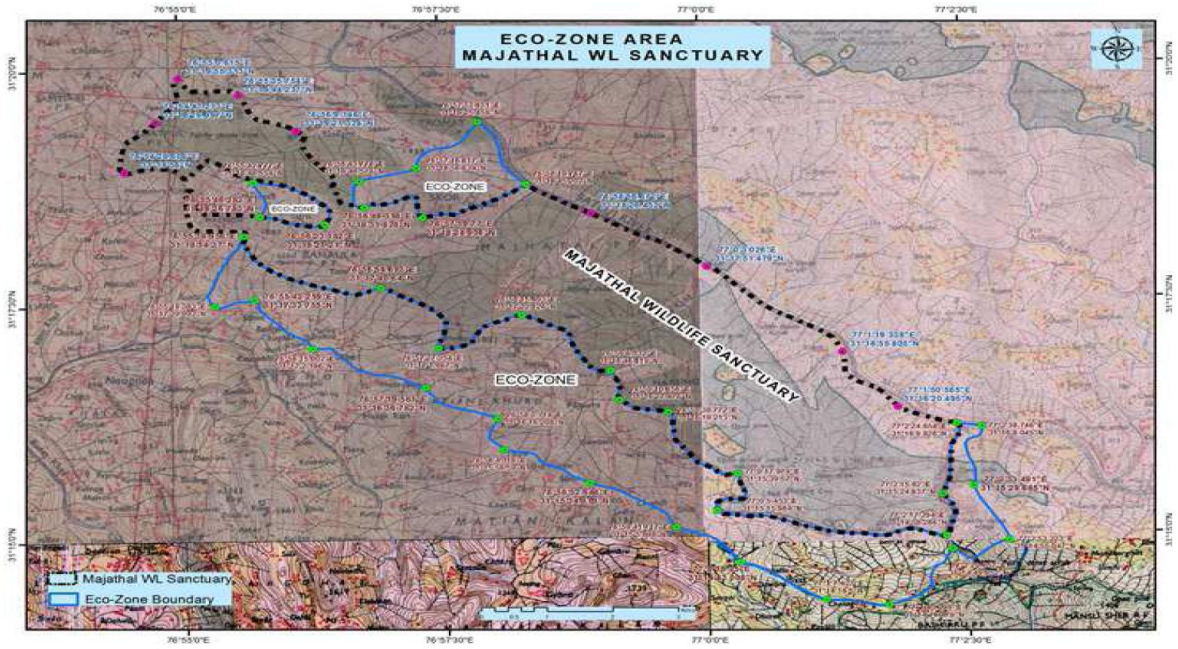
8. The provisions of this notification shall be subject to the orders, if any, passed, or to be passed, by the Hon'ble Supreme Court of India or the High Court or National Green Tribunal.

[F. No. 25/125/2015-ESZ-RE]

LALIT KAPUR, Scientist 'G'

Annexure-I

Map of Majathal Wildlife Sanctuary, Himachal Pradesh



Annexure-I(A)

Geo Co-ordinates of boundary of Majathal WLS

Sl. No.	Latitude	Longitude
1	31° 19' 21.313"N	76° 55' 29.615"E
2	31° 19' 21.324"N	76° 56' 9.141" E
3	31° 18' 31.828"N	76° 56' 46.318" E
4	30° 25' 26.135"N	77° 32' 58.847" E
5	31° 18' 45.202"N	76° 57' 19.367" E
6	31° 17' 51.479"N	77° 0' 3.026" E
7	31° 16' 9.828"N	77° 2' 24.654" E
8	31° 14' 58.286"N	77° 2' 17.294" E
9	31° 15' 39.57"N	77° 0' 17.979" E
10	31° 17' 22.126"N	76° 58' 15.493" E
11	31° 18' 14.37"N	76° 55' 36.956" E
12	31° 18' 26.783"N	76° 55' 46.282" E
13	31° 18' 48.554"N	76° 56' 23.182" E
14	31° 18' 56"N	76° 54' 28.606" E
15	31° 19' 26.997"N	76° 54' 47.273" E

Annexure II

List of Villages Falling In Eco-Sensitive Zone of Majathal Wildlife Sanctuary

Name of village	Latitude	Longitude
Mindraj	31°16'3.59"N	77° 2'33.54"E
Jammu	31°14'27.22"N	77° 2'5.07"E
Daund	31°14'53.87"N	77° 0'48.68"E
Saryali	31°14'42.22"N	77° 0'33.63"E
Changadyati	31°15'0.80"N	77° 0'19.87"E
Paarli Dhar	31°15'13.24"N	77° 0'10.10"E
Warli dhar	31°15'18.82"N	76°59'52.32"E
Banauni	31°15'23.72"N	76°59'30.80"E
Ruddal	31°15'36.16"N	76°59'49.39"E
Sewra	31°15'29.77"N	76°59'10.51"E
Pariab	31°15'34.33"N	76°59'22.56"E
Toon Badhar	31°16'23.54"N	76°58'21.51"E
Jandoi	31°16'56.44"N	76°58'48.06"E
Sakor	31°17'8.23"N	76°58'12.57"E
Chamrol Bala	31°16'44.76"N	76°57'2.64"E
Bughar	31°17'7.31"N	76°56'18.41"E
Jandrehr	31°17'13.57"N	76°56'36.17"E

Annexure III

Performa of Action Taken Report: - Eco-sensitive Zone Monitoring Committee.-

1. Number and date of Meetings;
2. Minutes of the meetings: Mention main noteworthy points. Attach Minutes of the meeting as separate Annexure;
3. Status of preparation of Zonal master Plan including Tourism master Plan;
4. Summary of cases dealt for rectification of error apparent on face of land record (Eco-sensitive Zone wise); Details may be attached as Annexure;
5. Summary of cases scrutinised for activities covered under the Environment Impact Assessment Notification, 2006; Details may be attached as separate Annexure;
6. Summary of cases scrutinised for activities not covered under the Environment Impact Assessment Notification, 2006; Details may be attached as separate Annexure;
7. Summary of complaints ledged under Section 19 of the Environment (Protection) Act, 1986;
8. Any other matter of importance.

Appendix 5

Land Use of the Majhathal Wildlife Sanctuary

Legal Status of the Area	**Area (Ha)**
Reserved Forests	0
Demarcated Forests	2603.6
Undemarcated Protected Forests	1009.8
Govt. Shamlat	0
Private land (Ghasnis)	157.24
Total	**3770.64**

Appendix 6

Area statement of Majhathal Wildlife Sanctuary

Name of the Block	**Name of the Beat**	**Area in (Ha)**
Kashlog	Chandi	768
	Harsang Bhajji	655
	Kangri	1505.40
	Labrath	685
	Total	**3613.40**

Appendix 7

List of Plants found in Majhathal Wildlife Sanctuary

Sr. No.	Botanical Name	Common Name
1	*Abies pindrow*	Rai
2	*Acacia catechu*	Khair
3	*Bauhinia variegata*	Kachnar
4	*Bombex ceiba*	Semal
5	*Cedrus deodara*	Deodar
6	*Erythrina suberosa*	Koral
7	*Ficus spp*	Pheguda
8	*Hordeum spp*	
9	*Hypericum oblongifolium*	
10	*Lagerstroemia spp*	
11	*Lantana camera*	Pardesi buti
12	*Lonicera quinquelocularis*	Bakhru, Kantias
13	*Myrsine africana*	Kafal
14	*Ougenia oojeinenis*	Sandan, Sanan
15	*Picea smithiana*	Tosh
16	*Pinus rouxburghii*	Chil
17	*Pinus wallichiana*	Kail
18	*Populus ciliata*	Pahari peepal
19	*Prunus spp*	Pajja
20	*Pyrus pashia*	Kainth
21	*Quercus leuchotrichophora*	Ban
22	*Rhododendron arboreum*	Burash,Baras
23	*Rosa moschata*	Jangli gulab
24	*Salix spp*	
25	*Sapindus spp*	
26	*Terminala spp*	
27	*Toona ciliata*	Tooni
28	*Trifolium repense*	
29	*Viburnum cotinifolium*	Rajal
30	*Viola canescense*	Vanksha
31	*Zizyphus mauritiana*	Ber

Appendix 8

List of Birds of Majhathal Wildlife Sanctuary

Sr No	Scientific Name	Common Name	Family	Status
1	*Elanus caeruleus*	Black-shouldered Kite(Black-winged Kite)	Accipitridae	R
2	*Milvus migrans*	Black Kite (Pariah Kite)	Accipitridae	R
3	*Gypaetus barbatus*	Lammergeier	Accipitridae	R
4	*Neophron percnopterus*	Egyptian Vulture	Accipitridae	R
5	*Gyps bengalensis*	White-rumped Vulture (Indian White-backed Vulture)	Accipitridae	R
6	*Gyps himalayensis*	Himalayan Griffon Vulture	Accipitridae	R
7	*Sarcogyps calvus*	Red-headed Vulture (King Vulture)	Accipitridae	nT R
8	*Circaetus gallicus*	Short - toed Snake Eagle	Accipitridae	R
9	*Spilornis cheela*	Crested Serpent Eagle	Accipitridae	R
10	*Spizaetus cirrhatus*	Changeable Hawk - Eagle	Accipitridae	R
11	*Aegithalos concinnus*	Black-throated Tit (Red-headed Tit)	Aegithalidae	r
12	*Tachymarptis melba*	Alpine Swift	Apodidae	R
13	*Vanellus indicus*	Red-wattled Lapwing	Charadriidae	R
14	*Prinia criniger*	Striated prinia (Brown Hill Warbler)	Cisticolidae	r
15	*Columba livia*	Rock Pigeon (Blue Rock Pigeon)	Columbidae	R
16	*Streptopelia orientalis*	Oriental Turtle Dove (Rufous Turtle)	Columbidae	RW
17	*Streptopelia chinensis*	Spotted Dove	Columbidae	R
18	*Streptopelia decaocto*	Eurasian Collared Dove (Indian Ring)	Columbidae	R
19	*Treron phoenicoptera*	Yellow-footed Green Pigeon (Yellowlegged Green or Bengal)	Columbidae	R
20	*Garrulus lanceolatus*	Black-headed Jay	Corvidae	r
21	*Urocissa erythrorhyncha*	Red-billed Blue Magpie	Corvidae	R
22	*Dendrocitta vagabunda*	Rufous Treepie (Indian Treepie)	Corvidae	R
23	*Dendrocitta formosae*	Grey Treepie (Himalayan Treepie)	Corvidae	r
24	*Corvus splendens*	House Crow	Corvidae	R
25	*Corvus macrorhynchos*	Large-billed Crow (Jungle Crow)	Corvidae	W
26	*Pericrocotus flammeus*	Scarlet Minivet	Corvidae	R
27	*Rhipidura hypoxantha*	Yellow-bellied Fantail (Flycatcher)	Corvidae	r
28	*Rhipidura albicollis*	White-throated Fantail (Flycatcher)	Corvidae	R
29	*Dicrurus macrocercus*	Black Drongo	Corvidae	R
30	*Terpsiphone paradisi*	Asian Paradise- Flycatcher	Corvidae	R
31	*Hierococcyx varius*	Common Hawk Cuckoo	Cuculidae	R
32	*Cuculus micropterus*	Indian Cuckoo	Cuculidae	R
33	*Cuculus canorus*	Cuckoo,Common Cuckoo	Cuculidae	r
34	*Surniculus lugubris*	Drongo-Cuckoo	Cuculidae	r
35	*Falco tinnunculus*	Common Kestrel	Falconidae	RW
36	*Serinus pusillus*	Fire-fronted Serin (Gold-fronted serin)	Fingillidae	r
37	*Cardueulis spinoides*	Yellow-breasted Greenfinch (Himalayan Greenfinch)	Fingillidae	r
38	*Emberiza cia*	Rock Bunting	Fingillidae	r
39	*Emberiza stewarti*	White-capped Bunting (Chestnut-breasted Bunting)	Fingillidae	rW
40	*Halcyon smyrnensis*	White-throated Kingfisher	Halcyonidae	R

		(Whitebreasted Kingfisher)		
41	*Hirundo smithii*	Wire-tailed Swallow	Hirundinidae	R
42	*Hirundo daurica*	Red-rumped Swallow	Hirundinidae	RW
43	*Lanius schach*	Long-tailed Shrike (Rufous-backed)	Laniidae	R
44	*Megalaima virens*	Great Barbet	Megalaimidae	r
45	*Megalaima asiatica*	Blue-throated Barbet	Megalaimidae	R
46	*Merops orientalis*	Green Bee-eater	Meropidae	R
47	*Myophonus caeruleus*	Blue Whistling Thrush	Muscicapidae	R
48	*Zoothera dauma*	Scaly Thrush (Smallbilled Mountain Thrush)	Muscicapidae	R
49	*Turdus ruficollis*	Dark-throated Thrush	Muscicapidae	W
50	*Ficedula strophiata*	Rufous-gorgeted Flycatcher	Muscicapidae	r
51	*Eumyias thalassina*	Verditer Flycatcher	Muscicapidae	R
52	*Culicicapa ceylonensis*	Grey-headed Canary Flycatcher	Muscicapidae	r
53	*Tarsiger cyanurus*	Orange-flanked Bush Robin	Muscicapidae	r
54	*Copsychus saularis*	Oriental Magpie- Robin	Muscicapidae	R
55	*Saxicoloides fulicata*	Indian Robin	Muscicapidae	R
56	*Phoenicurus caeruleocephalus*	Blue-capped Redstart (Blue-headed Redstart)	Muscicapidae	r
57	*Chaimarrornis leucocephalus*	White-capped water Redstart	Muscicapidae	r
58	*Rhyacornis fuliginosus*	Plumbeous Water Redstart	Muscicapidae	r
59	*Enicurus maculatus*	Spotted Forktail	Muscicapidae	r
60	*Saxicola torquata*	Common Stonechat (Collared Bushchat)	Muscicapidae	R
61	*Saxicola caprata*	Pied Bushchat	Muscicapidae	R
62	*Saxicola ferrea*	Grey Bushchat (Dark-grey Bushchat)	Muscicapidae	R
63	*Dicaeum ignipectus*	Fire-breasted Flowerpecker	Nectariniidae	r
64	*Nectarinia asiatica*	Purple Sunbird	Nectariniidae	R
65	*Parus major*	Great Tit (Grey Tit)	Paridae	R
66	*Parus xanthogenys*	Black-Iored Tit (Yellow-cheeked Tit)	Paridae	r
67	*Passer montanus*	Eurasian Tree Sparrow	Passeridae	R
68	*Motacilla cinerea*	Grey Wagtail	Passeridae	rW
69	*Prunella strophiata*	Rufous-breasted Accentor	Passeridae	r
70	*Alectoris chukar*	Chukor	Phasianidae	R
71	*Francolinus pondicerianus*	Grey Francolin (Grey Partridge)	Phasianidae	R
72	*Francolinus francolinus*	Black Francolin (Black Francolin)	Phasianidae	R
73	*Perdicula asiatica*	Jungle Bush Quail	Phasianidae	R
74	*Pucrasia macrolopha*	Koklas Pheasant	Phasianidae	r
75	*Gallus gallus*	Red Junglefowl	Phasianidae	R
76	*Lophura leucomelana*	Kaleej Pheasant	Phasianidae	r
77	*Catreus wallichii*	Chir Pheasant	Phasianidae	r
78	*Pavo cristatus*	Indian Peafowl	Phasianidae	R
79	*Dendrocopos canicapillus*	Grey-capped Pygmy Woodpacker	Picidae	r
80	*Dendrocopos auriceps*	Brown-fronted Woodpecker	Picidae	r
81	*Picus chlorophus*	Lesser Yellownape	Picidae	R
82	*Picus squamatus*	Scaly-bellied Woodpecker	Picidae	r
83	*Picus canus*	Grey-headed Woodpecker (Blacknaped Green Woodpecker)	Picidae	R
84	*Psittacula himalayana*	Slaty-headed Parakeet	Psittacidae	r
85	*Psittacula cyanocephala*	Plum-headed Parakeet (Blossom-headed Parakeet)	Psittacidae	R

86	***Pycnonotus leucogenys***	**Himalayan Bulbul**	**Pycnonotidae**	**R**
87	***Pycnonotus cafer***	**Red-vented Bulbul**	**Pycnonotidae**	**R**
88	***Hypsipetes leucocephalus***	**Black Bulbul**	**Pycnonotidae**	**R**
89	***Sitta himalayensis***	**White-tailed Nuthatch**	**Sittidae**	**r**
90	***Tichodroma muraria***	**Wall Creeper**	**Sittinae**	**rW**
91	***Bubo bubo***	**Eurasian Eagle Owl (Great Horned Owl)**	**Strigidae**	**R**
92	***Glaucidium brodiei***	**Collared Owlet (Collared Pygmy)**	**Strigidae**	**r**
93	***Glaucidium cuculoides***	**Barred Owlet,Asian Barred Owlet**	**Strigidae**	**r**
94	***Sturnus pagodarum***	**Brahminy Starling (Black-headed Myna)**	**Sturnidae**	**R**
95	***Acridotheres tristis***	**Common Myna**	**Sturnidae**	**R**
96	***Orthotomus sutorius***	**Common Tailorbird**	**Sylviidae**	**R**
97	***Seicercus xanthoschistos***	**Grey-hooded Warbler (Grey-headed Flycatcher Warbler)**	**Sylviidae**	**r**
98	***Garrulax lineatus***	**Streaked Laughingthrush**	**Sylviidae**	**r**
99	***Garrulax variegatus***	**Variegated Laughingthrush**	**Sylviidae**	**r**
100	***Erythrogenys erythrogenys***	**Rusty-cheeked Scimitar Babbler**	**Sylviidae**	**r**
101	***Pteruthius flaviscapis***	**White-browed Shrike Babbler (Red-winged Shrike Babbler)**	**Sylviidae**	**r**
102	***Heterophasia capistrata***	**Rufous Sibia (Black-capped Sibia)**	**Sylviidae**	**r**
103	***Upupa epops***	**Hoopoe,Common Hoopoe**	**Upupidae**	**RW**
104	***Zosterops palpebrosus***	**Oriental White-eye**	**Zosteropidae**	**R**

Status Categories

R- Widespread resident **r-very local resident** **W- widespread winter visitor**
w- sparse winter visitor **P- widespread migrant** **p- sparse migrant**
E- Endangered **V- vagarant** **? – status uncertain**
p- sparse migrant **rl- introduced resident** **ex- extinct**
nT- near threatened

Source: Mishra (2002) Birdlife International

Appendix 9

List of Reptiles found in Majhathal Wildlife Sanctuary

Sr.No	Local Name	Common Name	Zoological Name
1	Krait	Common Indian krait	*Bungarus caerules*
2	Kharpa	Indian cobra	*Naja naja*
3	Girgit	Common Indian monitor	*Cnlotas vessicoloan*

Appendix 10

List of Animals found in Majhathal Wildlife Sanctuary

Sr. No	Local Name	Common Name	Zoological Name
1	Baghera	Leopard	*Panthera pardus*
2	Jungli Billi	Common jungle cat	*Felis chaus*
3	Lomri	Indian fox	*Vulpes bengalensis*
4	Shail	Indian procupine	*Hystrix indica*
5	Goral	Himalayan goat	*Nemorhaedus goral*
6	Kakkar	Barking deer	*Muntiacus muntjak*
7	Sambar	Sambar	*Cervus unicolor*
8	Jungli Suwar	Wild boar	*Sus scrofa*
9	Khargosh	Indian hare	*Lepus nigricollis*
10	Galheri	Himalayan striped squirrel	*Callosciurus macclellandi*
11	Bander	Monkey	*Macacque mulatta*
12	Langoor	Common languor	*Presbytis entellus*
13	Gidar	Jackal	*Canis aureus*
14	Chuha	Himalayan marmot	*Farmota bobak*
15	Newla	Common mongroose	*Herpestes edwardsi*
16.	Chamgadar	Barbastelle	*Barbastella barbastellus*

Appendix 11

List of Water Sources

List of Natural Water Sources

Sr. No.	Name of Water Source
1	Bushar Khad
2	Pazina Khad
3	Ghania Nalla
4	Sainj Khad
5	Satluj River

List of Artificial Water Resources

Sr. No	Name of Beat	Location	Type of water Resource
1	Chandi	Harsang temple	i)Water Tank ii) Water Pond
2		Kyardu	WHS
3		D12Harsang C1	Water Pond
4	Harsang Bhajji	Bushad Nalah	WHS
5		Daruwakot	Water Pond
6		Johar	Water Pond
7		Chila	Water Pond
8		Madrech	Water Pond
9		D-13 Harsang C-5	Water Pond
10		D-13 Harsang C4	Water Pond
11	Kangri	Chalyawani	Water Tank
12		Chanjyud Dhar	Water Tank
13		Jadrend	Water Tank

Appendix 12

List of Building with Location

Sr. No.	Name of Building	Location
1	Range Office	Chandi
2	R.O. Residence	Chandi
3	B.O. Residence	Kashlog
4	F.G. Hut Chandi	Kashlog
5	F.G. hut Kangri	Kangri
6	F.G. Hut of Harsang Bhajji beat	Chilla and Harsang
7	Inspection hut	Kangri
8	FRH	Chandi
9	Chowkidar hut	Chandi

Appendix 13

List of Plantations in the Majhthal Sanctuary from 2012-13 to 2016-17

Year	Location	Area(Ha)	Species	No.	Survival (%)
2012-13	UPF Kangri	2	Daru	500	60%
			Jharinu	80	
			Kachnar	1000	
			Ashwagandha	85	
			Lasunia	475	
			Kainth	60	
	UPF Sewra Chandi	2	Daru	205	70%
			Kainth	430	
			Kachnar	1000	
			Lasunia	565	
	UPF Kayari	2	Amla	864	70%
			Buel	258	
			Behra	236	
			Amaltash	842	
	UPF Kayari	5	Amla	2150	75%
			Buel	620	
			Behra	300	
			Daru	590	
			Tor	340	
	UPF Bombely	2	Amla	200	70%
			Buel	100	
			Kainth	900	
			Daru	200	
			Jharinu	100	
	UPF Chilla	2	Amla	623	70%
			Behra	464	
			Kainth	190	
			Daru	100	
			Buel	15	
			Amaltash	108	
2013-14	Sevra UPF	3	Daru	3100	
			Amla	200	
	UPF Saryali	4.5	Daru	4560	
			Jharinu	170	
			Behra	40	

			Kainth	230	
	UPF Madrech	6	daru	2660	
			Amla	2000	
			Behra	60	
			Kainth	230	
			Buel	1600	
			Amaltash	50	
	D-13 C1	10	Daru	5195	
			Amla	1050	
			Behra	1840	
			Kainth	1745	
			Ashwagandha	240	
			Paza	890	
			Herd	40	
	Sohra kaneta	5	Amla	3300	
			Behra	600	
			Ashwagandha	1600	
	UPF Saryali	5	Kainth	6000	
	UPF Saryali	5	Daru	1450	
			Kainth	2055	
			Paza	2295	
	UPF Chilla	2	Daru	900	
			Behra	400	
			Kainth	50	
			Ashwagandha	50	
			Paza	800	
2014-15	D-12 C5 near Neodi village	3	Akhrot	300	
			Daru	1000	
			Kainth	2000	
	Sohra UPF	3	Akhrot	300	
			Robinia	1720	
			Daru	1000	
			Aru	280	
	Kiyari UPF	4	Daru	2571	
			Khazoor	180	
			Jamun	500	
			Kainth	670	
			Amrood	60	
			Mulbery	219	
			Harshingar	200	
	UPF Sohra	1	Robinia	3500	
			Aru	500	

	UPF Pazina	1	Daru	1440	
			Jharinoo	60	
			Kainth	1240	
			Aru	700	
			Paza	500	
			Elobera	30	
			Trimble	30	
	UPF Chilla	1	Behra	1200	
	UPF Kiary	1	Mulbery	1181	
2015-16	UPF Madrech	2	Khair	100	
			Amla	150	
			Daru	140	
			Kainth	1240	
			Jamun	360	
			Tour	200	
	D-12 C7	5	Khair	460	
			Daru	1540	
	D-11 Majathal(Tredi)	5	Daru	1450	
			Kainth	550	
	D-12 Harsang Baghal Bagardhar	5	Daru	2264	
			Kainth	1336	
			Paza	1600	
			Kachnar	300	
2016-17	D-12 C6	5	Amla	810	
			Daru	2100	
			Kainth	2590	
	UPF Chilla	3	Behra	220	
			Amla	100	
			Daru	855	
			Kainth	500	
			Jamun	465	
			Tour	260	
	D-12 C3	2	Daru	1245	
			Kainth	195	
			Khajoor	760	

Appendix 14

Human and Cattle Population in Majhathal Wildlife Sanctuary

Sr. No.	Beat	Village	Cattle Population	Human Population
1	Kangri	Sohra Brahmna	57	39
2		Jandred	9	7
3	Chandi	Daur	10	5
4		Neodi	10	6
5	Harsang Bhajji	Darwakot	26	14
6		Johar	31	13
7		Madrech	48	25
8		Chilla	106	30
9		Kiari	30	11
				150

Appendix 15

List of Gun License Holders in and around Majhathal Wildlife Sanctuary

Sr.No	Name & address of Gun Holder	Gun No. License No.
1	Sh. Dhani Ram s/o Sh. Chinta Ram Darwakot, PO Chanawag Tehsil Suni distt. Shimla HP.	44 and 28-Suni/166 B.S.
2	Sh. Dhani Ram s/o Sh. Nagnu of Chila, PO Juni Tehsil Suni distt. Shimla HP.	135/SBML-135
3	Sh. Jeet Ram s/o Sh. Mahi Dev of Ghatru , PO Chanawag Tehsil Suni distt. Shimla HP.	20/80 SBML -45
4	Sh. Bichiter Singh s/o Sh. Jawala Singhof Annu, PO Juni Tehsil Suni distt. Shimla HP.	35/55 SBML-1474
5	Sh. Devi Singh s/o Sh. Gopi singh of Annu, -do-	10268/SBML-120
6	Sh. Jai Singhs/o Sh. Jawala Singh –do-.	998/77 SBML-SHIMLA
7	Sh. Mathu Ram S/o sh. Hira Ram –do-	34/SBML-132
8	Sh. Nokh Ram Of Macharana PO Sainj Distt. Shimla	12 Bore Single Barrel
9	Smt. Sarwati Devi w/o Late Sh. Devi Ram –do-	HPSBEE Him 13216-N.P. No. 457/Shimla.
10	Sh. Nand lal of vill. Sharli –do-	14/Suni/88
11	Sh. Ram Lal S/o Changu Ram of Nehra, PO Sainj Tehsil Suni Distt. Shimla	38/65/SBML
12	Sh. Jai Ram S/o Sh. Ganga Ram –do-	48/89/SBML
13	Sh. Roop lal S/o Durga of -do-	214/Shimla/SBML-3895/662
14	Sh. Jet Ram S/o Paras Ram of Dargi –do-	420/76/SBML-240
15	Sh. Narsingh DuttS/o l. Sh. Parma of Dhar (Harsang) PO	5/Suni 75-ML-AIA

	Chanawag –do-	
16	Sh. Dila Ram S/o Durga of Kandola, PO Juni –do-	493/58/-SBML-14
17	Sh. Narotam Ram S/o Fulmoo of Rudal –do-	22/59/-SBML-1312
18	Sh. Uma Dutt S/o Sh. Adliya of Rudal	60/SBML-059 (Mahasu)
19	Sh. Krishnu S/o Kanehya	559/Mahasu
20	Sh. Banti Devi S/o Kanehya	278/72 SBML/676
21	Sh. Kirpa Ram S/o Sh. Devi Ram	916/Arki-1231
22	Sh. Nanku Ram S/o Sh. Kanoo of Rudal	57/17/Arki-SBML
23	Sh. Shingaroo s/o Nanku of Rudal	169/79-Arki-SBML
24	Sh. Paras Ram S/o Najru of Rudal PO Chandi Tehsil Arki distt. Solan HP	5/66/SBML/678
25	Sh. Charan Dass S/o Sh. Atma –do-	1206/54
26	Sh. Nagu Ram S/o Sh. Janku –do-	309/65/Arki
27	Sh. Sadu Ram S/o Sh. Jaishi Ram –do-	No. 136/SBML/170
28	Sh. Surat Ram S/o sh. Padma –do-	No. 7761/SBML/2391
29	Sh. Krishan Chand S/o sh. Ram Dittu of Sohra –do-	No. 61/SDN-HIM-2579
30	Sh. Sita Ram s/o sh. Dhani Ram of Sohra (Kangri) P.O. Chandi Tehsil Arki Distt. Solan H.P.	No.15/SBML/122
31	Sh. Kapura Ram S/O Sh. Badria –do-	No. 345,G.No. SBML-1279/55
32	Sh. Atru Ram s/o Sh. Kanu Ram of Sohra Brahmna –do-	L.No.18/81/SBML-38/SDM
33	Sh. Dhani Ram S/o Chuha of Paryab-do-	No. 258/67/G.No. 719/SDM-Arki
34	Tikhu Ram S/o Ganu of Paryab –do-	No. 89 Gun No. 1254 SBML
35	Sh. Mathra Dass s/o Sh. Dhani Ram of Pazina –do-	L.No. 674/SBML/Arki
36	Sh. Kirpa Ram Sh. Dhani Ram of Pazina –do-	L.No. 67 G.No. 849/-do-
37	Sh. Keshav Ram S/o Khayali Sohra –do-	L.No.7 G.No. 4351
38	Sh. Lachhaman S/o Atma of Sohra –do-	L.No. 16
		G.No. 345/SDM/Arki
39	Sh. Ghnshyam S/o Sh. Devi Ram of Pazina –do-	L.No. 38/88 G.No.
40	Sh. Salig Ram S/o Sh. Degi of Pazina –do-	L.No.26/68 SBML G.No. 1212

Appendix 16

List of Beneficiaries of LPG connections in Majathal Wildlife Sanctuary during 2007-08

Sr. No.	Name of Beneficiery	Permanent address.	Category	Cost of the complete LPG connection.	% of share paid by Division	% of share paid by the person concerned.
					(80%/50%)	(20%/50%)
1	Shanta	W/o Sh. Bhagat Ram R/o Vill-Rudhal PO Sewra Chandi	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
2	Ram Dittu	S/o Late Sh. Krishnoo R/o Vill-Rudhal PO Sewra Chandi	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
3	Sant Ram	S/o Late Sh. Nagnu R/o Vill-Chilla PO Juni Teh Sunni	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
4	Narrotam	S/o Late Sh. Fullu R/o Vill-Rudhal PO Sewra Chandi	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
5	Banti Devi	W/o Kanhiya Ram R/o Vill-Rudhal PO Sewra Chandi	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
6	Kanta Devi	W/o Sh. Sita Ram R/o Vill-Rudhal PO Sewra Chandi	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
7	Kashi Ram	S/o Sh. Ganga Ram R/o Vill-Saryali PO Sewra Chandi	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
8	Jamna Devi	W/o Sh. Jagar Nath R/o Vill Saryali PO Sewra Chandi	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
9	Bhagat Ram	S/o Sh. Jagar Nath R/o Vill Saryali PO Sewra Chandi	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
10	Khem Chand	S/o Sh. Tulsi Ram R/o Vill Saryali PO Sewra Chandi	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
11	Shanta	W/o Sh. Govid Ram R/o Vill Saryali PO Sewra Chandi	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
12	Kasru Ram	S/o Late Sh. Jiwanu R/o Vill Saryali PO Sewra Chandi	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
13	Lekh Ram	S/o Sh. Mohan R/o Vill Khali PO Sewra Chandi	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
14	Babu Ram	S/o Sh. Jagar Nath R/o Vill Saryali PO Sewra Chandi	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
15	Ishwar Dass	S/o Sh. Jagar Nath R/o Vill Saryali PO Sewra Chandi	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
16	Kubja	W/o Sh. Dhani Ram R/o Vill Sewra PO Sewra Chandi	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
17	Tulsi Devi	W/o Sh. Devi Roop R/o Vill Sewra PO Sewra Chandi	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470

18	Hira Manni	W/o Sh. Sunder Lal R/o Vill Sewra PO Sewra Chandi	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
19	Godawri	W/o Sh. Shankar R/o Vill Bambely PO Sewra Chandi	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
20	Ganga Ram	S/o Sh. Sita Ram R/o Vill Bambely PO Sewra Chandi	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
21	Vijay Kiumar	S/o Sh. Mast Ram R/O Vill. Dhar PO Mangu	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
22	Ghanshyam	S/o Sh. Devi Ram R/o Vill Pazina PO Sewra Chandi	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
23	Badru	S/o Sh. Devi Ram R/o Vill Dhar Parli PO Mangu	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
24	Panchu Devi	W/o late Sh. Medu R/o Vill Pazeenz PO Sewra Chandi	SC BPL/IRDP	Rs 2349	Rs 1879	Rs 470
25	Devi Chand	S/o Jamna Dass R/o Vill Dhar-Awarli PO Mangu	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
26	Mehar Chand	S/o Jamna Dass R/o Vill Dhar-Awarli PO Mangu	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
27	Nirmala Devi	W/o Nageen Chand R/o Vill. Sewra PO Chandi	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
28	Roop Lal	S/o Sh. Dhani Ram R/o Vill. Dhar Parli PO Mangu	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
29	Shangaroo Ram	S/o Sh. Nanku R/o Vill Rudhal PO Chandi	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
30	Sonwanroo	W/o Late. Sh Pritam R/o Vill Pazeena PO Chandi	General *BPL/IRDP	Rs 2349	Rs 1879	Rs 470
31	Hari Ram	S/o Sh. Dhundhar R/o Vill Khali PO Chandi	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
32	Het Ram	S/o Sh. Bardu Ram R/Oo Vill Khali PO Chandi	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
33	Basant Lal	S/o Sh. Sheru R/O Vill Khali PO Chandi	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
34	Hem Raj	S/o Sh. Hari Ram R/O Vill Khali PO Chandi	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
35	Ganga Ram	S/o Sh. Chandu Ram R/O Vill Khali PO Chandi	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
36	Jagdish	S/o Sh. Arjun R/O Vill Khali PO Chandi	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
37	Bhagat Ram	S/o Sh. Bohra Ram R/O Vill Sohra PO Chandi	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
38	Dassu Ram	S/o Sh. Kanhiya Ram R/O Vill Sohra PO Chandi	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470

39	Sant Ram	S/o Sh. Bihari R/o Vill. Pazeena PO Chandi	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
40	Anant Ram	S/o Keasru R/o Vill Pazeena PO Chandi	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
41	Indru Devi	W/o Hiru R/o Vill.Pazeena PO Chandi	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
42	Brij Lal	S/O Sh.Pirru R/o Vill Paryab PO Chandi	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
43	Shanti Devi	W/O Sh.Devi Ram R/O Vill Sohra PO Chandi	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
44	Jamna Devi	W/O Sh. Devi Chand R/O Vill. Sohra PO Chandi	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
45	Kalawati	W/O Sh. Balak Ram R/O Vill. Sohra PO Chandi	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
46	Basanti	W/O Sh. Hirru R/O Vill. Sohra PO Chandi	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
47	Mast Ram	S/O Sh. Goukal R/O Vill Sohra Brahmna PO Chandi	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
48	Hira Singh	S/O Sh. Tulsi Ram R/O Vill Sohra PO Chandi	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
49	Kirpa Ram	S/O Sh. Bansi Ram R/O Vill Khali PO Chandi	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
50	Jamna Dass	S/O Sh. Dhani Ram R/O Vill Kangri PO Chandi	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
51	Sita Ram	S/O Sh. Dhani Ram R/O Vill Kangri PO Chandi	General BPL/IRDP	Rs 2349	Rs 1879	Rs 470
52	Krishan Chand	S/O Sh Nathu Ram R/O Vill Khali PO Chandi	SC BPL/IRDP	Rs 2349	Rs 1879	Rs 470
53	Deep Ram	S/O Sh Dhani Ram R/O Vill Khali PO Chandi	SC BPL/IRDP	Rs 2349	Rs 1879	Rs 470
54	Babu Ram	S/o Nathu Ram R/o Vill Khali PO Chandi	SC	Rs 2350	Rs 1880	Rs 470
55	Gur Dittu	S/o Dharma R/o Vill Khali PO Chandi	SC	Rs 2350	Rs 1880	Rs 470
56	Hari Ram	S/o Sudama R/o Vill Khali PO Chandi	SC	Rs 2350	Rs 1880	Rs 470
57	Neem Chand	S/o Sudama R/o Vill Khali PO Chandi	SC	Rs 2350	Rs 1880	Rs 470
58	Daya Ram	S/o Gur Mukh R/o Vill Khali PO Chandi	SC	Rs 2350	Rs 1880	Rs 470
59	Malti Devi	D/o Jyoti R/o Vill Khali PO Chandi	SC	Rs 2350	Rs 1880	Rs 470

60	Jagger Nath	S/o Sudama R/o Vill Khali PO Chandi	SC	Rs 2350	Rs 1880	Rs 470
61	Najroo	S/o Dharma R/o Vill Khali PO Chandi	SC	Rs 2350	Rs 1880	Rs 470
62	Jai Ram	S/o Lachhman R/o Vill Pazina PO Chandi	SC	Rs 2350	Rs 1880	Rs 470
63	Tikhu	S/o Attru R/o Vill Sohra Brahmna PO Chandi	SC	Rs 2350	Rs 1880	Rs 470
64	Nandu	S/o Attru R/o Vill Paryab PO Chandi	SC	Rs 2350	Rs 1880	Rs 470
65	Lekh Ram	S/o Garjja R/o Vill Paryab PO Chandi	SC	Rs 2350	Rs 1880	Rs 470
66	Sant Ram	S/o Nathu R/o Vill Sohra Brahmna PO Chandi	SC	Rs 2350	Rs 1880	Rs 470
67	Dhani Ram	S/o Kasru R/o Vill Khali PO Chandi	SC	Rs 2350	Rs 1880	Rs 470
68	Biharu	W/o Puria Ram R/o Vill Sohra Brahmna PO Chandi	SC	Rs 2350	Rs 1880	Rs 470
69	Battu Devi	D/o Rattnu R/o Vill Pazina PO Chandi	SC	Rs 2350	Rs 1880	Rs 470
70	Khajana	S/o Hiru R/o Vill Pazina PO Chandi	SC	Rs 2350	Rs 1880	Rs 470
71	Krishni	W/o Devi Ram R/o Vill Pazina PO Chandi	SC	Rs 2350	Rs 1880	Rs 470
72	Uma Dutt	S/o Adam R/o Vill Pazina PO Chandi	SC	Rs 2350	Rs 1880	Rs 470
73	Kanku Devi	W/o Hiru R/o Vill Pazina PO Chandi	SC	Rs 2350	Rs 1880	Rs 470
74	Shankru Devi	W/o Rattnu R/o Vill Pazina PO Chandi	SC	Rs 2350	Rs 1880	Rs 470
75	Charan Dass	S/o Atma Ram R/o Vill Rudhal PO Chandi	SC	Rs 2350	Rs 1880	Rs 470
76	Babu Ram	S/o Sudama ram R/o Vill Saryali PO Chandi	SC	Rs 2350	Rs 1880	Rs 470
77	Chingoo Ram	S/o Jyoti Ram R/o Vill Khali PO Chandi	SC	Rs 2350	Rs 1880	Rs 470
78	Devi Ram	S/o Gangai Ram R/o Vill Rudhal PO Chandi	SC	Rs 2350	Rs 1880	Rs 470
79	Sanharu	W/o Janku Ram R/o Vill Rudhal PO Chandi	SC	Rs 2350	Rs 1880	Rs 470
80	Anant Ram	S/o Dhyanu Ram R/o Vill Rudhal PO Chandi	SC	Rs 2350	Rs 1880	Rs 470

81	Ramku	W/o Lachhman R/o Vill Pazeena PO Chandi	SC	Rs 2350	Rs 1880	Rs 470
82	Devi Ram	S/o Maulu Ram R/o Vill Saryali PO Chandi	SC	Rs 2350	Rs 1880	Rs 470
83	Dhanpat	S/o Khajana Ram R/o Vill Banli (Deonal) PO Chandi	SC	Rs 2350	Rs 1880	Rs 470
84	Khajana	S/o Kesru Ram R/o Vill Banli (Deonal) PO Chandi	SC	Rs 2350	Rs 1880	Rs 470
85	Paras Ram	S/o Kaila Ram R/o Vill Pazeena PO Chandi	SC	Rs 2350	Rs 1880	Rs 470
86	FakiruDin	S/o Sh Sahab Din R/o Vill Kyari PO Juni	ST	Rs 2350	Rs 1880	Rs 470
87	Yusuf	S/o Sh Sahab Din R/o Vill Chilla PO Juni	ST	Rs 2350	Rs 1880	Rs 470
88	Lauku Ram	S/o Sh Nagnu R/o Vill Chilla PO Juni	SC	Rs 2350	Rs 1880	Rs 470
89	Adam	S/o Sh Nagnu R/o Vill Chilla PO Juni	SC	Rs 2350	Rs 1880	Rs 470
90	Dhani Ram	S/o Sh Nagnu R/o Vill Chilla PO Juni	SC	Rs 2350	Rs 1880	Rs 470
91	Shanti Devi	S/o Sh Paras Ram R/o Vill Chilla PO Juni	SC	Rs 2350	Rs 1880	Rs 470
92	Kanhya Ram	S/o Sh Gurmukh R/o Vill Sohra PO Chandi	APL SC	Rs 2350	Rs 1175	Rs 1175
93	Devi Chand	S/O Sh. Gurmukh R/O Vill. Sohra PO Chandi	APL SC	Rs 2350	Rs 1175	Rs 1175
94	Paras Ram	S/o Dharma R/O Vill. Khali PO Chandi	APL SC	Rs 2350	Rs 1175	Rs 1175
95	Het Ram	S/o Ataru R/O Vill. Sohra PO Chandi	APL SC	Rs 2350	Rs 1175	Rs 1175
96	Paras Ram	S/o Sudhama R/O Vill. Banli PO Chandi	APL SC	Rs 2350	Rs 1175	Rs 1175
97	Parma Nand	s/o Ghamirea Ram R/O Vill. Saryali PO Chandi	APL SC	Rs 2350	Rs 1175	Rs 1175
98	Mansu Ram	S/o Khajana Ram R/O Vill. Deo Nal PO Chandi	APL SC	Rs 2350	Rs 1175	Rs 1175
99	Birju	S/o Achhru R/O Vill. Sariyali PO Chandi	APL SC	Rs 2350	Rs 1175	Rs 1175
100	Mast Ram	S/o Jiwanoo R/O Vill. Saryali PO Chandi	APL SC	Rs 2350	Rs 1175	Rs 1175
101	Ghamirea	S/o Kaila Ram R/O Vill. Rughal PO Chandi	BPL SC	Rs 2350	Rs 1880	Rs 470

List of Beneficiaries of LPG connections in Majathal Wildlife Sanctuary during 2009-10

Sr. No.	Name of Beneficiery	Permanent address.
1	Smt.Dropti Devi	W/o Sh. Balak Ram R/O. Bombeli, P.O.Sewra Chandi,Teh .Arki ,Distt. Solan.H.P.
2	Smt.Vidhya Devi	W/o Sh. Parshotam R/O. Bombeli, P.O.Sewra Chandi,Teh .Arki ,Distt. Solan.H.P.
3	Smt.Jamna Devi	W/o Sh. Khajana Ram R/O. Bombeli, P.O.Sewra Chandi,Teh .Arki ,Distt. Solan.H.P.
4	Smt.Vidhya Devi	W/o Sh. Bhungar R/O. Bombeli, P.O.Sewra Chandi,Teh .Arki ,Distt. Solan.H.P.
5	Smt.Kaushalya Devi	W/O Dhani Ram R.O. Vill.Pazina, P.O. Sewra Chandi, Teh. Arki,Distt. Solan,H.P.
6	Smt.Khimi Devi	W/o Sh. Dila Ram R/O. Madrech, P.O.Juni,Teh .Sunni ,Distt. Shimla,H.P.
7	Smt.Lachhmi Devi	W/O. Shonkia Ram, R/O Madrech , P.O.Juni,Teh.Sunni,Distt.Shimla,H.P.
8	Smt.Krishni Devi	W/O. Sh. Sadhu Ram R.O. Vill. Khalli, P.O.Sewra Chandi, Teh. Arki,Distt. Solan,H.P.
9	Smt.Mahantu Devi	W/O Nika R.O. Vill Kangri,P.O. Sewra Chandi, Teh. Arki Distt. Solan,H.P.
10	Smt.Kalawatti Devi	W/O Lachhman Dass R.O. Vill. Pazina, P.O. Sewra chandi, Teh. Arki, Distt. Solan,H.P.
11	Sh. Nardu	W/o Sh. Narotam, R/O Vill. Sohra,P.O.Chandi, Teh.Arki, Distt. Solan,H.P.
12	Sh. Dhani Ram	S/O Sh. Chinta Ram , Vill. Darwakot P.O. Chanaug, Teh. Suni, Distt. Shimla
13	Labh Chand	S/O. Mani Ram, Vill. Johar,P.O. Chanaug,Teh. Sunni, Distt Shimla,H.P.
14	Sh. Devi Chand	S/o Sh. Gokal Ram R/O Vill.Saryali, P.O.Sewra Chandi,Teh.Arki,distt. Solan,H.P.
15	Sh.Krishan Dutt.	S/o Sh. Rattan Lal, Vill .bombely, P.O. Sewra Chandi,Teh. Arki , Distt. Solan, H.P.
16	Sh. Gopal Dutt	S/o.Sh. Shish Ram Vill.Bombely , P.O. Sewra Chandi, Teh. Arki, Distt. Solan,H.P.
17	Sh. Joginder Singh	S/ O Kanahya Ram, vill. Pazina . P.O. Chandi ,Teh Arki, Distt. Solan,H.P.
18	Sh. Shayam Lal	S/O Padma Ram, Vill.Sewra,P.O. Sewra Chandi Teh. Arki, Distt. Solan, H.P.
19	Sh. Paras Ram	S/O Sh. Najroo Ram, Vill. Rudal, P.O. Sewra Chandi, Teh. Arki , Distt. Solan,H.P.
20	Sh. Brij Lal	S/o Sh. Fulmu Ram, Vill. Chandi, P.O.Sewra Chandi, Teh. Arki Distt. Solan, H.P.
21	Sh. Dharam Chand	S/ O Sh. Naratu Ram, Vill Pazina, P.O. Sewra chandi, Teh. Arki, Distt. Solan,H.P.
22	Sh. Dhani Ram	S/OLala Ram, Vill. Bombely, P.O. Sewra Chandi, Teh. Arki Distt.

		Solan,H.P.
23	Sh. Sudama Ram	S/O. Sh . Kapuru Ram Vill. Pakothi, P.O. Chandi, Teh. Arki Distt. Solan, H.P.
24	Sh. Mushu Ram	S/O Sh. Mathku Ram, Vill. Madrech, P.O. Sunni, Distt. Shimla, H.P.
25	Sh. Sainu Ram	S/O. Sh, Daulat Ram, Vill. Madrech, P.O. Chandi, Teh.Arki , Distt. Solan,H.P.
26	Sh. Deep Ram	S/o Chinta Ram Vill.Darwakot,P.O.Chanawag,Teh. Sunni, Distt. Shimla,H.P.
27	Sh. Roop Chand	S/o. Sh. Chinta Ram, Vill. Darwakot, P. O. Chanawag,Teh. Sunni,,Distt. Solan, H.P.
28	Sh. Kirpa Ram	S/o Sh. Tulsi Ram, Vill Bombely, p.O. Chandi,Teh. Arki Distt. Solan,H.P.
29	Sh. Nehru Lal	S/o Surat Ram, Vill. Rudal, P.O.Chandi, Teh. Arki Distt. Solan H.P.
30	Sh. Uma Dutt	S/O. Sh,. Adalya Ram, Vill. Rudal, P.O. Sewra Chandi, Teh. Arki Distt. Solan,H.P.
31	Sh. Shalig Ram	S/o. Sh. Krishanu, Vill. Rudal,P.O. Sewra Chandi, Teh. Arki , Distt. Solan,H.P.
32	Sh. Tulsi Ram	S/o. Sh. Padma Ram Vill. Saryali,,P.O. Chandi, Teh. Arki , Distt. Solan,H.P.
33	Sh. Bhagirath	S.O. Sh. Nagi Ram Vill. Saryali, P.O. Chandi, Teh. Arki, Distt. Solan,H.P.
34	Sh. Mansa Ram	S.O. Sh. Niku Ram, Vill. Pazina, P.O. Chandi, Teh. Arki, Distt. Solan,H.P.
35	Sh. Narayan Dass	S/o Padma Ram Vill. Khali ,P.O.Chandi, Teh. Arki, Distt. Solan,H.P.
36	Sh. Bali Ram	S/O. Ram Dass, Vill paryab, P.O. Chandi,Teh. Arki, Distt. Solan,H.P.
37	Sh. Dhani Ram	S/O mohan Lal, Vill. Khali, P.O. Sewra Chandi, Teh. Arki, Distt.Solan,H.P.
38	Sh. Masat Ram	S/O Sh. Chet Ram, Vill. Khali,P.O. Sewra Chandi, Teh.Arki, Distt. Solan,H.P.
39	Sh.Jeet Ram	S/o. Sh. Padama, Vill.Khali, P.O.Sewra Chandi, Teh. Arki, Distt. Solan,H.P.
40	Sh. Roop Chand	S/O Lachhman Vill. Pazina, P.O. Sewra Chandi, Teh. Arki, Distt. Solan, H.P.
41	Parma Ram	S/O. Girja Ram Vill. Paryab,P.O. Sewra Chandi, Teh. Arki, Distt. Solan,H.P.
42	Sh. Bali Ram	S/O Sh. Dhani Ram, Vill.Sohra,P.O.Sewra Chandi, Teh. Arki, Distt. Solan,H.P.
43	Sh. Deep Chand	S/o. Kanshi Ram, Vill Sohra, P.O. Sewra Chandi, Terh. Arki, Distt. Solan,H.P.
44	Sh. Devi Parkash	S/O Sh. Sudama Ram vill. Sohra, P.O. Sewra Chandi, Teh. Arki. Distt. Solan,H.P.
45	Sh. Kanahiya Ram	S/O Sh. Jiwanu Ram,Vill. Paryab,P.O. Sewra Chandi, Teh. Arki, Distt,. Solan,H.P.
46	Sh. Hira lal	S/o. Sh. Najru ,Vill. Khali, P.O. Sewra Chandi, Teh. Arki, Distt. Solan,H.P.
47	Sh. Raghu Ram	S/o Sh. Najroo Ram, Vill Khali, P.O.Sewra Chandi, Teh. Arki, Distt.

		Solan,H.P.
48	Sh. Hira Lal	S/O. Sh. Ram Dittu Vill. Khali, P.O. Sewra Chandi, Teh, Arki, Distt. Solan,H.P.
49	Sh. Kanshi Ram	S/O. Sh. Tikhu Ram, Vill Paryab, P.O. Sewra Chandi, Teh. Arki, Distt. Solan,H.P.
50	Sh. Bali Ram	S/O Sh. Uma Dutt Vill. Khali, P.O. Sewra Chandi, Teh. Arki, Distt. Solan,H.P.
51	Sh. Geeta Ram	S/O Sh. Mansa Ram, Vill. Khali, P.O. Sewra Chandi,Teh. Arki , Distt. Solan,H.P.
52	Sh. Mathra Dass	S/O Sh. Vill. Pazina, P.O. Sewra Chandi,Teh. Arki, Distt. Solan,H.P.
53	Sh. Sudama Ram	S/O. Sh. Vill. Paryab, P.O. Sewra Chandi, Teh. Arki, Distt. Solan,H.P.
54	Sh. Jeet Ram	S/o Sh. Kesru Ram, Vill. Pazina, P.O. Sewra Chandi, Teh. Arki, Distt. Solan,H.P.
55	Sh. Tulsi Ram	S/o. Sh. Khajana Ram, Vill.Sohra, P.O.Chandi, Teh. Arki , Distt. Solan,H.P.
56	Sh. Sant Ram	S/o Sh. Panchhi Ram, Vill.Sohra, P.O. Chandi, Teh. Arki, Distt. Solan,H.P.
57	Sh. Narayan Singh	S/O Sh. Sudama Ram Vill. Sohra, P.O. Sewra Chandi, Teh. Arki, Distt. Solan,H.P.
58	Sh. Ram Lal	S/O/ Sh. Jaya Lal, Vill. Vill. Sohra, P.O. Chandi, Teh. Arki, Distt. Solan,H.P.
59	Sh. Hira Singh	S/O. Sh. Dhani Ram Vill. Sohra, P.O. Chandi, Teh. Arki, Distt. Solan,H.P.
60	Sh. Lala Singh	Sh. Nanu RamVill. Bombely. P.O. Sewra Chandi, P.O. Sewra Teh. Arki, Distt. Solan,H.P.
61	Smt. Subidha	W/O. Tholu Ram, Vill.Johar,P.O.Chanawag, Teh. Sunni, Distt. Shimla, H.P.
62	Sh. Lelu Ram	S.O. Mathru, Vill. Paryab,P.O. Chandi,Teh. Arki, Distt. Solan,H.P.
63	Smt. kaushalya	W/O. Dhani Ram, Vill. Pajina, P.O. Sewra Chandi, Teh. Arki, Distt. Solan,H.P.
64	Sh. Sunder Ram	S/O. Sh. Birju Vill. Paryab, P.O. Sewra Chandi, Teh. Arki Distt,. Solan,H.P.
65	Smt. Nagru Devi	W/o Sh. Narjan, Vill. Khali, P.O. Sewra Chandi, Teh. Arki, Distt. Solan,H.P.
66	Sh. Bansi Ram	S/O Sh. Kirshu, Vill. Rudal, P.O. Sewra Chandi, Tehj,. Arki, Distt. Solan H.P.
67	Sh. Karam Chand	S/O Sh. Kirshu, Vill. Rudal, P.O. Sewra Chandi, Tehj,. Arki, Distt. Solan H.P.
68	Sh.Shankar	S/oChimna,Vill.Rudal,P.O.Chandi,Teh.Arki,Distt.Solan,H.P.
69	Sh.Malagar	S/o Ram Dittu Vill. Dhar parli, P. O.Sewra Chandi,Teh,Arki, Dsistt. Solan , H.P.
70	Sh.Devi Chand	S/o Sh. Gokal ,Vill. Saryali, P.O. Chandi, Teh,. Arki, Distt. Solan,H.P..
71	Smt. Bimla W/O. Bajiru	Vill. Khali, P.O. Sewra Chandi, Teh. Arki, Distt. Solan,H.P.l

72	Sh. Kanhaya	S/O. Laxman, Vill Pazina, P.O. Sewra Chandi, Teh. Arki, Distt. Solan,H.P.
73	Sh. Chandu Ram	S/o Sh. Laxman Vill. Pazina, P.O. Sewra Chandi, Teh. Arki, Distt. Solan,H.P.
74	Smt. Indra Devi	W/o. Sh. Paras Ram, Vill Khali, P.O. Sewra Chandi, Teh. Arki, Distt. Solan, H.P..
75	Sh. Jai Ram	S.O. Sh. Bali Ram, Vill. Pazina, P.O. Sewra Chandi, Teh, Arki, Distt. Solan,H.P.
76	Sh. Gopal	S/O. Sh. Ram Dass, Vill. Rudal, P.O.Sewra Chandi, Teh. Arki, Distt. Solan , H.P..
77	Sh. Hem Chand	S/o. Chandu Ram, Vill. Rudal, P.O. Sewra Chandi, Teh. Arki, Distt. Solan H.P.
78	Smt. Chando Devi	W/O. Sh.Parkash, Vill.Rudal, P.O. Chandi, Teh,. Arki, Distt. Solan, H.P.
79	Sh. Shish Ram	S/O. Ram Dass Vill Rudal, P.O. Sewra Chandi, P.O. Sewra Chandi, Teh. Arki, Distt. Solan,H.P.
80	Sh. Ram Lal	S/O Sh. Sita Ram ,Vill. Neodi, P.O. Sewra Chandi, Teh,. Arki, Distt. Solan, H.P.
81	Sh. Babu Ram	S/o. Sh. Sainu Ram Vill, Madrech, P.O. Sewra Chandi, Teh. Arki, Disrtt. Solan, H.P
82	Sh. Malagar	S/O. Sh. Ranu Ram, Vill. Pazina, P.O. Sewra Chandi, Teh. Arki, Distt. Solan, H.P.
83	Sh. Sis Ram	S/O. Sh. Paras Ram, Vill Pazina , P.O. Sewra Chandi, Teh. Arki, Distt. Solan H.P.
84	Sh. Sant Ram	S/O. Sgh. Panchhi Ram, Vill. Khali, P.O. Sewra Chandi, Teh. Arki, Distt. Solan, H.P.
85	Sh. Salig Ram	S/O. Sh. Negi Ram, Vill Pazina, P.O. Sewra Chandi, Teh. Arki, Distt. Solan,H.P.
86	Sh. Nagru Ram	W/o. Sh. Narjan, Vill. Khali, P.O. Sewra Chandi, Teh. Arki, Distt. Solan.HP.

List of Solar Cooker Beneficiaries during 2010-11

Sr. No.	Name of beneficiary	Permanent address	Category
1.	Smt. Prem Dai	W/O. Late Sh. Het Ram R/O. Vill. Khali, P.O. Sewra Chandi, Teh. Arki, Distt. Solan,H.P.	BPL
2	Smt. Kalawati	W/O. Sh. Balak Ram, R/O. Sohra Kenata,P.O.Sewra Chandi, Teh. Arki, Distt. SolanH.P.	BPL
3	Smt. Shanti Devi	W/O. Late Sh. Devi Ram R/O. Sohra Kenata, P.O. Sewra Chandi, Teh. Arki, Distt. Solan,H.P.	BPL
4	Smt. Biharu	W/O. Sh. Puriya Ram, Vill. Sohra Baharamana, P.O. Sewra Chandi, P.O. Sewra Chandi, Teh. Arki, Distt. Solan,H.P.	BPL

5	Smt. Gambhari Devi	W/O. Late Sh. Dhani Ram, Vill. Sohra Kenata, P.O. Sewra Chandi, Teh. Arki, Distt. Solann H.P.	BPL
6	Smt. Kaushalya	W/O. Late Sh. Dghani Ram Vill. Panjeena, P.O. Sewra Chandi, Teh. Arki, Distt. Solan,H.P.	BPL
7	Smt. Janki Devi	W/O. Late sh. Geeta Ram, Vil;l Khali, P.O. Sewra Chandi, Teh. Arki, Distt. Solan,H.P.	BPL
8	Smt. Ram Dai	W/o. Late Sh. Mast Ram, Vill. Sohra Baharamana, P.O. Sewra Chandi, Teh, Arki, Distt. Solan H.P.	BPL
9	Sh. Parma	S/O. Sh. Garja Ram Vill. Paryab, P.O. Sewra Chandi, Teh. Arki, Distt. Solan H.P.	BPL
10	Sh. Sunder Ram	S/O. Sh. Briju Ram Vill. Sohra Kaneta, P.O. Sewra Chandi, Teh. Arki, Distt. Solan H.P.	BPL
11	Sh. Anant Ram	S/O. Sh. Keshru Ram Vill. Panjeena , P.O. Sewra Chandi, Teh. Arki, Distt. Solan H.P.	BPL
12	Sh. Roop Chand	S/o Sh. Laxman, Vill.Panjeena, P.O. Sewra Chandi, Teh. Arki, Dist. Solan H.P.	BPL
13	Sh. Sant Ram	S/O. Sh. Bihari Ram Vill.Panjeena, P.O. Sewra Chandi, Teh. Arki, Distt. Solan,H.P.	BPL
14	Sh. Kirpa Ram	S/O. Banshi Ram R.O. Vill Khali, P.O. Sewra Chandi, Teh. Arki, Distt. Solan,H.P.	BPL
15	Sh. Neem Chand	S/O. Sh. Sudama Ram Vill. Khali, P.O. Sewra Chandi, Teh. Arki Distt. Solan,H.P.	BPL
16	Sh. Nand Lal	S/o Sh. Atru Ram Vill. Paryab, P.O. Sewra Chandi, Teh. Arki, Distt. Solan,H.P.	BPL
17	Sh. Najru Ram	S/O. Sh. Dharma, R/O. Vill. Khali, P.O. Sewra Chandi, Teh. Arki, Distt. Solan,H.P.	BPL
18	Sh. Chingu Ram	S.O. Jayati Ram, Vill. Khali, P.O. Sewra Chandi, Teh. Arki, Distt. Solan,H.P.	BPL
19	Sh. Garditu	S/O. Dharma Vill. Khali, P.O. Sewra Chandi, Teh. Arki, Distt. Solan,H.P.	BPL
20	Sh. Jagdish	S/O. Sh. Arjun Vill.Khali, P.O. Sewra Chandi, Teh. Arki, Distt. Solan,H.P.	BPL
21	Sh. Sant Ram	S.O. Sh. Nathu Ram, Vill.Khali(Sohra Kenata) P.O. Sewra Chandi, Teh. Arki, Distt. Solan,H.P.	BPL
22	Sh. Brij Lal	S/O. Sh. Piru Ram, Vill. Paryab, P.O. Sewra Chandi, Teh, Arki ,	BPL

		Distt. Solan,H.P.	
23	Smt. Devki	W/O Sh. Lekh Ram Vill. Khali, P.O. Sewra Chandi, Teh. Arki, Distt. Solan,H.P.	BPL
24	Sh. Hari Ram	S/O. Dunder R.O. Khali, P.O. Sewra Chandi, Teh. Arki, Distt. Solan, H.P.	BPL
25	Sh. Naresh	S.O. Sh. Kanshi Ram vill. Khali. P.O. Sewra Chandi, Teh. Arki, Distt. Solan, H.P.	BPL
26	Smt. Krishni Devi	W/O Sh. Sadhu Ram Vill.Khalli, P.O. Sewra Chandi, Teh. Arki, Distt. Solan,H.P.	BPL
27	Sh. Basant Lal	S.O. Sh. Sheru R/O. Vill Khali, P.O. Sewra Chandi , Teh. Arki, Distt. Solan,H.P.	BPL
28	Sh. Jagarnathu	S/O. Sudama Vill. Khali P.O. Chandi, Teh. Arki, Distt. SolanH.P.	BPL
29	Smt. Malti Devi	D/O Sh. Jayoti Ram Vill. Khali, P.O. Sewra Chandi, Teh, Arki, Distt. Solan,H.P.	BPL
30	Sh. Dasu Ram	S/O. Sh. Kanhaya Ram Vill. Sohra Keneta, P.O. Sewra Chandi, Teh. Arki, Distt. SolanH.P.	BPL
31	Smt. Jamna Devi	W.O. Sh. Devi Chand , R/O. Sohra Keneta, P.O. Sewra Chandi, Teh. Arki, Distt. Solan, H.P.	BPL
32	Sh. Hari Ram	S/o. Sh. Sudama RamR.O. Khali, P.O. Sewra Chandi, Teh. Arki, Distt. SolanH.P.	BPL
33	Sh. Krishan Chand	S/O Nathu Ram R.O. Vill. Khali, P.O. Sewra Chandi, Teh. Arki, Distt. Solan,H.P.	BPL
34	Sh. Keshav Ram	S/o. Sh. Khayali Ram R.O. Sohra Keneta, P.O. Sewra Chandi Teh. Arki, Distt. Solan,H.P.	BPL
35	Sh. Lekh Ram	S.O. Late Garja Ram R.O. Vill. Paryab, P.O. Sewra Chandi, Teh. Arki , Distt. Solan,H.P.	BPL
36	Sh. Shyam Lal	S/O. Sh. Padma Ram Vill. Rudal, P.O. Sewra Chandi. Teh. Arki, Distt. Solan,H.P.	BPL
37	Smt. Godawari	W/o. Sh. Shankar Dutt, Vill. Bombeli, P.O. Sewra Chandi, Teh. Arki, Distt. Solan,H.P.	BPL
38	Ram Dittu .	S/o. Sh. Krishan Vill Rudal P.O. Sewra Chandi, Teh. Arki, Distt. Solan,H.P.	BPL
39	Khem Chand	S/O. Sh. Tulsi Ram, Vill. Saryali, OP.O. Sewra Chandi, Teh. Arki, Distt. Solan,H.P	BPL

40	Charan Dass	S/O. Atma Ram Vill Ruydal ,P.O. Sewra Chandi, Teh. Arki, Distt. Solan,H.P.	BPL
41	Shanta Devi	S/O. Sh. Bhagat Ram Vill. Rudal, P.O. Sewra Chandi, Teh. Arki, Distt. Solan, H.P.	BPL
42	Krishan Dutt.	S.O. Hari Ram vill. Saryali, P.O. Sewra Chandi, Teh. Arki, Distt. Solan,H.P.	BPL
43	Kesaru Ram	S/O Sainu Vill. Saryali, P.O. Sewra Chandi, Teh. Arki, Distt. Solan,H.P.	BPL
44	Bhagat Ram	S/O Jagarnathu vill Saryali, P.O. Sewra Chandi, Teh. Arki, Dist. Solan,H.P.	BPL
45	Jamna Devi	W/O. Jagarnathu Vill. Saryali P.O. Sewra Chandi, Teh. Arki, Distt. Solan,H.P.	BPL
46	Ganga Ram	S/o. Sh. Sita Ram Vill. Bombely, P.O. Sewra Chandi, Teh. Arki, Distt. Solan,H.P.	BPL
47	Ishwar Dutt	S/o. Sh. Jagarnathu Vill. Saryali P.O. Sewra Chandi, Teh. Arki, Distt. Solan,H.P.	BPL
48	Babu Ram	S/O. Jagarnathu Vill. Saryali P.O. Sewra Chandi, Teh. Arki, Distt. Solan,H.P.	BPL
49	Devi Ram	S/O. Ganga Ram Vill. Rudal, P.O. Sewra Chandi, Teh. Arki, Distt. Solan,H.P.	BPL
50.	Kanta Devi,	W/O. Sita Ram vill. Rudal, P.o. Sewra Chandi, Teh. Arki, Distt. Solan,H.P.	BPL
51	Narotam	S/O. Phoolu vill. Rudal, P.o. Sewra Chandi, Teh. Arki, Distt. Solan,H.P.	BPL
52.	Anant Ram	S/O. Dhani, Ram Vill. Rudal, P.O. Sewra Chandi, Teh. Arki, Distt, Solan H.P.	BPL
53	Suhara Devi	W/O.Janku Vill. Rudal, P.O. Sewra Chandi, Teh. Arki, Distt, Solan H.P.	BPL
54.	Paras Ram	S/O.Kaila Vill. Pajina, P.O. Sewra Chandi, Teh. Arki, Distt, Solan H.P.	BPL
55	Ghamiria Ram	S/O. Kaila Vill. Rudal, P.O. Sewra Chandi, Teh. Arki, Distt, Solan H.P.	BPL
56	Batu Devi	W/O.Ratnu Vill. Pajina, P.O. Sewra Chandi, Teh. Arki, Distt, Solan H.P.	BPL
57	Shankru		BPL

		W/O Ratnu Vill.Pajina, P.O. Sewra Chandi, Teh. Arki, Distt, Solan H.P.	
58	Uma Dutt	S/O.Atma Ram Vill. Pajina, P.O. Sewra Chandi, Teh. Arki, Distt, Solan H.P.	BPL
59	Panchu Devi	W/O.Medu Vill. Pajina P.O. Sewra Chandi, Teh. Arki, Distt, Solan H.P.	BPL
60.	Ramku	W/O.Lachman Vill. Pajina , P.O. Sewra Chandi, Teh. Arki, Distt, Solan H.P.	BPL
61	Khajana Ram	S/O.Hari Ram Vill. Pajina , P.O. Sewra Chandi, Teh. Arki, Distt, Solan H.P.	BPL
62	Suharu Devi	W/O.Pritam Vill. Pajina , P.O. Sewra Chandi, Teh. Arki, Distt, Solan H.P.	BPL
63	Kanku Devi	W/O. Sh. Hari Ram Vill. Pajina , P.O. Sewra Chandi, Teh. Arki, Distt, Solan H.P.	BPL
64.	Babu Ram	S/O. Sh.Sudama Ram Vill. Saryali P.O. Sewra Chandi, Teh. Arki, Distt, Solan H.P.	BPL
65	Baldev	S/O. Sh.Rattnu RamVill.Saryali P.O. Sewra Chandi, Teh. Arki, Distt, Solan H.P	BPL
66.	Shalig Ram	S/O. Sh. KriashnuVill.Rudal P.O. Sewra Chandi, Teh. Arki, Distt, Solan H.P	BPL
67	Kundan	S/O. Sh.mani Ram Vill.johar P.O. Sewra Chandi, Teh. Arki, Distt, Solan H.P	BPL
68	Lokhu Ram	S/O. Nagnu Vill. Chilla, P.O. Juni, Teh. Sunni, Distt. Shimla, H.P.	BPL
69.	Santi Devi	W/O.paras Ram Vill. Chilla, P.O. Juni, Teh. Sunni, Distt. Shimla, H.P.	BPL
70.	Dhani Ram	S/O. Nagnu Vill. Chilla, P.O. Juni, Teh. Sunni, Distt. Shimla, H.P.	BPL
71	Sant Ram	S/O. Nagnu Vill. Chilla, P.O. Juni, Teh. Sunni, Distt. Shimla, H.P.	BPL
72	Mushu Ram	S/O.mathku Ram Vill.Madrech, P.O. Juni, Teh. Sunni, Distt. Shimla, H.P.	BPL
73	Khimi Devi	W/O.Sh.Dila Ram Vill. Madrech, P.O. Juni, Teh. Sunni, Distt. Shimla, H.P.	BPL
74	Tej Ram	S/O. Mani RamVill.Johar , P.O. Chanaug, Teh. Sunni, Distt. Shimla, H.P.	BPL

75.	Labh Chand	S/O.Mani Ram Vill. Johar, P.O. Chanaug,Teh. Sunni, Distt. Shimla, H.P.	BPL
76	Fakiru Ram	S.O. Sahabu din Vill. Kiary, P.O. Juni, Teh. Sunni, Distt. Shimla, H.P.	BPL
77.	Yusuf	S/O. Sahabu Din Vill. Chilla, P.O. Juni, Teh. Sunni, Distt. Shimla, H.P.	BPL
78.	Deep Ram	S/O. Chinta Ram Vill. Darwakot, P.O.Chanaug, Teh. Sunni, Distt. Shimla, H.P.	BPL
79.	Roop Chand	S/O. Chinta Ram Vill. Darwakot P.O.Chanaug, Teh. Sunni, Distt. Shimla, H.P.	BPL
80	Dhani Ram	S/O. Chinta Ram Vill. Darwakot P.O.Chanaug, Teh. Sunni, Distt. Shimla, H.P.	BPL
81.	Lachmi Devi	W/O.Shonkia Ram,Vill. Madrech, P.O. Juni, Teh. Sunni, Distt. Shimla, H.P.	APL
82.	Girdhari Lal	S/O.Sh. Mushu Ram,Vill. Madrech, P.O. Juni, Teh. Sunni, Distt. Shimla, H.P.	APL
83	Sainu	S/O.Sh.Daula Ram,Vill. Madrech, P.O. Juni, Teh. Sunni, Distt. Shimla, H.P.	APL
84.	Babu Ram	S/O.Sainu,Vill. Madrech, P.O. Juni, Teh. Sunni, Distt. Shimla, H.P.	APL
85	Puran Chand	S/O. Paras Ram Vill. Chilla, P.O. Juni, Teh. Sunni, Distt. Shimla, H.P.	APL
86.	Adam Ram	S/O. Nagnu Vill. Chilla, P.O. Juni, Teh. Sunni, Distt. Shimla, H.P.	APL
87.	Parveen	S/O.Mushu Ram,Vill. Madrech, P.O. Juni, Teh. Sunni, Distt. Shimla, H.P.	APL
88.	Laxman	S/O.Sh.Adam Vill. Sohra Kenata, P.O. Sewra Chandi, Teh.Arki, Distt. Solan, H.P.	APL
89.	Ramesh Chand	S/O.Sh.babu Ram Vill. Pajina, P.O. Sewra Chandi, Teh.Arki, Distt. Solan, H.P.	APL
90.	Paras Ram	S/O.Sh.Dharma Vill. Khali, P.O. Sewra Chandi, Teh.Arki, Distt. Solan, H.P.	APL
91.	Kanshi Ram	S/O.Sh.Tikhu Ram,Vill. Paryab, P.O. Sewra Chandi, Teh.Arki, Distt. Solan, H.P.	APL
92.	Sita Ram	S/O.Sh.Dhani Ram Vill. Sohra Kenata, P.O. Sewra Chandi, Teh.Arki, Distt. Solan, H.P.	APL
93.	Indira Devi	D/O.Sh.Ramesh Chand Vill. Pajina, P.O. Sewra Chandi, Teh.Arki,	APL

		Distt. Solan, H.P.	
94	Tikhu Ram	S/O.Sh.jiunu.Vill. Paryab, P.O. Sewra Chandi, Teh.Arki, Distt. Solan, H.P.	APL
95.	Jamna Dass	S/O.Sh.Dhani Ram.Vill.Sohra keneta, P.O. Sewra Chandi, Teh.Arki, Distt. Solan, H.P.	APL
96.	Dhani Ram	S/O.Sh.Mohan Lal,Vill. Khali, P.O. Sewra Chandi, Teh.Arki, Distt. Solan, H.P.	APL
97.	Hira Singh	S/O.Sh.Dhani Ram,Vill. Sohra Keneta, P.O. Sewra Chandi, Teh.Arki, Distt. Solan, H.P.	APL
98.	Gian Chand	S/O.Sh.Sukh Ram Vill. Sohra Keneta, P.O. Sewra Chandi, Teh.Arki, Distt. Solan, H.P.	APL
99.	Devi Parkash	S/O.Sh.Sudama.Vill. Sohra Keneta, P.O. Sewra Chandi, Teh.Arki, Distt. Solan, H.P.	APL
100.	Kapura Ram	S/O.Sh.Badri Ram.Vill.Sohra Keneta, P.O. Sewra Chandi, Teh.Arki, Distt. Solan, H.P.	APL
101	Ram Dai	W/O.Sh.Babu Ram.Vill.Khali, P.O. Sewra Chandi, Teh.Arki, Distt. Solan, H.P.	APL
102	Parma Nand	S/O.Sh.Paras Ram.Vill. Pajina, P.O. Sewra Chandi, Teh.Arki, Distt. Solan, H.P.	APL
103	Kirpa Ram	S/O.Sh.Gumi,Vill. Sohra Keneta, P.O. Sewra Chandi, Teh.Arki, Distt. Solan, H.P.	APL
104	Chandu Ram	S/O.Sh.Laxman.Vill.Pajina, P.O. Sewra Chandi, Teh.Arki, Distt. Solan, H.P.	APL
105	Narpat	S/O.Sh.Padma.Vill. Rudal, P.O. Sewra Chandi, Teh.Arki, Distt. Solan, H.P.	APL
106	Karam Chand	S/O.Sh.Krishanu RamVill. Rudal, P.O. Sewra Chandi, Teh.Arki, Distt. Solan, H.P.	APL
107.	Som Nath	S/O.Sh.Lachu Ram.Vill. Chandi, P.O. Sewra Chandi, Teh.Arki, Distt. Solan, H.P.	APL
108	Parma Nan	S/O.Sh.Ghamiria Ram,Vill. Chanda, P.O. Sewra Chandi, Teh.Arki, Distt. Solan, H.P.	APL
109	Devi Chand	S/O.Sh.Bihari Lal,Vill. Sewra Chandi, P.O. Sewra Chandi, Teh.Arki, Distt. Solan, H.P.	APL
110	Krishan Dutt	S/O.Sh.Rattan Lal,Vill. Bombely, P.O. Sewra Chandi, Teh.Arki, Distt. Solan, H.P.	APL

111	Ram Lal	S/O.Sh.Govind Sharma,Vill.Bombely,P.O. Sewra Chandi, Teh.Arki, Distt. Solan, H.P.	APL
112	Om Parkash	S/O.Sh.parshotam.Vill.Bombely, P.O. Sewra Chandi, Teh.Arki, Distt. Solan, H.P.	APL
113	Chaman Lal	S/O.Sh.Khajana Ram,Vill.Bombely, P.O. Sewra Chandi, Teh.Arki, Distt. Solan, H.P.	APL
114	Leela Ram	S/O.Sh.Mathru Ram.Vill. Pajina, P.O. Sewra Chandi, Teh.Arki, Distt. Solan, H.P.	APL
115	Dharam Chand	S/O.Sh.Naratu Ram.Vill. Pajina, P.O. Sewra Chandi, Teh.Arki, Distt. Solan, H.P.	APL
116	Lala Ram	S/O.Sh.Nathu Ram,Vill.Bombely, P.O. Sewra Chandi, Teh.Arki, Distt. Solan, H.P.	APL
117.	Hemant Kumar	S/O.Sh.Keshru Ram.Vill.Saryali Chanda, P.O. Sewra Chandi, Teh.Arki, Distt. Solan, H.P.	APL
118	Shaligram	S/O.Sh.Negi Ram.Vill.Pajina, P.O. Sewra Chandi, Teh.Arki, Distt. Solan, H.P.	APL
119.	Uma Dutt	S/O.Sh.Adliya.Vill. Rudal, P.O. Sewra Chandi, Teh.Arki, Distt. Solan, H.P.	APL
120.	Paras Ram	S/O.Sh.Shankar Dass,Vill.Dhar, P.O. Sewra Chandi, Teh.Arki, Distt. Solan, H.P.	APL
121	Tek Chand	S/O.Sh.Leela Ram,Vill. Sewra Chandi, P.O. Sewra Chandi, Teh.Arki, Distt. Solan, H.P.	APL
122.	Vidya Devi	W/O.Sh.Bhungar Ram.Vill. Bombely, P.O. Sewra Chandi, Teh.Arki, Distt. Solan, H.P.	APL
123	Jamna Devi	W/O.Sh.Khajana Ram,Vill. Bombely, P.O. Sewra Chandi, Teh.Arki, Distt. Solan, H.P.	APL
124.	Paras Ram	S/O.Sh.Durga Ram.Vill.Bombely, P.O. Sewra Chandi, Teh.Arki, Distt. Solan, H.P.	APL
125.	Jai Ram	S/O. Sh. Dhani Ram Vill Pajina, P.O. Sewra Chandi, Teh. Arki, Distt. Solan,H.P.	APL
126	Devi Chand	S/o. Sh. Gokal ,vill. Saryali, P.O. Sewra Chandi, Teh, Arki, Distt. Solan,H.P.	APL

Appendix 17

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.	ˆCarnivore Species	*Sign Type	Forest Type	Terrain Type	Remarks
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

ˆCarnivore 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							
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: .....

ID No. of Line Transect: .....

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**	

Data Sheet-4

Pellet Counts of Ungulates

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	Forest Type	Terrain Type	Goral	Barking Deer	Langoor	Porcupine	Cattle	Goat & Sheep	Other Wild Animals/ Unidentified	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

Call Count Data Sheet

Trail: Station//: Observer (s): Date:

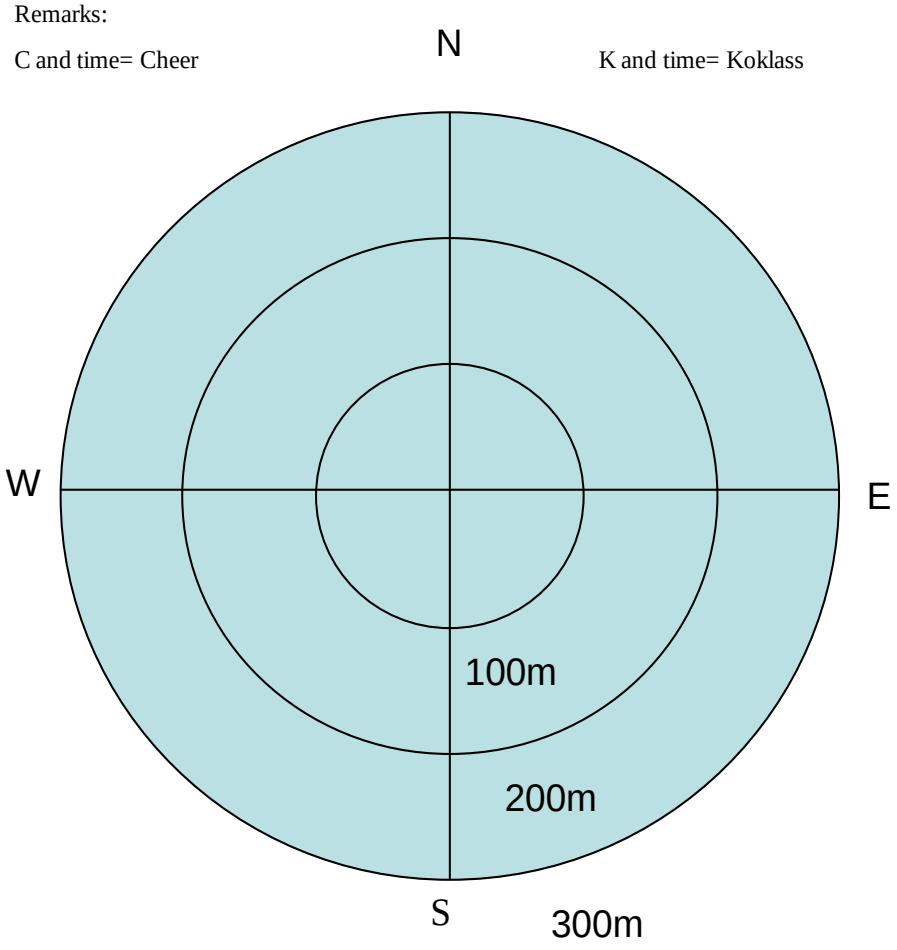
Starting Time: Ending time:
Weather:
Wind speed: 0-15 kph 16-30 kph >30 kph

Precipitation: None fog Light rain Heavy Rain Hail

Cloud cover: Sunny Partly cloudy Dense clouds

Temp.: 0-10 C (32-50 F) 11-20 C (50-70) 21-30 C (70-85 F) > 30 C (>85 F)
Influences on audibility:
Remarks:

C and time= Cheer K and time= Koklass



Appendix 18

Expenditure during last 5 years

Year	Expenditure (Lac)	
	CSS	State Plan
2011-12	11.69	0.78
2012-13	10.94	2.47
2013-14	11.30	2.31
2014-15	13.81	3.60
2015-16	7.21	2.30
2016-17	10.05	3.0

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					Indian		Revenue
	Adult			Children	Foreigners	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				Plants	Bird watching	Animal sighting	Photography	Scenic places	Historical sites	Trekking	Other
Male	Female	Children	Male	Female	Children									
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 animals 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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