

H.P. FOREST DEPARTMENT (WILDLIFE WING)

MANAGEMENT PLAN



KANAWAR WILDLIFE SANCTUARY (WILDLIFE DIVISION KULLU)

(2020-21 TO 2029-30)

By :

RAKESH KUMAR (IFS)

(DFO, Wildlife Division Kullu)

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(ACF, Wildlife Division Kullu)

Approved


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No. WLM/Management Plan/ 481

Dated/ 23/5/2020

To:

Conservator of Forests,
GHNP Shamshi.

Subject: Draft Management Plan of Kanawar Wildlife Sanctuary-regarding.....

Memo:

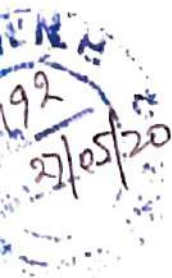
This is with reference to your office e-mail on the subject cited above.

The approved copy of the Management Plan of Kanawar Wildlife Sanctuary for the period 2020-21 to 2029-30 is sent herewith for information and further necessary action. This may be got printed and hard bound two copies thereof may be sent to this office for record.

You are also requested to send the remaining Management Plan of Nargu Wildlife Sanctuary at the earliest *by 31.05.2020 positively.*

Encl: As above.

26/05
Pr. Chief Conservator of Forests (WL),
and Chief Wildlife Warden, Shimla, HP



WL Secy. HP
27/5/XX
WZ

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Preface

The 26 wildlife sanctuaries and 5 National Parks in Himachal Pradesh constitutes state's Protected Area network. Kanawar Wildlife sanctuary is one of the seven sanctuaries under Kullu wildlife Division. The previous management plan was from 2004-05 to 2013-14. The present Management Plan has been prepared for the period of 10 years (2020-21 to 2029-30).

For writing Part-I, existing information of previous management plans and other published literature for the area has been used. During plan preparation, a survey was also conducted to collect information related to socio-economic conditions of local communities living in and around Kanawar WLS. In addition, data related to human wildlife conflict and dependence of local people on PA resources was also collected and this data have been included in the relevant chapters of the plan.

For writing of Management Plan guidelines prepared by V.B Sawarkar and issued by Wildlife Institute of India for planning of wildlife management in protected areas and managed landscapes have been followed.

For the management of any mountain PA, three issues are important – Protection, Local people's participation in management of PA and regular monitoring to assess the effectiveness of management. Therefore, in this management plan, major emphasis has been given to above issues.

Management of PAs is a dynamic process and due to change in local environment, State policies continuous review is required to adapt various strategies to achieve the desired objectives. In view of this, chapter 12 incorporates annual review and a strategic review after five year of this plan has been suggested.

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ABBREVIATIONS

ACF	Assistant Conservator of Forest
AMSL	Above Mean Sea Level
APOs	Annual Plan operations
CAMPA	Compensatory Afforestation fund Management and Planning Authority
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CSS	Centrally Sponsored Schemes
DCF	Deputy Conservator of Forest
DFO	Divisional Forest Officer
DSLR	Digital Single Lens Reflex
ESZ	Eco Sensitive Zone
GHNP	Great Himalayan National Park
GHNPCHA	Great Himalayan National Park Conservation Area
GoHP	Government of Himachal Pradesh
GPS	Global Positioning System
HQ	Head Quarters
HWC	Human Wildlife Conflict
IFS	Indian Forest Service
IRS	Indian Remote Sensing
IUCN	International Union for Conservation of Nature
LCC	Land Capability Classification/ Local Control Cubicle
LED	Light Emitting Diode
LPG	Liquefied Petroleum Gas
MEE	Management Effectiveness Evaluation
MoEF& CC.	Ministry of Environment and Forests & Climate Change
NGOs	Non-Governmental Organization
NTFP	Non timber Forest Products
NWP	Non Wood Products
PA	Protected areas
Pr. C.C.F.	Principal Chief Conservator of Forests
PRA	Participatory Rural Appraisal
RHRS	Regional Horticultural Research Station
SOI	Survey of India
TD	Timber Distribution
UPFs	Un-Protected Forests
UTM	Universal Transverse Mercator
WII	Wildlife Institute of India
WLS	Wildlife Sanctuary
WWF	World Wildlife Fund
YHAI	Youth Hostels Association of India
ZI	Zone of Influence
ZIP	Zone Information Protocol

PART – I

The Protected Area: Existing Situation

CHAPTER - 1

INTRODUCTION OF THE AREA

1.1 Name, Location, Constitution and Extent of Area

The tract dealt in this management plan is known as Kanawar wild life sanctuary, situated in the Himalayan range. In terms of bio-diversity, the wildlife sanctuary located in Parvati valley of Kullu district is worth close attention. In the vicinity, one of the popular tourist and pilgrimage place is Manikaran, known for its Hot Springs. This beautiful valley is becoming more and more popular with tourists. The Wild Life Sanctuary is located in Parvati valley of Kullu district in Himachal Pradesh within the Geo-coordinates North latitude 32°00' 21" N and longitude 77°18' 11" E, East latitude 31°54' 40" N and longitude 77°27' 03" E South latitude 31°53' 25" N and longitude 77°24' 41" E, West latitude 31°57' 25" N and longitude 77°15' 04" E. This area falls on Survey of India topo sheet No. 52H/8 & 53E/5 of scale 1:50,000. Area of the Kanawar Wildlife Sanctuary is 107.29 sq. km. The Parvati Forest Division surrounds it on three sides and GHNP on one side. This geographical area includes following type of land: -

Table 1: Break up of geographical area

Types of Forest Land	Area (ha)
Reserved Forest (RF)	2382.84
D.P.F.	8244.08
Other Area (Cultivated land)	102.00
Total Area	10728.92

This sanctuary is situated in Bhuntrer Tehsil of District Kullu (HP). This PA is surrounded by Parvati Forest Division on all sides except the Southeast side where lies the boundary of GHNP which act as corridor to Wild Life. This sanctuary along with Manali, Kais and Khokhan was notified vide notification No. 70.GP.53/97 dated 28.02.1954 under Section 8 of the Punjab Wild Birds and Wild Animals Protection Act, 1933. The notification was published in Punjab Government Gazette dated 12.03.1954. The area of the sanctuary

given in this notification is 13435 acres that on conversion comes out to be 5437 hectares but the actual area on ground is as detailed in the above table, which is the area being treated correct for all the purposes. A copy of the notification is given as Annexure-I. All the sanctuaries were transferred from Territorial Wing of Forest Department to Chief Wild Life Warden vide notification No. SC-A (1) 1/83-Vol. II dated 26.08.1986. A copy of this notification with relevant page showing name of Kanawar sanctuary is given as Annexure-II.



Source: mapsofindia.com

Figure 1- Location Map of Kanawar Sanctuary

In pursuance to the Hon'ble Supreme Court order dated 7th May 2010, the State Government issued intention Notification under section 18 of the Wildlife (Protection) Act, 1972 in respect of the Wildlife Sanctuaries and National Parks for which rationalization had been proposed and final notification of Kanawar Wildlife Sanctuary was issued vide HP Govt. notification No. FFE-B-F(6)-13/1999/Kanawar, dated 1st Feb. 2014 (Annexure-III)

1.2 Approach and Access

Kullu Valley, popularly known, as the "Dev Bhumi" is host to diverse flora and fauna found in a number of sanctuaries, one National Parks and other places as well. This protected area can be accessed by NH 21 (NH - 3) up to Bhunter, on the Chandigarh -Manali national highway, and from Bhunter it is at a distance of 30 km to Kasol, the only road side village in it. A metalled road from Bhunter, where Parvati River merges into Beas River, leads into the Parvati valley on its left bank. The Parvati River runs through the valley. The valley holds many small and big villages on both sides. Most of the population is concentrated on the northern part of the valley.

This Sanctuary is approachable by road from Chandigarh, Shimla and Pathankot. The major distances are as under:

Chandigarh – Kasol	=	270 Km
Shimla – Kasol	=	230 Km
Pathankot – Kasol	=	332 Km

Nearest towns are Bhunter (30 km) and Kullu (40 km). Nearest Airport is at Bhunter which is linked to Shimla, Chandigarh and Delhi. The nearest railway station is at Joginder Nagar (145 Kms from Kasol) which is connected through a narrow gauge line with broad gauge rail network at Pathankot. It is convenient to travel to Kullu by road or by air from Chandigarh or Delhi.

The best season to visit this Sanctuary is between April to June and September to November. There is a motorable Bhunter-Manikaran road passing through the PA along its northern boundary, through Kasol village, about 5km in length, and one bridle path from Kasol to Grahani.

1.3 Statement of Significance

Nestled in the Kullu Manali hills, the PA offers unlimited opportunities to one and all to enjoy nature in its most pristine state from the closest quarters. The very mention of the valley instantly evokes images of the mighty Himalayas with lofty snow-capped peaks, meandering rivers, perennial springs, vast stretches of alpine meadows and lush green forests known to harbor a variety of plants and animals (Plate 2). Number of houses per village varies from five to sixty. The villages have their own traditions and customs. The prime

occupation of the villagers is agriculture and livestock rearing. Electricity reaches even the remotest of villages in the sanctuary. Kanwar Wildlife Sanctuary is situated in the inner Himalayas and is on the hill station map of Kullu Manali along Parvati Valley. More than 4500 tourists visit this sanctuary every year. A number of natural camping sites are available inside the sanctuary. Altitudinal variation 1800 m to 5056 m (above MSL) covers the area from sub-tropical forest to alpine forest. It is worthwhile to mention here that there is no habitation/village inside the sanctuary so the interference caused by the humans is less as compared to the other wildlife sanctuaries. The sanctuary supports viable population of “Himalayan Tahr”. In India it is the largest remaining population. This is a high altitude sanctuary containing narrow valleys with steep to precipitous slopes and rocky cliffs. Going just 2 Kms. inside the sanctuary we can see that it is rich in flora and fauna. The species commonly found are Goral (*Neomorhaedus goral*), Barking deer (*Muntiacus muntjac*), Himalyan Tahr (*Hemitragus jemlahicus*), Himalyan Black Bear (*Selenarctus thibetensis*), Brown Bear (*Ursus arctus*), Musk Deer (*Moschus moschiferus*), Leopard (*Panthera pardus*), Blue Sheep (*Pseudois nayaur*), Jungle Cat (*Felis chaus*), Flying Squirrel (*Petaurista petaurista*), Porcupine (*Hystrix indica*), Serow (*Capricornis sumatraensis*), Monal (*Lophophorus impejanus*), Koklas (*Pucrasia macrolopha*), Kalij (*Lophura leucomes*), Western Tragopan (*Tragopan melanocephalus*).

Besides mix of coniferous and broad leaved tree species, the sanctuary is rich in medicinal herbs like Karu (*Picrorhiza kurooa*), Patish (*Aconitum heterophyllum*), Banafsa (*Viola canescens*), Ban Ajwain (*Thymus serpyllum*), Ban Kakri (*Podophyllum hexandrum*), Mushqbala (*Valeriana wallichii*), Salampanja (*Orchis latifolia*), Shingli mingli (*Dioscorea deltoidea*) Dhoop (*Jurinea-macrocephala*), Nirgal (*Arundinaria falcata*) etc.

The Kanawar WLS represents one of the few areas of semi-natural flora and fauna in the temperate, subalpine and alpine zones of the western Himalayas, an area of high species diversity. It provides shelter and protection to many species included in Red List of Red Data Book of IUCN and CITES appendices like Monal, Himalayan Brown Bear, Himalayan Black Bear, Common Leopard etc. With its rich gene pool and variety of ecosystem functions and processes it provides ample research opportunities. Besides forming catchment of important perennial river *Parvati* it provides ecological security and environmental amelioration in the region. It has got many educational and interpretational values to it.

There are numerous Gods which are worshipped in the valley. Every village has its own deity associated with the village and have sacred places around the village. The temples are beautifully built and rituals are performed regularly. Strict rules are maintained for entering the temples. Artistic wood carving is very common in the temples and many temples also have horns decorated on outer walls. The belief is so strong that even the paths in the mountains have small worship places. One of the popular tourist and pilgrimage places is Manikaran, known for its hot springs. This beautiful valley is becoming more and more popular with tourists. Malana village known for the oldest democracy of the world is also situated in this valley. Famous Sar Pass tourist trek passes through Kasol Gad and Grahan Gad/ Nala leading upto village Grahan which is second camp (Base Camp is Kasol) and inner gateway to the Kanawar WLS. Rawal Rishi temple is also situated in Grahan village (Annexure- XIII).

Kasol and Manikaran have always strived to provide better amenities to the tourists visiting the area, so that they can enjoy its natural beauty and cultural heritage and for the tourist who are nature lover and are interested in trekking, Kanwar WLS is a good alternative for them.

Hence, the biological, Ecological, geo-morphological, watershed and scenic/ tourism values of Kanawar protected area make it an important bio-diversity and eco-tourism hot spot.

CHAPTER – 2

BACKGROUND INFORMATION AND ATTRIBUTES

2.1 Boundaries

The Kanawar WLS situated in Parvati Valley of Kullu district is defined by following boundaries:

NORTH:	Boundary starts from Jail Nal and moves along boundary of R/4 Kasol C-VI-b and C-I up to 1800 mtrs., Contour line and then moves along 1800mtrs. contour line up to Grahah Gad and then moves upstream the Gad along the boundary of R/4 Kasol and moves along the boundary of Reona PF's C-II-b, C-II-a, C-II-d to separating the cultivation land of Garahan village then follows the boundary of Tilalotan PF via SOI bench mark 4056 mtrs., then downstream a tributary flowing to Dudhikhhol Nal upto Near SOI bench mark 2838 mtrs.
EAST:	Boundary starts from confluence of tributary in Dhudhikhhol Nal and then boundary moves upstream with other tributary flowing to Dudhi Khol then downstream along tributary flowing Barthi Nal then upstream of Barthi Nal and boundary follows a path to Ujli Runi Thach and follows the ridge via SOI bench mark 4817 mtrs., upto Phanchi Galu 4636 mtrs. along path.

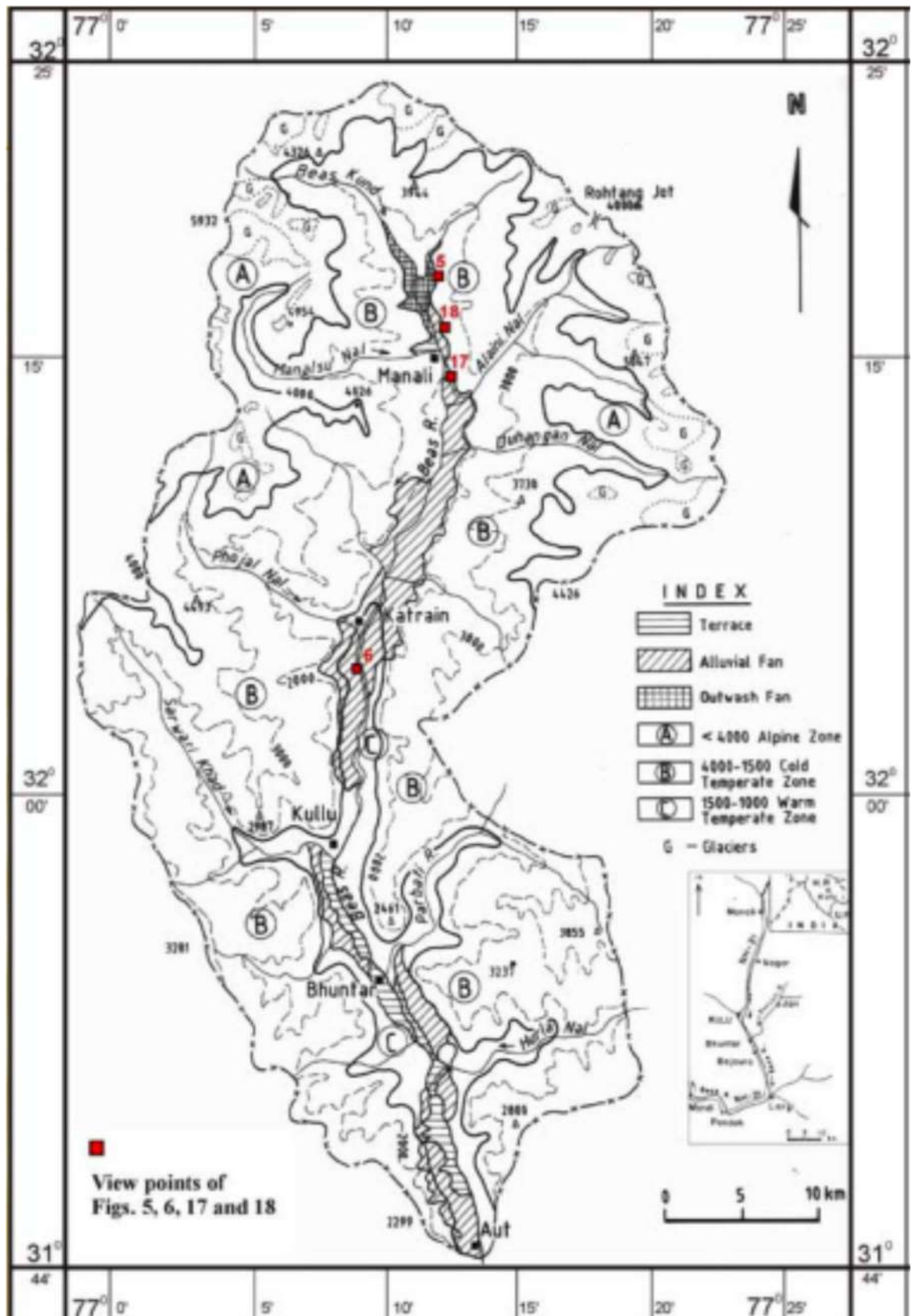
SOUTH:	Boundary starts from Phanchi Galu 4636 mtrs. moves along the ridge Ori Dhar, Rohni Dhar to SOI bench mark 4658 mtrs. then moves downstream a tributary that join Hamkha Nal near Beghlo Thach. Then it moves upstream with small tributary to SOI 4330 mtrs. then it goes along southern boundary of Reona PF SOI bench mark 3610 mtrs., Khauli Galu, 3715 mtrs., southern boundary of Kasol RF, SOI bench mark 4046 mtrs., 3889 mtrs, 4097 mtrs., Tiri Thunth, southern boundary of Muri PF, eastern boundary of Jaularang PF and joins Ursu Nal boundary moves just up stream with Ursu Nal upto confluence of small tributary then boundary moves up stream the tributary then moves along the eastern boundary of Searan PF SOI bench mark 3533 mtrs. then boundary moves down stream with a tributary following to Najan Gad. After confluence boundary moves upstream with Najan Gad upto SOI bench mark 3674 mtrs.
WEST:	Boundary starts from SOI bench mark 3674 mtrs. and moves down stream with a Nala flowing to Jaram Nal, SOI bench mark 1895 mtrs. then boundary moves along the forest boundary of Muri PF, SOI bench mark 3286 mtrs. then moves down stream along with the Jail Nal upto the R/4 Kasol C-VI-b starting point of northern boundary.

2.2 Geology, Rock and Soil.

No specific soil survey has been carried out; little simplification about classification can be made about the formation of soil. Quartzite rock with an over laying layer of clay on the lower moderate slopes and Mica schist, Quartzite overlaying with sandy loam on other slopes is found.

2.3 Terrain

The tract is highly undulating. Slopes are steep to precipitous with rocky cliffs and outcrops. Valley is narrow and deep. Altitude varies from 1800 m near Kasol to 5056 m near Sar Pass, the highest. Numerous Nalas draining the area have made the tract arduous.



Location, General geomorphology and the various climatic zones of the Kullu Valley (Shah *et al.* 2006)

Figure 2- General Geomorphology of the Kullu Valley

2.4 Climate

The climate of the Protected Area is temperate.

2.4.1 Season

Four seasons experienced in Kanawar Sanctuary area as follows:

1. Summers are from mid April to June and may extend up to mid July.
2. Monsoon starts from mid July to mid September.
3. Autumn starts from mid November to mid December.
4. Winter extends between mid December to mid March but the season may extend due to some extensive rains and may be less i.e. shortened due to early summer and dry season.
5. The temperature varies from -10°C to 28°C .

2.4.2 Rainfall Pattern and Distribution

80% of precipitation is received from southwestern monsoons and the rest in winters from western disturbances. Main source of water is snow that is received during winters viz., December to March. Monsoons are active from July to September. Snowfall is very heavy in winters. The period between October to December is dry. Annual rainfall is around 1000 mm and snowfall is around 321mm at Kasol. Rainfall data recorded at Regional Horticultural Research Station (RHRS), Seobag is tabulated in Table 2.

Table 2: Monthly rainfall (mm) Data for Kanawar Sanctuary

Year	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
1999	103.4	35.2	56.2	2.2	71.7	39.9	164.2	131.7	37.3	4.3	0.0	0.6	646.7
2000	77.4	138.8	100.2	24.7	74.0	138.8	192.0	64.3	8.1	0.0	38.6	0.5	857.4
2001	27.4	27.7	112.8	84.9	59.0	67.3	138.4	104.1	25.1	0.0	54.5	75.9	777.1
2002	68.8	146.4	96.4	121.7	9.2	30.2	2.0	85.3	92.0	23.0	0.0	8.0	683.0
2003	50.2	181.1	166.7	73.4	55.4	46.9	73.6	82.5	72.2	0.0	33.1	52.8	887.9
2004	146.6	59.8	0.0	80.4	83.1	67.6	65.8	89.6	13.9	197.8	6.8	54.3	865.7
2005	88.4	284.3	211.6	15.7	63.4	52.5	245.4	46.1	118.3	1.6	0.5	0.0	1127.8
2006	207.4	48.9	109.4	48.0	64.5	24.9	138.6	122.3	64.1	21.1	22.5	61.0	932.7
2007	1.0	233.4	240.8	5.2	55.2	67.3	125.3	135.7	32.3	5.0	0.0	25.0	926.2
2008	246.1	60.2	7.2	80.2	99.0	131.0	82.8	199.7	146.9	43.6	2.4	61.7	1160.8
2009	26.9	51.3	69.0	89.8	30.9	31.9	30.2	131.9	131.3	1.3	81.1	7.2	682.8
2010	23.6	173.4	67.5	79.3	93.7	187.5	243.8	159.3	219.4	43.2	9.6	77.5	1377.8
2011	38.2	186.1	117.6	165.4	52.7	93.1	75.5	296.4	72.7	134.1	42.6	43.4	1317.8
2012	112.8	119.6	71.0	90.7	16.3	30.0	68.1	111.2	134.1	2.9	15.0	45.3	817.0
2013	89.1	253.7	119.1	47.6	24.0	111.5	118.6	62.8	42.6	4.7	18.1	29.0	920.8
2014	54.4	159.7	159.6	69.0	85.3	42.5	116.2	63.1	43.4	24.8	5.3	60.0	883.3
2015	84.2	246.6	178.5	126.1	79.9	107.0	156.9	118.6	65.0	17.8	32.0	42.8	1255.4
2016	35.7	82.5	189.4	108.1	58.9	24.8	62.8	171.0	20.8	0.0	0.0	0.0	754.0
2017	177.9	85.2	100.0	119.2	73.7	143.6	84.9	46.4	74.4	0.0	16.2	44.6	966.1
2018	11.0	58.0	67.4	93.4	55.8	62.6	87.8	83.0	240.4	7.8	82.4	7.0	856.6
Total	1670.5	2631.9	2240.4	1525.0	1205.7	1500.9	2272.9	2305.0	1654.3	533.0	460.7	696.6	18696.9
												Avg.	934.8

Source: Regional Horticultural Research Station, Seobag

2.4.3 Temperature variations

Maximum and minimum temperatures recorded at Kasol are 25°C and -10°C. But the detailed recorded Temperature given below is recorded at RHRS, Seobag.

Table 3: Maximum Temperature (C°) Data

Year	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
2004	17.4	19.2	27.4	29.3	31.0	28.5	33.4	29.2	27.1	19.4	18.7	19.1
2005	13.8	14.8	20.7	24.8	27.6	33.1	29.4	30.4	28.6	26.9	22.2	18.5
2006	15.6	21.8	22.1	26.1	30.3	30.4	30.6	30.3	29.6	26.6	21.8	17.1
2007	18.1	17.0	21.7	29.6	28.9	31.9	30.2	30.0	30.2	28.0	23.4	17.4
2008	12.5	18.0	24.8	25.5	29.4	29.8	30.3	28.7	27.7	26.0	22.8	19.4
2009	17.3	19.4	23.0	26.6	28.7	33.1	32.4	31.1	28.1	26.9	20.7	17.1
2010	18.0	18.5	24.8	28.5	29.3	29.2	28.6	29.3	28.2	25.7	21.8	17.5
2011	15.2	15.4	22.8	24.5	30.1	29.7	30.3	28.7	28.9	26.7	23.0	18.1
2012	13.4	16.4	22.5	24.6	30.3	33.4	32.1	29.2	28.7	26.2	21.5	17.4
2013	15.4	15.7	23.1	25.0	31.2	29.4	29.8	29.6	30.4	27.7	21.8	18.0
2014	15.1	15.0	18.4	24.7	27.6	32.5	30.6	29.9	29.1	25.9	23.7	17.8
2015	16.0	18.0	20.8	24.4	30.3	29.3	29.8	29.4	29.9	27.4	22.6	18.2
2016	17.5	19.1	22.5	25.9	29.8	32.2	31.1	29.1	30.7	24.4	26.6	18.7
2017	13.6	19.4	21.5	27.2	28.8	28.5	29.5	29.4	29.0	27.9	21.2	18.5
2018	17.2	19.4	24.0	26.4	29.5	30.9	29.4	30.0	27.4	25.4	19.8	16.4

Table 4: Minimum Temperature (C°) Data

Year	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
2004	0.4	1.8	6.6	8.6	12.3	15.4	16.5	17.5	16.2	7.3	4.1	1.5
2005	0.8	2.1	5.8	7.9	9.8	14.6	19.3	18.9	16.1	8.3	2.4	-0.3
2006	1.6	5.8	5.4	8.5	3.7	15.6	20.2	19.2	15.4	9.4	4.9	1.7
2007	0.1	3.5	4.0	10.7	12.4	17.1	19.7	20.0	16.5	8.5	3.6	1.0
2008	1.0	2.0	6.2	8.7	12.2	18.5	20.5	18.8	13.3	8.8	3.9	2.8
2009	3.0	4.3	6.0	8.6	11.1	13.8	18.6	19.3	13.7	7.6	3.3	1.2
2010	0.9	2.2	6.3	8.9	11.3	13.0	17.6	18.8	15.1	7.5	3.2	-0.7
2011	-1.3	0.9	4.0	6.8	11.0	15.1	18.3	19.3	16.0	8.9	4.0	0.2
2012	0.2	2.2	5.2	8.1	10.0	15.0	19.5	19.2	15.5	6.6	2.7	1.4
2013	-0.6	2.2	4.7	8.4	10.9	17.6	20.0	19.8	14.8	11.7	2.8	0.2
2014	1.3	2.1	5.1	6.7	10.5	13.5	19.2	19.2	15.2	9.6	3.6	1.1
2015	-1.5	1.2	5.5	9.1	11.4	14.6	19.8	19.3	14.0	9.3	4.7	-0.3
2016	0.9	2.7	6.7	12.6	13.0	17.9	20.8	19.0	16.8	9.5	4.6	2.5
2017	1.8	4.5	5.5	9.5	12.6	15.8	20.6	20.2	15.8	9.8	4.6	2.8
2018	0.4	4.6	6.5	9.3	11.4	17.3	26.5	20.7	15.7	7.2	4.0	0.4

Source: Regional Horticultural Research Station, Seobag

2.4.4 Humidity:

The data for humidity is tabulated as follows:

Table 5: Relative Humidity data for Kanawar Sanctuary

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
2005	69.95	82.37	68.67	61.98	66.19	70.01	84.48	79.16	84.71	65.64	58.36	44.59
2006	66.45	58.83	60.54	61.36	77.58	76.51	88.29	88.83	81.98	67.20	64.00	68.64
2007	51.66	65.75	59.32	49.53	64.88	80.00	89.14	89.14	88.41	87.88	86.70	80.50
2008	86.98	76.10	53.04	56.83	76.75	88.78	91.01	92.98	88.41	87.40	76.53	71.08
2009	71.33	67.67	64.66	72.60	77.38	73.50	78.56	84.46	84.50	68.11	70.71	67.50
2010	67.37	72.66	69.16	75.93	71.79	78.63	82.11	88.61	88.78	79.30	74.45	71.48
2011	81.40	83.48	70.58	73.23	74.50	83.78	84.00	88.22	87.75	82.17	80.40	67.42
2012	80.00	80.82	64.19	72.90	61.42	64.53	77.55	89.40	86.52	80.66	79.53	78.58
2013	76.26	84.66	71.60	74.87	72.66	82.66	83.65	90.27	81.97	77.50	65.37	65.40
2014	74.03	79.20	77.24	65.28	75.48	75.42	85.25	84.11	84.76	77.98	63.38	68.39
2015	76.72	77.14	73.04	-	-	-	-	-	-	-	-	-

Source: Regional Horticultural Research Station, Seobag

2.4.5 Wind Speed

There is no record of any high velocity winds or storms. The velocity of wind is not very high except at the hilltops and ridges on its southern boundary.

2.4.6 Drought and its periodicity

Details of the drought and its periodicity have not been recorded. Generally the period from October to December is dry.

2.5 Water Sources

The sanctuary is rich in water resources (Annexure- XIV), being blessed with snow cover and vast vegetative cover to hold water resulting in fine spurt of springs and other sources of drinking water, which enhance the habitat. There are four perennial streams and numerous seasonal nalas or small channels in the sanctuary. The main streams are 1) Kasol or Grahan Gad/ Nala (Mathigarh or Mathi Nala, Garhunju Nala, Thunja Nala, Ratta Chamela Nala, Harloon Nala, Dolag Nala, Socha Nala), 2) Jail Nala (Kundi Nala, Chamaun Nala), 3) Shatt Nala (Shada Ra Nala, Mohasru Nala, Ujali Khar Nala, Kaliban Nala), and 4) Garsa Gad (Nanjan Gad/Nala, Ursu Nala, Marinu Nala, Pancha Nala, Pulia Nala, Dora Nala,). These streams and nalas are uniformly distributed over the sanctuary. Whole area is well drained and it falls in two main watersheds one is Grahan Gad/Nala, Jail Nala, Shatt Nala watershed which drain into Parvati River and another is Grasa Gad watershed which drain directly into Beas River.

2.6 Range of Wild Life, Status, Distribution and Habitat

The Protected Area is home to a host of many Red Data Book enlisted wild animals like Serow, Himalayan Tahr, Chir Pheasant, Musk Deer and Western Tragopan which has been listed in the Red List of Red Data Book of the International Union for Conservation of Nature. In fact Western Tragopan is limited to the Western Himalayas. Other fauna in the sanctuary include Himalayan Black Bear, Himalayan Palm Civet, Barking Deer, Flying Fox, Goral, Indian Hare, Porcupine, Himalayan Yellow Throated Marten and Kashmir Flying Squirrel besides Monkeys and Langurs.

2.6.1 Vegetation

The PA has an altitudinal variation ranging from 1800 m to 5056 m and thus consists of sub-tropical to alpine forest and has a wide range of different plant species. It portrays a variety of ground configuration, varied climate and vegetation, providing a congenial habitat for temperate wild life. The sanctuary is rich in flora and fauna and has a wide range of plant species. It is a paradise for the biologists and a challenge to a mountaineer.

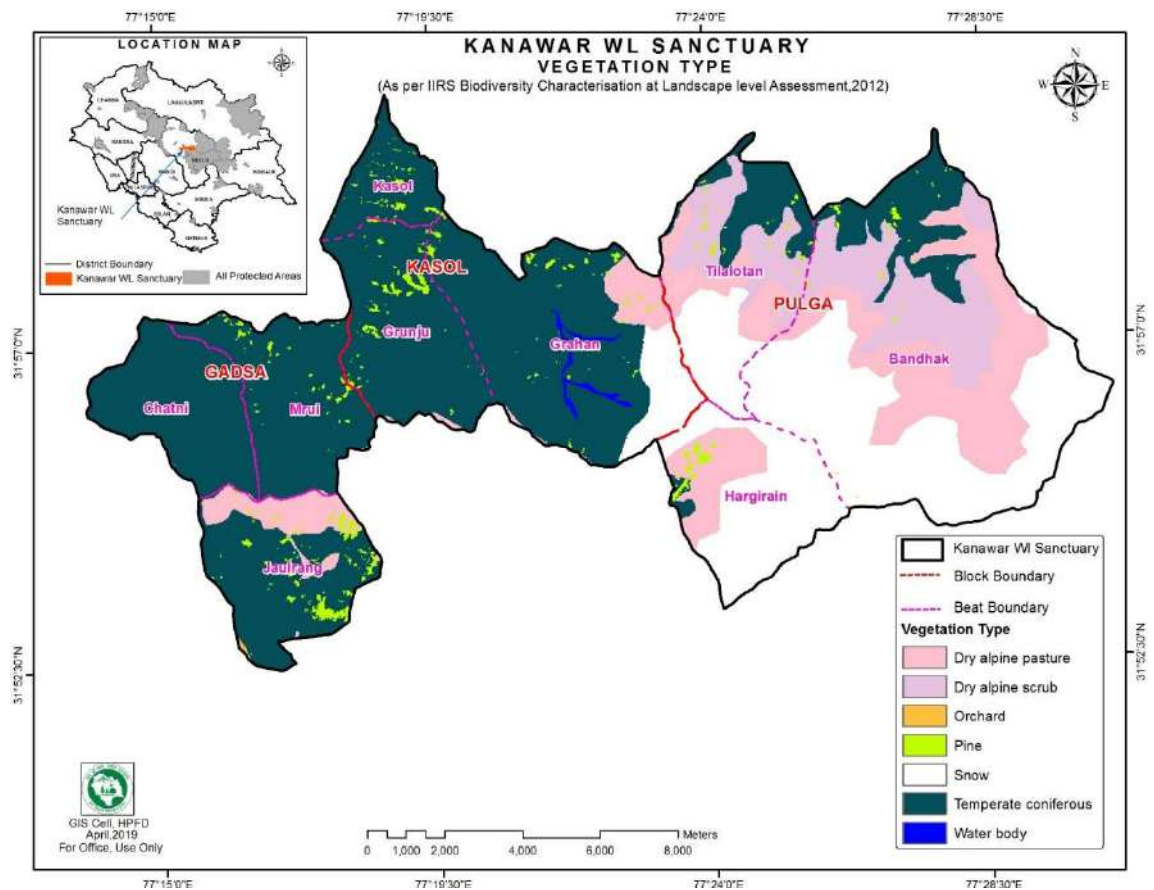


Figure 3- Vegetation Type Map of Kanawar WLS

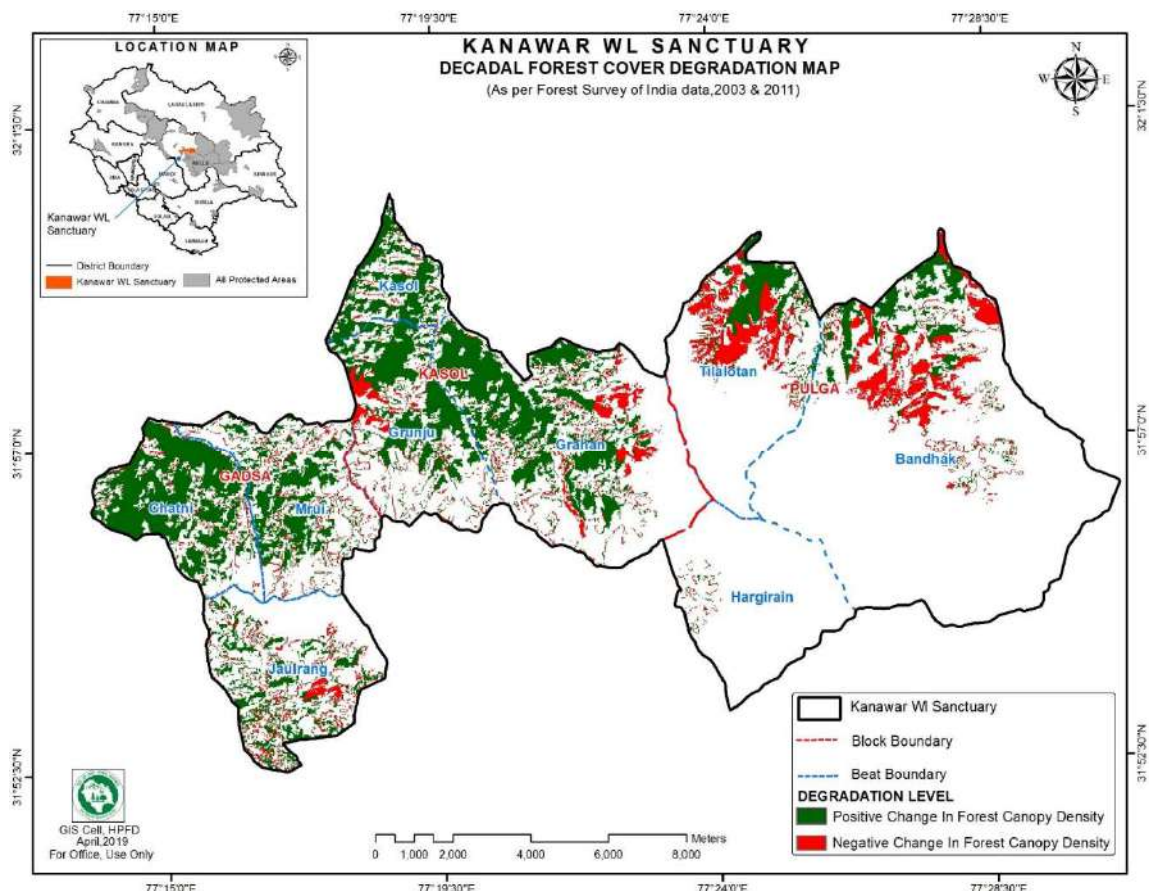


Figure 4- Decadal Forest Cover Degradation Map of Kanawar WLS

2.6.1.1 The bio-geographic classification

The topographic factors have a great influence on vegetation through their influence on climatic and edaphic factors that have a direct bearing on vegetation of a place. Among topographic factors is altitudinal variation, which ranges from 2030m to 4020m, is most prominent. The terrain is characterized by high ridges, deep gorges, cliffs and glaciers. Other topographic factors are configuration of land surface, slope, aspect and exposure. These all factors have an influence on temperature, wind movement, run off affecting erosion on steep slopes and deposition on relatively gentler slopes etc. and thereby causing a wide range of vegetation to occur.

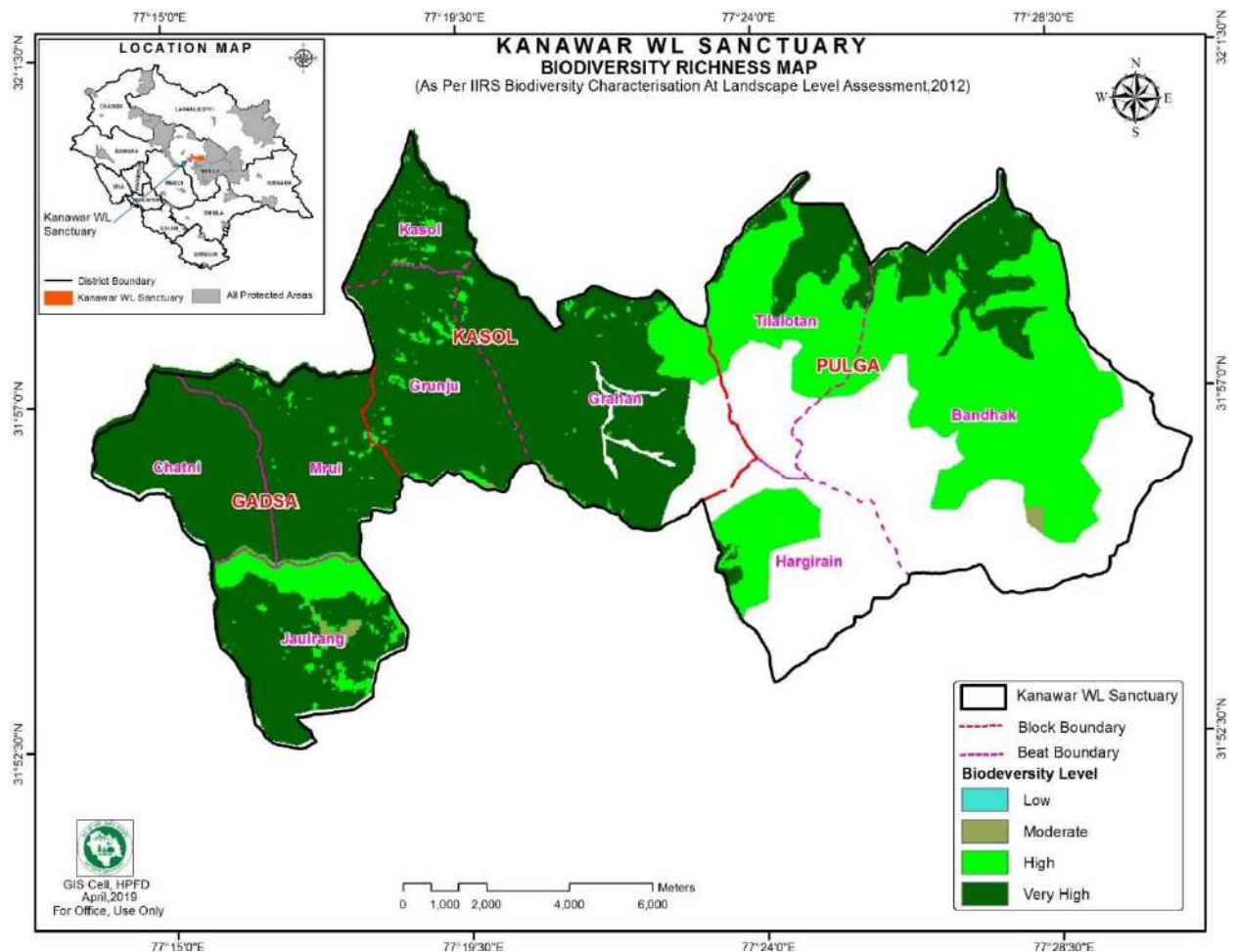


Figure 5- Biodiversity Richness Map of Kanawar WLS

2.6.1.2. The Forest Type, Cover and Food for Wild Animals

Following forest types according to Champion and Seth Classification are found inside the WLS:

9 C₁-Sub-tropical chir pine forest:

These types of forests are found in R/4 Kasol forest. Here chir ascend higher than its normal zone because of quartzite formations, an unique example of edaphic factor in the books of Silviculture.

12/C_{1c} -Moist Deodar Forest:

Here the top canopy consist of deodar as a dominant spp.

12/C_{1d} -Western Mixed Coniferous Forest:

The main spp. are Blue Pine, Fir, and Spruce. This type is found on the northern and eastern slopes above 2000m.

12C_{2/2c} -Moist temperate deciduous forests:

Prominent species in these forests are *Aesculus indica*, *Juglans regia*, *Prunus cornata*, *Texas baccata* etc.

12 C_{2/2a} -Kharsu oak forest:

These forests contain Kharsu Oak as dominant species. Fir and Spruce are also found admixtures. And are elevated up to height of 3500 m.

14 C_{1/1a} -Western Himalayan sub-alpine fir forest:

These are associated with Kharsu, Rhododendron and Juniper species (Plate 3).

15 C₃ -Alpine Pastures:

These pastures are found above the tree line up to limits of perpetual snow. A variety of medicinal herbs are found in these pastures. Grass is the main vegetation with occasional presence of Juniperous recurva and Rhododendron species. The flora is very rich and rare, comprising of *Meconopsis*, *Potentilla*, *Primula*, *Delphinium*, *Aconitum*, *Podophyllum*, *Gentiana kurroo*. These pastures present scenery of unique grandeur and unmatched beauty with flowers of various hues tossing their heads in glee when they are in full bloom.

Food is the primary obligation of any living being. Abundant quantity of food both for animals and birds is available in the sanctuary. Only portion of sanctuary near habitation is disturbed due to biotic interference and such areas are not fit for wildlife. For wild animals the biotic interference is a significant factor affecting shelter, nesting, food availability, hiding places etc. wild animals avoids such areas. The food source in the shape of grass and other biomass is present in abundance in the sanctuary except in winters when due to snow the animals move downwards for the food and shelter. Different herbivores prefer diverse food under different circumstances and therefore, nothing can be mentioned about the quality of the food available.

Available undergrowth is *Desmodium*, *Indigofera*, *Berberies*, *Sarcococcoa*, *Strobilanthes*, Ferns, *Polygonum*, *Spirea*, *Viburnum*, *Clematis*, *Cotoneaster*, *Balsam*, *Rosa*, *Rubus*, *Arundinaria*, *Spiraea*, *Principea*, *Daphne*, *Lonicera* and *Rumex* which all provides good forage, grasses, edible fruits and cover to the fauna.

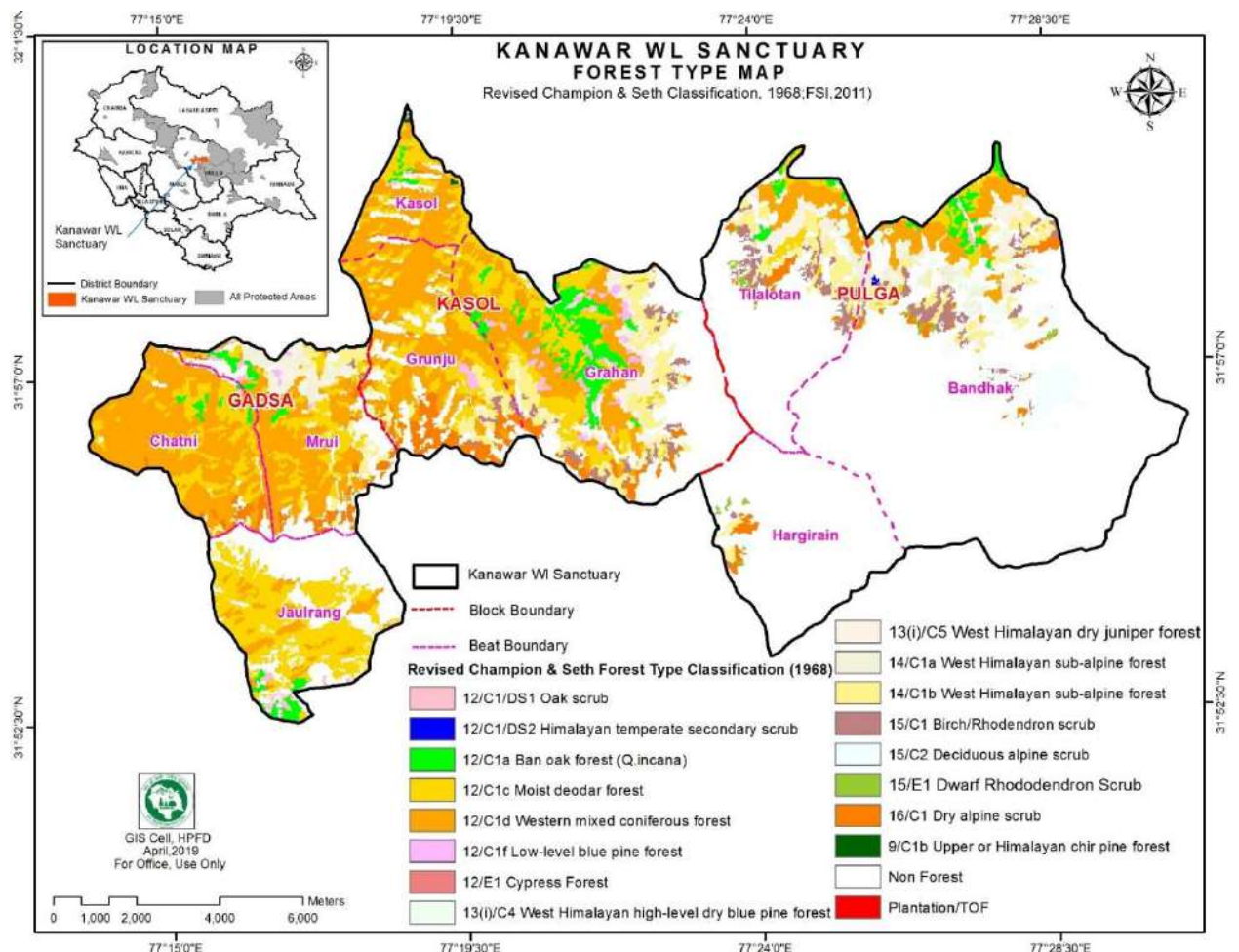


Figure 6- Forest Type Map of Kanawar WLS

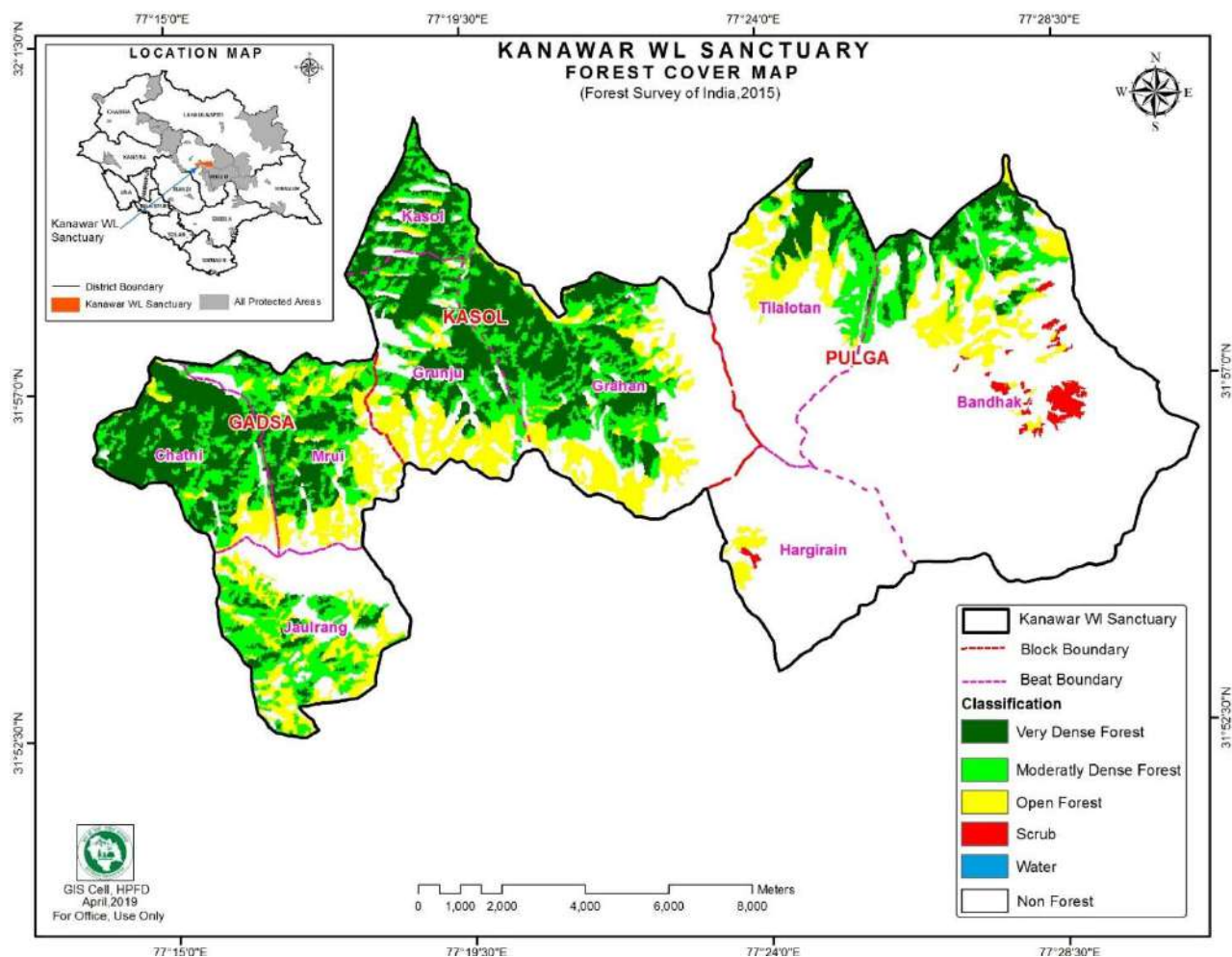


Figure 7- Forest Cover Map of Kanawar Sanctuary

2.6.1.3 Species and Communities of Conservation Importance, Key Areas.

The Protected Area has forests of Deodar, Fir, Spruce, and Kail among conifers and has a wide range of broad leaved species as well. Among them are Kharsu, *Prunus*, *Acer*, *Juglans*, *Buxus*, *Rhododendron*, *Celtis*, *Betula*, *Ulmus*, *Aesculus* and other miscellaneous species forming the under storey.

Alpine area of the protected areas is rich in medicinal herbs. Some of the important commercial medicinal herbs (Plate 5) found in the sanctuary are given below:

1. Patish (*Aconitum species*)
2. Karu (*Picrorrhiza kurroo*).
3. Dhoop (*Jurinea macrocephalla*).
4. *Discorea deltoides*.
5. Salam Panja (*Dactylorrhiza hatarigera*)

6. Ban Kakri (*Podophyllum hexandrum*)
7. Nihanu (*Valeriana spp*)
8. Banafsha (*Viola spp*)
9. Sath Jalari (*Ainselia aptera*)
10. Swertia spp
11. Thallictrum spp.
12. Polygonatum verticilatum

Thus, there is an urgent need to keep constant vigil on maintaining and further propagating these herbs. The culms of hill bamboo (*Arundinaria spp.*) locally known as Nirgal, are used as raw material for Kilta, tokri, basket making and *Taxus* leaves are commercially important. Its collection may have threatening effect on the species itself, but these are one of the most ideal habitats of the pheasants. However, collection of leaves and any other kind of herbs is not allowed from the sanctuaries at present, hence, is not a very serious threat as such. A checklist of flora (trees, shrubs, and herbs) is given as Annexure-XVII.

2.6.2 Animals

There is a great variation of altitude and flora in the sanctuary and for the reason it possesses many varieties of Himalayan Wild Life species. In the recent past, partial surveys were done which confirm the above facts. There is a large population of Blue sheep, Bharal, Musk deer, Tahr, Serow and Goral in the sanctuary. Snakes and lizards are also found.

Species entered in the Red List of Red Data Book of IUCN found in PA are Snow leopard, Himalayan black bear, Himalayan brown bear, Himalayan red fox, civets, jackals, serow, Himalayan tahr, Musk deer, Goral, Blue sheep, Monal, Koklas, Kalij and Western Tragopan (Plate 6). The most Vulnerable species is the elusive Snow leopard. It is a very shy animal and an inhabitant of remote habitats. It is a strictly protected animal. It preys on wild sheep and goat, which share the habitat, and sometimes on domestic livestock, which leads to a clash with humans.

Himachal Pradesh was once abundant with Bears, both brown and Himalayan black bear. There is a serious threat to both these species. The former is lesser in number than its cousin which prefers the lower heights near the tree line. The Himalayan black and brown bear are omnivorous. It is a very intelligent animal. It avoids humans. On hearing

human voices, it moves away minimizing chances of confrontation. But on a surprised confrontation with humans, it generally attacks and the injuries are normally fatal. Check list of animals is given as annexure- XVIII. Animal found in Kanawar WLS during partial census conducted in the years 2010 to 2013 has been tabulated in Table 6.

Table 6: The result of partial census carried out in the Kanawar WLS

Animal	2010-11	2011-12	2012-13
Himalayan Tahr	8	12	10
Goral	10	11	8
Langoor	3	0	2
Leopard	3	0	2
Leopard cat	2	4	3
Black Bear	2	1	3
Monkey	20	30	50
Civet cat	5	0	8
Brown Bear	1	0	1
Kalij pheasant	3	5	7
Koklas	20	23	25
Monal pheasant	8	7	9
Chukor	4	5	0
Western Tragopan	2	1	1
Cheer pheasant	0	0	0
Vulture	12	15	0

Source: Status Report on Wildlife in Kais, Manali and Kanawar Wildlife Sanctuaries (13.03.2016 to 16.03.2016) - Dr ML Thakur, SPC, HPSBB, DoES&T & Sh. Tilak Raj Sharma, DFO, WL Kullu.

2.6.2.1 Vertebrates, their status, distribution, habitats, habitat quality and key areas.

The Kanawar WLS is host to a variety of faunal species. It is a paradise for bird watchers. The best time for this hobby is early mornings and late afternoons. The birds pay

regular visits to the streams. Wildlife sanctuary is famous for its variety of wild fauna. Long tailed Minivet, Verditer flycatcher, Common hoopoe, Ring rosed parakeet, Black kite, variety of Thrushes, Tits, Warblers, and Yellow billed blue magpie are a few of the common birds in the valley (Plate 1). The birds of prey normally seen in the valley are Common Buzzard, Booted Eagle, Lammergier, Cinerous Vulture and Golden Eagle, although the sightings of both Golden Eagle and Cinerous vulture have become less now a days.

Among the pheasants, Monal, Koklas, Cheer, Kalij are found in the denser part of the forests. A lucky few may also have a glimpse of the Western Tragopan. One can hear the pheasants calling at daybreak. Western Tragopan which is state bird is a highly threatened (Vulnerable) species is found in some parts of wildlife sanctuary along with the Great Himalayan National park which lies to the south of sanctuary. There is an urgent need to protect it from disappearing. Monal which was state bird of Himachal Pradesh earlier also found in this PA. The pre-mating dancing ritual performed by male Monals to attract the females is a treat to the eyes. Earlier, the pheasants were killed for their meat and crests. In traditional functions, it was common to see people wearing the crests on their hats, though the practice is on decline now. The list of pheasants and birds found in this PA is given as Annexure- XIX & XX.

Wildlife sanctuary is famous for its variety of wild fauna. India's largest remaining population of Himalayan Thar inhabits this area. Other Red Data Book enlisted species found in the sanctuary are Musk deer, Brown bear, Snow leopard, Serow, and Blue sheep. In addition to these other animals found in the sanctuary are Leopard, Black bear, Jungle cat, Martens, Common fox, Ghoral, Barking deer, Langur, Common flying squirrel and Porcupine. Also the checklists of animals and birds are given as Annexure- XVII and XVIII

It is important to analyze the resources, available in the sanctuary in terms of habitat, which ultimately controls and regulate the wildlife and therefore, indicates the management of the protected area. Habitat can be analyzed in terms of space, food, cover, presence of other animals and climatic factors. Space a multidimensional factor is a primary pre-requisite for the well being of the wildlife. The length and width gives the extent of area available, thickness indicative of number of layers available for different species. The quality and quantity of each of these dimensions gives the idea of nourishment available to the wild animals. In this protected area the thickness is not

limiting as middle storey shrubs and herbs are present. Animals do not spread randomly, but tend to cluster in a suitable habitat. Edges may not be prominent but are available to the fauna in the protected area.

These edges are between open lands and forest canopy, between middle storey and shrubs or may be any two different land uses, may also be called transition zone of acetone in ecological sense. Transition of two or more habitats may be viewed as an edge, and is very much desirable. Animals keep on moving in different areas. Habitat cannot be considered in terms of fixed locations. Animal population living in one area may migrate to another area for want of one or another resource. The animals themselves select an alternative and in this way a long term balance of available resources is maintained. The area provides an excellent habitat for large number of animals, and also provides corridors up to Sainj wildlife sanctuary and through it to GHNP. The sanctuary has available resources at various altitudes, which caters to the need of the animals during various seasons.

Monkey population estimation have been carried out during the year 2015 and 2019 (Table 7). Detailed checklist of birds have been prepared by Dr ML Thakur, SPC, HPSBB, DoES&T and Sh. Tilak Raj Sharma, DFO, WL Kullu (Annexure-XX), which has been published in the Status Report on Wildlife in Kais, Manali and Kanawar Wildlife Sanctuaries (13.03.2016 to 16.03.2016).

Birds and pheasant count /check lists have been prepared by frontline staff during Endemic Bird Day and Wild Bird Day celebrations in Kanawar WLS (Table 8 & 9). In addition ungulate estimation survey is under progress since 2017 in collaboration with WII and final report is awaited.

Table 7: Monkey Population Estimation of Kanawar Wild Life Sanctuary

w.e.f. 29.06.2015 to 02.07.2015.

SN	Name of Beat	Trail	Distance of Trial	No. of Monkey
1	Kasol	A-Grahan village to CII Badrang	4Km	27
		B- CII Khobas to NHPC Colony	3Km	24
2	Ghrunju	Jai nala to Khoru Thach	5Km	0

3	Thunja	A- CIIa to CIId (via Kurikdhar)	8Km	67
		B- CIId to Pudli pul	5 Km	08
4	Grahan	Pulgi Dhar to Old Nursery Kurachi	4Km	27
			Total	153

w.e.f. 04.12.2019 to 06.12.2019.

SN	Name of Beat	Trail	Distance of Trial	No. of Monkey
1	Ghrunju	Jai Nala to Buhari dhar	3Km	0
2	Grahan	Pulgi dhar to Old Nursery	3Km	0
3	Kasol	R/4 C-IIB to Khobsar	3Km	0
			Total	0

Table 8: Bird count during Endemic Bird Day- 04 May, 2019 celebration in Kanawar WLS.

SN	Name of Team Member	Name of Bird Species	No. of Bird
1	Rakesh Kumag, Fgd. & Sh. Devi Ram, Fgd.	Common myana	8
2		Yellow billed blue Magpie	4
3		White Capped water red start	7
4		Brown dipper	3
5		Rufouse bellied Niltava	2
6		Little forktail	1
7		Blue Whistling thrush	3
8		Common hoopoe	1
9		Oriental white eye	1
10		White browed wagtail	1
11		House Sparrow	6
12		Plumbeous water redstart	2
13		Himalayan bulbul	4
14		Grey Bush chat	2

Table 9: Bird count during celebration of Wild Bird Day – 19 October, 2019 in Kanawar WLS.

1	Sh. Devi Ram, Fgd.	Common myna	5
2		Brown dipper	3
3		Great Barbet	1
4		Yellow billed blue Magpie	2

5		Blue capped rock thrush	1
6		Long tail myna	2
7		Black yellow gross black	4
8		Grey Bush chat Female	1
9		Blue Whistling thrush	5
10		Common hoopoe	2
11		White Capped water red start	3
12		Plumbeous water redstart	4
13		Pink browed rose finch	1
14		Grey headed woodpecker	1

2.6.2.2 The Limiting Factors.

Even sufficient food present may not be available for the wild life. The area above 3000m remains under the snow from November to March and therefore, even while the resources are present, they may not be available to the fauna. The shepherds in the past used to penetrate deep inside the sanctuary, thus scaring and squeezing the wild fauna to smaller niches which has now been rectified by the way of allotting grazing lands in the other territorial areas. Now only the parts near the habitations faces little disturbance due to various biotic factors.

2.6.2.3 Important Invertebrates, their status, distribution and habitat.

No study or survey has been conducted for invertebrates, their status and habitat. A variety of butterflies, moths, beetles and insects species are found in abundance in the sanctuary. Study/Survey of the invertebrates is required to be done in the future.

CHAPTER – 3

HISTORY OF MANAGEMENT AND PRESENT PRACTICES

3.1 General

Scientific management of the forests in Kullu started in 1886 when Mr. Fishcer, DCF, prepared first working plan for the management of the forests of the Kullu district. Main emphasis was laid on Deodar, which was then considered a valuable species for export.

Mr. Trevor revised the working plan from 1915-1931. In his working plan he laid emphasis on uniform system of forest management. Four working circles were formed which were Regular Working Circle, Fir Working Circle, Selection Working Circle and Unregulated Working Circle.

The second revision of working plan was done by Mr. Semler during 1931 -1934. The objectives of the management of these plans were the same as that in the previous working plan. Further, Sh. K.L. Aggrawal revised the working plan during 1947-1949. The number of working circles remained same. Sh. D.P. Kapoor did fourth revision of this working plan during 1963-64. In this plan, the various working circles constituted were Regular Working Circle, Fir Working Circle, Protection Working Circle and Broad Leaved Working Circle. Selection Working Circle of previous Working Plan was abolished. Sh. J.C. Sharma further revised the working plan for 15 years from 1979-80 to 1993-94.

Kanawar WLS was constituted by Punjab Government vide Notification No. 70 GP 53/97 dated 28.02.1954 under Punjab Wild Birds and Wild Animals Protection Act 1933 with an area of 54.27 sq. km (Annexure-I). The Kanawar WLS was rationalized vide GoHP Notification No. FFE-B-F(6)-13/1999/Kanawar, dated 1st Feb. 2014 under Wildlife (Protection) Act, 1972 with an area of 107.29 sq. km. This sanctuary remained initially under Wildlife Division Shimla and Wildlife Division Palampur till the year 1984, when Wildlife Division, Kullu was created. The complete control of this PA was handed over to D.F.O., Wildlife Division, Kullu vide HP. Govt, notification No. SC-A (1) 1/83 Vol-II dated 26.08.1986 (Annexure-II). Kanawar WLS is being managed by Kullu Wild life division since June 1984. This sanctuary contains all the types of forestland classified in Kullu district, which are RFs, 2nd class DPFs and other Cultivated Land.

Earlier management plan was prepared for five years from 1999-2000 to 2003-2004. The previous management plan (10 year) was prepared by Sh. B.S. Rana, IFS, DFO WL Kullu from 2004-05 to 2013-14.

3.2 Timber Operation including Bamboo and firewood harvest

3.2.1 Silvicultural System and Tending Operations

The forests in this sanctuary are strictly protected and preserved to maintain flora and fauna and no silvicultural operations like tending or thinning are undertaken. However, biotic pressure is there as discussed in the previous paras. The right holders continued to enjoy their rights recorded in the forest settlement till March, 2004. At present all such rights have been suspended in pursuance of the guidelines issued by MoEF& CC vide letter No. 1-26/CEC/2003 dated 02.07.2004 in view of order of Hon'ble Supreme Court in IA No. 548 dated 14.02.2000. The forests are being managed with the objective of providing best possible habitat to the wildlife. The working plan prescriptions are not in force.

3.2.2 Even aged system and uneven aged system

Main objective is protection. Hence, no silvicultural system is applied.

3.2.3 Bamboo Working

The only available bamboos are the culms of hill bamboo (*Arundinaria* spp.) locally known as Nirgal, used as raw material for Kilta, tokri, basket making, the tools used in agriculture and animal husbandry. Its collection may not have threatening effect on the species itself but the areas bearing this species are good habitat for pheasants and moreover collection causes disturbances affecting wild life. The user groups are mainly dependent for raw material on the forests of Parvati Forest Division.

3.2.4 Firewood Harvest and collection

There is no commercial extraction of firewood from the sanctuary. Only dead trees and twigs were collected for firewood by the local right holders in the past. Valley remains under snow for 4 to 5 months and people burn fuel wood in ovens during winters and with the increasing population of migrant labour in the valley, the protected area and other forests are affected by the demand for fuel wood extraction. No special impact study of

fuel wood collection from Protected Area has been conducted. This activity has definitely affected the habitat of wildlife, especially around the villages. Impact of this activity has been felt up to 2 kilometer from the villages depending upon the accessibility and terrain of the area. However, during recent time due to easy availability of LPG and other alternate fuels, the dependence on fuel wood has reduced considerably. The fuel wood consumption pattern for eight villages based on PRA exercise is tabulated as follows:

Table 10: Estimated Fuel Wood Consumption

SN	Name of Village	Consumption of fuel wood (qtl.)		Total Consumption (qtl.)
		Summers	Winter	
1	Grahan	20	82	102
2	Thunja	18	72	88
3	Kasol	10	60	70
4	Pulga	30	128	158
5	Tulga	20	70	90
6	Manihar	18	75	93
7	Nanjan	25	77	102
8	Shatt	20	84	104
	Total	161	648	807

The data has been collected from household survey and Participatory Rural Appraisal exercises. The impact of fuel wood collection is only in the periphery of the villages. People use to collect dry and fallen wood as per rights recorded in the forest settlement. About 10 per cent of the total fuel wood requirement is met with from agricultural residue and small wood obtained from pruning of fruit tree and lopping of trees

grown on the farm bunds for the fodder. No special impact study of fuel wood collection from the protected area has been conducted.

3.3. Non – Wood Forest Produce (NWP) Collection

There are variety of plants and herbs, which are of great significance. The right holders were permitted in the past to remove roots, flowers and grasses etc. free of charge, in accordance with the rights allowed in the Forest Settlement Report of Kullu. There are variety of plants and herbs which are of great value. These are generally used for their medicinal values. At present, the collection of these plants and herbs has been suspended in the protected area. The minor forest produce collected by the residents of the area till recent times are Guchhi (*Morchella spp.*), and nirgal only.

Main Non timber forest produce found in the sanctuary are medicinal herbs. Various drugs are derived from different parts of the plants. Most important medicinal herbs that are available in the sanctuary are *Jurinea*, *Aconitum*, *Viola*, *Gentiana kurroo*, *Morchella*, *Acorus* etc. The complete control of the sanctuary was given to wildlife wing in 1987. Since then no export of medicinal herbs has been done from the sanctuary. The alpine area of the sanctuary is rich in medicinal herbs. Ban kakri (*Podophyllum emodii*), Dhoop (*Jurinea macrocephalla*), and Shingli-Mingli (*Dioscorea deltoideae*) are the commercially important species. Vanakhsha (*Viola spp.*) and Banjira are also found.

3.4 Leases

There is no lease area inside the sanctuary.

3.5 Other Programmes and activities

The services of all the Govt. departments are available in the area or in its vicinity. To create awareness among the masses, nature awareness programmes /tours are conducted. During these tours the participants are taken to various sanctuaries and zoos. Lectures on wild life subjects are delivered to the students and other people. Every year wild life week is celebrated in the 1st week of the October during which various competitions are organized so as to create wild life awareness among the students and folks.

3.6 Forest Protection

3.6.1 Legal Status

With a view to conserve diverse wildlife available in the state, the Government of Himachal Pradesh has declared 26 sanctuaries, 5 National Parks, and 3 Conservation Reserves covering all the agro-climatic zones in the state and having significant ecological, geo-morphological and bio-diversity.

A wild life sanctuary is established under sections 18-26 of the Wild Life (Protection) Act, 1972 and admits rights to the extent as allowed by the Collector at the time of the settlement in concurrence with the Chief Wild Life Warden of the State. Finally notified boundaries of the Wild Life Sanctuaries cannot be altered without resolution of the State Legislature. General public is legally restrained from destroying, exploiting or removing any wild life from the sanctuary, or destroying or damaging the habitat of any wild animal, or depriving any wild animal of its habitat in the sanctuary.

The Kanawar Wildlife Sanctuary was notified vide Punjab Govt. Notification No. 70-GP-53/07 dated 26th February 1954 under the Punjab Birds and Wild Animals protection Act, 1933. The matter with regard to the issuance of Notification under the Wildlife (Protection) Act, 1972 was examined by the Administrative Department in consultation with the Law Department. It had been opined that there is no need to declare areas of Manali, Kais, Khokhan and Kanawar Sanctuaries again as sanctuaries under the Wild Life (Protection) Act, 1972 as these sanctuaries were rightly declared as sanctuaries under the Punjab Act and the operation of Wild life (Protection) Act, 1972 which is a central act and in no manner affects the constitution of the said sanctuaries. A copy of the letter No. FFE-B-F(6)-11/99 dated 16/10/1999 addressed to the Chief Wildlife Warden H.P. by the Commissioner cum Secretary (Forests) to the government of H.P. in this regard is attached as Annexure -VIII.

No settlement of rights and concessions had taken place and residents continued to enjoy their rights and concessions as per settlement report by the Anderson in the year 1896 till March 2004 when MoEF & CC had directed the State Government to stop exercise of rights enjoyed by the local people in the Protected Areas. The matter with regard to the rationalization of the Wildlife Sanctuaries and National Parks in Himachal Pradesh was under the consideration of the Hon'ble Supreme Court of India in IA No. 139/2010 in Writ Petition Civil NO. 337 of 1995 titled Centre for Environmental Law, WWF-I Versus Union of India and others. In the pursuance to the Hon'ble Supreme Court order dated 7th May 2010, the State Government issued intention Notification under

Section 18 of the Wildlife (Protection) Act, 1972, in respect of wildlife sanctuaries and National Parks for which rationalization had been proposed. The Hon'ble Supreme Court vide order dated 05/08/2011, further directed the State Government to follow the procedure laid down under section 18 to 26A and 35 of Wildlife (Protection) Act 1972 before issuance of final notification under section 26A of the Wildlife (Protection) Act, 1972. The Hon'ble Supreme Court vide order dated 01/02/2013 passed in IA No. 155 (earlier IA No. 139/2010), has permitted the State Government to issue final Notifications under Section 26A, 35(4) and 36A of the Wildlife (Protection) Act, 1972 with regard to the proposed rationalization of boundaries of the Wildlife Sanctuaries and National Parks in Himachal Pradesh. The Governor of Himachal Pradesh under section 26A of the Wildlife (Protection) Act, 1972 declared an area of 107.29 Km² of Kanawar as "Kanawar Wildlife Sanctuary" vide Notification No. FFE-B-F(6)-13/1999/Kanawar, dated 1st Feb. 2014 for the purpose of protecting, propagating and developing wildlife and its environment.

Recently a proposal to declare Eco- Sensitive Zone (ESZ) around Kanawar Sanctuary has been submitted (Figure 9). The eco-sensitive zone is situated at the periphery of Kanawar Wildlife Sanctuary and encompasses an area of 64.65 Km². The area will act as an important buffer for many important rare wild flora and fauna found in Kanawar Wild life sanctuary.

The Kanawar WLS is adjacent to Great Himalayan National Park and is part of GHNP. Its landscape management plan shall be developed alongwith GHNP. As per the suggestion of MEE team and Additional director (ESZ Division) from MoEF & CC a proposal of contiguous PA at Landscape level and a combined Eco-Sensitive Zone (area about 112.72 sq km) around GHNP, Khirganga NP, Kanawar WLS, Pin Valley NP & Rupibhawa WLS is under process (Figure 10).

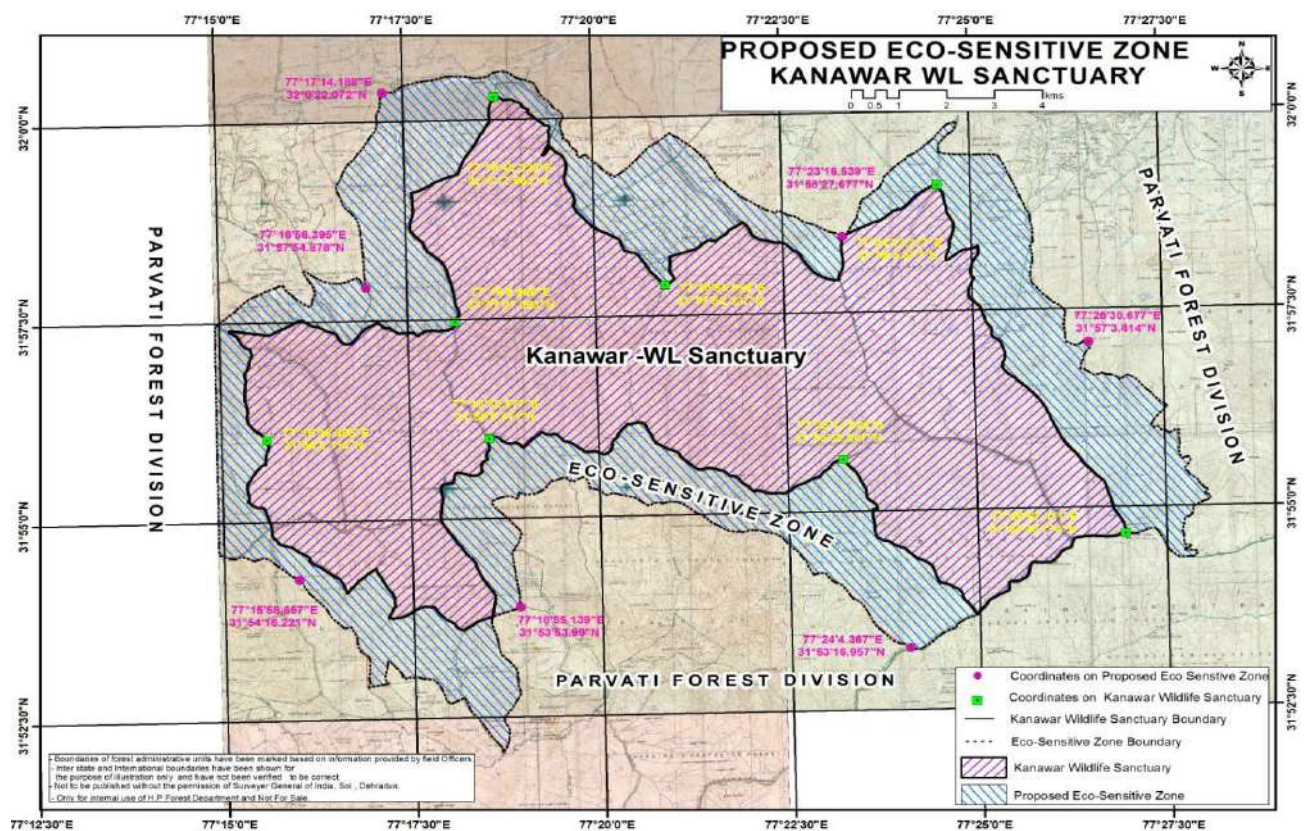
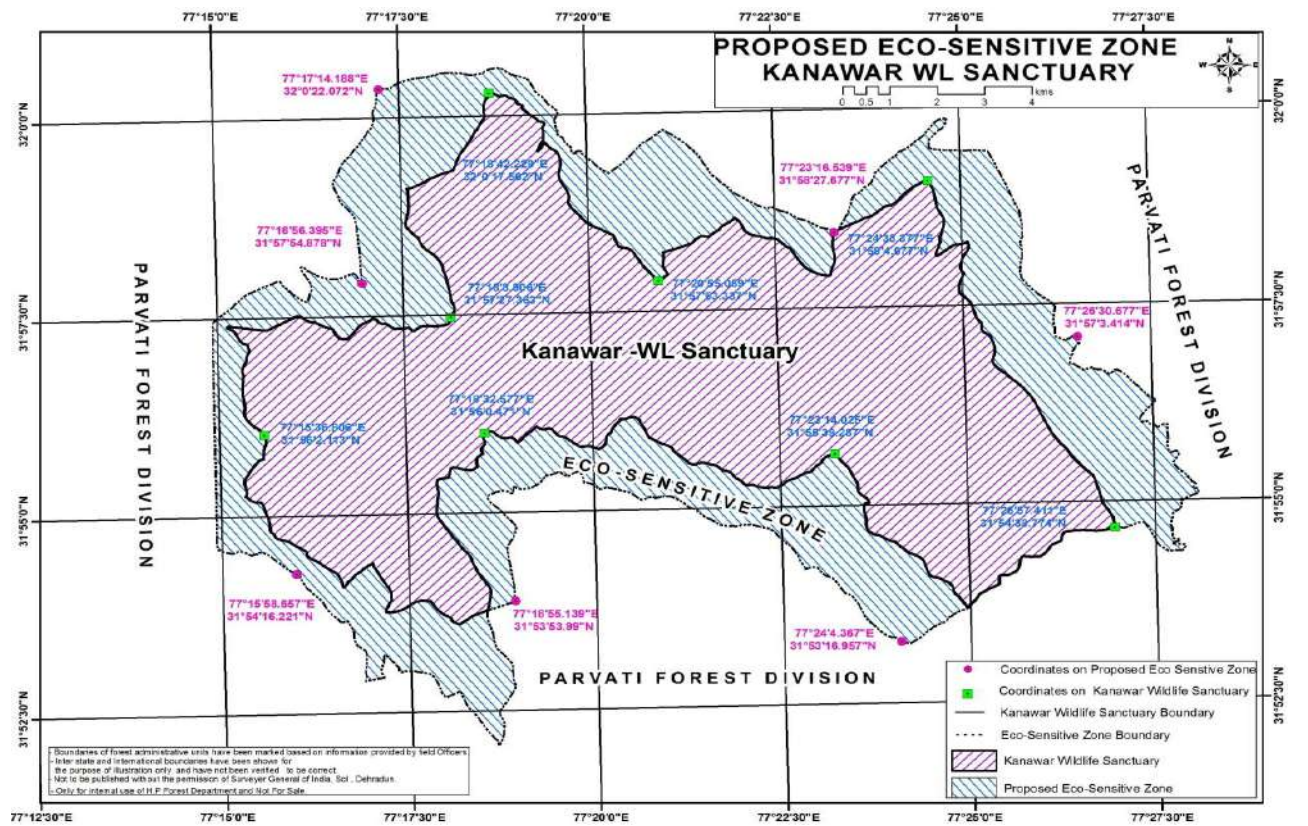


Figure 8- Proposed Eco-Sensitive Zone Kanawar WLS

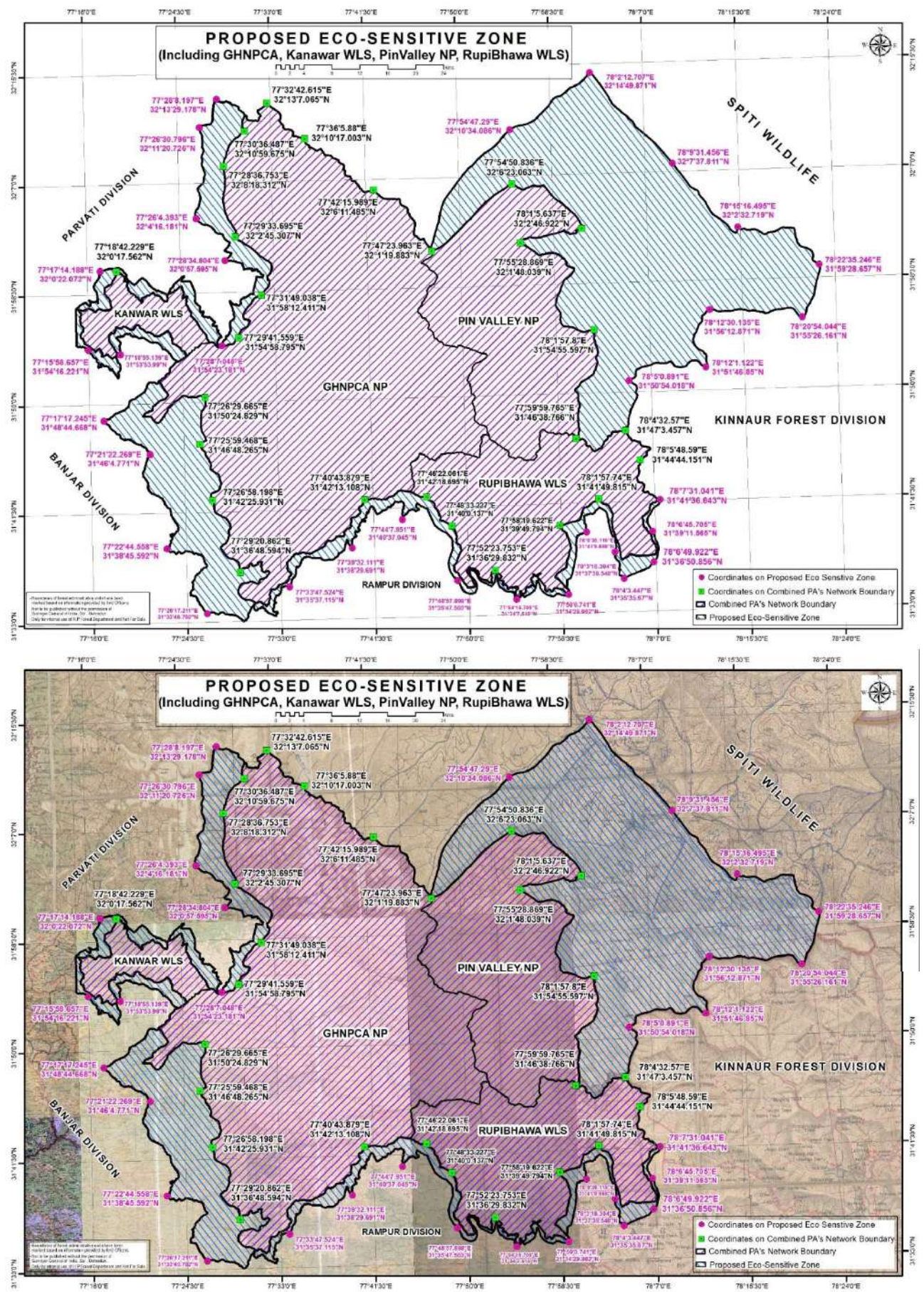


Figure 9- Proposed Eco-Sensitive Zone of GHNPCLandscape

3.6.2 Hunting

The area being a notified wildlife sanctuary, no hunting licenses were issued in the past though there was provision of granting the hunting license under Wildlife Act, 1972. The population of wild animals is at ecologically sustainable level and no major human-wild animal conflict was noticed, hence no hunting license has been granted in the past.

Dwindling population of wild animals has started increasing since imposition of total ban on hunting since 1984. The extension of agriculture coupled with increased human interference in hitherto undisturbed areas has led to increased human animal conflict. Black Bear and Monkeys are reported sometimes to cause damage to standing crops. A few instances of lifting of domestic animals and injury to human life by leopards are also reported (Annexure-IV).

3.6.3 Illegal Activities

3.6.3.1 Poaching

There is no organized poaching of wildlife in the sanctuary. Grant of arms license in and around sanctuary area is being closely monitored. Stray incidences of poaching cannot be denied. Wildlife is vulnerable to poaching during snowfall, as animals and birds are forced to move lower elevations for food and shelter. No poaching incidents have been noticed/reported in the Protected Area during the last five years. This could be as a result of awareness programmes and anti-poaching activities undertaken by the department.

3.6.3.2 Illegal Cutting of Trees

No organized illicit felling of trees takes place in the protected area. Very few cases of illicit felling have been reported since 1987. Stray cases of illicit felling do occur, that too for the bonafide domestic use by the villagers. No major case(s) of felling occurred during the last five years. The beat-wise number of illicit felling/ forest offence cases are given in the Table 11.

Table 11: Illicit felling/Forest offence Cases during last 7 Years in Kanawar WLS

Year	Kasol Beat			Ghrunju Beat			Grahan Beat			Total
	Illicit Felling	Illicit Loppin	Illicit Grazing	Illicit Felling	Illicit Loppin	Illicit Grazing	Illicit Felling	Illicit Loppin	Illicit Grazing	
2012-13	0	0	0	0	0	0	0	0	0	0
2013-14	0	3	0	0	0	0	2	0	0	5
2014-15	1	0	0	0	0	0	0	0	0	1
2015-16	3	2	0	0	0	0	1	0	0	6
2016-17	0	1	3	0	0	0	0	0	0	4
2017-18	0	0	0	0	0	0	0	0	0	0
2018-19	0	0	0	0	0	0	0	0	0	0
Total	4	6	3	0	0	0	3	0	0	16

3.6.3.3. Illegal Removal of NWP, Encroachment and other illegal Activities

There is no reported case of illegal extraction of non-wood products from the sanctuary. The right holders who had rights in the past, to collect non-wood forest produce do bring some plants for the domestic use. No commercial extraction of non-wood forest products is done from the protected area.

The incidences of illicit felling in the sanctuary are rare. The right holders, to meet with their bonafide domestic requirements of fuel wood, fodder and cattle beddings sometimes do take away lops and tops of bushes and trees. These incidents are not in the alarming proportions. The sanctuary is surrounded by forestland on all the sides. Therefore, there has been lesser threat on account of encroachments. In fact, the sanctuary is free from encroachments.

3.6.4 Livestock Grazing

The local right holders had been allowed to graze their cattle, sheep and goats in the past as per their rights recorded in the Settlement Report. Grazing cause problems to wildlife such as:

1. Competition for food.
2. Disturbance.

3. Transmission of diseases
4. Soil Erosion.
5. Increase in the quantity of unpalatable grasses and weeds.

Illegal grazing is occasionally a problem in the area as stray cattle from in and around the protected area graze inside the sanctuary mixed with the cattle of right holders (Table 12), thus, disturbing the wildlife. This problem is being eradicated with the enforcement of guidelines received from the MoEF & CC regarding suspension of rights.

Table 12: Live Stock population of the villages adjoining Kanawar Sanctuary

SN	Name of Village	Bovine	Sheep	Goat	Dog	Horse	Mule	Total
1	Grahan	205	1450	310	10	30	10	2015
2	Thunja	4	15	10	7	2	10	48
3	Kasol	43	300	250	35	0	0	628
4	Pulga	110	400	200	8	3	20	741
5	Tulga	50	200	50	5	0	0	305
6	Manihar	297	325	500	30	0	0	1152
7	Nanjan	884	800	400	59	5	7	2155
8	Shatt	535	255	60	18	12	0	880
	Total	2128	3745	1780	172	52	47	7924

Source: Veterinary Department.

No grazing permits are issued for grazing of cattle in the area. Yaks shown above have been kept by the locals for giving joy ride to the tourists and are not taken to the protected area for grazing. Generally, the people of the villages situated outside the sanctuary send their redundant cattle to the forests at night especially during rainy season. They remain unattended and forest staff is forced to remove them out of the sanctuary and some cattle also become prey to the wild animals.

3.6.5 Wild Fires

Forest fires are rare in Kanawar sanctuary (Table 13). The sanctuary falls in the temperate and sub-alpine zone. There are several perennial streams/ nallas in the area. Due to a high moisture regime of the area, the fire incidences do not take place in the protected

area. Moreover, staff and the firewatchers engaged to keep a close watch on any incidence of fire are deployed during fire season.

Table 13: Forest Fire record of Kanawar Wild Life Sanctuary, from 2004-05 to 2019-20.

Years	No. of cases	Area affected					Estimated loss (Rs.)	Beat (Forest)	Remarks
		Natural area (in ha)	Planting area (in ha)	Regen. area (in ha)	Others area (in ha)	Total area (in ha)			
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
2004-05	-	-	-	-	-	-	-	-	
2005-06	-	-	-	-	-	-	-	-	
2006-07	-	-	-	-	-	-	-	-	
2007-08	-	-	-	-	-	-	-	-	
2008-09	-	-	-	-	-	-	-	-	
2009-10	-	-	-	-	-	-	-	-	
2010-11	1	-	15	-	-	15	40,000/-	Gharunju (R/4 C-VII Gharunju)	Fire in Summer
2011-12	-	-	-	-	-	-	-	-	
2012-13	-	-	-	-	-	-	-	-	-
2013-14	-	-	-	-	-	-	-	-	-
2014-15	1	44	5	-	-	49	89,000	Thunja (Thunja)	Fire in Winter
2015-16	-	-	-	-	-	-	-	-	-
2016-17	-	-	-	-	-	-	-	-	-
2017-18	1	15	-	-	-	15	-	Kasol (R/4 Kasol)	Fire in Winter
2018-19	1	-	-	-	5	5	-	Kasol (R/4 Kasol)	Fire in Summer
2019-20	-	-	-	-	-	-	-	-	
Total	4	59	20		5	84	1,29,000/-		

3.6.6 Insect Attack and Pathological Problems

No record is available for the past and no evidence is visible, which may points towards any noteworthy insect or pathological attack on the species available. Insect damage is sporadic and does not assume the form of an epidemic. Mainly *Ectropis deodarae*, *Euzophoro cedrela* damage deodar trees and seedlings. *Brachyxychutes* subsigrates attacks the new shoots of silver fir.

The fungi like *Trametes*, *Fomes anosus*, *Peridermium cedrii* attacks Kail, Deodar, and Spruce. They cause heart rot in the trees. Others like *Barcayella*, *Deformens*, *Fusarium* attack spruce cones, current shoots and roots of the Deodar seedlings.

3.7 Tourism

More than Four thousand five hundred tourists visit the sanctuary every summer, rough walking trails and paths are there for visitors. Trekking programmes are organized for school and college students by the YHAI. One watch tower for watching wild life and for scanning the area for nature conservationists and staff has been constructed during the year 1999-2000. The sanctuary is full of natural camping sites. The area has a great scenic beauty and offers tough treks through varied vegetation. This is undoubtedly one of the most approachable PA for sighting of animals for the wildlife enthusiasts. Commercial activities other than those by the locals are restricted and tourist zones have been identified.

The State's wild life potentials have until now remained out of the reach of the tourists mainly due to lack of infrastructure. Most of the tourism, till now, is limited to the towns, with occasional trip to the nearby forests and other easily accessible attractions. Unaware of what they are missing, the tourists wander amongst the shops and restaurants not much different from their native places. Many a nature lovers and wild life enthusiasts do not find opportunities to their taste, and have a hasty retreat from the State. There is immense potential for attracting visitors in this sector by providing functional conveniences.

3.8 Research, Monitoring and Training.

3.8.1 Research and Monitoring

No scientific research has been carried out in the Kanawar WLS. However, general study of habitat has been done and local staff monitors various factors affecting it. Census of wild animals and birds has also been undertaken in recent years.

3.8.2 Training

For field staff, regular training/refresher courses are being conducted by the Forest training Institute Chail and Sundernagar. In addition to it, a number of workshops and training are imparted locally by inviting experts from outside to refresh and enhance the

technical knowhow. Exposure visits for the field staff to various protected areas within and outside state are regularly organized to make them aware about good management practices being adopted in different PAs. Awareness programmes have also been organized among villagers to highlight the importance of the wildlife.

3.9 Wild Life Conservation Strategies and their Evaluation

A natural environment is self-renewing, self-perpetuating and self-sustainable, in which every organism contributes in some way, howsoever small, to the overall sustainability of the ecosystem. In natural eco-systems, the plants and animals have evolved at their own pace and in their own ways under the influence of various climatic factors through the principle of natural selection and have created self sustaining habitats and micro habitats or niches. Over the years, ecological balance has been achieved and maintained.

The term wildlife applied to all biotic elements that comprise every species of plants and animals in the world, excluding man and his domesticated pets. But in practice, the term has become a fashionable coin giving value to a certain limited number of species of spectacular animals that enjoy public recognition. India has a rich heritage of wildlife as well as a long history and tradition of the conservation. Human beings and wildlife co – existed in nature as long as man was not a dominant organism. At present Wildlife all over the world is vanishing rapidly due to growing influence of humans over resources. The pressure of increasing living standard, along with an unprecedented growth of the human population and commercial exploitation have been the prime causes for the declines of the wildlife in almost all the countries. Man has ruthlessly destroyed nature in search of food, water, shelter and connectivity. As a result, the formerly secure wildlife habitats have been depleted and fragmented. This has caused wild animals to enter into human habitations and destroy crops in search of food. Damage to property, dwellings and human life is not uncommon. This leads the rural people to ponder whether it is reasonable to conserve wildlife. In reality, it is extremely necessary to have a plan for peaceful co-existence with nature and natural life for the development and progress of human beings. The destruction of any form of life affects the human race itself. During the past centuries, man has never walked such a path of self-destruction as in the latter half of the 20th century.

In the present scenario, protection is the foremost objective and the area is intensively patrolled to check depletion of the protected area's biological heritage.

Footpaths and local paths are the only way to guard the area (Annexure- VI). Soil conservation measures have favorable impact on conserving and checking further erosion of the precious top soil.

Works of pasture development, improvement and plantation of near extinct medicinal herbs by involving local people has yielded a desirable result in improvement of wildlife habitat. Joint Forest Management and eco-development has played an important role in raising awareness among villagers. A sense of self restriction and self discipline among villagers has evoked a complimentary effect on conserving, maintaining and enhancing flora and fauna.

3.10 Administrative Setup

The sanctuary is governed by the rules and regulations prescribed by the State Government. The sanctuary is under the administrative control of the H.P. Forest Department (Wild Life Wing), Govt. of H.P. The Chief Wild Life Warden-cum- Pr. C.C.F. (Wildlife) with HQ at Shimla, exercises the overall technical and administrative control. Kanawar WLS falls under the jurisdiction of Wildlife Division Kullu which under the control of GHNP Circle at Shamshi. The Kanawar WLS is managed by D.F.O. Wild Life with HQ at Kullu through the Range Forest Officer, Wildlife Range Kullu/ Kasol. The detail of the staff posted in Kanawar WLS is as follows:

RFO	= 1 No.
Deputy Ranger/ BO	= 2 No.
Forest Guards	= 3 No.

After rationalization the sanctuary consists of three blocks which are further divided into nine beats. Whenever required, camping equipments are made available to the field staff which includes sleeping bags, tents, cooking utensils, GPS, binoculars etc. which has been kept in the Range office. The administrative map is attached as Figure 10 .

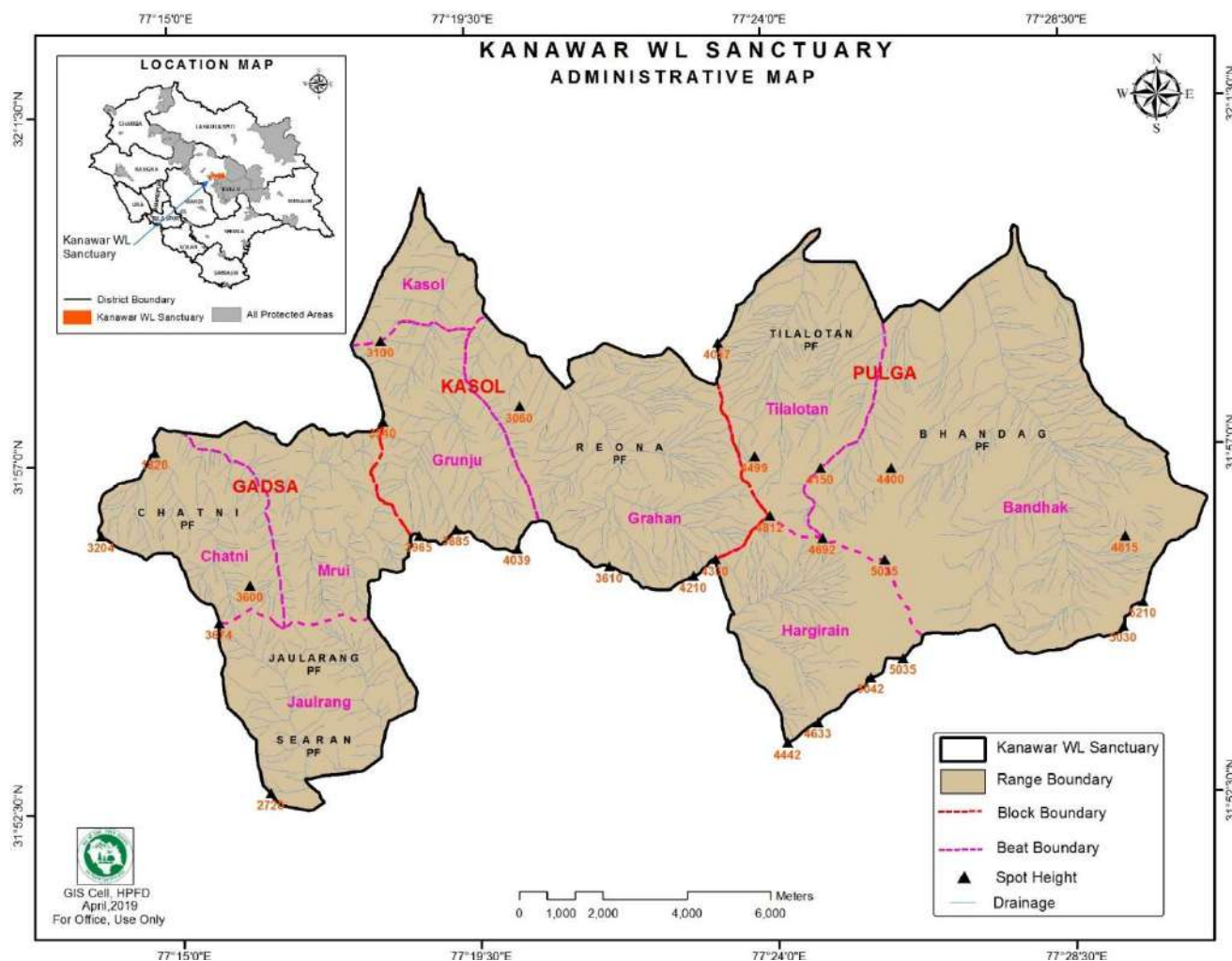


Figure 10- Administrative Map of Kanawar WL S

3.11 Communication

Communication system is almost negligible, as no telephones are available. Mobile signal is seen only at certain places inside the sanctuary.

3.12 Summary of the treats to the wildlife

The major factors, which are threatens the wildlife in Kanawar WLS, can be listed as below:

1. Scarcity of food during the winters.
2. Communicable diseases transmitted through cattle.
3. Snow and avalanches.
4. Disturbance during the breeding season
5. Floods and Soil erosion.
6. Hunting and poaching

CHAPTER – 4

THE PROTECTED AREAS AND THE INTERFACE LAND USE SITUATION

4.1 The existing situation in the zone of influence

The state has a long history of sustainable co-existence with its wildlife resources. People have over the years found use of more than 600 local plants for their health care needs and for obtaining food, fruit, fiber, fodder, fuel, gum, oil and resin etc. from the wild. These plants contribute substantially to the rural livelihood. The State Government, in appreciation of these intimate rural livelihood linkages, has allowed the local communities to use these usufructs from all the forest except those which are reserved under the Indian Forest Act, 1927 and those which are constituted as National parks and Wildlife Sanctuaries under the Wildlife (Protection) Act, 1972. Dwindling populations of wild animals have increased since imposition of total ban on hunting during the year 1984. The intensification of agriculture coupled with increased human interface in hitherto undisturbed areas has led to greater human-animal conflict.

4.1.1 The location, extent, boundaries and natural attributes of the zone of influence

With inhabitants living in and around the sanctuary having recorded rights for bonafide use of natural resources, there are marked zones of influence. Since ages the villagers are largely dependent on these forests for their livelihood and thereby their rights have been recorded / protected in settlement reports. There are a number of seasonal and year around activities marking the zone of influence in the protected area. The activities of grazing, fuel wood collection and grass cutting and fodder collection are generally concentrated within two kilometer radius from the adjacent villages to the forest. Alpine pastures are occasionally grazed during summer months. Sheep and goat remain in these alpine pastures in summers and move to lower elevations during winters. The alpine pastures comprising of 225 Hectare area are sometime also under pressure on account of removal of commercially important medicinal herbs. Fire incidents though, not very frequent are mostly ignited intentionally to enhance the growth of grasses makes out a striking zone of influence around the villages. These fire incidents are unmanageable in difficult hilly terrain. There are eight adjoining villages namely Grahani, Thunja, Kasol, Pulga, Tulga, Manihar, Nanjan and Shatt those have influence in the sanctuary (Plate 4). The people of the adjoining villages are hostile towards the existence of the sanctuary due

to tough regulations imposed. Protected area being popular with trekkers, locals make some earnings while working as porters, guides and by providing mules for carriage of luggage.

4.1.2 Villages inside and outside the PA, Ethnic identities, traditions, customs, relationship between distinct groups of people and forests.

There is no village situated inside the protected area. But, there are three villages/hamlets outside PA adjoining its boundaries. These three villages around the sanctuary have a marked impact on the protected area. The population figures of these villages are tabulated as Table 14.

Since ages the locals had an intimate relationship with the adjoining forests of the PA. The villagers directly depend upon the forests for fuel, timber and livestock grazing. The villages/hamlets mentioned in the Table 14 create a zone of influence on the protected Area. Through eco-development plans and equitable distribution of basic resources, the pressure is required to be minimized which is essential for the success of the plan.

In the villages, there are only two castes namely Rajputs and Scheduled castes. The residents of these villages are dependent on the protected area for fuel wood, livestock grazing and mushroom collection (guchhi) etc. Rajput, the dominant community has comparatively large landholdings and is agrarian. They strictly observe caste customs. They also rear sheep and goats. Hand looming is their part time profession for weaving woolen shawls, blankets and tweed for warm clothing. Scheduled castes have comparatively smaller land holdings and they also practice agriculture. They are generally poor and deprived lot. Besides agriculture, they also undertake other activities like working in orchards, working with trekking parties and in tourism sector.

Table 14: Human population in the villages adjoining Kanawar Sanctuary

SN	Name of Village	No. Of Families				Total	SC		ST		OBC		Gen		Total Population		G. Total Population
		Gen	SC	ST	OBC		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
1	Grahan	59	10	-	-	69	37	45	-	-	-	-	144	134	181	179	360
2	Thunja	12	7	-	-	19	22	17	-	-	-	-	32	33	54	50	104
3	Kasol	87	-	7	4	98	26	23	24	18	12	11	188	173	250	225	475
4	Pulga	37	61	-	-	98	121	123	-	-	-	-	74	84	195	207	402
5	Tulaga	38	-	-	-	38	-	-	-	-	42	58	35	45	77	103	180
6	Manihar	37	5	-	-	42	23	23	-	-	-	-	78	90	101	113	214
7	Nanjan	60	15	-	-	75	77	71	-	-	2	2	290	262	369	335	704
8	Shatt	88	57	-	7	152	109	112	10	16	-	-	188	168	307	296	603
	Total	418	77	7	11	591	209	206	34	34	56	71	1029	989	1534	1508	3042

Source: Secretary, Gram Panchayats.

4.1.3 The state of people's economy, vocations, land use, use of forest and non-forest based natural resources by people and seasonal patterns.

General economic condition of the majority of households in the area is good. Agriculture is the main occupation. Tourism is the second major sector contributing to the people's livelihood. Kasol is one of the few places where natural beauty and climate attracts tourists, who contribute to the earnings of the locals. The other activities supplementing their income are:

- Sheep/ Cattle rearing.
- Collection of Medicinal herbs
- Collection of guchhi (few).
- Horticulture
- Cultivation of garlic
- Wage earning in PA and outside.

The size and appearance of fields vary according to the slope. People cultivate superior cereals of wheat with coarse cereals and minor millets. Agriculture is completely rain fed. The man-days to be generated in the departmental works are tried to be distributed equally amongst the poorest. Most of the land being under agriculture crop, horticultural activity is less.

4.1.3.1 Non forest based natural resources

As mentioned above, main occupation of the inhabitants is agriculture and tourism. The agricultural crops raised are wheat, maize, finger millet, potato etc. The land use pattern of the main villages adjoining the protected area is as in Table 15.

Table 15: Land Use Pattern

SN	Name of Village	Horticultural Land (Bighas)	Agricultural Land (Bighas)	Other Type of Land (Bighas)	Total Area (Bighas)
1	Grahan, Thunja, Kasol, Pulga, Tulga	391.00.10	3332.01.03	1215.08.02	4938.10.05
2	Manihar, Nanjan, Shatt	203.15.00	4909.06.15	1315.16.09	6428.06.04
	G.Total	594.25	8241.25	2530.35	11366.25

Source: Village Revenue Officer.

Thus, agriculture is dominant in all the villages while horticulture is secondary. The main horticulture crops are apple and plum while others being apricot, peer and walnut in smaller proportions. Honey is collected in country made boxes but is not an activity adopted by the majority and not to the extent of making sizable earning. Poultry farming activity is also limited to fulfill domestic needs only.

Over the last ten years Kasol has grown into a small township. This is due to sharp increase in tourist inflow. Back in the early nineties Kasol and Manikaran were small villages with few traditional houses. Today numerous houses, hotels and restaurants have sprung up in the region. As the human concentration has multiplied, the road traffic has increased remarkably. Villagers have some livelihood there by finding a market to sell their produce like honey, baskets, woolen & handloom products like shawls and ropes etc. in very vicinity of their homes.

Besides getting wage employment in seasonal activities relating to PA, locals also work with trekking parties in the summers. Each family is estimated to earn about eight thousands during each summer. Tourism has provided a living for locals from April to November. Very few people have government jobs. Almost every household has a hand driven loom locally known as "Khaddi" to weave woolen cloths, shawls and blankets, mostly to meet their own requirements. The raw material for it is obtained from goat and sheep rearing. Baskets are weaved locally from hill bamboo, used to carry farm inputs and also for storage of grains. Decoration pieces made from this bamboo are also popular and

are sold in local market but the activity is not very common. This activity if extended can give some of the families a good earning.

4.1.3.2 Use of Forest Based Natural Resources

Most of the livestock is of local breed. The cattle from the adjoining villages sometimes graze inside the protected area throughout the year, except during the months when area is snow covered. Gujjars (migrant grazier) too bring their cattle to the surrounding thaches/ pastures during summers when milk products are in high demand. No impact study has been conducted in this regard in the protected area. The people have started rearing improved breed of cows recently which are stall fed thus, reducing pressure on the protected area.

Wool is used for weaving in almost every household and it is a part time activity, adopted by the locals. Shawls, caps and mufflers, the products of local handloom are famous all over India for their good quality and geometric designs. Many people make a sizeable earning by making these handicraft products.

Despite of the suspension of rights, the local residents sometime collect fuel wood from the forests of protected area. Forests are the primary source of fuel wood. Majority of the fuel wood is collected by them from the forests outside the sanctuary. Other sources like agriculture and horticulture residue fulfill only 25 per cent of their total requirement for fuel wood. Of late, due to easy availability of LPG, the demand for fuel wood has decreased considerably. No impact study of fuel wood collection has been carried out and this activity has been found to degrade the un-demarcated forests in the vicinity of the villages. The impact is visible and felt up to two kilometers in the vicinity of the habitations.

Deodar and Kail are the preferred timber species and its demand puts pressure on the forests. The traditional "*Kathkuni*" house construction consumes excessive timber and people in interior areas have slowly changed the construction pattern. The residents of the nearby villages have recorded rights for timber. Now the Timber Distribution Rights has been suspended inside the PA and no tree has been distributed under Timber Distribution Scheme to right holders since 2004-05.

The right holders also collect grasses for hay making from the forests during the months of October and November for feeding their cattle in the winters when the area remains under the snow.

4.1.3.3 Seasonal Activities

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

Table 16: Seasonal Activity Calendar

Month	Activities				
	Agriculture	Horticulture	Forestry Operations	Herb Collection	Tourism
Jan	-	Pruning etc.	Forest protection, plantation and census, anti-poaching.	-	
Feb.	-	New Planting	Forest Protection, plantations, anti-poaching	-	
March	-	Spraying	Forest protection	Guchii Collection	
April	Harvesting and sowing of Kharif crops	Spraying	Forest Protection	-do-	
May	Harvesting and sowing	-do-	Forest protection, nursery works, trekking	-	
June	Weeding	-do-	Forest protection plantation, nursery work	-	
July	-	-	Forest protection plantation, nursery work	-	-
Aug.	-	Harvesting	Forest protection, plantation	-	-
Sep.	Harvesting	Harvesting	Forest protection, soil conservation	-	

Oct.	Sowing of Rabi crops	-	-	-	
Nov.	-	-	Forest protection	-	
Dec.	-	Pruning, pitting works, manuring	Forest protection, census, anti-poaching	-	

4.1.4 Implication of the land use and resource dependency for the conservation of PA

People over the years have been using the natural resources and forests for their health care needs, timber, food, fiber, fodder and fuel etc. The forests of the protected area contribute marginally to the rural livelihood. Much has been said than done on the detrimental effects of the resource dependency of right holders on the environment, more so while referring to the effect on the wildlife. The threat to the sanctuaries continues unabated. Human greed backed by an unabated pressure of human population is taking its toll on the green reserves and it is a fact that conflicts in the protected areas do not occur in isolation and is reflective of our larger socio-economic-political reality.

In the Kanawar Sanctuary, with its extremes of weather conditions, the animal species in order to maintain adequate and viable populations in the suitable eco-zones needs the presence of large and contiguous habitat. Larger animals such as Bear, Snow leopard, mountain sheep and goats that migrate to lower altitudes during winters and are in desperate need of areas where they are free from biotic interference. Fortunately, the villages are less in number and livelihood sources being in plenty and involving less hardship, the villagers do not look towards the forests inside the protected area as source for generating income. People's interference in the sanctuary is restricted to approachable places only whereas the larger stretches are still available for the wildlife to multiply and prosper.

4.1.5 Forest/PA management practices and their implication for the people

The geographical area of the Kanawar sanctuary includes reserve forests, demarcated protected forests and Cultivated land only. The private land belonging to people is generally surrounded by the un-demarcated protected forests, which maintains distance of villages/hamlets from the demarcated forests or reserve forests. Similar

situation lies in whole of the Kullu district as considerable stretches of UPFs were left around villages to absorb the pressure of human and cattle population, at the time of forest settlement dating back to 1886. The expenditure for the management of the sanctuary is being borne by the State government and Government of India. The state Government provides fund for pay and allowances etc. whereas Government of India has been providing funds under “Assistance for development of National Parks and Sanctuaries” for the activities such as improvement of habitat, infrastructure development, purchase of equipment and eco-development etc. Also funds are being provided under Koldam CAT Plan under CAMPA. All the rules and regulations applicable to the protected areas is being followed in letter and spirit, which lately had not been so conducive towards winning people’s co-operation, more since their rights were suspended.

4.2 The development programmes and conservation issue

An equitable distribution of basic resources will have to be recognized as pre-requisite to the success of the conservation plans. Consulting people living in villages around the sanctuary was a key activity of the plan development process during which consultations were held in all the villages in the area. Preparation of this plan has been centered on multi-stakeholder approach including local participation and public involvement. Development programmes encouraging participation and ultimately addressing the conservation issues have been included.

In recent years, the Himalayas have become the focus of much environmental concern; a number of development projects especially hydroelectric projects are there which are causing harm to nature and its resources around the protected area. Increased tourist influx as also caused disturbance to the habitat. Vehicular traffic is also increasing year after year.

Adding further fuel to the conservation problems in the valley is the construction of two hydel power projects on Parvati River. Malana Nala project opposite Jari village has been built about a few kilometers downstream from Manikaran on Malana nala, the tributary of Parvati River (about 5 KM downwards the boundary of protected area) has resulted in disturbances to the habitats around the sanctuary. Massive pipelines have been laid through which water from the Malana Nala has been diverted into Parvati River.

Now several Small, Micro and Mini hydroelectric projects works are under progress (Table 17) around PA. Few years ago there was only a narrow path connecting

the villages beyond Manikaran with the road. As years passed by, the forests gave way to a metalled road on this route. Heavy traffic uses this road to transport the machinery required for the construction. Earlier this area had less human presence making it a perfect home for wildlife. In the early nineties this stretch was abundant with species of birds and small animals like Red Fox, Civets etc. The call of the nature has turned into vehicle horns and running of heavy machinery. As the project progresses, the forest and its inhabitants are bound to reduce.

Table 17: Hydroelectric Projects Around/ Nearby Kanawar Wild Life Sanctuary

SN	Hydroelectric Projects	Stream/ Nala
1	Slowgen Renewable Energy Pvt. Limited.	Jail Nala
2	Bhubneshwari Hydro Electric Power Pvt. Limited	Manihar Nala
3	Bhubneshwari Energy Project Pvt. Limited	Pancha Nala
4	Ashapuri Hydropower Project.	Hurla Nala
5	Parvati Hydro Electric Project Stage I&II, NHPC	Parvati
6	Malana Project	Malana Nala
7	Jihra Hydro Electric Project	Tosh Nala
8	Sandhya Electric Hydro Project	Parvati
9	Puri Oil Mill Hydro Electric Project (Mini)	Bharti Nala
10	Brahamgang Hydro Electric Project (Mini)	Brahamgang Nala

4.2.1 An evaluation of government and non-government agency programmes for development, implications for the PA, people and the zone of influence (ZI)

The government programmes run by other departments in the villages have been quite successful. These programmes were beneficial for the sanctuary as the successful implementation of various schemes of other departments diverted focus of the communities towards the activities dependent on sources other than the forest resources. Non-government organization active around Kullu town too have been contributing significantly towards the forest conservation and preservation of environment, particularly in the field of maintaining hygiene of the forests inside and outside the protected area. Kanawar sanctuary being so close to the famous tourist place Kasol has to face many problems. The impact of wildlife related activities too, executed by the department has gone a long way in improving the habitat.

4.2.2 The interplay of the market forces and their impact on the subsistence economy of the local people

Local products like fruit, vegetables, shawls, caps, mufflers and dairy products have a good market created by the tourists and locals, fetching good income. The agriculture products are barely sufficient to meet the total requirements of the people. They have to resort to other sources of livelihood to make their both ends meet. The fields providing them those are horticulture, tourism, wage earning, cattle rearing, collection of medicinal plants etc. The trade of medicinal plants is an affair that not many people know about. They have to sell their collections at whatever rates they are offered. The middlemen pocket the profits. Same is the case with horticulture products. No agency has taken care of this exploitation. The spurt in tourism has raised number of hotels at Manikaran and at Kasol, converting it into a small township. The locals have been economically benefited. They have market at their doorsteps for sale of their products. Construction of two main power projects on Parvati River and Malana Nalla has resulted in generation of indirect employment for locals too. Truly speaking it is tourism that has added to the subsistence of the local people, by providing jobs at their doorsteps.

4.2.3 A summary of the problems faced by the people that affect the management of the PA & the ZI.

There were no significant problems faced by the people that had adverse bearing on the management of the Kanawar wildlife sanctuary but it is not so at present. Motor able road has not been constructed to Grahan and other villages near sanctuary. Whatever are the reasons, they blame the restrictions in vogue in sanctuary areas. Low literacy rate makes their belief a fact for them, though the forbidding reasons could be cost, will to do or political insensitivity to their needs. To people, protected status of the area is a major hindrance in their overall development. Lack of means of transportation makes them to spend more on this account.

Though, the people had been facing more restrictions on exercise of rights in the forests of the protected area, yet they were used to it and had not much to complain about. The abrupt cessation of their rights now has made us to lose their concern and cooperation for conservation related issues and friendliness. Fortunately, this is not so serious here as in the other protected areas where people were more dependent on the forests.

Part – II

The Proposed Management

CHAPTER -5

PLAN OBJECTIVE AND PROBLEMS

5.1 The Vision

To protect, restore and improve the ecological integrity of the area, representative biodiversity and wildlife habitat with active support of local communities and other stakeholders.

5.2 Objectives of management

The variation in altitude and other locality factors have endowed this sanctuary with a wide range of flora and fauna. The biotic disturbances are there but are seasonal; nothing seriously has been done to solve it. There is lack of awareness and concern for the conservation issues among the locals and lack of full participation in management of PA. In view of these factors and some others, proper management of the sanctuary has to be done on scientific lines. Consulting people living in and around the sanctuary was a key activity of the plan development process, during which consultation were held. Outputs of the consultations held at various locations have been key inputs into the preparation and development of the plan. The suggestions of the local communities have been sought and included in the plan as far as possible, keeping in view the objectives of the plan. The long-term goal shall be to conserve and increase the biodiversity of the sanctuary further by rehabilitating the degraded habitats. The main objectives of management of the sanctuary are set to achieve this goal, during this plan period are given below:-

1. To preserve and propagate the existing wildlife by elimination of the decimating and limiting factors.
2. To strengthen the capacity building among the staff and community through the need based trainings and exposure visits.
3. To educate and inform the community and visitors, understanding wild life values and needs of conservation.
4. To minimize the biotic pressure and to arrest the degradation of the habitat.
5. To carry out scientific studies in respect of habitat improvement, proper watershed management for soil and water conservation activities and other data based studies.

6. To inspire the community for eco-tourism and eco-development based on conservation of the natural resources of the sanctuary and provide income generating avenues.

5.3 Problems in achieving objectives

The recorded rights for fuel wood, fodder, timber, collection of Non Timber Forest Produce and grazing etc. in the sanctuary had been major problems in achievement of the objectives. Suspension of rights is feared to be a major problem in achieving the objectives which require people's participation. Public attitude towards conservation of wildlife is not favourable as some times damage is caused by the wild animals especially monkeys to their crops. Lack of scientific knowhow, wildlife trained staff, equipment, shortage of funds, stray cattle trampling the sanctuary and disease spreading, lack of awareness regarding wildlife conservation among local people, lack of scientific data for the management of the sanctuary, shortage of the communication links etc. are the constraints which hinders in the proper management of the sanctuary .

Kanawar Wildlife Sanctuary with a vast area with varied ecosystems and considerable community interface is bound to have its share of problems and limitations. A number of major threats were identified based on field observations and local consultations carried out in all the villages outside the sanctuary, between the representatives of all communities and local Range Forest officer, Block officer and Forest guards posted in the sanctuary area. Local communities and the forest officials identified the threats depending upon their significance. Thus, from the detailed Inventory reports, research findings and field visits and discussions with staff, the problems faced or likely to be faced in achieving management objectives were determined for each objective separately. The problems are:

SN	Objective	Problems/constraints to achieve objectives
1	To preserve and propagate the existing wildlife by elimination of the decimating and limiting	<ol style="list-style-type: none"> 1. Resource dependency of people in and around sanctuary on the resources of PA. 2. Livestock grazing and possible disease outbreaks in wild animals. 3. Various other protection related problems like NTFP collection, illicit felling etc.

	factors.	<ol style="list-style-type: none"> 4. Repeated fires especially in the grasslands called locally as 'Ghasnis'. 5. Remoteness of the areas and difficult terrain. 6. Poaching and hunting especially during winter months by the local people. 7. Overburdened staff is also one of the problems because as staff is involved in eco-development activities, eco-tourism etc. protection part get neglected sometimes which is the main pre-requisite to achieve this objective.
2	To strengthen the capacity building among the staff and community through the need based trainings and exposure visits.	<ol style="list-style-type: none"> 1. Lack of adequate budget for realizing this objective. 2. Overburdened staff at Kanawar wildlife sanctuary. 3. Shortage of specialized resource persons for knowledge exchange and guidance.
3	To educate and inform the community and visitors, understanding wild life values and needs of conservation.	<ol style="list-style-type: none"> 1. Inadequate funds, logistics and manpower. 2. Lack of infrastructure and interpretation center for nature education. 3. Kanawar sanctuary doesn't have a nature shop with all the informative and interpretive stuff at reasonable price. 4. Shortage of specialized resource persons. 5. Lack of any systematic Awareness programmes. 6. Poor community involvement/awareness. 7. Ineffective communication between different agencies and stakeholders. 8. Remoteness of the region and improper road connectivity. 9. No proper waste management system. 10. Absence of proper ecotourism management plan.
4	To minimize the biotic pressure and to arrest the	<ol style="list-style-type: none"> 1. Various problems like poaching, Private arms and ammunitions with locals. 2. Repeated fires in grasslands.

	degradation of the habitat.	<ol style="list-style-type: none"> 3. Invasive alien species. 4. Inadequate funds, logistics and manpower. 5. Patrolling and monitoring system is not appropriate and needs improvement. 6. Inadequate capacity building programmes for the frontline staff. 7. Inadequate and Improper communication and transportation facilities for emergency situations. 8. Local Stakeholder participation is minimal. Lack of support from regional NGOs. 9. Absence of local youth training programmes for facilitating in human wildlife conflict situations.
5	To carry out scientific studies in respect of habitat improvement, proper watershed management for soil and water conservation activities and other data based studies.	<ol style="list-style-type: none"> 1. Inadequate funds, manpower and infrastructure. 2. Patrolling and monitoring system is not appropriate and needs improvement. 3. Inadequate capacity building programmes for the frontline staff. 4. Inadequate research in various aspects related to rare and Threatened species and lack of adequate baseline data. 5. Appropriate awareness programs with respect to various rare and endangered floral and faunal species. 6. Resource dependency of local people for various NTFPs. 7. Inadequate monitoring of various species of flora and fauna. 8. Kanawar wildlife sanctuary forms catchment for Kasol Gad, Jail Nala, and Shatt Nala tributaries of of River Parvati and Garsa Nala a tributary of River Beas. The efforts for protection against grazing, fires, encroachments etc. are not organized properly leading to the deterioration in the catchment capability up to a certain extent. 9. The land use in and around Kanawar sanctuary is not well regulated. Lot of runoff of pesticides, fertilizers etc. from the orchards is degrading the water quality. 10. Repeated fires in grasslands.

		<p>11. Resource dependency of local people for various NTFPs further deteriorate the catchment capabilities of the area.</p> <p>12. Lack of research on various aspects like detailed mapping of perennial sources of water with their watersheds, ground water surveys, mapping of geological formation for springs etc.</p> <p>13. Difficult conditions like remoteness of areas, lack of adequate road network, difficult terrain and language barriers etc.</p>
6	To inspire the community for eco-tourism and eco-development based on conservation of the natural resources of the sanctuary and provide income generating avenues.	<p>1. Inadequate funds, logistics and manpower.</p> <p>2. Lack of infrastructure and interpretation centre for nature education.</p> <p>3. Shortage of specialized resource persons.</p> <p>4. Lack of trained and motivated staff.</p> <p>5. Lack of adequate staff and untimely transfers of implementing officers.</p> <p>6. Lack of proper coordination between various line departments.</p> <p>7. Ever increasing population also impacts the resources and further worsens the situation.</p> <p>8. Lack of sufficient awareness among the members about the concept of eco-development and its objectives.</p> <p>9. Non- acceptance of eco -development concept within the forest department resulting in inadequate support from within the department.</p> <p>10. Absence of mechanism to link the programmes with district administration and lack of awareness among district administration and political groups about eco-development programme.</p> <p>11. Inadequate institutional mechanism for growth of programme. It all depends on the individual.</p> <p>12. Preoccupation of staff with familiar works.</p> <p>13. Lack of any systematic Awareness programmes.</p> <p>14. Poor community involvement/awareness.</p>

		<p>15. Ineffective communication between different agencies and stakeholders.</p> <p>16. Remoteness of the region and improper road connectivity.</p> <p>17. No proper waste management system.</p> <p>18. Absence of proper ecotourism management plan.</p>
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CHAPTER – 6

THE STRATEGIES

6.1 Boundaries

The existing boundaries are given in Chapter 2. The existing boundary of the Kanawar WLS encloses two Reserved Forest, eight Demarcated Protected Forests and one other forest area. After rationalization Kanawar WLS consists of three Blocks viz. Kasol, Garsa and Pulga, which are further divided into nine beats namely Kasol, Gharunju, Grahani, Muri, Chatni, Jaulrang, Hargirain, Tilalotan and Bhandag. All the activities proposed for development of the sanctuary are equally important in each beat.

6.2 Zonation and Zone Plan

Whole of the sanctuary presently comprises three blocks which are further divided into nine beats. This administrative division with the name of corresponding blocks will be the zones for the present plan. There is no need to prepare a separate plan for each zone, as conditions are almost similar in all the three blocks.

The activities though common, yet being slightly different in each of the three blocks, have been planned to be carried out. Within each zone, the management prescriptions should be reasonably uniform but may differ in type or intensity from those in the other zones in order to accommodate multiple objectives. Since, the villages are situated outside the sanctuary but are not too far away, eco-development works have been proposed to promote the involvement of the villagers in the management of the sanctuary.

6.3. Theme Plans

In recent past, wildlife management plan and eco-development schemes have been prepared but could not be implemented holistically for want of funds. In most such programmes, however, local people have been left out of the conservation planning process. As a result, their aspirations, fears and rights have not been understood, or catered to. In this plan emphasis has been laid on gaining the support of the people who live around protected area. Ensuring alternative and reliable supply of fuel and fodder has been

proposed in this plan, so that villagers are not forced to enter protected areas for their simple needs. So, far in most of such programmes, local people have been left out of the planning process. This is the main reason that most of the wildlife conservation programmes have received little support of the people who live around Kanawar WLS.

The goal of this plan is to conserve and protect the significant biodiversity of the sanctuary. The plan will improve the protection of the wildlife from the human-activity based threats. The objectives have been kept in mind while proposing the activities to be undertaken. Various theme plans have been developed for taking care of some of the important aspects of management. Various theme plans proposed in the management plan are as under:

- 6.3.1 Protection Plan
- 6.3.2 Habitat Management
- 6.3.3 Watershed Management
- 6.3.4 Human Wildlife Conflict
- 6.3.5 Fire Management
- 6.3.6 Wild Life Health Care

6.3.1 Protection Plan

To provide protection to the entire eco-system of the sanctuary, it is very important to address the activities related to protection of the flora and fauna of the area. As the threat from local people, poachers, illegal encroachers and other miscreants cannot be ignored, the protection constitutes one of the most important aspects of the wild life management. Protection precedes conservation. Hence it is very important to organize practically applicable protection activities in the sanctuary.

Objectives:-

1. To raise awareness about protection issues.
2. To develop infrastructure for the protection of sanctuary area.
3. To organize different kind of anti-poaching activities and anti-grazing in the sanctuary area.
4. To provide protection to the entire eco-system of the sanctuary.

Management Prescriptions:-

For the better management of sanctuary, the protection activities can be categorized in to following activities:

1. Group Patrolling.
2. Combing Operation.
3. Night raids.
4. Infra-Structure facility.
5. Survey, Demarcation and Reinforcement of Existing Boundary Pillars.

1. Group Patrolling:

Group patrolling system for the better management and protection of flora and fauna needs to be strengthened. This system is very effective if applied in the field in letter and spirit. In this system, a group of persons posted in the sanctuary along with potters and cook does the patrolling of the sanctuary area (Plate 9). During this process the team headed by Range officer, Block officer or sometimes by ACF/ DFO scans the area, forest, beat and block wise. The more sensitive areas are frequently visited by the team. A format has been prepared in this regard, which covers most of the aspect related to wild life management (Annexure-XV). Different routes and tracks are covered by the team. All the activities given in the format are recorded during the patrolling and these formats are compiled at the division level. These are also helpful for the preparation of APO of the sanctuary. The teams are being provided with some basic facility like food and stay arrangements like tents, sleeping bags etc. For this purpose funds has to be proposed every year in the APOs (Format Proforma).

2. Combing Operation:

This operation is useful in the field to search the traps / snares etc. In this operation special routes which are more sensitive and suspected to poaching activities will be scanned. The tracks which are frequently used by wild animals and feeding grounds of the pheasants will be scanned properly. This exercise will be repeated three- four times in the sanctuary depending upon the requirement. For this purpose funds has to be proposed in the APOs every year, which are required for the payment of food, cooks and porters etc.

2. Night Raids:

Special raids during early morning and late night will be conducted in and around the sanctuary. This exercise will be more frequent during snow fall time and immediately after the snowfall. In this operation one Bolero camper vehicle along with 6-8 staff will conduct the raids in and around the sanctuary area. Special drives will be carried out to check the vehicles from remote area along with their bags and belongings. Such type of operations will be very helpful to check the illegal transportation of timber and wildlife articles. For this purpose vehicle facility should be allowed to the staff because the department is already facing the shortage of such type of vehicles at Range level. For this purpose funds has to be proposed in the APOs every year.

3. Infra-Structure Facilities:

To achieve the above proposed activities, it is very important that field staff should be well equipped and necessary facilities should be provided to them. Infrastructure facilities which are required for this purpose includes –

- i. Construction of Patrolling Huts at Kasol, Grahan, Gharunju, Hargirain and Jaulrang
- ii. Construction of Seven FG huts and one BO Quarter.
- iii. Complete camping equipments (as per details given below)
- iv. Arms and ammunitions (as per details given below)
- v. Equipments like digital cameras, video cameras, binoculars, night vision binocular and camera traps etc. are urgently required (as per details given below)

LIST OF TOTAL INSTRUMENTS AND LOGISTICS AVAILABLE AND REQUIRED

Existing Scenario	Proposed/Recommended action
1. Vehicles for forest staff	
1) One Gypsy -DFO	1) One Mahindra Bolero Camper/ Multipurpose vehicle –for Range Forest Officer at Kullu/ Kasol. 2) Six bikes for forest guards for patrolling/ rescue operations. 3) One Patrolling/ Rescue Vehicle needs to be purchased for Rapid

	Response Team/ force at Kullu.
2. Instruments, gadgets and Camping Equipments (At Wildlife Range Office, Kullu for use in Khokhan and Kanawar WLS)	
1) Only one desktop + 1 Scanner cum Printer +1 printer in Range office, Kullu 2) 9 GPS 3) 7 Binoculars 4) 1 Digital Camera 5) 9 Camera Traps 6) 1 Night Vision Binocular (At Kullu with Quick response Team) 7) 3 Four Men Tent 8) 6 Two Men Tent 9) 19 Cary Mat Big & Small 10) 16 Sleeping Bag 11) 7 Rucksacks 12) 8 Rain Coat Ponchu 13) 6 Search Light (Only 2 in working order) 14) 7 Solar LED Lamp	1) One Desktop computer/ Laptop is required 2) Nine Digital Cameras for beat level forest staffs 3) One Video Camera 4) 40 No. Trap Cameras required for Kanawar WLS 5) 1 No. Flying Surveillance Camera for rescue, surveillance etc. of Kanawar WLS. 6) 8 No. Big Search Light/ Torch 7) 2 No. Night Vision Binocular 8) 20 No. Two Men Tent 9) 40 No. Cary Mat Small 10) 20 No. Sleeping Bag 11) 15 No. Rucksacks 12) 15 No. Rain Coat Ponchu 13) 15 No. Emergency lights/ power banks
3. Arms and ammunition	
Rescue cages (Bird Crates, Reptile Crates, Monkey Cages, Squeeze Cages, Small and Big Animal trap cages, Mobilization cage of Leopard, Bait Cage, Sambar transportation cage- 1 No. of each) and one tranquilizer gun is available at Kullu Wildlife Range HQ with Rapid Response Team.	1) Total Twelve Rifle .315 required. One at the range office, nine for each Beat officer, two spare for emergencies 2) 6 No. Shot guns 12 bore 3) 1 No. pistol 4) 1 No. Stun Gun (Electric Shock) for animal rescue. 5) 4 No. Net Gun 6) 1 No. Smoke Signal Gun

5. Survey, Demarcation and Reinforcement of Existing Boundary Pillars

Most of the boundary pillars in the sanctuary area are damaged despite of their maintenance. To maintain the area free from all illegal activities, it is important to

reinforce all the 53 large boundary pillars and other 61 small boundary pillars (Annexure-VII) with cement concrete. Under this scheme the all large and small boundary pillars will be marked with GPS coordinates and then reinforced with cement concrete during the coming financial years. For this purpose funds has been proposed in the APOs (Format Proforma) of this management plan.

6.3.2 Habitat Management

Habitat management is one of the most important activities of wildlife management. More ideal the habitat is, better it is in terms of availability of food, cover and water to wild animals. It is imperative to analyze the resources that are available in the habitat as this is the main factor which ultimately controls the wild life. Type of habitats available in the sanctuary needs to be thoroughly studied as on this will depend the future management and all management practices shall be guided by the type of habitat and available resources.

Objectives:-

1. To study the habitat with respect to availability of resources and constraints.
2. To assess the suitability of habitat for various kind of wildlife.
3. To carryout various activities for habitat enrichment with minimum disturbance.
4. To propagate the local species of fruit bearing plant to ensure of availability of food to the wildlife of the area.

Management Prescriptions:-

For better management of the habitat of sanctuary, following activities needs to be carried out.

1. Grafting and Raising of Fruit Bearing Trees.
2. Improvement of Pastures.
3. Maintenance of water sources.
4. Augmentation of Salt Licks.
5. Protection and maintenance of Physical Features.
6. Nursery maintenance
7. Management of Invasive alien species

1. Grafting and Raising of Fruit Bearing Trees:

There is large number of root stock of *Pyrus pashia* and *Daru* trees in the sanctuary. The grafting of pears or other suitable wild fruits on these root stock will be helpful for the wild animals. The seeds of wild fruit bearing plants like Akhrot, Kahnor, Paja, Wild Cherry etc. are being collected and raised in the nursery. Some are being propagated through cuttings in the nursery. This needs to be supplemented during the plan period. Every year 15 to 20 thousand plants of such species will be raised in the nursery. About five hectare of area will be planted every year. Propagation of hill bamboo (Nirgal) will also be done in the sanctuary. The cost will be applicable as per departmental norms and schedule.

2. Improvement of Pastures:

Under pasture improvement not only the quality of grasses is to be improved but in vast extensive thaches/ pastures, planting of bushes like *Berberis*, *Cotoneaster*, *Arundinaria* and other species needs to be carried out. This along with increasing variety of forage shall also provide shelter to wild life. The local nutritious grasses needs to be encouraged. Every year 10 hectare of area should be tackled under this scheme.

3. Maintenance of water sources:

The areas with steep slopes and eastern and southern part of the WLS are deficient in water. To improve the water availability in the sanctuary, it is necessary to construct some water harvesting structures. These structures should be spread over the entire area. Every year five-six earthen water ponds will be constructed in the sanctuary. The site of proposed water ponds should be identified carefully after visiting/inspecting the area by DFO/ACF with clear objectives. The design will be according to the site available on the spot. The cost of each structure will be as per the estimate and shall vary from site to site.

4. Augmentation of Salt Licks:

The wild animals mostly ungulates living in the forest area are always devoid of mineral salts. To fulfill this deficiency, they search the place where natural salts oozes out from the rocks. These mineral salts are licked by them.

Provision of artificial salt lick affect the behaviour and movement of wild animal and sometimes it also help poachers to locate the presence of the animals. Therefore, it is

necessary to provide due care and protection where artificial salt licks have been provided. It is suggested that all the existing artificial salt lick locations should be mapped and based on the information decision to provide new salt licks should be taken carefully. These salt lick sites should be identified carefully after visiting/inspecting the area by DFO/ACF. During the group patrolling exercises such sites have to be identified and which needs to be augmented and supplemented by providing blocks of rock salts in these places. Monolith salt blocks may also be used for this purpose which contains mixture of many mineral salts.

5. Protection and maintenance of Physical Features:

All the physical features like caves, dens, cliffs; dead and dry trees would be protected and kept as such, as these features are used by wild animals. Dead and dry trees are used by many birds, insects and small mammals as resting, nesting, roosting and perching purpose.

6. Nursery maintenance:

The two nurseries are available in the sanctuary at Kasol and Grahani (Annexure-XII) which needs annual maintenance, and shall cater to the needs of various kind of plants required for various activities of habitat enrichment inside the sanctuary. The plants to be raised should invariably include the wild fruit plants and tufts of local grasses (Plate 10). At least fifty thousand rupees will be required for its annual maintenance of each nursery.

7. Invasive alien species

The outer boundary of the sanctuary (especially Kasol side) is affected by some invasive alien species like *Eupatorium adenophorum* which inhabit the area and compete with local vegetation.

Recommended action:

- At present this problem is confined to only small part of sanctuary therefore, it is necessary to prepare a five-year plan to eradicate these exotics. Weed prone areas need to be identified to determine the extent and coverage of the areas infested.
- Sites on which nothing else can grow but weeds (heavily grazed degraded areas) need to be left as such, unless the biotic factors that have caused such change can

be eliminated. Weed control is often an expensive strategy, limited by the scale of application. Therefore, sites on which control is to be applied need to be prioritized. It is recommended that sites of potential ecological significance be accorded that priority and established techniques for control be used.

- Chemical control is not to be used. Biological control unless it involves native species also needs to be avoided. Thus, the integrated strategies need to mainly employ mechanical methods, combined with protection from biotic factors.

6.3.3 Watershed Management

The sanctuary forms the catchment of mainly Grahani Gad/Nala, Jail Nala, Shatt Nala watershed which drain into Parvati River and another Grasa Gad watershed which drain directly into Beas River. In addition to this there are many small streams passing through the sanctuary. Hence it is very important to manage the sanctuary through watershed approach to ensure the holistic development of the sanctuary. Through various soil and moisture conservation works apart from plantations, we will be able to reduce the siltation of Parvati and Beas River as well as control the soil erosion.

Objectives:-

1. To reduce the soil erosion and the silt load.
2. To improve the availability of water in water deficient area.
3. To improve the overall habitat of wild animals.

Management Prescriptions:-

Following activities are proposed under watershed management.

1. Construction and de-siltation of water ponds.
2. Soil conservation works
3. Bio-Engineering Measures

1. Construction and de-siltation of water ponds:

As discussed earlier that the southern part of the sanctuary is drier than other areas, hence it is necessary to construct more earthen water ponds in this area as compared to the other to harvest rain water and snow. There are some natural ponds inside the sanctuary

which needs de-siltation. Such activities will be helpful for recharging and retention of moisture regime of the sanctuary. Also these water ponds will serve as water source for the wild animal. For the construction of one earthen pond an amount of rupees twenty to thirty thousand will be required.

4. Soil conservation works

The area of sanctuary along the Grahana Nalla, Jail Nala, Pancha Nala and Najan Nala and their surroundings is quite steep and to check the water flow in nallas, check dams / check walls etc. needs to be constructed (Annexure- X). This shall help to reduce the soil erosion by controlling the speed of gushing waters which keep on cutting the nalla banks. At places along the roadside there are many slips which need immediate attention and action. The cost for the construction of these structures will be applicable as per departmental norms and schedule.

3. Bio-Engineering Measures:

The affected area all along the roadside and inside the sanctuary will also be treated through bio-engineering measures. Besides check walls and check dams, local fruit bearing bushes and shrubs will be raised all along the slips which shall help to stabilize such slips. The cost will be applicable as per departmental norms and schedule.

6.3.4 Human wildlife Conflict

Man - animal conflict is not a very serious problem in this sanctuary. No case of damage to human life has been recorded during last two- three years. Crop damage is also negligible. Although there are habitations on the periphery of this sanctuary, but the report in this regard is almost nil.

Prescriptions:

1. Awareness programme/ workshops should be organized for local people to make them aware about dos and don'ts in case of encounter with wild animals.
2. The local people should be made aware about various departmental welfare programmes, especially about the procedure to file compensation claim.
3. A rapid response team consisting of trained officials along with equipments should be stationed either at Range or Division HQs to deal with any exigencies.

4. Fodder tree plantations shall be developed on the periphery of the villages and stall feeding may be promoted.

6.3.5 Fire Management

The protection from forest fire is one of the most difficult tasks for the protected area managers. In Kanawar Wildlife Sanctuary, the winter fires are more common than summer fires because the *phat* burning practice during winter is common. Whenever the winter rains are delayed, local people use to burn the debris in their fields and adjoining areas. Fire has also been used as a management tool to encourage the growth of grass for grazing. In spite of strict vigil, sometimes fire incidences occur in the sanctuary areas and cause loss of forest and wildlife.

Impact of Fire:

Fire is the biggest threat that destroys the habitat besides making the micro climate very hot, dry and uninhabitable to the wild. Fire protection measures are required to be taken and co-operation from local people may be sought to avoid incidences of fire in the protected area. The impact of fire depends on its extent and gravity. The incidences of fires affect several micro flora and fauna and destroy several herbal species. It also causes exposure of soil and degrades the valuable habitat and decreases the biodiversity of the area. It also accelerates the soil erosion and silting of reservoir apart from accumulation of large amount of debris in the nallas and streams.

Management Prescriptions:-

Following activities are proposed under Fire Management.

1. Maintenance of fire lines.
2. Engagement of Fire watchers.
3. Awareness Programmes.
4. Deterrent Action against the miscreants.
5. Incentives to villagers.

1. Maintenance of fire lines.

Creation and maintenance of fire lines is one of the primary activities for control of forest fires. There is no fire line in the Kanawar WLS. However, many perennial nallas and natural springs in the PA protect it from fire. Maintenance of these natural fire lines

and patrolling/ trekking paths is required. A publicity and awareness programme in respect of fire fighting and prevention of forest fire has to be planned and executed. The protected area although is not very fire sensitive but a constant vigil is required to control any fire incidence. Besides these fire lines, the contour paths and bridle paths passing through the sanctuary also acts as fire lines which also needs annual maintenance.

2. Engagement of Fire watchers:

During fire season, the fire watchers are being engaged to control the forest fire. Local people around the periphery of sanctuary are engaged for the purpose. These fire watchers keep strict vigil on such incidences. In case of major fire incidences, the local villagers are also involved for fire fighting. Prior to suspension of forest rights like T.D, the local villagers were being called for extinguishing of fire. The forest guard was supposed to mark the attendance of all the right holders during the operation. After the suspension of rights, the response of the local villagers towards fire control is very poor. Funds for engagement of fire watchers have been proposed during the plan period.

3. Deterrent Action against the miscreants:

As indirect measure, the cases of deliberate forest fires should be detected and the culprits should be apprehended and prosecuted. Although, all the major forest fire are reported to the police but the culprits remains untraced most of the time. Sincere efforts in this direction are needed.

4. Awareness Programs:

Awareness programs and workshops among the villagers, school children and other institutions around the sanctuary would be conducted every year. More emphasis will be given to highlight adverse impacts of forest fires on the flora and fauna. Pamphlets and brochures will be published and will be distributed among the peripheral villagers and visitors.

5. Incentives to villagers:

Special incentives should be given to the villagers who come forward for fire fighting. The villages and their surrounding areas which remain free from the fires should also be given some reward or incentive. An amount of rupees five thousand per village should be given every year to those villagers whose surrounding remains free from forest fires.

6.3.6 Wild Life Health Care

For the better management of wild life Sanctuaries, it is important that the health status of all the animals inside the sanctuary as well as on the periphery of the sanctuary should be sound. The health of the animals in and around the sanctuary should be monitored properly, because local people as well as migratory grazier visit the peripheral areas of the sanctuary. There is every possibility of transmission of diseases from domestic cattle to wild life and vice-versa. In such condition, it will be difficult to control the communicable diseases. To overcome such diseases /problems it is very important to take preventive measures. The main strategies for this purpose are as follows:

1. Vaccination of adjoining livestock.

The whole sanctuary area is surrounded by habitations. The main occupation of the local people is agriculture along with animal husbandry. Every household rears sheep, goats, cattle and horses. Most of the cattle belong to local breed. Stall feeding is done only in case of jersey breed of cows. All other cattle depend on open grazing in the forest area. The condition of the cow sheds is also very unhygienic. There is every possibility of spreading of communicable diseases in such condition. Therefore, it is very important to do vaccination of all the domestic cattle around the sanctuary area with the help of veterinary department and local Panchayats. Special budget should be provided for this purpose so that all the domestic cattle should be vaccinated timely. The village wise cattle population is available with the department. This shall be done with the help of veterinary department.

2. Rescue and First aid center

A small off display facility needs to be created where rescued wild animals will be kept for treatment. These animals will be kept under optimum conditions of food, shelter, space and health care for a couple of days. They will be given the required health treatment and will be released into the wild soon after the treatment or they will be sent to other Zoos/ rescue center of the state.

3. Disease surveillance:

Early detection of disease, quick disease reporting system and instigation of a rapid response to reduce the likelihood of establishment of diseases and preventing their spread

to neighboring areas can only be achieved by proper active and passive surveillance system.

Active surveillance involves targeted monitoring of a species for potential incursion of diseases. The list of diseases with potential to impact the population and biodiversity within the park, human and livestock population and economy outside the park should be established.

Passive surveillance involves opportunistic monitoring of wild species by field personnel for any mortality or morbidity event. The flow of communication between field personnel and stakeholders will determine the efficiency of the disease reporting system and the effectiveness of implementation of strategies for control and prophylactic measures.

It is suggested that during patrolling field staff will note down the condition of wild animals in case of direct sightings. Tourists may also be encouraged to report any unusual condition of wild animals. In case of any information about any diseased wild animals or any unusual behavior by animals, field sample will be collected with the help of veterinarian for further investigation.

4. Public Awareness:

To prevent wild animals from frequenting into human habituated areas, the communities living around the WLS should be made aware of the repercussion of irresponsible disposal of garbage and livestock carcasses.

5. Education and training:

All the stakeholders require education and training for at least basic public health concerns and bio-security to achieve the desired outcome. Protocols for handling carcasses, attending disease outbreaks, etc. should be made. The field personnel should be made aware of this and given at least basic training for this purpose.

CHAPTER – 7

ECOTOURISM, INTERPRETATION AND CONSERVATION EDUCATION

7.1 General

Tourism in wildlife sanctuaries plays an important role in creating awareness among the masses. This wildlife sanctuary provides a very good opportunity to the enthusiasts to enjoy and experience the wilderness of the area. Over the last twenty years Kasol and Manikaran have been commercialized into small townships. Back in the early nineties Kasol was a small village bearing few houses. Today numerous houses, hotels and restaurants have sprung up in the region. The human concentration has multiplied with increase in tourist flow, reason not being reproduction but migration from surrounding villages and outside. The tourists mainly come to see hot springs, gurudwara and temples. The trekkers visit for a short period in the months of May and June to ascend up right through the sanctuary and then descend to Pulga. The trekking programmes are arranged by Youth Hostel Association of India (YHAI). Besides trekking routes the PA and the surrounding areas have many things to offer. The forested landscapes, snow clad mountain peaks and towering trees inhabited by birds and animals all make it an ideal and potential eco-tourism spot to be developed. This sanctuary can play an important role in raising interest towards wildlife conservation. Around 4500 trekkers visit the sanctuary every year. To meet the requirement of the visiting tourists, existing facilities shall have to be improved.

The visitors will be able to see the nature from close and understand conservation issues, at the same time contributing something towards the income of locals. There is scope to develop community based ecotourism conforming to the state's ecotourism policy. This will provide alternative income generation opportunities to the locals and help in reducing the pressure on natural resources that they have been resorting to for their livelihoods. The facilities have to be created without interfering with the ecosystem of the sanctuary to attract the tourists

7.2 Objectives

The main objectives are to create awareness among the masses (students, local and foreign tourists), to make them realize the importance of nature/ wildlife conservation, environment education and also to fetch some revenue to the government. Other attractions of the area are temples, with exquisite wooden carvings, occupying almost every village and the festivities associated with these religious places and the traditionally attired local deities in transit being carried in meticulously decorated palanquins accompanied by devotees dancing to the rhythmic play of traditional instruments. This natural and cultural richness of the area coupled with its simple peace loving people makes the area most sought after tourist destination. To promote eco-tourism with an objective, the entry of visitors in the sanctuary will be regulated. Though some individuals have been earning their livelihood out of eco-tourism activities yet efforts will be made to involve more rural youths in it. Anybody with a zest for life, a spirit of adventure and a love for nature will find all that his heart desires, in this valley of gods. The objectives are:-

- i) To provide community based ecotourism and alternative income generation activities to locals.
- ii) To raise awareness about conservation issues.
- iii) To develop facilities to attract the tourists and to regulate entry of the visitors.
- iv) To build capacity of the communities to earn sustainable livelihood from the activity.

7.3 Problems

The wild frontiers of the area have hitherto remained out of reach for tourists mainly due to lack of infrastructure availability. Major problem in promoting tourism in Kanawar sanctuary is lack of proper facility to the tourists such as poor communication, stay arrangements, bridle paths and proper information. Most of the tourism, till now, has been limited to the shops and to hot springs at Manikaran, with occasional visits to the nearby forests and other attractions. Unaware of what they are missing, the tourists leave out the treasures of nature. The region not only loses the clientele and goodwill of the tourists but also loses an opportunity to spread its message of conservation of nature and

wildlife. The area has a few trekking paths and the basic infrastructures like shelter is not available.

The tourists throng Kasol area during summers but it is a pity that only few endeavor to visit the sanctuary. This probably is due to lack of publicity or enthusiasm. Being a hilly terrain, the area is not easily accessible to young and old due to absence of motor road inside the sanctuary and this absence also multiplies the cost of any scheme to be implemented, thereby slowing down the progress at every available opportunity. The financial constraints have been the reason for lack of facilities in the past. The staff and community members are not trained suitably to exactly know what the requirements for the development of tourism are and how can it be thrown to catch the eyes of the visitors. The publicity part is proposed to be looked after well during this plan period, if required, the staff will be trained to make them conversant with the requirements of the tourism activity and to guide and look after the tourists.

7.4 Strategies

7.4.1 Identification of Zone

The tourism zone will be around the bridle paths/ treks passing through the sanctuary which are commonly used by the villagers and trekkers. The zone will be around 150m on either sides of the bridle paths or treks. Three treks/ paths as discussed below will constitute the tourism zone of the Kanawar WLS.

First trek will be nearest to Kasol town upto watch tower for watching wild life and for scanning the area for nature conservationists and staff. It will be the shortest trek 3-4 km journey. The trek area has a great scenic beauty and offers tough treks through varied vegetation. This is undoubtedly one of the most approachable track for sighting of animals for the wildlife enthusiasts.

Second trek will be the longest track (45 to 50 km) which is Sar Pass Trek (https://en.wikipedia.org/wiki/Sar_Pass_Trek) and is most visited track of this sanctuary. The trekking route from Kasol (Base Camp) to Grahan (second camp) via Mang Thach and/or Padhari to Nagarju to Sar Pass, then directly to Barshaini or via Bhiskeri (Biskeri) to Bhadag to Barshaini are available inside the WLS. One can enjoy the walk through the alpine meadows. It take 5 to 7 days for trekking on this trek.

Third track (35 to 40 km) will be from Kasol (Base Camp) to Grahan (second camp) to Padhari to Kharli then to Hargirain to Manihar and then upto Garsa. The local

youths of this area involved in camping and hiking business. There is tremendous potential for development of trekking activity in future but the amount of current inputs has been kept just minimal to match up the number of visitors which is too small at present and wider publicity is needed. Most of the tourist visit upto or around Granhan area.

7.4.2 Infrastructure Development

With a view to provide infrastructure to the visitors, some activities have been included in the plan (Plate 7). A number of identified footpaths and eco-trek routes will provide visitors an opportunity to trek across mountain passes, to remote temples, along rivulets with crystal clear water and through quiet villages. Providing bridle path with horses will attract the young and the old alike to come and enjoy the best of Parvati valley in its entire grandeur. Providing camping grounds, bio-diversity trails and repair of existing paths have been included. Some similar activities proposed under the infrastructure development too will support needs from eco-tourism point of view and vice versa. BiodCS involving local people will be formed in accordance with the ecotourism policy of HP.

Boarding and lodging facilities are to be provided at identified sites located along eco-treks and the local communities will be geared up to provide services of trained guides, cooks and porters through eco-tourism societies specially set up for the purpose. To suit all ages and physiques, the eco-treks have been categorized into easy, moderately difficult and adventurous treks. Interpretation signs along these routes will educate visitors about the salient features of the place and encourage their participation in conservation of Himalayan ecology.

7.4.3 Regulations, Monitoring and Evaluation

The entry of tourists will be regulated as per rules in force. The wildlife warden may specify a closed period in view of breeding season and fire season. The visitors are to be informed and restrained from disturbing and damaging habitats in the sanctuary. When groups are visiting the sanctuary some field functionary should invariably accompany them. Wide publicity and awareness schemes can further add to the successful management of the sanctuary. To have proper control over tourist traffic it will be necessary to start ticketed entry of visitors. Mechanism for long term monitoring and evaluation has to be developed.

CHAPTER – 8

ECO-DEVELOPMENT

8.1 Objectives

The goal of the plan is to minimize the use of protected area resources and to make them sustainable in such a way that people and the sanctuary can co-exist in perpetuity.

Following are the objectives of the plan:

1. To reduce fuel wood consumption.
2. To reduce grazing pressure.
3. To regulate and reduce NTFPs/ medicinal herbs collection.
4. To reduce use of timber in house construction.
5. To promote eco-tourism
6. To improve the socio – economic status by providing the livelihood means at their doorstep.
7. To promote the traditional and indigenous methodology in implementing the plans.
Also, promote their culture.
8. To involve people for understanding the protected area values and conservation needs.

These objectives can be achieved by constituting the Eco – Development committees (EDCs) at village level and framing the micro-plans after conducting the Participatory Rural Appraisal (PRA) exercises with the villagers. These committees will be the registered bodies under Society Registration Act. H.P. Forest Department should act as facilitator cum motivator in framing their micro- plans.

8.2 Specific Issue

The villagers, who share the habitat with wild animals, have been compensated for the loss of their livestock caused by the wild animals. They generally complain about the unreasonably meager amount of compensation and the long process to get it. Compensating them reasonably would discourage them from avenging the deaths of their livestock. Their involvement should be emphasized in helping save these wild animals.

Organizing campaigns for generating awareness amongst the locals, making them understand the need to save the wildlife and the ways they can co-exist with them (Plate 8).

Since, the introduction of the LPG, considerable decrease in demand for fuel wood has been noticed in whole of the valley. Pressure on account of grazing, timber, grasses and minor forest produces (NWP) have continued to remain as the threats for the conservation. The exercise of rights has been suspended in one go from March, 2004 onwards in the protected areas. This has increased the problems of the staff posted in the sanctuary. The villagers having rights over the forests inside the protected area have not taken it positive manner. They exert pressure on the field staff, who are at the receiving end. The people living in the periphery of the sanctuary have to be kept in confidence and consulted regularly. The present focus will be to educate people on the rationale behind the above objectives, their role and involvement to achieve the objectives. Awareness at various levels shall have to be organized regularly so as to achieve the above mentioned objectives.

A scheme for protection, enhancement and improvement of regions having medicinal herbs has to be there. There is perception in the minds of villagers living inside the sanctuary that they being the part of sanctuary are deprived of motor road. This point needs a special attention.

8.3 Broad Strategies

The strategy to achieve the above mentioned objectives is to gain the support of the local people. In the present scenario, when rights are not being exercised, the support to the Forest Department from the community is very poor. The positive impact of tourism and horticulture has definitely mitigated the demand of the local people for exercise of their rights and people have adopted improved livestock management, use of alternate fuel and also reduced use of timber. But in long term awareness and wild life tourism in protected areas has to be made the main mantras to achieve participation of communities and thereby gaining the confidence of the local people for the conservation programme.

8.4 Village level Site Specific Strategies

At village level more concentrated and specific effort are needed. An effective inter-sectoral coordination mechanism is to be developed and implemented to ensure that all relevant Government and institutional stakeholders are working together to conserve

and sustainably manage the sanctuary. The sanctuary boundaries be checked and demarcated and enforced with community support. Regular maintenance of Boundary pillars for complete check on the encroachments is required. Indigenous knowledge of local biodiversity (particularly alternative agricultural practices) has to be documented and promoted as an intellectual property.

8.5 Monitoring and Evaluation

Monitoring and evaluation mechanism of eco-development programmes should be undertaken periodically on participatory basis associating the local communities. Role of Panchayats is important in conservation and implementation of eco- development schemes and its monitoring and evaluation. Local organizations like Mahila Mandals and Yuvak Mandals be involved in monitoring and evaluation of ongoing programmes. To evaluate the progress of eco-development programmes, committees have to be constituted in each ward of the Panchayat.

CHAPTER – 9

RESEARCH, MONITORING AND TRAINING

9.1 Research and Monitoring

So far, not much wildlife related scientific studies have been undertaken in the Protected Area. Ecological and wildlife studies are essential for the sound and scientific management. Therefore, research projects to study ecology, animal migration, predation, territory, carrying capacity, food chain, animal plant association, animal behavior, effect of climate change on fauna and flora, food habits, mating and breeding behavior of individual species have to be designed and studies shall be undertaken. Other subjects for the research can be:

1. Study of invertebrates, their habitat and distribution.
2. Impact of increasing tourism on habitat of specific wild fauna
3. Effect of habitat improvement activities.
4. Assessment of growing stock in the forests of protected area.

The research work can be entrusted to the various research establishments like Wildlife Institute of India, GB Pant Institute for Himalayan Environment and Development, Himalayan Forest Research Institute, Dr. Y.S. Parmar University of Horticulture and Forestry or any other organization that is capable and interested to take up research in wildlife. It is expected that the results of the research work shall be available for the better scientific management of the Kanawar Sanctuary during the writing of the next management plan.

9.2 Monitoring

Monitoring proposed in Kanawar Wildlife Sanctuary is as under:

9.2.1 Monitoring wildlife populations

Camera traps may be placed on few strategic points to monitor the activities wild animals especially Himalayan Tahr, Black Bear Common Leopard and Snow Leopard. Finally on the basis of movement areas obtained, distribution maps for various species would be prepared separately. At present population estimation of pheasants are being done only and population estimates of other birds are not carried out in the WLS. Hence it is suggested that estimates of birds may also be done.

9.2.2 Monitoring of vegetation

Change in vegetation cause change in fauna and its distribution. Since the Kanawar WLS is very rich in plant diversity especially alpine areas the importance of monitoring does not require further elaboration.

Permanent vegetation monitoring plots may be marked on the ground and data may be collected regularly. Various aspects may be monitored by staff like:

- Invasion of weeds (Invasive alien species)
- Erosion of soil at certain sites due to regular burning of grasslands
- Change in grass and other species composition due to r burning of grasslands

9.2.3 Monitoring of Physical changes

All the changes developing in physical structures would be monitored, so that their management can be done timely and appropriately.

9.2.4 Monitoring of wildlife health

Wildlife health monitoring is one of the important aspects which govern management strategies. Monitoring of following aspects may be done:

- Identification and monitoring of diseases in domestic cattle in surround of Kanawar Wildlife Sanctuary.
- Identification and monitoring of diseases in wild animals and plants.
- Monitoring of relevant samples from carcasses

9.2.5 Monitoring of Tourism

The questionnaire may be made and got filled by the visitors. Feedback register may be kept at Kasol / Entry Gate.

9.2.6 Monitoring of weather changes

Collection of data will be done from the weather recording station of RHRS Seobag. Small weather recording facilities may be created at Forest Complex at Kasol to

record rainfall, temperature etc. The data will be analyzed to find out the trends and formulate the strategies accordingly.

9.2.7 Photography as a monitoring tool

Eight digital still camera and one video camera would be purchased to collect evidences and monitor changes. Photographs at various seasons and for various sites would be clicked on same day and from same position every year. This would work as a cheap and great tool to monitor what seasonal and yearly changes are happening in habitat so as to do appropriate management interventions. Certain photograph shooting point should be permanently marked and position be recorded in beat book / manual.

9.2.8 Satellite data monitoring: Details for monitoring change in vegetation may be downloaded free of cost from www.glcfs.umd.edu

<http://glcf.umd.edu/data/>

It gives Landsat data. It is free downloadable i.e. there is no need to pay for the images.

Process:

- 1 .Go to the site and explore.
2. Select Data and Product
3. Select Landsat satellite.
4. Select Map Search
5. Put Latt and long in the given format.
6. Press update map.
7. Press Preview and Download. See the preview and press download to download the image. It will give the image in ZIP folder so we have to unzip it. All seven bands of Landsat are available on it but we should open and download one by one. Landsat image is given in UTM, LCC and polyconic whereas in IRS it is given as XY (Five points are given starting from center of square)

9.2.9 Long Term Ecological Monitoring (LTEM)

Gathering of periodical 'blind' or 'total' data on each and every species or element of habitat those are occurring on a fixed, permanent transect, plot, etc., subsequent data analysis and infer what has happened to species richness, diversity, productivity, succession, etc., and based on the preliminary knowledge of the study area, selected taxa are identified as "indicator" or "vital signs". The research work has to be outsourced by engaging a professional agency.

Methodology:

- Consider the entry points in the WLS. The trail/path starting from the boundary/road head and going into the WLS need to be selected in the manner that it reaches the areas of ecological significance, i.e. where most of the biological diversity is located. Such trail/paths either follow the valley-bottom or lead to the hilltops covering various altitudinal gradients. Thus walking along a path/trail can give idea about the vegetation, and animals across the altitudinal variations. This path/trail (transect line) also covers the habitation areas to study PA-local communities interactions, impacts of PA management actions as well as the impacts of village eco-development programmes.
- The LTEM (or experimental) plots can be laid all along the considered transect line (the path/trail). From a statistical point of view, it is better to use many small plots than a few large ones. The plots and transects need to be placed randomly with respect to the area being sampled. In this regard, regular dispersion of plots on a pre-existing transect line is easier and simpler to arrange and is also valid as long as the arrangement of the transect line bears no relation to regularities in the habitat.

Recommended Action

- Dissemination of the knowledge of LTEM among the staff and community members residing close to PA.
- Prioritization of the paths/transect lines for LTEM work.

- Marking of one or many paths (transect line) that goes through most of the representative HOTSPOTS of biodiversity on the ground and on the map of the WLS for LTEM work.
- Use of LTEM for habitat monitoring.
- Marking the main path (transact line) at 250 meter intervals. Consider those points which are HOTSPOTS of biodiversity for the initial monitoring works.
- Mark about 30 to 50 such points (HOTSPOTS) for initial LTEM purposes.
- Fill up all the parameters as mentioned in the description above (General Information, Floral Information, Faunal Information, Human Interference, and Recommendations) at each HOTSPOT (LTEM point).
- Store information for each HOTSPOT (LTEM point) in a register or feed in a computer as baseline.
- Consider LTEM an important part of management plan of PA. This in turn will lead to management interventions such as enhanced protection, other relevant actions.
- Give an important role to the local community in LTEM.
- Use LTEM for threat assessment of floral/fauna] elements of a PA.
- Use LTEM for monitoring impact of tourism.

An example of laying LTEM or experimental sample plots along a transect line in Kanawar WLS can be considered: the path or transect line starting from Kanawar WLS Grahani (2300 m) in Grahani beat and leading upto the Padhari (3400 m), Mangthach (4200 m) can be named as G1. It is suggested that the first experimental plot can be considered at Grahani followed by second plot after 250m, then the third plot after next 250m and so on. Thus there will be four experimental plots in each km. Each point after every 250m can be marked on a tree or rock or any other easily recognized object. Each of these points can be numbered as G1/1, G1/2, G1/3... and so on suggesting that Gi is the number of a particular transect line (path) and denominator is number of the particular experimental plot. Similarly, Kasol beat will have numbers like K1/1, K1/2 and so on for pother beats also.

- Devise A Proforma to record observations at the experimental plots has already been devised. For each experimental plot, this **Proforma** have following parameters:
 - i. Circular plots of 12.65m radius: trees including timber and fodder species, their regeneration, signs of human pressure and wild life use, structure and species composition, (area of a circular plot: 498.9 or about 500 square meters)
 - ii. Nested plots of 5.65m radius: all the shrubs and saplings, their cover, height, browsing signs and other uses, (area: 98.5 or 100 sq. meters).
 - iii. Four square plots of 1m x 1m within each circular plot at NWSE directions: to record cover of herbs and grasses, presence of medicinal plants, mushrooms etc.

The Proforma have following information for each experimental plot

General Information:

1. Experimental Plot No.
2. Date of Observation
3. Locality
4. Latitude and Longitude
5. Altitude (m)
6. Aspect
7. Slope (degree)
8. Terrain
9. Rock/ Soil
10. Snow cover

Floral Information:

1. Tree cover
2. Trees
3. Canopy
4. Shrub cover
5. Herb cover
6. Grass cover
7. Medicinal plants

8. Weeds
9. Mountain bamboo

Faunal Information:

1. Mammals (signs or sightings)
2. Birds (signs or sightings)
3. Insects
4. Reptiles
5. Amphibians
6. Fishes

Human Interference:

1. Signs of grazing
2. Signs of grass collection
3. Signs of lopping
4. Signs of wood collection
5. Signs of bamboo collection
6. Cultivation
7. Habitation

Important Recommended Actions

As indicated above, the Proforma filled-up at an experimental plot will give lot of information regarding biodiversity of the area as well as human interference. Based on the information collected, select such LTEM or experimental plots which have large number of biodiversity values (HOT SPOTS) or some other specific characteristics. Such experimental plots can be used for conducting research work for several studies based on faunal, floral and aspects of WLS-human interactions.

Usefulness of Experimental Plots

The experimental plots can be used for conducting research work for several studies based on faunal, floral, and aspects of PA-human interactions. The data recorded on the Proforma as mentioned above can be easily entered into a computer using Foxbase or

FoxPro software. However, it can also be suggested that a Proforma filled-up at one or several experimental plots on a particular date can be kept in a file. Repeat observations for the same experimental plots can be inserted in this file by the observer. Over the years, this data will help in showing trends in change of biodiversity of the area. It is suggested that one file should be made for one transect line (path). This will help in updating as well as retrieval of data.

The observations made through different studies at these plots can be used to draw together information from disparate studies to interpret common patterns of occurrence. Such LTEM plots will also allow best possible use of incidental discoveries and opportunities for inter-study comparisons and synergies.

Role of Community:

The community members and frontline staff of a PA will find this method quite easy to follow. The local villagers/forest guards usually know the local names of plants and animals. Therefore, it is suggested that the WLS staff can collaborate with the local community. They can fill-up the Proforma using local names which ultimately can easily be translated/converted into the Latin names. The most important aspect of the above mentioned methodology is that it is community/ front staff-friendly, easy to understand and follow in the field. Such a methodology can be standardized in the field for monitoring/research work through a well-coordinated effort.

Regular monitoring:

During Group patrolling various data (Order No. 73/2018 dated 05.02.2018) shall be collected. Data collected by Beat Officer / Forest Guard in his/ her own beat during individual/ group patrolling can also be helpful in regular monitoring of PA if collected and submitted on prescribed format along with Monthly Diary (Annexure).

Wildlife Surveys and Abundance Estimation:

One of the important indicators of the success of management practices is the abundance of animals (pheasants, large mammals). The Wildlife Institute of India has started ungulate estimation of the PA. The inventories of mammals, birds, reptiles, amphibians, annelids, molluscs and insects (mostly butterflies and moths) have been prepared as per old management plan, hence needs revision. The vegetation of the PA has to be studied and documented.

Recommended Actions:

- Proper field trainings for the Forest Guards, Forest Workers and wildlife watchers for the next/second level of information collection on evidence of the animal's presence, such as tracks, droppings, calls, nests, feeding signs, etc.
- The advanced or third level of information collection is by determining the trends or indices of population growth and the actual population numbers
- Relative abundance estimates based on evidences can be undertaken by the trained field staff. In PA, this is very practicable for the Ghoral droppings, musk deer latrine sites, Brown/Black Bear dung and diggings, leopard scats, pheasant droppings, feathers and nesting sites, and porcupine quills.
- Population estimation based on vocalization is recommended for the pheasant surveys and census (please see the Appendix).Based on the mean group size, obtained from direct observations of the 6 to 10 groups, and the number of groups counted from vocalization, the approximate population in the area could be estimated.
- Point Sampling or Two Step Method for ground cover is recommended for the measuring the ground or basal cover of vegetation at the ground level.

9.2.10 Management Effectiveness Evaluation (MEE)

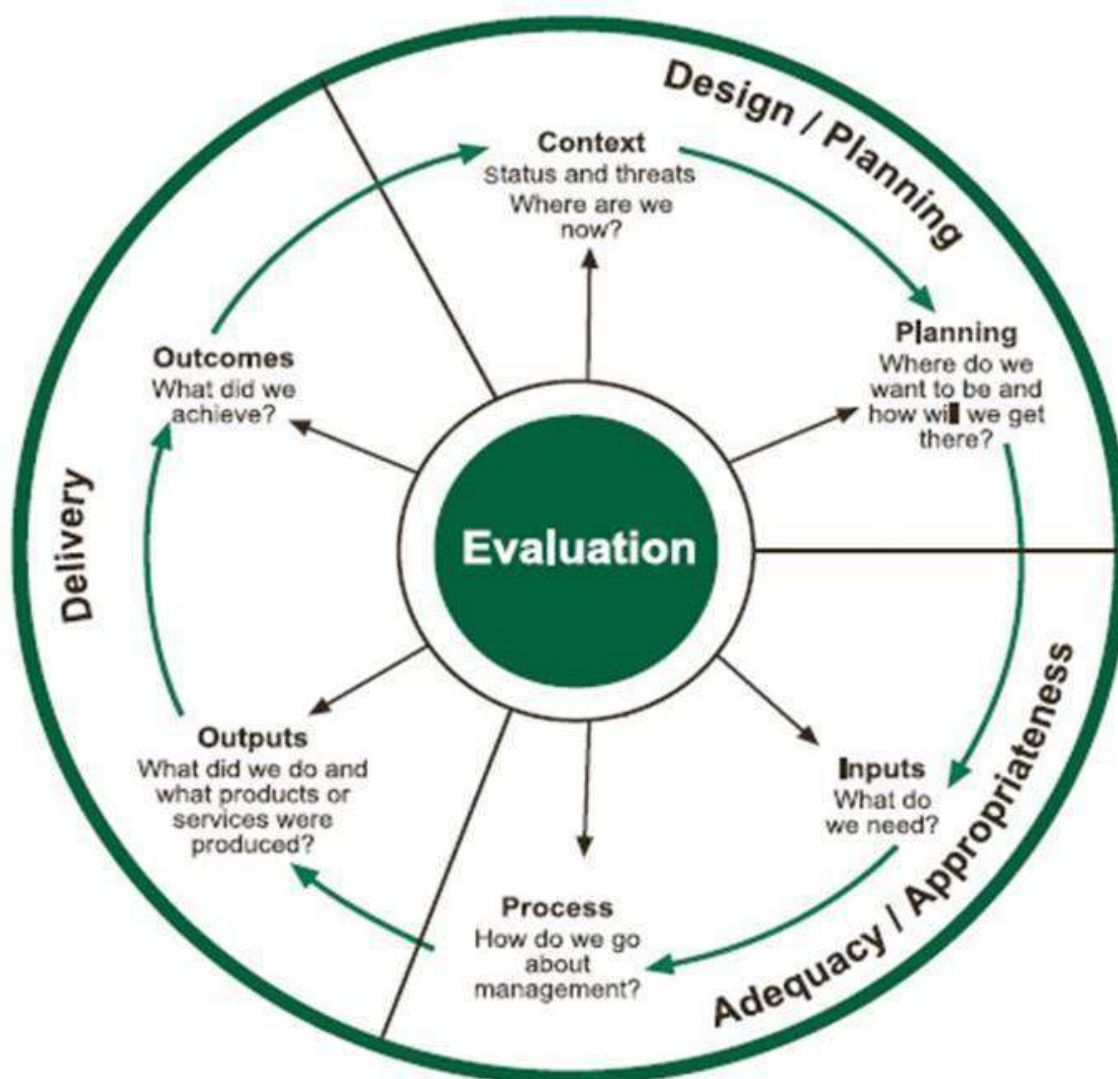
Management Effectiveness Evaluation (MEE) is an useful tool to assess the effectiveness of management initiatives and to understand better what is working and what is not, and to plan any necessary changes as efficiently as possible. MEE has become an increasingly common component of protected area management worldwide.

WCPA framework for assessing management effectiveness – The WCPA framework consider management as a process or cycle with six distinct stages or elements:

- It begins with establishing the context of existing values and threats
- Progresses through planning
- Allocation of resources (inputs)
- As a result of management actions (process)
- Eventually produces goods and services (outputs)

- That result in impact or outcomes.

Of these elements, the outcomes most clearly indicate whether the PA is maintaining its core values, but outcomes can also be the most difficult element to measure accurately. However, the other elements of the framework are also important for helping to identify particular areas where management might need to be adapted or improved.



During 2017-18, MoEF & CC through Wildlife Institute of India (WII), Dehradun conducted Management Effectiveness Evaluation of Kanawar WLS. MEE score card along with actionable points are provided in Annexure- XVI. PCCF (wildlife)- cum- CWLW (HP) directed all PA managers to do self-assessment every year on the same pattern as for

MEE. After comparing MEE report with previous report, every year the actionable points may be suggested for implementation.

9.3 Training

9.3.1 On the Job Training

Technical capacity building for sustainable management and conservation of the protected area shall be done through the training programmes. On job trainings are to be given in the field during tours and workshops. In addition to above, the services of different institution and experienced persons in the State Forest Department can be utilized for the on job training programmes.

9.3.2 Formal Training Courses

Training of the staff posted in the protected area is urgently required. Short term courses, special workshops and seminars can be conducted to refresh and enhance the knowledge of the staff. These workshops and courses will pave the path for learning from each other and sharing knowledge gained through field experiences. In hills, all the regions are not accessible to the human and such areas are safer habitats for the fauna. The staff may be trained in using new relevant methods to the hill regions so that the census methodology improves and more relevant results are obtained.

Specific web based or app based training -cum- guide modules needs to be developed and such apps will be very handy for the field staff in performance of their duty.

A. Capacity building of the field staff

The following are basic topics, which should be known by everyone in the field staff (Forest Guard, Block officer and RFO) in varying degree of details and understanding:

- The importance of nature conservation and Protected Area
- Use of GPS, Camera traps and other modern equipments
- A few terms relevant to biodiversity conservation
- Introduction and identification of local flora, vegetation/forest types

- Introduction and identification of local fauna (mammals, birds, reptiles, etc.)
- Elementary field methods for vegetation and animal population sampling
- Laws regarding forest and WL protection
- Effective dealing with human wildlife conflicts
- Protection measure, intelligence gathering and crime control
- Patrolling and Reporting
- Conducting Anti-poaching operations
- Law enforcement procedures
- Collection of evidence effectively for forensic examination
- Maintenance of equipment and other facilities
- Fires and control of Wildfires
- Map-reading
- First Aid and medical care
- Monitoring of the impact of villages and community on the PA
- Importance of local people in nature conservation
- Importance of linking conservation efforts to the livelihoods of the villagers
- Importance of local knowledge in biodiversity conservation
- Importance of nature based enterprise development as an alternative source of income generation for biodiversity conservation
- The Protected Areas of Himachal Pradesh
- Field Craft-how to survive in the forest

In addition, forests of Himachal Pradesh are backbone of the state's economy and one of the major industries in the state is tourism. It needs to be managed professionally and sustainably. In order to run eco-tourism business, staff need to be trained for-

1. Tourism management
2. Accounts management
3. Public relations
4. Logistics arrangement

There is need to create tailor made training programmes for staff in conformity with the level of education and hierarchy in administration. The training programme

cannot be one time affair and it should be conducted regularly. The skill upgradation is required from time to time to adjust with fast changing scenario in PA management and forest resource management.

B. Training for the local people/other stakeholders

- Capacity building workshops for local villagers (alternative livelihoods)
- Orientation and vocational training of tourist guides.
- Multi lingual training for the guides including foreign languages
- Awareness /sensitization workshop for hotel/homestay owners , shop owners
- Special educative programs for school teacher and students
- Waste management training

9.3.3 Establishment of a training Centre

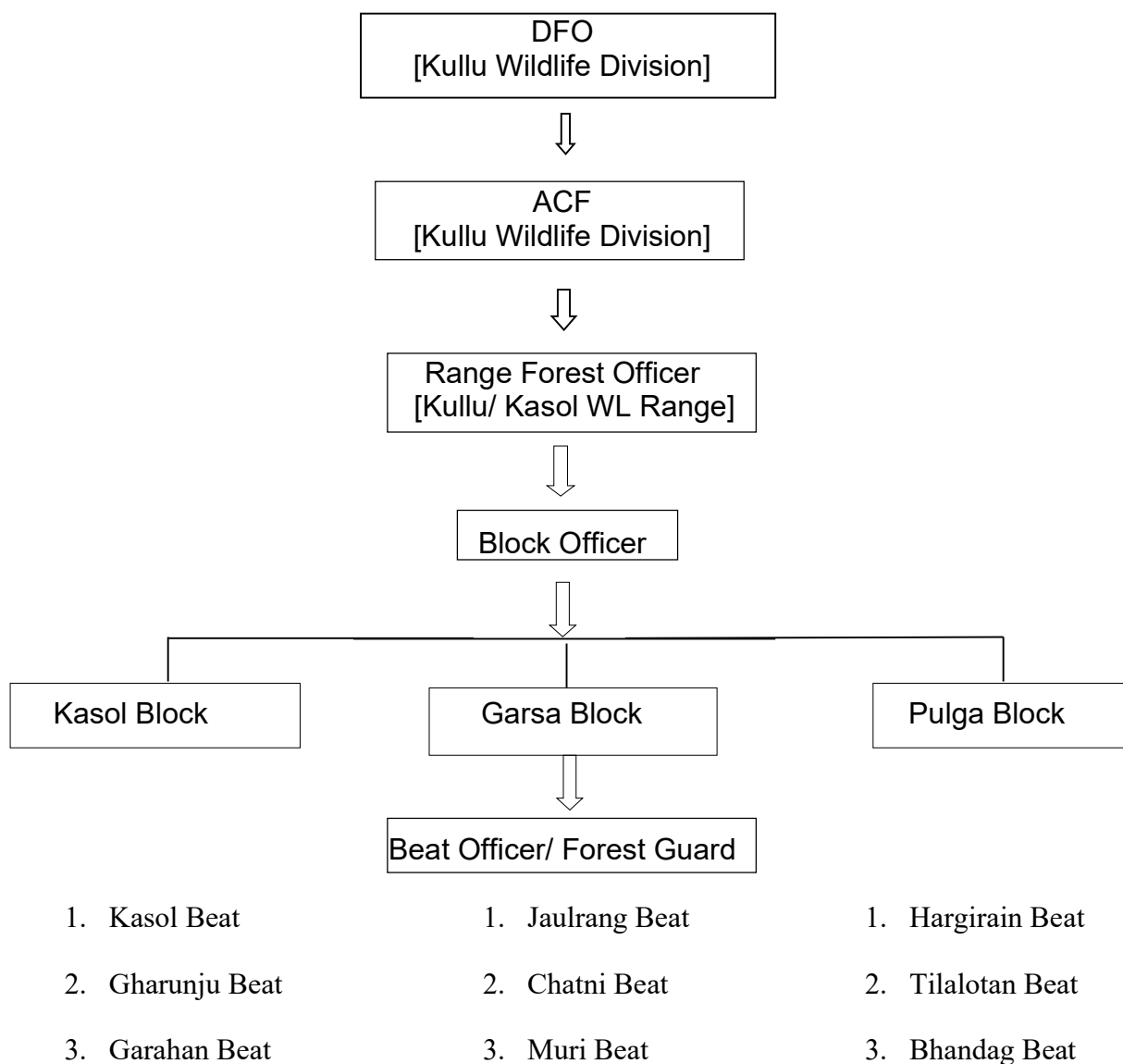
Regular and short term courses are conducted at training institutes situated at Sundernagar and Chail and therefore, there is no need to establish a separate training facility.

CHAPTER – 10

ORGANIZATION AND ADMINISTRATION

10.1 Structure and responsibilities

For the development of any wildlife sanctuary, it is necessary to post trained wildlife staff keeping in view the provision of the staff for replacing leave reserve and staff deputed for training etc. In addition, only interested, dedicated, young and wildlife oriented staff should be posted for tenure of at least 3-5 year. Future, staff position required in the Kanawar Sanctuary is as under: -



S.N.	CATEGORY	CURRENT STRENGTH		REORGANIZATION PROPOSED AFTER RATIONALIZATION
		SANCTIONED	IN POSITION	
1.	RANGE FOREST OFFICER (Kullu WL or Kasol WL)	1	1	1
2.	DEPUTY RANGER	2	2	3
3.	FOREST GUARD	3	3	9

In addition to the regular staff, for various seasonal activities additional staff is hired as per the need and provision for which has been made in the proposed APOs (Format Proforma). This additional staff is hired for following activities:

1. Hiring of staff for anti poaching activities.
2. Hiring of staff for anti grazing activities.
3. Hiring of staff for fire protection activities.

The terrain is tough and the road network is negligible. The bridle paths and patrolling paths constructed and maintained from time to time, although are the good but the patrolling is slow due to steep terrain. Inaccessible areas are tough to patrol alone and group patrolling is being done in the higher altitudinal ranges of the sanctuary for protection of the flora and fauna. Basic facilities like Camping equipment, light weight warm jackets, binoculars, camera, GPS are required for the effective protection and management of the sanctuary. Involvement of local people in protection and management of the area can also be an effective tool to manage the vast open treasure of the nature.

10.2 Staff Amenities

A. Residential accommodation

The office building and residential quarters for staff are inadequate (List of buildings at Annexure - V). No amenities are available to the staff inside the sanctuary.

There are some natural camping site and few sites are created in the sanctuary for frontline staff and tourists. Some camping equipments are available at Kasol, which are used by the staff during the patrolling of the area. Many a time staff is forced to take refuge in the caves or tents during the nights or bad weather. The only way of touring and patrolling the sanctuary area is on foot and construction of patrolling huts is essential in far off areas inside the sanctuary. One BO quarter, Seven FG huts and Six patrolling huts have been proposed in the APOs (Format Proforma) of this management plan.

B. Special Pay

The wildlife staffs are required to perform various activities (protection, plantation, soil and moisture conservation works and scientific monitoring) and subjected to threat from wild animals and poachers. They carry out the duty in harsh and worst weather condition. Hence, they deserve special pay like that of Police personnel.

A. Uniform and field Equipment

Proper uniforms and field equipment should be provided to the frontline staff regularly

B. Communication

Details are given in Infrastructure development plan (para 6.3.1)

C. Incentives and Award

For management of PA, a motivated frontline staff is necessary requirement therefore it is recommended that suitable appreciation, recognition, award or some incentives should be given to staff who perform outstanding duties.

CHAPTER – 11

THE BUDGET

11.1 General

The central and state governments are taking keen interest in protection of wildlife and the forests because many forests plants species and wild animals have gone extinct. The state and central governments are providing good budgetary support for protection and conservation of the rare and endangered species of plant and animal. It is the duty of the protected area managers to take keen interest and make sincere efforts, for fulfillment of the objectives of this management plan.

11.2 Period of the Management Plan

The period of this draft management plan shall be 10 years i.e. with effect from the year 2020-21 to 2029-30.

11.3 Components

The components and activities proposed to achieve objectives of the management plan have been discussed in detail in Chapter 6. Detailed year wise APOs (Format Proforma) has been prepared and are annexed as Annexure -X

11.4 The Budget Plan

For execution of the proposed activities under this plan, the main source of funding shall be as follows:

1. Centrally Sponsored Scheme (CSS).
2. KOLDAM- CAMPA.
3. JICA
4. BioDCS
5. State Plan

CHAPTER – 12

THE SCHEDULE OF OPERATION AND MISCELLANEOUS REGULATIONS

12.1 The Schedule

An annual action calendar for timely execution of various management activities in the sanctuary has been prepared and given below, which has to be followed strictly for effective management.

All these prescribed activities should be performed every year. These are all routine activities and other new activities like construction of buildings (Guard hut, BO quarter etc.) will be done as per the availability of budget and completion of other necessary formalities.

From 2020-2030

S. No.	Activities	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar
1	Demarcation of WLS boundaries – Maintenance of Boundary pillars												
2	Group patrolling												
3	Fire protection-												
4	Habitat improvement- AR , ANR and grafting of wild fruit plants/ fruit tree plantation (including maintenance)												
5	Soil and moisture conservation works												
6	Water development including Water harvesting structures												
7	Maintenance of building , path/small bridges/patrolling huts etc												
8	Awareness, training, Exposure,												

S. No.	Activities	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar
9	Monitoring programme												
10	Compilation of monitoring results and preparation of reports												
11	Purchase of various items Maintenance of Assets /equipment												
12	Publicity and promotion Ex-gratia payments / compensation												
13	Livestock immunization												
14	Rescue/Mobilization												
15	Publicity and promotion												

The year wise schedule of the operations proposed to be carried out during the plan period w.e.f. the year 2020-21 to 2029-30 is given as Annexure - X. The component and year – wise abstract of proposals is placed at the end of Annexure X.

12.2 Record of deviations and implemented targets

The registers containing the year – wise details of activities proposed under this plan and the works actually executed under various heads will be maintained in Range Office as well as Division Office. This will help in phasing out the annual activities with the framework of the plan from any sector likely to provide funding for the sanctuary. The works not executed at the end of the year shall be marked as balance for the coming financial year.

12.3 The record of employment potential

Registers showing the total employment generated will be maintained. This will also show details of man days generated for the weaker sections of the society.

12.4 The Control Forms

The instructions contained in Punjab Leaflet No. 11 regarding maintenance of control forms are followed in the Forest Department. Since no working plan prescription exists for the sanctuaries, only following control forms need to be maintained.

a. Control Form No. 4:

This form containing information on roads and buildings is being maintained and shall be updated regularly.

b. Felling:

The forms containing removal of trees by the right holders at concessional rates and free grant of inferior species as per settlement rights enjoyed by the right holders up to 2003-04 had been maintained. After 2003-04 no timber was sanctioned to right holders and the register has been maintained as Nil upto 31-3-2019.

c. Regeneration and Plantations:

Maintenance of control form 'C' for all plantations (Annexure- XI) will be continued.

12.5 Maintenance of compartment history

The compartment history files have been maintained in respect of petty removals by right holders, areas closed of planting of trees, medicinal plants or grasses and beating up operations. The description of compartments will be recorded afresh after at least an interval of ten years.

12.6 Use of Pocket field guide for plan implementers

A pocket guide is required to be prepared at beat level and provided to the Forest Guards, Block Officer and Range Officer with a copy in Division Office. Besides, containing a map, the guide should contain information on works carried out in past. It shall also include the information regarding various physical features important for wildlife management. This needs to be regularly updated.

12.7 Review of Management plan

Management of Protected area is a dynamic process and due to change in local environment, Government policies and rules, technological advancement and local requirement, various management initiatives have to be changed or modified accordingly. For effective and better management following procedure is suggested to review the Management Plan



Source – Lockwood 2006

- It is suggested that every year all the monitoring and evaluation data will be compiled and analyzed during the month of April and May. Based on this analysis APO for the next year will be modified.
- For protection, strategies and actions have to be dynamic and continuous adjustments will be required based on results of monitoring. Priority actions has to be decided to utilize the limited resources available with park authorities to get the maximum output/outcome.
- After 5 year, Management Plan have to be reviewed by an Expert Committee constituted by CWLW Himachal Pradesh. This review will be strategic review and all the component of Management plan including Vision, Goals and Objectives will be reviewed to make it updated as per current policies, rules and requirements.

PART – III

Annexures

Annexure - I

PUNJAB GOVT. GAZETTE, MARCH 12, 1954

DEVELOPMENT DEPARTMENT.

The 28th February 1954.

No. 70.GP.55/97. In exercise of the powers conferred by section 8 of Punjab wild birds and Wild animals Protection Act, 1933, the Governor of Punjab is pleased to declare that six weeks after the date of the publication of this notification the following forests situated in the Kullu Sub-Divisions of the Kangra District, as detailed below shall be sanctuaries for wild birds and wild animals:-

S.No.	Forest	Range.	Kothi.	Name of game Area.	Area.	Boundaries.
				sanctuary and (acres).		forests included in the same.
1.	Upper Kullu.	Manali.	Manalsu Khad, 2/5 Bungdwari and 2/6 Monal-gahr.	7.167.	North:-Demarcate line of compartment V of 2/5 Bungdwari.	East:- 1/1 Bajrundi demarcated forest and demarcated line of 2/5 Bungdwari C.I. South:- Banau Nal and demarcated line of 2/6 C.IV, West:- Natural limit of Forest.
2.	Lower Kullu	Kaais.	Kaais, all protected forests included in 3.3.79 catchment of Kaais Padra Reas and 2/26 3.3.79.Nal, i.e. 2/32 Marhauri and Kaais Kati Kochhar C.I. II, III, V (Part), VI, VII (Part) and VIII & tting catchment of Kaais. III.	3.3.79	North: Demarcating line separating 2/32 Metikochhar and 2/27 Padra Reas and 2/26 Marhauri and Kaais Nal. East:- Ridge separating Beas and Parbatti.	South:-Compartment VIB and V of 2/32 Matikochhar and spur descending from Dhara to Kaais Nal.
3.	Lower Kullu	Khokhan.	Dohranal 2/65 Oriban and 2/66 Lot Bahalag R/10, Niaragahr, 2/64, Mujag, 1/43 Nagni and Khokhan III. 3.706	2/65 Oriban and 2/66 Lot Bahalag R/10, Niaragahr, 2/64, Mujag, 1/43 Nagni and Khokhan III. 3.706	West:-Beas River. North:-Mohal Khad. South: District Mandi and R/11 Dukam.	East: 1/44 Kawagahr and 2/45 Charawat. West:-R/O Rajgiri & C.V. of 2/63 Matiana.
4.	Parbatti Range.	Kanawar.	Grshan Nal R/3 Grahan, 2/9 Re-ona, 1/9 Khobas C.II & Kanawar III and R/4 Kasol. C.II, III IV, V & VII.	13.435	North:-Parbatti River. South:-Range boundary of Parbatti and Hurla Ranges.	East:-1/9, Khobas C.I d. 2/8 Shitaligahr. 2/7 Tilelotan Demarcated forests. West:-2/13 Muri, 2/10 Surampat and C.VIB C.I. of R/4 Kasol.

Annexure- II

GOVERNMENT OF HIMACHAL PRADESH
DEPARTMENT OF FOREST FARMING AND CONSERVATION, H.P.
.....

NO.SC-A(1)1/83-Vol.II Dated Shimla-2, the 26.8.1986

N O T I F I C A T I O N

WHEREAS, 28 sanctuaries have so far been declared in Himachal Pradesh under Section 18(1), the Wild Life (Protection) Act, 1972 (53 of 1972). And whereas so far, the aforesaid Wild Life protected areas have been under control of Territorial Wing of the Forest Department;

Now And further, whereas, Chief Wild Life Warden, Himachal Pradesh is the authority under Section 33 of the said Act to control, manage and maintain all the sanctuaries;

Now, therefore, in order to ensure scientific management as envisaged in the Act, the Governor, Himachal Pradesh in exercise of the powers conferred vide serial Nos. 19 and 20 of appendix XIII of Fundamental and Supplementary Rules, Vol.II is pleased to transfer the complete control of sanctuaries given in Appendix to this notification from the Territorial jurisdiction to Wild Life Wing of the Forest Department for the said purposes;

The Governor, Himachal Pradesh is further pleased to order that the control over all movable and immovable property, forestry operations, soil conservation, social forestry and protection works, construction and maintenance of buildings roads and paths, regulation of grazing and felling of trees, if any, exercise of rights, all works in respect of Plan and Non-Plan schemes operating in these areas, shall lie with the Chief Wild Life Warden, H.P. with immediate effect. Further all Class-III and Class IV posts working in the territorial units within the sanctuary areas, immediately before the date of this notification, shall stand transferred to the Wild Life Wing of the Himachal Pradesh Forest Department.

The Himachal Pradesh Government notification no. Ft. SC-A(1)1/35 dated 1.5.1984 creating and re-organizing the Forest Circle and Divisions, shall be deemed to have been modified to the above extent.

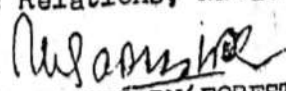
Encls:- As above.

BY ORDER

SECRETARY(FORESTS) TO THE
GOVERNMENT OF HIMACHAL PRADESH, SHIMLA-1.

No. SC-A(1)-1/83-Vol. II Dated Shimla-2, the 26-8-86.
Copy is forwarded to:-

1. The Chief Conservator of Forests(Territorial) and Planning and Development, Shimla with 50 spare copies for information and necessary action. Further action for working out complete details of exact areas to be transferred including staff engaged viz. Forest Guards and Deputy Rangers etc. should be taken immediately.
2. The Secretary to the Governor, Himachal Pradesh, Shimla.
3. Private Secretary to Hon'ble Chief Minister, H.P. Shimla.
4. Private Secretaries to all Ministers/Ministers of States/Deputy Ministers, H.P. Shimla.
5. Private Secretaries to Hon'ble Speaker/Deputy Speaker, H.P. Shimla.
6. All the Secretaries/Joint Secretaries/Deputy Secretaries/Under Secretaries to H.P. Govt.
7. All Heads of Departments/Deputy Commissioners in Himachal Pradesh.
8. All the Managing Directors of the Corporations in Himachal Pradesh.
9. Divisional Commissioners, Dharamsala and Shimla.
10. All Conservators of Forests, in H.P.
11. All Divisional Forest Officers in H.P.
12. The Accountant General, H.P. & Chandigarh, Shimla.
13. The Deputy Controller, Printing and Stationery H.P. Shimla for publication in the Rajpatra.
14. The Director of Public Relations, Himachal Pradesh, Shimla.


Under SECRETARY(FORESTS) TO
GOVERNMENT OF HIMACHAL PRADESH:

1.	2.	3.	4.	5.	6.	7.	8.
Kullu. Kullu.	3. Kokhan.	70-GP 53/97 dated 28.2.1954	1336.00	N. Mohal Khad.			<u>Kullu.</u>
				S. District Mandi and R/11 Dukam.			
				E. 1/44 Kawagahr and 2/45 Charawat.			
				W. R/O Rajgiri and C.V. of 2/63 Matiana.			
Kullu. Parwati.	4. Kanawar.	70-GP 53/97 dt. 28.2.1954.	5427.00	N. Parbati River.			<u>Kullu.</u>
				S. Range Boundary of Parbati and Hurla Ranges.			
				E. 1/9, Khobas C.I.d, 2/3 Shitaligahr, 2/7			
				Tilalotan demarcated forests.			
				W. 2/13 Muri, 2/10 Surampat, and C.VI b. C.I. of			
				R/4 Kasol.			
Kullu. Seraj.	5. Tirthan.	6-16/73-SF dated 17.6.1976.	8396.00	N. Shupakuni Dhar and Garguacan Dhar.			<u>Kullu.</u>
				E. Shrikhad Dhar and deviding line between			
				Parbati and Tirthan nala.,			
				S. Bung Dhar and Decri Dhar i.e. Dividing line			
				between Sutlej and Beas Catchments;			
				W. From Mosrapa Thatch alongwith a Nala to Boundary			
				pillar No. 4 of 2/25 (Maknandi Forest). Then along			
				forest boundary of 2/22 till B.P. No. 3. then Choara			
				Nala dividing 2/22 and 2/23 (Basu Forest) then ridge till			
				Bischul Thatch and then Nala going southward and joining			
				Balkhach Nala below Basloa Thatch then western boundary of			
				2/12 and North West boundary of Compartment no. II and			
				III of 2/20 (Basanal) till it joins Decri Dhar at a			
				point 11,759 feet.			
Kullu. Suket/Karsog	1. Shikari	5-11/70-SF Divi. dt. 27.3.1974.	21351.00	N. From the meeting point of Mohati Dhar and external			<u>Kullu.</u>
Nachan.				boundary of 145 S. District Forest along the boundary of			
				the Forest upto Doala Nala and then along the Nal upto			
				the confluence with Bhavara Gad upstream upto the external			
				boundary of 141 S. Chitma Gad then along the boundary of			
				Chitma Gad to join at Rohandi Dhar.			

Annexure- III

(Authoritative English Text of this Department Notification No. FFE-B-F(6)13/1999/ Kanawar Dated 1-2-2014 as required under Article 348(3) of the Constitution of India)

GOVERNMENT OF HIMACHAL PRADESH DEPARTMENT OF FORESTS

No. FFE-B-F(6)-13/1999/ Kanawar

Dated Shimla-2, the 01 Feb, 2014

NOTIFICATION

Whereas a Notification under Section 8 of the Punjab Wild Birds and Wild Animals Protection Act 1933 was issued vide Punjab Government Notification No. 70 GP 53/97 dated 28.02.1954, to declare Kanawar Wildlife Sanctuary comprising an area of 54.27 sq. km;

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

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

And whereas Intention Notification under section 18(1) of the Wildlife (Protection) Act, 1972 was issued vide Notification No.FFE-B-F(6)-11/2005 dated 28th July, 2010 to include an area of 59.30 sq. km to the existing on ground area of 62.49 sq. km of Kanawar Wildlife Sanctuary;

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

And whereas, the Hon'ble Supreme Court vide order dated 01/02/2013 passed in IA No. 155 (earlier IA No. 139/2010), has permitted the State Government to issue final Notifications under Sections 26A, 35(4) & 36A of the Wildlife (Protection) Act, 1972 with regard to the proposed rationalization of boundaries of Wildlife Sanctuaries and National Parks in Himachal Pradesh;

And whereas, as a consequence of rationalization of boundaries of Kanawar Wildlife Sanctuary, an additional area of 59.30 sq. km is included and 14.50 sq. km area is excluded (comprising of 4 villages namely Grahān, Thunja, Kasol and Gauj) from the existing area on ground i.e. 62.49 of Kanawar Wildlife Sanctuary. The total area of 107.29 sq. km (62.49 sq. km + 59.30 sq. km – 14.50 sq. km) shall now constitute the Kanawar Wildlife Sanctuary after rationalization;

Now, therefore, the Governor, Himachal Pradesh in exercise of the powers vested in her under Section 26A of the Act ibid is pleased to declare the aforesaid area of 107.29 sq. km as 'Kanawar Wildlife Sanctuary' with immediate effect for the purpose of protecting, propagating and developing wildlife and its environment;

The limit of the Kanawar Wildlife Sanctuary shall be as under:

Sr. No	Name of WL Sanctuary	Constituents i) District ii) Forest Division	Boundaries of the Kanawar Wildlife Sanctuary
1.	Kanawar Wildlife Sanctuary	i) Kullu ii) Kullu (Wildlife)	NORTH: Boundary starts from Jail Nal and moves along boundary of R/4 Kasol C-VI-b and C-I up to 1800 mtrs., Contour line and then moves along 1800mtrs. contour line up to Grahān Gad and then moves upstream the Gad along the boundary of R/4 Kasol and moves along the boundary of Reona PF's C-II-b, C-II-a, C-II-d to

		<p>separating the cultivation land of Garahan village then follows the boundary of Tilalotan PF via SOI bench mark 4056 mtrs., then downstream a tributary flowing to Dudhikhhol Nal upto Near SOI bench mark 2838 mtrs.</p> <p>EAST: Boundary starts from confluence of tributary in Dhudhikhhol Nal and then boundary moves upstream with other tributary flowing to Dudhi Khol then downstream along a tributary flowing Barthi Nal then upstream of Barthi Nal and boundary follows a path to Ujli Runi Thach and follows the ridge via SOI bench mark 4317 mtrs., upto Phanchi Galu 4636 mtrs.along path.</p> <p>SOUTH: Boundary starts from Phanchi Galu 4636 mtrs. moves along the ridge Ori dhar Rohni Dhar to SOI bench mark 4658 mtrs. then moves downstream a tributary that join Hamkha Nal near Beghlo Thach. Then it moves upstream with small tributary to SOI 4330 mtrs. then it goes along southern boundary of Reona PF SOI bench mark 3610 mtrs., Khauli Galu, 3715 mtrs., southern boundary of Kasol RF, SOI bench mark 4046 mtrs., 3889 mtrs, 4097 mtrs., Tiri Thunth, southern boundary of Muri PF, eastern boundary of Jaularang PF and joins Ursu Nal boundary moves just up stream with Ursu Nal upto confluence of small tributary then</p>
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			<p>boundary moves up stream the tributary then moves along the eastern boundary of Searan PF SOI bench mark 3533 mtrs. then boundary moves down stream with a tributary following to Najan Gad. After confluence boundary moves upstream with Najan Gad upto SOI bench mark 3674 mtrs.</p> <p>WEST: Boundary starts from SOI bench mark 3674 mtrs. and moves down stream with a Nala flowing to Jaram Nal, SOI bench mark 1895 mtrs then boundary moves along the forest boundary of Muri PF, SOI bench mark 3286 mtrs. then moves down stream along with the Jail Nal upto the R/4 Kasol C-VI-b starting point of northern boundary.</p>
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This area is situated within the Geo-coordinates. **North** latitude $32^{\circ}00'21''$ N and longitude $77^{\circ}18'11''$ E, **East** latitude $31^{\circ}54'40''$ N and longitude $77^{\circ}27'03''$ E, **South** latitude $31^{\circ}53'25''$ N and longitude $77^{\circ}24'41''$ E, **West** latitude $31^{\circ}57'25''$ N and longitude $77^{\circ}15'04''$ E. This area falls on Survey of India topo sheet No. 52H/8 & 53E/5 of scale 1:50,000.

Area of the Kanawar Wildlife Sanctuary = 107.29 sq. km

By Order

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

Endst. No As above

Dated Shimla-2 the 01 Feb, 2014

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 CFs/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.



(PRAKASHA NAND)

Under Secretary (Forests) to the
Government of Himachal Pradesh.
Ph. No.2880-818, Mob.9418455573

हिमाचल प्रदेश सरकार
वन विभाग

संख्या: एफ.एफ.ई.-बी-एफ.(6)-13/1999/कनावर तारीख शिमला-2, 01 फरवरी 2014

अधिसूचना

पंजाब सरकार ने पंजाब वाइल्ड बर्ड्स एण्ड प्रोटेक्शन एक्ट, 1933 की धारा 8 के अधीन अधिसूचना संख्या 70 जी.पी. 53/97 तारीख 28-2-1954 द्वारा 54.27 वर्ग किलोमीटर से समाविष्ट क्षेत्र कनावर वन्य जीव अभ्यारण्य के रूप में घोषित करने की अधिसूचना जारी की थी;

और हिमाचल प्रदेश में वन्य जीव अभ्यारण्यों और राष्ट्रीय पार्कों के युक्तिकरण की बाबत मामला आईए न0 139/2010 इन रिट पिटिशन (सिविल) न0 337 ऑफ 1995 नामतः सेन्टर फॉर एनवारनमेंटल लॉ, डबल्यू डबल्यू एफ-I बनाम यूनियन ऑफ इण्डिया एण्ड अदर्ज में माननीय उच्चतम न्यायालय के विचाराधीन था;

और माननीय उच्चतम न्यायालय के आदेश तारीख 7 मई, 2010 के अनुसरण में राज्य सरकार ने वन्य जीव अभ्यारण्यों और राष्ट्रीय पार्कों, जिनके लिए युक्तिकरण प्रस्तावित किया गया था, की बाबत वन्य जीव (संरक्षण) अधिनियम, 1972 की धारा 18 के अधीन आशय अधिसूचनाएं जारी की थी;

और अधिसूचना संख्या: एफ.एफ.ई.-बी-एफ.(6)11/2005 तारीख 28 जुलाई, 2010 द्वारा कनावर वन्य जीव अभ्यारण्य के विद्यमान 62.49 वर्ग किलोमीटर भू-क्षेत्र में 59.30 वर्ग किलोमीटर क्षेत्र को सम्मिलित करने के लिए

वन्य जीव (संरक्षण) अधिनियम, 1972 की धारा 18(1) के अधीन आशय अधिसूचना जारी की गई थी;

और माननीय उच्चतम न्यायालय के आदेश तारीख 5-8-2011 द्वारा, वन्य जीव (संरक्षण) अधिनियम, 1972 की धारा 26क के अधीन अन्तिम अधिसूचनाएं जारी करने से पूर्व वन्य जीव (संरक्षण) अधिनियम, 1972 की धारा 18 से 26क और 35 के अधीन अधिकथित प्रक्रिया का अनुसरण करने के लिए भी राज्य सरकार को निदेश दिए गए, जिस प्रक्रिया का सम्यक् रूप से अनुसरण किया गया है;

और माननीय उच्चतम न्यायालय ने आईए न0 155 (पहले आईए न0 139/2010) में पारित आदेश तारीख 1-2-2013 द्वारा, राज्य सरकार को हिमाचल प्रदेश में वन्य जीव अभ्यारण्यों और राष्ट्रीय पार्कों की सीमाओं के प्रस्तावित युक्तिकरण की बाबत वन्य जीव (संरक्षण) अधिनियम, 1972 की धारा 26क, 35(4) एवं 36क के अधीन अन्तिम अधिसूचनाएं जारी करने को अनुमत किया है;

और कनावर वन्य जीव अभ्यारण्य की सीमाओं के युक्तिकरण के परिणामस्वरूप कनावर वन्य जीव अभ्यारण्य के 62.49 वर्ग किलोमीटर के विद्यमान भू-क्षेत्र में 59.30 वर्ग किलोमीटर के अतिरिक्त क्षेत्र को सम्मिलित किया गया है और उसमें से 14.50 वर्ग किलोमीटर क्षेत्र (जिसमें 4 गांवों नामतः ग्राहण, टुन्जा, कसोल और गोज से समाविष्ट) को निकाल दिया गया है । युक्तिकरण के पश्चात् अब कनावर वन्य जीव अभ्यारण्य कुल 107.29 वर्ग किलोमीटर (62.49 वर्ग किलोमीटर + 59.30 वर्ग किलोमीटर - 14.50 वर्ग किलोमीटर) क्षेत्र से गठित होगा ।

अतः हिमाचल प्रदेश की राज्यपाल, पूर्वोक्त अधिनियम की धारा 26क के अधीन उनमें निहित शक्तियों का प्रयोग करते हुए वन्य जीव और इसके पर्यावरण के संरक्षण, प्रसारण और इसे विकसित करने के प्रयोजन के लिए, 107.29 वर्ग किलोमीटर क्षेत्र को तुरन्त प्रभाव से कनावर वन्य जीव अभ्यारण्य के रूप में घोषित करती हैं ।

कनावर वन्य जीव अभ्यारण्य की सीमाएं निम्न प्रकार से होंगी:

क्रम संख्या	वन्य जीव अभ्यारण्य का नाम	घटक i) जिला ii) वन मण्डल	कनावर वन्य जीव अभ्यारण्य की सीमाएं
1	कनावर	i) कुल्लू ii) कुल्लू (वन्य जीव) मण्डल	<p>उत्तर: सीमा जैल नाल से आरम्भ होती हुई R/4 कसोल C-VI-b और C-I की सीमा के साथ-साथ 1800 मीटर कन्टूर लाईन तक और फिर 1800 मीटर कन्टूर लाईन के साथ-साथ ग्राहन गाड़ तक और उस के बाद नाले के साथ ऊपर की ओर आर/4 कसोल के साथ और उसके बाद रिओना संरक्षित वन क्षेत्र के C-II-b C-II-a C-II-b के साथ-साथ ग्राहन गांव की कृषि योग्य भूमि को विभाजित करते हुए उसके बाद टिलालोटन संरक्षित वन के साथ-साथ भारतीय सर्वेक्षण विभाग के बेंचमार्क 4056 मीटर से होती हुई नीचे की ओर छोटे नाले में जाती हुई जोकि दुदिखोल नाल में बहता है से होती हुई नजदीक भारतीय सर्वेक्षण विभाग के बेंचमार्क 2838 मीटर तक ।</p> <p>पूर्व: सीमा छोटे नाले के दुदिखोल नाल के मिलान बिन्दु से आरम्भ होती हुई दूसरी ओर छोटे नाले में ऊपर की ओर जाती हुई</p>

		<p>फिर भरथी नाल में बहते हुए छोटे नाले में नीचे की ओर भरथी नाल के मिलान बिन्दु तक फिर भरथी नाल में ऊपर की ओर और उसके बाद सीमा रास्ते के साथ-साथ ऊजली रुनी थाच से होती हुई धार के साथ भारतीय सर्वेक्षण विभाग के बेंचमार्क 4817 मीटर से होती हुई फांची गलू 4636 मीटर तक रास्ते के साथ-साथ ।</p> <p>दक्षिण : सीमा फांची गलू 4636 मीटर से आरम्भ हो कर ओरी धार के साथ भारतीय सर्वेक्षण विभाग के बेंचमार्क 4658 मीटर तक फिर नीचे की ओर मुड़ने के बाद छोटे नाले से जाती हुई हमखा नाल तक नजदीक भेगलो थाच उसके बाद छोटे नाले में ऊपर की ओर भारतीय सर्वेक्षण विभाग के बेंचमार्क 4330 मीटर तक उसके बाद रेओना संरक्षित वन की दक्षिणी सीमा के साथ-साथ भारतीय सर्वेक्षण विभाग के बेंचमार्क 3610 मीटर, खोली गलू 3715 मीटर से होती हुई कसोल आरक्षित वन की दक्षिणी सीमा के साथ-साथ भारतीय सर्वेक्षण विभाग के बेंचमार्क 4046 मीटर, 3889 मीटर, 4097 मीटर, तीरि थुन्थ से होती हुई मुरी संरक्षित वन की दक्षिणी सीमा के साथ-साथ, जाऊलरंग संरक्षित वन की पूर्वी सीमा के साथ-साथ ऊरसू नाल तक । फिर सीमा ऊरसू नाल में ऊपर की ओर जाते हुए छोटे नाले के मिलान बिन्दु तक फिर छोटे नाले में सीमा ऊपर की ओर जाते हुए सिरन संरक्षित वन की पूर्वी सीमा के साथ-साथ भारतीय सर्वेक्षण विभाग के बेंचमार्क 3533 मीटर से होती हुई नाले में नीचे की ओर बहते हुए नाले के साथ-साथ नाजन गाड़ के मिलान बिन्दु तक उसके बाद नाजन नाले में ऊपर की ओर भारतीय सर्वेक्षण विभाग के बेंचमार्क 3674 मीटर तक ।</p>
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			पश्चिम: सीमा भारतीय सर्वेक्षण विभाग के बेंचमार्क 3674 मीटर से आरम्भ हो कर जारम नाल में बहते हुए एक नाले में नीचे की ओर भारतीय सर्वेक्षण विभाग के बेंचमार्क 1895 मीटर से होती हुई मुरी संरक्षित वन सीमा के साथ-साथ भारतीय सर्वेक्षण विभाग के बेंचमार्क 3286 मीटर से होती हुई फिर जैल नाल में नीचे की ओर R/4 कसोल C-VI-b व उत्तरी सीमा के प्रारम्भ बिन्दु तक ।
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इस क्षेत्र की भौगोलिक स्थिति: उत्तर अक्षांश $32^{\circ} 00' 21''$ उत्तर और देशान्तर $77^{\circ} 18' 11''$ पूर्व । पूर्व अक्षांश $31^{\circ} 54' 40''$ उत्तर और देशान्तर $77^{\circ} 27' 03''$ पूर्व । दक्षिण अक्षांश $31^{\circ} 53' 25''$ उत्तर और देशान्तर $77^{\circ} 24' 41''$ पूर्व और पश्चिम अक्षांश $31^{\circ} 57' 25''$ उत्तर और देशान्तर $77^{\circ} 15' 04''$ पूर्व। यह क्षेत्र भारतीय सर्वेक्षण विभाग की टोपो शीट नम्बर 52एच/8 और 53ई/5 (पैमाना 1:50000) पर दर्शाया गया है ।

कनावर वन्यजीव अभ्यारण्य का क्षेत्रफल : 107.29 वर्ग किलोमीटर

आदेश द्वारा,

तरुण श्रीधर
प्रधान सचिव (वन)
हिमाचल प्रदेश सरकार ।

पृष्ठांकन संख्या: यथोपरि।

दिनांक शिमला-2, 01 फरवरी 2014

प्रतिलिपि निम्नलिखित को सूचनार्थ एवं आगामी आवश्यक कार्यवाही हेतु प्रेषित है:-

1. समस्त प्रशासनिक सचिव, हिमाचल प्रदेश-शिमला-2
2. सभी मण्डलायुक्त, शिमला, मण्डी व धर्मशाला मण्डल हिमाचल प्रदेश ।
3. समस्त विभागाध्यक्ष हिमाचल प्रदेश
4. प्रधान मुख्य अरण्यपाल हिमाचल प्रदेश शिमला-1
5. प्रधान मुख्य अरण्यपाल (वन्य प्राणी) हिमाचल प्रदेश-शिमला-1
6. समस्त मुख्य अरण्यपाल / वनमण्डलाधिकारी (वन्य प्राणी) हिमाचल प्रदेश ।
7. समस्त जिलाधीश, हिमाचल प्रदेश ।
8. समस्त मुख्य अरण्यपाल / अरण्यपाल / वनमण्डलाधिकारी, (क्षेत्रीय) हिमाचल प्रदेश ।
9. सहायक विधि परामर्शी एवं अवर सचिव (विधि) हिमाचल प्रदेश सरकार ।
10. नियन्त्रक, मुद्रण एवं लेखन सामग्री विभाग, हिमाचल प्रदेश शिमला-5 को राजपत्र में प्रकाशित करने हेतु । कृपया इसकी पांच अतिरिक्त प्रतियां छापी जावें ।
11. गार्ड फाइल ।

(प्रकाश नन्द)

अवर सचिव (वन)

हिमाचल प्रदेश सरकार

दूरभाष 2880818, मो.9418455573

Annexure- IV
Compensation cases in respect of Kanawar WLS during the Year 2014 - 15 to 2019-20.

SN	Year	Name of Wild Life Sanctuary	Name of person who Death/Killing, Major Minor injuries	Type of Injury	Account of Compensation
1	2014-15	Kanawar WLS	Nil	Nil	Nil
2	2015-16		Nil	Nil	Nil
3	2016-17		Nil	Nil	Nil
4	2017-18		Nil	Nil	Nil
5	2018-19		Nil	Nil	Nil
6	2019-20		Nil	Nil	Nil

Annexure- V
List of buildings of Kanawar Wildlife Sanctuary

SN	Name of building	Year of Construction	Cost Incurred
1	BO Qtr. Kasol	1986-87	85,500/-
2	BO Qtr. Grahana	1986-87	85,500/-
3	FG Hut Kasol	1986-87	85,500/-
4	FG Hut Gharunju	2016-17	8,00,000/-
5	Inspection Hut Kasol	2016-17	11,00,000/-
6	Garage cum Store Kasol	2016-17	3,00,000/-
7	Seed Store Kasol	2018-19	2,00,000/-
8	Souvenir Shop Kasol	2018-19	5,00,000/-

Annexure- VI
List of roads and paths in Kanawar Wildlife Sanctuary

SN	Name of road and path	Year of construction	Length (Km)
1	I/Path Laman Lara to Cheudra	1988-89	10
2	B /Path Kasol to Grahan	Not available	10
3	B/Path Khanoru Thach to Socha Thach	1999-2000	5
4	I/Path Matni nala Bridge to Top of Mathi nala	1990-91	5
5	B/Path Grahan to Nagaruthach	1992-93	8.6
6	I/Path Sharnaga Luripot	1993-94	2

Annexure- VII
Boundary Pillars in Kanawar WL Sanctuary

SN	Name of Beat	Name of Forest	Big B. Pillars	Small B. Pillars	Total No. of Boundary Pillars
1	Kasol & Ghranju	R/4 Kasol	14	41	55
2	Grahan	2/9 Reuna	19	13	32
3	Grahan	R/3 Grahan	03	07	10
4	Bhandag	2/6 Bhandag	0	0	0
5	Tilalotan	2/7 Tilalotan	0	0	0
6	Hargirain	2/21 Hargirain	0	0	0
7	Chatni	2/14 Chatni	05	0	05
8	Jaulrang	2/19 Jaulrang	04	0	04
9	Muri	2/13 Muri	08	0	08
	Total		53	61	114

Annexure VIII

No. FFE-R.F(6)-///99-
Government of Himachal Pradesh,
Department of Forests.

IMMEDIATE

From:

The Commissioner-cum-Secy(Forests) to the
Government of Himachal Pradesh.

To

✓ The Chief Wildlife Warden,
Himachal Pradesh, Shimla-171001.

Dated Shimla-171002 the 16th Oct. 1999.

Subject:-

SLP-(C)-337 of 1995-titled Centre for Environment
Law-WWF-I-dt.10.11.1998. Notification regarding
Wildlife Sanctuary.

Sir,

Jai Hind.

I am directed to refer to your letter No. C-XI-I/

3924- dated 23.8.1999 on the subject cited above and to say that the matter with regard to the issuance of Notification under Section 26(A) of Wildlife(Protection) Act, 1972 was examined in detail by the Administrative Department in consultation with Law Department and it has been advised that Government of Punjab in exercise of the powers conferred by section 3 of Punjab Wild birds and Wild animals Protection Act, 1933 issued a Notification No.79-GP-53/97-dated 28.2.1954 declaring Kothis/Ranges Manali, Kias, Khehhan and Kanawar as Sanctuaries for wild birds and Wild animals. These sanctuaries were to come into existence after six weeks from the date of publication of the said notification. The Notification was published in Punjab Government Gazette dated 12.3.1954. Meaning thereby legally these sanctuaries had already come into existence with effect from 12.3.1954. Accordingly to Section 3 of the Punjab Wild birds and Wild animals Protection Act, 1933 the local Government was competent to declare any area whether it was a public property or a private property to be a sanctuary. The proposal of the Department to declare the same sanctuaries already declared as Sanctuaries under Wild Life (Protection) Act, 1972. The Law Department is of the opinion that there is no need to declare these areas again as Sanctuaries under the 1972 Act as these sanctuaries were validly declared as Sanctuaries under the Punjab Act and the operation of Wild Life(Protection) Act, 1972 which is a Central Act in no manner Contradict.

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affects the Constitution of said sanctuaries. The Section 66 of the Wild Life (Protection) Act, 1972 no doubt repeals every other Act in force in a State yet sub-section (2) of Section 66 containing non-obstante clause providing that anything done or any action taken under the Act so repealed including Notification, order, etc. which is not inconsistent with the provisions of this Act be deemed to have been done or taken under the corresponding provisions of this Act. Since the Notification issued under the Punjab Act is not inconsistent with the provisions of Wild Life (Protection) Act, 1972 and thus stand saved by Section 66(2) of the Act itself. Therefore, there is no need to issue fresh Notifications under 1972 Act and the Notification issued under the Punjab Act is valid.

2. In the light of the above detailed advice of the Law Department the Administrative Department also endorses the same view in the matter accordingly for your information and record.

Yours faithfully,

R. H. S.
Secretary (Forests) to the
Government of Himachal Pradesh.

Enclst. No. FFE-B-F(6)-11/99-Dated Shimla-2 the 11th Oct. 1999.
Copy forwarded to:-

- R*
mp
1. File No. FFE-B-F(6)-10/99 relating to Wildlife Sanctuary, Manali, District Kullu, H.P.
 2. File No. FFE-B-F(6)-12/99-relating to Wildlife Sanctuary, Khokhan, District Kullu, H.P.
 3. File No. FFE-B-F(6)-13/99-relating to Wildlife Sanctuary, Kanawar, District Kullu, H.P.

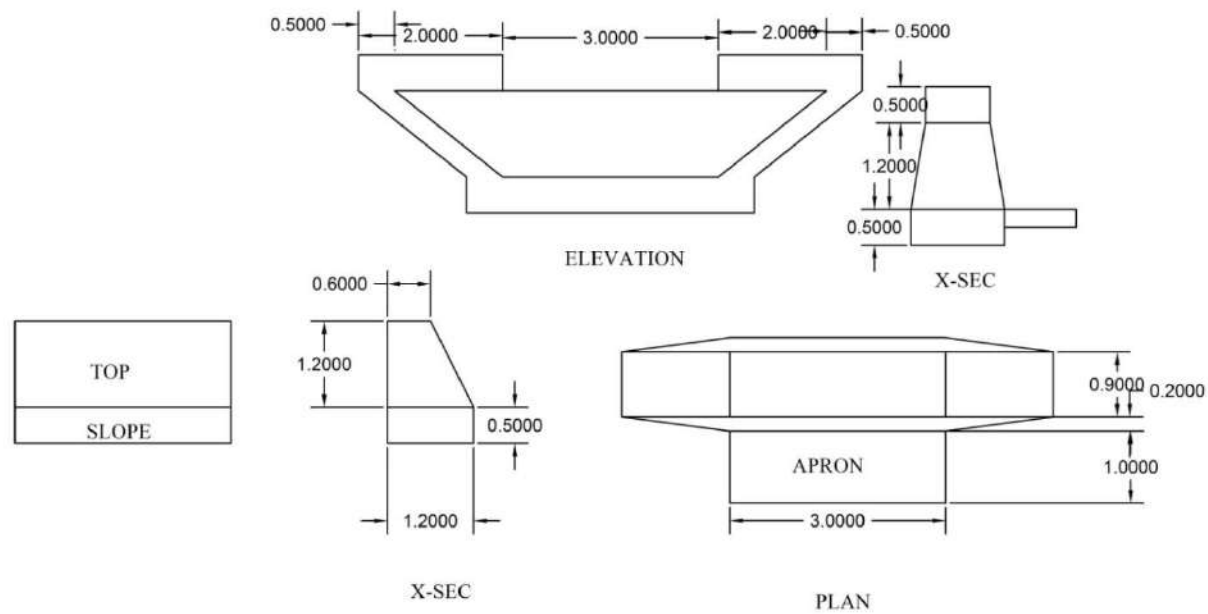
S. H. S.
Secretary (Forests) to the
Government of Himachal Pradesh.

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Annexure – IX

DESIGN OF CHECK WALL AND CHECK DAMS

DESIGN OF DRY STONE MASONRY CHECK WALL AND CHECK DAM



Annexure – X

ANNUAL PLAN OPERATION OF PROTECTED AREA FOR THE YEAR 2020-21 IN RESPECT OF "KANAWAR WILD LIFE SANCTUARY"							
Item of Work		Location	unit	Rate per Unit	Target		Justification
					Phy	Fin	
1	2	3	4	5	6	7	10
A. Non Recurrent Activities							
Infrastructure Development							
Construction of New building & other structures							
1	Const. of small wooden bridge at Kukndi Nala	Kanawar WLS	1No.	L/s	1	150000	For visitors & local people near PA
2	Const. of P/ Hut at Kasol	Kanawar WLS	1No.	L/s	1	400000	For field staff
3	Const. of Hot water Bath Range Complex at kasol	Kanawar WLS	1No.	L/s	1	300000	For visitors
Sub Total						850000	
Soil & Moisture Conservation							
Check Dam							
1	Grahan	Magunal CIII	No.	L/s	10	200000	To control soil erosion
Check wall/ Breast Wall/ Retaining							
1	Bhandag	Bhandag C VI	No.	L/s	10	200000	To control soil erosion
2	Jaularang 2/19	Jaularang 2/19	No.	L/s	10	200000	To control soil erosion
3	Chatani	Chatani CV	No.	L/s	10	200000	To control soil erosion
4	Kundi Nala	Kanawar WLS	No.	L/s	10	200000	To control soil erosion
5	Kasol	Kanawar WLS	No.	L/s	10	200000	To control soil erosion
6	Grahan	Kanawar WLS	No.	L/s	10	200000	To control soil erosion
Water Pond							
1	Tilalotan	Tilalotan C IV	No.	L/s	5	125000	For wild animals
2	Bhandag	Bhandag C VI	No.	L/s	5	125000	For wild animals
3	jaularang 2/19	Jaularang 2/19	No.	L/s	5	125000	For wild animals
Sub Total						1775000	
Habitat Improvement							

Enrichment Plantation							
1	Grahan	Kanawar WLS	ha	0	3	18000	
Sub Total						18000	
Total Non Recurring						2643000	
B. Recurrent Activities							
Wildlife Protection and Conservation Activities							
Protection							
1	Wildlife Week	Kanawar WLS	L/s	L/s	L/S	100000	For awareness to students & local people near PA area
2	Deployment of Antipoachers and Antigrazers	Kanawar WLS	M/days	Rs. 250/- per day	4 for 12 months	360000	Antipoaching activities in the sanctuary through daily wagers
3	Fire watchers	Kanawar WLS	M/days	Rs. 250/- per day	4 for 3 months	90000	To control fire incidents in the sanctuary through daily wagers
4	Group Patrolling for search operation Etc.	Kanawar WLS	L/s	L/s	L/S	100000	For Protection of WLS
5	Clearing of Fire lines	Kanawar WLS	L/s	L/s	L/S	30000	To control forest fire for protection for Wildlife
6	Rescue/ transportation of injured wild animals	Kanawar WLS	L/s	L/s	L/S	20000	For better protection of wildlife
7	Hiring of motor vehicle/ POL & maintenance charges	Kanawar WLS	L/s	L/s	L/S	10000	To meet with the running cost of official vehicle attached with DFO & staff and hiring of vehicle
8	Repair of Boundary pillar (Small)	Kanawar WLS	L/s	L/s	10	30000	Demarcation of boundary
9	Augmentation of salt licks	Kanawar WLS	L/s	1	L/s	15000	For wild animals
Sub Total						755000	
Education and Awareness Generation							
1	Wildlife week and other awareness programme	Kanawar WLS	L/s	L/s	L/S	120000	For wildlife awareness among local people

2	Publicity material / Signage	Kanawar WLS	L/s	L/s	L/S	50000	For wildlife awareness among local people
3	Exposure visit	Kanawar WLS	L/s	L/s	L/S	90000	For Staff
4	Workshop/ Training/ Seminar of Staff	Kanawar WLS	L/s	L/s	L/S	60000	Workshop regarding wildlife awareness among local peoples residing in and around sanctuary area
Sub Total						320000	
Communication							
1	Communication and connectivity to field staff	Kanawar WLS	No.	Rs.300/-PM	5 person for 12 Months	18000	Mobile connectivity to field staff
Sub Total						18000	
Nursery							
Upgrading/improvement of nursery							
1	Raising of nursery plants, etc.	R/4 Kasol	1 No.	100000	1	100000	Development Improvement & raising of plants
2	Raising of nursery plants, etc.	Grahan	1 No.	100000	1	100000	Development Improvement & raising of plants
Sub Total						200000	
Infrastructure Development							
Maintenance of Roads/ Paths/ Buildings							
1	Repair of FG Hut in Residential colony at Kasol (Ghrunju beat)	Kasol	L/s	L/s	L/s	200000	For forest guard incharge
2	Repair of I/ path Padhri to Mang Thach	Grahan	km	L/s	5	100000	For visitors and villagers near PA/ for inspection
Sub Total						300000	
TOTAL RECURRING						1593000	
TOTAL RECURRING & NON-RECURRING						4236000	
Operational Charges						60000	
GRAND TOTAL						4296000	

**ANNUAL PLAN OPERATION OF PROTECTED AREA FOR THE YEAR
2021-22 IN RESPECT OF "KANAWAR WILD LIFE SANCTUARY"**

Item of Work		Location	unit	Rate per Unit	Target		Justification
					Phy	Fin	
1	2	3	4	5	6	7	10
A. Non Recurrent Activities							
Infrastructure Development							
Construction of New building & other structures							
1	Const. of FG Hut Muri beat at Sangchan	Kanawar WLS	1No.	L/s	1	1400000	Quarter for forest guard incharge
2	Const. of FG Hut Chatani beat at Shat	Kanawar WLS	1No.	L/s	1	1400000	Quarter for forest guard incharge
3	Const. of FG Hut Bhandag beat at Kalga	Kanawar WLS	1No.	L/s	1	1400000	Quarter for forest guard incharge
Sub Total						4200000	
Soil & Moisture Conservation							
Check Dam							
1	R/4 Kasol	Mathinal	No.	L/s	5	100000	To control soil erosion
2	Gharunju	Bhuri ra duar	No.	L/s	5	100000	To control soil erosion
3	Tilalotan	Tilalotan C IV	No.	L/s	5	100000	To control soil erosion
Check walls/ Breast walls/ Retaining wall							
1	Tilalotan	Tilalotan C IV	No.	L/s	16	320000	To control soil erosion
2	Bhandag	Bhandag CVI	No.	L/s	10	200000	To control soil erosion
3	Jaularang 2/19	Jaularang 2/19	No.	L/s	10	200000	To control soil erosion
4	Chatani 2/14	Chatani CV	No.	L/s	15	300000	To control soil erosion
5	Muri 2/13	Chatani CV	No.	L/s	10	200000	To control soil erosion
Water Pond							
1	Chatani 2/14	Chatani CV	No.	L/s	3	60000	To control soil erosion
2	Muri 2/13	Chatani CV	No.	L/s	3	60000	To control soil erosion
Sub Total						1640000	

Habitat Improvement							
Enrichment Plantation							
1	Kasol	Kanawar WLS	ha	L/s	3	18000	
2	Grafting/ Raising of fruit trees	Kanawar WLS	L/s	20000	L/s	20000	For wild animals
Sub Total						68000	
Total Non Recurring						5908000	
B. Recurrent Activities							
Wildlife Protection and Conservation Activities							
Protection							
1	Deployment of Antipoachers and Antigrazers	Kanawar WLS	M/days	Rs. 250/- per day	4 for 12 months	360000	Antipoaching activities in the sanctuary through daily wagers
2	Fire watchers	Kanawar WLS	M/days	Rs. 250/- per day	4 for 3 months	90000	To control fire incidents in the sanctuary through daily wagers
3	Group Patrolling for search operation Etc.	Kanawar WLS	L/s	L/s	L/S	100000	For Protection of WLS
4	Rescue/ transportation of injured wild animals	Kanawar WLS	L/s	L/s	L/S	20000	For better protection of wildlife
5	Hiring of motor vehicle/ POL & maintenance charges	Kanawar WLS	L/s	L/s	L/S	10000	To meet with the running cost of official vehicle attached with DFO & staff and hiring of vehicle
6	Repair of Boundary pillar (Big)	Kanawar WLS	L/s	L/s	30	120000	Demarcation of boundary
7	General survey of flora/ fauna	Kanawar WLS	L/s	L/s	L/S	100000	For survey of flora and fauna of Manali WLS
8	Provision of rewards to the informers/ Helpers	Kanawar WLS	L/s	L/s	L/S	20000	For better protection of wildlife
9	Contingencies and Staff Field uniform/ equipments	Kanawar WLS	L/s	L/s	L/S	100000	To meet with the Traveling expanses of staff
10	Combing operation to search traps/nets etc.in the sanctuary	Kanawar WLS	L/s	L/s	L/S	30000	Combing operation

11	Hiring of motor vehicle/ POL & maintenance charges	Kanawar WLS	L/s	L/s	L/S	10000	To meet with the running cost of official vehicle attached with DFO & staff and hiring of vehicle
12	Desktop computer/ Laptop	Kanawar WLS	No.	L/s	1	50000	Required for Information Centre at Manali.
13	Digital Camera, Trap camera, Video and Surveillance Camera etc.	Kanawar WLS	L/s	L/s	L/s	600000	For protection, patrolling/ rescue operations.
14	Camping Equipments	Kanawar WLS	L/s	L/s	L/s	400000	For protection, patrolling/ rescue operations.
15	Augmentation of salt licks	Kanawar WLS	L/s	L/s	L/s	15000	For wild animals
Sub Total						2025000	
Education and Awareness Generation							
1	Wildlife week and other awareness programme	Kanawar WLS	L/s	L/s	L/S	80000	For wildlife awareness among local people
2	Publicity material / Signage	Kanawar WLS	L/s	L/s	L/S	100000	
3	Workshop/Training/ Seminar	Kanawar WLS	L/s	L/s	L/S	80000	Workshop regarding wildlife awareness among local peoples residing in and around sanctuary area
4	Exposure Visit	Kanawar WLS	L/s	L/s	L/S	100000	For Staff
Sub Total						360000	
Communication							
1	Communication and connectivity to field staff	Kanawar WLS	No.	Rs.300/- PM	12 person for 12 Months	43000	Mobile connectivity to field staff

2	Travelling Allowance for field staff	Kanawar WLS	L/s		L/S	100000	For staff
Sub Total						143000	
Nursery							
Upgrading/improvement of nursery							
1	Raising of nursery plants, etc.	R/4 Kasol	1 No.	120000	1	120000	Improvement of nursery and raising of plant
2	Raising of nursery plants, etc.	Grahan	1 No.	150000	1	150000	Improvement of nursery and raising of plant
Sub Total						270000	
Infrastructure Development							
Maintenance of Buildings/ Roads/ Paths							
1	Repair of P.Hut/ I.Hut Mathinala	R/4 Kasol	L/s	150000	L/s	150000	For Staff
2	Repair of bridal/ Trekker path	Mang Thach to Whiskery	6 Km	1	L/S	200000	For visitors and villagers near PA/ for inspection
3	Repair of bridal/ Trekker path	Mathinal I/Hut to Watch Tower	2.5 Km	1	L/S	90000	For visitors and villagers near PA/ for inspection
Sub Total						440000	
TOTAL RECURRING						3238000	
TOTAL RECURRING & NON-RECURRING						9146000	
Operational Charges						60000	
GRAND TOTAL						9206000	

ANNUAL PLAN OPERATION OF PROTECTED AREA FOR THE YEAR 2022-23 IN RESPECT OF "KANAWAR WILD LIFE SANCTUARY"							
Item of Work			unit	Rate per Unit	Target		Justification
		Location			Phy	Fin	
1	2	3	4	5	6	7	10
A. Non Recurrent Activities							
Infrastructure Development							
Construction of New building & other structures							
1	Const. of FG Hut Jaularang beat at Nanjan	Kanawar WLS	1No.	L/s	1	1400000	Quarter for forest guard incharge
2	Const. of FG Hut Tilalotan beat at Pulga	Kanawar WLS	1No.	L/s	1	1400000	Quarter for forest guard incharge
3	Const. of FG Hut Hargirain beat at Manihar	Kanawar WLS	1No.	L/s	1	1400000	Quarter for forest guard incharge
Sub Total						4200000	
Soil & Moisture Conservation							
Check Dam							
1	Chatani	Chatani CV	No.	L/s	10	200000	To control soil erosion
2	Muri	2/13 Muri	No.	L/s	10	200000	To control soil erosion
3	Bhandag 2/6	C VI Part	No.	L/s	15	300000	To control soil erosion
4	Bhandag	Bhandag C VI	No.	L/s	10	200000	To control soil erosion
Check walls/ Breast walls/ Retaining wall							
1	R/4 Kasol	Mathinal	No.	L/s	10	200000	To control soil erosion
2	Ghrunju	Bhuri ra daur	No.	L/s	10	200000	To control soil erosion
3	Grahan	Magunal CIII	No.	L/s	10	200000	To control soil erosion
Water Pond							
1	Jaularang 2/19	Jaularang 2/19	No.	L/s	1	50000	To control soil erosion
2	Tilalotan	Tilalotan C IV	No.	L/s	1	50000	To control soil erosion
Sub Total						1600000	
Habitat Improvement							
Enrichment Plantation							
1	Gharunju	Kanawar WLS	ha	0	4	24000	

2	Grafting/ Raising of fruit trees	Kanawar WLS	L/s	20000	L/s	20000	For wild animals
3	Removal of Invasive Alien Species (Weed)	Kanawar WLS	L/s	30000	L/s	30000	
	Sub Total					74000	
Total Non Recurring						5874000	
B. Recurrent Activities							
Wildlife Protection and Conservation Activities							
Protection							
1	Deployment of Antipoachers and Antigrazers	Kanawar WLS	M/days	Rs. 250/- per day	4 for 12 months	360000	Antipoaching activities in the sanctuary through daily wagers
2	Fire watchers	Kanawar WLS	M/days	Rs. 250/- per day	4 for 3 months	90000	To control fire incidents in the sanctuary through daily wagers
3	Group Patrolling for search operation Etc.	Kanawar WLS	L/s	L/s	L/S	70000	For Protection of WLS
4	Rescue/ transportation of injured wild animals	Kanawar WLS	L/s	L/s	L/S	20000	For better protection of wildlife
5	General survey of flora/ fauna	Kanawar WLS	L/s	L/s	L/S	100000	For survey of flora and fauna of Manali WLS
6	Provision of rewards to the informers/ Helpers	Kanawar WLS	L/s	L/s	L/S	20000	For better protection of wildlife
7	Contingencies and Field uniform / equipments etc. to staff	Kanawar WLS	L/s	L/s	L/S	100000	To meet with the Traveling expanses of staff
8	Combing operation to search traps/nets etc.in the sanctuary	Kanawar WLS	L/s	L/s	L/S	30000	Combing operation
9	Hiring of motor vehicle/ POL & maintenance charges	Kanawar WLS	L/s	L/s	L/S	10000	To meet with the running cost of official vehicle attached with DFO & staff and hiring of vehicle
10	Mahindra Bolero Camper/ Multipurpose vehicle.	Kanawar WLS	No.	L/s	1	800000	Pattrolling vehicle for Range Forest Officer & staff at Kullu/ Kasol.
11	Repair of Boundary pillar (Small)	Kanawar WLS	L/s	L/s	51	153000	Demarcation of boundary
12	Repair of Boundary pillar (Big)	Kanawar WLS	L/s	L/s	23	920000	Demarcation of boundary

13	Augmentation of salt licks	Kanawar WLS	L/s	1	L/s	15000	For wild animals
Sub Total						2688000	
Education and Awareness Generation							
1	Wildlife week and other awareness programme	Kanawar WLS	L/s	L/s	L/S	100000	For wildlife awareness among local people
2	Office expenses	Kanawar WLS	L/s	L/s	L/S	20000	
3	Exposure visit	Kanawar WLS	L/s	L/s	L/S	120000	For Staff
4	Workshop Seminar of Staff	Kanawar WLS	L/s	L/s	L/S	90000	Workshop regarding wildlife awareness among local peoples residing in and around sanctuary area
Sub Total						330000	
Communication							
1	Communication and connectivity to field staff	Kanawar WLS	No.	300	12 person for 12 Months	43000	Mobile connectivity to field staff
2	Travelling Allowance for field staff	Kanawar WLS	L/s		L/S	100000	For staff
Sub Total						143000	
Nursery							
Upgrading/improvement of nursery							
1	Raising of nursery plants, etc.	R/4 Kasol Nursery	1 No.	150000	1	150000	Improvement of nursery and raising of plant
2	Raising of nursery plants, etc.	Grahan Nursery	1 No.	150000	1	150000	Improvement of nursery and raising of plant
Sub Total						300000	
Infrastructure Development							
Maintenance of Roads/ Paths							
1	Maint. of BO Qtr near Range Office	Kanawar WLS	L/s	L/s	2 Nos	400000	For Staff
2	Repair of bridal/ Trekker path Muri to Sern	Kanawar WLS	km	L/s	12	200000	For visitors and villagers near PA/ for inspection
3	Repair of bridal/ Trekker path Chatani to Jaulrang	Kanawar WLS	km	L/s	12	200000	For visitors and villagers near PA/ for inspection
Sub Total						600000	
TOTAL RECURRING						4061000	
TOTAL RECURRING & NON-RECURRING						9935000	
Operational Charges						25000	
GRAND TOTAL						9960000	

ANNUAL PLAN OPERATION OF PROTECTED AREA FOR THE YEAR 2023-24 IN RESPECT OF "KANAWAR WILD LIFE SANCTUARY"							
Item of Work		Location	unit	Rate per Unit	Target		Justification
					Phy	Fin	
1	2	3	4	5	6	7	10
A. Non Recurrent Activities							
Infrastructure Development							
Construction of New building & other structures							
1	Const. of BO Qtr. Garsa at Manihar	Kanawar WLS	1No.	L/s	1	200000 0	Quarter for Block Officer
2	Const. of small wooden bridge at Khonoru Thach	Kanawar WLS	1No.	L/s	1	150000	For visitors & local people near PA
3	Const. of small wooden bridge at Jail Nala	Kanawar WLS	1No.	L/s	1	150000	For visitors & local people near PA
4	Const. of P/ Hut at Gharunju	Kanawar WLS	1No.	L/s	1	500000	For field staff
Sub Total						280000 0	
Soil & Moisture Conservation							
Check Dam							
1	Saloi Age Nala (R/4 Kasol)	R/4 Kasol	No.	20000	10	200000	To control soil erosion
2	Naunau Gunka Nala (Kasol)	Mathinal	No.	20000	10	200000	To control soil erosion
3	Khanouru Nala (Ghrunju)	Ghrunju	No.	20000	10	200000	To control soil erosion
4	Kasol	Mathi Nala	No.	L/s	20	400000	To control soil erosion
5	Kasol	Ratta Chemela Nala CIV Kasol	No.	L/s	10	200000	To control soil erosion
6	Kasol	Harloon Nala	No.	L/s	8	160000	To control soil erosion
Check walls/ Breast walls/ Retaining wall							
1	Bhandag	Bhandag C VI	No.	L/s	10	200000	To control soil erosion
2	Jaularang 2/19	Jaularang 2/19	No.	L/s	10	200000	To control soil erosion
3	Chatani	Chatani CV	No.	L/s	10	200000	To control soil erosion
4	Kasol	Mathi Nala	No.	L/s	10	200000	To control soil erosion

5	Kasol	Ratta Chemela Nala CIV Kasol	No.	L/s	10	200000	To control soil erosion
6	Kasol	Harloon Nala	No.	L/s	10	200000	To control soil erosion
Water Pond							
1	Tilalotan	Tilalotan C IV	No.	L/s	4	100000	For wild animals
2	Bhandag	Bhandag C VI	No.	L/s	4	100000	For wild animals
3	Jaularang 2/19	Jaularang 2/19	No.	L/s	4	100000	For wild animals
	Sub Total					2860000	
Habitat Improvement							
Enrichment Plantation							
1	Kasol	Kanawar WLS	ha	0	4	24000	
2	Grafting/ Raising of fruit trees	Kanawar WLS	L/s	20000	L/s	20000	For wild animals
3	Removal of Invasive Alien Species (Weed)	Kanawar WLS	L/s	30000	L/s	30000	
	Sub Total					74000	
Total Non Recurring						5734000	
B. Recurrent Activities							
Wildlife Protection and Conservation Activities							
Protection							
1	Wildlife Week	Kanawar WLS	L/s	L/s	L/S	100000	For awareness to students & local people near PA area
2	Deployment of Antipoachers and Antigrazers	Kanawar WLS	M/days	Rs. 250/- per day	4 for 12 months	360000	Antipoaching activities in the sanctuary through daily wagers
3	Fire watchers	Kanawar WLS	M/days	Rs. 250/- per day	4 for 3 months	90000	To control fire incidents in the sanctuary through daily wagers
4	Group Patrolling for search operation Etc.	Kanawar WLS	L/s	L/s	L/S	100000	For Protection of WLS
5	Rescue/ transportation of injured wild animals	Kanawar WLS	L/s	L/s	L/S	20000	For better protection of wildlife

6	Hiring of motor vehicle/ POL & maintenance charges	Kanawar WLS	L/s	L/s	L/S	10000	To meet with the running cost of official vehicle attached with DFO & staff and hiring of vehicle
7	General survey of flora/ fauna	Kanawar WLS	L/s	L/s	L/S	100000	For survey of flora and fauna of Manali WLS
8	Provision of rewards to the informers/ Helpers	Kanawar WLS	L/s	L/s	L/S	20000	For better protection of wildlife
9	Contingencies and Field uniform / equipments etc. to staff	Kanawar WLS	L/s	L/s	L/S	100000	To meet with the Traveling expenses of staff
10	Combing operation to search traps/nets etc.in the sanctuary	Kanawar WLS	L/s	L/s	L/S	30000	Combing operation
11	One Patrolling/ Rescue Vehicle.	Kullu and Manali WL Range	No.	L/s	1	1200000	For Rapid Response Team/ force at Kullu
12	Bikes for forest guards	Kanawar WLS	No.	L/s	6	500000	For patrolling/ rescue operations.
13	Augmentation of salt licks	Kanawar WLS	L/s	1	L/s	15000	For wild animals
Sub Total						2645000	
Education and Awareness Generation							
1	Wildlife week and other awareness programme	Kanawar WLS	L/s	100000	L/S	100000	For wildlife awareness among local people
2	Publicity material / Signage	Kanawar WLS	L/s	0	L/S	100000	For wildlife awareness among local people
2	Office expenses	Kanawar WLS	L/s	L/s	L/S	20000	
4	Workshop Seminar of Staff	Kanawar WLS	L/s	L/s	L/S	90000	Workshop regarding wildlife awareness among local peoples residing in and around sanctuary area
Sub Total						310000	
Communication							

1	Communication and connectivity to field staff	Kanawar WLS	No.	300	12 person for 12 Months	43000	Mobile connectivity to field staff
2	Travelling Allowance for field staff	Kanawar WLS	L/s		L/S	100000	For staff
Sub Total						143000	
Nursery							
Upgrading/improvement of nursery							
1	Raising of nursery plants, etc.	R/4 Kasol	1 No.	160000	1	160000	Improvement of nursery and raising of plant
2	Raising of nursery plants, etc.	Grahan	1 No.	200000	1	200000	Improvement of nursery and raising of plant
Sub Total						360000	
Infrastructure Development							
Maintenance of Roads/ Paths							
1	Inspection path CII R/4 Kasol	Kanawar WLS	L/S	80000	1	80000	For visitors and villagers near PA/ for inspection
2	Saranga to Loripot	Kanawar WLS	L/S	44000	1	44000	For visitors and villagers near PA/ for inspection
3	Maint. of path from old Nursery Grahan to Sanctuary area	Kanawar WLS	L/S	160000	L/S	160000	For visitors and villagers near PA/ for inspection
Sub Total						124000	
TOTAL RECURRING						3582000	
TOTAL RECURRING & NON-RECURRING						9316000	
Operational Charges						25000	
GRAND TOTAL						9341000	

ANNUAL PLAN OPERATION OF PROTECTED AREA FOR THE YEAR 2024-25 IN RESPECT OF "KANAWAR WILD LIFE SANCTUARY"							
Item of Work			unit	Rate per Unit	Target		Justification
		Location			Phy	Fin	
1	2	3	4	5	6	7	10
A. Non Recurrent Activities							
Infrastructure Development							
Construction of New building & other structures							
1	Const. of small wooden bridge	Kanawar WLS	1No.	L/s	1	200000	For visitors & local people near PA
2	Const. of P/ Hut at Luripat	Kanawar WLS	1No.	L/s	1	500000	For field staff
3	Const. of P/ Hut at Jaulrang	Kanawar WLS	1No.	L/s	1	500000	For field staff
4	Const. of FG Hut Grahan	Kanawar WLS	1No.	L/s	1	1400000	Quarter for forest guard incharge
Sub Total						2600000	
Soil & Moisture Conservation							
Check Dam							
1	Ghrunju	Jail Nala	No.	L/s	20	400000	To control soil erosion
2	Ghrunju	Kundi Nala	No.	L/s	15	500000	To control soil erosion
3	Ghrunju	Chamaun Nala CVII	No.	L/s	10	200000	To control soil erosion
Check wall/ Breast Wall/ Retaining							
1	R/4 Kasol	Mathinal	No.	L/s	15	300000	To control soil erosion
2	Ghrunju	Bhuri ra daur	No.	L/s	12	240000	To control soil erosion
3	Ghrunju	Jail Nala	No.	L/s	22	440000	To control soil erosion
4	Ghrunju	Kundi Nala	No.	L/s	18	360000	To control soil erosion
5	Ghrunju	Chamaun Nala CVII	No.	L/s	10	20000	To control soil erosion
6	Grahan	Magunal CIII	No.	L/s	12	240000	To control soil erosion
7	Jaularang 2/19	Jaullaranh g 2/19	No.	L/s	15	300000	To control soil erosion
Water Pond							
1	Chatani	Chatani CV	No.	L/s	1	100000	To control soil erosion
2	Muri	2/13 Muri	No.	L/s	1	100000	To control soil erosion
Sub Total						3200000	
Habitat Improvement							

1	Grafting/ Raising of fruit trees	Kanawar WLS	L/s	20000	L/s	20000	For wild animals
2	Removal of Invasive Alien Species (Weed)	Kanawar WLS	L/s	30000	L/s	50000	
	Sub Total					70000	
	Total Non Recurring					5870000	
B. Recurrent Activities							
Wildlife Protection and Conservation Activities							
Protection							
1	Deployment of Antipoachers and Antigrazers	Kanawar WLS	M/day s	Rs. 250/- per day	4 for 12 months	360000	Antipoaching activities in the sanctuary through daily wagers
2	Fire watchers	Kanawar WLS	M/day s	Rs. 250/- per day	4 for 3 months	90000	To control fire incidents in the sanctuary through daily wagers
3	Group Patrolling for search operation Etc.	Kanawar WLS	L/s	L/s	L/S	100000	For Protection of WLS
4	Rescue/ transportation of injured wild animals	Kanawar WLS	L/s	L/s	L/S	20000	For better protection of wildlife
5	Hiring of motor vehicle/ POL & maintenance charges	Kanawar WLS	L/s	L/s	L/S	10000	To meet with the running cost of official vehicle attached with DFO & staff and hiring of vehicle
6	General survey of flora/ fauna	Kanawar WLS	L/s	L/s	L/S	100000	For survey of flora and fauna of Manali WLS
7	Provision of rewards to the informers/ Helpers	Kanawar WLS	L/s	L/s	L/S	20000	For better protection of wildlife
8	Contingencies and Staff travelling expenses	Kanawar WLS	L/s	L/s	L/S	100000	To meet with the Traveling expanses of staff
9	Combing operation to search traps/nets etc.in the sanctuary	Kanawar WLS	L/s	L/s	L/S	30000	Combing operation
10	Augmentation of salt licks	Kanawar WLS	L/s	1	L/s	15000	For wild animals
	Sub Total					845000	
Education and Awareness Generation							
1	Wildlife week and other awareness programme	Kanawar WLS	L/s	L/s	L/S	80000	For wildlife awareness among local people

2	Publicity material / Signage	Kanawar WLS	L/s	L/s	L/S	100000	
3	Workshop/Training/ Seminar	Kanawar WLS	L/s	L/s	L/S	80000	Workshop regarding wildlife awareness among local peoples residing in and around sanctuary area
4	Exposure Visit	Kanawar WLS	L/s	L/s	L/S	100000	For Staff
Sub Total						360000	
Communication							
1	Communication and connectivity to field staff	Kanawar WLS	No.	300	12 person for 12 Months	43000	Mobile connectivity to field staff
Sub Total						43000	
Nursery							
Upgrading/improvement of nursery							
1	Raising of nursery plants, etc.	R/4 Kasol Nursery	1 No.	150000	1	150000	Improvement of nursery and raising of plant
2	Raising of nursery plants, etc.	Grahan Nursery	1 No.	150000	1	150000	Improvement of nursery and raising of plant
Sub Total						300000	
Infrastructure Development							
Maintenance of Roads/ Paths							
1	Repair of BO Qtr	Kasol WL Complex	L/s	L/s	L/S	300000	For Staff
1	Maint. of I/ path Pulga to Tila Lotan	Kanawar WLS	km	L/s	8	200000	For visitors and villagers near PA/ for inspection
2	Maint. Of B/ path Pulga to Bhandag	Kanawar WLS	km	L/s	8	200000	For visitors and villagers near PA/ for inspection
Sub Total						400000	
TOTAL RECURRING						1948000	
TOTAL RECURRING & NON-RECURRING						7818000	
Operational Charges						50000	
GRAND TOTAL						7868000	

**ANNUAL PLAN OPERATION OF PROTECTED AREA FOR THE YEAR
2025-26 IN RESPECT OF "KANAWAR WILD LIFE SANCTUARY"**

Item of Work		Location	unit	Rate per Unit	Target		Justification
					Phy	Fin	
1	2	3	4	5	6	7	10
A. Non Recurrent Activities							
Infrastructure Development							
Construction of New building & other structures							
1	Const. of Sitting Places	Kanawar WLS	No.	5000	15	75000	For Visitors
2	Const. of B/Path Shangchan to Khanoru	Kanawar WLS	km	1000 00	3	300000	For Visitors
3	Const. of P/ Hut at Hargirain	Kanawar WLS	1No.	L/s	1	500000	For field staff
4	Const. of B/Path Seran to Oriage	Kanawar WLS	km	1000 00	2	200000	For Visitors
Sub Total						1075000	
Soil & Moisture Conservation							
Check Dam							
1	Grahan	Grahan Nala (Kasol Gad)	No.	L/s	20	400000	To control soil erosion
2	Grahan	Thunja Nala	No.	L/s	20	400000	To control soil erosion
Check wall/ Breast Wall/ Retaining							
1	Grahan	Magunal CIII	No.	L/s	12	240000	To control soil erosion
2	Jaularang 2/19	Jaullaran hg 2/19	No.	L/s	15	300000	To control soil erosion
3	Grahan	Grahan Nala (Kasol Gad)	No.	L/s	8	160000	To control soil erosion
4	Grahan	Thunja Nala	No.	L/s	15	300000	To control soil erosion
Water Pond							
1	Grahan		No.	L/s	1	90000	To control soil erosion
Sub Total						1890000	
Habitat Improvement							
Enrichment Plantation							
1	Gharunju	Kanawar WLS	ha	0	4	24000	
2	Grafting/ Raising of fruit trees	Kanawar WLS	L/s	2000 0	L/s	20000	For wild animals
Sub Total						44000	

Total Non Recurring						3009000	
B. Recurrent Activities							
Wildlife Protection and Conservation Activities							
Protection							
1	Wildlife Week	Kanawar WLS	L/s	L/s	L/S	100000	For awareness to students & local people near PA area
2	Deployment of Antipoachers and Antigrazers	Kanawar WLS	M/day s	Rs. 250/- per day	4 for 12 months	360000	Antipoaching activities in the sanctuary through daily wagers
3	Fire watchers	Kanawar WLS	M/day s	Rs. 250/- per day	4 for 3 months	90000	To control fire incidents in the sanctuary through daily wagers
4	Group Patrolling for search operation Etc.	Kanawar WLS	L/s	L/s	L/S	100000	For Protection of WLS
5	Clearing of Fire lines	Kanawar WLS	L/s	L/s	L/S	30000	To control forest fire for protection for Wildlife
6	Rescue/ transportation of injured wild animals	Kanawar WLS	L/s	L/s	L/S	20000	For better protection of wildlife
7	Hiring of motor vehicle/ POL & maintenance charges	Kanawar WLS	L/s	L/s	L/S	10000	To meet with the running cost of official vehicle attached with DFO & staff and hiring of vehicle
8	Augmentation of salt licks	Kanawar WLS	L/s	1	L/s	15000	For wild animals
Sub Total						725000	
Education and Awareness Generation							
1	Wildlife week and other awareness programme	Kanawar WLS	L/s	L/s	L/S	120000	For wildlife awareness among local people
2	Publicity material / Signage	Kanawar WLS	L/s	L/s	L/S	50000	For wildlife awareness among local people
3	Exposure visit	Kanawar WLS	L/s	L/s	L/S	90000	For Staff

4	Workshop/ Training/ Seminar of Staff	Kanawar WLS	L/s	L/s	L/S	60000	Workshop regarding wildlife awareness among local peoples residing in and around sanctuary area
Sub Total						320000	
Communication							
1	Communication and connectivity to field staff	Kanawar WLS	No.	300	12 person for 12 Months	43000	Mobile connectivity to field staff
Sub Total						43000	
Nursery							
Upgrading/improvement of nursery							
1	Raising of nursery plants, etc.	R/4 Kasol Nursery	1 No.	1500 00	1	150000	Improvement of nursery and raising of plant
2	Raising of nursery plants, etc.	Grahan Nursery	1 No.	1500 00	1	150000	Improvement of nursery and raising of plant
Sub Total						300000	
Infrastructure Development							
Maintenance of Roads/ Paths							
1	Repair of BO Qtr & FG Hut	Kasol WL Complex	L/s	L/s	L/S	300000	For Staff
2	Repair of I/ path Pulga to Tila Lotan	Kanawar WLS	km	L/s	8	200000	For visitors and villagers near PA/ for inspection
3	Repair of I/ path Pulga to Bhandag	Kanawar WLS	km	L/s	8	200000	For visitors and villagers near PA/ for inspection
Sub Total						700000	
TOTAL RECURRING						2088000	
TOTAL RECURRING & NON- RECURRING						5097000	
Operational Charges						50000	
GRAND TOTAL						5147000	

ANNUAL PLAN OPERATION OF PROTECTED AREA FOR THE YEAR 2026-27 IN RESPECT OF "KANAWAR WILD LIFE SANCTUARY"							
Item of Work		Location	unit	Rate per Unit	Target		Justification
					Phy	Fin	
1	2	3	4	5	6	7	10
A. Non Recurrent Activities							
Infrastructure Development							
Construction of New building & other structures							
1	Const. of small wooden bridge	Kanawar WLS	1No.	L/s	1	200000	For visitors & local people near PA
2	Const. of B/Path Tiuna to Bundru	Kanawar WLS	km	100000	3	300000	For Visitors
3	Const. of B/Path Marinu Thach to Dharman	Kanawar WLS	km	100000	4	400000	For Visitors
Sub Total						900000	
Soil & Moisture Conservation							
Check Dam							
1	Chatani	Chatani CV	No.	L/s	10	200000	To control soil erosion
2	Chatani	Moharsu Nala	No.	L/s	10	200000	To control soil erosion
Check wall/ Breast Wall/ Retaining							
1	Chatani	Shada Ra Nala	No.	L/s	5	100000	To control soil erosion
2	Chatani	Ujli Khar Land Slip	No.	L/s	10	200000	To control soil erosion
Water Pond							
1	Jaulrang		No.	L/s	1	90000	To control soil erosion
Sub Total						790000	
Habitat Improvement							
Enrichment Plantation							
1	Kasol	Kanawar WLS	ha	0	3	18000	
2	Grafting/ Raising of fruit trees	Kanawar WLS	L/s	20000	L/s	20000	For wild animals
3	Removal of Invasive Alien Species (Weed)	Kanawar WLS	L/s	30000	L/s	30000	
Sub Total						68000	
Total Non Recurring						1758000	
B. Recurrent Activities							
Wildlife Protection and Conservation Activities							
Protection							

1	Wildlife Week	Kanawar WLS	L/s	L/s	L/S	100000	For awareness to students & local people near PA area
2	Deployment of Antipoachers and Antigrazers	Kanawar WLS	M/days	Rs. 250/- per day	4 for 12 months	360000	Antipoaching activities in the sanctuary through daily wagers
3	Fire watchers	Kanawar WLS	M/days	Rs. 250/- per day	4 for 3 months	90000	To control fire incidents in the sanctuary through daily wagers
4	Group Patrolling for search operation Etc.	Kanawar WLS	L/s	L/s	L/S	100000	For Protection of WLS
5	Clearing of Fire lines	Kanawar WLS	L/s	L/s	L/S	30000	To control forest fire for protection for Wildlife
6	Rescue/ transportation of injured wild animals	Kanawar WLS	L/s	L/s	L/S	20000	For better protection of wildlife
7	Hiring of motor vehicle/ POL & maintenance charges	Kanawar WLS	L/s	L/s	L/S	10000	To meet with the running cost of official vehicle attached with DFO & staff and hiring of vehicle
8	Augmentation of salt licks	Kanawar WLS	L/s	1	L/s	15000	For wild animals
Sub Total						725000	
Education and Awareness Generation							
1	Wildlife week and other awareness programme	Kanawar WLS	L/s	L/s	L/S	120000	For wildlife awareness among local people
2	Publicity material / Signage	Kanawar WLS	L/s	L/s	L/S	50000	For wildlife awareness among local people
3	Exposure visit	Kanawar WLS	L/s	L/s	L/S	90000	For Staff
4	Workshop/ Training/ Seminar of Staff	Kanawar WLS	L/s	L/s	L/S	60000	Workshop regarding wildlife awareness among local

							peoples residing in and around sanctuary area
Sub Total						320000	
Communication							
1	Communication and connectivity to field staff	Kanawar WLS	No.	300	12 person for 12 Months	43000	Mobile connectivity to field staff
Sub Total						43000	
Nursery							
Upgrading/improvement of nursery							
1	Raising of nursery plants, etc.	R/4 Kasol Nursery	1 No.	150000	1	150000	Improvement of nursery and raising of plant
2	Raising of nursery plants, etc.	Grahan Nursery	1 No.	150000	1	150000	Improvement of nursery and raising of plant
Sub Total						300000	
Infrastructure Development							
Maintenance of Roads/ Paths/ Buildings							
1	Repair of FG Hut	Kasol WL Complex	L/s	L/s	L/S	300000	For forest guard incharge
1	Pulga to Tila Lotan	Kanawar WLS	km	L/s	8	200000	For visitors and villagers near PA/ for inspection
2	Pulga to Bhandag	Kanawar WLS	km	L/s	8	200000	For visitors and villagers near PA/ for inspection
Sub Total						700000	
TOTAL RECURRING						2088000	
TOTAL RECURRING & NON-RECURRING						3846000	
Operational Charges						90000	
GRAND TOTAL						3936000	

ANNUAL PLAN OPERATION OF PROTECTED AREA FOR THE YEAR 2027-28 IN RESPECT OF "KANAWAR WILD LIFE SANCTUARY"							
Item of Work		Location	unit	Rate per Unit	Target		Justification
					Phy	Fin	
1	2	3	4	5	6	7	10
A. Non Recurrent Activities							
Infrastructure Development							
Construction of New building & other structures							
1	Const. of P/ Hut at Grahani	Kanawar WLS	1No.	L/s	1	600000	For field staff
2	Const. of small wooden bridge	Kanawar WLS	1No.	L/s	1	200000	For visitors & local people near PA
Sub Total						800000	
Soil & Moisture Conservation							
Check Dam							
1	Muri	Kaliban	No.	L/s	20	400000	To control soil erosion
2	Muri	Nanjan Nala	No.	L/s	5	100000	To control soil erosion
Check wall/ Breast Wall/ Retaining							
1	Muri	Kaliban	No.	L/s	8	160000	To control soil erosion
2	Muri	Nanjan Nala	No.	L/s	8	160000	To control soil erosion
Water Pond							
1	Muri		No.	L/s	1	90000	To control soil erosion
Sub Total						910000	
Habitat Improvement							
Enrichment Plantation							
1	Gharunju	Kanawar WLS	ha	0	4	24000	
2	Grafting/ Raising of fruit trees	Kanawar WLS	L/s	20000	L/s	20000	For wild animals
Sub Total						44000	
Total Non Recurring						1754000	
B. Recurrent Activities							
Wildlife Protection and Conservation Activities							
Protection							
1	Wildlife Week	Kanawar WLS	L/s	L/s	L/S	100000	For awareness to students & local people near PA area
2	Deployment of Antipoachers and Antigrazers	Kanawar WLS	M/days	Rs. 250/- per day	4 for 12 months	360000	Antipoaching activities in the sanctuary

							through daily wagers
3	Fire watchers	Kanawar WLS	M/days	Rs. 250/- per day	4 for 3 months	90000	To control fire incidents in the sanctuary through daily wagers
4	Group Patrolling for search operation Etc.	Kanawar WLS	L/s	L/s	L/S	100000	For Protection of WLS
5	Clearing of Fire lines	Kanawar WLS	L/s	L/s	L/S	30000	To control forest fire for protection for Wildlife
6	Rescue/ transportation of injured wild animals	Kanawar WLS	L/s	L/s	L/S	20000	For better protection of wildlife
7	Hiring of motor vehicle/ POL & maintenance charges	Kanawar WLS	L/s	L/s	L/S	10000	To meet with the running cost of official vehicle attached with DFO & staff and hiring of vehicle
8	General survey of flora/ fauna	Kanawar WLS	L/s	L/s	L/S	100000	For survey of flora and fauna of Manali WLS
9	Provision of rewards to the informers/ Helpers	Kanawar WLS	L/s	L/s	L/S	20000	For better protection of wildlife
10	Contingencies and Staff travelling expenses	Kanawar WLS	L/s	L/s	L/S	100000	To meet with the Traveling expanses of staff
11	Combing operation to search traps/nets etc.in the sanctuary	Kanawar WLS	L/s	L/s	L/S	30000	Combing operation
12	Augmentation of salt licks	Kanawar WLS	L/s	1	L/s	15000	For wild animals
Sub Total						975000	
Education and Awareness Generation							
1	Wildlife week and other awareness programme	Kanawar WLS	L/s	L/s	L/S	80000	For wildlife awareness among local people
2	Publicity material / Signage	Kanawar WLS	L/s	L/s	L/S	100000	
3	Workshop/Training/ Seminar	Kanawar WLS	L/s	L/s	L/S	80000	Workshop regarding wildlife awareness among local peoples residing

							in and around sanctuary area
4	Exposure Visit	Kanawar WLS	L/s	L/s	L/S	100000	For Staff
Sub Total						360000	
Communication							
1	Communication and connectivity to field staff	Kanawar WLS	No.	300	12 person for 12 Months	43000	Mobile connectivity to field staff
Sub Total						43000	
Nursery							
Upgrading/improvement of nursery							
1	Raising of nursery plants, etc.	R/4 Kasol Nursery	1 No.	150000	1	150000	Improvement of nursery and raising of plant
2	Raising of nursery plants, etc.	Grahan Nursery	1 No.	150000	1	150000	Improvement of nursery and raising of plant
Sub Total						300000	
Infrastructure Development							
Maintenance of Roads/ Paths/ Buildings							
1	Repair of BO Qtr	Kasol WL Complex	L/s	L/s	L/S	300000	For Block Officer
2	Repair of I/ path Pulga to Tila Lotan	Kanawar WLS	km	L/s	8	200000	For visitors and villagers near PA/ for inspection
3	Repair of fl/ path Pulga to Bhandag	Kanawar WLS	km	L/s	8	200000	For visitors and villagers near PA/ for inspection
Sub Total						700000	
TOTAL RECURRING						2378000	
TOTAL RECURRING & NON-RECURRING						4132000	
Operational Charges						90000	
GRAND TOTAL						4222000	

**ANNUAL PLAN OPERATION OF PROTECTED AREA FOR THE YEAR
2028-29 IN RESPECT OF "KANAWAR WILD LIFE SANCTUARY"**

Item of Work		Location	unit	Rate per Unit	Target		Justification
1	2				Phy	Fin	
1	2	3	4	5	6	7	10
A. Non Recurrent Activities							
Infrastructure Development							
Construction of New building & other structures							
1	Const. of small wooden bridge	Kanawar WLS	1 No.	L/s	1	200000	For visitors & local people near PA
Sub Total						200000	
Soil & Moisture Conservation							
Check Dam							
1	Tilalotan	Ursu Nala	No.	L/s	5	100000	To control soil erosion
Check wall/ Breast Wall/ Retaining							
1	Tilalotan	Ursu Nala	No.	L/s	8	160000	To control soil erosion
Water Pond							
1	Tilalotan		No.	L/s	1	90000	For wild animals
Sub Total						350000	
Habitat Improvement							
Enrichment Plantation							
1	Gharunju	Kanawar WLS	ha	0	3	24000	For wild animals
2	Grafting/ Raising of fruit trees	Kanawar WLS	L/s	20000	L/s	20000	For wild animals
Sub Total						44000	
Total Non Recurring						594000	
B. Recurrent Activities							
Wildlife Protection and Conservation Activities							
Protection							
1	Wildlife Week	Kanawar WLS	L/s	L/s	L/S	100000	For awareness to students & local people near PA area
2	Deployment of Antipoachers and Antigrazers	Kanawar WLS	M/ days	Rs. 250/- per day	4 for 12 months	360000	Antipoaching activities in the sanctuary through daily wagers
3	Fire watchers	Kanawar WLS	M/ days	Rs. 250/- per day	4 for 3 months	90000	To control fire incidents in the sanctuary through daily wagers

4	Group Patrolling for search operation Etc.	Kanawar WLS	L/s	L/s	L/S	100000	For Protection of WLS
5	Clearing of Fire lines	Kanawar WLS	L/s	L/s	L/S	30000	To control forest fire for protection for Wildlife
6	Rescue/ transportation of injured wild animals	Kanawar WLS	L/s	L/s	L/S	20000	For better protection of wildlife
7	Hiring of motor vehicle/ POL & maintenance charges	Kanawar WLS	L/s	L/s	L/S	10000	To meet with the running cost of official vehicle attached with DFO & staff and hiring of vehicle
8	Augmentation of salt licks	Kanawar WLS	L/s	1	L/s	15000	For wild animals
Sub Total						725000	
Education and Awareness Generation							
1	Wildlife week and other awareness programme	Kanawar WLS	L/s	L/s	L/S	80000	For wildlife awareness among local people
2	Publicity material / Signage	Kanawar WLS	L/s	L/s	L/S	100000	
3	Workshop/Training/ Seminar	Kanawar WLS	L/s	L/s	L/S	80000	Workshop regarding wildlife awareness among local peoples residing in and around sanctuary area
4	Exposure Visit	Kanawar WLS	L/s	L/s	L/S	100000	For Staff
Sub Total						360000	
Communication							
1	Communication and connectivity to field staff	Kanawar WLS	No.	300	12 person for 12 Months	43000	Mobile connectivity to field staff
Sub Total						43000	
Nursery							
Upgrading/improvement of nursery							
1	Raising of nursery plants, etc	R/4 Kasol Nursery	1 No.	150000	1	150000	Improvement of nursery and raising of plant
2	Raising of nursery plants, etc	Grahan Nursery	1 No.	150000	1	150000	Improvement of nursery and raising of plant

Sub Total						300000	
Infrastructure Development							
Maintenance of Roads/ Paths/ Buildings							
1	Repair of BO Qtr & FG Hut	Kasol WL Complex	L/s	L/s	L/S	300000	For Staff
1	Maint. of I/ path Pulga to Tila Lotan	Kanawar WLS	km	L/s	8	200000	For visitors and villagers near PA/ for inspection
2	Maint. of I/ path Pulga to Bhandag	Kanawar WLS	km	L/s	8	200000	For visitors and villagers near PA/ for inspection
	Sub Total					700000	
TOTAL RECURRING						2128000	
TOTAL RECURRING & NON-RECURRING						2722000	
	Operational Charges					60000	
GRAND TOTAL						2782000	

ANNUAL PLAN OF OPERATION OF PROTECTED AREA FOR THE YEAR 2029-30 IN RESPECT OF "KANAWAR WILD LIFE SANCTUARY"							
Item of Work		Location	unit	Rate per Unit	Target		Justification
					Phy	Fin	
1	2	3	4	5	6	7	10
A. Non Recurrent Activities							
Infrastructure Development							
Construction of New building & other structures							
1	Const. of Sitting Places along Road from Bhandag Rorag Saur	Kanawar WLS	No.	L/s	15	75000	For Visitors
2	Const. of small wooden bridge	Kanawar WLS	1No.	L/s	1	200000	For visitors & local people near PA
Sub Total						275000	
Soil & Moisture Conservation							
Check Dam							
1	Hargirain	Marinu Nala	No.	L/s	8	160000	To control soil erosion
2	Hargirain	Panch Nala	No.	L/s	5	100000	To control soil erosion
Check wall/ Breast Wall/ Retaining							
1	Hargirain	Marinu Nala	No.	L/s	10	200000	To control soil erosion
3	Hargirain	Panch Nala	No.	L/s	10	200000	To control soil erosion
Water Pond							
1	Hargirain		No.	L/s	1	100000	To control soil erosion
Sub Total						760000	
Habitat Improvement							
1	Grafting/ Raising of fruit trees	Kanawar WLS	L/s	20000	L/s	20000	For wild animals
Sub Total						20000	
Total Non Recurring						1055000	
B. Recurrent Activities							
Wildlife Protection and Conservation Activities							
Protection							
1	Deployment of Antipoachers and Antigrazers	Kanawar WLS	M/days	9000	2 for 12 months	216000	To Control poaching in WLS
2	Fire watchers	Kanawar WLS	M/days	9000	2 for 6 months	108000	To Control Fire in WLS
3	Group Patrolling for search operation Etc.	Kanawar WLS	L/s	L/s	L/S	70000	For Protection of WLS
4	Maint of fire lines	Kanawar WLS	L/s	L/s	L/S	50000	For Control Fire

5	General survey of flora/ fauna	Kanawar WLS	L/s	L/s	L/S	50000	For survey of flora and fauna of Kanawar WLS
6	Provision of rewards to the informers/ Helpers	Kanawar WLS	L/s	L/s	L/S	20000	For better protection of wildlife
7	Augmentation of Saltlicks	Kanawar WLS	L/s	L/s	L/S	20000	For wild animals
8	Contingencies and Staff travelling expenses	Kanawar WLS	L/s	L/s	L/S	100000	To meet with the Traveling expanses of staff
9	Combing operation to search traps/nets etc.in the sanctuary	Kanawar WLS	L/s	L/s	L/S	30000	Combing operation
10	Rescue / transportaion of injured wild animals	Kanawar WLS	L/s	L/s	L/S	20000	For better protection of wildlife
Sub Total						684000	
Education and Awareness Generation							
1	Wildlife week and other awareness programme	Kanawar WLS	L/s	L/s	L/S	150000	For wildlife awareness among local people
2	Publicity material / Signage	Kanawar WLS	L/s	L/s	L/S	30000	For wildlife awareness among local people
3	Work Shop With people near PA	Kanawar WLS	L/s	L/s	L/S	30000	For awareness
4	Training/Workshop of Staff	Kanawar WLS	L/s	L/s	L/S	20000	For awareness & training on wild life techniques
5	Office expenses	Kanawar WLS	L/s	L/s	L/s	30000	For office use
6	Providing of Khakhi jackets and Shoes to Staff	Kanawar WLS	L/s	L/s	L/S	100000	For staff
Sub Total						360000	
Communication							
1	Communication and connectivity to field staff	Kanawar WLS	No.	300	12 person for 12 Months	43000	Mobile connectivity to field staff
Sub Total						43000	
Nursery							
	Upgrading/improvement of nursery						
1	Raising of nursery plants, etc	Grahan Nursery	No.	L/s	1	150000	Development/ Improvement & raising of plants
Sub Total						150000	

Infrastructure Development							
Maintenance of Roads/Paths/ water Pond /Camping Ground							
1	De-silatation of water pond	Kanawar WLS	No	L/S	4	40000	For wild animals
2	Repair of bridal/ Trekker path	Mang Thach	Km	L/s	8	160000	For visitors and villagers near PA/ for inspection
3	Repair of Inspection path CII R/4 Kasol	Kasol	Km	L/S	11	220000	For visitors and villagers near PA/ for inspection
4	Maint. of Camping Ground	Kanawar WLS	No	L/s	L/S	80000	For visitors and staff
Sub Total						500000	
TOTAL RECURRING						1737000	
TOTAL RECURRING & NON-RECURRING						2792000	
	Operational Charges					90000	
GRAND TOTAL						2882000	

Year wise and Component wise Abstract of APOs in respect of Kanawar WLS											
Component/ Year	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
A. Non Recurrent Activities											
Construction of New building & other structures	850000	4200000	4200000	2800000	2600000	1075000	900000	800000	200000	275000	17900000
Soil & Moisture Conservation	1775000	1640000	1600000	2860000	3200000	1890000	790000	910000	350000	760000	15775000
Habitat Improvement	18000	68000	74000	74000	70000	44000	68000	44000	44000	20000	524000
TOTAL NON RECURRING	2643000	5908000	5874000	5734000	5870000	3009000	1758000	1754000	594000	1055000	34199000
B. Recurrent Activities											
Wildlife Protection and Conservation Activities	755000	2025000	2688000	2645000	845000	725000	725000	975000	725000	684000	12792000
Education and Awareness Generation	320000	360000	330000	310000	360000	320000	320000	360000	360000	360000	3400000
Communication	18000	143000	143000	143000	43000	43000	43000	43000	43000	43000	705000
Nursery	200000	270000	300000	360000	300000	300000	300000	300000	300000	150000	2780000
Infrastructure Development	300000	440000	600000	124000	400000	700000	700000	700000	700000	500000	5164000
TOTAL RECURRING	1593000	3238000	4061000	3582000	1948000	2088000	2088000	2378000	2128000	1737000	24841000
TOTAL RECURRING & NON- RECURRING	4236000	9146000	9935000	9316000	7818000	5097000	3846000	4132000	2722000	2792000	59040000
Operational Charges	60000	60000	25000	25000	50000	50000	90000	90000	60000	90000	600000
GRAND TOTAL	4296000	9206000	9960000	9341000	7868000	5147000	3936000	4222000	2782000	2882000	59640000

Annexure – XI
Detail of Plantations in Kanawar WLS

SN	Beat	Year of plantation	Name of scheme	Name of plantation area	Area (ha)	Remarks
1	Grahan	2016-17	Koldam	Shirikutu	8	4 year old
2	Grahan	2017-18	Koldam	Chhopashi	2	3 year old
3	Grahan	2019-20	Koldam	Ridthach	5	1 year old
4	Grahan	2019-20	Koldam	Old Nursery Side	3	1 year old
5	Bhandag	2019-20	Koldam	2/6 Bhandag C VI-1	6	1 year old
6	Bhandag	2019-20	Koldam	2/6 Bhandag C VI-2	4	1 year old

Annexure - XII
List of Forest Nurseries in Kanawar WLS

SN	Name of Nursery	Beat	Area (ha)	Type
1	Kasol Nursery	Kasol	0.50	Permanent
2	Grahan Nursery	Grahan	0.50	Permanent

Annexure - XIII
Religious Places in Kanawar WLS

SN	Kasol Beat	Grunju Beat	Grahan Beat	Bhandag Beat	Tilalotan Beat	Hargirain Beat	Chatani Beat	Jaulrang Beat	Muri Beat
1	Naina Mata Temple	Shani Temple near Jail Nala	Rawal Rishi Temple at Grahan	Pulga Bani Narain ji	Tulga Mandir	Gautam Rishi	Satvani Devta	Nag Mandir Tiuna	Dhargan Mata Temple
2	Rawal Rishi Temple at Kasol				Than Devta				

Annexure - XIV
List of Water Resource in Kanawar WLS

SN	Kasol Beat	Grunju Beat	Grahan Beat	Bhandgah Beat	Tilalotan Beat	Hargrain Beat	Chatani Beat	Jaulrang Beat	Muri Beat
1	Kasol Gad	Jail Nala	Grahan Nala / Gad	Choti (Nala)	Ursu Nala	Marinu Nala,	Shatt Nala	Garsa Gad	Kaliban Nala
2	Mathigarh or Mathi Nala	Kundi Nala,	Thunja Nala	Bhandag (Saur)	Water Fall Bati	Pancha Nala	Shada Ra Nala	Nanjan Gad/ Nala	Godage Dodru (Cave)
3	Ratta Chamela Nala	Chamaun Nala	Dolag Nala,			Pulia Nala	Mohasru Nala	Jawa Tapatik (Saur)	
4	Harloon Nala	Garhunju Nala	Socha Nala			Dora Nala	Ujali Khar Nala,		
5	Upper Harlun (Naalu)	Danger (Thach)	Padhari (Naalu)			Sartaj (Nala)	Oriaage (Naalu)		
6	Khobsar (Naalu)	Khadiaru (Thach)	Reed (Thach)			Langri (Thach)	Khari Chho (Water Fall)		
7	Haldrroon (Naalu)		Dgma (Thach)				Manjali Khari (Naalu)		
8	Luripot (Naalu)		Kharli (Nala)						
9			Bakker (Nala)						

Annexure - XV

Proforma for Group Patrolling Exercise / Field Inspection Report

(For FG, BO, RFO, ACF, DFO, CF)

1. TRACK INFORMATION

Name of WLS					
Name of the Beat/ Block/ Range					
Name of the forest covered					
Name of the track/trail					
Team Members	SN	Name	Designation	Place of Posting	Signature
	1				
	2				
	3				
	4				
	5				
Track Details					
Date	Starting point (Name & GPS coordinates)	Mid stations (Name & GPS coordinates)	End point (Name & GPS coordinates)		
Altitude of highest points on the route (m AMSL)					
Total distance covered (km)					

2. TYPE OF HABITAT AND THEIR LOCATION ON THE ROUTE

Type	Conifer forest	BL Forest	Pasture	Rocky Mountain	Water body
/Location					

3. WILD ANIMAL ENCOUNTER DATA (Direct Sighting)

SN	Name of Species	Place of Encounter	Location		Time	Distance from the Observer	Direction from observer (Left or Right side of the transect)	No. of individual seen				Activity (Feeding, resting, Running, flying etc.)
			Latitude	Longitude				Male	Female	Offspring	Total	
1												
2												
3												
4												
5												

4. WILD ANIMAL ENCOUNTER DATA (Indirect Sighting)

SN	Name of Species	Place of Evidence	Location		Time	Type of Evidence				No. of pellet groups/scats/ carcass
			Latitude	Longitude		Pellet/ Scat	Carcass	Signs	Others (specify)	
1										
2										
3										
4										
5										

5. ANIMAL MORTALITY

SN	Species Type	Name of Species	Location		Cause of Death	Carcass	Sex (Male/ Female/ Un.)
			Latitude	Longitude			
1							
2							
3							
4							

6. ILLICIT FELLING

SN	Beat	Forest	Location		No. of trees	Species					Action Taken
			Latitude	Longitude							
1											
2											
3											
4											

7. ENCROACHMENT/ MINING

SN	Beat	Forest	Location		Approx. Area (ha)	Action Taken
			Latitude	Longitude		
1						
2						
3						
4						

8. GRAZING

SN	Name of Area/ Forest	Location		Extent of Grazing Pressure (Low /Medium/ High)	Remarks / Action Taken
		Latitude	Longitude		
1					
2					
3					
4					

9. FOREST FIRE

SN	Name of Area	Location		Damage Due to Fire (ha)	Estimated Cost (Rs)	Fire Prone Area (ha)
		Latitude	Longitude			
1						
2						
3						
4						

10. COMBING OPERATION DATA

SN	Name of forest	Location		Type of illegal material recovered (Traps/Snares/wire etc.)	No. of materials
		Latitude	Longitude		
1					
2					
3					

11. BOUNDARY PILLARS

SN	Boundary pillar No.	Name of Forest	Location		Condition (Good /Needs repair)
			Latitude	Longitude	
1					
2					
3					

12. WATER RESOURCES DATA

S N	Name of waterhole/ source	Name of Forest	Location		Type (Natural/ Artificial)	Availabili ty of Water (Seasonal/ Perennial	Condition (Good /Needs repair)	Use by Live stock (Y/N)	Water Percent age (%) & Quality
			Latitude	Longitude					
1									
2									
3									

13. SOIL CONSERVATION WORKS DATA (Area to be selected / Evaluated)

SN	Name of the forest	Name of place	Location		Problem / Eroded Area (ha)	Type of problem (Gully widening, Landslips, silt in nala etc.)	Extent of Erosion (Nil/ Low/ Medium/ High)	Intervention required (Create wire, check dam, Bioengineering works)	Estimated Dimensions of structure to be constructed	Remarks/ Type & Condition of already constructed structures
			Latitude	Longitude						
1										
2										
3										
4										

14. WEED PRONE AREAS (INVASIVE ALIEN SPECIES)

SN	Name of the forest	Location		Name of the species	Area covered by weeds (approx.) (ha)
		Latitude	Longitude		
1					
2					
3					
4					

15. NURSERY

SN	Name of Nursery	Extent (ha)	Species	No. of Plants	Ongoing operations
1					
2					
3					
4					

16. PLANTATION (Old/ New Proposed)

SN	Name of Plantation Area	Old/Existing Plantation Or New plantation Proposed	Area of Plantation (ha)	Species Planted/ Species Proposed	No. of Plants	Survival percentage
1						
2						
3						
4						
5						

17. BRIDLE PATH/ INSPECTION PATH

SN	Name of bridle path	Length (km)	Last repair undertaken		Present Condition (Good/ Need repair)	Remarks
			Year	Exp. Incurred		
1						
2						
3						
4						
5						

18. FRH/ INSPECTION HUTS/ PATROLLING HUT etc.

SN	Name of FRH/ Inspection Hut/ Patrolling Hut/ Any other Building	Location	Last repair undertaken		Present Condition		Remarks
			Year	Exp. incurred	Good	Need repair	
1							
2							
3							
4							
5							

Annexure - XVI

PROFORMA OF ABSTRACT FOR DAILY DATA FOR EACH BEAT TO BE ATTACHED WITH MONTHLY DIARY

Range:

Block:

Beat:

Total km:

SN	Date	GPS Location		Animal sighting (Directed or Indirect)						Illegal activity		Animal Mortality					Water Source			Plantation			Nursery			Soil and Water Conservation									
		Latitude	Longitude	Species type Mammal/ Bird	Species Name (Common / Scientific Name)	Total number (or) sign type	Age of sign	Sex				Human type damage	Action taken	Time elapsed (Day)	Species Type	Species	Cause of death	Caracas	Sex(Male/Female/Un.)	Water Source (Natural /Artificial)	Water Percentage (%)	Quality	Name and area of Plantation	Species Planted	Numbers	Survival Percentage	Species	No. of Plants	Ongoing Operation	Name of Structure	Dimensions	Condition			

Annexure - XVII

MEE Score Card Kanawar WLS

Framework Element Number	Framework Element Name	Number of Questions (a)	Maximum Mark per question (b)	Total (a x b)	Marks obtained for the Element	Overall Score
1.	Context	03	10	30	12.5	43.33%
2.	Planning	08	10	80	27.5	
3.	Inputs	06	10	60	25.0	
4.	Process	04	10	40	20.0	
5.	Outputs	04	10	40	20.0	
6.	Outcomes	05	10	50	25.0	
Total		30		300	130.0	

STRENGTHS

- The Kanawar WS is now free from any permanent settlements / villages after the rationalization of PA boundary of June 2013.
- Kanawar WS along with proposed Kheer ganga NP form a contiguous landscape with GHNP and so that a landscape management plan could be developed and implemented
- Mobile allowances provided to all officers and frontline staff for using personal mobiles for protection and management purposes though connectivity is poor
- For last 3 years, the PA has received adequate funds from CAMPA and CSS
- For last 3 years, the PA has no record of HWC cases

WEAKNESSES

- New Management Plan is under preparation. Old Plan expired 3 years ago.
- No zonation (core/ buffer / tourist) and should include the proposed ESZ
- No contribution from NGOs (funds/in kind) for PA management
- Lack appreciation / incentives for good work done by field staff

ACTIONABLE POINTS

- Systematic monitoring of threats such as fire, illicit felling, lopping, felling, encroachment should be carried out regularly
- The work on the new Wildlife Management Plan should be initiated forthwith as per WII guidelines and should include ESZ proposal and pursue early finalization for the same.
- The new six beats added to Kanawar that are presently under the administrative control of Territorial Division should be transferred to WLWing at the earliest.
- Systematic baseline data on flora and fauna should be generated as early as possible. More specifically on RET and IUCN Red List and IWPA Schedule Species
- Committee should be constituted for involvement of local communities in Conservation Plans and Programmes of the PA
- Communication equipment such as wireless to be procured and used for effective patrolling & coordination with enforcement / line agencies to be enhanced
- Better coordination with line departments to tap state / district funds
- New six beats are still under the control of Territorial Division and for that eight more personnel (2 BO & 6 FGs) will be required to be sanctioned.
- Integrated landscape management plan to be developed
- Risk Plan and Protection Plans to be developed
- Vacant posts to be filled up and better deployment of personnel at various levels should be ensured for effective protection
- Officers and Frontline staff should be trained in wildlife management
- Efforts to be made for the timely release of CSS funds from the State
- PA manager to ensure effective public participation in PA management
- Monitoring of Pre and Post scenario on reduction of anthropogenic pressures on PA with regard schemes such as distribution of induction heaters / LPG
- Expedite development of PA website and its linking with State Forest Department website
- There is a high potential for ecotourism with due publicity to attract visitors. Visitors Feedback Register must be maintained.

- Detailed plans have to be drawn up to adapt management for climate change by coordination with the HP SCC.
- Eupatorium ??? (The weed *Eupatorium adenophorum* should be removed).
- WII NMSHE long term monitoring plots.
- Communication equipment such as wireless to be procured and used for effective patrolling & coordination with enforcement / line agencies to be enhanced

Annexure - XVIII

Check list of Plants in Kanawar Wildlife Sanctuary

Tree Species

SN	Name of Species	Botanical Name
1.	Deodar	<i>Cedrus deodara</i>
2.	Chir Pine	<i>Pinus roxburghii</i>
3.	Blue Pine	<i>Pinus wallichiana</i>
4.	Spruce	<i>Picea smithiana</i>
5.	Fir	<i>Abies pindrow</i>
6.	Ban Oak	<i>Quercus incana</i>
7.	Mohru Oak	<i>Quercus dilatata</i>
8.	Kharsu Oak	<i>Quercus semicarpifolia</i>
9.	Bras	<i>Rhododendron arborium</i>
10.	Yew	<i>Taxus baccata</i>
11.	Aesculus	<i>Aesculus indica</i>
12.	Devidyar	<i>Juniperus macropoda</i>
13.	Boxwood	<i>Buxus wallichiana</i>
14.	Khirk	<i>Celtis australis</i>
15.	Khirki	<i>Carpinus spp.</i>
16.	Walnut	<i>Juglans regia</i>
17.	Bird Cherry	<i>Prunus spp.</i>
18.	Seabuck Thorn	<i>Hippophea silicifolia</i>
19.	Fig	<i>Ficus spp.</i>
20.	Daral	<i>Cedrella serrata</i>
21.	Poplar	<i>Populus ciliata</i>
22.	Elm	<i>Ulmus wallichiana</i>
23.	Kosh	<i>Ahuns nitida</i>
24.	Ilex	<i>Ilex dipyrena</i>
25.	Rhus	<i>Rhus wallichiana</i>
26.	Coraria	<i>Coraria spp.</i>
27.	Pyrus	<i>Pyrus spp.</i>
28.	Tirmira	<i>Zanthoxylem alatum</i>
29.	Corylus	<i>Coraria spp.</i>
30.	Cornus	<i>Cornus capitata</i>
31.	Pieris	<i>Pieris avalifolia</i>
32.	Arundinaria	<i>Arundinaria falcata</i>
33.	Bhoj Patra	<i>Betula utilis</i>
34.	Willow	<i>Salix spp.</i>
35.	Maple	<i>Acer pictum</i>
36.	Prunus	<i>Prunus spp.</i>
37.	Ash (Angu)	<i>Fraxinus micrantha</i>
38.	Kakar	<i>Podophyllum alatum</i>
39.	Sececion	<i>Senecion spp.</i>
40.	Rhamanus	<i>Rhamanus spp.</i>

Herb and Shrub Species

SN	Name of Species	Botanical Name
1.	Rubus	<i>Rubus ellipticus</i>
2.	Kashmal	<i>Berberis aristata</i>
3.	Vibenum	<i>Vibenum continifolium</i>
4.	Kathi	<i>Indigofera pulchella</i>
5.	Rosa	<i>Rosa moschata</i>
6.	Bekhal	<i>Prinsepia utilis</i>
7.	Desmodium	<i>Desmodium spp.</i>
8.	Spirea	<i>Spirea elegans</i>
9.	Sarcococca	<i>Sarcococca saligna</i>
10.	Iris	<i>Iris spp.</i>
11.	Desbergesia	<i>Debergesia hypoleuca</i>
12.	Gerardinana	<i>Gerardiana hetrophylla</i>
13.	Daphne	<i>Daphne papyracea</i>
14.	Plectranthus	<i>Plectranthus rugosus</i>
15.	Lonicera	<i>Lonicera spp.</i>
16.	Thalictrum	<i>Thalictrum spp.</i>
17.	Salvia	<i>Salvia spp.</i>
18.	Castor	<i>Ricinus communis</i>
19.	Shingli-Mingli	<i>Dioscorea deltoidea</i>
20.	Patish	<i>Aconitum spp.</i>
21.	Dhoop	<i>Jurinea macrocephala</i>
22.	Cotoneaster	<i>Cotoneaster spp.</i>
23.	Valerina	<i>Valerina wallichii</i>
24.	Canabis	<i>Canabis sativa</i>
25.	Kurroo	<i>Gentiana Kurroo</i>
26.	Artemesia	<i>Artemesia spp.</i>
27.	Salam Panja	<i>Orchis latifolia</i>
28.	Thymus	<i>Thymus spp.</i>
29.	Anemone	<i>Anemone spp.</i>
30.	Deutzia	<i>Deutzia compacta</i>
31.	Rumex	<i>Remex hastatus</i>
32.	Polygonum	<i>Polygonum spp.</i>
33.	Strobilanthus	<i>Strobilanthus spp.</i>
34.	Balsam	<i>Impatiens spp.</i>
35.	Viola	<i>Viola spp.</i>
36.	Primula	<i>Primula spp.</i>
37.	Rananculus	<i>Rananculus spp.</i>
38.	Saxifraga	<i>Saxifraga ligulata</i>
39.	Wild Strawberry	<i>Fragaria nubicola</i>
40.	Ivy	<i>Hedra hpp.</i>
41.	Clematis	<i>Clematis Montana</i>
42.	Guchhi (Fungii)	<i>Morchella esculenta</i>

Annexure – XIX

Check list of Animals of Kanawar Wildlife Sanctuary

SN	Common Name	Zoological name
1	Snow Leopard	<i>Panthera uncea</i>
2	Leopard	<i>Panthera pardus</i>
3	Leopard Cat	<i>Felis benghalensis</i>
4	Jungle Cat	<i>F. Chaus</i>
5	Himalayan Civet	<i>Pagoma Larvata</i>
6	Himalayan Yellow Throated Marten	<i>Martes flvigula</i>
7	Brown Bear	<i>Ursus arctus</i>
8	Black Bear	<i>Selenarctus thibetanus</i>
9	Porcupine	<i>Hystrix indica</i>
10	Flying Squirrel	<i>Petaurista petaurista</i>
11	Monkey	<i>Macaca mulatto</i>
12	Langoor	<i>Presbytis entellus</i>
13	Himalayan Tahr	<i>Hemitragus jemlahicus</i>
14	Goral	<i>Nemorhaedus goral</i>
15	Barking Deer	<i>Muntiacus muntjac</i>
16	Serow	<i>Capricornicus sumatrensis</i>
17	Blue Sheep	<i>Psedudois nayaur</i>
18	Musk Deer	<i>Moschus moschifera</i>
19	Vole	<i>Alticola roylei</i>
20	Red Fox	<i>Vulpes vulpes</i>
21	Jackal	<i>Canis aureus</i>
22	Snakes	
23	Fish (Trout)	
24	Lizzards	
25	Bats	
26	Butterflies	

Annexure - XX

Birds and pheasants of Kanawar Wildlife Sanctuary

SN	Name of Bird	Zoological name
1	Grey winged Black Bird	<i>Turdus bouboul</i>
2	White Collared Black Bird	<i>T. albocinctus</i>
3	Black Bulbul	<i>Hypsipetes madagascariensis</i>
4	White Cheeked Bulbul	<i>Pycnonotus lencoyenys</i>
5	Bullfinch Brown	<i>Pyrrhula nepalensis</i>
6	Red Headed Bui Finch	<i>P. crythrocephala</i>
7	Rock Bunting	<i>Emberiza cia</i>
8	Dark Grey Bush Chat	<i>Saxicol ferrea</i>
9	Red Billed Chough	<i>Pyrrhocarax</i>
10	Himalayan Tree Creeper	<i>Certhia himalayana</i>
11	Jungle Crow	<i>Corvus splendens</i>
12	Brow Dipper	<i>Cinclus pallasi</i>
13	Rufous Jrtle Dore	<i>Streptopelia orientalis</i>
14	Spotted Dove	<i>S. Chinensis</i>
15	Black Drongo	<i>Dicrurus adsimilis</i>
16	Golden Eagle	<i>Aquila Chrysaetos</i>
17	Red Browed Finch	<i>Callacanthus burtoni</i>
18	Fire Breasted Flower Pecker	<i>Dicaeum ignipectus</i>
19	Grey Headed Flycatcher	<i>Culicapa ceylonensis</i>
20	Rufous Tailed Flycatcher	<i>Muscicapa ruficauda</i>
21	Sooty Flycatcher	<i>M. sibirica</i>
22	Verditer Flycatcher	<i>M. tholassina</i>
23	White Browed Blue Flycatcher	<i>M. dupercilaris</i>
24	Spotted Forktail	<i>Enicurus maculatus</i>
25	Gold Crest	<i>Regulus regulus</i>
26	Hodsons Grandala	<i>Gandala codicolor</i>
27	Black and Yellow Grosbeak	<i>Coccothraustes icteroides</i>
28	Hobby	<i>Falco bubbutio</i>
29	Hoopoe	<i>Upupa epops</i>
30	Kestrel	<i>Falco tinnunculus</i>
31	Black Winged Kite	<i>Elanus caeruleus</i>
32	House Martin	<i>Delichon urbica</i>
33	Longtailed Marten	<i>Pericrocotus ethologus</i>
34	Indian Jungle Night Jar	<i>Caprimuglus indicus</i>
35	Rufous Bellied Niltava	<i>Muscicapa sundara</i>
36	Spotted Scops owl	<i>Otus spilocephalus</i>
37	Slaty Headed Parakeet	<i>Psittacula himalayana</i>
38	Black Partridge	<i>Francolinus francolinus</i>
39	Chukor Partridge	<i>Alectoris chukor</i>
40	Chir Pheasant	<i>Catreus wallichii</i>
41	Kalij Pheasant	<i>Lophura lencomelana</i>
42	Koklas Pheasant	<i>Pucrasia macrolopha</i>
43	Monal Pheasant	<i>Lophophorus impejanus</i>

44	Ashy wood Pigeon	<i>Columba pulchrocollis</i>
45	Speckled Wood Pigeon	<i>Columba bodgsanis</i>
46	Upland Pipit	<i>Anthus sylvanus</i>
47	Plumbeous redstart	<i>Rhyaconis fuliginosus</i>
48	Guldenstadi's Redstart	<i>Rhyaconis fuliginosus</i>
49	White Capped Redstart	<i>Chaimawonis leucocepholus</i>
50	Pink Browed Rosed Finch	<i>Carpodacus rhodochrous</i>
51	Rufous Backed Shrike	<i>Lanius schach</i>
52	Black Capped Sibia	<i>Heterophasia capistrata</i>
53	Bar throated Sivia	<i>Minla strigala</i>
54	Himalayan Snow Cock	<i>Tetrargallus himlayansis</i>
55	Cinnamon Tree Sparrow	<i>Passer rutilanis</i>
56	House Sparrow	<i>Passer domesticus</i>
57	Himalayan Swiftlet	<i>Collocalia brevirostris</i>
58	Large Brown Thrush	<i>Zoothera monticola</i>
59	Plain backed Mountain Thrush	<i>Z. Mollissima</i>
60	Red Headed Laughing Thrush	<i>Garrulax erythrocephallus</i>
61	Streaked Laughing Thrush	<i>G. Lineatus</i>
62	Variegated Laughing Thrush	<i>G. variegates</i>
63	Brown Crested Tit	<i>Parus dichrouw</i>
64	Black Crested Tit	<i>P. melanolophus</i>
65	Green Backed Tit	<i>P. monticolus</i>
66	Grey Tit	<i>P. major</i>
67	W. Tragopan	<i>Tragopan melanocephalus</i>
68	Bearded Vulture	<i>Gypactus barbatus</i>
69	Grey wagtail	<i>Motacilla cinerea</i>
70	White Wagtail	<i>Malba</i>
71	Brown Hill Warbler	<i>Prinia criniger</i>
72	Brown Leaf Warbler	<i>Phylloscopus collybita</i>
73	Grey Faced Leaf Warbler	<i>P. maculipennis</i>
74	Large Crowned Leaf Warbler	<i>P. occipitalis</i>
75	Rufous Capped Bush Warbler	<i>Cettia brunnifrons</i>
76	Wood Cock	<i>Scolopax rusticola</i>
77	Scaly Bellied Green Woodpecker	<i>Picus squamatus</i>
78	Wren	<i>Troglodytes troglodytes</i>
79	Yellow naped Yahina	<i>Yahina flavicollis</i>
80	Yellow Billed Blue Magpie	<i>Cissa flavirostrus</i>
81	Snow Pigeon	<i>Columba lenconta</i>

Annexure – XXI

Checklist of birds observed during detailed Kanawar WLS Survey w.e.f. 13.03.2016 to 16.03.2016

S.No	Taxon	Important observations
	I. Order: Falconiformes	
	1. Family: Accipitridae	
1.	Black Kite <i>Mihus migrans</i> (Boddaert, 1783)	Sighted around Kasol
2.	Bearded Vulture <i>Gypaetus barbatus</i> (Linnaeus, 1758)	A single sighting
	Himalayan Griffon <i>Gyps himalayensis</i> (Hume, 1869)	A few individuals sighted
4.	Golden Eagle <i>Aquila chrysaetos</i> (Linnaeus, 1758)	A single sighting
	11. Order: Galliformes	
	2. Family: Phasianidae	
5.	Koklass Pheasant <i>Pucrasia macrolopha</i> (Lesson, 1829)	Fairly common species
6.	Impeyan Monal <i>Lophophorus impejanus</i> (Latham, 1790)	
7.	Kaleej Pheasant <i>Lophura leucomelanos</i> (Latham, 1790)	Fairly common
	III. Order: Columbiformes	
	3. Family: Columbidae	
8.	Blue Rock Pigeon <i>Columba livia</i> Gmelin, 1789	Recorded in Kasol area
9.	Oriental Turtle-Dove <i>Streptopelia orientalis</i> (Latham, 1790)	Fairly common
	IV. Order: Psittaciformes	
	4. Family: Psittacidae	
10.	Slaty-headed Parakeet <i>Psittacula himalayana</i> (Lesson, 1832)	Fairly common
	V. Order: Cuculiformes	
	5. Family: Cuculidae	
11.	Common Cuckoo <i>Cuculus canorus</i> Linnaeus, 1758	
	VI. Order: Strigiformes	
	6. Family: Strigidae	
12.	Asian Barred Owlet <i>Glaucidium cuculoides</i> (Vigors, 1831)	Single sighting
	7. Family: Upupidae	
13.	Common Hoopoe <i>Upupa epops</i> Linnaeus, 1758	
	VII. Order: Piciformes	
	8. Family: Capitonidae	
14.	Great Barbet <i>Megalaima virens</i> (Boddaert, 1783)	Fairly common
	9. Family: Picidae	
15.	Brown-fronted Pied Woodpecker <i>Dendrocopos auriceps</i> (Vigors, 1831)	
16.	Himalayan Pied Woodpecker <i>Dendrocopos himalayensis</i> (Jardine and Selby, 1831)	Fairly common
	VIII. Order: Passeriformes	
	10. Family: Hirundinidae	
17.	House Martin <i>Delichon urbica</i> (Linnaeus, 1758)	Very common in Kasol area
	11. Family: Motacillidae	
18.	White Wagtail <i>Motacilla alba</i> Linnaeus, 1758	
19.	Grey Wagtail <i>Motacilla cinerea</i> Tunstall, 1771	
	12. Family: Campephagidae	
20.	Long-tailed Minivet <i>Pericrocotus ethologus</i> Bangs and Phillips, 1914	Fairly common
	13. Family: Pycnonotidae	
21.	Himalayan Bulbul <i>Pycnonotus lencogenys</i> (Gray, 1835)	
	14. Family: Cinclidae	
22.	Brown Dipper <i>Cinclus pallasii</i> Temminck, 1820	Not so uncommon
	15. Family: Muscicapidae	
	Subfamily: Turdinae	
23.	Blue Whistling-Thrush <i>Myophonus caeruleus</i> (Scopoli, 1786)	Very common
24.	Chestnut Thrush <i>Turdus rubrocanus</i> Hodgson, 1846	A single group of around 22 birds recorded
25.	White-collared Blackbird <i>Turdus albocinctus</i> Rørvik, 1840	Not so uncommon
26.	Grey-winged Blackbird <i>Turdus boulboul</i> (Latham, 1790)	Fairly common
27.	Indian Blue Robin <i>Luscinia sibilatrix</i> (Hodgson, 1837)	
28.	Orange-flanked Bush-Robin <i>Tarsiger cyanurus</i> (Pallas, 1773)	

29.	White-capped Redstart <i>Chaimarrornis lencecephalus</i> (Vigors, 1831)	Abundant
30.	Black Redstart <i>Phoenicians ochotros</i> (Gmelin, 1774)	
31.	Plumbeous Redstart <i>Rhyacornis fuliginosus</i> (Vigors, 1831)	Abundant
32.	Little Forktail <i>Enicurus scouleri</i> Vigors, 1832	
33.	Grey Bushchat <i>Saxicola ferrea</i> Gray, 1846	
	Subfamily: Timaliinae	
34.	Streaked Laughingthrush <i>Garrulax lineatus</i> (Vigors, 1831)	Fairly common
35.	Chestnut-crowned Laughingthrush <i>Garrulax erythrocephalus</i> (Vigors, 1832)	
36.	Scaly-breasted Wren Babbler <i>Pnoepyga albiventer</i> (Hodgson, 1837)	
37.	Rufous Sibia <i>Heteruphasia capistrata</i> (Vigors, 1831)	
38.	Yellow-naped Yuhina <i>Yuhina flaxicollis</i> Hodgson, 1836	
	Subfamily: Sylviinae	
39.	Lemon-rumped Warbler <i>Phylloscopus chloronotus</i> (G.R. Gray & J.E. Gray, 1846)	Very common
40.	Grey-headed Flycatcher-Warbler <i>Seicercus xanihoschistos</i> (G.R. Gray & J.E. Gray, 1846)	Very common
41.	Chestnut-headed Tesia <i>Tesia castaneocoronata</i> (Burton, 1836)	
	Subfamily: Muscicapinae	
42.	Ultramarine Flycatcher <i>Ficedula supercilialis</i> (Jerdon, 1840)	Fairly common
43.	Verditer Flycatcher <i>Eumyias thalassina</i> (Swainson, 1838)	Fairly common
44.	Subfamily: Rhipidurinae	
45.	Yellow-bellied Fantail-Flycatcher <i>Rhipidura hypoxantha</i> Blyth, 1843	
46.	16. Family: Aegithalidae	
47.	Red-headed Tit <i>Aegithalos concinnus</i> (Gould, 1855)	
	17. Family: Paridae	
48.	Simla Crested Tit <i>Parus rufomichalis</i> Blyth, 1849	Very common
49.	Spot-winged Crested Tit <i>Parus melanolophus</i> Vigors, 1831	Very common
50.	Great Tit <i>Parus major</i> Linnaeus, 1758	
51.	Green-backed Tit <i>Parus monticolus</i> Vigors, 1831	Fairly common
	18. Family: Sittidae	
52.	White-tailed Nuthatch <i>Sitta himalayensis</i> Jardine & Selby, 1835	Fairly common
	19. Family: Certhiidae	
53.	Eurasian Tree-Creeper <i>Certhia familiaris</i> Linnaeus, 1758	Fairly common
	20. Family: Fringillidae	
54.	Fire-fronted Serin <i>Serinus pusiUus</i> (Pallas, 1811)	
55.	Yellow-breasted Greenfinch <i>Carduelis spinoides</i> Vigors, 1831	
56.	Eurasian Goldfinch <i>Carduelis carduelis</i> (Linnaeus, 1758)	
57.	Pink-browed Rosefinch <i>Carpodacus rodochrous</i> Vigors, 1831	
58.	Red-headed Bullfinch <i>Pyrrhula erythrocephala</i> Vigors, 1832	Fairly common
59.	Black-and-Yellow Grosbeak <i>Mycerobas icteroides</i> (Vigors, 1831)	A few sightings
	21. Family: Passeridae	
60.	Cinnamon Tree Sparrow <i>Passer rutilans</i> Temminck, 1835	Fairly common
	22. Family: Sturnidae	
61.	Common Myna <i>Acridotheres tristis</i> (Linnaeus, 1766)	Sighted around Kasol
	23. Family: Corvidae	
62.	Yellow-billed Blue Magpie <i>Urocissa flavirostris</i> (Blyth, 1846)	
63.	Spotted Nutcracker <i>Sitta caryocatactes</i> (Linnaeus, 1758)	Fairly common
64.	Jungle Crow <i>Corvus macrorhynchos</i> Wagler, 1827	Fairly common

Source: Status Report on Wildlife in Kais, Manali and Kanawar Wildlife Sanctuaries (13.03.2016 to 16.03.2016) - Dr ML Thakur, SPC, HPSBB, DoES&T & Sh. Tilak Raj Sharma, DFO, WL Kullu.

Plate 1: Birds found in Kanawar WLS



Chestnut-headed Tesia
(*Oligura castaneocoronata*)



Brown-fronted Woodpecker
(*Dendrocopus auriceps*)



Blue Whistling-Thrush
(*Myophonus caeruleus*)



Yellow-billed Blue Magpie
(*Urocissa flavirostris*)



Ultramarine Flycatcher
(*Ficedula superciliaris*)



Spotted Forktail
(*Enicurus maculatus*)



Rufous Sibia
(*Heterophasia capistrata*)



Plumbeous Redstart
(*Phoenicurus fuliginosus*)



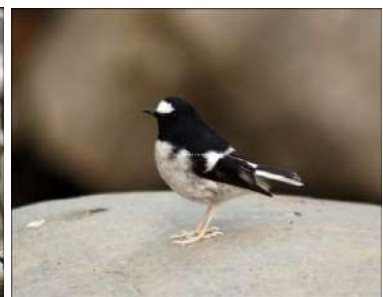
Rufous-bellied Niltava
(*Niltava sundara*)



Pink-browed Resefinch (M)



Pink-browed Resefinch (F)



Little Forktail
(*Enicurus scouleri*)



Himalayan Bulbul
(*Pycnonotus leucogenys*)



Chestnut-headed Tesia (M)
(*Oligura castaneocoronata*)



Chestnut-headed Tesia (F)
(*Oligura castaneocoronata*)



Grey Wagtail
(*Motacilla cinerea*)



Grey-winged Blackbird
(*Turdus bouboul*)



Cinereous Tit (Great Tit)
(*Parus cinereus*)



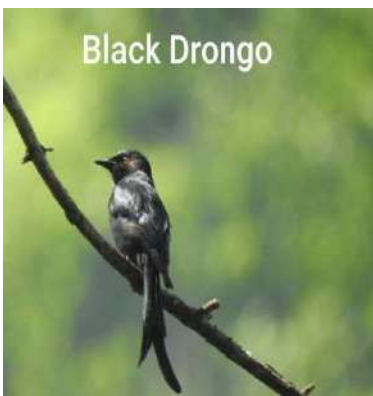
Great barbet



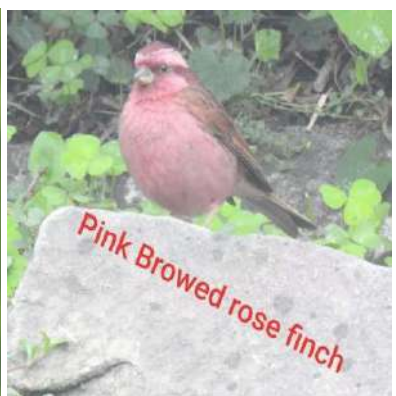
Grey bushchat female



Blue capped rock thrush



Black Drongo



Pink Browed rose finch



Plum-headed parakeet

Plate 2: View of Kanawar WLS



Plate 3: Deodar, Fir and Spruce Forests of Kanawar WLS

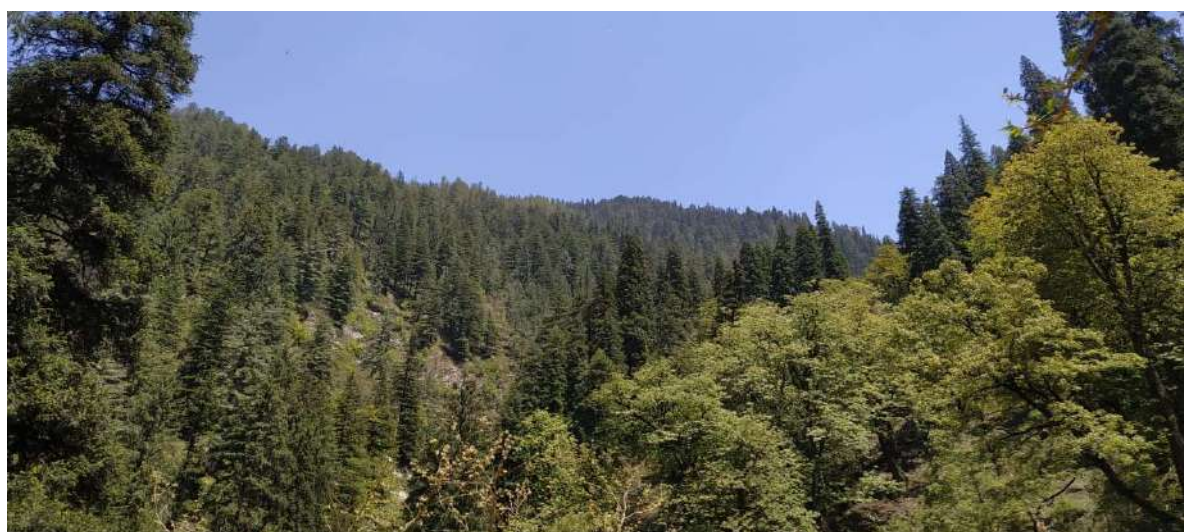


Plate 4: Villages adjoining to Kanawar WLS

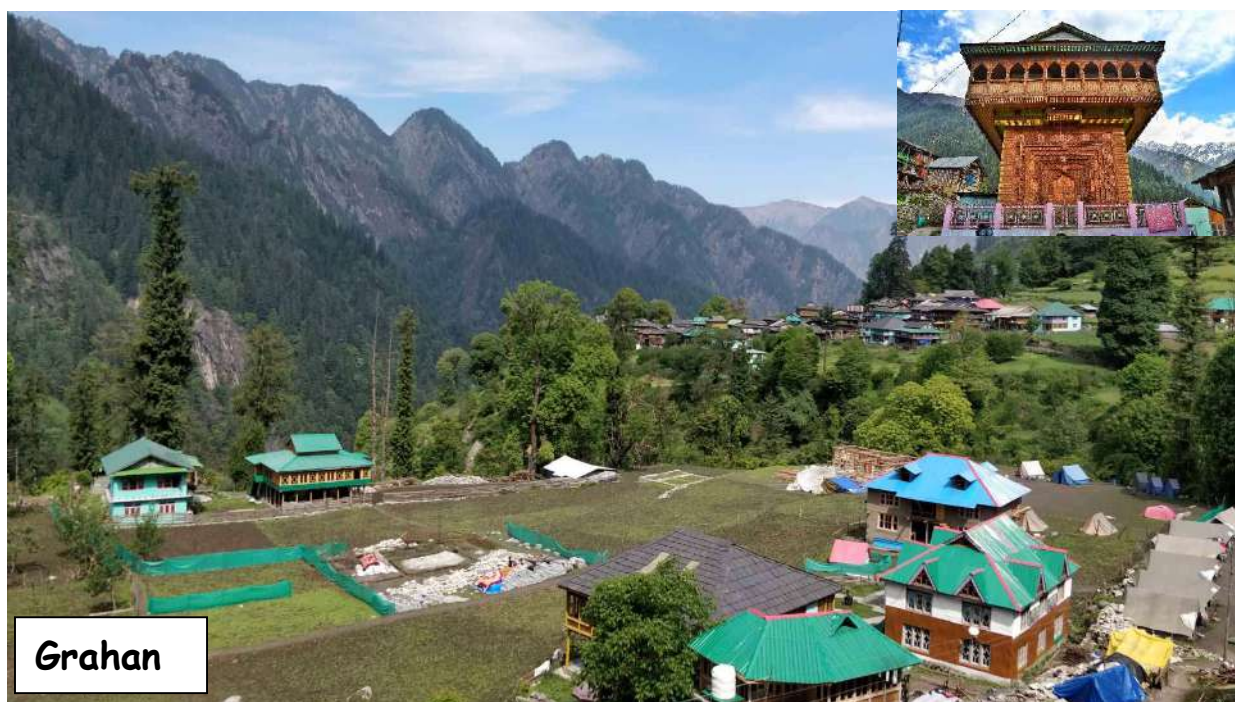


Plate 5: Flora of Kanawar WLS



Sweet Viola canescens



Trillidium govanianum (Nag Chhatri)



Rosa moschata



Thalictrum Cultratum



Aspleniaceae(fern family)



Berberis aristata



Plate 6: Fauna of Kanawar WLS (Camera Trap)



Plate 7: Works carried out in and around Kanawar WLS



Plate 8: Wildlife Week Celebration around Kanawar WLS



Plate 9: Group Patrolling in Kanawar WLS



Plate 11: Kasol Nursery in Kanawar WLS

