H.P. FOREST DEPARTMENT (WILDLIFE WING)

MANAGEMENT PLAN

KAIS WILDLIFE SANCTUARY

(WILDLIFE DIVISION KULLU)

(2019-20 TO 2028-29)

By :

RAKESH KUMAR (HPFS)
(DFO, Wildlife Division Kullu)

YOGENDER SHARMA (HPFS)
(ACF, Wildlife Division Kullu)

authenticated

Principal Chief Conservator of Forests
Wildlife, Himachal Pradesh
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H.P. FOREST DEPARTMENT, ARANAYA BHAWAN, TALLAND, SHIMLA-171001

No. WLM/Management Plan/ 6475 Dated/ 15/11/19

To

The Conservator of Forests,
Great Himalayan National Park, Shamshi.

Subject: Preparation of Management Plans of Protected Areas-regarding.....

Memo:

Kindly refer to your Office Memo. No. 4476 dated 05.10.2019 on the Subject cited above.

2. The Management Plans for Kais and Manali Wildlife Sanctuaries are hereby approved. Two copies of each approved Management Plan of said Wildlife Sanctuaries are sent herewith for your information and further necessary action please. These may be got printed and hard bound copy thereof may be sent to this office for record.

You are also requested to submit the remaining management plans of Kanawar, Khokhan & Nargu Wildlife Sanctuaries.

Encls: As above.

429 18/11/19

14/11

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

18/11/2019

Endst No. 5480 Dated 20/11/2019

Copy alongwith management plans of Kais and Manali wildlife sanctuaries is forwarded to D.F.O. wildlife Kullu for information and further necessary action.

Encl: As above.

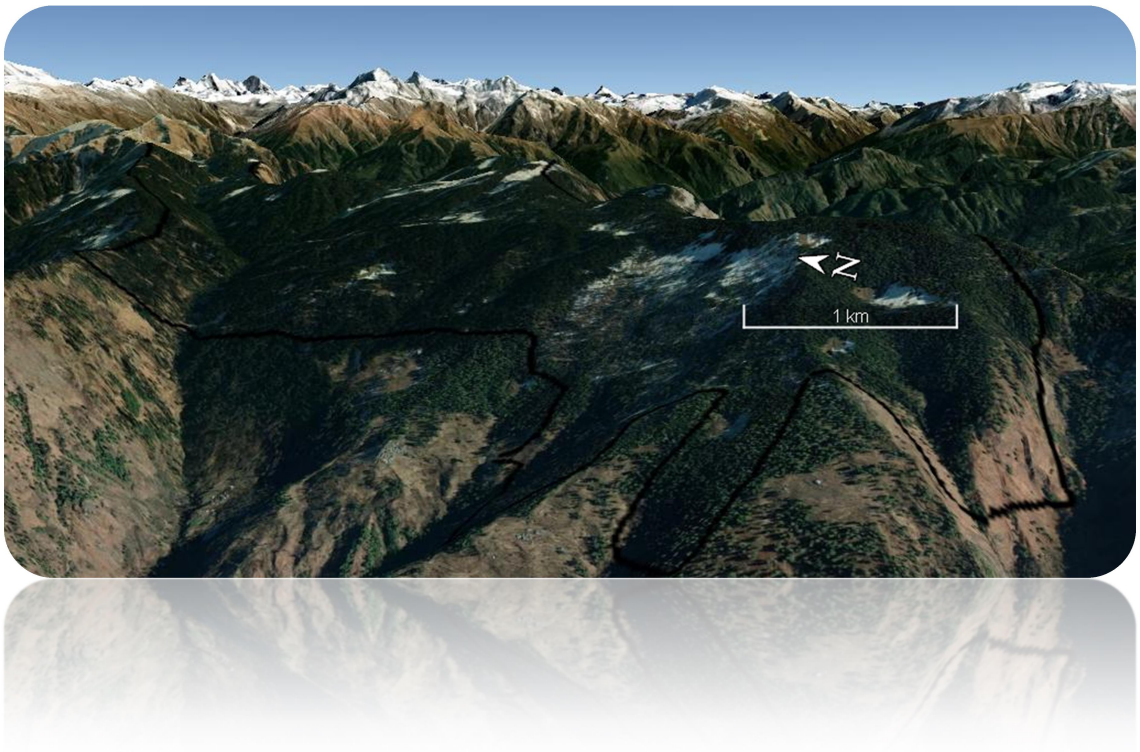
20/11

Conservator of Forests

3147
21-11-19

H.P. FOREST DEPARTMENT (WILDLIFE WING)

MANGEMENT PLAN



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Preface

The 26 wildlife sanctuaries and 5 National Parks in Himachal Pradesh constitutes state's Protected Area network. Kais 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 (2019-20 to 2028-29).

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 Kais 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
GHNP	Great Himalayan National Park
GoHP	Government of Himachal Pradesh
GPS	Global Positioning System
HQ	HeadQuarters
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
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
TD	Timber Distribution
UPFs	Un-Protected Forests
UTM	Universal Transverse Mercator
WLS	Wildlife Sanctuary
WWF	World Wildlife Fund
ZI	Zone of Influence
ZIP	Zone Information Protocol

PART – I

The Protected Area: Existing Situation

CHAPTER – 1

INTRODUCTION TO THE AREA

1.1.Name, Location and constitution and extent

Kais Wildlife Sanctuary (WLS) has been named after the small village, Kais on the left bank of the Beas River, which is situated in the Kullu District of Himachal Pradesh. The wildlife sanctuary is located on the main ridge which bifurcates the Catchments of Beas and Parbati rivers of Kullu district in Himachal Pradesh. The sanctuary is situated on the Naggar- Bijli Mahadev road. The area of the sanctuary is situated within the Geo coordinates North $32^{0}03'10"N$ $77^{0}12'32"E$, East $32^{o}02'42"N$ $77^{o}12'32"E$; South $31^{o}59'38"N$ $77^{o}10'17"E$; West 32^{o} 00'23"N$77^{o}09'19"E$ which falls on the Survey of India Topo Sheet No. 53E/1 and 52H/4 scale 1:50000. The sanctuary consists of one second class forests spread over 12.61km^2. The total geographical area which is in fact the forest area of 2/32Matikochhar (DPF)is under the control of Wild Life Division Kullu and is managed through Wild Life Range Manali. Kais sanctuary was initially notified under section 8 of Punjab Wild Birds and Wild Animals Protection Act 1933 vide Punjab Government Notification No. 70 GP 53/97 dated 28-02-1954 (Annexure – I).

Source: mapsofindia.com

Figure 1- Location map of kais 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 Kais Wildlife Sanctuary was issued vide HP Govt. notification No. FFE-B-F(6)-11/2005-II Kais dated 7th June 2013 (Annexure-II).

The Kais Wild Life Sanctuary consists of one demarcated protected forest with a total area of 12.61 Km^2 which is tabulated as below:

Table 1: Detail of forests constituting Kais Wildlife Sanctuary

Sr. No.	Name of Forest	Area (Km^2)
1.	2/32 Matikochhar DPF	12.61

1.2 Approach and Access

Kullu is the nearest town from the Kais Wildlife Sanctuary which is also the headquarters of the Kullu district and is located at a distance of 35 Km. And 10 km from Naggar town which is 25 Km from Kullu, the District Headquarters. This Sanctuary is approachable by road from Chandigarh, Shimla and Pathankot. The major distances are as under:

Chandigarh – Kullu	=	254 Km
Shimla – Kullu	=	204 Km
Pathankot – Kullu	=	307 Km

Nearest Airport is at Bhuntar (10 km from Kullu) which is linked to Shimla, Chandigarh and Delhi. The nearest railway station is at Joginder Nagar (126 Kms from Kullu) which is connected through a narrow gauge line with broad gauge rail network at Pathankot.

From Kullu town the sanctuary can be approached through two routes one via village Kais and another through Naggar which meets together at Kotadhar and from this point the Inspection hut (Plate :2) situated at Mattan Thach is about 16km.

The best period to visit the sanctuary is April to June and September to October as during these months the weather and visibility is suitable for spotting animals and the higher reaches are accessible.

1.3 Statement of Significance

The sanctuary falls in the upper catchment of the Beas River. The Protected Area preserves a variety of Himalayan flora and fauna. The area comprises of vast stretches of alpine meadows and snow capped peaks which harbors a variety of flora and fauna.

The natural and cultural richness of Kullu Valley coupled with its simple peace loving people and traditional hospitality makes the valley a most favoured eco-tourism destination. Anybody with a spirit of adventure and love for nature will find all that he desires amongst the pristine environs of temperate forests of the sanctuary. Many tourists visit this sanctuary every year. A number of natural camping sites are available inside the sanctuary. One beautiful Inspection hut with tenting facility is available inside the sanctuary at Mattan Thach. The sanctuary provides habitat and protection to various wild animals and pheasants. It is worthwhile to mention here that there is no habitation/ village inside the sanctuary hence there is minimum human interference as compared to the other wildlife sanctuaries.

The Kais 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 provide shelter and protection to many rare and endangered species included in Red Data Book of IUCN and CITES appendices like Monal, Koklas, Himalayan Brown Bear, Himalayan Black Bear etc. Sanctuary has high population of Koklas pheasant and Himalayan Black Bear. With its rich gene pool and variety of ecosystem functions and processes it provides ample research opportunities. Besides forming catchment of important perennial river Beas it provides ecological security and environmental amelioration in the region. It has got many educational and interpretational values to it.

The sanctuary also has cultural significance because of presence of Temple and Gompa on its boundaries. One of the popular tourist and pilgrimage destinations at the periphery of WLS is Bijali Mahadev temple and Dhakpo Shedrupling Gompa (Kais

Monastery). Also Malana village, known for one of the oldest democracy of the world can be hiked through the sanctuary area.

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

CHAPTER – 2

BACKGROUND INFORMATION AND ATTRIBUTES

2.1 Boundaries

The Kais WLS is situated in Kharahal Valley in between Naggar and Kullu territorial ranges of Kullu Forest Division. The boundaries of Kais WLS on North, East, South and West directions are as under:

North: From Bastak Thach along demarcated line separating 2/32 Matikochhar and 2/27 Padhra Rias and 2/26 Marhauri and Kais nalla upto Janiyal Thach.

East: From Janiyal Thach along Ridge separating catchment of Beas and Parvati rivers then Rumtu dhar upto Jalada Thach point 3481 mtr.

South: From Jalada Thach point 3481 mtr on the ridge separating Matikochhar PF and Pinsu PF boundary and 2/32 Matikochhar CVIb, CV and spur descending from Dhara to Kais nalla upto peak at origin of nalla flowing to Beas river.

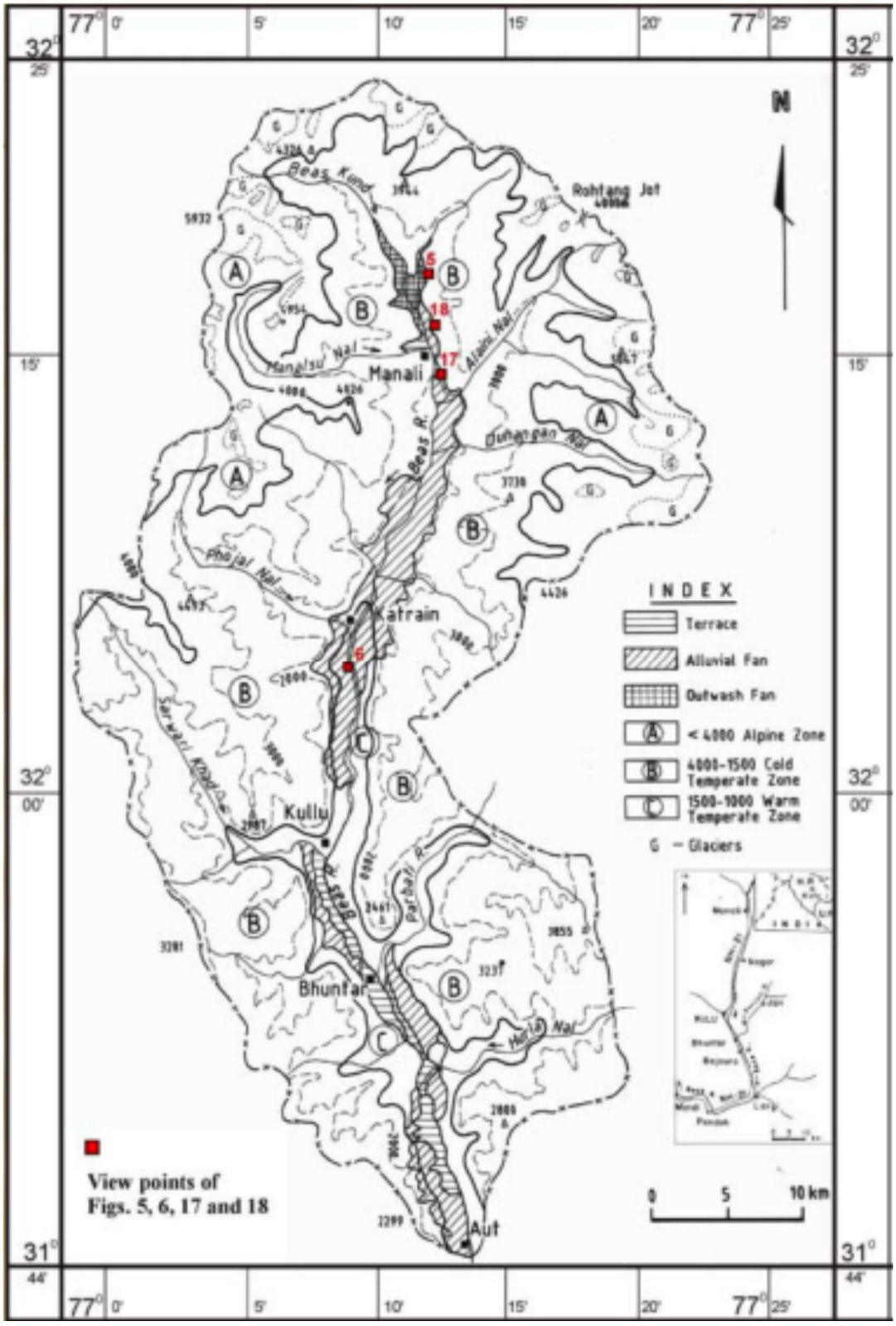
West: Along forest boundary Matikochhar and nalla downstream upto turning point to West on nalla along forest boundary and to Rauns Thach and forest boundary Matikochhar and then along road upto Bastak Thach.

2.2 Geology, Rock and Soil

No specific soil survey has been carried out. Underlying rocks in the sanctuary are quartzite with an overlaying layer of clay on the lower moderate slopes and sandy loam with underlying quartzite Mica schist is found on the other slopes.

2.3 Terrain

The tract forms the North – West aspect having a very smooth and gentle slope with a few rocky cliffs along the nallas and streams. The whole area is well drained into Kais Nala, a tributary of Beas river. Upper portion of the sanctuary is flat with undulated alpine pastures which forms the Eastern boundary of the sanctuary. In the eastern side of the sanctuary there is a natural lake called “Phuttasar” means damaged lake and has now become a swamp marshy land.



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. The temperature varies from -1.5^0 C to 33.4^0 C during different seasons.

2.4.1 Season

Four seasons experienced in Kais Sanctuary are as follows:

(a) Summers are from mid April to June and may extend to mid July.

(b) Monsoon starts from mid July to mid September.

(c) Autumn starts from mid November to mid December.

(d) 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.

2.4.2 Rainfall Pattern and Distribution

Main source of water is snow received during Winters (December to March)and the rains during the monsoon season(July to September). The period between October to December is generally dry. Snowfall is very heavy during winters. Rainfall data is tabulated as follows:

Table 2: Monthly rainfall (mm) Data of Kais Sanctuary

Year	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
1999	103.4	35.2	56.2	2.2	71.7	39.9	164.2	131.7	37.3	4.3	0	0.6
2000	77.4	138.8	100.2	24.7	74.0	138.8	192.0	64.3	8.1	0	38.6	0.5
2001	27.4	27.7	112.8	84.9	59.0	67.3	138.4	104.1	25.1	0	54.5	75.9
2002	68.8	146.4	96.4	121.7	9.2	30.2	2.0	85.3	92.0	23.0	0	8.0
2003	50.2	181.1	166.7	73.4	55.4	46.9	73.6	82.5	72.2	0	33.1	52.8
2004	146.6	59.8	0	80.4	83.1	67.6	65.8	89.6	13.9	197.8	6.8	54.3
2005	88.4	284.3	211.6	15.7	63.4	52.5	245.4	46.1	118.3	1.6	0.5	0
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
2007	1.0	233.4	240.8	5.2	55.2	67.3	125.3	135.7	32.3	5.0	0	25.0
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
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
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
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
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

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
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
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
2016	35.7	82.5	189.4	108.1	58.9	24.8	62.8	171.0	20.8	0	0	0
2017	177.9	85.2	100.0	119.2	73.7	143.6	84.9	46.4	74.4	0	16.2	44.6
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
2019	130.9											

Source: Regional Horticultural Research Station, Seobagh

2.4.3 Temperature

As per the data received from RHRS Seobag the temperature of the area ranges from minimum of -1.5 C^{o} to maximum of 33.4 C^{o} . The temperature data is tabulated as under:

Table 3: Maximum Temperature (C^{o}) 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
2019	12.9											

Source: Regional Horticultural Research Station, Seobagh

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
2019	1.4											

Source: Regional Horticultural Research Station, Seobagh

2.4.4 Humidity

The record of frost and relative humidity is not available

2.4.5 Wind Speed

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

There is one perennial stream viz., Kais Nala running parallel to its Northern boundary and numerous seasonal nallas or small springs in the sanctuary. The seasonal

nallas are uniformly distributed over the sanctuary (Annexure- XV). The whole area is well drained and drains into the catchment of Kais Nala, a tributary of Beas river. There are many natural springs in the Kais sanctuary. One small lake known as Phutassar is situated in the Eastern boundary below Phutasar thach. The name of the lake itself suggests the condition of the lake as the lake is damaged towards lower side and is now a marshy swamp.

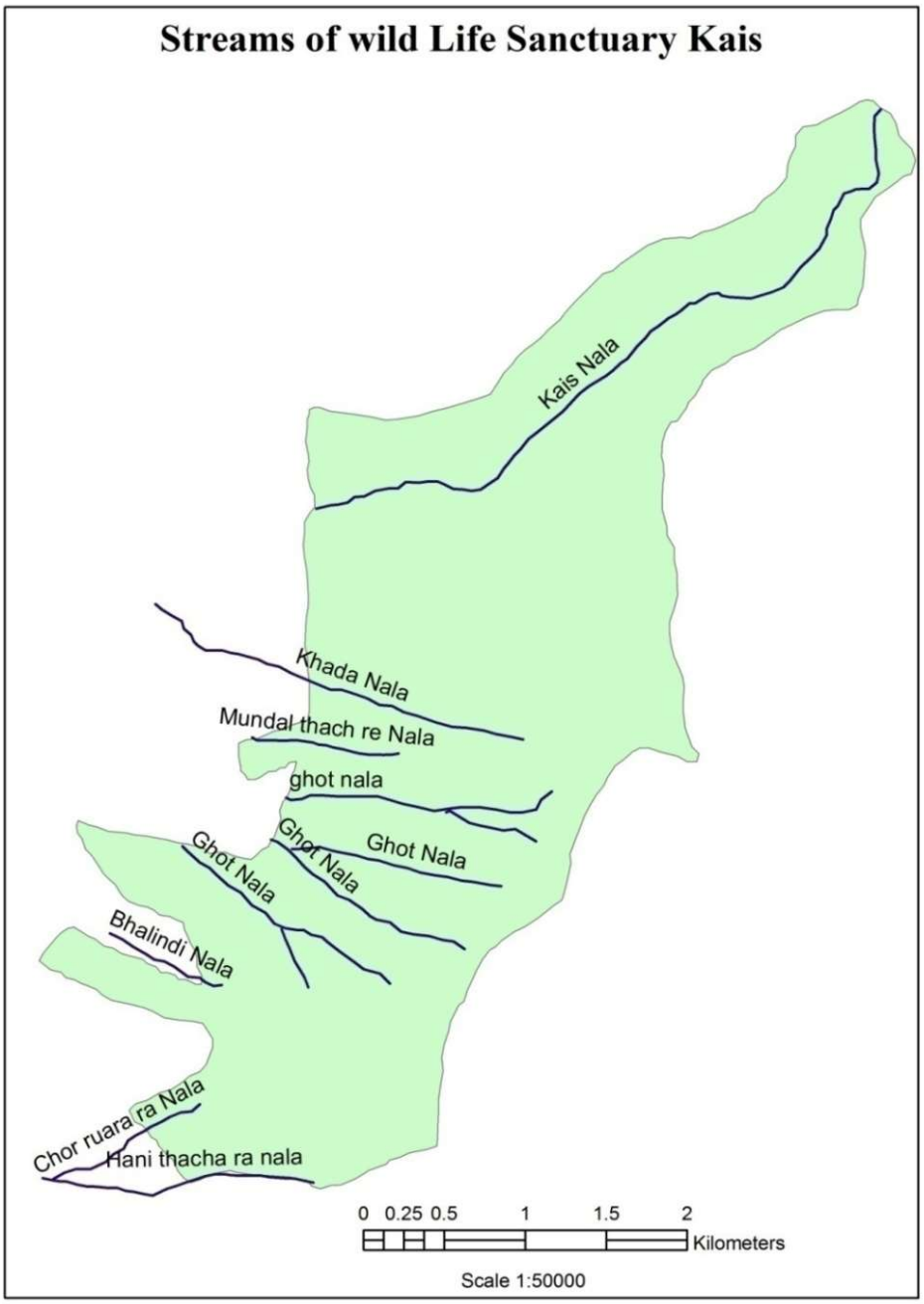


Figure 3- Wildlife Map of Kais WLS

2.6 Range of Wild Life, status, distribution and habitat

The area of Kais WLS stretches from 2120 m to an altitude of 3660m. It portrays a variety of geographical configuration, varied climate and vegetation, providing a congenial habitat for temperate wild life and hosts many endangered plants and animals. The sanctuary is rich in flora and fauna and has a wide range of plant species. It is paradise for the biologists and challenge to a mountaineer.

Figure 4- Wildlife Map of Kais WLS

2.6.1 Vegetation

The Bio-geographic classification puts this area in the North-Western Himalayas. The area is highly rich in temperate flora (Annexure- III). The main tree species are Deodar, Blue Pine, Taxus, Fir, and Spruce. This type is found on the Northern and Eastern slopes above 2000m AMSL.

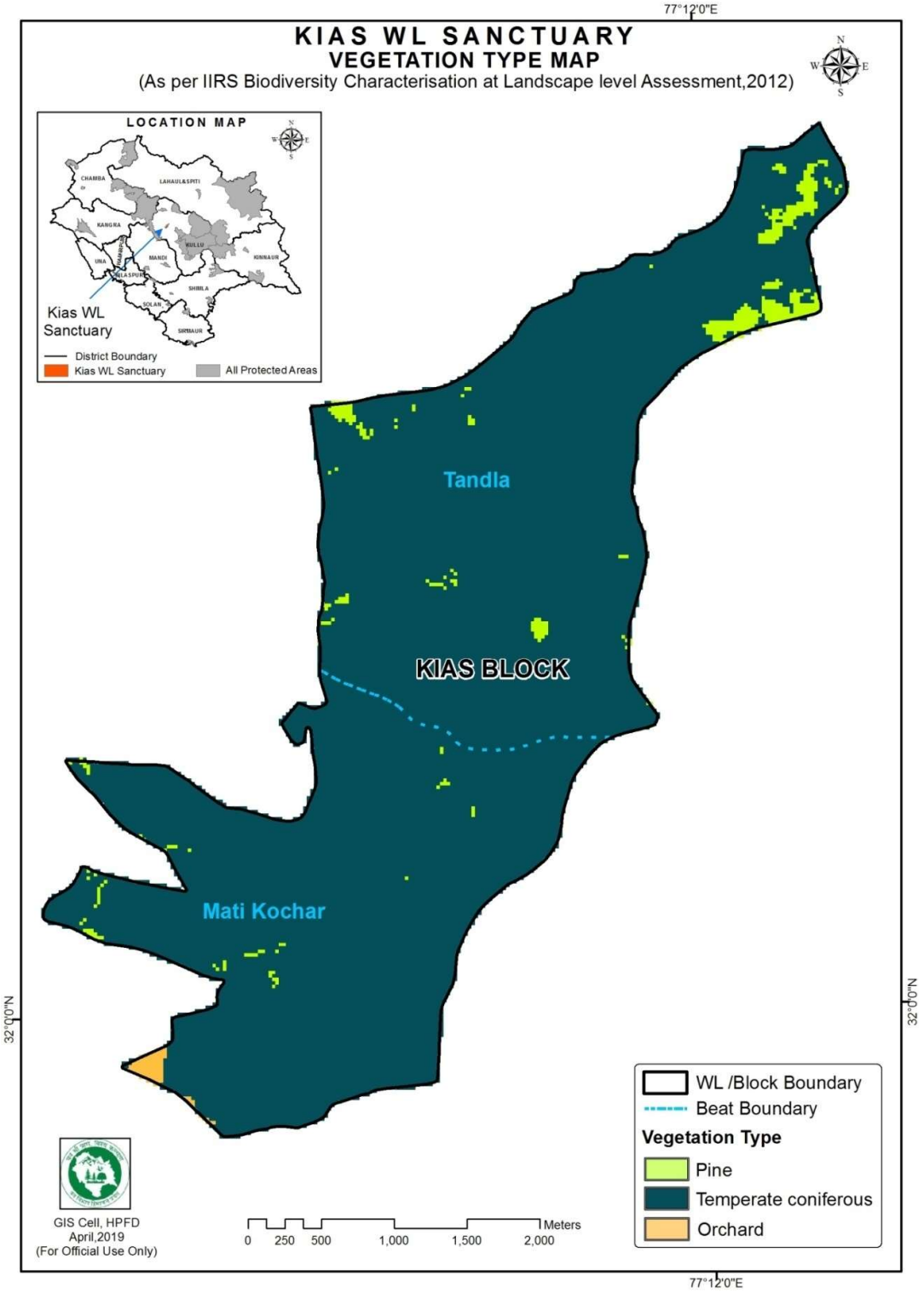


Figure 5- Vegetation Type Map of Kais WLS

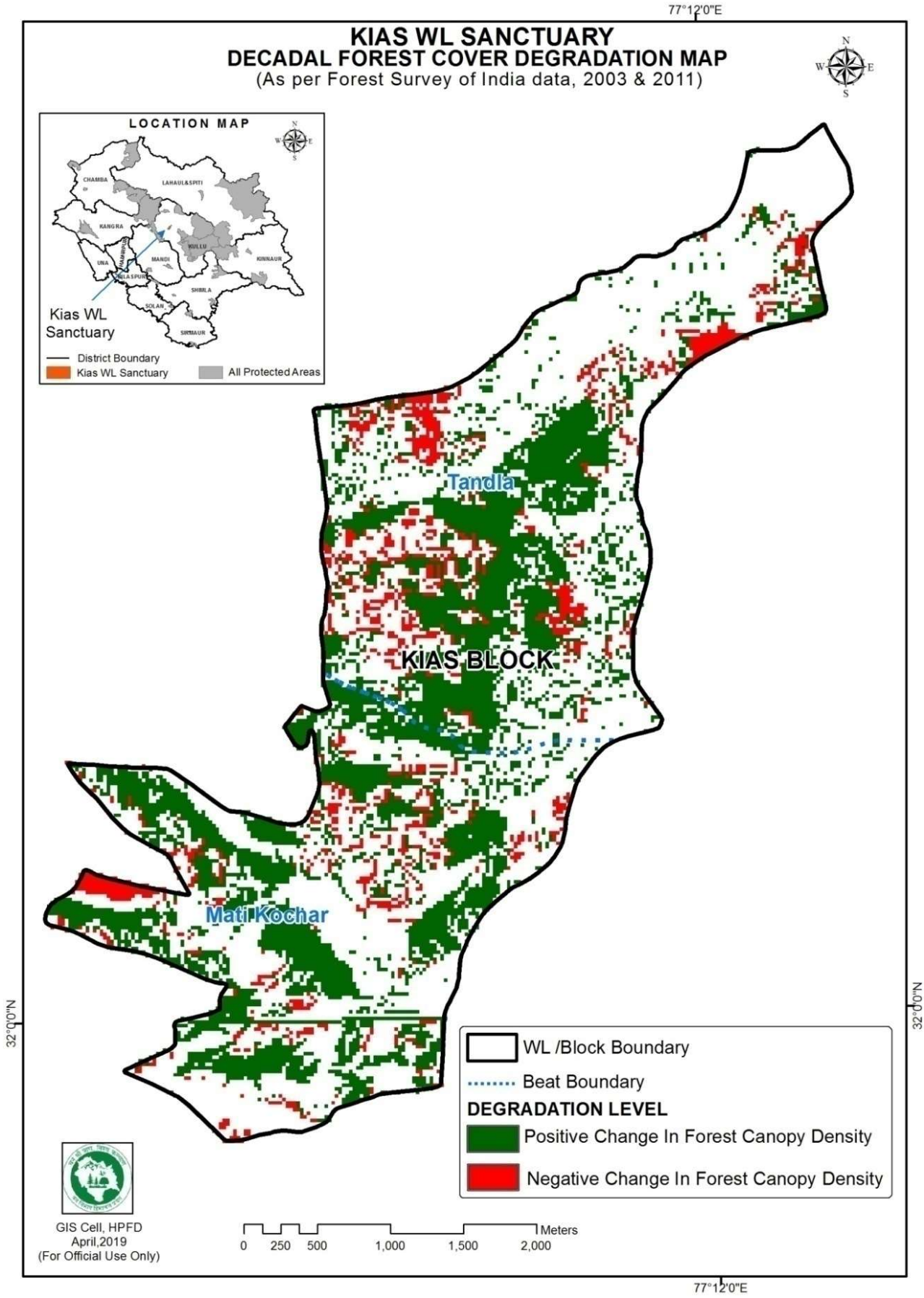


Figure 6- Decadal Forest Cover Degradation Map of Kais WLS

2.6.1.1 The Bio-Geographic Classification

As per the latest bio-geographic classification, the area of the Kais Wild Life Sanctuary falls under North – Western Himalayas. The topographic factors have a great influence on the vegetation of a place. The topographic factors, climatic conditions and edaphic factors have a direct bearing on the vegetation of an area. Among topographic factors, altitudinal variation which ranges from 2120 m to 3660 m above mean sea level is most prominent. The protected area encloses high alpine pastures, undulated slopes and cliffs.

The general distribution of area based on the composition is given below:

1. Area covered under permanent snow = Nil
2. Area under alpine pasture and thaches = 250 Hectare
3. Area under rocks and cliffs = 65 Hectare
4. Area under tree cover, shrubs = 946.08Hectare

Total Area **= 1261.08Hectare**

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:

i. **12/C_{1c}-Moist Deodar Forest**: This type of forest is found in the lower western portions of the sanctuary. Kail and Spruce occur in mixture with Deodar.

UpperTopStorey: It consists of *Cedrella serrata, Juglans regia, Aesculus indica, Celtis australis, Prunus padus, Ulmus spp* etc.

Under growth: Under growth consists of *Indigofera, Gerardiana, Desmodium, Vibernum, Lonicera, Rubus, Berberis, Spirea, Rosa, Elaeganus etc.*

Ground cover: *Fragaria, Viola, Geranium, Salvia, Thymus, Vitis himalayensis, Hedra helix, Clematis etc.*

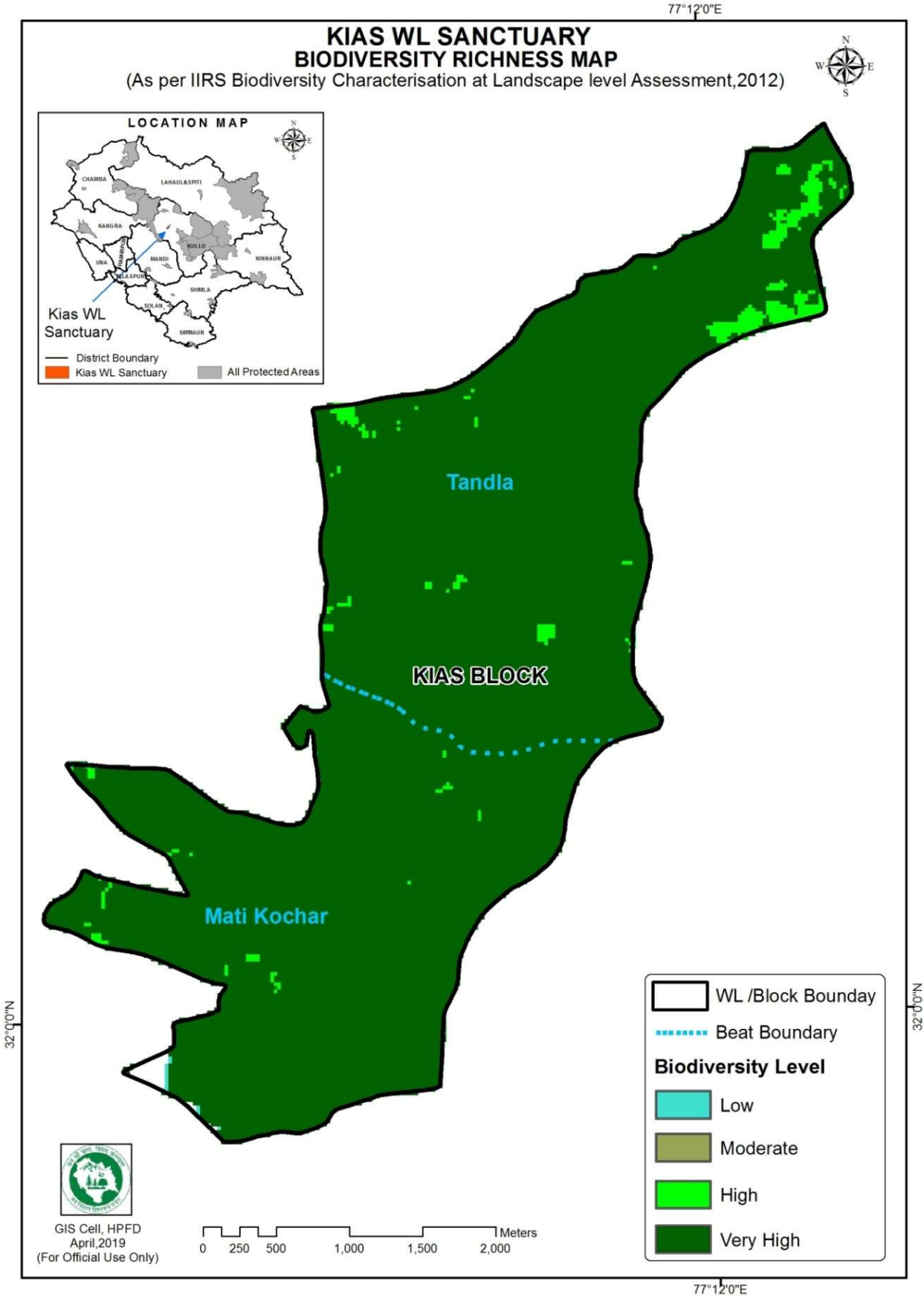


Figure 7- Biodiversity Richness Map of Kais WLS

ii **12/C_{1d}-Western Mixed Coniferous Forest**: In Kais sanctuary this type of forest is met with above the Deodar zone. The main species are Taxus, Fir and Spruce (Plate:1).

Upperstorey: *Quercus dilatata, Prunus padus, Acer species, Aesculus, Juglans regia, Taxus baccta* etc.

Under growth: *Vibernum species, Sarcococca saligna, Strobilanthes, Rubus* etc.

Ground Cover: *Polygonum, Valeriana, Fragaria, Anemone*, ferns and grasses.

iii **12/C_{1e} -Moist Temperate deciduous Forest:** This subtype of forest occurs in moist hollows and depressions, often as strips along the nalas. Overwood is mainly Aesculus, Acer, Betula, Fraxinus, Juglans, Quercus and Prunus etc.

iv **12/C_{2a}-Kharsu Oak Forest**: These types of forests are found above Patole and extend upto Rumtu Thach.

Upperstorey: *Quercus semicarpifolia, Rhododendron, Cotoneaster, Prunuspadus, Acer spp, Betula* spp are found in the top canopy.

v **14/C_{1a} Western Himalayan Sub-Alpine Fir Forest**: Such forest are found above 2900m above means sea level. High level fir is found with Kharsu, taxus and Rhododendron species.

vi **15/C_3Alpine pastures**: Extensive grass grounds above the tree line but below the line of perpetual snow are found in the sanctuary. Such pastures are met with in Northern limits of the sanctuary. Grass is the main vegetation with occasional presence of *Juniperous recurva* and Rhododendron species. The flora is very rich and rare angiosperms comprising of *Meconopsis, Potentila, 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.

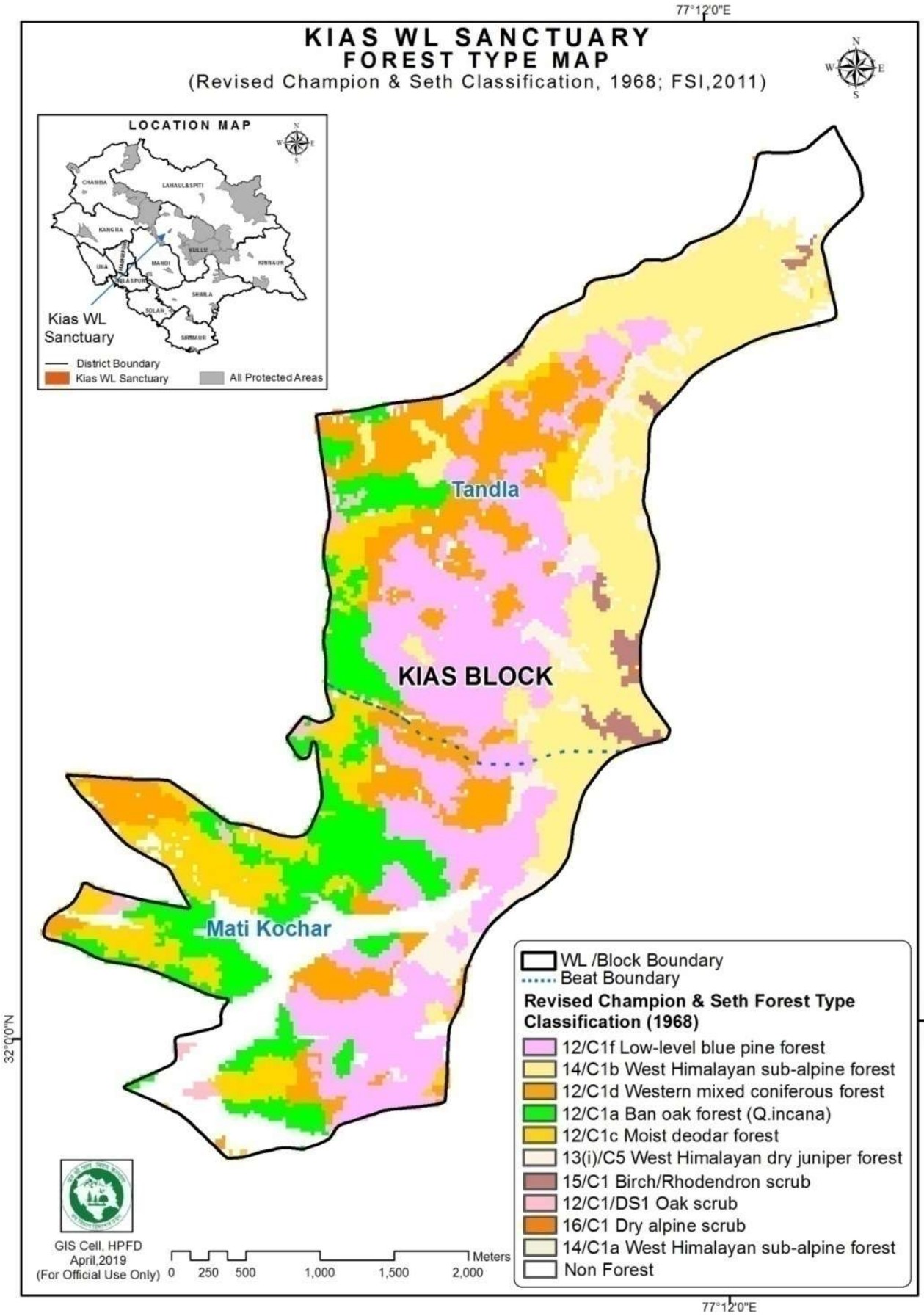


Figure 8- Forest Type Map of Kais WLS

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. as wild animals avoids such areas. The food source in the shape of grass and other biomass is present in abundance in the sanctuary except during winters when due to snowfall, the animals move downwards for the food and shelter. Different herbivores prefer diverse food under different circumstances which is available in sufficient quantities.

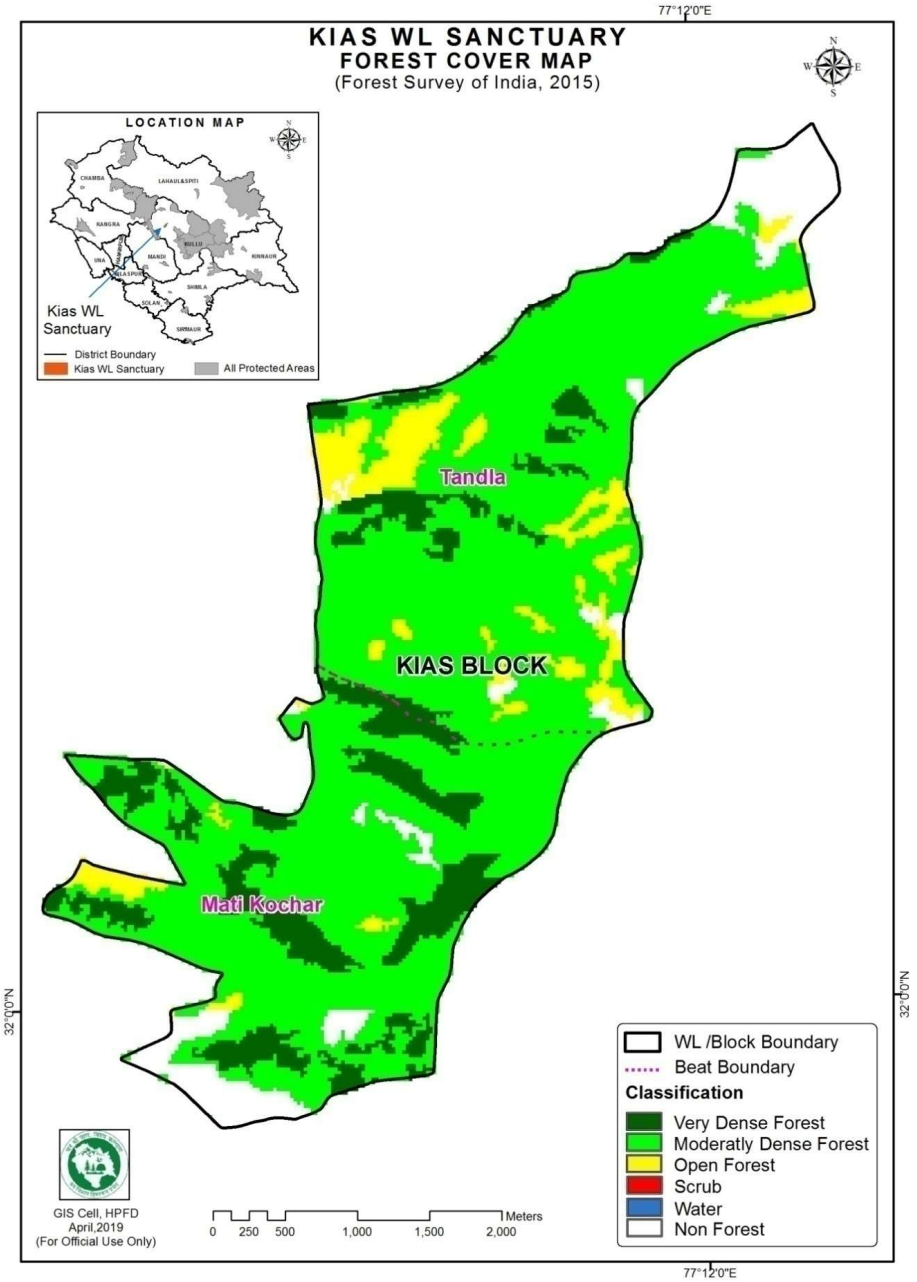


Figure 9- Forest Cover Map of Kais WLS

2.6.1.3 Species and communities of conservation importance, Key Areas

Alpine areas of the protected area are rich in medicinal herbs. Some of the important medicinal herbs 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 hatageria*)
6. Ban Kakri (*Podophyllum hexandrum*)
7. Nihanu (*Valeriana spp*)
8. Banafsha (*Viola spp*)
9. SathJalari (*Ainselia aptera*)
10. *Swertia spp*
11. *Thallictrum spp.*
12. *Polygonatum verticilatum*

The rights granted to local inhabitants under Anderson's settlement Report are quite liberal. The inhabitants of the tract get some income from collection of Guchhi and other medicinal plants. The excessive and unscientific collection of these plants in past has severely affected the status of medicinal herbs. Among trees, Taxus leaves are commercially important. The culms of hill bamboo (*Arundinaria spp*) locally known as Nirgal is used as raw material for Kilta and basket making. This collection may not have threatening effect on species itself but these provide an ideal habitat for pheasants and the collection causes disturbances. At present, the exercise of all sorts of rights is suspended in the Kais WLS in compliance to the guidelines issued by the Ministry of Environment and Forests in pursuance of the orders of Hon'ble Supreme Court of India.

2.6.2 Animals

There is a great variation of altitude and flora in the sanctuary and for this reason it possesses variety of Himalayan Wild Life species. In the recent past, surveys were done which confirm the fact. This sanctuary has been known for musk deer, which is an endangered species and is entered in the Red Data Book of IUCN. Apart from this the other main species of wild animals found in the sanctuary includes -Himalayan Black Bear,

Leopard, Leopard Cat, Goral, Himalayan Yellow Throated Marten, Indian Porcupine, Flying Squirrel, Monkey and Langoor. Main avifauna includes pheasants like Monal, Koklas, Kalij etc. Snakes and lizards are also found. Check list of animals and birds are given as Annexure- IV and Annexure - V respectively.

2.6.2.1 Vertebrates, their status, distribution and habitat quality, quantity and key areas

The Kais WLS is host to a variety of faunal species. It is a paradise for bird watchers. Wildlife sanctuary is famous for its variety of wild fauna. Musk Deer and Black bear are found in the protected area. Other threatened species found in the sanctuary are Brown bear, Yellow throated marten, Jackal, Porcupine, leopard, jungle cat, common fox, goral, barking deer, languor, and common flying squirrel etc.

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 use, may also be called transition zone of ecotone 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 to proposed Inderkila wildlife sanctuary. The sanctuary has available resources at various altitudes, which caters to the need of the animals during various seasons.

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. However, the local people from adjoining villages sometimes take their animals for grazing inside the sanctuary and occasionally go for collection of medicinal herbs. Also the pilgrims visiting the Bijali Mahadev Temple pass through the sanctuary. These activities to an extent disturb the habitat of wild animals.

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 the harvesting of Deodar, which was considered a valuable timber species for export.

Mr. Trevor revised the working plan form 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. The forests of the sanctuary were allotted to Fir Working Circle (2/32 Matikochhar = 12.61 Km^2).

Kais 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 13.65 sq. km. The Kais WLS was again rationalized vide GoHP Notification No. FFE-BF(6)-11/2005-II/Kais dated 07.06.2013 under Wildlife (Protection) Act, 1972 with an area of 12.61sq. km. Kais WLS was managed by Kullu Wild life division since June 1984. Earlier management plan was prepared for five years from 2000-01 to 2004-05. 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 operations 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. 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

Bamboo species except hill bamboo (*Arundianaria* spp) are not found in the forests of Kais WLS and no commercial harvesting is carried out.

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 fuelwood 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 fuelwood 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 upto 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 fuelwood has reduced considerably. The fuel wood consumption pattern for five villages based on PRA exercise is tabulated as follows:

Table 5: Estimated Fuel Wood Consumption

Sr. No.	Name of village	Consumption of fuel wood		Total Consumption (Qtls)
		Summers (Qtls)	Winters (Qtls)	
1.	Tandla	210	480	690
2.	Dhara	100	190	290
3.	Ghaut	110	210	320

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

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.

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.

3.4 Leases

There is no lease area inside the sanctuary.

3.5 Other Programmes and activities

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 Kais 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 Pubjab 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 -VII . No settlement of rights and concessions had taken place and residents continued to enjoy their rights (Annexure – VI) 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 12.61 Km^2 of Kais as "Kais Wildlife Sanctuary" vide Notification No. FFE-B-F(6)-11/2005-II/Kais dated 7th June 2013 for the purpose of protecting, propagating and developing wildlife and its environment.

Recently a proposal to declare Eco- Sensitive Zone around Kais Sanctuary has been submitted. The eco-sensitive zone is situated at the periphery of Kais Wildlife Sanctuary and encompasses an area of 24.65 Km^2. The area will act as an important buffer for many important rare wild flora and fauna found in Kais Wild life sanctuary.

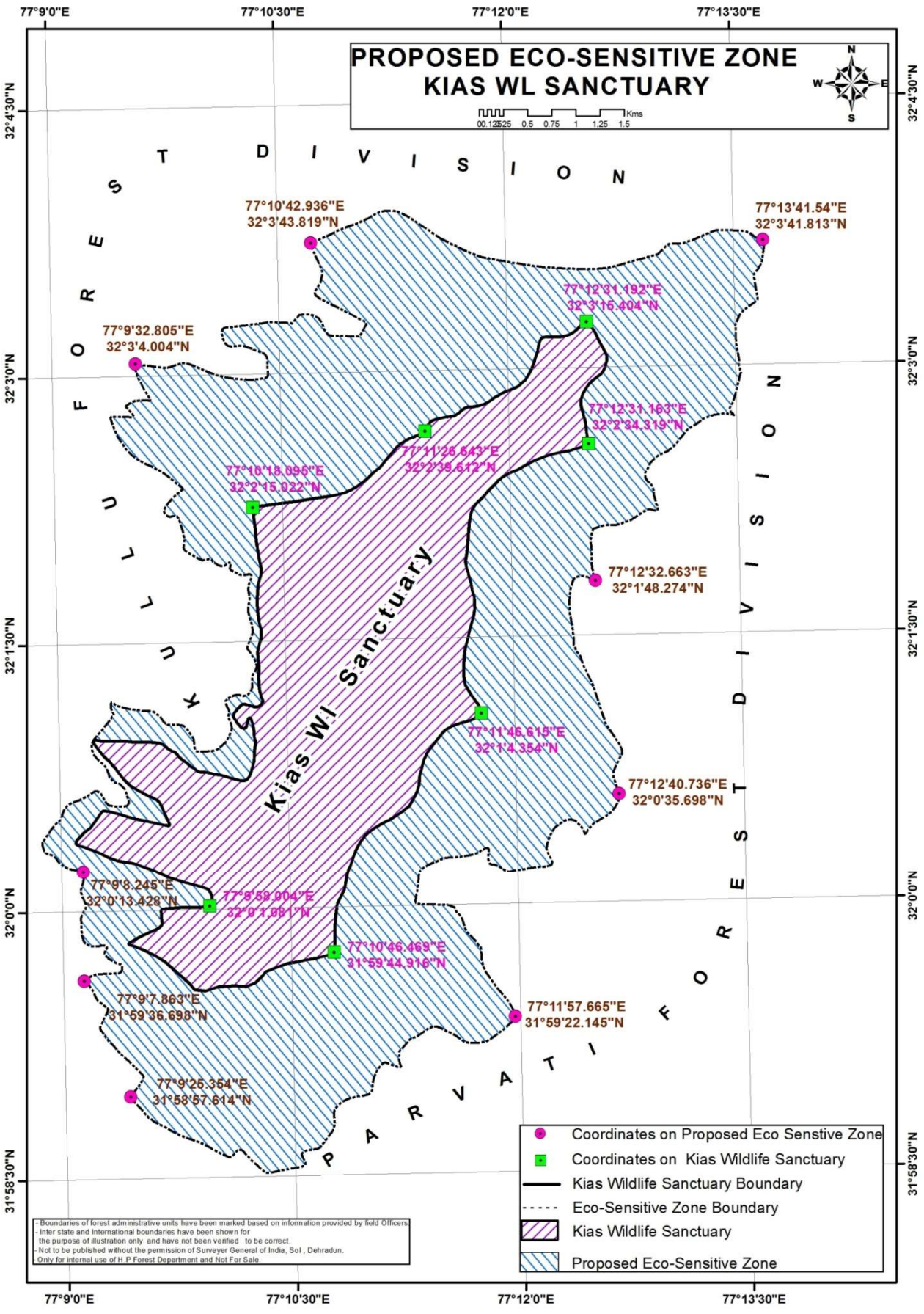


Figure 10- Proposed Eco-sensitive Zone of Kais WLS-1

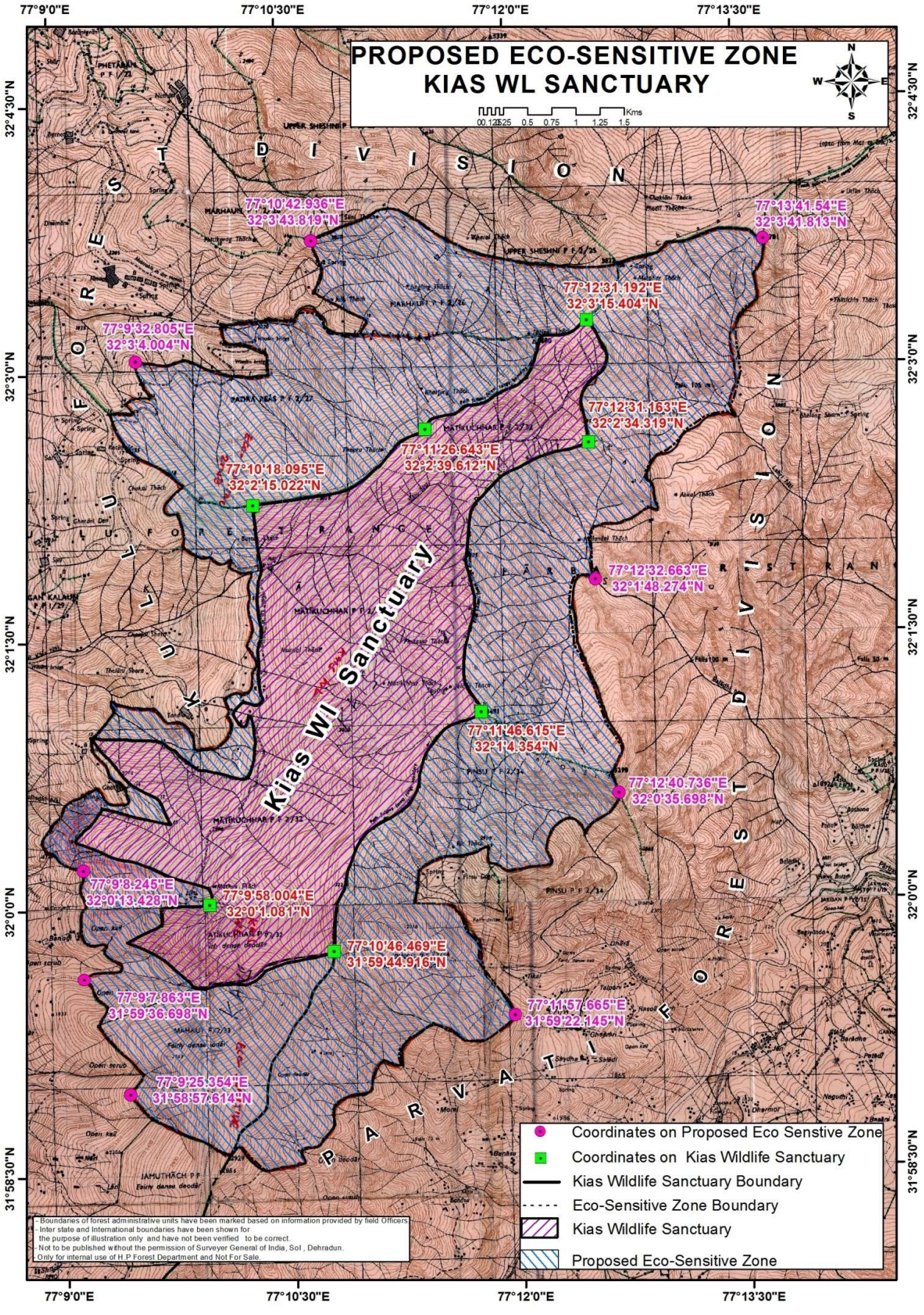


Figure 11- Proposed Eco-sensitive Zone of Kais WLS-2

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.

3.6.3 Illegal Activities

3.6.3.1 Poaching

There is no organized poaching of wildlife in the sanctuary. Grant of arms licence 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.

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, thus, disturbing the wildlife. This problem is being eradicated with the enforcement of guidelines received from the MoEF& CC regarding suspension of rights.

No grazing permits are issued for grazing of cattle in the area. 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 Kais sanctuary. The sanctuary falls in the temperate and sub-alpine zone. There are perennial stream/ 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.

3.6.6 Insect Attack and Pathological Problems

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

Large number of tourists visits the sanctuary every summer. Walking trails and paths crossing through various parts of the sanctuary are available for visitors. Trekking programs are organized for school and college students. One inspection hut is available for camping within the sanctuary. 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 protected area for sighting of wild animals for the wildlife enthusiasts. The Naggar – Bijli Mahadev road passes through the picturesque sanctuary which is the only vehicular access to the wild life sanctuary. While traversing the road one may have a glimpse of pheasants like Monal, Kaleej, Koklas etc.

3.8 Research, Monitoring and Training.

3.8.1 Research and Monitoring

No scientific research has been carried out in the Kais 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 20^{th} 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- IX). Soil conservation measures have favourable 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. Kais WLS falls under the jurisdiction of Wildlife Division Kullu which under the control of GHNP Circle at Shamshi. The Kais WLS is managed by D.F.O. Wild Life with HQ at Kullu through the Range Forest Officer, Wildlife Range Manali. The detail of the staff posted in Kais WLS is as follows:

RFO, Wildlife Range Manali	= 1 No.
Deputy Ranger/ BO Kais	= 1 No.
Forest Guards (Tandla & Matikochhar Beats)	= 2 No.

The sanctuary consists of a single block (Kais Block) which is divided into two beats namely Tandla and Matikochhar. 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 as follows:

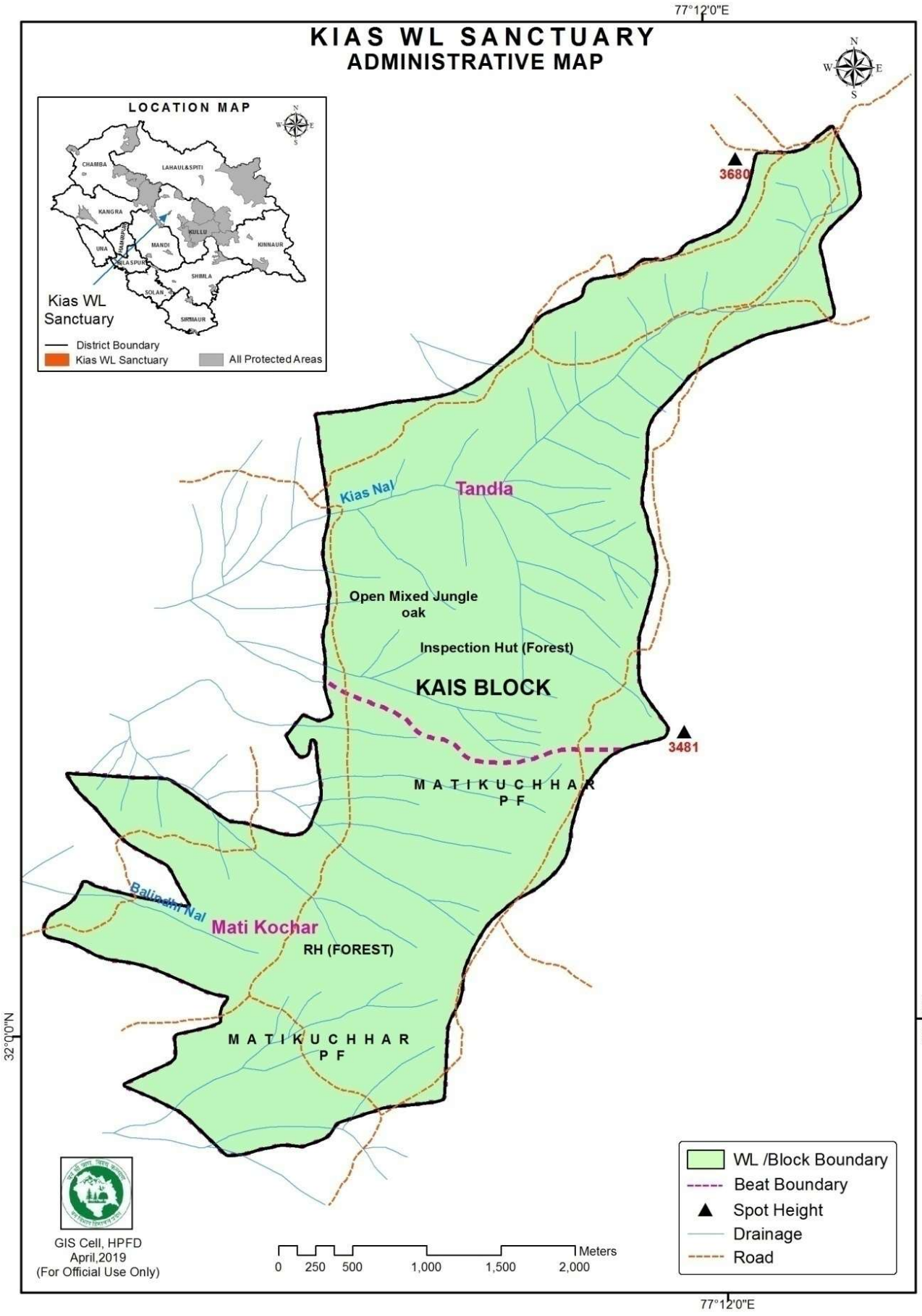


Figure 9- Administrative Map of Kais WLS

3.11 Communication

Communication system is almost negligible, as no telephones are available. Mobile signals are present only at certain places in the sanctuary.

3.12 Summary of the threats to the wildlife

The major factors, which are threatens the wildlife in Kais 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. Existence of stray cattle grazing inside sanctuary.
6. Floods and Soil erosion.
7. Hunting and poaching.

CHAPTER – 4

THE PROTECTED AREA AND THE INTERFACE LANDUSE 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 250 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. The people of the adjoining villages are hostile towards the existence of the sanctuary due to tough regulations imposed.

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 below:

Table 6: Human Population in the villages adjoining Kais Sanctuary.

Village	No. of Families					General		SC		OBC		Total		G. Total
	Gen	SC	ST	OBC	Total	Male	Female	Male	Female	Male	Female	Male	Female	
Tandla	72	0	0	0	72	150	148	0	0	0	0	150	148	**298**
Ghaut	0	13	0	7	20	0	0	44	43	3	3	47	46	**93**
Dhara	25	0	0	0	25	53	54	0	0	0	0	53	54	**107**
Total	**97**	**13**	**0**	**7**	**117**	**203**	**202**	**44**	**43**	**3**	**3**	**250**	**248**	**498**

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 three villages/hamlets mentioned in the table above 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.

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. Horticulture is the main occupation. Tourism is the second major sector contributing to the people's livelihood. Kharhal valley in which Kais WLS is situated is one of the few places where natural beauty and good climate attracts the tourists, who contribute to the earnings of the locals. The other activities supplementing their income are:

1. Agriculture
2. Wage earning in orchard and tourism
3. Cattle rearing
4. Collection of guchhii (few)

The size and appearance of fields vary according to the slope. People cultivate superior cereals of wheat with coarse cereals and minor millets. Most of the land being under horticulture crop, agricultural activity is less.

4.1.3.1 Non forest based natural resources

As mentioned above, main occupation of the inhabitants is horticulture and tourism. Apart from horticulture, the other crops raised are wheat, maize, finger millet, potato etc. The land use pattern of the three main villages adjoining the protected area is as under:

Table 7: Land Use Pattern

S. No.	Name of Village	Agriculture (Bigha)	Horticulture (Bigha)	Total (Bigha)
1	Dhara&Ghaut	179	437	616
2	Tandla	78	352	430
	Total	**257**	**789**	**1046**

Thus, horticulture is dominant occupation in the villages. The main horticulture crops are apple and plum while others being apricot, cherry and pears. Honey is collected in country made boxes on small scale and does not contribute to the sizeable earnings. Milk and milk products are produced in the area but they are mainly consumed locally and contribute very little to their earnings. Some People have government jobs but the main sector providing employment remains horticulture. 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.

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.

The livestock population in the adjoining villages is tabulated as under:

Table 8: Livestock population of the villages adjoining Kais wildlife sanctuary

Sr.	**Name of village**	**Jersey cow**	**Local cow**	**Bull**	**Sheep**	**Goat**	**Horse**	**Buffalo**	**Total**
1.	Tandla	40	20	55	850	321	10	0	**1296**
2.	Dhara	4031	27	44	525	275	22	0	**924**
3.	Ghot	7	20	12	87	25	11	0	**162**
	Total	**78**	**67**	**111**	**1462**	**621**	**43**	**0**	**2382**

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.

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 9: 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 Kais 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 and Ghoral and Pheasants 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 Kais sanctuary includes demarcated protected forest 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.

4.2.1: An evaluation of government and non-government agency programmes for development, implications for the PA, people and 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. Kais sanctuary being so close to the famous pilgrimage place viz., Bijali – Mahadev hardly faces 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, muffler sand dairy products have a good market created by the tourists and locals, fetching good income.

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 Kais wildlife sanctuary but it is not so at present. 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

VISION, OBJECTIVES, ISSUES AND PROBLEMS

5.1 The Vision

To protect, conserve and improve wildlife habitats. Improving and sustaining healthy living conditions through conservation of bio-diversity, protection of environment, soil, water etc. and empowering local people, women and other weaker sections of the society through scientific, transparent and responsible methods.

5.2 Objectives of management

The main objectives of management of the sanctuary are:

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 eliminate the problem of stray cattle entering the wildlife sanctuary.
7. 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 .

Kais Wildlife Sanctuary with a vast area with varied ecosystems and considerable community interface is bound to have its share of problems and limitations. 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 and a matrix was also prepared which is given in the appendices. 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 factors.	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. 4. Repeated fires especially in the grasslands locally known 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.	1. Lack of adequate budget for realizing this objective. 2. Overburdened staff at Kais 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.	1. Inadequate funds, logistics and manpower. 2. Lack of infrastructure and interpretation center for nature education. 3. Kais 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 degradation of the habitat.	1. Various problems like poaching, Private arms and ammunitions with locals. 2. Repeated fires in grasslands. 3. Inadequate funds, logistics and manpower. 4. Patrolling and monitoring system is not appropriate and needs improvement. 5. Inadequate capacity building programmes for the frontline staff. 6. Inadequate and Improper communication and transportation facilities for emergency situations.

		7. Local Stakeholder participation is minimal. Lack of support from regional NGOs. 8. 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.	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 endangered 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. Kais wildlife sanctuary forms catchment for a Kais 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 Kais 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. 11. Resource dependency of local people for various NTFPs further deteriorate the catchment capabilities of the area. 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. 13. Difficult conditions like remoteness of areas, lack of adequate road network, difficult terrain and language barriers etc.

6	To eliminate the problem of stray cattle entering the wildlife sanctuary.	1. Inadequate funds, manpower and infrastructure. 2. Absence of local youth training programmes for facilitating in human wildlife conflict situations. 3. Local Stakeholder participation is minimal.
7	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.	1. Inadequate funds, logistics and manpower. 2. Lack of infrastructure and interpretation centre for nature education. 3. Shortage of specialized resource persons. 4. Lack of trained and motivated staff. 5. Lack of adequate staff and untimely transfers of implementing officers. 6. Lack of proper coordination between various line departments. 7. Ever increasing population also impacts the resources and further worsens the situation. 8. Lack of sufficient awareness among the members about the concept of eco-development and its objectives. 9. Non- acceptance of eco -development concept within the forest department resulting in inadequate support from within the department. 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. 11. Inadequate institutional mechanism for growth of programme. It all depends on the individual. 12. Preoccupation of staff with familiar works. 13. Lack of any systematic Awareness programmes. 14. Poor community involvement/awareness. 15. Ineffective communication between different agencies and stakeholders. 16. Remoteness of the region and improper road connectivity. 17. No proper waste management system. 18. Absence of proper ecotourism management plan.

CHAPTER – 6

THE STRATEGIES

6.1 Boundaries

The existing boundary of the Kais WLS encloses one Demarcated Protected Forests i.e. 2/32 Matikochhar forests. A nalla named Mundal gad divides the sanctuary into two beats. The area North to nalla is Tandla beat and area south to Mundal gad is Matikochhar beat. Matikochhar beat receives slightly higher numbers of tourists and trekkers, as the Matikochhar beat houses one Inspection Hut at Mattan and many camping sites for the tourists.

6.2 Zonation and Zone Plan

Whole of the sanctuary comprises of one block namely Kais Block. This block is further divided into two beats Tandla and Matikochhar. There is no need to prepare a separate zone plan for the sanctuary as the area of the WLS is small.

The activities though common, yet being slightly different in each of the two beats, have been planned to be carried out. 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. In this plan emphasis has been laid on gaining the support of the people who live around the sanctuary. Ensuring alternative and reliable supply of fuel and fodder has been proposed in this plan, so that villagers are not forced to enter Kais Wildlife Sanctuary for their simple needs.

The main objective of this plan is to conserve and protect the significant biodiversity of the sanctuary. To achieve this objective various theme plans have been

developed for taking care of some of the important aspects of management. 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. 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 forest workers/daily wages local people does the patrolling of the sanctuary area. 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. 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 Performa).

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.

3. 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.

4. 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 Watch tower at Ublda,

ii. Construction of patrolling hut at Dohra,

iii. Camping ground around Phutasar, Near BP 23 and at Bhanda Padhar

iv. Complete camping equipments (as per details given below)

v. Arms and ammunitions (as per details given below)

vi. 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 2) One Bike at Manali for Forest Guards	1) One Mahindra Bolero Camper/ Multipurpose vehicle –for Range Forest Officer at Manali 2) Two 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, Manali for use in Kais and Manali WLS)	
1) Only one desktop + 1 Scanner cum Printer +1 printer in Range office, Manali 2) 9 GPS 3) 8Binoculars 4) 1DSLR camera	1) One Desktop computer/ Laptop is required for Information Centre at Manali. 2) Two Digital Cameras for beat level forest staffs 3) One Video Camera

5) 9 Camera Traps 6) 1 Night Vision Binocular (At Kullu with Quick response Team) 7) 5 Four Men Tent 8) 10 Two Men Tent 9) 23 Cary Mat Big & Small 10) 14 Sleeping Bag 11) 8 Rucksacks 12) 8 Rain Coat Ponchu 13) 5 Search Light (Only 2 in working order) 14) 10 Solar LED Lamp	4) 10 No. Trap Cameras required for Kais WLS 5) 1 No. Flying Surveillance Camera for rescue, surveillance etc. of Kais WLS. 6) 2 No. Big Search Light/ Torch 7) 1 No. Night Vision Binocular 8) 5 No. Two Men Tent 9) 10 No. Cary Mat Small 10) 5 No. Sleeping Bag 11) 5 No. Rucksacks 12) 5 No. Rain Coat Ponchu 13) 5 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 five Rifle .315 required. One at the range office, two for each Beat officer, two spare for emergencies 2) 2 No. Shot guns 12 bore 3) 1 No. pistol 4) 1 No. Stun Gun (Electric Shock) for animal rescue. 5) 1 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 23 large boundary pillars and other 168 small boundary pillars 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 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.

1. Grafting and raising of Fruit Bearing Trees:-

There is large number of root stock of *Pyrus pashia* 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 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 and scattered grafting of fruit bearing species will be done annually. 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 southern and eastern part of the sanctuary is 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 been 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 only nursery available in the sanctuary at Matikochar (Annexure- XIII) which needs annual maintenance, and shall cater to the needs is 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. At least fifty thousand rupees will be required for its annual maintenance.

6.3.3 Watershed Management

The sanctuary forms the catchment of mainly Kais nalla which is the small tributary of 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 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.

2. Soil conservation works

The area of sanctuary along the Kais nalla and surrounding 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. Not even a single case of damage to human life has been received during last ten 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.

5. Social fencing by encouraging local people for qualitative livestock keeping. It includes a number of approaches from awareness/outreach to subsidy to qualitative livestock breed.
6. Cattle proof fencing along forest road near Matikochar to prevent stray animals from entering uphill side of WLS.
7. Some other options of reducing stray cattle in PA include (a) possibility of translocation of stray animal may be explored; and (b) sterilization possibility of stray animal may be explored with the help of Department of Animal husbandry.

6.3.5 Fire Management

The protection from forest fire is one of the most difficult tasks for the protected area managers. In Kais Wildlife Sanctuary, the winter fires are more common then 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:

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 (Annexure- XVI) is one of the primary activities for control of forest fires. Though the Naggar- Bijali Mahadev road acts as one of the fire line, but to protect the overall area against unwanted fires it is very necessary to create different fire lines inside the sanctuary. The north-west part of the sanctuary comprises of many perennial nallas and natural springs whereas the southern part is mostly drier. Hence the southern part of the sanctuary needs more fire lines. There is an urgent need to construct the fire line from boundary pillar number 22 to 23 on the eastern boundary, from boundary of compartment separating C-VIII with other compartments and another one on the western part of the sanctuary measuring about 15 to 20 km each. The cost will be applicable as per departmental norms and schedule. Besides these fire lines the contour paths and bridle paths passing through the sanctuary also acts as fire lines which 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 centre 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 behaviour 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. Kais sanctuary is situated few kilometers away from the Manali town, a famous tourist resort. This sanctuary can play an important role in raising interest towards wildlife conservation. Around 2000 trekkers visit the sanctuary every year. To meet the requirement of the visiting tourists, existing facilities shall have to be improved.

The wildlife sanctuary provides a very good opportunity to the wild life enthusiasts to experience the wilderness of the area. The trekkers visit for a short period in the months of May and June to ascend right through the sanctuary and then move towards Chanderkhani Pass via Phutasar and Dohra. The forested landscapes, snow clad mountain peaks and towering trees inhabited by birds and animals all make it an ideal and potentially vibrant eco-tourism location.

7.2 Objectives

The main objectives are to create awareness among the masses, to make them realize the importance of wildlife conservation, environment education and also to fetch some revenue to the government. To promote eco-tourism will be 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.

7.3 Problems:

Major problem in promoting eco-tourism in Kais sanctuary is lack of proper facility to the tourists such as poor communication, stay arrangements, bridle paths and proper information. The tourists throng Manali 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 as well as poor road conditions. The former will 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

Tourism zone has been identified and marked inside the sanctuary. The major destination is the Mattan thach complex where camping facility for tourists and visitors is available. Place to pitch 8 to 10 tents is also available in the Inspection Hut complex. The trekking route from Mattan Thach to Phootasar via Ublada and then Dohra which finally leads to Malana through Chanderkhani pass is beautiful route. One can enjoy the walk through the alpine meadows. 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. The need is to give wide publicity to make it known and then start suitable works more extensively.

7.4.2 Infrastructure Development

With a view to provide infrastructure to the visitors, some activities have been included in the plan. 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.

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. 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 main objectives of this plan:

1. To reduce fuel wood consumption.
2. To reduce grazing pressure.
3. To regulate and reduce 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 alternate livelihood means at their doorsteps.
7. To promote the traditional and indigenous methods and also to promote the culture of the area.
8. To involve people for understanding the protected area values and conservation needs.

These objectives can be achieved by constituting the Eco – Development committees 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

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.

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. Permanent structures be erected along the road to check the encroachments.

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 Kais Sanctuary during the writing of the next management plan.

9.2 Monitoring: Monitoring proposed in Kais 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 Musk deer, Black Bear and 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 Kais 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
- 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 Kais 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 Matikochar Inspection hut.

9.2.6 Monitoring of weather changes

Collection of data will be done from the weather recording stations of RHRS Seobag. Small weather recording facilities may be created at Matikochar 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

One 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.glcf.umiacs.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 transact, 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 Kais WLS can be considered: the path or transect line starting from Matikochar (2600 m) (road head) in Kharahl valley and leading upto the Ublda, Footasaur, Dohra and Bhatol (3600m) can be named as M1. It is suggested that the first experimental plot can be considered at Matikochar 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 Ml/1, Ml/2, M1/3… and so on suggesting that Mi is the number of a particular transect line (path) and denominator is number of the particular experimental plot. Similarly, Tandla beat will have numbers like Tl/1, T1/2.

- Devise A Performa to record observations at the experimental plots has already been devised. For each experimental plot, this **Performa** 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 lm x lm within each circular plot at NWSE directions: to record cover of herbs and grasses, presence of medicinal plants, mushrooms etc.

The Performa 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 Performa 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 performa as mentioned above can be easily entered into a computer using Foxbase or FoxPro software. However, it can also be suggested that a performa 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 performa 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.

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 Beer 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 vocalisation, 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.

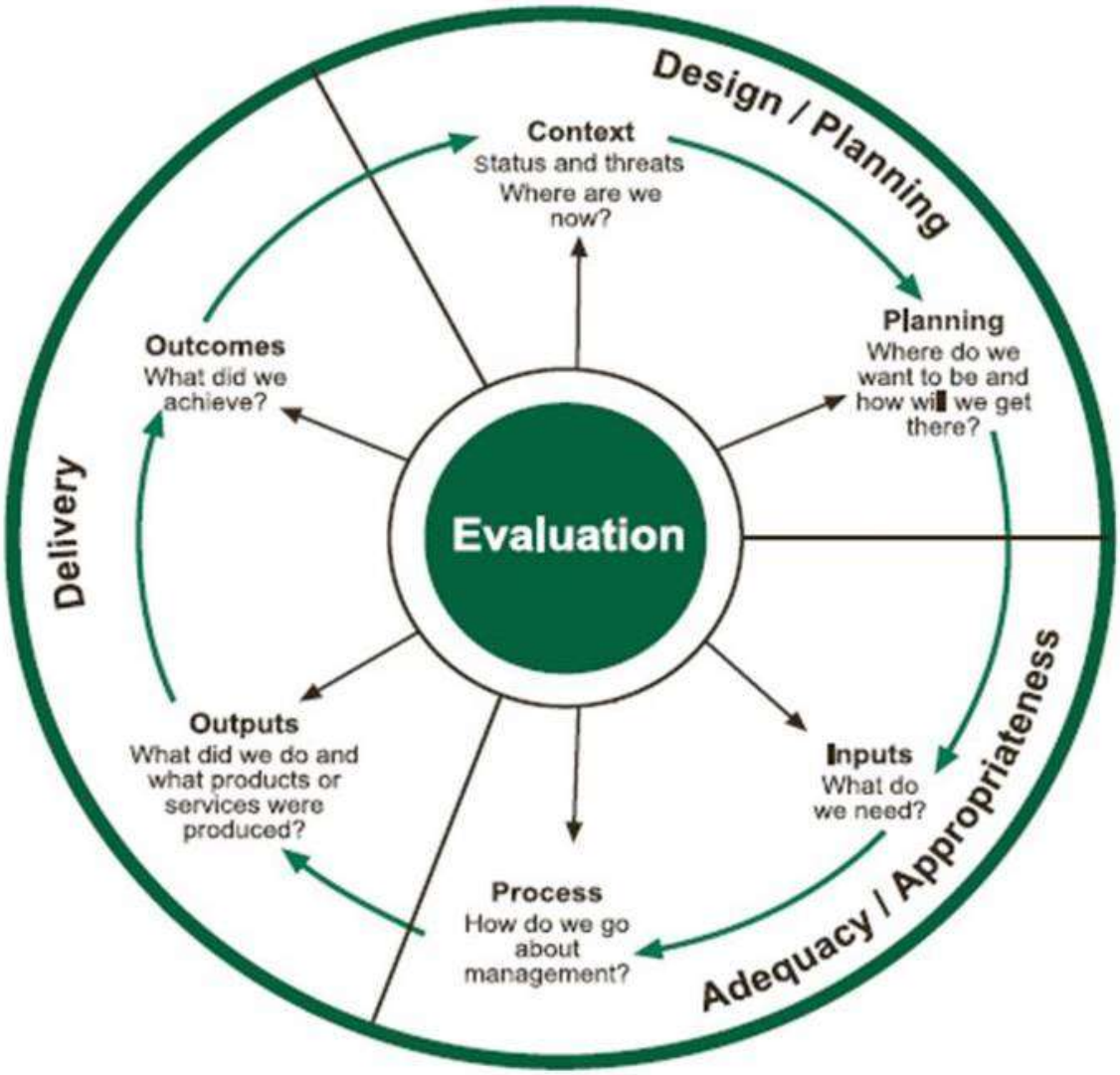
9.2.10 Management Effectiveness Evaluation (MEE) –

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 (World Commission on PA) 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, Wildlife Institute of India conducted Management Effectiveness Evaluation of Kais WLS (MEE score card along with actionable points are provided in Annexure- XVII). PCCF (wildlife)- cum- CWLW (HP) directed all PA mangers to do self-assessment every year on the same pattern as for MEE. After comparing MEE report with previous report, actionable points may be suggested for implementation.

9.3 Training

9.3.1 On 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 is backbone of the state's economy and one of the major industry 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

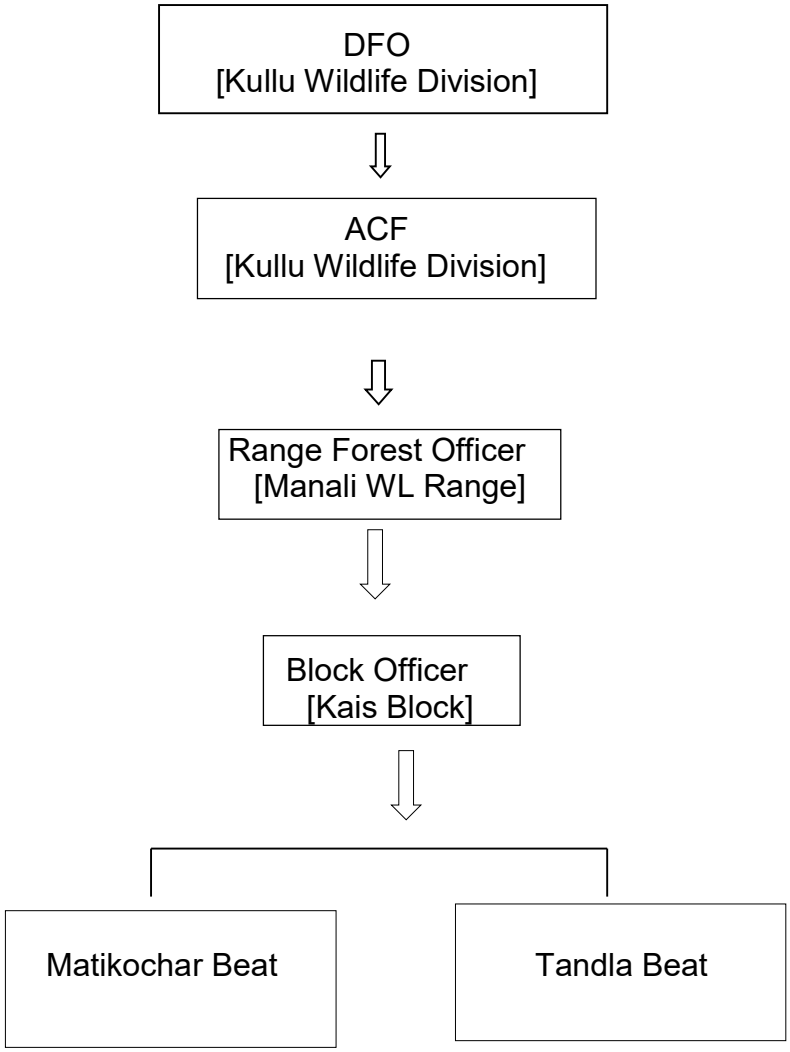
Regular and short term courses are conducted at training institutes situated at Sundernagar and Chail and therefore, there is no need to establish a separate training facility.

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. At present, staff position working in the Kais Sanctuary is as under:-



S.N.	CATEGORY	STRENGHT		VACANCY
		SANCTIONED	IN POSITION	
1.	RANGE FOREST OFFICER	1	1	0
2.	DEPUTY RANGER	1	1	0
3.	FOREST GUARD	2	2	0

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. 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 networks 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 adequate (List of buildings at Annexure - VIII). No amenities are available to the staff inside the sanctuary. There is no patrolling hut in the sanctuary. Many times staff is forced to take refuge in the caves or tents during the nights or bad weather. Hiring of vehicle as per need may be allowed to the field staff.

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 2019-20 to 2028-29.

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 has been prepared and are annexed as Annexure -XI

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 2019-2029

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 2019-20 to 2028-29 is given as Annexure - XI. The component and year – wise abstract of proposals is placed at the end of Annexure XI.

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 2003-04had been maintained. After 2003-04 no timber was sanctioned to right holders and the register has been maintained as Nil up to 31-3-2019.

c. **Regeneration and Plantations**:

   Maintenance of control form 'C' for all plantations (Annexure- XII) 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.53/97. 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-Division of the Kangra District, as detailed below shall be sanctuaries for wild birds and wild animals:-

S.No.	Forest	Range.	Kothi.	Name of game sanctuary and forests included in the same.	Area. (acres).	Boundaries.
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:- Banauu Nal and demarcated line of 2/6 C.IV, West:- Natural limit of Forest.
2.	Lower Kullu		Kais.	Kais, all protected forests included in catchment of Kais 3.3.79.Nal,i.e.2/32 Kati Kochhar C.I. II,III,V(Part),VIa, VII(Part)and VIII & Kais. III.	3.3.79	North: Demarcating line separating 2/32 Metikochhar and 2/27 Padra Reas and 2/26 Marhauri and Kais Nal. East:- Ridge separating catchment of Beas and Parbatti. South:-Compartment VIb and V of 2/32 Matikochhar and spur descending from Dhara to Kais Nal.
3.	Lower Kullu	Khokhan.		Dohranal 2/65 Oriban and 2/66 Lot Banalag, 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 1/45 Charawat. West:-R/0 Rajgiri & C.V. of 2/63 Matiana.
4.	Parbatti Range.	Kanawar.		Grshan Nal R/3 Grahan,2/9 Reona,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 Tilalotan Demarcated forests. West:-2/13 Muri,2/10 Surdnpat and C.VIb C.I. of R/4 Kasol.

50

Annexure- II

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

GOVERNMENT OF HIMACHAL PRADESH
DEPARTMENT OF FORESTS

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

NOTIFICATION

Whereas a Notification under Section 8 of the Punjab Wild Birds and Wild Animals Protection Act 1933, was issued by the Punjab Government vide Notification No. 70 GP 53/97 dated 28-02-1954 to declare **Kais as Wildlife Sanctuary** comprising an area of 13.65 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 (53 of 1972) in respect of the Wildlife Sanctuaries and National Parks for which rationalization had been proposed;

And whereas, the Hon'ble Supreme Court vide order dated 05/08/2011, further directed the State to follow the procedure laid down under Section 18 to 26A and 35 of the Wildlife (Protection) Act, 1972, before issuance of 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 Kais Wildlife Sanctuary, the actual area on ground has been found 12.61 sq. km. This area of 12.61 sq. km shall now constitute Kais Wildlife Sanctuary after the rationalization;

Now, therefore, the Governor Himachal Pradesh in exercise of the powers vested in her under Section 26A of the said Act is pleased to declare the said area of 12.61 sq. km of Kais as **'Kais Wildlife Sanctuary'** with immediate effect for the purpose of protecting, propagating and developing wildlife and its environment.

The limits of Kais Wildlife Sanctuary shall be as under:

Sr. No.	Name of Wildlife Sanctuary	Constituents i)District ii) Forest Division	Boundaries of Kais Wildlife Sanctuary.
1.	**Kais**	i)Kullu ii)Kullu WL Division	**NORTH:** From Bastak Thach along demarcated line separating 2/32 Mati Kochar and 2/27 Padhra Rias and 2/26 Marhauri and Kais nalla upto Janiyal Thach. **EAST:** From Janiyal Thach along Ridge separating catchment of Beas and Parvati rivers then Rumtu dhar upto Jalada Thach point 3481 mtr. **SOUTH:** From Jalada Thach point 3481 mtr. on the ridge separating Matikochhar PF and Pinsu PF boundary and 2/32 Matikochhar CVI b,CV and spur descending from Dhara to Kais nalla upto peak at origin of nalla flowing to Beas River. **WEST:** Along forest boundary Matikochhar and nalla downstream upto turning point to west on nalla along forest boundary and to Rauns Thach and forest boundary Matikochhar and then along road upto Bastak Thach.

This area is situated within the Geo-co-ordinates North (Lat 32°03'10" Long77°12'32"), East (Lat 32° 02'42" Long 77° 12'32"), South (Lat La 31° 59'38" Long 77° 10'17"), and West (Lat 32° 00'23" Long 77° 09'19" which falls on Survey of India topo sheet No 53 E/1 and 52H/4 scale 1:50:000.

Area of Kais Wildlife Sanctuary=12.61 sq. km

By Order

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

Endst. No As above

Dated Shimla-2 the 7th June, 2013

Copy forwarded to:-

1. All the Administrative Secretaries to the Govt. of H.P. Shimla-2.
2. All the Divisional Commissioners, Shimla, Mandi & Dharamshala, H.P.
3. All the Heads of Departments of H.P.
4. The Principal Chief Conservator of Forests, H.P. Shimla-1
5. The Principal Chief Conservator of Forests, (Wildlife) H.P. Shimla-1.
6. All CCFs / DFOs (Wildlife) in H.P.
7. All the Deputy Commissioners in H.P.
8. All the CCFs/CFs /DFOs in H.P.
9. ALR-cum- Under Secretary Law to the Government of Himachal Pradesh.
10. The Commissioner, Municipal Corporation, Shimla.
11. 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.
12. Guard File.

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

Annexure - III

Check List of Flora

Botanical name	Local Name	English Name		Botanical name	Local Name	English Name
A) Trees				**D) Herbs**		
Abies pindrow	Tosh	Silver Fir		*Cannabis sativa*	Bhang	Common hemp
Acer caesium	Mandru	Maple		*Delphinium elatum*	-	Larkspur
Aesculus indica	Khanor	Horse Chest Nut		*Fragaria vesca*		Wild strawberry
Alnus nitida	Kosh	Alder		*Gentiana kurrooa*	Karu	-
Cedrela serrata	Darl	Hill Toon		*Gerardiana heterophylla*	Bichhubuti	Indian Nettle
Cedrus deodara	Diyar	Cedar		*Impatiens roylei*	Masha	Balsam
Celtis australis	Khirak	European Nettle tree		*Iris nepalensis*	Kharera	Iris
Juglans regia	Akhrot	Walnut		*Juniperus recurva*	Dhoop	Juniper
Picea smithiana	Rai	Spruce		*Metha sylvestris*	Pudina	Mint
Pinus wallichiana	Kail	Blue Pine		*Podophyllum hexandrum*	Ban Kakari	Indian May Apple
Populus ciliata	PhararíPipal	Poplar		*Polygonum alatum*	Malora	Knotweed
Prunus cornuta	Jamu	Bird Cherry		*Jurinea macrocephala*	Dhoop	
Quercus dilatata	Mohru	Green Oak		*Primula vulgaris*		Primerose
Quercus glauca	Banni			*Rananculus arvensis*		Corn buttercup
Querucs semicarpifolia	Kharsu	Brown Oak		*Salvia spp*		Sage
Rhododendron campanulatum	Brah	Rhododendron		*Saxifraga legulata*		
B) Shrubs				*Thymus serphyllum*	Ban Ajwain	Wild thyme
Zanthoxylum alatum	Tirmira	Winged prickly Ash		*Valeriana hardwickii*	Nihani	
Cotoneaster bacillaris	Reunsh	Open fruited cotoneaster		*Valeriana wallichii*	Mushkwala	
Indigofera gerardiana	Kathi	-		*Viola serpens*	Banafsha	
Potentilla fruticosa		Cinquefoil				
Prinsepea utilis	Bhekhal	Himalayan cherry prinsepea				

Rubus ellipticus	Akha	Yellow Himalayan Raspberry				
Sarcococca saligna	Charabari	Willow leaf sweet box				
Vibernum grandiflorum	Thalana	Himalayan Vibernum				
Arundinaria falcata	Nirgal	Hill bamboo				
C) Climbers						
Dioscorea deltoidea	ShingliMingli	Yam				
Hedra helix	Gumera	Ivy				
Rosa moschata	Kuja	Musk rose				
Clematis Montana	BoldhKuja	White anemone clematis				

Annexure – IV

Check List of Animals

Sr. No.	English Name	Scientific Name
1.	Leopard	*Panthera uncia*
2.	Jungle Cat	*Felis chaos*
3.	Leopard Cat	*Felis bengalensis*
4.	Himalayan Yellow Throated Marten	*Martes flavigula*
5.	Flying squirrel	*Petaurista petaurista*
6.	Ghoral	*Nemorhaedus goral*
7.	Barking Deer	*Muntiacus muntjac*
8.	Langur	*Presbytis entellus*
9.	Monkey	*Macaca mullata*
10.	Black Bear	*Selenarctos thibetanus*
11.	Indian Porcupine	*Hystrix indica*
12.	Indian Fox	*Vulpes bengalensis*
13.	Musk Deer	*Moschus leucogaster*
14.	Brown Bear	*Ursus arctos*
Reptiles		
1.	Himalayan Ground Skink	*Scincella himalayanus*
2.	Rat Snake	*Ptyas mucosus*
3.	Himalayan Pit Viper	*Halys himalayanus*
4.	Kashmir Rock Agama	*Laudakia tuberculata*

Annexure –V

List of Common Birds of Kais Sanctuary

Sr. No.	Name of Bird	Scientific Name
1.	Grey winged blackbird	*Turdus boulboul*
2.	White collared blackbird	*Turdus albocinctus*
3.	Black Bulbul	*Hypsipetes lecuocephalus*
4.	Himalayan Bulbul	*Pycnonotus leucogenys*
5.	Red headed bullfinch	*Pyrrhulaery throcephala*
6.	Rock bunting	*Emberiz acia*
7.	White capped bunting	*Emberiz astewarti*
8.	Grey bushchat	*Saxicola ferrea*
9.	Himalayan Tree creeper	*Certhia himalayana*
10.	Himalayan Crow	*Corvus macrorhynchos*
11.	Brown dipper	*Cinclus palace*
12.	Turtle Dove	*Streptopelia orientalis*
13.	Spotted Dove	*Streptopelia tranquebarica*
14.	AshyDrongo	*Dicrurus leucophaeus*
15.	Himalayan Griffon	*Gyps himalayensis*
16.	Common Kestrel	*Falco tinnunculus*
17.	Lammergier	*Gypaetus barbatus*
18.	Verditer flycatcher	*Eumyiastha lassina*
19.	Spotted forktail	*Enicurus maculatus*
20.	Littleforktail	*Enicurus scouleri*
21.	Black and Yellow grosbeak	*Mycero basicterioides*
22.	Black winged kite	*Elanus caeruleus*
23.	House martin	*Delichon dasypus*
24.	Hoopoe	*Upupa epops*
25.	Long tailed marten	*Hirundo concolor*
26.	Rufous belied niltava	*Niltava sundara*
27.	Black partridge	*Francolinus francolinus*
28.	Grey Partridge	*Francolinus pondicerianus*
29.	Chukar	*Alectoris chukar*

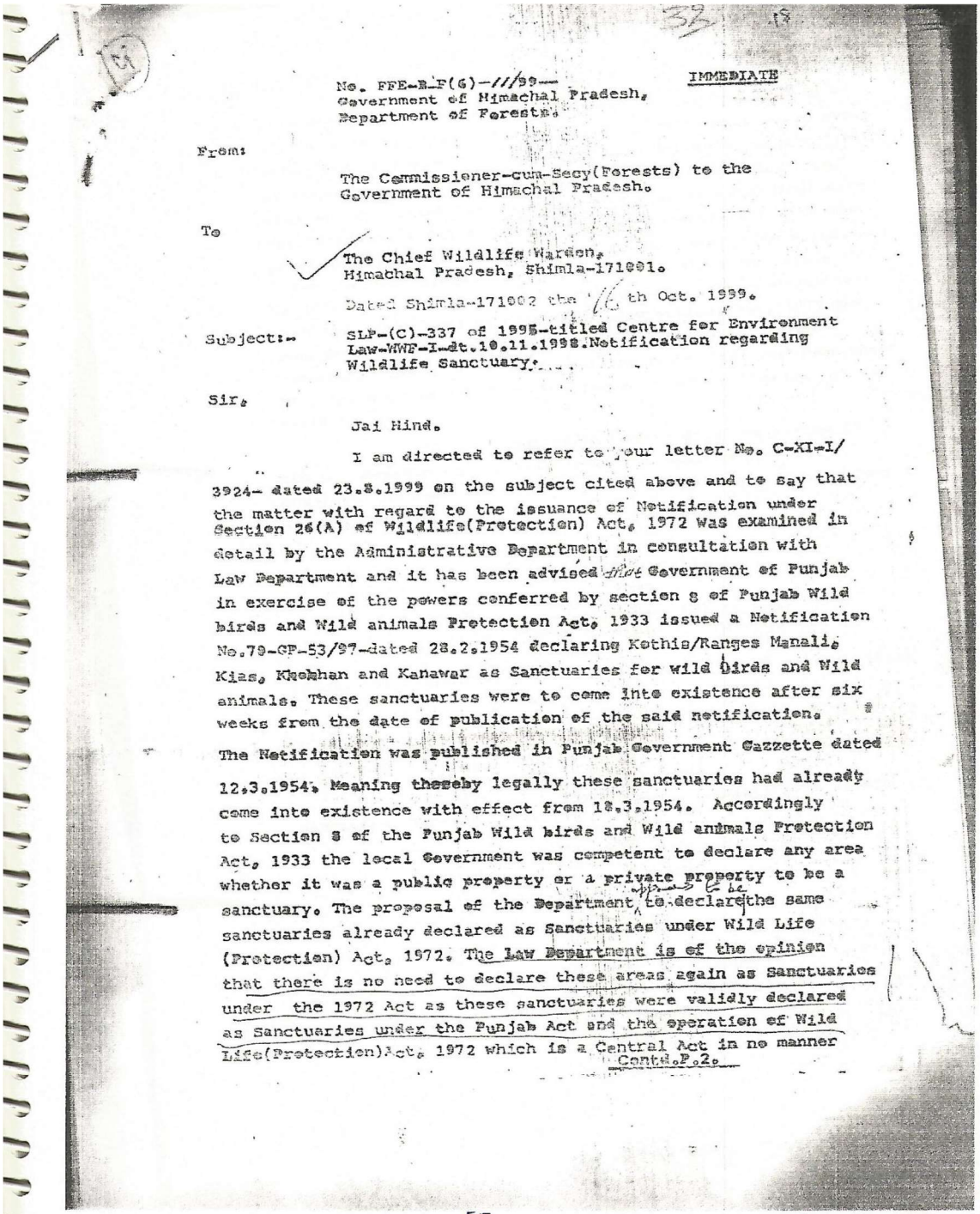
30.	Monal	*Lophophorus impejanus*
31.	Kalij	*Lophura leucomelanos*
32.	Koklass	*Pucrasia macrolopha*
33.	Upland pipit	*Anthus sylvanus*
34.	Plumbeous redstart	*Rhyacornis fuliginosus*
35.	White capped water redstart	*Chaimarrornis leucocephalus*
36.	Wren	*Troglodytes troglodytes*
37.	Yellow billed blue magpie	*Urocissa flavirostris*
38.	Grey tit	*Parus major*
39.	Green backed tit	*Parus monticolus*
40.	Streaked laughing thrush	*Garrulax lineatus*
41.	Variegated laughing thrush	*Garrulax variegatus*
42.	Red headed laughing thrush	*Garrulax erythrocephalus*
43.	Himalayan swiftlet	*Collocalia brevirostris*
44.	Russet sparrow	*Passer rutilans*
45.	Whiskered Yuhina	*Yuhina flavicolis*
46.	Hume's Warbler	*Phyllosco pushumei*
47.	Grey Headed canary flycatcher	*Culicica paceylonensis*
48.	Ultramarine flycatcher	*Ficedula superciliaris*
49.	Spotted flycatcher	*Muscica pastriata*
50.	Grey headed woodpecker	*Picus canus*
51.	Scaly breasted woodpecker	*Picus squamatus*
52.	Himalayan woodpecker	*Dendrocopos himalayensis*
53.	Rufous Sibia	*Heterophasia capistrata*
54.	Pink browed rose finch	*Carpodacusro dochrous*
55.	Large crowned leaf warbler	*Phylloscopus occipitalis*
56.	Common Stone chat	*Saxicola torquata*
57.	Rufous backed shrike	*Lanius schach*
58.	Long tailed minivet	*Pericrocotus ethologus*

Annexure- VI

Forest Wise Recorded rights of people existing in the Protected Area

Name of the Forest	Name of the village	Rights Admitted	Remarks
2/32 Matikochhar	Tandla Dhara Ghat Banogi	Full Rights	All Rigths suspended since July, 2004 vide MoEF letter No. 1-26/CEC/2003 dated 2.07.2004 (Supreme court order dated 14.02.2000 in IA No. 548.)
	Pharmes Gahar	Fuel, torches, building timber	

Annexure VII



No. FFE-B-F(G)-///99-- IMMEDIATE
Government of Himachal Pradesh,
Department of Forests.

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 16 th 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 8 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, Khokhan 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 Gazzette dated 12.3.1954, meaning thereby legally these sanctuaries had already come into existence with effect from 18.3.1954. Accordingly to Section 8 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

Contd.P.2.

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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 inconsistant 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 inconsistant with the provisions of Wild Life (Protection) Act, 1972 and thus stand saved by Section 66(2) of the Act ibid. 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.

Secretary(Forests) to the
Government of Himachal Pradesh.

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

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.

Secretary(Forests) to the
Government of Himachal Pradesh.

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Annexure - VIII

List of building of Kais Wildlife Sanctuary

SN	Name of the Building	Year of Construction	Cost Incurred
1	Inspection Hut at Mattan	Data not available	
2	FG Hut at Mattan	2007-08	400000
3	BO Qtr Kais near WL Range Kullu (Type II/1)	Detail not available	Transfer from W L Range Kullu(BO Qtr Kais)
4	FG HutMatikochar Beat at Mattan(Type II/1)	2007-2008	
5	FG HutTandla Beat at Mattan (Type II/1)	2017-2018	
6	Type I/1 Qtr at Mattan	Data not available	Transfered from T. Range Kullu

Annexure - IX

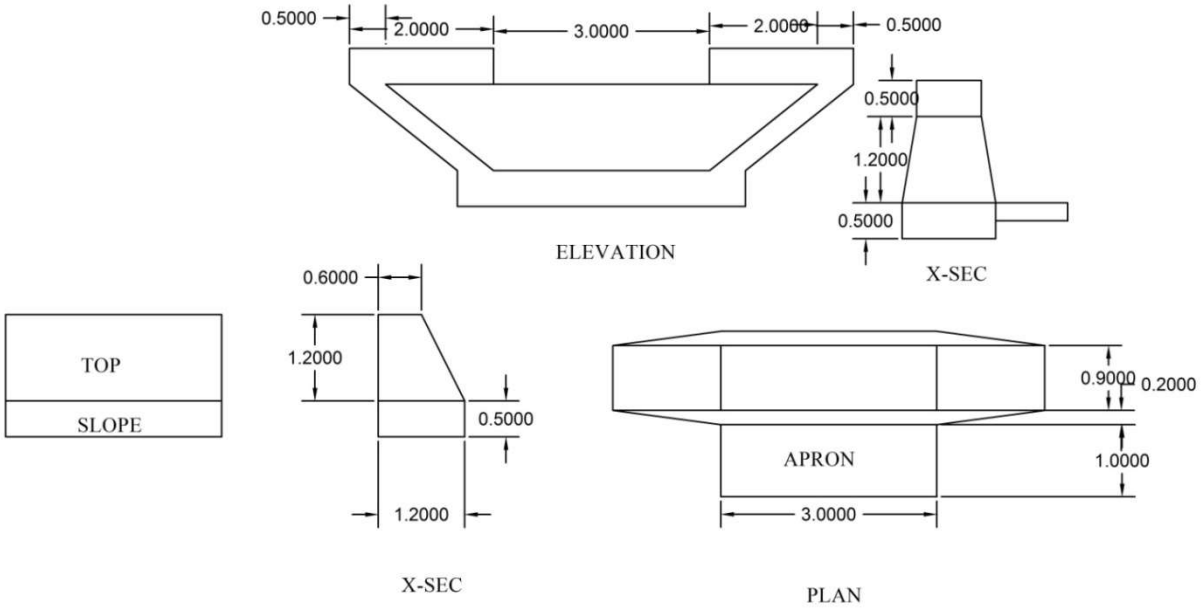
List of roads and paths in Kais wildlife sanctuary

SN	Name of road and path	Year of construction	Length (km)
1	Jeepable road from Kais Nala to Hani Thach	NA	10
2	B/path from Mattan to Footasaur	NA	12
3	Khuarnala to Mundal Thach	NA	5
4	Kharanala to Matikochar	NA	12
5	Roithach to Mundalthach	NA	6
6	Ubalda to Footasaur	NA	6
7	Bhandapather to Mundalthach	NA	6
8	Mattin to Ublda	NA	6
9	Trekker Path Duara to Phootasaur	2008-2009	4
10	Biodiversity Trail Tandla to Matikochar	2012-13	0.30

Annexure – X

DESIGN OF CHECK WALL AND CHECK DAMS

DESIGN OF DRY STONE MASONARY CHECK WALL AND CHECK DAM



Annexure – XI

ANNUAL PLAN OF OPERATION OF PROTECTED AREA FOR THE YEAR **2019-20** IN RESPECT OF **"KAIS WILD LIFE SANCTUARY"**							
Item of Work		**Location**	**unit**	**Rate per Unit**	**Target**		
					Phy	**Fin**	**Justification**
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 Path in Kais WLS	Kais WLS	No.	L/s	10	50000	For Visitors
2	Const. of B.O Qtr. cum Office at Matikochar	Kais WLS	No.	L/s	1	1400000	For BO Kais
Sub Total						**1450000**	
Soil & Moisture Conservation							
Check walls/ Breast walls/ Retaining wall							
1	Haani Thach	Mattikocher	No.	L/s	10	200000	To Control Soil Erosion
2	KhuarNala	Tandla	No.	L/s	10	200000	To Control Soil Erosion
3	Footasaur	Tandla	No.	L/s	3	60000	To Control Soil Erosion
4	Ghaut Nala	Mattikocher	No.	20000	5	100000	To control soil errosion
Sub Total						**560000**	
Community Development through Participation							
1	Entry Point activity for fringe villagers as per GP (stone soling in Bijli Mhadev Road)	Near I/Hut Mattan	Sq mtr	L/s	150 sqm	50000	For Visitor and Villagers near PA
Sub Total						**50000**	
TOTAL NON RECURRING						**2060000**	
B. Recurrent Activities							
Wildlife Protection and Conservation Activities							
Protection							
1	Deployment of Antipoachers and Antigrazers	WLS Kais	M/days	6750	2 for 12 months	162000	To Control poaching in WLS
2	Fire watchers	WLS Kais	M/days	6750	2 for 6 months	81000	To Control Fire in WLS
3	Group Patrolling for search opreation Etc.	WLS Kais	L/s	L/s	L/S	20000	For Protection of WLS

4	Clearing of Fire lines	WLS Kais	L/s	L/s	L/S	30000	For Control Fire
5	Abundance survey of major faunal specise	WLS Kais	L/s	L/s	L/S	50000	
6	Provision of rewards to the informers	WLS Kais	L/s	L/s	L/S	20000	For better protection of wildlife
7	Group Patrolling for protection of WLS and forest offence.	WLS Kais	L/s	L/s	L/S	50000	For protection of forest & Wild Life
8	Augmentation of Saltlicks	WLS Kais	L/s	L/s	L/S	20000	For wild animals
9	Maint of fire lines	WLS Kais	km	0.04/ Kms.	12 Kms.	48000	To control forest fire for protection fo wild life
10	Anti poaching activity for protection of WLS & forest offence	WLS Kais	M/days	0.002 40	2 No D/W for 6 Months	90000	For protection of wildlife & forests
11	Contengencies and Staff travelling expenses	WLS Kais	L/s	L/s	L/S	100000	To meet with the Traveling expanses of staff
12	Wldlife Veterinary care	WLS Kais	L/s	L/s	L/S	20000	For wild animals
Sub Total						**691000**	
Education and Awareness Generation							
1	Wildlife week and other awarness programme	WLS Kais	L/s	L/s	L/S	135000	
2	Publicity material / Signage	WLS Kais	L/s	L/s	L/S	50000	
3	Work Shop With people near PA	WLS Kais	L/s	L/s	L/S	30000	For awareness
4	Training/Workshop of Staff	WLS Kais	L/s	L/s	L/S	20000	For awareness & training on wild life techniques
Sub Total						**235000**	
Communication							
1	Communication and connectivity to field staff	WLS Kais	No.	300	2 person for 12 Months	10800	Mobile connectivity to field staff
					Sub Total	**10800**	
Nursery							
	Upgrading/improvement of nursery						
1	Raising of nursery plants, etc	Mattikocher Nry	No.	L/s	1	210000	Development/ Improvement & raising of plants
Sub Total						**210000**	
Infrastructure Development							
Maintenance of Roads/Paths							

Inspection/Bridle paths, etc.							
1	Footasaur to Rumtu Via Jammuthach	Tandla	km	L/s	7	100000	I/c stone Cutting
2	Tandla to I/Hut Mattan Via Dhara	Tandla	km	L/s	5	100000	
					Sub Total	**200000**	
TOTAL RECURRING						**1346800**	
TOTAL RECURRING & NON-RECURRING						**3406800**	
	Opertional Charges					**50700**	
GRAND TOTAL						**3457500**	

ANNUAL PLAN OF OPERATION OF PROTECTED AREA FOR THE YEAR **2020-21** IN RESPECT OF **"KAIS WILD LIFE SANCTUARY"**

Item of Work		Location	unit	Rate per Unit	Target		Justification
					Phy	Fin	
1	2	3	4	5	6	7	8
A. Non Recurrent Activities							
Infrastructure Development							
Construction of New building & other structures							
1	Irrigation Facility for Mattikochar Nursery	Mattikochar	No.	L/s	1	100000	For Development of nursery
2	Const. Of camping Groud at Dohra Nala	Tandla	No.	L/s	5	100000	For visitor and Tracker
3	Const. Of fencing around guard Qtrs at matin	WLS Kais	Rmt	L/S	L/S	200000	
Sub Total						**400000**	
Soil & Moisture Conservation							
Check walls/ Breast walls/ Retaining wall							
1	Check wall at Dohra Nala	Tandla	No.	20000	10	200000	To Control Soil Erosion
2	Check Dam at Dohra Nala	Tandla	No.	20000	10	200000	To Control Soil Erosion
3	Crate Reataining wall wall near Entry gate	Tandla	No.	L/s	4	120000	To Control Soil Erosion
Sub Total						**520000**	
TOTAL NON RECURRING						**920000**	
B. Recurrent Activities							
Wildlife Protection and Conservation Activities							
Protection							
1	Deployment of Antipoachers and Antigrazers	WLS Kais	M/days	9000	2 for 12 months	216000	To Control poaching in WLS
2	Fire watchers	WLS Kais	M/days	9000	2 for 6 months	108000	To Control Fire in WLS
3	Group Patrolling for search opreation Etc.	WLS Kais	L/s	L/s	L/S	70000	For Protection of WLS
4	Maint of fire lines	WLS Kais	L/s	L/s	L/S	50000	For Control Fire
5	General survey of flora/ fauna	WLS Kais	L/s	L/s	L/S	50000	For survey of flora and fauna of Kais WLS
6	Provision of rewards to the informers/ Helpers	WLS Kais	L/s	L/s	L/S	20000	For better protection of wildlife
7	Augmentation of Saltlicks	WLS Kais	L/s	L/s	L/S	20000	For wild animals
8	Contengencies and Staff travelling expenses	WLS Kais	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	WLS Kais	L/s	L/s	L/S	30000	Combing operation
10	Rescue / transportaion of injuried wild animals	WLS Kais	L/s	L/s	L/S	20000	For better protection of wildlife
11	Hiring of motor vehicle/ POL & maintenace charges	WLS Kais	L/s	L/s	L/S	25000	To meet with the running cost of official vehicle attached with DFO & staff and hiring of vehicle
12	Mahindra Bolero Camper/ Multipurpose vehicle.	WLS Kais & Manali	No.	L/s	1	800000	Pattrolling vehicle for Range Forest Officer & staff at Manali.
13	Bikes for forest guards	WLS Kais	No.	L/s	2	100000	For patrolling/ rescue operations.
14	One Patrolling/ Rescue Vehicle.	Kullu and Manali WL Range	No.	L/s	1	1200000	For Rapid Response Team/ force at Kullu
15	Desktop computer/ Laptop	WLS Kais & Manali	No.	L/s	1	50000	Required for Information Centre at Manali.
16	Digital Camera, Trap camera, Video and Survillience Camera etc.					600000	For protection, patrolling/ rescue operations.
17	Camping Equipments	WLS Kais	L/s	L/s	L/s	200000	For protection, patrolling/ rescue operations.
Sub Total						**3659000**	
Education and Awareness Generation							
1	Wildlife week and other awarness programme	WLS Kais	L/s	L/s	L/S	150000	For awareness
2	Publicity material / Signage	WLS Kais	L/s	L/s	L/S	30000	For awareness
3	Work Shop With people near PA	WLS Kais	L/s	L/s	L/S	40000	For awareness
4	Training/Workshop of Staff	WLS Kais	L/s	L/s	L/S	20000	For awareness & training on wild life techniques
5	Office expenses	WLS Kais	L/s	L/s	L/S	30000	For office
Sub Total						**270000**	
Communication							
1	Communication and connectivity to field staff	WLS Kais	No.	300	3 person for 12 Months	10800	Mobile connectivity to field staff
					Sub Total	**10800**	
Nursery							

	Upgrading/improvement of nursery						
1	Raising of nursery plants, etc.	Mattikocher Nry	No.	L/s	1	200000	Development/ Improvement & raising of plants
Sub Total						**200000**	
Infrastructure Development							
1	Repair of Solar Water Heater	WLS Kais	No	L/S	1	50000	For Visitor
2	reapir of Electricity fitting at I/hut	WLS Kais	No	L/S	1	50000	For Visitor
Maintenance of Roads/Paths							
Inspection/Bridle paths, etc.							
1	Matin to Phootasaur	Matikochar / Tandla	km	L/s	12	100000	I/c stone Cutting
					Sub Total	**200000**	
TOTAL RECURRING						**4339800**	
TOTAL RECURRING & NON-RECURRING						**5259800**	
	Operational Charges					**40000**	
GRAND TOTAL						**5299800**	

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

Item of Work		Location	unit	Rate per Unit	Target		Justification
					Phy	Fin	
1	2	3	4	5	6	7	8
A. Non Recurrent Activities							
Infrastructure Development							
Construction of New building & other structures							
1	Const. of Sitting Places along Road from Khuar nala to matin	Kais WLS	No.	L/s	20	100000	For Visitors
2	Const. Of watch Tower at Ublda	Kais WLS	No.	L/s	1	600000	For Protection
3	Const. Of fire line from boundary pillar number 22 to 23 on the eastern boundary	Kais WLS	KM	L/s	15	300000	For Protection
Sub Total						**1000000**	
Soil & Moisture Conservation							
Check walls/ Breast walls/ Retaining wall/ Check dam							
1	Check wall at Saur Nala	Tandla	No.	L/s	10	200000	To Control Soil Erosion
2	Check Dam at Saur Nala	Tandla	No.	L/s	10	200000	To Control Soil Erosion
3	Water Pond	Kais WLS	No.	L/s	6	180000	To Provide water for animal
Sub Total						**580000**	
Community Development through Participation							
1	Entry Point activity for fringe villagers as per GP (stone soling in Bijli Mhadev Road)	Near I/Hut Mattan	Sq mtr	L/s	200	60000	For Visitor and Villagers near PA
Sub Total						**60000**	
TOTAL NON RECURRING						**1640000**	
B. Recurrent Activities							
Wildlife Protection and Conservation Activities							
Protection							
1	Deployment of Antipoachers and Antigrazers	WLS Kais	M/days	9000	2 for 12 months	216000	To Control poaching in WLS
2	Fire watchers	WLS Kais	M/days	9000	2 for 6 months	108000	To Control Fire in WLS
3	Group Patrolling for search opreation Etc.	WLS Kais	L/s	L/s	L/S	70000	For Protection of WLS
4	Maint of fire lines	WLS Kais	L/s	L/s	L/S	50000	For Control Fire
5	General survey of flora/ fauna	WLS Kais	L/s	L/s	L/S	50000	For survey of flora and fauna of Kais WLS

6	Provision of rewards to the informers/ Helpers	WLS Kais	L/s	L/s	L/S	20000	For better protection of wildlife
7	Augmentation of Saltlicks	WLS Kais	L/s	L/s	L/S	20000	For wild animals
8	Contengencies and Staff travelling expenses	WLS Kais	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	WLS Kais	L/s	L/s	L/S	30000	Combing operation
10	Rescue / transportaion of injuried wild animals	WLS Kais	L/s	L/s	L/S	20000	For better protection of wildlife
11	Hiring of motor vehicle/ POL & maintenace charges	WLS Kais	L/s	L/s	L/S	25000	To meet with the running cost of official vehicle attached with DFO & staff and hiring of vehicle
12	Rifles, Shot Guns, Pistols, Net Guns etc.	WLS Kais	L/s	L/s	L/S	600000	For protection, patrolling/ rescue operations.
13	Digital Camera, Trap camera, Video and Survillience Camera etc.	WLS Kais	L/s	L/s	L/S	400000	For protection, patrolling/ rescue operations.
14	Camping Equipments	WLS Kais	L/s	L/s	L/s	100000	For protection, patrolling/ rescue operations.
15	Repair of Boundary Pillar Big	WLS Kais	L/s	L/s	10	100000	Demarcation of bounadry
Sub Total						**1909000**	
Education and Awareness Generation							
1	Wildlife week and other awarness programme	WLS Kais	L/s	L/s	L/S	150000	
2	Publicity material / Signage	WLS Kais	L/s	L/s	L/S	30000	
3	Work Shop With people near PA	WLS Kais	L/s	L/s	L/S	30000	For awareness
4	Training/Workshop of Staff	WLS Kais	L/s	L/s	L/S	20000	For awareness & training on wild life techniques
5	Office expenses	WLS Kais	L/s	L/s	L/s	30000	
Sub Total						**260000**	
Communication							
1	Communication and connectivity to field staff	WLS Kais	No.	300	2 person for 12 Months	10800	Mobile connectivity to field staff
					Sub Total	**10800**	
Nursery							
	Upgrading/improvement of nursery						
1	Raising of nursery plants, etc	Mattikocher Nry	No.	L/s	1	200000	Development/ Improvement & raising of plants
Sub Total						**200000**	

Infrastructure Development							
Maintenance of Roads/Paths/ water Pond /Camping Ground							
1	De-silatation of water pond	WLS Kais	No	L/S	2	20000	
Inspection/Bridle paths, etc.							
1	Khara nala to Matikocher	Matikocher	Km	L/s	6	120000	
Camping Groud							
1	Maint. Of Camping Ground	WLS Kais	No	L/s	L/S	80000	
Sub Total						**220000**	
TOTAL RECURRING						**2599800**	
TOTAL RECURRING & NON-RECURRING						**4239800**	
	Operational Charges					**50700**	
GRAND TOTAL						**4290500**	

ANNUAL PLAN OF OPERATION OF PROTECTED AREA FOR THE YEAR **2022-23** IN RESPECT OF **"KAIS WILD LIFE SANCTUARY"**							
Item of Work			**unit**	**Rate per Unit**	**Target**		
		Location			**Phy**	**Fin**	**Justification**
1	2	3	4	5	6	7	8
A. Non Recurrent Activities							
Infrastructure Development							
Construction of New building & other structures							
1	Const. Of Patrolling Hut at Ublda	Kais WLS	No.	L/s	1	800000	For Visitors
Sub Total						**800000**	
Soil & Moisture Conservation							
Check walls/ Breast walls/ Retaining wall/ Check dam							
1	Check wall at Mundal Gaur Nala	Tandla	No.	L/s	10	200000	To Control Soil Erosion
2	Check Dam at Mundal Gaur Nala	Tandla	No.	L/s	10	200000	To Control Soil Erosion
3	Water Pond Mundal Thach	Kais WLS	No.	L/s	2	60000	To Provide water for animal
4	Const. of Fire Line from boundary of compartment separating C-VIII with other compartments and another one on the western part	Kais WLS	KM	L/s	15	300000	For Protection
Sub Total						**760000**	
Community Development through Participation							
1	Entry Point activity for fringe villagers as per GP (Fodder Plantation)	Near Entry gate	Hac	L/s	2 hac	80000	For adjoining Villagers near PA
Sub Total						**80000**	
TOTAL NON RECURRING						**1640000**	

B. Recurrent Activities							
Wildlife Protection and Conservation Activities							
Protection							
1	Deployment of Antipoachers and Antigrazers	WLS Kais	M/days	10500	2 for 12 months	252000	To Control poaching in WLS
2	Fire watchers	WLS Kais	M/days	10500	2 for 6 months	126000	To Control Fire in WLS
3	Group Patrolling for search opreation Etc.	WLS Kais	L/s	L/s	L/S	70000	For Protection of WLS
4	Maint of fire lines	WLS Kais	L/s	L/s	L/S	50000	For Control Fire
5	General survey of flora/ fauna	WLS Kais	L/s	L/s	L/S	50000	For survey of flora and fauna of Kais WLS
6	Provision of rewards to the informers/ Helpers	WLS Kais	L/s	L/s	L/S	20000	For better protection of wildlife
7	Augmentation of Saltlicks	WLS Kais	L/s	L/s	L/S	20000	For wild animals
8	Contengencies and Staff travelling expenses	WLS Kais	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	WLS Kais	L/s	L/s	L/S	30000	Combing operation
10	Rescue / transportaion of injuried wild animals	WLS Kais	L/s	L/s	L/S	20000	For better protection of wildlife
11	Hiring of motor vehicle/ POL & maintenace charges	WLS Kais	L/s	L/s	L/S	25000	To meet with the running cost of official vehicle attached with DFO & staff and hiring of vehicle
12	Repair of Boundary Pillar Small	WLS Kais	L/s	L/s	25	75000	Demarcation of bounadry
13	Camping Equipment	WLS Kais	L/s	L/s	L/s	20000	Providing facility during patrolling
14	Equipment like digitel camera , night vesion camera	WLS Kais	L/s	L/s	L/S	100000	
Sub Total						**958000**	
Education and Awareness Generation							
1	Wildlife week and other awarness programme	WLS Kais	L/s	L/s	L/S	150000	
2	Publicity material / Signage	WLS Kais	L/s	L/s	L/S	20000	

3	Work Shop With people near PA	WLS Kais	L/s	L/s	L/S	30000	For awareness
4	Training/Workshop of Staff	WLS Kais	L/s	L/s	L/S	20000	For awareness & training on wild life techniques
5	Office expenses	WLS Kais	L/s	L/s	L/s	30000	
Sub Total						**250000**	
Communication							
1	Communication and connectivity to field staff	WLS Kais	No.	300	2 person for 12 Months	10800	Mobile connectivity to field staff
Sub Total						**10800**	
Nursery							
	Upgrading/improvement of nursery						
1	Raising of nursery plants, etc	Mattikocher Nry	No.	L/s	1	200000	Development/ Improvement & raising of plants
Sub Total						**200000**	
Infrastructure Development							
Solar Light							
1	Maint. Of solar Light & battery	WLS Kais	No	L/s	L/S	40000	
Maintenance of Roads/Paths/ water Pond /Camping Ground							
1	De-silatation of water pond	WLS Kais	No	L/S	3	30000	
Inspection/Bridle paths, etc.							
1	khuar nala to mundal thach	Tandla	Km	L/s	6	120000	
Sub Total						**190000**	
TOTAL RECURRING						**1608800**	
TOTAL RECURRING & NON-RECURRING						**3248800**	
	Operational Charges					50700	
GRAND TOTAL						**3299500**	

ANNUAL PLAN OF OPERATION OF PROTECTED AREA FOR THE YEAR **2023-24** IN RESPECT OF **"KAIS WILD LIFE SANCTUARY"**

Item of Work			**unit**	**Rate per Unit**	**Target**		
		Location			**Phy**	**Fin**	**Justification**
1	2	3	4	5	6	7	8
A. Non Recurrent Activities							
Infrastructure Development							
Construction of New building & other structures							
1	Const. Of Camping Ground at Ulbda	Kais WLS	No.	L/s	10	200000	For Visitors
2	const of Polyhouse at matikocher Nry	Kais WLS	No.	L/s	1	100000	For improvement of nry
Sub Total						**300000**	
Soil & Moisture Conservation							
Check walls/ Breast walls/ Retaining wall/ Check dam							
1	Check wall at Ghaut Nala	Tandla	No.	L/s	5	100000	To Control Soil Erosion
2	Check Dam at Ghaut Nala	Tandla	No.	L/s	5	100000	To Control Soil Erosion
3	Water Pond	Kais WLS	No.	L/s	2	60000	To Provide water for animal
Sub Total						**260000**	
TOTAL NON RECURRING						**560000**	
B. Recurrent Activities							
Wildlife Protection and Conservation Activities							
Protection							
1	Deployment of Antipoachers and Antigrazers	WLS Kais	M/days	10500	2 for 12 months	252000	To Control poaching in WLS
2	Fire watchers	WLS Kais	M/days	10500	2 for 6 months	126000	To Control Fire in WLS
3	Group Patrolling for search opreation Etc.	WLS Kais	L/s	L/s	L/S	70000	For Protection of WLS
4	Maint of fire lines	WLS Kais	L/s	L/s	L/S	50000	For Control Fire
5	General survey of flora/ fauna	WLS Kais	L/s	L/s	L/S	50000	For survey of flora and fauna of Kais WLS
6	Provision of rewards to the informers/ Helpers	WLS Kais	L/s	L/s	L/S	20000	For better protection of wildlife
7	Augmentation of Saltlicks	WLS Kais	L/s	L/s	L/S	20000	For wild animals
8	Contengencies and Staff travelling expenses	WLS Kais	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	WLS Kais	L/s	L/s	L/S	30000	Combing operation
10	Rescue / transportaion of injuried wild animals	WLS Kais	L/s	L/s	L/S	20000	For better protection of wildlife
11	Hiring of motor vehicle/ POL & maintenace charges	WLS Kais	L/s	L/s	L/S	25000	To meet with the running cost of official vehicle attached with DFO & staff and hiring of vehicle
12	Repair of Boundary Pillar Big	WLS Kais	L/s	L/s	13	130000	Demarcation of bounadry
Sub Total						**893000**	
Education and Awareness Generation							
1	Wildlife week and other awarness programme	WLS Kais	L/s	L/s	L/S	150000	
2	Publicity material / Signage	WLS Kais	L/s	L/s	L/S	30000	
3	Work Shop With people near PA	WLS Kais	L/s	L/s	L/S	30000	For awareness
4	Training/Workshop of Staff	WLS Kais	L/s	L/s	L/S	20000	For awareness & training on wild life techniques
5	Office expenses	WLS Kais	L/s	L/s	L/s	30000	
Sub Total						**230000**	
Communication							
1	Communication and connectivity to field staff	WLS Kais	No.	300	2 person for 12 Months	10800	Mobile connectivity to field staff
Sub Total						**10800**	
Nursery							
Upgrading/improvement of nursery							
1	Raising of nursery plants, etc	Mattikocher Nry	No.	L/s	1	200000	Development/ Improvement & raising of plants
Sub Total						**200000**	
Infrastructure Development							
Maintenance of Roads/Paths/ water Pond /Camping Ground							
1	Maint. of staff qtr	WLS Kais	No	L/S	2	100000	
Inspection/Bridle paths, etc.							
1	Khara nala to Mundal Thach	Matikocher	Km	L/s	6	120000	
Sub Total						**220000**	
TOTAL RECURRING						**1553800**	
TOTAL RECURRING & NON- RECURRING						**2113800**	
	Operational Charges					60000	
GRAND TOTAL						**2173800**	

ANNUAL PLAN OF OPERATION OF PROTECTED AREA FOR THE YEAR **2024-25** IN RESPECT OF **"KAIS WILD LIFE SANCTUARY"**

Item of Work			**unit**	**Rate per Unit**	**Target**		
		Location			**Phy**	**Fin**	**Justification**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
A. Non Recurrent Activities							
Infrastructure Development							
Construction of New building & other structures							
1	Const. Of rain shelter Near entry gate	Kais WLS	No.	L/s	1	250000	For Visitors
2	const of patrolling hut at Dohra Nala	Kais WLS	No.	L/s	1	900000	For improvement of nry
Sub Total						**1150000**	
Soil & Moisture Conservation							
Check walls/ Breast walls/ Retaining wall/ Check dam							
1	Check Dam at Chor ruad Nala	Tandla	No.	L/s	10	200000	To Control Soil Erosion
2	Check wall at Mundal Thach	Tandla	No.	L/s	5	100000	To Control Soil Erosion
Sub Total						**300000**	
Habitat Improvement							
	Enrichmment Plantation						
1	Aahutu CI	Tandla	Hac	L/s	3	126000	**habitat Improvement**
Sub Total						**126000**	
TOTAL NON RECURRING						**1576000**	
B. Recurrent Activities							
Wildlife Protection and Conservation Activities							
Protection							
1	Deployment of Antipoachers and Antigrazers	WLS Kais	M/days	10500	2 for 12 months	252000	To Control poaching in WLS
2	Fire watchers	WLS Kais	M/days	10500	2 for 6 months	126000	To Control Fire in WLS
3	Group Patrolling for search opreation Etc.	WLS Kais	L/s	L/s	L/S	70000	For Protection of WLS
4	Maint of fire lines	WLS Kais	L/s	L/s	L/S	50000	For Control Fire
5	General survey of flora/ fauna	WLS Kais	L/s	L/s	L/S	50000	For survey of flora and fauna of Kais WLS

6	Provision of rewards to the informers/ Helpers	WLS Kais	L/s	L/s	L/S	20000	For better protection of wildlife
7	Augmentation of Saltlicks	WLS Kais	L/s	L/s	L/S	20000	For wild animals
8	Contengencies and Staff travelling expenses	WLS Kais	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	WLS Kais	L/s	L/s	L/S	30000	Combing operation
10	Rescue / transportaion of injuried wild animals	WLS Kais	L/s	L/s	L/S	20000	For better protection of wildlife
11	Hiring of motor vehicle/ POL & maintenace charges	WLS Kais	L/s	L/s	L/S	25000	To meet with the running cost of official vehicle attached with DFO & staff and hiring of vehicle
12	Repair of Boundary Pillar small	WLS Kais	L/s	L/s	18	36000	Demarcation of bounadry
13	Providing of Khakhi jackets and Shoes to Staff	WLS Kais	L/s	L/s	L/S	100000	For staff
14	Providing of Search Lights	WLS Kais	L/s	L/s	L/S	30000	For patrolling
Sub Total						**929000**	
Education and Awareness Generation							
1	Wildlife week and other awarness programme	WLS Kais	L/s	L/s	L/S	150000	
2	Publicity material / Signage	WLS Kais	L/s	L/s	L/S	30000	
3	Work Shop With people near PA	WLS Kais	L/s	L/s	L/S	30000	For awareness
4	Training/Workshop of Staff	WLS Kais	L/s	L/s	L/S	20000	For awareness & training on wild life techniques
5	Office expenses	WLS Kais	L/s	L/s	L/s	30000	
Sub Total						**260000**	
Communication							
1	Communication and connectivity to field staff	WLS Kais	No.	300	2 person for 12 Months	10800	Mobile connectivity to field staff
Sub Total						**10800**	
Nursery							
Upgrading/improvement of nursery							
1	Raising of nursery plants, etc	Mattikocher Nry	No.	L/s	1	200000	Development/ Improvement & raising of plants
Sub Total						**200000**	

Infrastructure Development							
Maintenance of Roads/Paths/ water Pond /Camping Ground							
1	Maint. Of Toilets Near camping Ground	WLS Kais	No	L/S	2	60000	for Vistor facility
Inspection/Bridle paths, etc.							
1	Dohra To BhasakThach	Tandla	Km	L/s	5	100000	
Sub Total						**160000**	
TOTAL RECURRING						**1559800**	
TOTAL RECURRING & NON- RECURRING						**3135800**	
	Operational Charges					30000	
GRAND TOTAL						**3165800**	

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

Item of Work			**unit**	**Rate per Unit**	**Target**		
		Location			**Phy**	**Fin**	**Justification**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
A. Non Recurrent Activities							
Infrastructure Development							
Soil & Moisture Conservation							
Check walls/ Breast walls/ Retaining wall							
1	Crate Check wall at Kais Nala	Tandla	No.	L/S	5	150000	To Control Soil Erosion
2	Crate Check Dam at Kais Nala	Tandla	No.	L/S	5	150000	To Control Soil Erosion
Sub Total						**300000**	
TOTAL NON RECURRING						**300000**	
B. Recurrent Activities							
Wildlife Protection and Conservation Activities							
Protection							
1	Deployment of Antipoachers and Antigrazers	WLS Kais	M/days	10500	2 for 12 months	252000	To Control poaching in WLS
2	Fire watchers	WLS Kais	M/days	10500	2 for 6 months	126000	To Control Fire in WLS
3	Group Patrolling for search opreation Etc.	WLS Kais	L/s	L/s	L/S	70000	For Protection of WLS
4	Maint of fire lines	WLS Kais	L/s	L/s	L/S	50000	For Control Fire
5	General survey of flora/ fauna	WLS Kais	L/s	L/s	L/S	50000	For survey of flora and fauna of Kais WLS
6	Provision of rewards to the informers/ Helpers	WLS Kais	L/s	L/s	L/S	20000	For better protection of wildlife
7	Augmentation of Saltlicks	WLS Kais	L/s	L/s	L/S	20000	For wild animals
8	Contengencies and Staff travelling expenses	WLS Kais	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	WLS Kais	L/s	L/s	L/S	30000	Combing operation

10	Rescue / transportaion of injuried wild animals	WLS Kais	L/s	L/s	L/S	20000	For better protection of wildlife
11	Hiring of motor vehicle/ POL & maintenace charges	WLS Kais	L/s	L/s	L/S	25000	To meet with the running cost of official vehicle attached with DFO & staff and hiring of vehicle
12	Camping Equipments	WLS Kais	L/s	L/s	L/s	30000	Outer for tents and etc for Patrolling
13	fire Tools	WLS Kais	L/s	L/s	L/s	30000	
Sub Total						**823000**	
Education and Awareness Generation							
1	Wildlife week and other awarness programme	WLS Kais	L/s	L/s	L/S	150000	For awareness
2	Publicity material / Signage	WLS Kais	L/s	L/s	L/S	30000	For awareness
3	Work Shop With people near PA	WLS Kais	L/s	L/s	L/S	40000	For awareness
4	Training/Workshop of Staff	WLS Kais	L/s	L/s	L/S	20000	For awareness & training on wild life techniques
5	Office expenses	WLS Kais	L/s	L/s	L/S	30000	For office
Sub Total						**270000**	
Communication							
1	Communication and connectivity to field staff	WLS Kais	No.	300	3 person for 12 Months	10800	Mobile connectivity to field staff
Sub Total						**10800**	
Nursery							
	Upgrading/improvement of nursery						
1	Raising of nursery plants, etc.	Mattikocher Nry	No.	L/s	1	200000	Development/ Improvement & raising of plants
Sub Total						**200000**	
Infrastructure Development							
Maintenance of PA							
Habitat Improvment							
1	Maint. Of Ist Year Plantation Aahutu CI	Tandla	Hac	L/s	3	40000	Habitat Improvement

Sub Total						**40000**	
TOTAL RECURRING						**1343800**	
TOTAL RECURRING & NON- RECURRING						**1643800**	
	Operational Charges					30000	
GRAND TOTAL						**1673800**	

ANNUAL PLAN OF OPERATION OF PROTECTED AREA FOR THE YEAR **2026-27** IN RESPECT OF **"KAIS WILD LIFE SANCTUARY"**

Item of Work		Location	unit	Rate per Unit	Target		Justification
					Phy	Fin	
1	2	3	4	5	6	7	8
A. Non Recurrent Activities							
Infrastructure Development							
Construction of New building & other structures							
1	Const. Of sitting places along path	WLS Kais	No.	L/s	20	100000	For Visitor facility
Sub Total						**100000**	
Soil & Moisture Conservation							
Water Pond							
1	Water Pond	WLS Kais	No.	30000	4	120000	To Control Soil Erosion
Sub Total						**120000**	
Habitat Imrovement							
1	Pasture Improvement	WLS Kais	Hac	L/S	2	84000	Habitat improvement
2	Grafting/ Raising of fruit trees	WLS Kais	No.	L/s	L/s	5000	for Wildlife animal
Sub Total						**89000**	
TOTAL NON RECURRING						**309000**	
B. Recurrent Activities							
Wildlife Protection and Conservation Activities							
Protection							
1	Deployment of Antipoachers and Antigrazers	WLS Kais	M/days	10500	2 for 12 months	252000	To Control poaching in WLS
2	Fire watchers	WLS Kais	M/days	10500	2 for 6 months	126000	To Control Fire in WLS
3	Group Patrolling for search opreation Etc.	WLS Kais	L/s	L/s	L/S	70000	For Protection of WLS
4	Maint of fire lines	WLS Kais	L/s	L/s	L/S	50000	For Control Fire
5	General survey of flora/ fauna	WLS Kais	L/s	L/s	L/S	50000	For survey of flora and fauna of Kais WLS
6	Provision of rewards to the informers/ Helpers	WLS Kais	L/s	L/s	L/S	20000	For better protection of wildlife
7	Augmentation of Saltlicks	WLS Kais	L/s	L/s	L/S	20000	For wild animals
8	Contengencies and Staff travelling expenses	WLS Kais	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	WLS Kais	L/s	L/s	L/S	30000	Combing operation
10	Rescue / transportaion of injuried wild animals	WLS Kais	L/s	L/s	L/S	20000	For better protection of wildlife
11	Hiring of motor vehicle/ POL & maintenace charges	WLS Kais	L/s	L/s	L/S	25000	To meet with the running cost of official vehicle attached with DFO & staff and hiring of vehicle
12	Camping Equipments	WLS Kais	L/s	L/s	L/s	30000	Outer for tents and etc for Patrolling
13	Repair Of Boundary Piller Small	WLS Kais	L/s	L/s	25	75000	for Demarcation of Boundary
Sub Total						**868000**	
Education and Awareness Generation							
1	Wildlife week and other awarness programme	WLS Kais	L/s	L/s	L/S	150000	For awareness
2	Publicity material / Signage	WLS Kais	L/s	L/s	L/S	30000	For awareness
3	Work Shop With people near PA	WLS Kais	L/s	L/s	L/S	40000	For awareness
4	Training/Workshop of Staff	WLS Kais	L/s	L/s	L/S	20000	For awareness & training on wild life techniques
5	Office expenses	WLS Kais	L/s	L/s	L/S	30000	For office
Sub Total						**270000**	
Communication							
1	Communication and connectivity to field staff	WLS Kais	No.	300	3 person for 12 Months	10800	Mobile connectivity to field staff
					Sub Total	**10800**	
Nursery							
	Upgrading/improvement of nursery						
1	Raising of nursery plants, etc.	Mattikocher Nry	No.	L/s	1	200000	Development/ Improvement & raising of plants
Sub Total						**200000**	
Infrastructure Development							
Maint of Buliding							
1	Maint. Of I/Hut at mattan	WLS kais	No	L/s	1	70000	For visitor
Sub Total						**70000**	
Maintenance of PA							
Habitat Improvment							
1	Maint. Of 2nd Yaer Plantation Aahutu CI	tandla	hac	L/s	3	22000	Habitat Improvement
Sub Total						**22000**	

TOTAL RECURRING				**1440800**	
TOTAL RECURRING & NON- RECURRING				**1749800**	
	Operational Charges			40000	
			GRAND TOTAL	**1789800**	

ANNUAL PLAN OF OPERATION OF PROTECTED AREA FOR THE YEAR **2027-28** IN RESPECT OF **"KAIS WILD LIFE SANCTUARY"**

Item of Work			unit	Rate per Unit	Target		
		Location			Phy	Fin	Justification
1	2	3	4	5	6	7	8
B. Recurrent Activities							
Wildlife Protection and Conservation Activities							
Protection							
1	Deployment of Antipoachers and Antigrazers	WLS Kais	M/days	10500	2 for 12 months	252000	To Control poaching in WLS
2	Fire watchers	WLS Kais	M/days	10500	2 for 6 months	126000	To Control Fire in WLS
3	Group Patrolling for search opreation Etc.	WLS Kais	L/s	L/s	L/S	70000	For Protection of WLS
4	Maint of fire lines	WLS Kais	L/s	L/s	L/S	50000	For Control Fire
5	General survey of flora/ fauna	WLS Kais	L/s	L/s	L/S	50000	For survey of flora and fauna of Kais WLS
6	Provision of rewards to the informers/ Helpers	WLS Kais	L/s	L/s	L/S	20000	For better protection of wildlife
7	Augmentation of Saltlicks	WLS Kais	L/s	L/s	L/S	20000	For wild animals
8	Contengencies and Staff travelling expenses	WLS Kais	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	WLS Kais	L/s	L/s	L/S	30000	Combing operation
10	Rescue / transportaion of injuried wild animals	WLS Kais	L/s	L/s	L/S	20000	For better protection of wildlife
11	Hiring of motor vehicle/ POL & maintenace charges	WLS Kais	L/s	L/s	L/S	25000	To meet with the running cost of official vehicle attached with DFO & staff and hiring of vehicle
12	Camping Equipments	WLS Kais	L/s	L/s	L/s	30000	Outer for tents and etc for Patrolling
13	Const. of Boundary Piller Small	WLS Kais	L/s	L/s	100	300000	For Demarcation
Sub Total						**1093000**	
Education and Awareness Generation							
1	Wildlife week and other awarness programme	WLS Kais	L/s	L/s	L/S	150000	For awareness
2	Publicity material / Signage	WLS Kais	L/s	L/s	L/S	30000	For awareness
3	Work Shop With people near PA	WLS Kais	L/s	L/s	L/S	40000	For awareness

4	Training/Workshop of Staff	WLS Kais	L/s	L/s	L/S	20000	For awareness & training on wild life techniques
5	Office expenses	WLS Kais	L/s	L/s	L/S	30000	For office
Sub Total						**270000**	
Communication							
1	Communication and connectivity to field staff	WLS Kais	No.	300	3 person for 12 Months	10800	Mobile connectivity to field staff
					Sub Total	**10800**	
Nursery							
	Upgrading/improvement of nursery						
1	Raising of nursery plants, etc.	Mattikocher Nry	No.	L/s	1	200000	Development/ Improvement & raising of plants
Sub Total						**200000**	
Infrastructure Development							
Maintenance of Buildings							
1	Maint. of chowkidar Qtr at Mattan	Mattikocher	No	L/s	1	50000	
2	Reapir of fancing around I/hut at matin	Mattikocher	No	L/s	L/s	150000	
3	Repair Of camping Ground at ublda	Tandla	No	L/s	5	25000	
						225000	
Habitat Improvment							
1	Maint. of 3rd Year Plantation Aahutu CI	Tandla	Hac	L/s	3	22000	Habitat Improvement
2	Maint of 1st year platation of Pasture Improvement	WLS Kais	Hac	L/S	2	84000	Habitat improvement
Sub Total						**106000**	
TOTAL RECURRING						**1904800**	
	Operational Charges					**40000**	
					GRAND TOTAL	**1944800**	

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

	Item of Work	Location	unit	Rate per Unit	Target		Justification
					Phy	Fin	
1	2	3	4	5	6	7	8
B. Recurrent Activities							
Wildlife Protection and Conservation Activities							
Protection							
1	Deployment of Antipoachers and Antigrazers	WLS Kais	M/days	10500	2 for 12 months	252000	To Control poaching in WLS
2	Fire watchers	WLS Kais	M/days	10500	2 for 6 months	126000	To Control Fire in WLS
3	Group Patrolling for search opreation Etc.	WLS Kais	L/s	L/s	L/S	70000	For Protection of WLS
4	Maint of fire lines	WLS Kais	L/s	L/s	L/S	50000	For Control Fire
5	General survey of flora/ fauna	WLS Kais	L/s	L/s	L/S	50000	For survey of flora and fauna of Kais WLS
6	Provision of rewards to the informers/ Helpers	WLS Kais	L/s	L/s	L/S	20000	For better protection of wildlife
7	Augmentation of Saltlicks	WLS Kais	L/s	L/s	L/S	20000	For wild animals
8	Contengencies and Staff travelling expenses	WLS Kais	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	WLS Kais	L/s	L/s	L/S	30000	Combing operation
10	Rescue / transportaion of injuried wild animals	WLS Kais	L/s	L/s	L/S	20000	For better protection of wildlife
11	Hiring of motor vehicle/ POL & maintenace charges	WLS Kais	L/s	L/s	L/S	25000	To meet with the running cost of official vehicle attached with DFO & staff and hiring of vehicle
12	Camping Equipments	WLS Kais	L/s	L/s	L/s	30000	Outer for tents and etc for Patrolling
Sub Total						**793000**	
Education and Awareness Generation							
1	Wildlife week and other awarness programme	WLS Kais	L/s	L/s	L/S	150000	For awareness
2	Publicity material / Signage	WLS Kais	L/s	L/s	L/S	30000	For awareness
3	Work Shop With people near PA	WLS Kais	L/s	L/s	L/S	40000	For awareness
4	Training/Workshop of Staff	WLS Kais	L/s	L/s	L/S	20000	For awareness & training on wild life techniques
5	Office expenses	WLS Kais	L/s	L/s	L/S	30000	For office

	Sub Total					**270000**	
Communication							
1	Communication and connectivity to field staff	WLS Kais	No.	300	3 person for 12 Months	10800	Mobile connectivity to field staff
					Sub Total	**10800**	
Nursery							
	Upgrading/improvement of nursery						
1	Raising of nursery plants, etc.	Mattikocher Nry	No.	L/s	1	200000	Development/ Improvement & raising of plants
	Sub Total					**200000**	
Infrastructure Development							
Maintenance of Buildings							
1	Maint. of Qtrs at Mattan	Mattikocher	No	L/s	2	100000	
2	Reapir of I/Hut Kitchen at matin	Mattikocher	No	L/s	L/s	50000	
3	Repair of camping Ground at Dohra Nala	Tandla	No	L/s	5	25000	
4	Repair of P/Hut at Dohra Nala	Tandla	No	L/s	1	50000	
5	Repair of P/Hut at ublda	Tandla	No	L/s	1	50000	
						275000	
Habitat Improvment							
2	Maint of 2nd year platation of Pasture Improvement	WLS Kais	Hac	L/S	2	40000	Habitat improvement
	Sub Total					**40000**	
	TOTAL RECURRING					**1588800**	
	Operational Charges					**40000**	
					GRAND TOTAL	**1628800**	

Year wise and Component wise Abstract of APOs in respect of Kais Wildlife Sanctuary											
Component/ Year	**2019-20**	**2020-21**	**2021-22**	**2022-23**	**2023-24**	**2024-25**	**2025-26**	**2026-27**	**2027-28**	**2028-29**	**Total**
A. Non Recurrent Activities											
Infrastructure Development											
Construction of New building & other structures	1450000	400000	1000000	800000	300000	1150000	0	100000	0	0	**5200000**
Soil & Moisture Conservation	560000	520000	580000	760000	260000	300000	300000	120000	0	0	**3400000**
Community Development through Participation	50000	0	60000	80000	0	0	0		0	0	**190000**
Habitat Improvement	0	0	0	0	0	126000	0	89000	0	0	**215000**
TOTAL NON RECURRING	**2060000**	**920000**	**1640000**	**1640000**	**560000**	**1576000**	**300000**	**309000**	**0**	**0**	**9005000**
B. Recurrent Activities											
Wildlife Protection and Conservation Activities	691000	3659000	1909000	958000	893000	929000	823000	868000	1093000	793000	**12616000**
Education and Awareness Generation	235000	270000	260000	250000	230000	260000	270000	270000	270000	270000	**2585000**
Communication	10800	10800	10800	10800	10800	10800	10800	10800	10800	10800	**108000**
Nursery	210000	200000	200000	200000	200000	200000	200000	200000	200000	200000	**2010000**
Infrastructure Development	200000	200000	220000	190000	220000	160000	0	70000	225000	275000	**1760000**
Habitat Improvement	0	0	0	0	0	0	40000	22000	106000	40000	**208000**
TOTAL RECURRING	**1346800**	**4339800**	**2599800**	**1608800**	**1553800**	**1559800**	**1343800**	**1440800**	**1904800**	**1588800**	**19287000**
TOTAL RECURRING & NON-RECURRING	**3406800**	**5259800**	**4239800**	**3248800**	**2113800**	**3135800**	**1643800**	**1749800**	**1904800**	**1588800**	**28292000**
Operational Charges	50700	40000	50700	50700	60000	30000	30000	40000	40000	40000	432100
GRAND TOTAL	**3457500**	**5299800**	**4290500**	**3299500**	**2173800**	**3165800**	**1673800**	**1789800**	**1944800**	**1628800**	**28724100**

Annexure - XII

Name of Plantations as it stood on 31.3.2019 in Kais WLS

SN	Beat	Year of Plantation	Name Of Scheme	Name of Plantation Area	Area in Ha.	Remarks
1	5	6	7	8	9	10
1 Year Old	Matikocher	2016-17	Afforestation (CAMPA)	Naharathach	4	
-do-	Matikocher	2016-17	Enrichment (CAMPA)	Matikochhar CIV	5	
Two Year Old	Matikocher	2015-16	Enrichment planting (CAMPA)	2/32 Matikocher surajgalu	3	
4 year Old	Tandla	2013-14	2406 Plan 102(04) Re-afforestation of Scrub Area	2/32 Matikochhar C_4a	3	
-do-	Tandla	2013-14	CSS Pasture improvement	2/32 Matikochhar C_4a Autu	3	
7 Year Old	Nil	2010-11	Nil	Nil	Nil	No plantation

Annexure - XIII

List of Forest Nurseries in Kais WLS

Name of Nursery	Beat	Area (ha)	Type	
Matikochar	Matikochar	0.2	Permanent	

Annexure - XIV

Religious place in Kais Wild life Sanctuary

Tandla Beat		Matikochar Beat	
SN	**Religious place**	**SN**	**Religious place**
1	Phoota Saur	1	Ublda
2	Kais Devi Saur	2	Dev Dhana
3	TandlaDevta Saur	3	Panda Chuli
4	Bhujkdi		**Outside the Kais WLS**
5	Rumtu	1	Bijali Mahadev
		2	Kais Monastery

Annexure - XV

List of water Resources in Kais Wild life Sanctuary

SN	Tandla Beat	SN	Matikochar Beat
1	KhuarNala	1	GhautNala
2	Mundal Gaur Nala	2	KharaNala
3	Footsaur	3	Ublda
4	DohraNala		
5	TandlaDevta Saur		

Annexure - XVI

List of Fire line in Kais Wild life Sanctuary

Tandla Beat			Matikochar Beat		
	Fire line	**Distance**	**SN**	**Fire line**	**Distance**
1	Khuarnala to Kharanala	5 km.	1	Kharanala to Haanithach	5 km.

Annexure - XVII

MEE Score Card Kais 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	15.0	
2.	Planning	08	10	80	32.5	
3.	Inputs	06	10	60	30.0	
4.	Process	04	10	40	20.0	**49.17%**
5.	Outputs	04	10	40	22.5	
6.	Outcomes	05	10	50	27.5	
Total		**30**		**300**	**147.5**	

STRENGTHS

- The Kais WS is now free from any permanent settlements / villages after the rationalization of PA boundary of June 2013.
- Mobile allowances provided to all officers and frontline staff for using personal mobiles for protection and management purposes
- 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

- There is no approved Management Plan.
- The draft Wildlife Management does not have zonation (core/ buffer / tourist) and should include the proposed ESZ
- No corridors and network/ security/ landscape plans
- No contribution from NGOs (funds/in kind) for PA management
- No 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

- Wildlife Management Plan should be as per WII guidelines and should include ESZ proposal and pursue early approval for the same.

- 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

- Weed eradication plans to be developed for invasive species management

- 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

- 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

- Expedite development of PA website and its linking with State Forest Department website

- Visitors Feedback Register must be maintained.

- Detailed plans have to be drawn up to adapt management for climate change. At least one permanent long-term monitoring plot (for climate change) to be established within PA with the help of WII's ongoing NMSHE project in Beas Basin (GHNP Landscape)

Plate :1 Conifer Forests Kais WLS

Plate :2 Inspection Hut at Matikochar