



Himachal Pradesh Forest Department

MANAGEMENT PLAN OF *Chail* Wildlife Sanctuary

(2022-23 to 2031-32)



BY
WILDLIFE DIVISION SHIMLA





Himachal Pradesh Forest Department

Wildlife Wing

(2022-23 to 2031-32)

MANAGEMENT PLAN OF *Chail* Wildlife Sanctuary

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: Ms. Meenakshi, Forest Guard

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Every management plan is the result of perseverance and efforts from several persons who contributes to various aspects of plan in terms of data collection, photographs, proposals, vision in management etc. As the last sentence is written, I would like to express my immense gratitude to several of these persons without whom this management plan would not have become a reality.

First of all, I would like to sincerely thank Sh Rajiv Kumarn IFS, Chief Wildlife Warden, Himachal Pradesh for his valuable guidance and inputs in drafting of the management plan especially with respect to inclusion of various maps and new chapters that are novel additions to the plan. Gratitude is also due to Sh. Anil Thakur IFS, PCCF(Wildlife) who has been a vital presence especially with regard to Cheer Pheasant conservation in this sanctuary. This management plan is as much a creation of Sh. K Thirumal IFS, Chief Conservator of Forests (Wildlife) as it is of the author. The undersigned is immensely thankful to his invaluable guidance and inputs in providing framework to management plan and for motivating the entire staff of Chail Sanctuary with his infectious sincerity and dedication in compilation of the plan. I would like to express my thanks to CCF(IT) Sh. Pushpinder Rana IFS for his valuable leadership of GIS & IT lab of Himachal Pradesh Forest Department and all its technical staff for their painstaking efforts in drafting various GIS based maps that have greatly enhanced the plan.

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**N Ravisankar, IFS
Deputy Conservator of Forests
Wildlife Division Shimla**



Rajiv Kumar IFS,
Pr. Chief Conservator of Forests (Wildlife)
cum Chief Wildlife Warden
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MESSAGE

India as a mega diverse nation contributes about 7% of the world's biodiversity and the state of Himachal Pradesh having 15% protected area out of its total geographic area is a crucial contributor to this mega diversity. The state's PA network harbors a rich assemblage of floral and faunal diversity given the multitude of habitats – the forests, meadows, rivers, grasslands, alpine pastures, steep valleys and cliffs which offers refuge to wide variety of fauna. The altitudinal variation and the numerous forest types and habitats mean the state has a great array of mosaic habitats which is crucial for the prosperity of wildlife. The forest and wildlife in this age is facing pressures owing to rapid economic growth and development combined with inability of management and planners to integrate the pressures as part of their plan and address the issues. The climate crisis we are witnessing today, the fragmentation of wildlife habitat owing to widespread linear infrastructure and the rising cases of human-wildlife conflict are some such critical issues which is hampering conservation ubiquitously. In this context, there is a great need to strengthen the arm of wildlife conservation, nurture the values of coexistence and tolerance and provide innovative solutions harnessing new age technologies to satisfy development pressures yet take wildlife conservation along. The Chail Wildlife sanctuary is a key protected area which has undergone great changes in recent past owing to rationalization in 2013 which has reduced the area of sanctuary from 100 to 16 sq km. The sanctuary offers refuge to variety of herbivores and is also a crucial forest-grassland patch that offers safe haven for the vulnerable cheer pheasant, a species which is known to be locally extinct in many pockets. The protected area faces great challenges in terms of multitude of linear infrastructure cutting through the sanctuary and significant human settlements and tourism establishments in its vicinity. I am glad to know that the management plan for this protected area has been prepared for the next 10 years in a comprehensive manner documenting the historical practices, existing floral and faunal diversity, research studies carried out in the sanctuary, current activities of eco-tourism etc. The plan also makes detailed documentation of existing natural resources and assets through GIS maps which have greatly enriched visualization and spatial planning outlook. The management plan by incorporating chapters on Eco-sensitive zone and offering prescriptions for this buffer zone strives to garner support of local community and enable safe wildlife passage in the buffer area which is the need of hour in conservation planning. The plan stresses on the spirit of co-existence and tolerance by offering a payment for ecosystem services model to manage the private grasslands in the sanctuary area. In the same spirit, the plan takes along the many institutions in the vicinity of the protected area like the Rashtriya Military School, Chail Palace Hotel and other tourism related establishment to garner their support to wildlife conservation and work together in domains of conservation education and eco-tourism. It also has novel suggestions of overpasses and eco-bridges to connect fragmented patches and enable gene transfer between such habitats which would be a first for state of Himachal when it comes to fruition. I would like to congratulate the entire team behind this management plan authored by N Ravisankar IFS, DCF Wildlife Shimla under supervision of Sh. K Thirumal IFS, CCF(WL) South for their immense effort and hard work to bring together such a comprehensive document. It is my sincere hope that future managers of the protected area would make best use of this document in managing the protected area and realize the vision and objectives set out in this plan.

(Rajiv Kumar)



Anil Thakur IFS,
Additional Principal Chief
Conservator of Forests (Wildlife)

MESSAGE

The state of Himachal Pradesh is having a rich protected area spread across 15% of its geographical area with majestic floristic diversity and treasured faunal diversity. From the snowcapped habitats for Snow Leopard in Pin Valley to the elephant corridor down south in Simbalbara National park, the state has been able to provide a safe haven for wildlife in a time which has seen fast paced development and increased anthropogenic impacts. In this renewed paradigm, I believe there is a great need to address the new management questions and provide novel solutions corresponding to the technological development that has taken place in wildlife management.

This management plan of 10 years for the Chail Wildlife sanctuary is unique in striking that philosophy by addressing the pressures of development and balancing wildlife conservation through innovative ideas. The prescription of overpasses for mammals and eco-bridges in case of arboreal animals for wildlife corridor overcoming the acute fragmentation in the protected area is one such unique innovative management solution. Further, the incorporation of payment for eco system services model for private area grassland management is also an out of the box solution involving the local community and taking their support. Apart from this, there are many prescriptions of eco-tourism, soil moisture conservation, fire protection etc. that would certainly enrich management of this protected area which is unique in being one of the oldest protected patches of forest for the purpose of water conservation. The plan also comprehensively details and documents the existing situation in view of floral and faunal diversity marked by beautiful photographs from various field personnel. I would like to congratulate the entire team under leadership of Sh. K Thirumal IFS, CCF(WL) South and Sh N Ravisankar IFS, DCF(WL) Shimla for their painstaking efforts in bringing out this management plan with invaluable contributions from range level staff led by Sh. Hira Lai, RFO Shimla Water Catchment. I sincerely hope this document would be a primary source of guidance and reference to officers in future, the research fraternity and academia.


(Anil Thakur)



K Thirumal IFS,
Chief Conservator of Forests,
Wild Life (South) Circle

MESSAGE

India has a Protected Areas Network covering of 106 National Park, 564 Wildlife Sanctuaries, 99 Conservation Reserves and 218 Community Reserves constituting an area of 1,73,053 Sq.km of the country's total land area which is equivalent to about 5.26 percentage of the total land area. Protected areas of Himachal Pradesh constitute around 15.1 percentage of the geographical area of the state, which is above the national average. This illustrates that the state is a pioneer in protected area management having about 5 National Parks, 33 Wildlife Sanctuaries and 3 Conservation Reserves. Each protected areas is managed as per the management plan prescription for period of about 10 years as per the approval of the Chief Wildlife Warden of the state. The Chail Wildlife Sanctuary is a critical protected area of the Western Himalayans famed for being the unique habitat for the vulnerable Cheer Pheasant and magnificent grasslands supporting diverse herbivore population including the Sambar, Barking Deer, Himalayan Goral. It has also immense floristic value and eco-tourism potential given the diversity of orchids, threatened taxa and scenic landscapes it holds in itself. The management plan of the Chail wildlife sanctuary was expired during the year 2021 and the revised management plan was written by Shri N Ravisankar IFS and his range level team for the period from 2023-24 to 2032-33. The plan is written as per the 'A Guide for Planning Wildlife Management in Protected Areas and Managed Landscapes' by Vishwas B Savarkar, IFS (Retd). In the current plan the author has covered comprehensively the details about history of management, the existing situation of the protected area and provided novel management prescriptions especially with regard to solutions addressing fragmentation in the sanctuary, eco-development activities involving local villages, payment for eco-system services to manage private grasslands, protection and law enforcement framework etc. I congratulate the entire team of Chail wildlife sanctuary for bringing out this management plan and hope it will be a guiding light to future managers of the protected area, foresters and researchers visiting the sanctuary.


31/03/2023

(K.Thirumal)

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OFFICE ORDER

Office Order No/2022-23/ 05 Dated Shimla-1, the/ 05-04-23

The Management Plan of Chail Wildlife Sanctuary for the period from 2022-23 to 2031-32 as submitted by the author Deputy Conservator of Forests (Wildlife), Sh. N. Ravisankar Sarma, IFS Shimla Wildlife Division is hereby approved for the management of the protected area for the next 10 years.

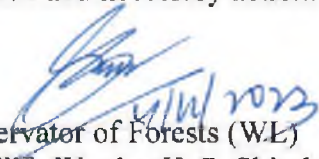
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Pr. Chief Conservator of Forests (WL)
and Chief Wildlife Warden H. P. Shimla-1.

Endst. No. WLM /Management Plan/ 64-67 Dated/ 05-04-23

Copy forwarded to :-

1. Additional Principal Chief Conservator of Forests (Wildlife), O/o Pr.CCF (Wildlife) Shimla for information and necessary action.
2. Chief Conservator of Forests (Wildlife) (S) Shimla w.r.t. his office memo No. 6567 dated 31.03.2023 for information and necessary action.
- ✓ 3. Divisional Forest Officer (Wildlife) Shimla for information and necessary action.
4. Office Order File.


Pr. Chief Conservator of Forests (WL)
and Chief Wildlife Warden H. P. Shimla-1.



N Ravisankar IFS,
Deputy Conservator of Forests,
Shimla Wildlife Division

PREFACE

A management plan is a visionary document that plays out in Protected Areas for the next 10 years. This management plan is for a unique PA in the Western Himalayan habitat complex – the Chail Wildlife Sanctuary. The sanctuary has undergone a tremendous transformation post rationalization from its 100 sq km area to 16 sq km. There are also numerous challenges at play especially the heavy fragmentation of habitat in the sanctuary owing to the many roads constructed. The new management plan seeks to address these questions and provide practical solutions on ground for prospering of wildlife and better management.

This plan for the next 10 years has in its foundation the framework to galvanize community support and safeguard wildlife habitat through a mix of technological, innovate and participatory solutions. The inclusion of payment for eco-system services for local community is a notable management suggestion as is the formation of eco-development committees for participatory sustainable eco-tourism. Apart from leveraging community strength, the plan seeks to provide animal passages and functional wildlife corridors in form of overpasses and eco-bridges for arboreal animals which is a novel initiative especially in the state of Himachal. The scientific calculation of carrying capacity of visitors is a notable addition in this plan clearly defining the limits of tourism. Apart from this, concerted focus in this plan is given to safeguarding habitat for the Cheer Pheasant and Sambar deer which have been identified as flagship species of conservation in sanctuary. The monitoring of these species, mammals, avifauna in this small PA through various census methods finds key mention in this document stressing on camera trap based and call count methods. In the era of climate change and warming, the plan also calls for weather monitoring and scientific fire prevention, protection and management utilizing new age technology.

This document is a testament to the knowledge and awareness of the field staff of the protected area. In recognizing the need to build staff capacity, this plan also stresses on importance of quarters, amenities for staff and need for modern equipment in wildlife management and survey. It is my sincere hope that the many managers that this PA witnesses over the next 10 years would consider this document as their principal guiding document for management and bring to fruition the vision that is carved out over the next many pages of this book.

(N Ravisankar)

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ABBREVIATIONS

CRPC – Criminal Procedure Code
CCTV- Closed Circuit Television
CSR- Corporate Social Responsibility
DFO- Divisional Forest Officer
EC- Executive Committee
EDC- Eco Development Committee
ESZ- Eco Sensitive Zone
GIS- Geographic Information System
GPS- Global Positioning System
HPTDC- Himachal Pradesh Tourism Development Corporation
IPC- Indian Penal Code
IT- Information Technology
LPG- Liquefied Petroleum Gas
MoU- Memorandum of Understanding
NH- National Highway
NGO – Non Governmental Organization
NTCA – National Tiger Conservation Authority
PA- Protected Area
PES- Payment for Ecosystem Services
PF- Protected Forest
PRA – Participatory Rural Appraisal
RMS- Rashtriya Military School
SC- Scheduled Caste
SMS- Short Message Service
ST- Scheduled Tribe
TIES - International Ecotourism Society
TRAFFIC - Trade Records Analysis of Flora and Fauna in Commerce
UNESCO- United Nations Educational, Scientific and Cultural Organization
WCCB – Wildlife Crime Control Bureau
WII- Wildlife Institute of India
WLS- Wildlife Sanctuary
WPA- Wildlife Protection Act, 1972
WWF – World Wildlife Fund for Nature
ZSI- Zoological Survey of India



PART I **DESCRIPTION** **&** **EVALUATION**

THE PROTECTED AREA:
EXISTING SITUATION

Chapter 1

Introduction to the area





1.1 Name, Location, Constitution and the Extent of Area

Chail Wildlife Sanctuary is located in the state of Himachal Pradesh at a distance of 45 Km from Shimla. It lies in Kandaghat Sub-Division of Solan District and a part of this also falls under the jurisdiction of Shimla Sub-Division of Shimla District. The nearest rail head is at Kandaghat.

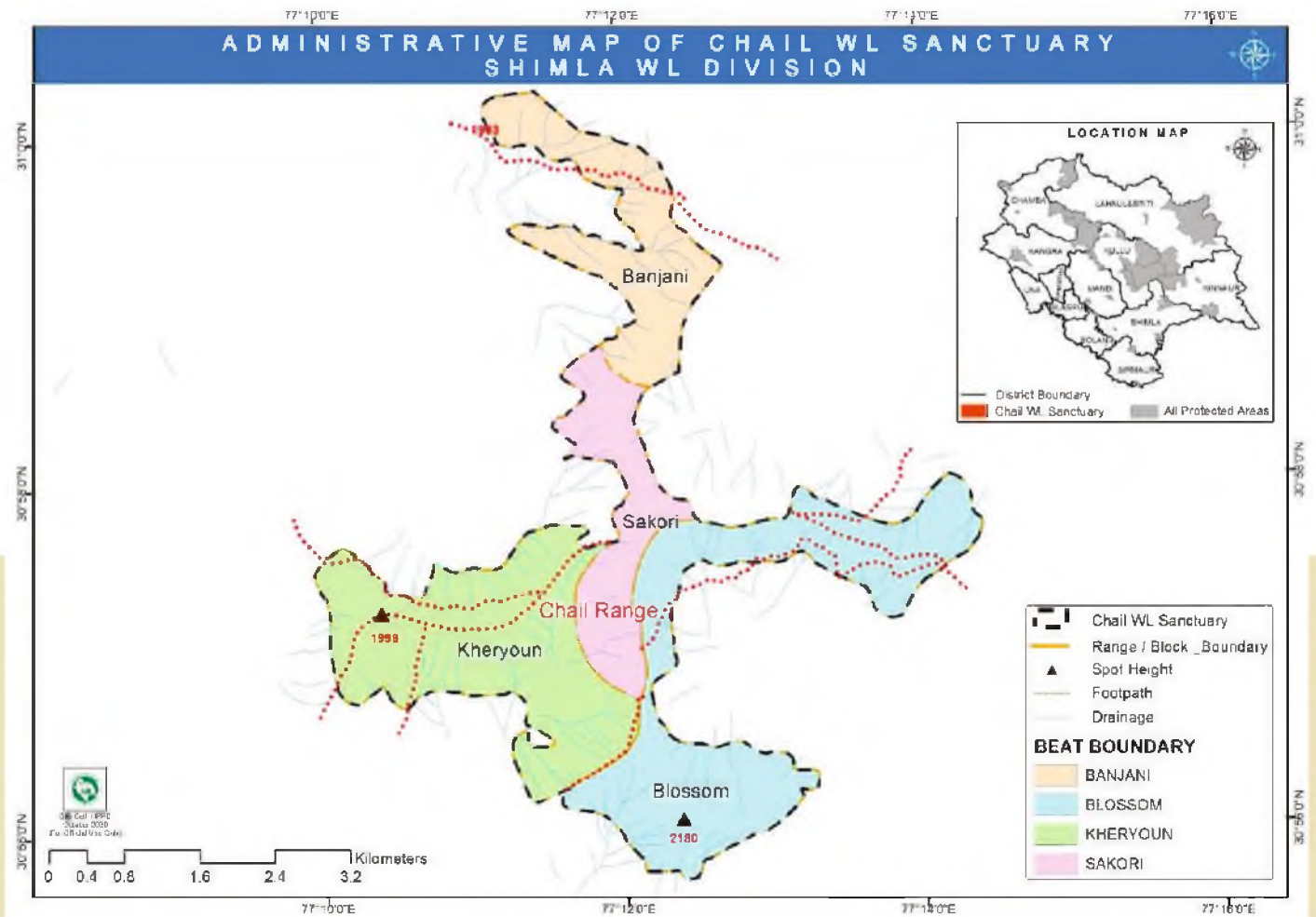
Chail Wild Life Sanctuary is situated within the geo-coordinates North Lat. 31°00'15" N & Long. 77°11'45" E East Lat. 30°57'45" N & Long. 77°14'21"E South Lat. 30°55'44" N & long. 77°12'15"E West Lat. 30°57'28"N & Long. 77°09'47"E. The sanctuary falls on the survey of India topo sheet No. 53F/1, 53E/4 on scale 1:50,000, 53F/1/NE and 53E/4/SE on scale 1:15,000. The Sanctuary has an area of 16.00 sq km.

It consist of two Block, one with headquarter at Chail to manage the sanctuary area and the other at Khariyoun to manage the Cheer pheasant conservation breeding centre, both of which function under the Shimla Water Catchment Wildlife Range. Overall administrative control of the sanctuary is with the Deputy Conservator of Forests (Wildlife), Shimla Wildlife Division.

Chail is originally a part of Keonthal state and it came under the control of Gorkha warrior Amar Singh. Thereafter, it was a Royal Resorts and summer capital of Maharaja Patiala , who bought it from British government on payment of Nazrana and converted this into a private game reserve. The erstwhile Maharaja Patiala built a palace in 1891. This palace is taken over by the government of Himachal Pradesh and converted into a hotel which is being managed by the Himachal Pradesh Tourism Development Corporation. The whole area of Sanctuary was earlier a territorial forest range and government of Himachal Pradesh declare the intention to convert it into a Wildlife Sanctuary on 21st March 1976. Initially a notification was issued by the Government vide Notification NO. FFE-B-F(6)-25/99 dated 23 Oct. 1999 (Appendix 1) under Section-26(A) of the Wildlife Protection Act 1972 declaring Chail Wildlife Sanctuary with an area of 108.53 Km². There were 112 villages in the sanctuary and the zone of influence in year 31999. In May 2010, rationalisation process of certain Protected Areas in Himachal Pradesh was started as per the orders of Hon'ble Supreme Court. After following due procedures laid down under section 18 to 26A of Wildlife Protection Act 1972, the sanctuary was finally notified vide Government of Himachal Pradesh Notification No. FFE-B-F(6)-11/2005-II/Chail dated the 7th June, 2013 (Appendix 2). The area of Sanctuary was reduced by 92.53 to 16.00 sq km. At present, no villages are located inside the notified sanctuary area. However, 32 villages are currently located in



zone of influence. Further, there are certain establishments like the Rashtriya Military School, Chail Government Hospital, Chail Cricket Ground and The Palace Hotel which is located within sanctuary. The sanctuary is headquartered at Chail.



Map 1.1: Administrative Map of Chail Wildlife Sanctuary

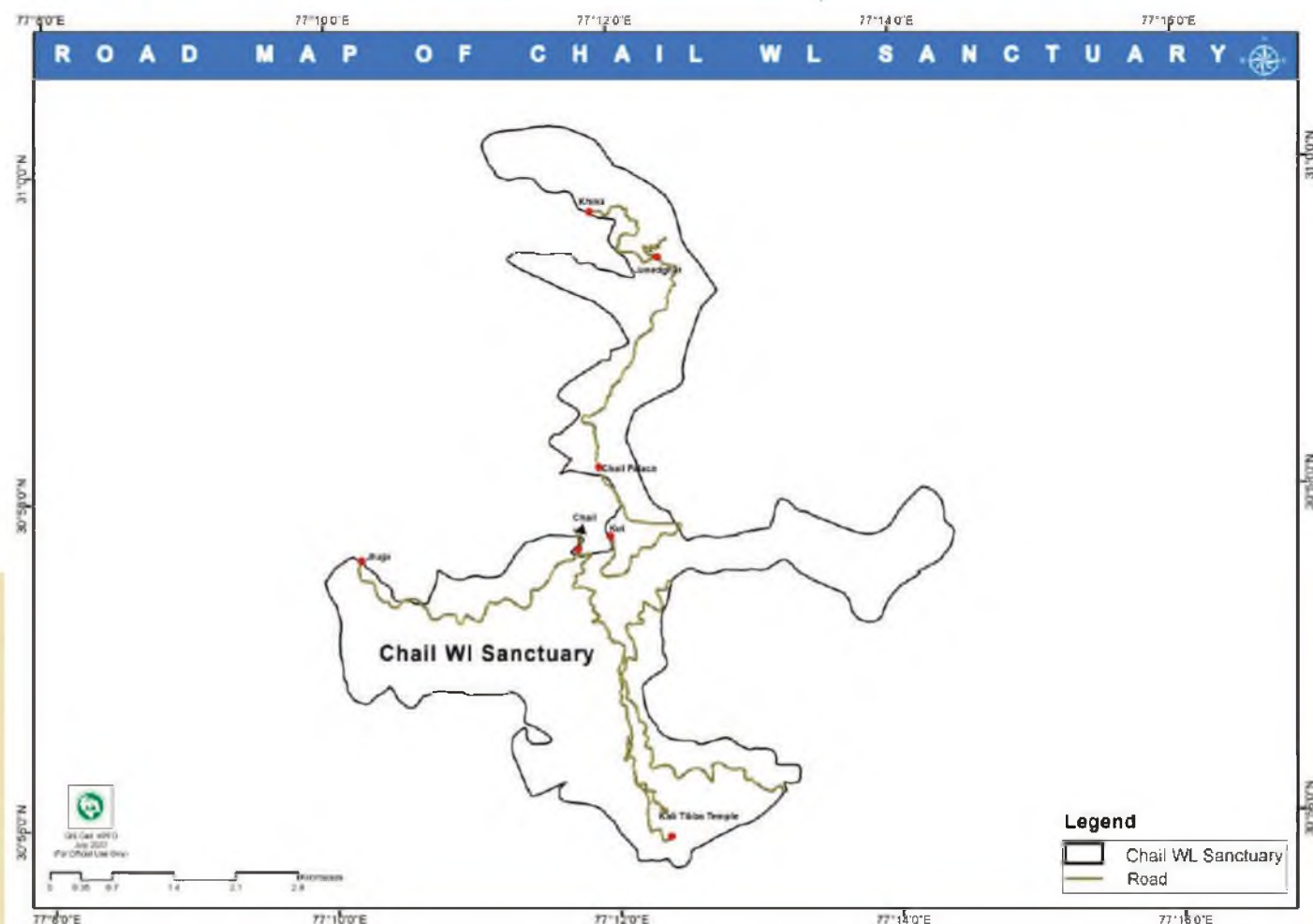
Sanctuary includes privately owned ghasnis 292.47 Ha (Grass patches used by local people for grazing cattle and collection of fodder). The breakup of sanctuary area owned by Wildlife Wing of Himachal Pradesh Forest Department according to beats and blocks and compartment wise area is given in Appendix 3

1.2 Approach and Access

The Sanctuary is easily accessible from town of Chail and villages of Janedghat, Jhaja, Mehani, Banjani, Sakori. As many as 6 roads pass through the sanctuary and the protected area is accessible through all these roads. The four lane national highway NH-5 connects up to Kandaghat enables easier access to Chail sanctuary.

Table 1.1 Distance of various cities from Chail Wildlife Sanctuary

Town/City	Distance from Sanctuary(km)
Kandaghat	29
Shimla	45
Chandigarh	135
Delhi	378



Map 1.2: Roads inside Chail Wildlife Sanctuary

The nearest air strip is at Jubarhatti 67km from Chail. Flights are available to Shimla from Delhi, Chandigarh and Kullu operated by various Airlines.

The Kalka –Shimla railway is a narrow gauge railway in North India which traverses a mostly mountainous route from Kalka to Shimla. Kandaghat railway



station, is situated at a distance of around 29 km, is the nearest railway station to Chail Wildlife Sanctuary. Kandaghat railway station lies on Kalka – Shimla Railway line, which is also a UNESCO World Heritage Site. The nearest broad gauge railway station is at Kalka which is 81km from Chail town.



Image 1.1: Kalka-Shimla Heritage Rail

1.3 The Statement of Significance

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

A. Economic

- The Chail Wildlife sanctuary provides the scenic landscape for Chail town which is a famous tourist hill station. In this way, it indirectly contributes to several lives, livelihoods and tourist activity.
- The sanctuary has several trek routes and bird watching sites with great potential for eco-tourism and to create livelihoods for local community in form of nature guides, drivers, hoteliers, homestay arrangements

B. Ecological Services

- The sanctuary through forested catchment is critical to water provisioning services in adjacent human settlements.
- Water from the sanctuary drains into the Giri river on the eastern side and into the Ashwani Khad on the western side, tributaries of Yamuna. The sanctuary lies in the watershed of Yamuna River and regulates the run off precipitation in to Yamuna.
- It protects the soil in the geologically fragile and erosion prone Himalayas.



The deodar and oak forest landscape of sanctuary is critical to climate regulation services and ensure microclimate for Chail region.

C. Biological

- Chail Wildlife Sanctuary along with territorial forest forms a conservation unit.
- The Sanctuary has immense floristic diversity including finest forest of deodar and Ban Oak. The floristic diversity of sanctuary is annexed as Appendix 4.
- It supports good population of near threatened species of Himalayan Goral and herbivores like Sambar and Barking Deer. Apart from this several small mammals and arboreal animals including Yellow Throated Marten, Red Giant Flying Squirrel, Red Fox, Grey Langur etc.
- The PA forms one of the most crucial and unique habitat for the vulnerable Cheer Pheasant, a species threatened by habitat degradation and anthropogenic disturbance.

D. Conceptual

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

E. Recraational & Aesthetic Services

- The sanctuary offers opportunities for wildlife tourism to nature lovers of nearby cities such as Solan, Shimla, Chandigarh as well as tourists coming to Chail from the other states.
- The area is a bird watchers paradise. Probability of sighting animals is good especially during trekking.
- Scenic landscape of the sanctuary area is a true experience of wilderness especially the grasslands in Blossom and Khariyoun.
- The eco-tourism potential of area is enhanced by popular existing tourist sites including Kali Mandir and Chail Palace, the location of both of which are interwoven into the sanctuary landscape

F. Research and Education

- The sanctuary has potential for research on a variety of subjects of biological importance and ecological monitoring e.g. ethno botany, ethno zoology, medicinal plants, pathological studies, pheasant habitat, forestry, wildlife related or ecosystem related studies etc.
- It has potential for conservation education for local people, students, trainees and visitors especially in domain of conservation breeding of cheer pheasant, floristic diversity and fire protection



Chapter-2

Background Information and Attributes





2.1 Boundaries

North: Boundary starts from boundary pillar No. 22 of Binu RF/17 and turns to rights side then follows the boundary near point 1955 mtr. & 2139 mtr which situated on Shimla & Solan District boundary-cum-Forest Divisional Boundary of Shimla and Solan Division, then follows the same District-cum- Forest Divisional boundary via Sakori RF/18 through BP No 53,52,51,50,49 and right side near BP No. 49. Further boundary moves the small across the road and joins at meeting point then along road leading to RF(MES) then follows the small ridge down upto BP No 4 of Bhojdin RF/19 and via BP 5,6,7 up to 8. Then moves down upto a small tributary of nalla-cum-outer boundary of village Deatk via B.P. 4 upto B.P. 3 of Malan Shil DPF/89.

EAST: From boundary pillar No. 3 of Malan shil DPF/89 boundary routes through the BP No-2, 1B, 1A & 1 up to District-cum-Forest Divisional boundary then turns to left side and passes via BP No-5 to 32 Bhojdin DPF/52. Then along the branch of a small nalla flowing from point 2061 mtr up to raod and follows the road upto BP No. 29 of Bhojdin RF/19 and then along BP No.-30 up to 36.

SOUTH: From boundary pillar No. 36 of Bhojdn RF/19 boundary goes via BP No. 37 to 46 near point 2176mtr and follows the ridge near Hinnar plantation and turns to left side in a small tributary of nallah upto a crossing point of a foot path form Hinnar village to Krog village. Then flows the same path to left side upto a ridge boundary of Jajha-Khariyouon DPF/51 and follows the same tributary of nalla up stream upto B.P. 6 of Jhajha-Khariyoun DPF/51 and follows the same tributary of nalla up stramupto B.P. 6 of Jhajha-Khariyoun DPF/51.

WEST: From the point of BP No. 6 of Jhajha-Khariyoun DPF/51 boundary moves via BP No. 5,4,3,2 and up to road before BP No -1 and follows the road upto BP No-3 of Khariyoun RF/15 in nalla then along the tributary of small nalla down stream upto its confluence point of tributary of same nalla which flows right side and originate from near BP-30 of Jhajha-Khariyoun DPF/51. Then follows the same tributary of nala up to BP No. 30 of Jhajha-Khariyoun DPF/51 further boundary passess through BP No. 24 to 1 of Sakori RF/18 and then follows the left side boundary of Binu RF/17 via 13 Nos of BP without nos then along BP NO. 56, 54,53 upto BP No. 22 of Binu RF/17.

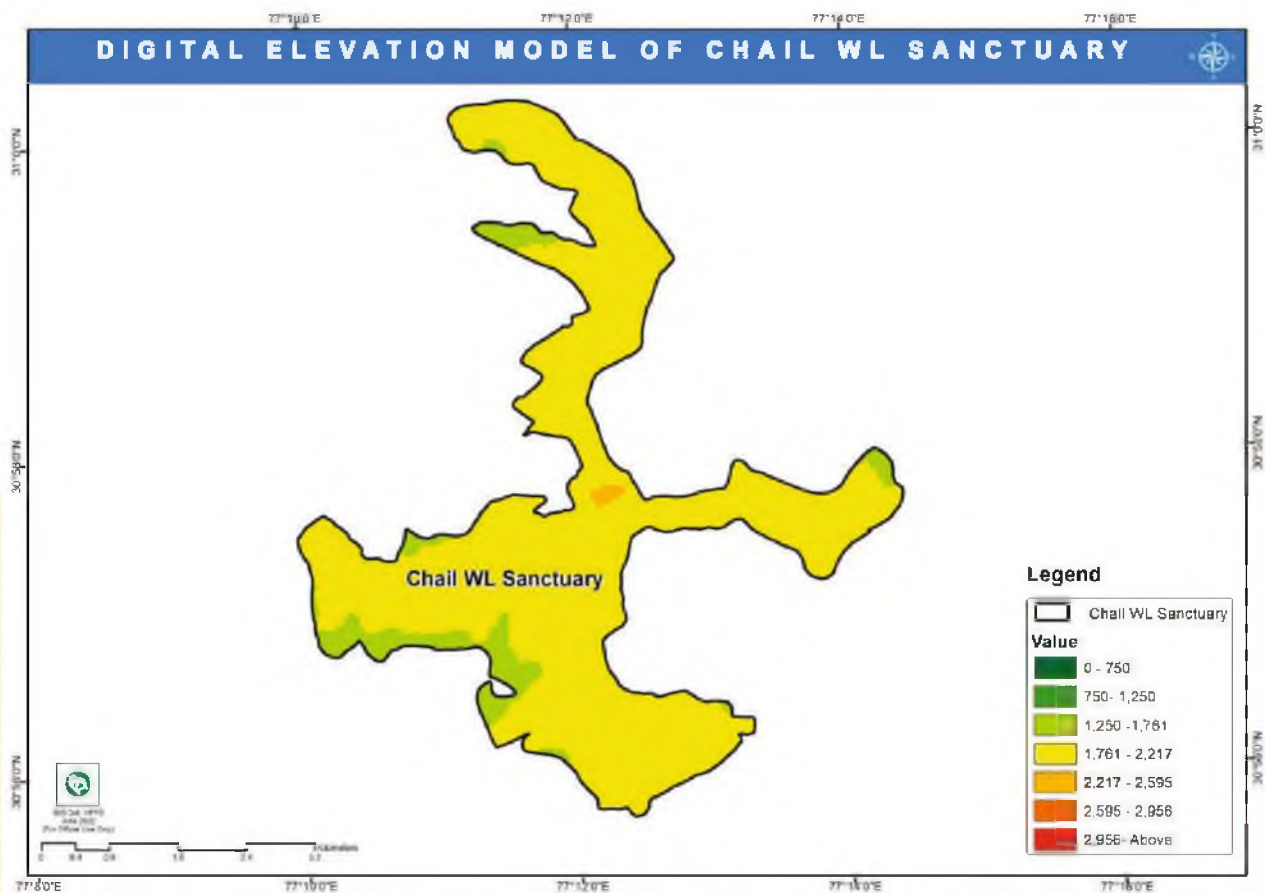


2.2 Geology, Rock and Soil

The rock formation generally consists of shale, schist, slate, and quartzite. The soil in Deodar and Ban Oak forests is generally deep and contains thick leaf mould. The soil in the Chail forest is fairly deep at places. Southern slopes contain shallow soil and sparsely vegetated. The Chail Sanctuary enjoys the privilege of being situated in Shimla Hills of Western Himalayas. The slopes are gentle and have fairly good vegetation. Thus the forests are comparatively easy with few precipitous patches along the nallas.

2.3 Terrain

Chail Wildlife Sanctuary is located in the Lesser Himalayas. It lies between altitudes of approximately 1600 to 2300 metres above mean sea level. A belt of grasslands (Ghasnis) are found in the south western part of the sanctuary except thick forests of Jakhed and Mihani in between. Width of the grasslands varies from 500 to 800 meters. These grasslands are found in the south western aspect which starts from Tehtu (west) to Kali ka tibba temple (south). Jakhed and Mihani have good tree cover due to northern aspect of terrain. The sanctuary is drained by a number of seasonal streams which eventually converge in to perennial streams. The terrain of sanctuary is moderate to very steep and precipitous at places. All the streams of the Sanctuary form the catchment of the Giri which ultimately drains into the Giri River, a tributary of River Yamuna.



Map 2.1: Digital Elevation Map of Chail Sanctuary

2.4 Climate and Rainfall

The climate Chail is temperate with cold winters and pleasant summers. The temperature goes up to a maximum of 32°C in summer and a minimum of -4°C in winters as per record of the last 10 years sourced from Meteorological Centre, Shimla.

During winters precipitation in the form of snowfall was very good but has been erratic over the years. The sanctuary receives good rainfall in the months from June to August helping to retain moisture on the forest floor.

Snowfall in the sanctuary is vital as it replenishes the streams and ensures streams and water holes remain functional for a longer period substantially aiding wildlife fitness.

2.4.1 Rainfall Pattern and Distribution

The rainfall is received in monsoon and average annual rainfall over the last 10 years from 2011-2020 is 1430 mm with range spread between 1230 mm to 1640 mm. The rainfall pattern is typical south west monsoon type with rainfall concentrated from June to August. The annual rainfall data received in the sanctuary in last 10 years as sourced from Meteorological Centre, Shimla is as

Annual Rainfall Data for the last 10 years (in mm)

	January		February		March		April		May		June		July		August		Sept		October		November		December	
	24hr	month	24hr	month	24hr	month	24hr	month	24hr	month	24hr	month	24hr	month	24hr	month	24hr	month	24hr	month	24hr	month	24hr	month
2020	35.7	150.9	26.5	154.5	26.5	154.5	18.3	93.7	63.4	124.0	74.4	183.2	36.7	245.6	27.1	168.6	6.5	18.7	0.0	0.0	21.6	42.4	9.6	18.9
2019	44.5	89.6	84.5	170.8	19.7	67.6	25.8	60.4	13.7	71.2	42.8	84.7	60.6	360.1	153.1	499.0	30.8	126.6	19.0	37.9	14.8	35.9	16.2	39.1
2018	16.3	16.3	15.8	41.8	15.0	28.5	26.5	65.6	60.3	84.6	49.9	192.4	118.6	419.0	172.6	378.6	53.3	295.6	1.7	2.0	15.5	33.9	3.8	7.7
2017	52.4	148.1	8.4	19.6	13.1	51.6	52.7	85.2	31.7	124.6	34.0	151.5	31.8	216.1	57.2	326.6	46.6	182.5	0.0	0.0	1.7	2.6	13.9	25.3
2016	17.1	35.0	23.2	53.7	43.8	125.3	6.5	26.5	56.0	104.8	50.7	193.6	65.2	416.8	76.1	402.6	22.2	39.9	2.3	2.3	0.0	0.0	4.8	5.5
2015	24.3	72.1	26.0	106.1	43.1	196.4	33.8	116.5	5.1	16.1	36.8	110.5	89.1	409.2	58.5	265.5	18.4	62.9	13.0	23.0	5.0	9.4	35.4	37.5
2014	24.6	51.3	21.2	88.0	35.5	142.5	28.6	82.4	17.6	68.1	53.8	235.6	95.5	561.5	61.6	160.5	34.4	108.0	8.6	29.0	0.0	0.0	62.4	97.9
2013	68.8	120.4	75.6	195.9	34.9	99.0	7.8	14.7	10.0	23.4	68.4	319.6	68.4	207.4	57.4	239.5	24.8	133.6	34.0	66.4	5.8	13.8	5.9	13.2
2012	55.3	133.3	14.4	32.7	31.0	35.8	22.9	80.5	5.2	13.8	31.5	81.3	66.6	315.9	43.4	350.6	62.5	162.0	6.9	7.9	2.7	2.7	11.2	18.7
2011	5.7	15.0	13.2	55.9	10.7	37.6	20.6	37.0	23.4	93.7	43.6	196.3	42.3	296.9	44.7	338.4	41.7	159.4	18.8	19.0	0.0	0.0	10.2	17.0

Source: Meteorological Centre, Shimla (2021)



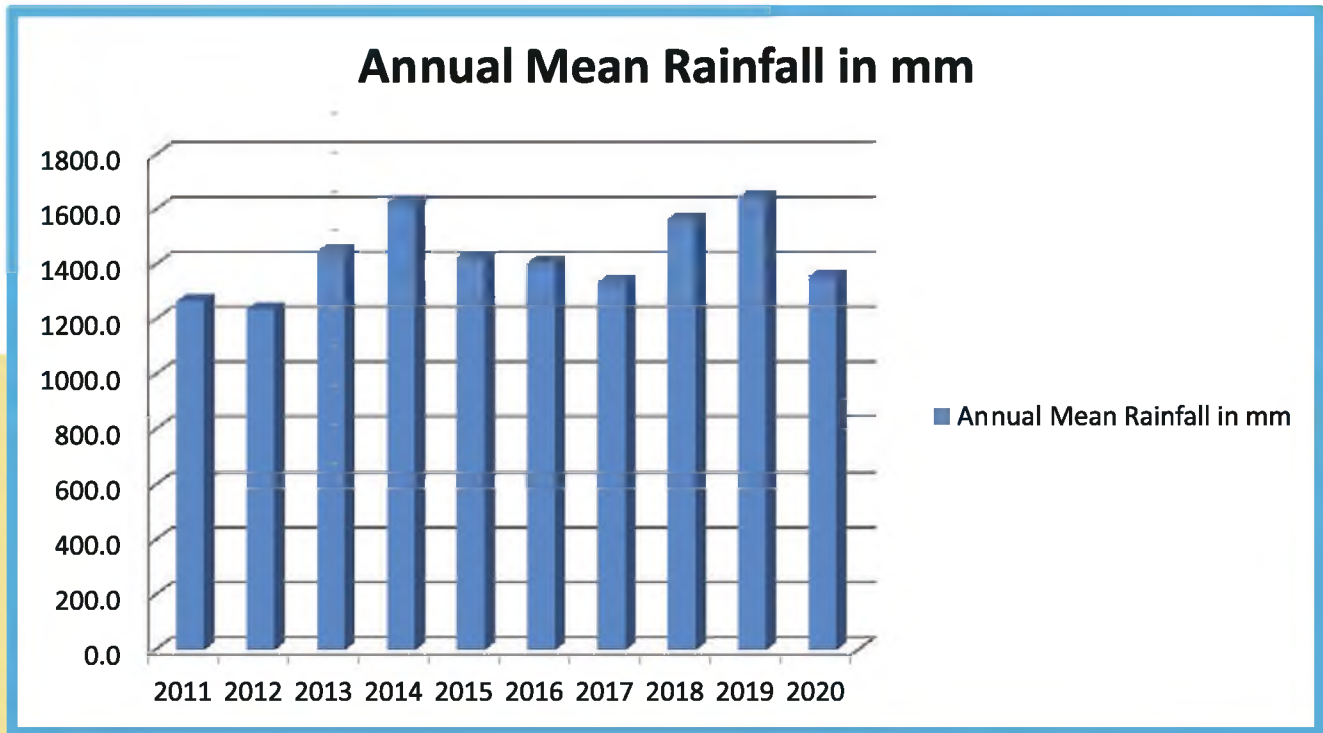


Chart 2.1: Rainfall trends over last 10 years

The sanctuary also receives good amount of snowfall during the winter months. However, over the past few years it is observed that onset of snowfall is late and total precipitation in form of snow is erratic with some years witnessing high snowfall and other years witnessing less snowfall. The following chart depicts the trend of snowfall over the last 10 years.

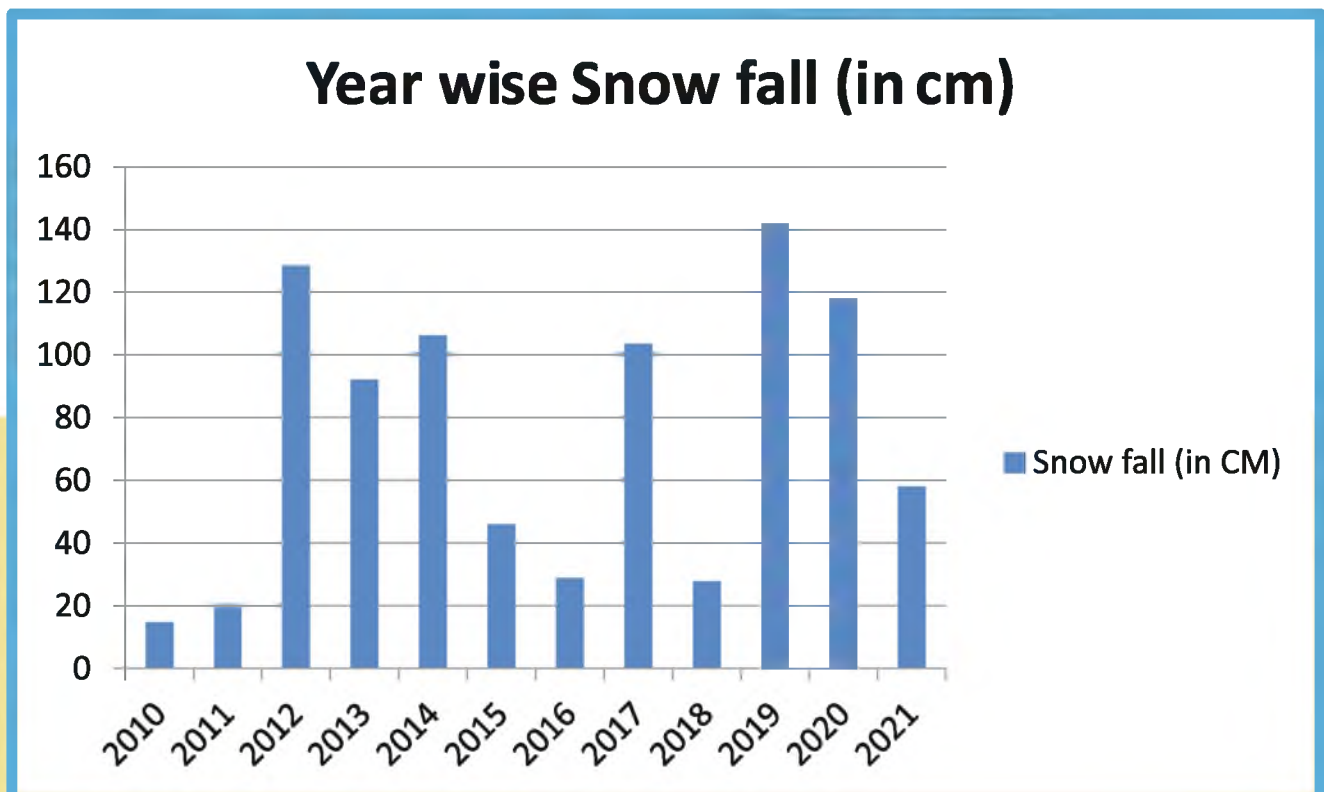


Chart 2.2: Snowfall trends over past 10 years



2.4.2. Temperature

Generally, the climate in this area remains cool and moist throughout the year and the mean maximum temperature is 24.2° Celsius whereas the mean minimum temperature is 6.7° Celsius. The hottest months during the year are April, May and June with max temperature touching 30°-32° Celsius. The coldest months during the year are December, January and February when the mercury drops as low as -4° Celsius.

Annual Temperature Data for the last 10 years (in °C)

	January		February		March		April		May		June		July		August		Sept		October		November		December	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	Min
2020	15.7	-3.7	19.7	-1.4	19.7	0.4	25.5	6.6	29.0	8.3	27.5	10.4	26.0	13.0	27.0	15.6	26.9	14.6	26.1	9.6	20.9	2.8	19.8	-1.1
2019	15.7	-1.3	20.2	-2.4	24.2	1.2	27.9	6.7	30.2	1.01	30.5	11.7	27.5	15.2	25.5	15.0	25.6	12.7	23.0	8.6	20.9	4.2	17.4	-0.5
2018	20.6	-0.4	21.6	0.0	24.2	5.0	26.7	8.0	29.4	5.8	28.1	11.4	26.3	14.0	24.5	14.6	26.4	12.3	24.4	8.7	20.4	3.3	17.1	-0.6
2017	17.4	-3.2	20.4	2.0	25.6	-0.9	28.6	6.3	28.3	10.3	30.1	11.6	25.7	15.6	26.4	15.1	26.0	6.8	25.4	8.8	21.1	5.5	21.3	2.0
2016	16.5	-0.2	21.8	1.3	24.0	2.1	27.5	8.2	29.8	10.3	29.4	12.0	27.0	14.9	26.6	14.8	25.2	13.0	24.8	9.4	23.6	7.0	22.3	3.8
2015	18.5	-2.0	20.5	0.7	24.1	0.8	26.9	6.4	29.3	10.6	29.1	12.5	25.3	14.6	25.4	13.9	25.7	12.0	25.4	5.3	22.0	4.3	20.0	-0.8
2014	16.0	0.0	18.0	-2.4	23.1	1.0	28.4	5.6	30.6	8.2	31.4	12.1	27.8	14.6	26.8	13.8	26.9	12.0	23.5	7.2	20.8	5.8	19.5	0.4
2013	15.1	1.5	19.1	-0.6	21.8	4.0	23.9	7.3	30.8	10.2	28.9	12.3	26.9	15.1	25.0	15.6	26.3	10.6	23.3	7.6	21.9	4.1	20.4	0.2
2012	14.9	-2.9	19.3	-3.8	24.7	1.6	26.4	6.1	31.9	9.5	31.0	12.1	27.6	14.4	25.4	15.4	25.2	13.0	23.4	6.3	21.8	2.7	20.4	0.0
2011	16.6	-3.3	21.0	0.0	25.1	3.9	26.8	6.3	28.7	10.1	26.8	10.1	25.5	14.7	25.5	14.8	25.6	13.2	24.3	9.0	22.9	7.8	19.3	1.2

Source: Meteorological Centre, Shimla (2021)

Table 2.2: Annual Temperature Trends over past 10 years

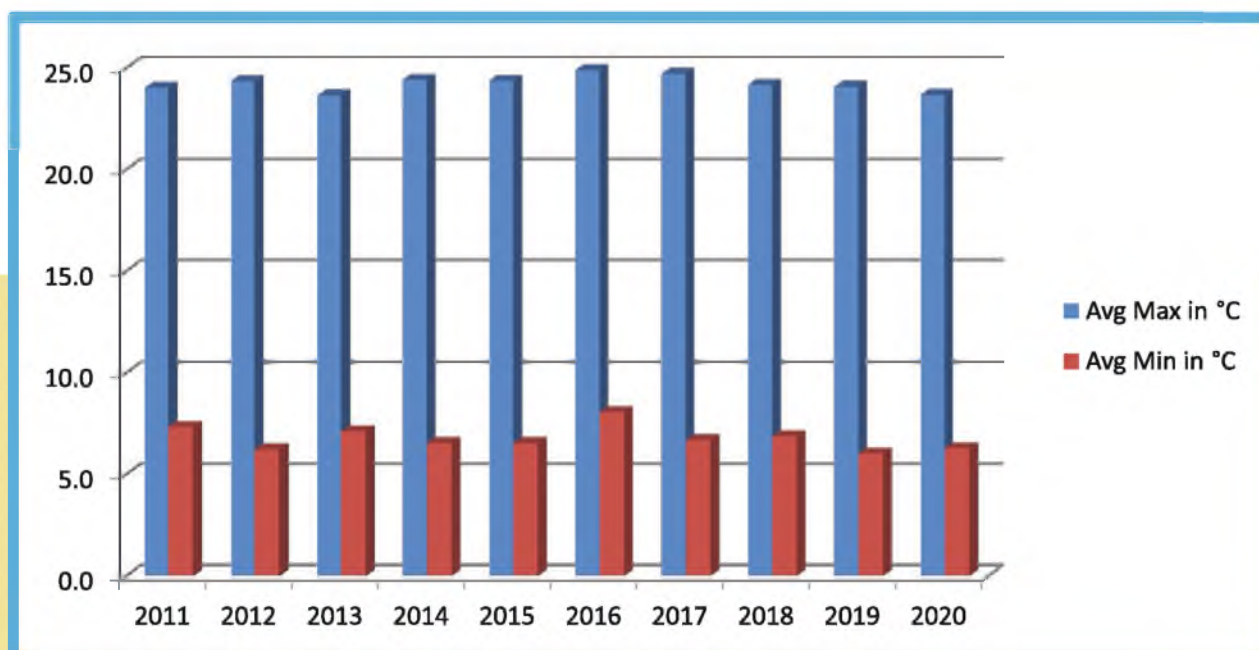


Chart 2.3: Mean Temperature Maxima and Minima: Trend over last 10 years



2.4.3. Humidity

Humidity in the protected area remains high given adequate rainfall and snow in monsoon and winter months. However, in the summers, the sanctuary experiences a dry climate which leads to drying up of water holes and render the lower Chil Pine zone of the sanctuary vulnerable to forest fires. The relative humidity data for past 10 years is depicted in the chart below:

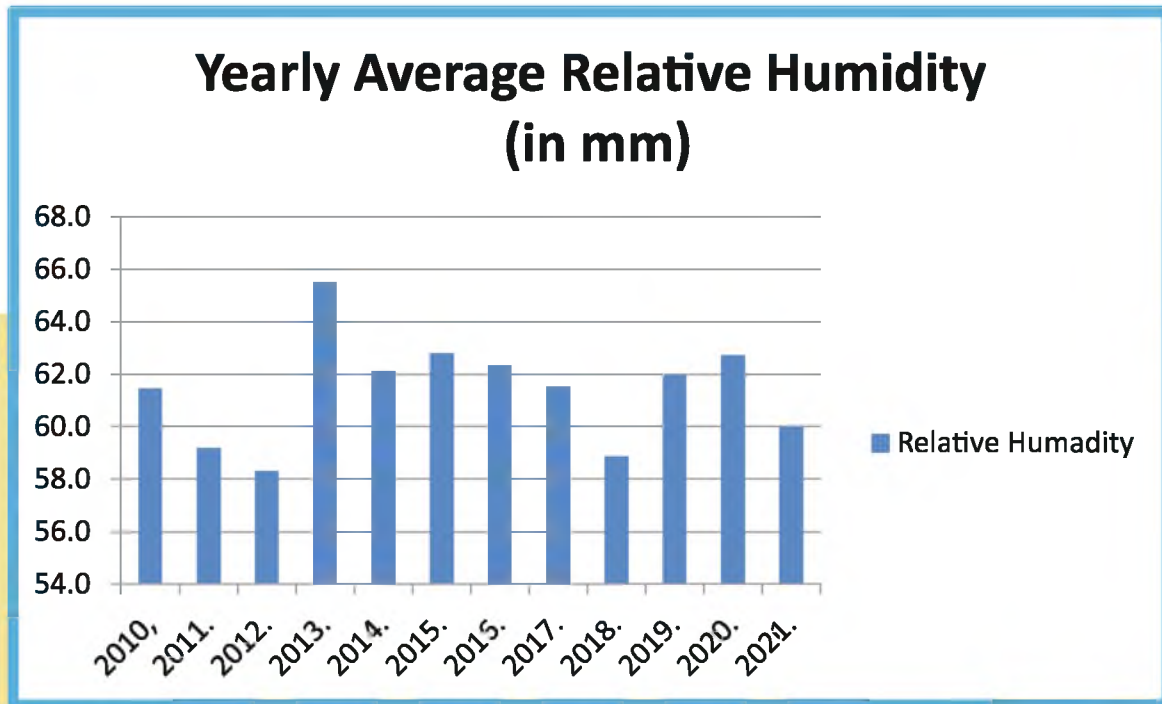


Chart 2.4: Relative Humidity trend over past 10 years

2.4.4. Wind speed

Generally the sanctuary experiences slow to moderate winds owing to its hilly terrain and topography which results in katabatic winds flowing down the sloppy terrain at night and mountain winds blowing uphill during the day, The wind speeds increase during the winters before the onset of precipitation in the form of snowfall.

2.4.5 Drought

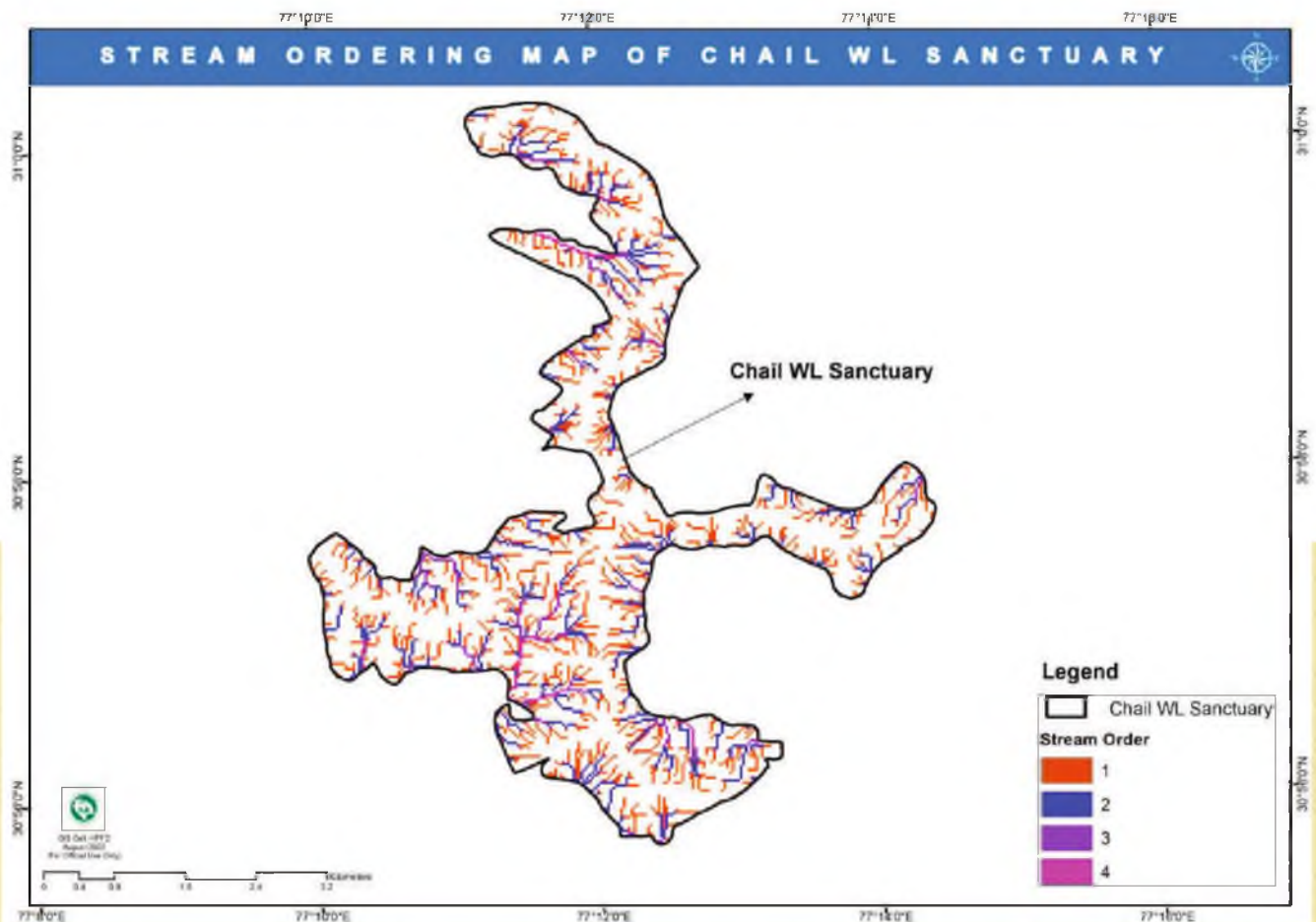
Drought like condition occurs during April, May and June and again during October, November. During these months water shortage is experienced and as a result the wild life is some time noticed to migrate to nearby areas having water sources. Prolonged droughts during summer before the start of monsoons some time result in serious fire hazards in Chail zone. The perennial streams are also affected during the drought.



2.5 Water Sources

There is a total of five small water sources are in the sanctuary, out of which at present only three are functional throughout the year and rest are seasonal. The water from three sources in the lower part of the sanctuary reaches to the villages for agriculture irrigation purpose. The list of water sources in sanctuary is tabled as below:

SI No	Name of Water Sources
1	Mihani Ka Nallah
2	Kano ka nallah
3	Khinna ka nallah
4	Banjani ka nallah
5	Koro ka nallah



Map 2.2 : Water Sources in Chail Wildlife Sanctuary





Image 2.1: Water sources in Chail Sanctuary

2.6 Range of Wildlife, Status Distribution and Habitat

Sanctuary has a varied range of wildlife from invertebrates to mammals. Varied species of butterflies like Indian cabbage white, large Tortoise shell common leopard etc can be seen during April to June. These butterflies can be seen throughout the sanctuary mainly in the open areas of Kharyoun and Banjani beats.

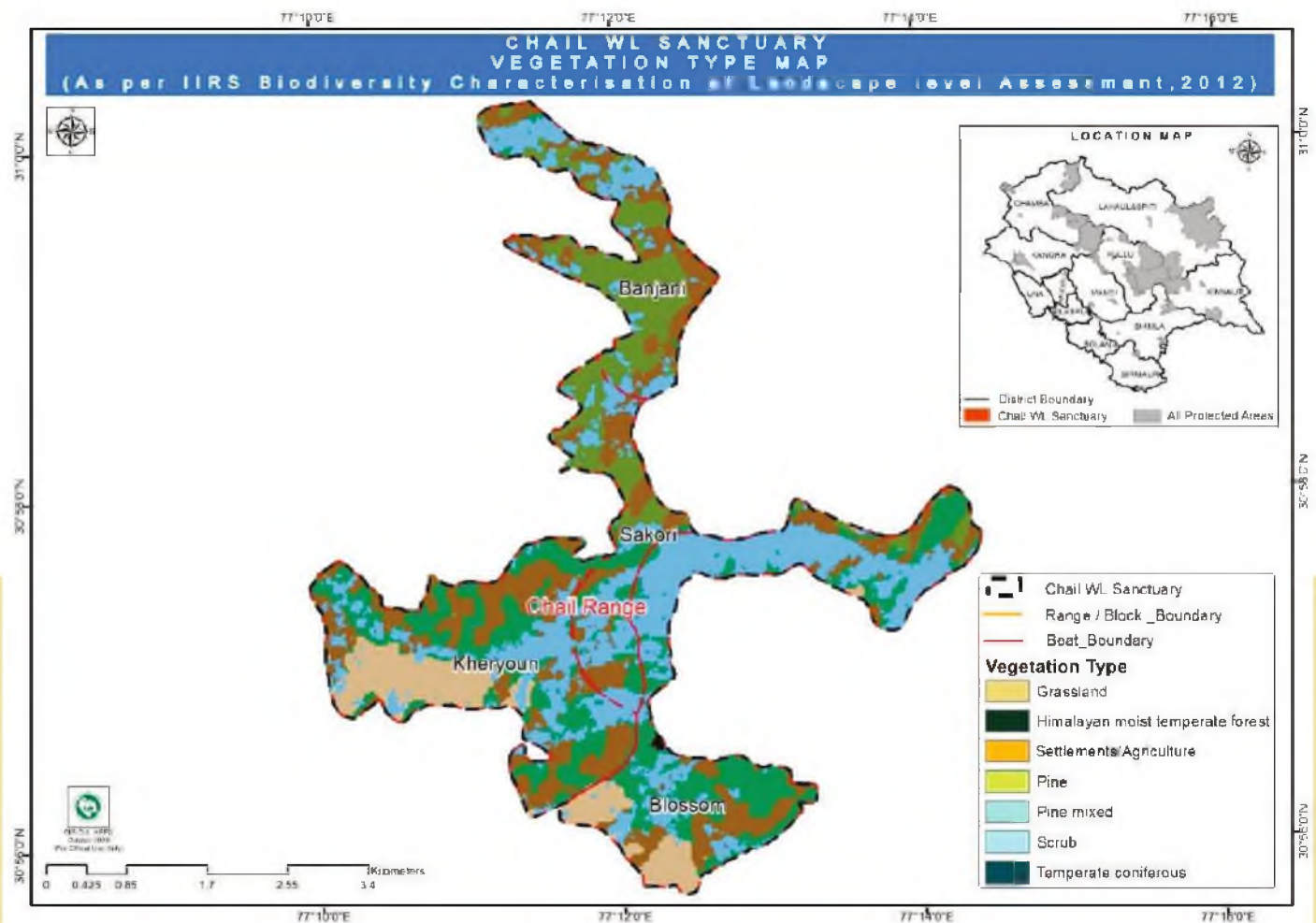
Chail Wildlife Sanctuary is known as paradise for birds as large number of birds can be seen in this Sanctuary including flycatchers, parakeets, bushchats, warblers, woodpeckers, pheasants etc. The sanctuary has unique grassland habitat suitable for Cheer Pheasant, a vulnerable species as listed by IUCN. Plantation of Nirgal was also done in past years in some areas so as to provide shelter and nesting places for birds.

Number of mammals like Common Leopard, Leopard Cat, Yellow throated marten, Goral, Barking Deer, Sambar Deer, and Porcupine etc. can be seen throughout the sanctuary. The sanctuary has rocky grasslands which provide suitable habitat for the Goral whereas the oak forests provide shelter and browsing forage to Sambar and barking deer. The grasslands and transitional mosaic zone in sanctuary is unique habitat and provides valuable forage for herbivores and birds

2.6.1 Forests and Vegetation

Ban Oak (*Quercus leucotrichophora*) and Deodar (*Cedrus Deodara*) are the 2 main dominant tree species in the sanctuary. Other major tree species include Chir, Kail, Spruce, Silver fir, Poplar, Rhododendron, Kainth, Khanor etc. Shrubs include Disodium, Indigofera, Salix, Berberis, Rosa, Rubus and Daphnae etc. Ground flora includes various grass species, variety of ferns and vascular herbs.

The whole area in the sanctuary has very good vegetation in the form of mixed forests and grasslands. The wildlife has plentiful forage from the various types of vegetation found in the sanctuary. The sanctuary also holds reservoir for germplasm of endemic medicinal plants of Western Himalayas and threatened plant taxa which are endangered. According to the Conservation Assessment and Management Prioritization (CAMP) report 2010 (Goraya et al., 2013), *Habenaria intermedia* D. Don, *Malaxis muscifera* (Lindl.) (Critically endangered), *Kuntze* and *Zanthoxylum armatum* DC (endangered) are included as threatened plants collected from Chail Wildlife Sanctuary. The protected area has 5.26 % of total threatened medicinal plants of Himachal Pradesh.



Map 2.3: Vegetation Map of Chail Wildlife Sanctuary



The detailed list of plants found in Chail Wildlife Sanctuary can be found annexed in Annexure 4.



Myrsine africana



Rhododendron arboreum



Gentiana argentea



Daphne papyracea



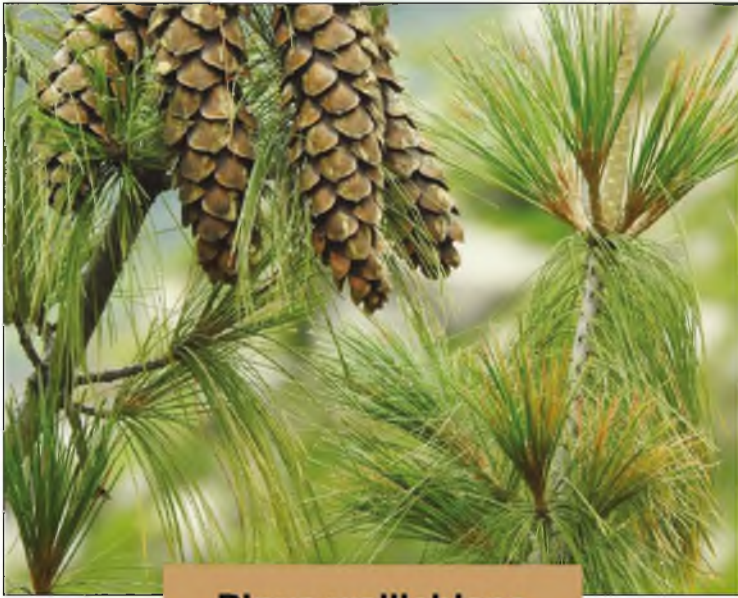
Reinwardtia indica



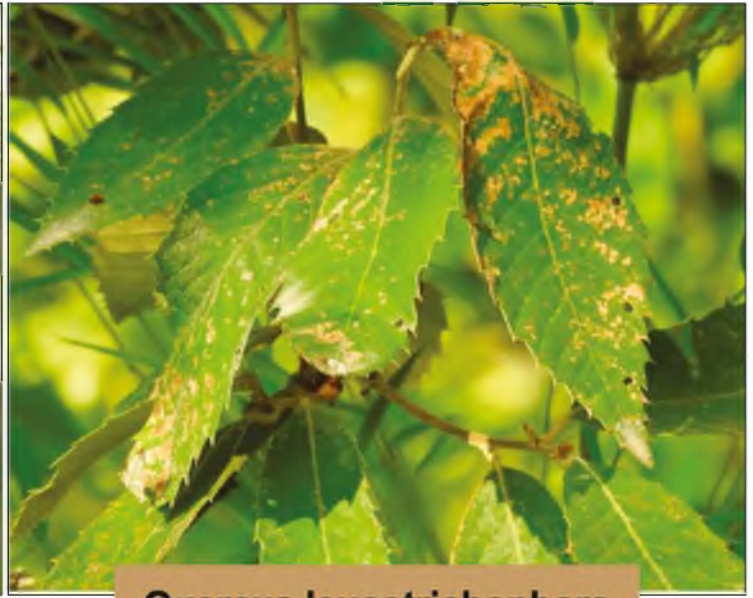
Bergenia ciliata

Image 2.2: Flowering plants of Chail Wildlife sanctuary





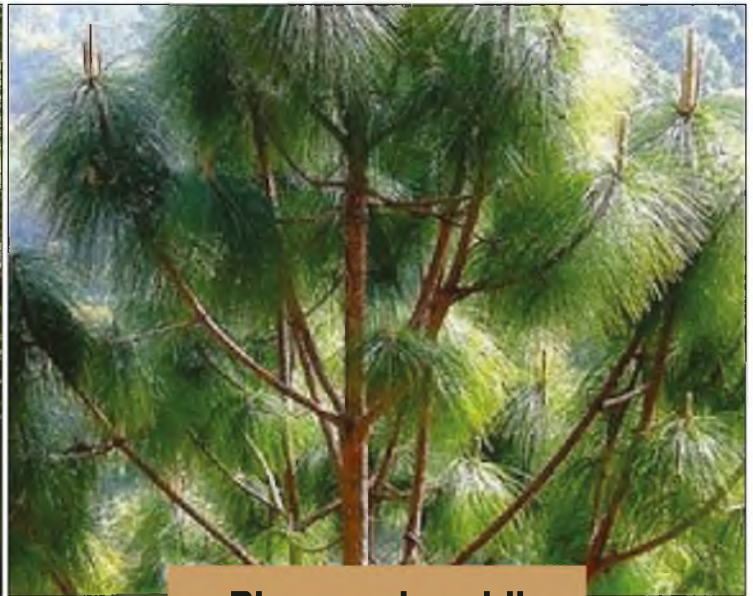
Pinus wallichiana



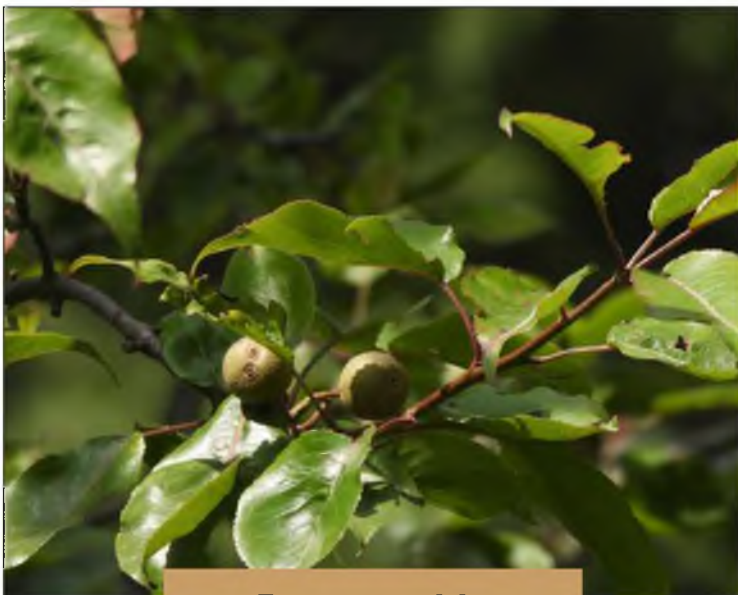
Quercus leucotrichophora



Cedrus deodara



Pinus roxburghii



Pyrus pashia



Aesculus hippocastanum

Image 2.3: Trees of Chail WLS

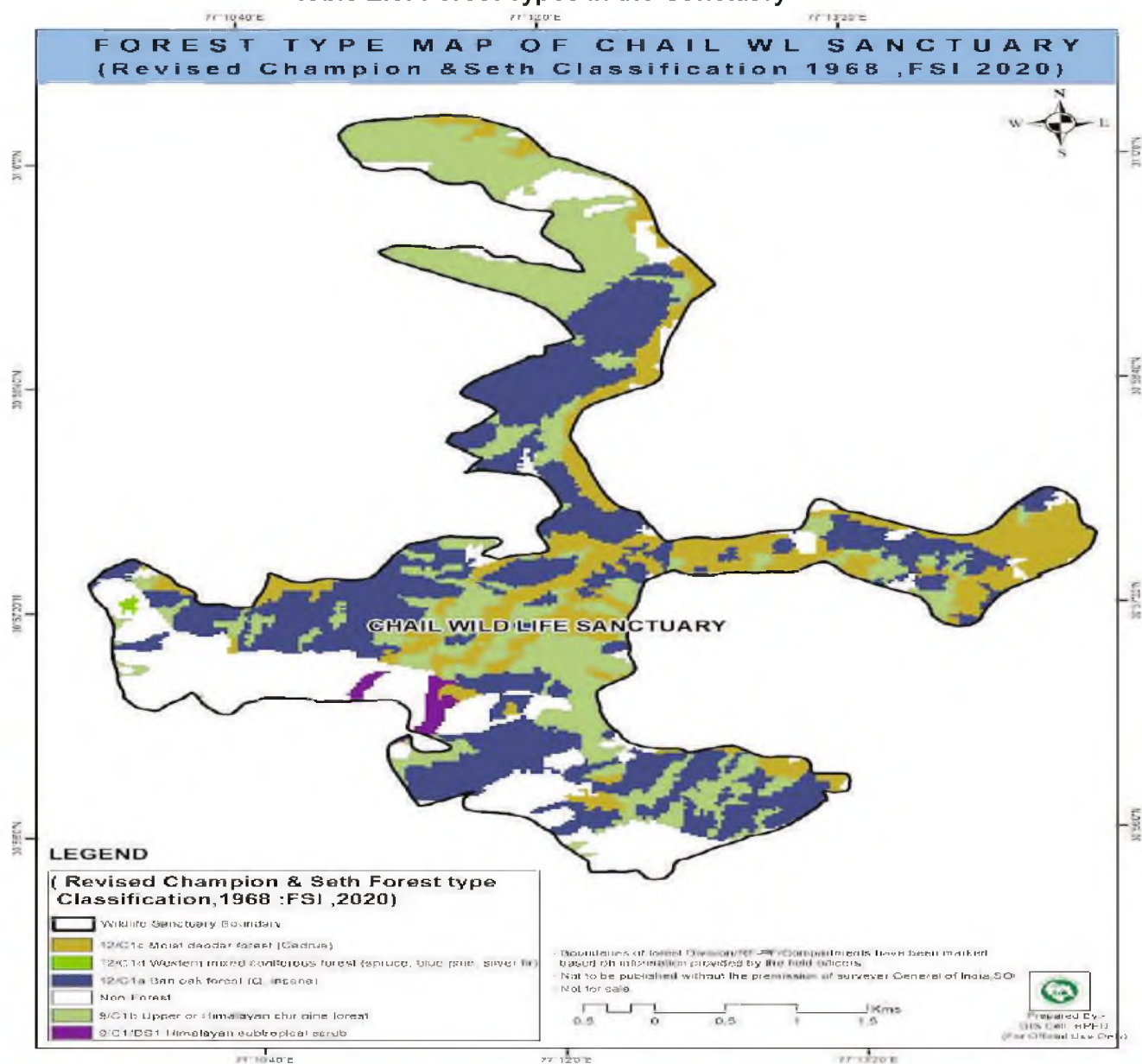


2.6.2 Forest Types

The forest types found in the sanctuary as per Champion & Seth (1965) classification may be categorized as under

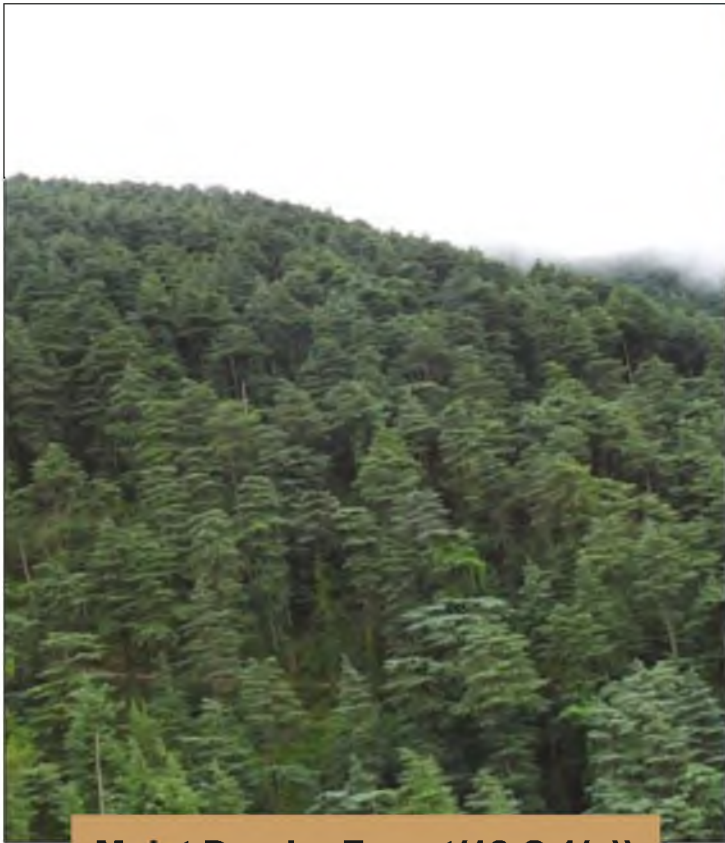
Sr. No	Forest type	Classification
1	Himalayan Chir Pine Forest	9 C 1 (b)
2	Western Mixed Coniferous	12 C 1 (d)
3	Ban Oak Forest	12 C 1 (a)
5	Moist Deodar Forest	12 C 1(c)
5	Himalayan Sub tropical Scrub	9 C1/DS1

Table 2.3: Forest Types in the Sanctuary



Map 2.3: Forest Type Map of Chail Wildlife Sanctuary as per Champion-Seth Classification





Moist Deodar Forest(12 C 1(c))



Himalayan Chir Pine Forest (9 C 1 (b))



Ban Oak Forest (12 C 1(a))



Grasslands

Image 2.4 : Forest Types of Chail Wildlife Sanctuary

2.6.3 Animals

2.6.3.1 Mammals

A number of mammal species are found in the Sanctuary. The main predator species is the common leopard (*Panthera pardus*). Barking deer (*Muntiacus muntjak*) are commonly sighted whereas Gorals (*Naemorhedus goral*), classified as near threatened as per the IUCN Red Data List, are found habitating along steep ridges. Sambar (*Rusa unicolor*) population is also substantial in oak forests in the sanctuary. Leopard Cat (*Felis bengalensis*), Indian Crested Porcupine (*Hystrix indica*), Red Giant Flying Squirrel (*Petaurista petaurista*) and Yellow throated marten (*Martes flavigula*) are among the small mammals that can be occasionally sighted. The Langur (*Presbytis entellus*) and Rhesus macaque are the main primate species.

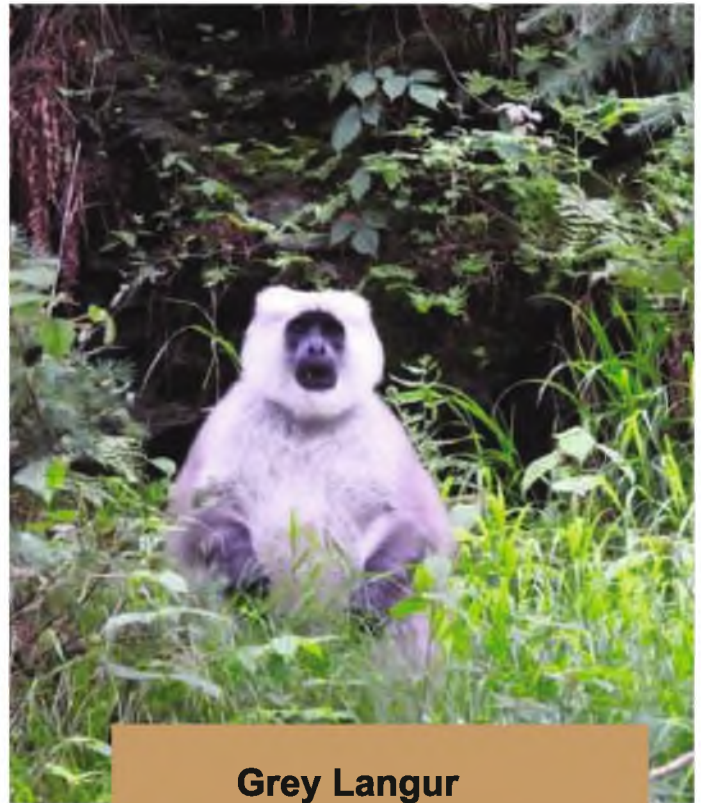
Sr. No.	Common Name	Local Name	Zoological Name	Schedule	Schedule (as per Wildlife Protection Act 2002)
1	Leopard	Tendua	<i>Pantherapardus</i>	I	I
2	Sambar	Raal	<i>Rusaunicolor</i>	III	II
3	Goral	Goral	<i>Nemorhaedusgoral</i>	III	I
4	Barking Deer	Kakkad	<i>Muntiacusmuntjak</i>	III	II
5	Rhesus Macaque	Bandar	<i>Macacamulatta</i>	II	Not part of schedule
6	Grey Langur	Langur	<i>Presbytisentellus</i>	II	II
7	Leopard cat	TenduaBilli	<i>Felisbengalensis</i>	II	I
8	Porcupine	Shail	<i>Hystrixindica</i>	IV	I
9	Red Fox	Lomadi	<i>Vulpesvulpes</i>	II	I
10	YellowThroated Marten	Sakralu	<i>Martesflavigula</i>	II	I
11	Red Giant Flying Squirrel	Eenn	<i>Petauristapetaurista</i>	II	I
12	Wild Boar	Junglisuwar	<i>Susscrofa</i>	III	II
13	Indian hare	Khargosh	<i>Lepusnigricollis</i>	IV	II
14	Jackal	Gidar	<i>Canisaureus</i>	II	I
15	Common mongoose	Newla	<i>Herpestesedwardsi</i>	II	I
16	Barbastelle	Chamgadar	<i>Barbastellabarbastellus</i>	V	Not part of schedule

Table 2.4: List of Mammals in the Sanctuary

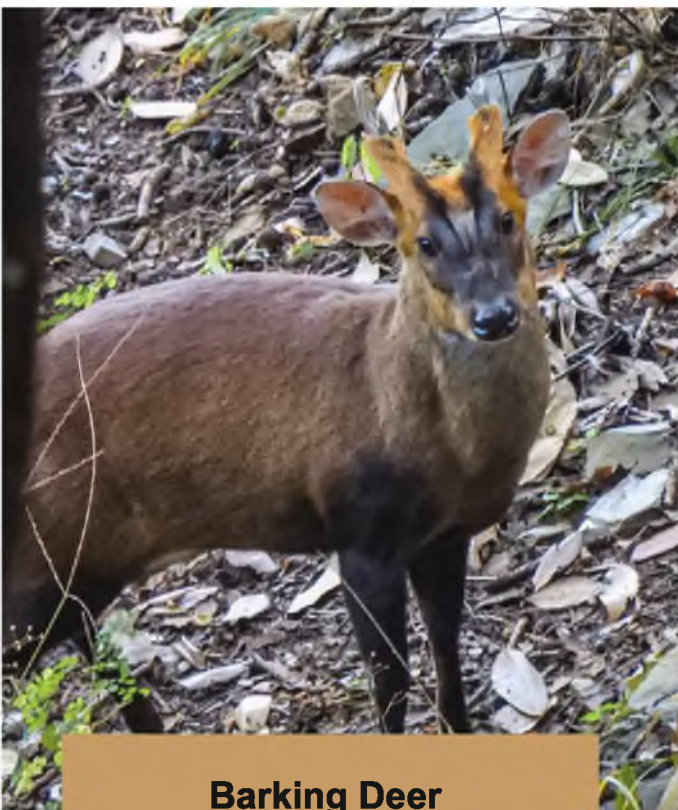




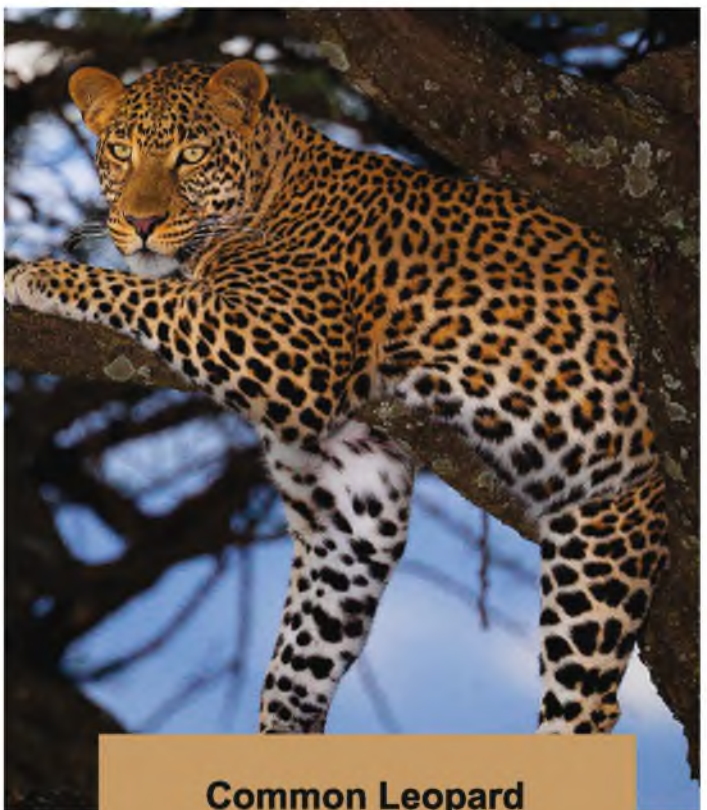
Himalayan Goral



Grey Langur



Barking Deer



Common Leopard

Image 2.5: Mammals of Chail Wildlife Sanctuary

Himalayan Goral

Scientific Name	<i>Nemorhaedus goral</i>	Weight	35-42 Kg
Order	Artiodactyla		
Species: Himalayan Goral		Habits and Habitat	
IUCN Status/ CITES Appendix	Near Threatened (NT)/Appendix I	Gestation period	170-218 Days
Schedule (WPA 1972)	Schedule III	Breeding Season	November- December
Activity		Litter size	One
Stratum	Terrestrial	Habitat	Steep grassy mountain slopes with low tree cover, cliffs

The Himalayan Brown Goral is a small, brown goat-antelope; shaggy, brownish grey in winter to a sleeker grayish brown in summer. It has a white upper throat patch and white spots on its muzzle. Its horns are short, ridged and backward pointing, and thinner in the females. Himalayan gorals are social animals. They often form small bands of 4 to 12 individuals, although they are also known to pair off or, especially in the case of older males, be solitary. They are crepuscular, being most active in the early morning and late evening. After a morning meal, they often drink and then rest on a rock ledge through the day. Himalayan gorals are very agile and can run quickly. Due to their coloration, they are very well camouflaged, so that they are extremely difficult to sight them, especially since they spend much of the day lying still. Himalayan gorals have various predators and when sensing danger, they will vocalize with hissing or sneezing sounds. The main areas for goral sighting are the southern slopes in the Blossom and Khariyoun areas. The herds can be sighted easily in the morning at Blossom and Khariyoun.



Sambar

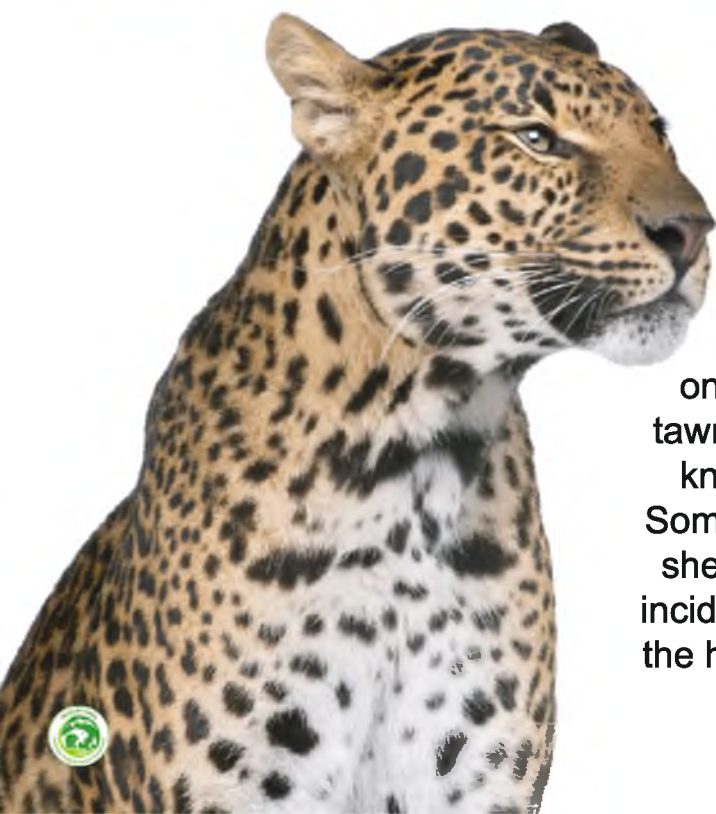
Scientific Name	<i>Rusa unicolor</i>	Weight	180-270 Kg (Male) 130-230 Kg Female)
Order	Artiodactyla	Body Size	HBL[Head and Body Length]:160-210 cm HAS[Height at Shoulder level]: 110-160 cm
Family	Cervidae	Gestation period	260-290 days
IUCN Status/ CITES Appendix	Vulnerable (VU)	Breeding Season	Year round; most commonly September- January
Schedule (WPA 1972)	Schedule III	Litter size	One fawn
Activity	Nocturnal or crepuscular	Habitat	Wide ranging habitat types from mixed decisuous forest, arid and dry forests, shola grasslands,pine and oak and evergreen forests. Prefers moist habitat with undulating terrain.
Stratum	Terrestrial		

A typical forest deer with a shaggy, dark brown coat, and large spreading antlers, the sambar is India's largest deer. The antlers in the Sambar are three-tined with a long, acutely angled brow tine and a main beam that forks into a terminal fork. Ears and tail are relatively large, the former being pinkish with dark markings inside, and latter being bushy and black. Females are lighter and less shaggy. Sambar are nocturnal or crepuscular animals and rest during the day under the cover of heavy forest. The males live alone for much of the year, and the females live in small herds of up to 16 individuals. Males are nomadic and will establish their territory primarily during the breeding season; Despite their lack of antlers, female sambar readily defend their young from most predators, which is relatively unusual among deer. In Chail Wildlife Sanctuary it is found mainly in an oak Forests of Blossom and Khariyoun. However, this animal is reported to be found in the surroundings of Chail area where it generally predares on the nearby agricultural fields.



COMMON LEOPARD

Scientific Name	<i>Panthera pardus</i>	Habits and Habitat	
Order	Carnivora	Weight	45-77 Kg (male) 30-45 Kg (Female)
Family	Cervidae	Body Size	HBL:160-210 cm HAS: 110-160 cm
IUCN Status/ CITES Appendix	Near Threatened (NT)/Appendix I	Gestation period	90-105 days
Schedule (WPA 1972)	Schedule I	Breeding Season	Year Round, Peak in may
Activity	Nocturnal	Litter size	2-4 cubs
Stratum	Terrestrial	Habitat	Deciduous and evergreen forests, scrub Jungle, open country, and fringes of human habitation.



The most adaptable big cat of the Indian subcontinent, the leopard has a clear yellow coat marked with black rosettes. It has a small, spotted head, powerful jaws and a long tail, and its underside is white. The rosettes are unique in individual leopards. They are more like large spots (solids) on the limbs and the face, and on the body, they turn into rosettes with a darker tawny centre as compared to the background. It is known to lift cattle grazing in the sanctuary area. Sometimes it also lifts the small animals like Dogs, sheep and Goat from the inhabited areas. But the incidents of cattle lifting in the sanctuary are not on the higher side which speaks of the richness of the areas with herbivores.

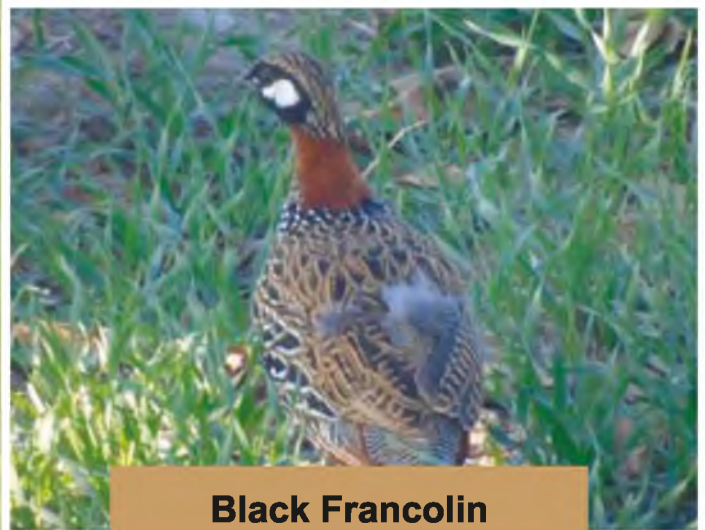
2.6.3.2 Avifauna

The sanctuary is rich in bird life. It has birds that are typical of the Himalayan region including Himalayan Woodpecker, Khalij, Cheer Pheasants, Rufous Sibia, Black Francolin, Himalayan Griffon, Grey Wing Black Bird, Slaty Headed Parakeet, Great Barbet, Verditer Flycatcher etc. The complete list of birds of sanctuary totalling to 90 species is given in Appendix-5.

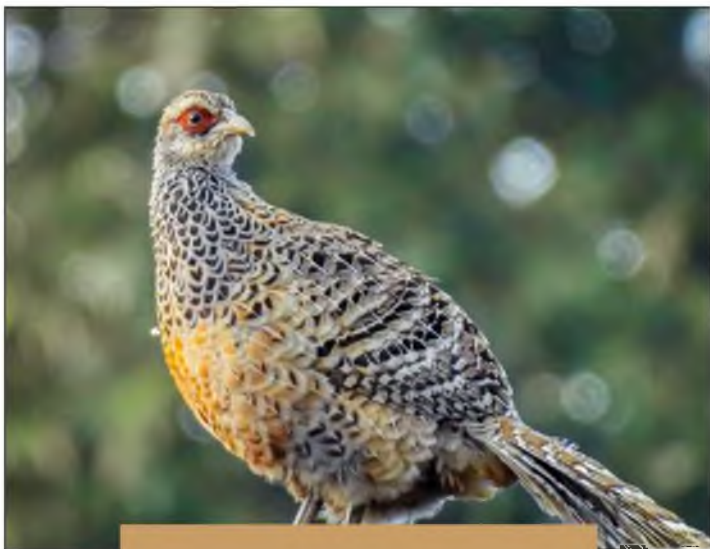
The sanctuary has a good population of Cheer pheasant (*Catreus wallichii*) especially in grasslands and transitional zone between oak forests and grasslands. The Pheasant survey has been done quite some time ago, however, the data obtained through camera trap, patrolling by field staff reveals the population of Cheer and Kalij Pheasant (*Lophura leucomelanos*) is quite abundant.



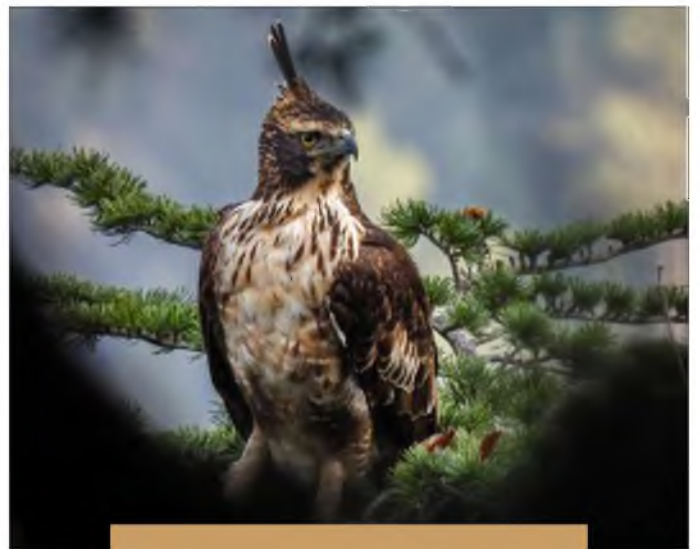
Red Billed Blue Magpie



Black Francolin



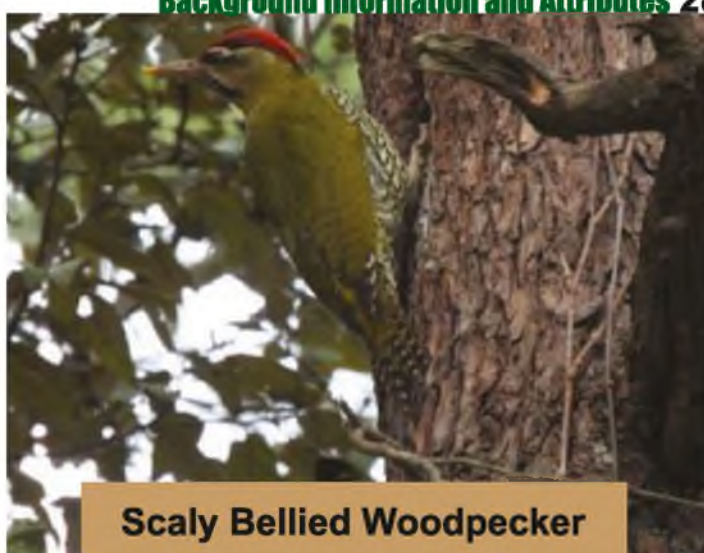
Cheer Pheasant



Mountain Hawk Eagle



Grey Wagtail



Scaly Bellied Woodpecker



Veriditer Flycatcher



White-browed Shrike-Babbler



Himalayan Griffon



Slaty Headed Parake

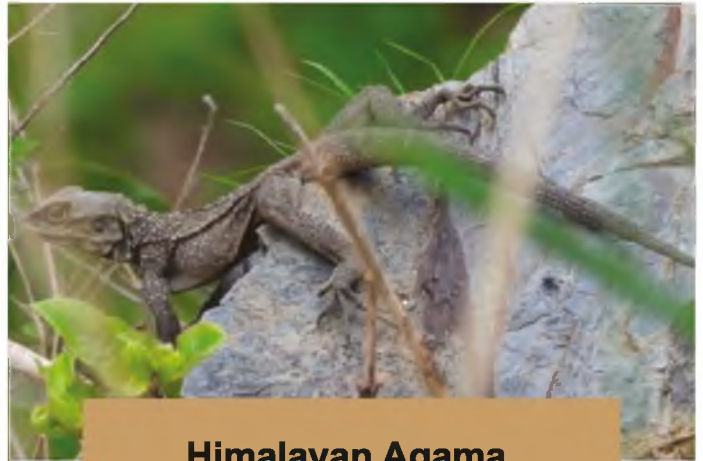
Image 2.6 : Avifauna of Chail Wildlife Sanctuary

2.6.3.3 Reptiles & Amphibian

The sanctuary having several water streams and water sources is home to diverse reptiles and amphibians. Several snakes including Himalayan Pit Viper, Collared black headed snake, Checkered keelback are found in the sanctuary. Apart from snakes, several species of lizards, skinks, geckos and frogs are found in the protected area including the Himalayan Agama, Asian Common Toad etc. The detailed list of reptiles and amphibians are given in Appendix-6.



Himalayan Ground Skink



Himalayan Agama

Image 2.7 : Reptiles of Chail Wildlife Sanctuary

2.6.3.4 Butterflies

The sanctuary is known for wide diversity of butterflies that inhabit the open areas of the sanctuary particularly in Blossom and Khariyoun beats where there is good presence of water and attracting plants. The detailed list of butterflies is given in Appendix 7.



Vanessa cardui



Aglais caschmirensis



Papilio polyctor



Kaniska canace

Image 2.8 : Butterflies of Chail Wildlife Sanctuary

Chapter 3

History of Management and Present Practices





3.1 General

Chail was originally a part of Keonthal state and it came under the Control of Gorkha warrior Amar Singh Thapa. Thereafter, it was a Royal Resort and summer capital of Maharaja Patiala, who bought it from the British government on payment of Nazarna and created this as a private game reserve. While the erstwhile Maharaja Patiala Bhupinder Singh was expelled from Shimla –the summer capital of British India, he decided to establish his own capital and built a palace in 1891 covering an area of approximately 75 acres. This palace was taken over by the Government of Himachal Pradesh and converted it into Hotel which is now being managed by the Himachal Pradesh Tourism Development Corporation and is known as Palace Hotel. The whole area of sanctuary was earlier a territorial Forest Range. The first working plan for this area was prepared by Mr. Fazul-ud-din in 1905. The second was prepared in 1936. The third was prepared by Sardar Baldev Singh Sandhu. It was later on followed by the working plan prepared by K.K. Gupta for Solan Forest Division.

The government declared its intention to convert it into a Wildlife Sanctuary on 21st March 1976. Subsequently, in 1999 the government of Himachal Pradesh notified Chail Wildlife Sanctuary spreading to an area of 109.00 sq km as per notification annexed in Appendix 1. However, as several villages were included within sanctuary, a reorganization and rationalization of sanctuary area was performed reconstituting area into a sanctuary of 16.00 sq km and declared vide notification in 2013 annexed to this plan in Appendix 2. The sanctuary that had headquarter range office at Chail was subsequently converted to a block office post rationalization.

3.2 Timber operations including collection of NTFP, firewood harvest etc

The initial working plans during period when sanctuary was part of territorial forest division were written with view to extract timber from the forests. For this purpose, the forests were managed under following working circles.

1. Regular working circle.
2. Selection working circle.
3. Chir working circle.
4. Protection working circle.
5. Tourism working circle.



The selection working circle comprised mainly of mixed Chir and Oak with some broadcasting of Deodar and Kail situated on steep slopes. Exploitable size was fixed as 60cms DBH and a cycle of 15 years was adopted.

Degraded forests were assigned to Protection Working Circle. By and large, these areas required protection against excess and uncontrolled grazing.

Chir working circle comprised pure Chir pine forests and were managed under Indian shelter wood system modified to suit prevailing local conditions. The rotation period was fixed at 120 years. The regeneration was envisaged to be completed in 30 years period thus working in four Periodic Blocks. The forests falling in Chail Wildlife Sanctuary remain under exploitation for timber extraction till 1986-87. After this there was no green felling in the area and only right holder's demands were met.

After declaring the area as Sanctuary, no collection of non timber forest produce, firewood or harvest is being permitted in accordance with Wildlife Protection Act, 1972 except in private ghasnis where ownership rests with local community members where grass collection is undertaken by the owners of ghasnis. As per prevailing legal provisions, all the activities like removal of dead, dying, diseased, fallen trees, removal of grasses, removal of minor forest produce etc. from protected areas. Earlier the right holder's demands were however met from some forest area which was kept for the purpose as per the settlement report which has also been suspended.



Image 3.1: Private ghasnis in sanctuary



3.3 Non wood Forest produce collection

As per the 'Study on dynamics of plant bioresources in Chail wildlife Sanctuary of Himachal Pradesh' by Arvind Bharadwaj, the sanctuary is documented to have as many as 119 plants belonging to 30 different families that have ethnobotanical relevance and can be used as a Non-Wood Forest produce particularly with respect to medicine and food. 80% of these are herbs and shrubs including but not limited to *Aegle marmelos*, *Aerva sanguinolenta*, *Artemisia vestita*, *Berberis lyceum*, *Fumaria parviflora*, *Geranium wailichianum*, *Impatiens sulcata*, *Nardostachys jatamansi* etc. which are used for various purposes including as medicines, edible parts of plants, veterinary medicines, fuel etc

Local people do not have any rights over forest produce. In accordance with the laws in place, no NTFP is being collected from the sanctuary by residents of the adjoining villages.

Presently, collection of Non wood Forest Produces is prohibited within sanctuary limits except for research and study purposes duly permitted by Chief Wildlife Warden of state.

3.4 Leases

There is no village inside the sanctuary. No leases exist in the sanctuary area. However, migratory graziers used to have permit rights to graze their cattle and in this regard 2400 domestic animals once used to graze sanctuary area which were later on stopped as per Supreme Court's directions except in private ghansis where ownership rests with local community members where grass collection is still permitted.



3.5 Other Programmes and Activities

3.5.1 Soil Moisture Conservation Works

The sanctuary as a whole is well vegetated and suffers less from problem of erosion. However, there are certain streams which require to be treated to control flow of sediments, silt, save soil and reduce siltation in water ponds. In this context, soil conservation works are done in the sanctuary consisting of check walls, retaining walls and dry stone check dams.



Image 3.2: Soil Moisture Conservation Works in Sakori RF of Chail Wildlife Sanctuary



3.5.2 Plantation Work

Plantations have been carried out inside the sanctuary on a regular basis for the past years, in blank portions. The main species planted from 2011-12 to 2020-21 are Deodar, Ban Oak, Maluk, Daru, Kainth etc. The details of plantation work in the past ten years are given in the table below:

Year	Name of Forests	Plantation Area (in Ha)	Name of Beat
2012-2013	D52DeenD52Deen	3.0	Deen
	R17 C7 Banjani	8.0	Banjani
	D51 jhajha	3.0	Khariyoun
	D44Cheonth	2.0	Cheonth
2013-14	D44-Cheonth	2.0	Cheonth
	D51 jhajha	6.0	Khariyoun
2014-15	R17 C5 Binoo	5.0	Banjani
	R 18 C1b Sakori	5.0	Sakori
2017-18	R15 Khariyoun	1.0	Khariyoun
2018-19	R15 Khariyoun	1.0	Khariyoun
2021-22	R17 C2 Banjani	1.0	Banjani
Grand Total		38.0 hectare	

Table 3.1 : Detail of plantation works carried out in sanctuary

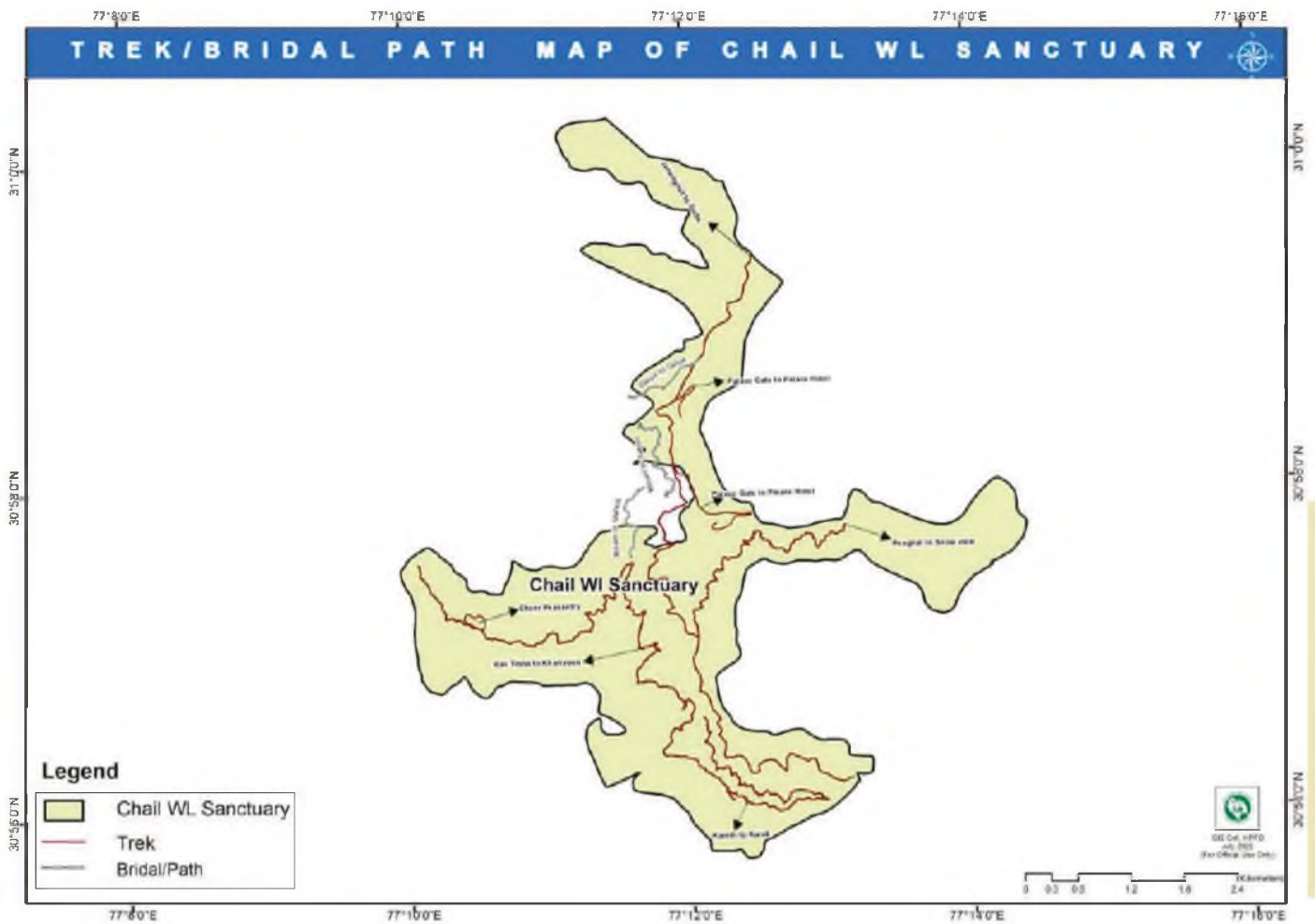
3.5.3 Maintenance of Bridle/Trek paths

These paths have dual purpose of patrolling/ inspection and for eco-tourism purposes. However, every year these paths are to be maintained to clear them of leaf litter and make them ideal for movement on foot. Further, snowfall during the winters also leads to falling of tree branches or stem which may block such paths. Hence, maintenance of these paths is done periodically to ensure they remain functional. The following are the list of bridle paths/nature trails delineated and maintained in Chail Wildlife Sanctuary:

Sr. No.	Name	Distance (in Km)
A.Nature Trail		
1	Kali Tibba to Khariyoun / jhajha	10
B.Trek Paths		
2	Kainth kandi to Kano	2
3	Ranital to Snow view	4
4	Ranital to Mihani	4
5	Snow View to chorghatti	5
6	Khariyoun to Summer House	3
C.Bridle Paths		
7	Khariyoun to Jhajha	3
8	Janedghat to Narood	5
9	Mahog to Chabata	2

Table 3.2 : List of paths and trails inside sanctuary





Map 3.1: Trek & Bridle Paths in Chail Wildlife Sanctuary

3.5.4 Rapid Survey of Fauua of Chail

Rapid Faunal Survey was conducted in the year 2019 by Nature Conservation Foundation in coordination with Wildlife Wing. The study was aimed at generating a dataset of biodiversity in the sanctuary with emphasis placed on understanding the presence of mammals and birds. The results of the study contributed to better understanding of protected areas and created a baseline evaluation of wildlife presence



3.5.4.1 Mammal survey:

The survey was performed through established transect walks delineated across the whole sanctuary. The methodology for the survey was estimation through sign survey, direct sighting, encounter rate and camera trap based information. Nocturnal surveys were conducted to estimate animals displaying nocturnal/crepuscular behaviour. Observers were tasked with documentation of signs or direct observations of all medium-sized and large mammals. Direct observations were in the form of visual sightings or aural detection. Indirect signs of mammals were either in the form of faecal droppings or as a print in clear substrate, which were identified where possible.

Camera traps were also used during the survey. These were placed along or near a well-established trail opportunistically to supplement the overall mammals checklist.

MAMMAL SPECIES DETECTED DURING DAYTIME TRANSECTS AT CHAIL WILDLIFE SANCTUARY

Species	No of detections	% of detections made directly
Barking deer	57	12.3
Himalayan Goral	36	13.9
Common Leopard	15	0
Indian crested porcupine	13	0
Sambar	9	44.4
Wild Pig	5	0
Himalayan Langur	5	80
Bengal Fox	1	100

Table 3.3: Mammals detected in Rapid Survey

(Source: Rapid Survey Study by HP Wildlife Wing & NCF , 2019)

As seen from table , Sambar, Barking Deer (*Muntiacus muntjak*) and Himalayan Goral (*Naemorhedus goral*) were the most frequently detected species of mammal during the survey, comprising 70% of all detections. Sambar was detected directly with the highest frequency, being sighted on 11 occasions. As per the survey, 8 different mammals were recorded in the sanctuary.



3.5.4.2 Bird Survey

The bird survey in Chail Wildlife Sanctuary was carried out using methodology of point sampling, call count and direct sighting on transect walk.

Seventy Six bird species were recorded in the Rapid Survey with maximum detections of Oriental Turtle Dove and Large Billed Crow. Apart from these, the maximum detections that were made were of Great Barbet, Black Francolin, Grey Winged Black Bird, Green Backed Tit, Grey Bushchat. The nocturnal surveys yielded result of Grey Night Jar and Mountain Scoops Owl

3.5.5 Awareness programmes

Various awareness programmes regarding forest fires, water and soil conservation, illicit felling, and hunting are conducted for the conservation and protection of flora and fauna of the sanctuary.

3.5.5.1 Wildlife Week:

Wildlife week is celebrated annually during first week of October and for the celebration of this week various activities are carried out by the forest department by involving school students and local community. Activities like cleanliness drives, slogan writing, painting, quiz competition, cycling etc. are carried out in the sanctuary. The well performing students were awarded by Honourable Chief Minister during state level wildlife week celebrations.



Image 3.3 : Cleanliness Drives organized as part of Wildlife Week 2021



3.5.6 Training

Various training programs and sensitization modules are conducted regularly for batches of Indian Forest Service Officer Trainees, State Forest Service Officer Trainees, Range Officer Trainees and field staff trainees, forestry Graduates and members of civil society. The training modules with respect to Cheer Pheasant Conservation Breeding is a unique training module as the Chail Sanctuary hosts the World's only conservation breeding centre for Cheer Pheasants



Image 3.4 : Batches of IFS Ocer & Range Ocer trainees

3.5.7 Inter-agency Programmes

The maintenance of roads inside sanctuary are done by Public Works Department. There is coordination in cleanliness drives with Rashtriya Military School and local bodies.

3.6 Forest Protection

Forest protection is accorded top priority in the Sanctuary. Protection here is multidimensional as wildlife habitat faces varied threats from illicit felling, littering, muck/debris dumping, hunting, etc. In order to curb these and enforce the Wildlife Protection Act and other forest laws in its letter and spirit, forest protection is essential activity which is performed through varied measures like patrolling, fencing of areas, holding awareness programmes, levying fines/ damage bills etc.



3.6.1 Legal status

The Chail Wildlife Sanctuary post reorganization and rationalization was notified during the year 2013 vide Notification No.FFE-B-F(6)-11/2005-II/Chail dated 07.06.2013 with effect from the Date of Publication in the State Gazette.

3.6.2 Hunting

Hunting in the sanctuary has been prohibited.

3.6.3 Illegal activities

The sanctuary is vulnerable to illegal activities especially illicit felling and debris/muck dumping due to the many roads that pass through the sanctuary and patches of fine deodar trees. Apart from illicit felling, sanctuary is slightly vulnerable to lopping due to pressure from nearby villages. The threats of lopping, illicit felling and dumping are reflected in the detail of offences detected in past decade in the sanctuary which is given in Appendix 8.

3.6.3.1 Poaching

No poaching has been detected in the recent past. However as a precautionary measure, patrolling is carried out on foot by the sanctuary staff on the bridle paths which covers the entire sanctuary. Sanctuary staffs generally carry out patrolling in groups, which is effective. Sometimes sanctuary staff carry out patrolling individually. Night patrolling is done by staff as and when required or depending on local intelligence and inputs.

3.6.3.2 Illegal Cutting of Trees

Illicit felling has been a major cause of concern for the sanctuary with 30 cases detected in past decade. In addition, lopping of trees is also an issue due to livestock population of nearby villages and presence of good ban oak patches in sanctuary.

3.6.3.3 Debris Dumping

As the sanctuary is accessible at various places through roads and there is lot of construction and road building activity going on in zone of influence, sanctuary area is very vulnerable to debris/muck dumping.



There are several villages on the periphery of the Sanctuary and a good percentage of local population also rear livestock. On few occasions, cattle enter and graze, but it is effectively controlled by the field staff.

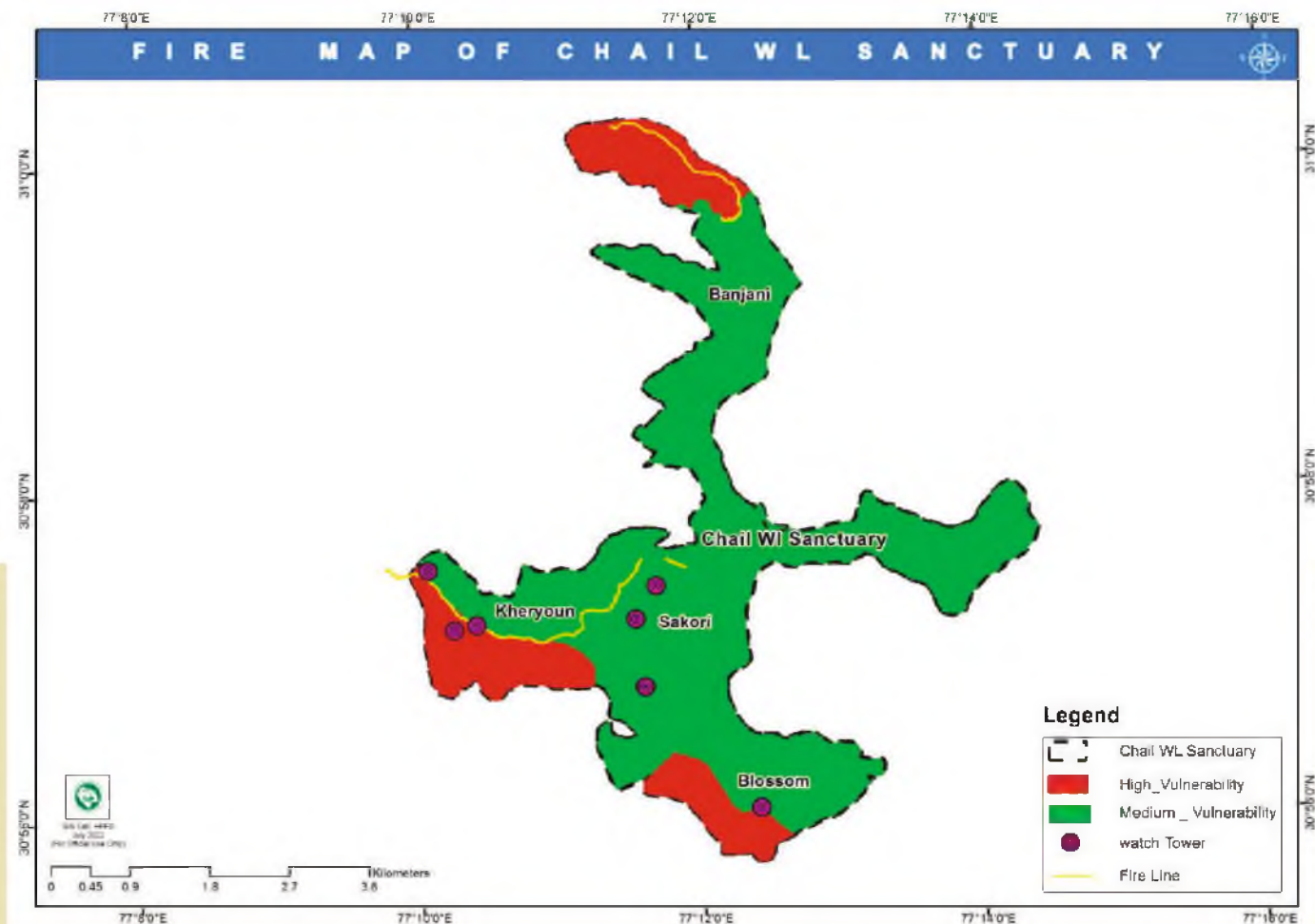
3.6.5 Wild fires

Currently, four fire lines exist within the Protected Area. The fire prone portion of sanctuary is identified in Chir Pine Zone in Banjani beats which have been frequented by forest fires in past years. In addition to these, the grasslands of sanctuary in Khariyoun, Blossom beat especially the private ghasnis are most vulnerable to forest fires especially given their proximity to villages and the need of villagers for fresh fodder grass (depicted in fire map below). The detail of forest fires is given below:

Sr. No.	Year	Beat	Name of Compartment	Area Burnt (In Ha.)	Type of Fire
1	2012-13	Banjani	D49 C1 Banjani	12	Ground Fire
		Shilli	D-108 Shilli	30	
		Shilli	D-108 Shilli	90	
		Shilli	D-108 Shilli		
		Chaklain	D -46 Chaklain	9	
		Chaklain	D- 46 Chaklain	10	
			D- 45 Tibbe katch	50	
		Khariyoun	Pvt. Ghasni Kai Shamlat D51 Jhajha	33	
5	2016-17	Blosssom	R19 C3, C4a	70	Crown Fire
		Sakori	R18 C1a	7	
8	2019-20	Khariyoun	D51 Jhajha, R15 Khariyoun C1,C2	80	Surface Fire
9	2020-21	Khariyoun	D51 Jhajha C2 and Govt. Shamlat	20	
10	2021-22	Banjani	R17 C9 Banjani	50	

Table 3.4 : Detail of Forest Fires in last 10 years in sanctuary





Map 3.2 : Fire Vulnerability Map of Chail Wildlife Sanctuary



Image 3.5 : Watch Towers at Vantage Points in Chail Wildlife Sanctuary

Fire watcher huts have been established at vantage points. Each watch points are manned by firewatchers during fire season. All forest staffs are registered on FAST 3 portal developed by Forest Survey of India, Dehradun for receiving SMS based fire alerts for fast action. Whenever there is a fire incident, forest staffs along with fire watchers and local communities are involved in dousing of forest fires.



3.6.6 Insect attack and pathological problems

Chail sanctuary is documented to have suffered from root rot disease in *Cedrus Deodara* caused by *Phytophthora cinnamoni*, a fungal infection that lead to unnatural drying of patches of Deodar trees. The key observation during studies of fungal infection was that the young regenerating plants were in perfect health even as mature and old trees were drying. This is attributed to ectomycorrhizal presence which acts as main deterrent to invading pathogen.

The main method of control of aforementioned fungal infection included provision of trenches, application of anti-fungal medicine in trenches, fencing of affected areas to prevent the spread of infection to other unaffected deodar patches.



Fig. 2. (a) Dead and dry trees of *C. deodara* in different stages of infection; (b) Patch of infected trees of *C. deodara* in the forest with chlorotic foliage; (c) *Cedrus deodara* roots showing fungus mycelium and dead short roots; (d) Isolated culture of *Phytophthora cinnamoni* showing characteristic rosette growth on PDA; (e) Healthy roots of regenerating seedlings with conspicuous ectomycorrhizal development; (f) T. S. of ectomycorrhizal root showing thick outer fungal sheath (mantle); (g) T. S. of uninfected short roots; (h) T. S. of diseased short root.

Apart from fungal infection, a new whitefly species infesting Ban Oak (*Quercus leucotrichophora*) has been documented from Chail Wildlife Sanctuary which also requires constant monitoring and corrective action as and when required.



3.6.7 Wildlife Health

No prominent weed species have been reported from the sanctuary. However, given the high density of rainfall and moisture there is a need to maintain vigil on the growth of *Eupatorium adenophorum*. There is also no recorded history of diseases that have affected wildlife. The department of animal husbandry conducts regular vaccination of livestock in and around sanctuary. This helps in mitigating spread of any diseases from domestic livestock to wildlife.

3.7 Eco-Tourism

There is no organized eco-tourism being conducted in sanctuary. A nature trail stretching from Khariyoun to Kali Ka Tibba mandir has been developed for eco-tourism purposes. This trail involves resting points, gazebos etc. A small camping site has been partially developed in blossom beat where area has been fenced. However, till date it has not been completed and hence is not operationalized. This sums up the fact that the sanctuary despite having immense eco-tourism potential in form of grasslands, water sources, lush green deodar-oak forests has been grossly underutilized from eco-tourism point of view.

3.8 Research, monitoring and Training

3.8.1 Research & Monitoring

The Wildlife Sanctuary has been subject to a variety of research studies and publications in domains of plant biology, wildlife census, pathological research, floristic survey etc. The following are some of research studies that have been conducted in the sanctuary:

- ♦ Status of distribution of Cheer Pheasant *Catreus Wallichi* in Chail Wildlife Sanctuary, India by Naim Akhtar, ML Narang, Manoj Kumar in 2004.
- ♦ Floristic diversity assessment of major forest community of Chail WL Sanctuary in Himachal Pradesh by Rakesh Kumar, DP Sharma, A Bhat and Lalit Thakur in 2012-13.
- ♦ Plant Biodiversity of Major Forest Communities in Chail Wildlife Sanctuary of Himachal Pradesh by Rakesh Kumar, DP Sharma.
- ♦ Avian fauna of Chail Wildlife Sanctuary in Himachal Pradesh, Western Himalaya by A Naim, ML Narang, K. Manoj in 1996-99.
- ♦ Orchids Diversity at Chail Wildlife Sanctuary, Himachal Pradesh, Northwest Himalaya by A Bhardwaj, RK Verma, JC Rana, K Thakur, J Verma in 2011-13.
- ♦ Preliminary Studies of Butterfly Fauna of Chail Wildlife Sanctuary, Shimla, Himachal Pradesh by Ritika Gagotia and Pawan Kumar since 2017-18.



- ♦ Study of dynamics of plant bio resources in Chail Wildlife Sanctuary of Himachal Pradesh.
- ♦ Regeneration status and soil physico-chemical analysis of dominant forest communities of Chail wildlife Sanctuary in Himachal Pradesh by Rakesh Kumar, Tiwari Prabhat, Thakur Lalit.
- ♦ Description of a new whitefly, *Pealius satakshiae* Dubey (Hemiptera: Aleyrodidae), infesting *Quercus leucotrichophora* (Fagaceae) in the Western Himalaya, India
- ♦ *Cedrus deodara* root rot disease-threat to the Himalayan forestry and environment: LAL SINGH and T. N. LAKHANPAL
- ♦ Rapid Faunal Survey of Chail Wildlife Sanctuary by Himachal Pradesh Forest Department, National Centre for Biological Sciences and Nature Conservation Foundation

3.8.2 Training

All field staffs are trained in forestry, wildlife conservation, laws and regulations related to protected area management in designated forest training institutes of the state government. Regular refresher courses are conducted for the field staff in various protected area management concepts. Workshops are conducted for wildlife staff on census techniques including camera trapping, transect walks, drafting of data sheets etc in association with institutes like Zoological Survey of India, Wildlife Institute of India etc. However, training modules currently conducted are insufficient and field staff needs more specialized diversified training modules as suited to modern conservation techniques.

3.9 Wildlife Conservation strategies and their Evaluation:

A. Patrolling

At present joint patrolling, night nakas, individual patrolling are done to protect the sanctuary from various offences. Patrolling is carried out on foot and sometimes a vehicle is also used for the purpose. In this protected area, patrolling along roads is also performed as it is crucial to stop debris dumping and illicit felling.

B. Fencing

At present fencing is at various points which prevent debris dumping, illicit felling and mitigate threat of encroachment. Fencing is limited to few areas where such threats exist. The other areas are kept as such to ensure wildlife corridor connectivity in the whole sanctuary landscape and with adjacent territorial forests.



C. Water ponds

Small kaccha and puca water ponds of various capacities have been constructed in all beats for retaining water for use by wild animals especially during summers



Group Patrolling in Khariyoun beat



Fencing at Mehani, Khariyoun beat



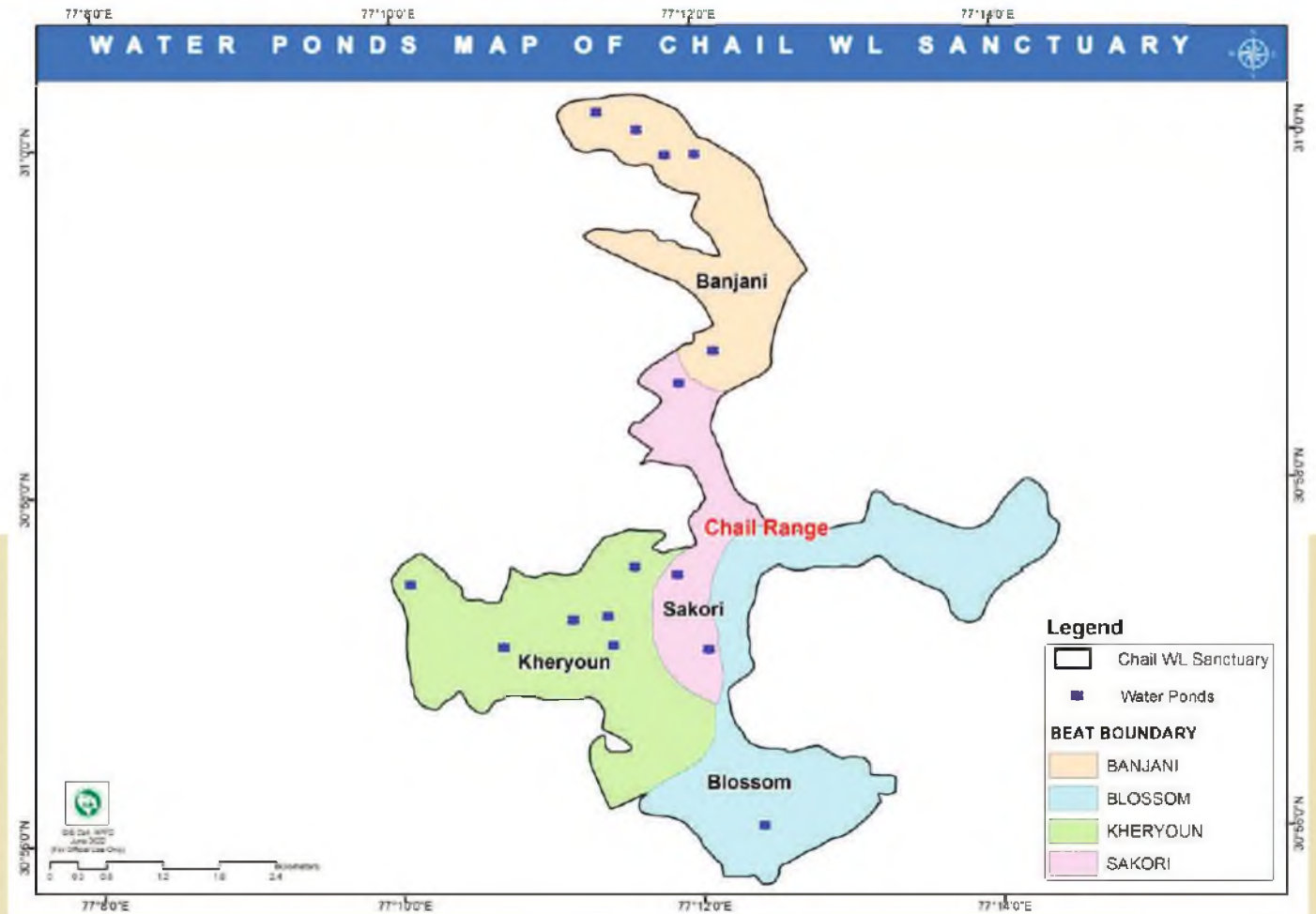
Pakka Water Pond in Banjani



Kachha pond at Banjani beat

Image 3.6 : Wildlife Conservation Strategies





Map 3.3 : Water Ponds in Chail Wildlife Sanctuary

3.10 Administrative set up:

The sanctuary is administrated by a Deputy Conservator of Forests, headquarter at Khalini. Range Forest Officer, SWC, Dhalli is the officer in charge of the sanctuary. The sanctuary is divided into two blocks Chail and Pheasantry, each headed by a Block Officer. Chail block is divided into Banjani, Sakori, Blossom and Kharyoun beats, while Kharyoun block is divided into Kharyoun Pheasantry. Each beat is headed by a forest guard. The headquarters of this administrative unit is given below:

S.No	Block	Beat	Headquarter
1	Chail	Banjani	Janedghat
2	Chail	Sakori	Chail
3	Chail	Blossom	Kano
4	Chail	Kharyoun	Kharyoun
5	Kharyoun	Kharyoun	Kharyoun



3.10.1 Power and functions delegated to field level officials

3.10.1.1 Duties of Range Officers

- To communicate all orders and instructions to his subordinates.
- To check and control all work within his range.
- To collect, check and consolidate all returns and registers, to prepare the monthly range accounts and to carry out all office work promptly and correctly.
- To prevent any misuse of authority by subordinates particularly in forest offences.

3.10.1.2 Duties of Block Officer

- To manage the block unit assigned to him to the best of his ability with respect to forest and wildlife conservation
- To assist the range officer to best of his ability,
- To carry out the works of the department honestly and efficiently.
- To carry out all the orders given to him.
- To report to range officer on all important happenings.
- Thoroughly understand rules for compounding forest offences and closely to observe them.
- To prevent forest guard under his control from misusing their authority accepting bribes or harassing the peop

3.10.1.3 Duties of Forest Guard

- To manage the beat unit assigned to him to the best of his ability with respect to forest and wildlife conservation
- To be fully acquainted with his beat and to have knowledge of everything taking place in his beat.
- To be fully acquainted with and to possess a list of rights privileges and concessions that may be exercised by the people in the forests of his /her beat.



- Strictly observe the rules for detection of offences, prosecution and compounding forests offences.
- Repairs of boundary pillars, roads and buildings in his beat under orders of Range officer.
- Maintenance of fences, plantation, weeding, water ponds and all such resources/assets etc. The expenditure in this regard to be incurred only post range officer's sanction.

3.11 Communication

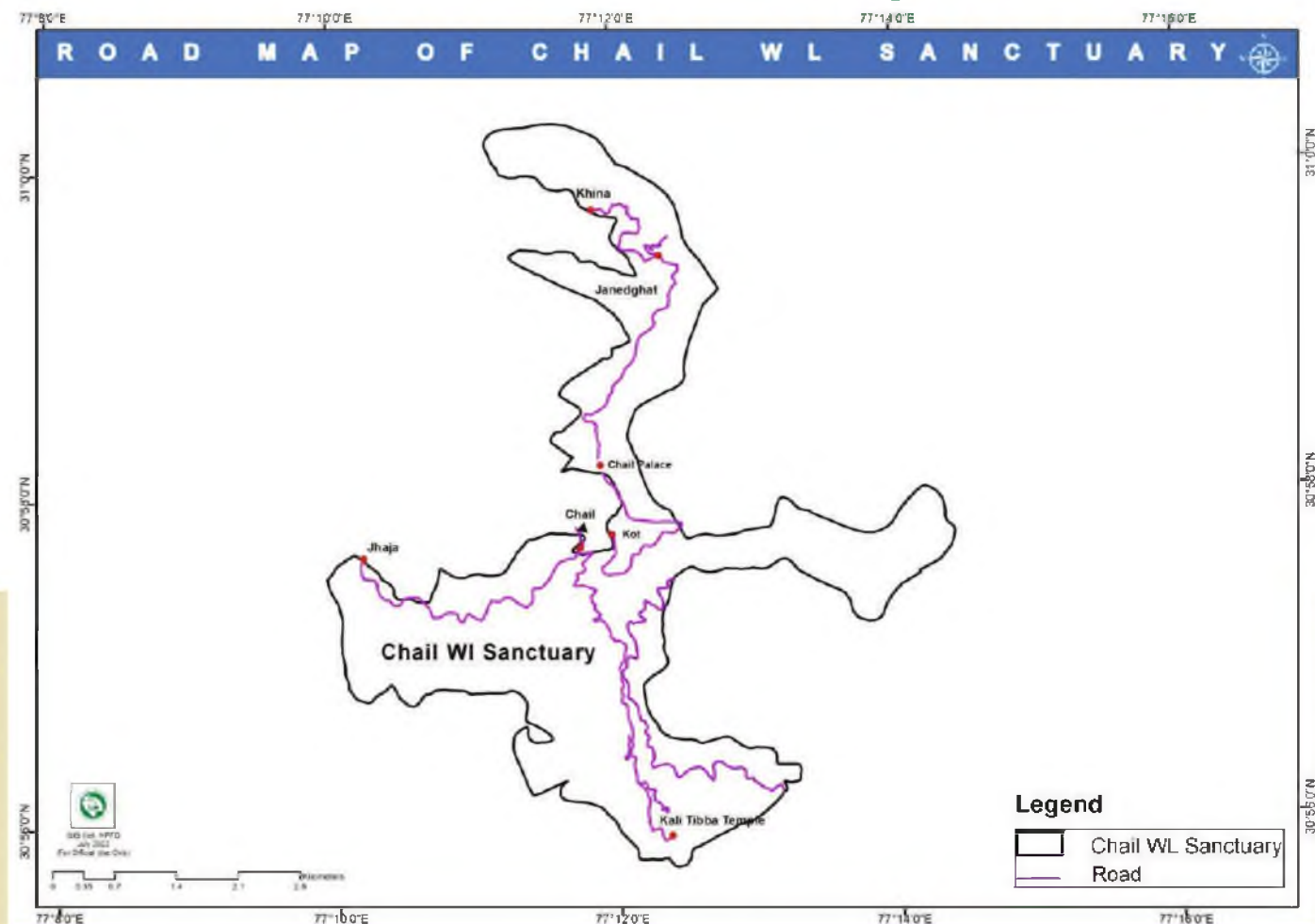
3.11.1 Roads

The sanctuary is traversed by several roads. List of roads is as given in below table:

Sr. No.	Name	Distance (In Km)	Type
1	Janedghat to Ghewa (Gaura Road)	11.0	Jeepable
2	Chail to Kutiya mod (Tikkar Road	4.5	
3	Chorghatti to kali tibba	2.0	
4	Bara Mod to Mahog (Kandaghat Road)	2.0	
5	Chail to Banjani	3.0	
6	Mihani to jhajha (Solan Road)	4.0	
7	Chabbata to Khariyoun	2.0	Motorable
8	Janeghat to Khinna (Kiari Road)	2.0	
9	Chail to FRH Chail and RMS Chail, Sidh Temple	5.0	

Table 3.5 : List of Roads inside sanctuary





Map 3.4 : Roads passing through Chail Wildlife Sanctuary

3.11.2 Patrolling paths

A basic network of paths have been developed which criss cross the whole sanctuary area. These paths act as natural fire lines. List of patrol paths within the sanctuary is given below:

Sr No	Name	Distance (in Km)
1	Kainth kandi to Kano	2
2	Ranital to Snow view	4
3	Ranital to Mihani	4
4	Snow View to chorghatti	5
5	Khariyoun to Summer House	3

Table 3.6 : List of Patrolling Paths inside Sanctuary



3.11.3 Telephones

At present there is a telephone at range office for official communication and public enquiry. The phone number of office is 0177-2925219.

3.11.4 Wireless & Mobile Communication

Walkie-talkies and communication allowances are given to the staff during fire season. However, these walkie-talkies are old and are not serviceable. Most of the field staff owns their own mobile set, and they are given mobile bill allowances for better communication.

3.11.5 Email & Social Media Group

An email ID has been created at range level- *rfoswcdhalliwl@gmail.com* for easy correspondence between division and range. In order to further streamline coordination between staff and division office, a social media group involving all range level staff has been created for fast dissemination of information and orders. A website of HP Wildlife Wing at <http://hpwildlife.gov.in/> has been developed which mentions details of all protected areas in Himachal Pradesh including the Chail Wildlife Sanctuary.

3.12 Summary of Threats to Wildlife

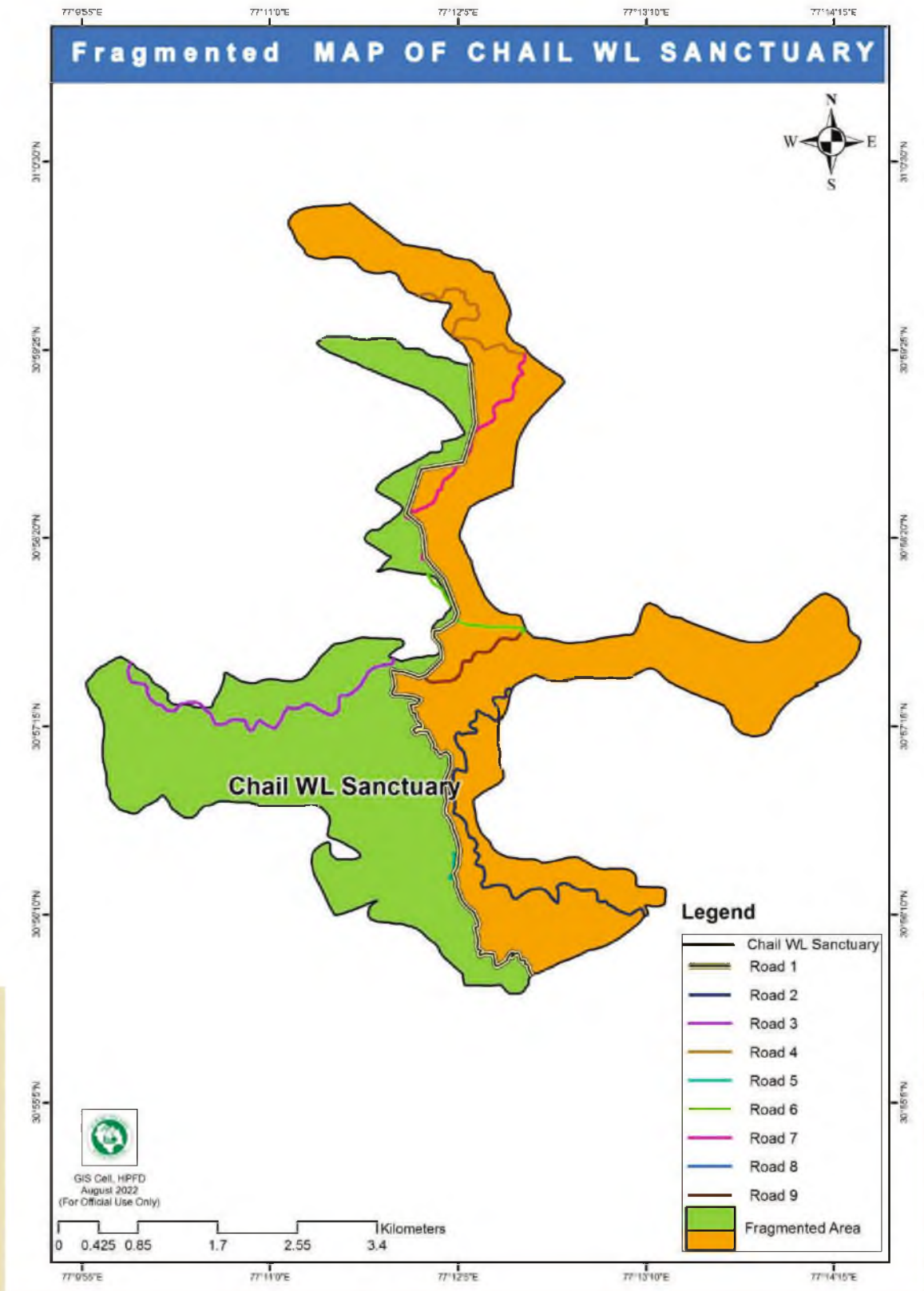
Sanctuary has water sources, flora, fauna which needs to be conserved and protected. At present, the most likely threats to protected area are illicit felling, debris dumping, encroachment, littering, lopping, grazing, pollution, minor hunting etc. These threats need to be mitigated for conservation and preservation of biodiversity of the protected area.

Present threats to the sanctuary are elaborated in the next sub sections.



3.12.1 Fragmentation of Habitat

There are several roads that pass through the sanctuary which leads to immense fragmentation of habitat cutting across conservation units. This limits contiguous habitat patches for wildlife affecting gene flow and limiting habitat diversity. The issue is compounded by small size of sanctuary making this the most prominent threat to wildlife in sanctuary.

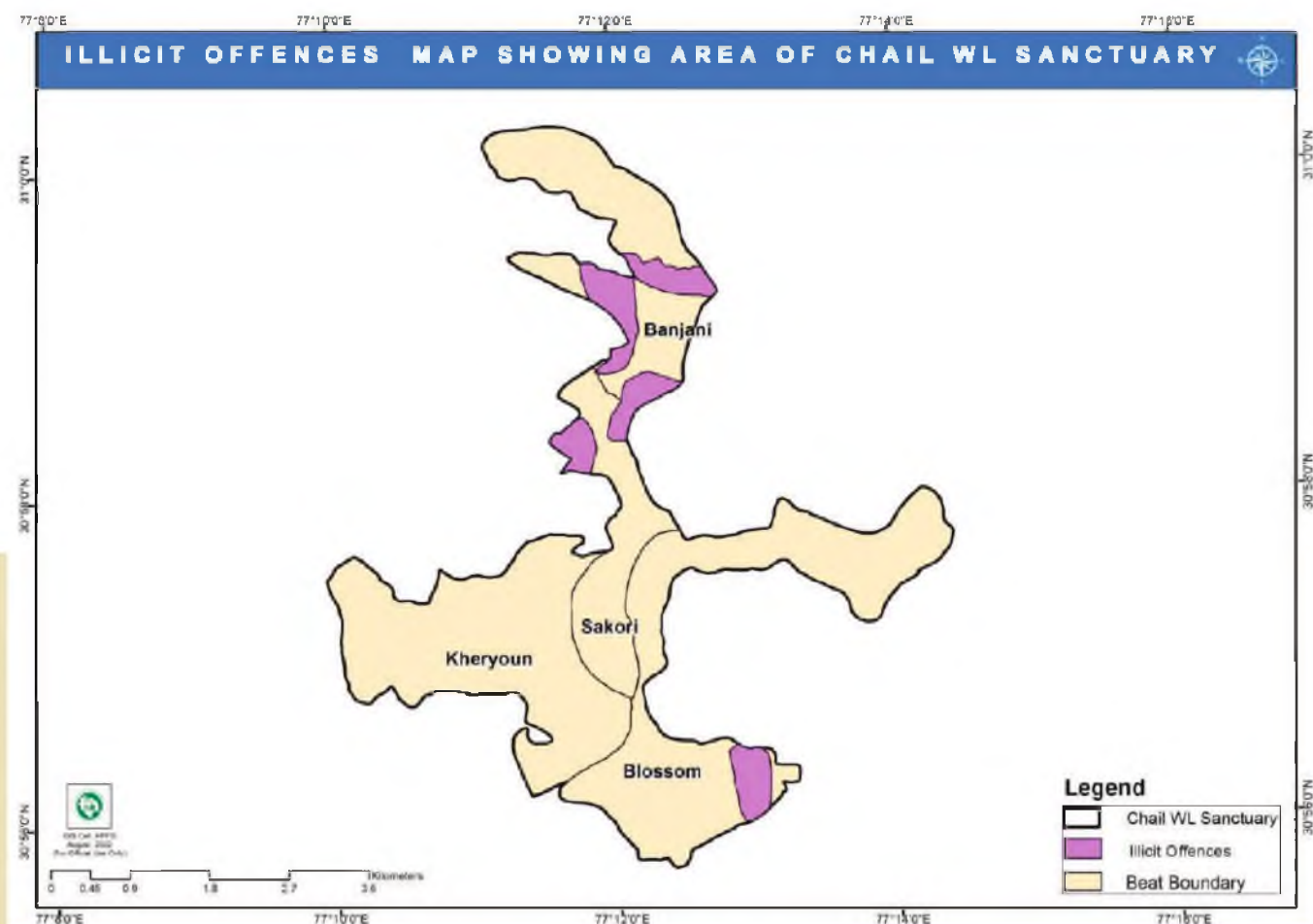


Map 3.5 : Fragmentation Map of Chail Wildlife Sanctuary



3.12.2 Illicit Felling

The threat of illicit felling in sanctuary is significant and reflective in offence list with 30 cases in last decade. The prime reason behind the vulnerability to illicit felling is the presence of road network inside sanctuary making illicit felling and transit of timber likely.



Map 3.6 : showing areas vulnerable to illicit felling in sanctuary

3.12.3 Encroachment

The sanctuary has recorded history of as many as 9 cases of encroachments in which 3 cases have been evicted and 6 cases are pending with Honourable High Court of Himachal Pradesh. The threat in this regard is particularly adjacent to the towns of Chail-Janedghat and village settlements. The fact that several boundary pillars are missing in sanctuary area compounds the vulnerability of encroachment. The list of all boundary pillars including missing ones are annexed as appendix 9



3.12.4 Debris/Muck Dumping

The access of sanctuary area through roads coupled with construction activity in zone of influence renders sanctuary vulnerable to threat of dumping particularly along the forests either side of Chail Janedghat Shimla road.

3.12.5 Littering

The lack of proper waste management system in Chail town and tourist facilities like The Palace leads to issue of littering in sanctuary area particularly forest area in Sakori beat leading to chail town which has been historically used for waste dumping by residents and local hoteliers/shop keepers.

3.12.6 Lopping

The portion of sanctuary adjacent to village settlements sees the threat of lopping for fire wood and subsistence use. However, the threat is negligible given presence of village is faraway.

3.12.7 Noise pollution

Chail being a tourist town and the volume of vehicular traffic has been increasing dramatically during the past decade. As the road is connecting Chail to popular tourist places, the vehicular noise emanating poses disturbance to wildlife especially during breeding season of wildlife. The movement of vehicles for grass collection in Khariyoun also poses disturbance to wildlife.

3.12.8 Wild Fires

The threat of fires in sanctuary emanates from the Chil Pine Zone and grasslands combined with the need of fresh fodder grass for villagers in private ghasnis. This threat is projected to increase with climate change and ensuing harsh summers.



Chapter 4

The Protected Area and the Interface Land Use Situation





4.1 The Existing Situation in the Zone of Influence

The Zone of influence of sanctuary can be considered to be the notified eco sensitive zone which follows more or less the sanctuary shape. The socio-economic character of this zone of influence is the existence of tourist establishments in the form of shops, restaurants, fast food eateries, hotels, homestays etc. The tourist influx has been over years steadily increasing leading to issues of littering, noise pollution. Apart from these, there are as many as 32 villages are located in the zone of influence. The socio-economic character of these villages is largely oriented towards agriculture, horticulture, floriculture and livestock rearing. In this context, there is dependence on sanctuary area and private ghasnis for fodder grass which villages collect before onset of winter for the purpose of stall feeding. In totality, the zone of influence thus exerts varied kinds of biotic pressure on sanctuary.

4.1.1 The Location, Extent, Boundaries and Natural Attributes of Zone of Influence

The Zone of Influence extends in the eco sensitive zone of protected area. The Eco Sensitive Zone of Chail Wildlife Sanctuary was notified vide Notification No. SO 39(E) dated 05/01/2022. The boundaries of zone of influence are coterminous with the boundary of eco sensitive zone. The zone of influence shall be to an extent of 0.5 kilometres to 3.26 kilometres around the boundary of Chail Wildlife Sanctuary and the 34.04 square kilometre area of the Eco-sensitive Zone comprises of 20.44 square kilometres of forest land and 13.60 square kilometres of private land. The natural attributes of the zone of influence are that there exists vegetation similar to sanctuary in form of deodar, ban oak, chil pine forests. They form part of territorial forests of Shimla and Solan Forest divisions.



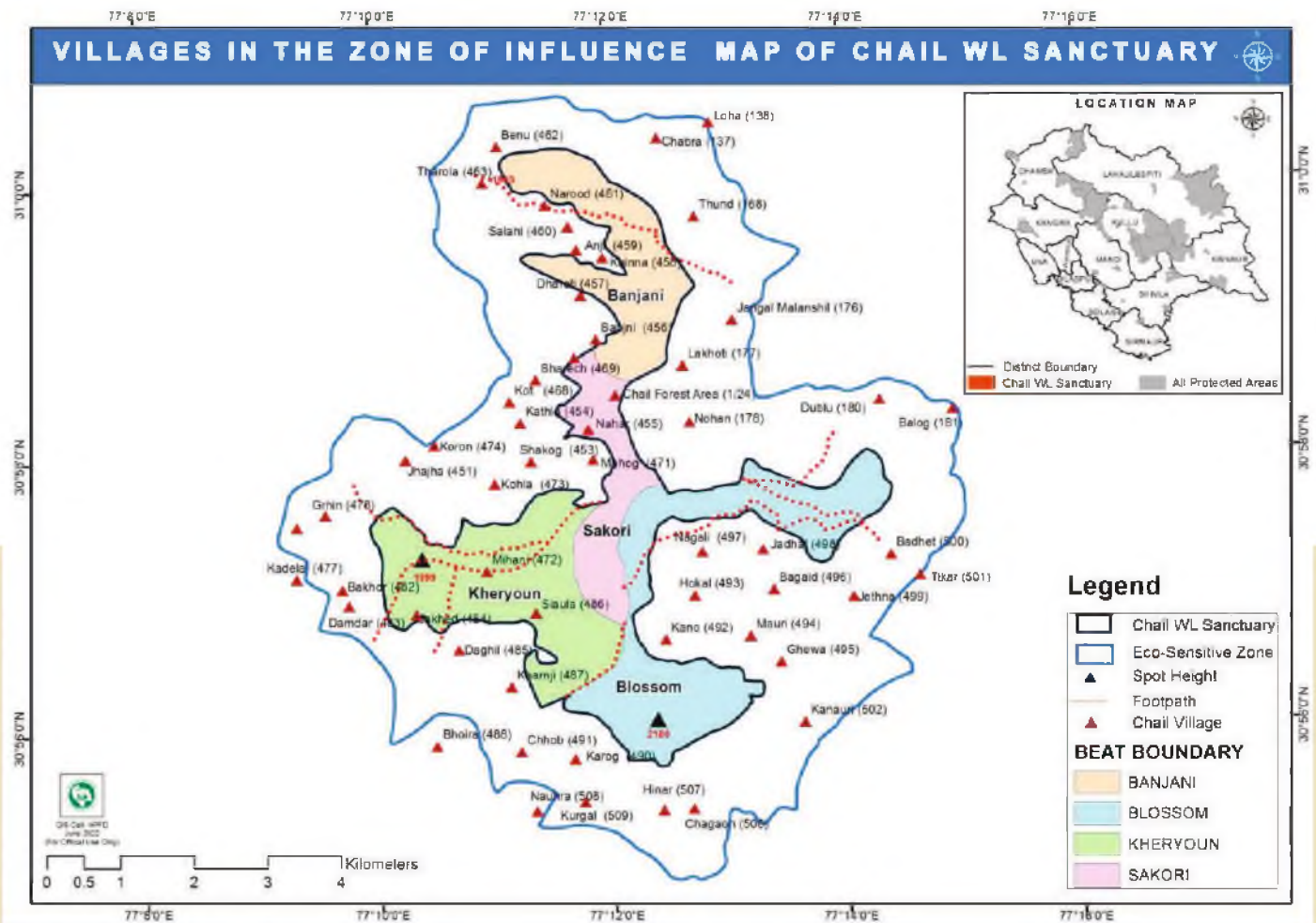
4.1.2 Villages inside/outside the protected area, ethnic identities, traditions, customs, relationship between distinct groups of people, relationship with resources, habitat and area

There is no village inside sanctuary area. However, there are total of 27 villages in zone of influence. The list of major villages along with human and livestock population is as follows:

Sr. No.	Name of Village	Human Population in No.	Cattle Population in No.
1	Mihani	237	70
2	Chail	713	5
3	Sakori	190	90
4	Janedghat	121	2
5	Banjani	230	200
6	Shillai	308	173
7	Narood	86	67
8	Khinna	86	43
9	Tikkar	139	50
10	Jethna	149	100
11	Jadhya	86	40
12	Nagali	361	100
13	Hukkal	117	60
14	Kanoo	134	24
15	Mawari	18	12
16	Ghewa	79	16
17	Kanori	323	80
18	Jhajha	264	130
19	Badhet	155	55
20	Timbru	30	10
21	Shaneth	50	15
22	Mahog	100	50
23	Kathla/Shakog	50	35

Table 4.1 : Detail of Villages in Zone of Influence of Sanctuary





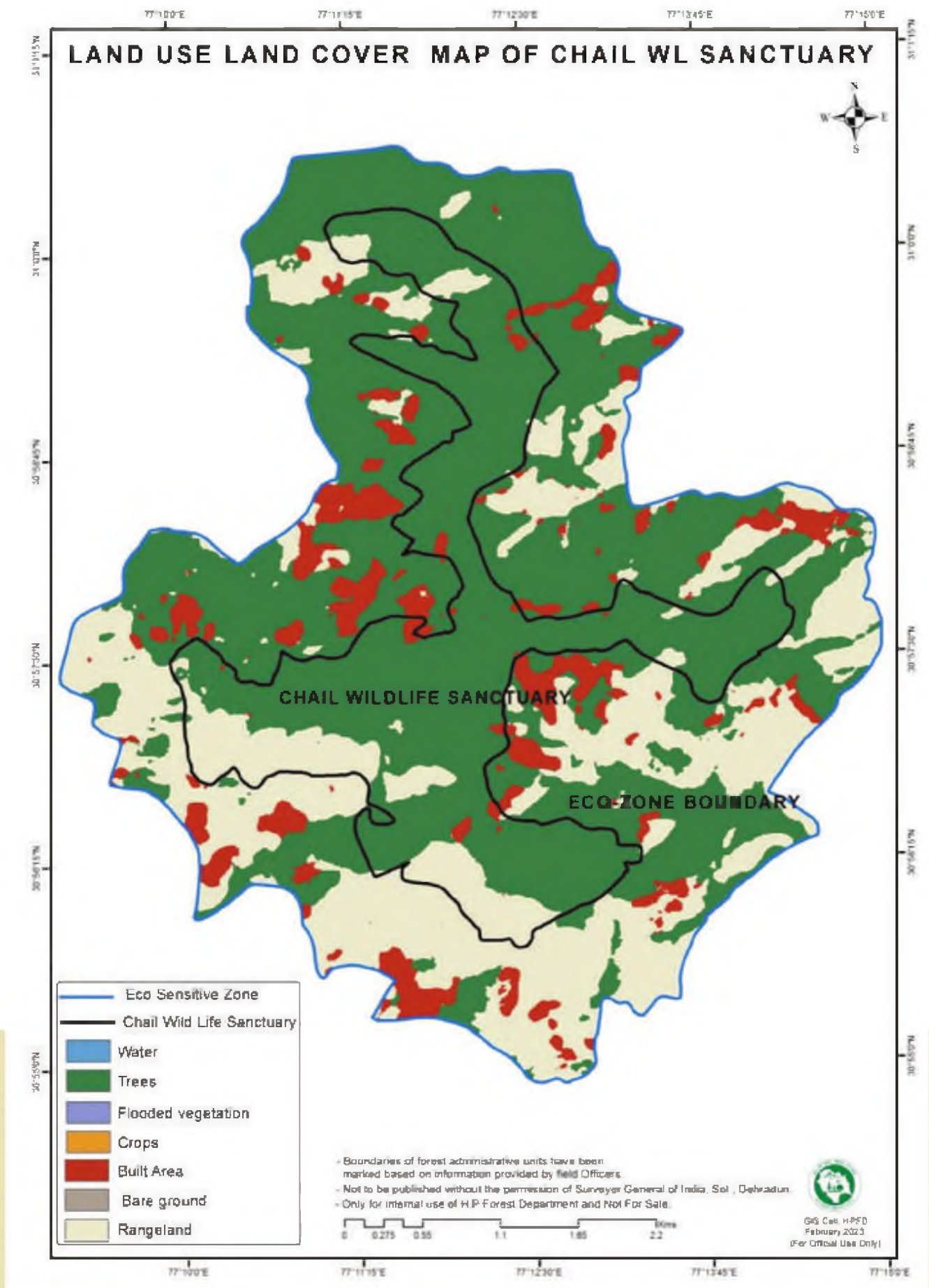
Map 4.1: Villages in Zone of Influence of Chail Wildlife Sanctuary

The resident population in these villages are members of local community and generally practice agriculture, horticulture, floriculture and livestock rearing. Floriculture is one of the main vocations of several villages in zone of influence especially Mahog, which is known as Asia's first floriculture village. Apart from these primary sector vocations, homestays/tourist establishments are also coming up in these villages due to proximity of Chail town.



Image 4.1 : Floriculture Activities in Mahog Village





Map 4.2: Land Use Land Cover Map of Eco-Sensitive Zone of Chail WLS

The land use land cover map of ESZ of Chail WLS given above illustrates that there are substantial built up areas in the central portion of sanctuary. However, there is good tree cover in the northern part which can form a contiguous habitat patch along with the sanctuary

The relationship between villages is peaceful although they are dependent on sanctuary in various forms. Firstly, large number are dependent on fresh fodder grass that they collect from private ghasnis in the sanctuary area. Secondly, the scenic landscape of the sanctuary forms the hallmark of tourist destination Chail with its stunning deodar forests. The tourist establishments in zone of influence are dependent on this aesthetic service provided by sanctuary.

Both of this dependence has some negative impacts on sanctuary and its habitat. The grass collection especially utilizing vehicles leads to disturbance of wildlife and affects breeding and nesting sites of the pheasants including the Cheer pheasant. Similarly, the tourist influx leads to problem of littering and noise pollution which has adverse impact on habitat quality.

4.1.3 The State of People's Economy. Vocations, Land use, Use of Forests and Non Forest based Natural Resources by People and Seasonal Pattern

The state of people's economy in the zone of influence is heavily dominated by tourism enterprise. The vocations of people are generally directly linked to tourism in terms of ownership of hotels, restaurants, shops, road side stalls etc. Further, vocations also include floriculture, horticulture, agriculture, livestock rearing, employment in government sector, service sector.

The land use pattern in the zone of influence reflects the tourism enterprise domination in area with a number of homestays, hotels, restaurants and shops dominating the land use. The tourism in zone of influence shows seasonal trends with peaks being in the summer and winter seasons.

The forest based resource dependence of people is mostly based on aesthetic service offered by the majestic deodar landscape of sanctuary, grass resource dependence for livestock, lopping for fuel wood (during winters) and fodder summarize the natural resource forest based dependence in the zone of influence.



4.1.4 Implication of Land Use and Resource Dependency for the Conservation of Protected Area

The main implication arising from land use and resource dependency is anthropogenic pressure in form of littering as well as noise pollution and disturbance to wildlife. The fast paced rise of tourism has concerns of overloading beyond carrying capacity of the region. The influx of trekkers/on-foot visitors also poses the risk of plastic threat affecting wildlife habitat in the sanctuary. The use of chemical fertilizers and pesticides for agriculture/horticulture in zone of influence also poses threat to quality of wildlife habitat. Apart from this, it also lends to threat of disease transmission and inter-specific competition with regard to grass collection and movement of cattle.

4.1.5 Forests and Protected Area Management Practices and their implications for People

Protected Area Management has reaped several direct and indirect benefits to people. These are in the form of various eco system services that have substantially improved living standards of people. The implications in this regard include:

- ★ **Provisioning of water services** through various streams and retaining water through tanks
- ★ **Aesthetic Services** in form of majestic deodar landscape which offers several direct and indirect livelihood creation opportunities for the local community dependent on tourism
- ★ **Recreational Services** in the form of nature trails/treks for resident and tourist population
- ★ **Climate Regulation** in the area through presence of dense canopy of forests

Apart from these positive implications, there are several other concerning implications for people arising from protected area management. These include:

- **Non availability of grazing area:** The livestock in villages surrounding the protected area is still substantial yet declining over years. However, given the complete ban on grazing in sanctuaries by Honourable Supreme Court, this means local community face difficulty in this aspect of PA management in terms of non availability of grazing area/ fodder for their livestock
- **Human Wildlife Conflict:** Although negligible as there is no human settlement inside the sanctuary. However, given the small size of sanctuary, there occurs spill



over of wildlife population to human habitation which results in conflict especially in the form of crop raids by herbivores, monkeys and cattle kills by leopards.

- **Regulation of Tourism in Eco Sensitive Zone:** An essential aspect of Protected Area management is the enforcement of eco sensitive zone provisions in its buffer/shock absorber area. This means that several activities are to be regulated/prohibited in this particular zone. In Chail, the major activity in eco sensitive zone is tourism. The regulation thus poses some constraints to tourism sector entrepreneurs in the form of higher costs to meet the conditions meted out to them

- **Demand of Roads by Villagers:** There is a demand from villagers to utilize certain sanctuary area for non-forest purposes particularly roads. However, as the area is protected and regulated as per law, such demands are coming in conflict with conservation objective. One such example is the Kiari-Kinna road which is being proposed falling in sanctuary area.

4.2 Development Programmes and Conservation issues

4.2.1. Evaluation of Government and Non-Governmental Agency Programmes for Development Implications for the Protected Area in the Zone of Influence

The development programmes in zone of influence are mainly driven through schemes initiated by central and state governments. The local bodies and panchayats are the main executing agency of these programs. The development activities in zone of influences includes and is not limited to construction of toilets, construction of retaining/ boundary walls, provision of drinking water, provision of LPG, predator proofing of cow sheds and financing of houses for BPL community. These developmental activities have been able to better quality of life of local community and reduce their dependence on sanctuary for their basic needs.

4.2.2 A summary of problem faced by the people that affect the Protected Area and Zone of Influence

In order to summarize the problems faced by people which affect both Protected Area and its zone of influence, the following points are put forth:

- ♦ **Private Ghasnis:** The private ghasnis fall within notified sanctuary area. The local community have rights of grass collection in area which cannot be stopped despite it being one of the best habitats for wildlife. This conflict is a vital element to be considered while managing the sanctuary.

- ♦ **Sustainable Tourism:** In order to boost economy and maximize profit, people



want the growth of tourism in unregulated way. However, the presence of Protected Area and sensitive environment requires regulation and sustainability to be incorporated into tourism. This conflict in value system is the essential problem in Protected Area management of Chail Wildlife sanctuary which is most pertinent when it comes to issue of solid waste management.

♦**Low Participation in Conservation/ Wildlife Education:** The people in and around area have not been involved to the extent they should be when it comes to PA management. This has reduced the effectiveness of PA management as often people's link is missing in the plans

♦**Dependence on Fodder/ fuel wood** especially in Ban Oak zone of the Protected Area



Chapter-5

The Vision, Objectives, Issues and Problems





5.1 The Vision

The vision of managing Chail Wildlife Sanctuary is to ensure the integrity of this small sanctuary in lesser Himalayan landscape, conservation of the area for protection of vulnerable Cheer pheasant and other endemic Himalayan fauna and for provision of various ecosystem services including climate regulation, water provision, biodiversity, eco-tourism, aesthetic and recreational services.

5.2 Objectives of Monegement

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

1. To ensure the protection of viable wildlife populations for ecological, scientific, aesthetic and cultural values.
2. To develop functional wildlife corridors overcoming fragmented nature of sanctuary due to roads.
3. To conserve the flagship/keystone species of the sanctuary and safeguard wildlife habitat in the conservation unit.
4. To protect private grasslands inside sanctuary area from biotic pressure and provide necessary forage for wildlife
5. To enhance management capabilities of the staffs in wildlife management.
6. To promote low impact high value eco tourism for wildlife awareness and education.
7. To involve local community in participation and management of PA and create a win-win link between development and wildlife conservation.
8. To develop a sound scientific research and census methodology for protected area management.
9. To involve the various stakeholders in conservation and management of PA.
10. To relieve the sanctuary from anthropogenic pressures for prosperity of successive generations of wildlife.



5.3 Constraints in achieving objectives

Sl. No.	Objectives	Constraints in achieving objectives	Strategies to Overcome constraints
1.	To ensure the protection of viable wildlife population for ecological, scientific, aesthetic and cultural values	1. Roads running through sanctuary	<ul style="list-style-type: none"> • Exploring options of overpasses or eco bridges for wildlife corridor • Procuring a patrol vehicle and night patrolling along roads
		2. Small size of Sanctuary	<ul style="list-style-type: none"> • Formation of conservation unit with adjoining territorial forests • Enhancing outreach and sensitization activities towards communities in ESZ to galvanize their



			support
		3.Lack of monitoring and data collection	•Developing mandatory periodical wildlife census,digital datasheets for submission by wildlife staff
		4.Fire	• Maintenance of firelines and protection activities
		5.Low capacity of staff	•Regular training, refresher courses and exposure visits to staff
2.	To develop functional wildlife corridors over coming fragmented nature of sanctuary due to roads	i. Large number of roads	• Selecting animal passages wisely for larger areas
		ii. Vehicular movements	•Regulation on vehicle passage during the night
			• Arboreal corridors for smaller



			animals like squirrels, marten, primates
3.	To conserve the <i>flagship/keystone species</i> of the sanctuary and safeguard wildlife habitat in the conservation unit.	1.Lack of monitoring and data collection	<ul style="list-style-type: none"> Habitat mapping and pellet count/camera trap-based census for herbivores. Call count and camera trap-based census for Cheer Pheasant.
		2.Problem of poaching/ hunting	<ul style="list-style-type: none"> Regular joint as well as individual patrolling.
		3.Private grasslands in sanctuary	<ul style="list-style-type: none"> Joint management with communities having ownership of ghasnis
		4.Drying of waterholes in summer season	<ul style="list-style-type: none"> Construction of WHS and regular desiltation of ponds



4.	To <i>protect private grasslands</i> inside sanctuary area from biotic pressure and provide necessary for age for wildlife	1. Legal status of land as private	• Provision of compensation package for owners having rights over private land and to secure same for Wildlife Wing
		2. Rights of grass collection for villagers	• Formation of EDCs involving villagers for diversification of livelihood option
		3. Kindling of fire for fresh grass	• Awareness drives among villagers and control burning involving villagers
5.	To enhance management capabilities of the staffs in wildlife management	1. Isolated working of forest, police department and other state organisations like WCCB, WII.	• Setting up an inter departmental coordination mechanism for better conviction rates and



			intelligence sharing
		2.Lack of state level wildlife specific institutions for capacity building	• Creation of state level institution specialized in wildlife management. Gradually enhancing self-sufficiency in census and research.
		3.Short fall in census equipment	• Procurement of all requisite equipment especially Range finders, Cameratraps etc.
6.	To promote low impact high value ecotourism in the area for wildlife awareness and education	1.Small size of Sanctuary	• Regulation of number of trekking visitors per day using carrying capacity formulation
		2.Difficulty in sighting wildlife in Hilly terrain	• Maintenance of floristic/nature



			trail to enhance Eco-tourism initiatives.
		3.Footprint of visitors	<ul style="list-style-type: none"> • Sensitizing the visitors on do's and don't's to reduce their foot print and enforcing 'No Plastic Zone'
		4.No single point of entry for regulation	<ul style="list-style-type: none"> • Identifying and popularising few trails and introducing regulated guided walks
7.	To involve local community in the management of area and create a win-win link between development and wildlife conservation	1. No framework to implement ecotourism activities	<ul style="list-style-type: none"> • Formation of EDCs for conducting eco tourism activities
		2.Hesitancy among local community to participate in sanctuary management	<ul style="list-style-type: none"> • Entry point activities for earning trust of local community • Developing an easy to



			understand financially viable model for involving local community
8.	To develop sound systemic research and census methodology for protected area management	1.Low staff Capacity	<ul style="list-style-type: none"> • Training and refresher courses for staff. • Specialized studies can be entrusted to reputed individuals/ organisations following due procedure
		2.Absence of Research Officer for the Protected Area	<ul style="list-style-type: none"> • Post of Research Officer for the PA



9.	To involve the various stake holders in conservation and management of PA.	1.No institutional mechanism for involving stake holders	•Creation of Chail Wildlife Sanctuary Eco-Club for involving interested participants in conservation activities
		2. Other establishment like RMS Chail,The Palace Hotel inside sanctuary	•Clear demarcation of existing infrastructure and fixing of boundary pillars to secure existing wildlife area.
		3.Objectives of stakeholders not in sync with Wildlife Wing's vision for sanctuary area	•Sensitization of stakeholders and utilization of positive inter-linkages



10.	To relieve sanctuary from anthropogenic pressure for prosperity of successive generations of wildlife.	1. Tourist pressure	<ul style="list-style-type: none"> Developing a network of volunteers for enforcing laws and conserving landscape
		2. Low Awareness among public	<p>a) Installation of signage boards at strategic locations</p> <p>b) Periodically conducting awareness programmes and spreading message through FM radios, and social media etc.</p>
		3. Low capacity of staff in enforcement of laws/prosecution of wildlife offences	<ul style="list-style-type: none"> Capacity building through conducting internal workshops and developing SoP for steps to be followed in various case situations



Chapter-6

The Strategies





6.1 Boundaries

Chail Wildlife Sanctuary is a small sanctuary being surrounded by Shimla and Solan Forest Division. The boundary of the sanctuary starts from boundary pillar No.22 of Binu RF/17 and turns to right side then follows the boundary passing through boundary pillar No.21 near point 1955 mtr and 2139amtr.

North: Boundary starts from boundary pillar No. 22 of Binu RF/17 and turns to rights side then follows the boundary near point 1955 mtr. & 2139 mtr which situated on Shimla & Solan District boundary-cum-Forest Divisional Boundary of Shimla and Solan Division, then follows the same District-cum- Forest Divisional boundary via Sakori RF/18 through BP No 53,52,51,50,49 and right side near BP No. 49. Further boundary moves the small across the road and joins at meeting point then along road leading to RF(MES) then follows the small ridge down upto BP No 4 of Bhojdin RF/19 and via BP 5,6,7 up to 8. Then moves down upto a small tributary of nalla-cum-outer boundary of village Deatk via B.P. 4 upto B.P. 3 of Malan Shil DPF/89.

EAST: From boundary pillar No. 3 of Malan shil DPF/89 boundary routes through the BP No-2, 1B, 1A & 1 up to District-cum-Forest Divisional boundary then turns to left side and passes via BP No-5 to 32 of Bhojdin DPF/52. Then along the branch of a small nalla flowing from point 2061 mtr up to raod and follows the road upto BP No. 29 of Bhojdin RF/19 and then along BP No.-30 up to 36.

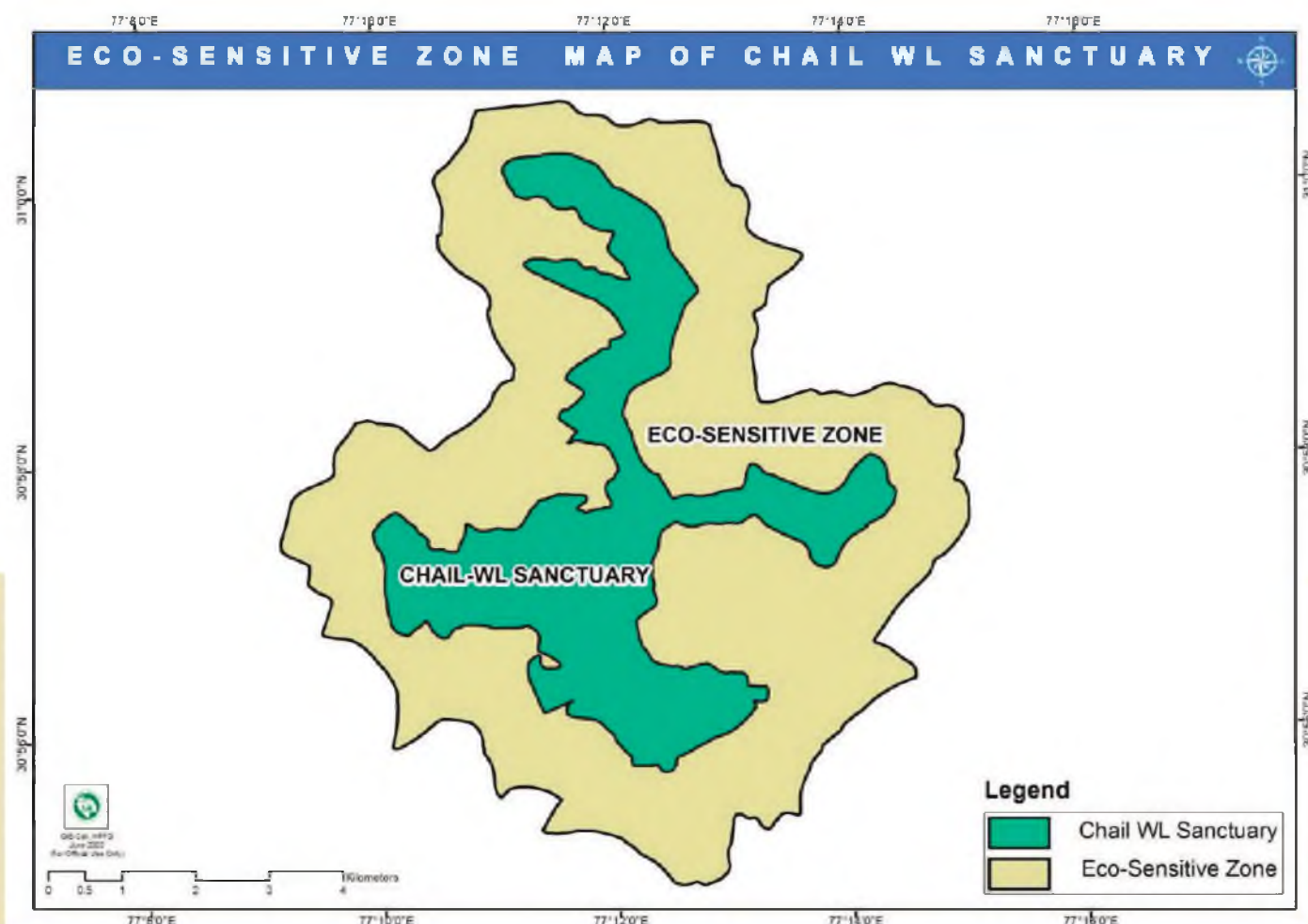
SOUTH: From boundary pillar No. 36 of Bhojdn RF/19 boundary goes via BP No. 37 to 46 near point 2176mtr and follows the ridge near Hinnar plantation and turns to left side in a small tributary of nallah upto a crossing point of a foot path form Hinnar village to Krog village. Then flows the same path to left side upto a ridge boundary of Jajha-Khariyouon DPF/51 and follows the same tributary of nalla up stream upto B.P. 6 of Jhajha-Khariyoun DPF/51 and follows the same tributary of nalla up stramupto B.P. 6 of Jhajha-Khariyoun DPF/51.

WEST: From the point of BP No. 6 of Jhajha-Khariyoun DPF/51 boundary moves via BP No. 5,4,3,2 and up to road before BP No -1 and flows the road upto BP No-3 of Khariyoun RF/15 in nalla then along the tributary of small nalla down stream upto its confluence point of tributary of same nalla which flows right side and originate from near BP-30 of Jhajha-Khariyoun DPF/51. Then follows the same tributary of nalla up to BP No. 30 of Jhajha-Khariyoun DPF/51 further boundary passess through BP No. 24 to 1 of Sakori RF/18 and then follows the left side boundary of Binu RF/17 via 13 Nos of BP without nos then along BP NO. 56, 54,53 upto BP No. 22 of Binu RF/17.



Ecological boundaries:

Chail Wildlife Sanctuary is surrounded by Shimla Forest Division and Solan Forest Division. There is an eco sensitive zone notified vide notification dated 05/01/2022 by MoEFCC around the sanctuary extending to 20.44 sq km which acts as a buffer zone.



Map 6.1: Sanctuary Boundary and Eco Sensitive Zone of Chail Wildlife Sanctuary

6.2 Zonation

Zonation is an essential strategy for deciding management aspects and local people's participation. A zone is a specific management area distinguishable on account of its objectives. Separate zones need to be created because some of the management objectives may not necessarily be compatible with each other. Zones cannot be managed in isolation and must relate to the functions of other zones and they must fulfil the overall objectives of Protected Area management. Management zones must be large enough to achieve the objectives proposed in that zone. The management zones need not be fixed in space or in time. Management interventions commensurate with the objectives of each zone are essential.



6.3 Zone plan

Following zones are being proposed in Chail Wildlife Sanctuary for achieving objectives:

1. Core Zone
2. Conservation Breeding Zone
3. Buffer Zone
4. Eco-tourism zone
5. Grassland Zone
6. Establishments Zone
7. Administrative Zone

Details of various areas falling under each zone:

Core Zone: Entire Chail Wildlife Sanctuary except other delineated zones.

Conservation Breeding Zone: Area demarcated for conservation breeding centre for Cheer Pheasants in Khariyoun.

Buffer Zone: Eco Sensitive Zone of Chail Wildlife Sanctuary notified by Government of India

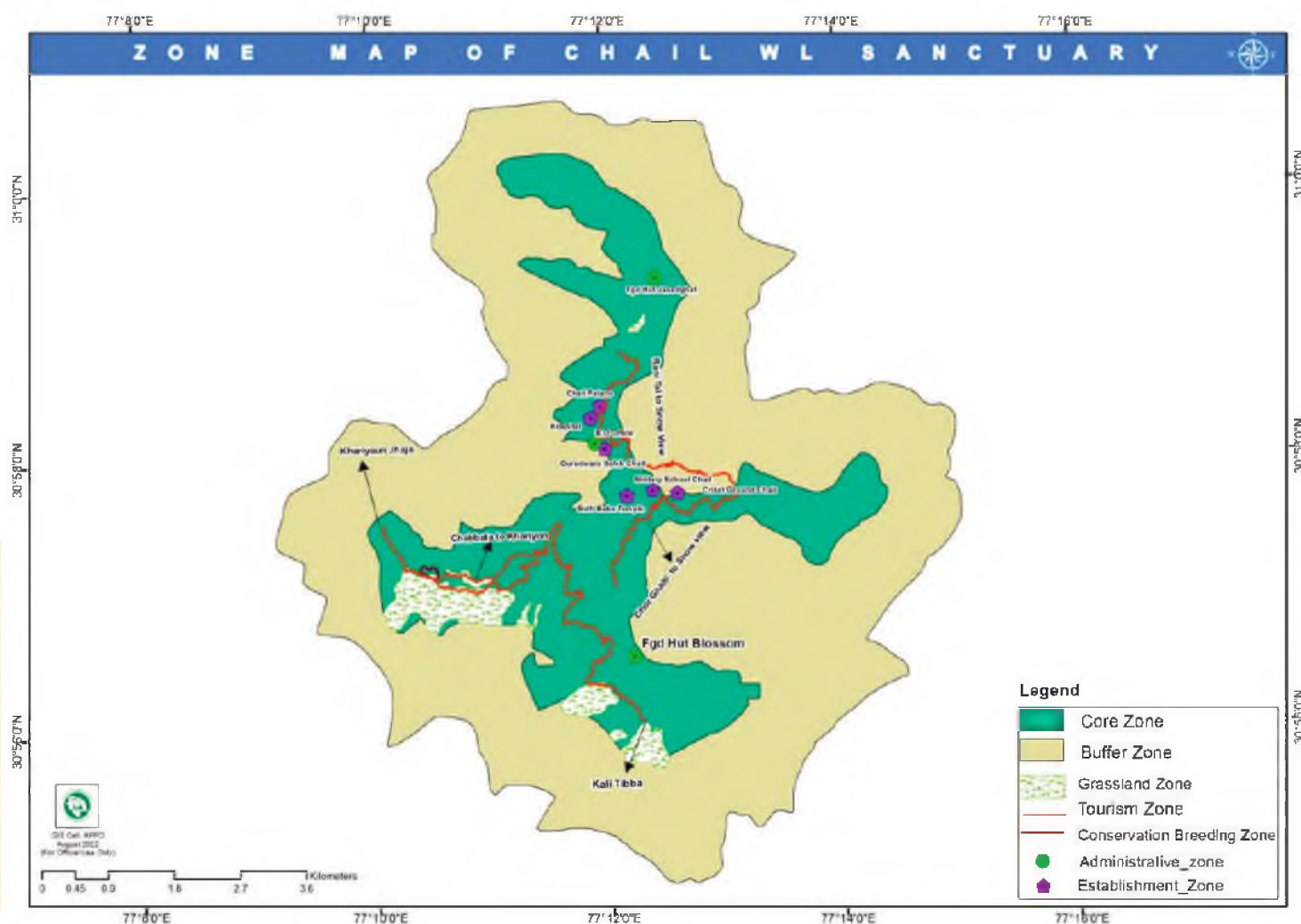
Eco-Tourism Zone: Includes the Trek paths/nature trails in the sanctuary which is accessible for visitors for purpose of eco-tourism, Chail Rest House

Grassland Zone: Includes private ghasnis inside notified sanctuary area owned by villagers for purpose of grass collection

Establishment Zone: Includes establishments of RMS Chail, The Palace Hotel, Government Hospital Chail, Gurudwara Sahib, Directorate of Floriculture at Mahog, Apple Orchard run by Horticulture Department, Kali ka Tibba temple, IPH Resthouse, Siddh Baba Temple which falls within notified sanctuary area.

Administrative Zone: Headquarter of Block Officer, Trekker's Hut Chail, Forest Guard Quarters





Map 6.2 : Zonation Map of Chail Wildlife Sanctuary

6.3.1 Core zone

Core zone shall be entire wildlife sanctuary except areas that are delineated in other zones. It has undisturbed mixed forests ranging from pure Deodar forest in Sakori beat, interspersed by grasslands, Chir-pine forest in Banjani Beat to Ban Oak forest and grasslands in D51 C2 of Kharyoun Beat. In the core zone, natural ecological processes shall be allowed to continue and minimal management intervention will be allowed. Following regulations are prescribed for the management of Core Zone which extends as per the below given map



1. Protection measures to be given highest priority in the core Zone.
2. The Sanctuary boundary areas to be demarcated and construct missing boundary pillars.
3. High restriction on visitors in the core zone except unless the area is mentioned in eco-tourism zone
4. Forestry manipulation of the habitat such as Invasive weed management, Fire Protection and Waterhole Management are allowed as part of scientific management practices.
5. Scientific research, monitoring and evaluation of wildlife management are permitted inside the core area with permission of Chief Wildlife Warden
6. Regular monitoring and data collection with respect to wildlife population and habitat quality

6.3.1.1 Programme of activities

1. Protection of forest and wildlife in the sanctuary.
2. Demarcation of sanctuary area
3. Developing functional wildlife corridors between fragmented habitat patches
4. Improvement of general habitat for wildlife including conserving of soil, water and soil moisture.
5. Special concentration on conservation of flagship/keystone species like Common Leopard, Sambar, Himalayan Goral and Cheer-Pheasant
6. Capacity building, training and providing improved field accessories
7. Fire Protection especially in Chir-Pine/ grassland zone.
8. Monitoring and data collection

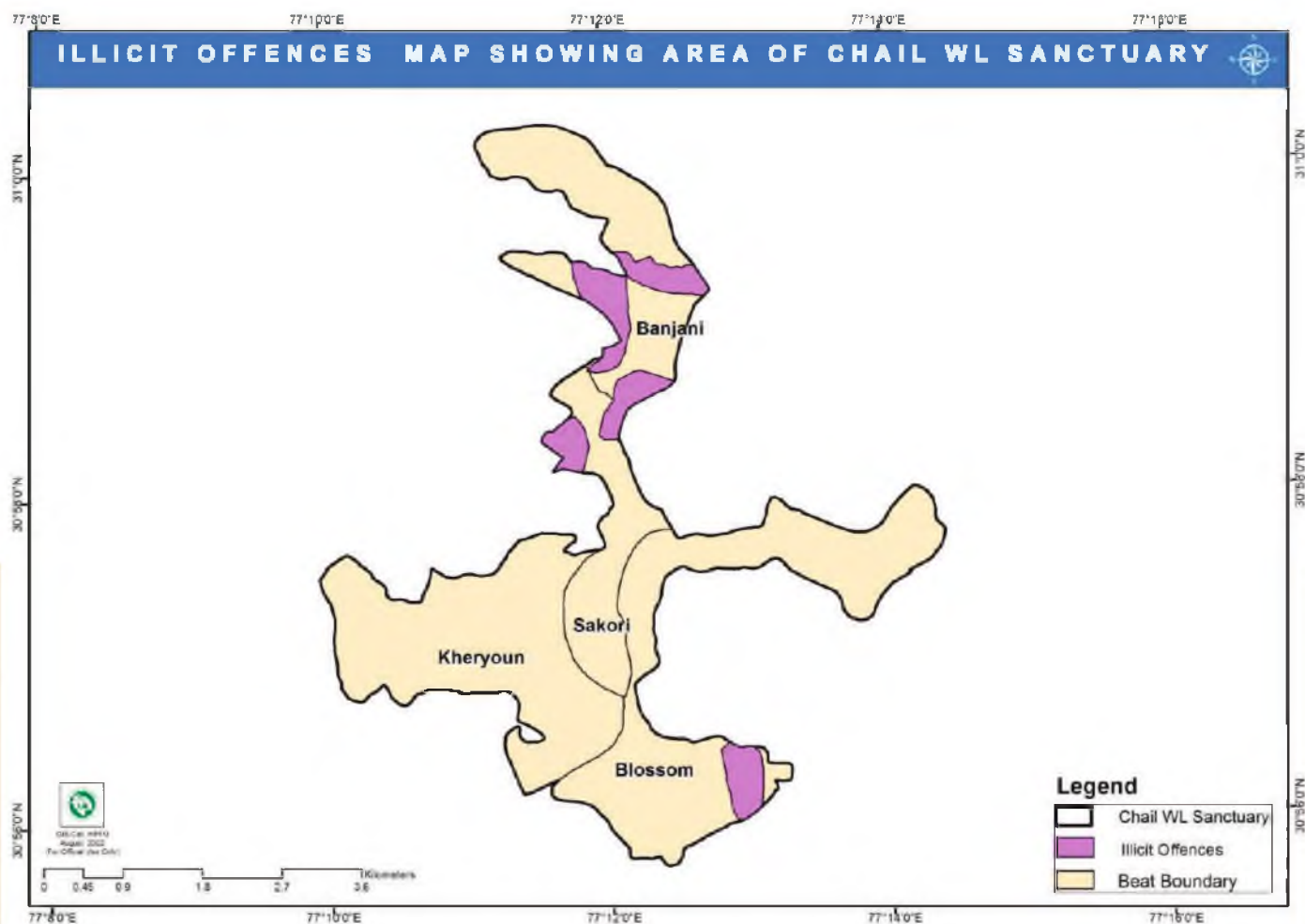


6.3.1.2 Works under Programme of activities

a. Work under programme of protection

Protection is of highest importance in Chail wildlife sanctuary given its presence near to human settlements /tourist establishments and several roads passing through the sanctuary. In order to protect the PA from several extraneous influences like debris dumping, littering, grazing, lopping, encroachment and illicit felling etc. regular patrolling, enhanced communication facilities and monitoring should be encouraged.

In order to enhance protection, it is prescribed that areas that are more vulnerable to various offences be joint patrolled. Patrolling through vehicles in these areas is strongly recommended. The following map shows the sensitive areas of sanctuary vulnerable to different offences as shown:



Map 6.2 : Illicit Offences Map of Chail Wildlife Sanctuary

Debris Dumping is identified as a major threat in Chail Wildlife Sanctuary given presence of roads inside and the expansion of construction of tourist facilities and roads in close proximity. As these are regulated activities in eco sensitive zone, it is prescribed to strongly monitor all such activities in eco sensitive zone of sanctuary and ensure that muck/debris generated from the same is properly disposed off and



not dumped in sanctuary. Illicit felling and transportation of timber cases have been documented in the past. In this regard, there is a need to keep close coordination with territorial forest department as sanctuary areas are heavily intertwined with territorial forest. Joint night patrolling is strongly prescribed to prevent illicit felling. Further, CCTV based surveillance along choke points of roads and coordination with territorial forest check post at Sadhupul is strongly advised to combat the threat of felling and smuggling. A check post at Janedghat is already constructed but currently used by local body for collection of green tax. It is prescribed that the same be retained by forest department Wildlife Wing as a check post for monitoring.

A special focus of staff should be towards regulating the heavy tourist pressure and enforcing laws of littering and debris dumping in and around the sanctuary. Currently, there is no proper waste management system in Chail town and this exerts littering pressure in forests of Chail. In this regard, there needs to be strong coordination with district administration and local bodies to set up proper waste disposal facility for Chail town.

As large part of sanctuary perimeter touches human settlements or areas of tourist establishments, there is a threat of encroachments. Currently, 9 such encroachment cases have been booked in the sanctuary area out of which 3 have been evicted. In this context, the staff shall keep special focus on prevention of encroachments especially in areas adjoining human settlements and shall use powers devolved to them under Indian Forest Act to act swiftly upon encroachments. It is of utmost importance that boundary pillars be installed and maintained in this sanctuary at the earliest as per Appendix 9.

As the capacity and number of staff is limited, voluntary protection committees 'Sanrakshan Samiti' shall be formed given the presence of enthusiastic and wildlife sensitive citizen network in and around Chail area. This may also include children and youth who can become foot soldiers in protection of sanctuary. They may educate the visitors and nearby villagers on various do's and don't's and prevent littering, participate in cleanliness drives and play the role of informants to the field staff.

Chail forests are documented to have been infected with phytophthora fungal infection. There is a need to keep close watch on such infections, early detection and corrective measures to be initiated to control spread of such infection in sanctuary area.



b. Work under Programme of Demarcation

Chail wildlife sanctuary has a total number of 233 boundary pillars which demarcates its boundary. Out of these boundaries some are missing which should be maintained and records need to be maintained at Range and Division level. The details of missing boundary pillars including GPS location is annexed vide annexure 9. Boundary pillars made of stone should be erected as per this list after demarcation and secure forest area. Beat maps showing clear boundaries should be maintained.

The boundary of the sanctuary is to be maintained clearly in the ground. This will be done by periodic boundary patrolling as well as maintaining very conspicuous boundary pillars made of stone/iron pillars and construction of new pillars and replacement of damaged ones periodically. The boundary needs to be perambulated by Forest Watcher and Forest Guard at least once in a week, Forester once in a month and Forest Range Officer once in three months.

c. Works under developing functional wildlife corridors between fragmented habitat patches

It is prescribed to have overpasses as animal passages in sanctuary roads to provide corridor for larger mammals. One such passage is prescribed on Chail-Janedghat road as only single road exists cutting the sanctuary in the northern region. An overpass here can offer vital connection to fragmented units on either side of this road.

Arboreal corridors in form of canopy bridges are prescribed in the southern part of sanctuary where there is heavy presence of roads. These bridges need to be made using eco-friendly materials but also should withstand harsh weather conditions. They can facilitate movement of reptiles, smaller mammals like red giant flying squirrel, yellow throated marten and primates like langurs and rhesus macaques.



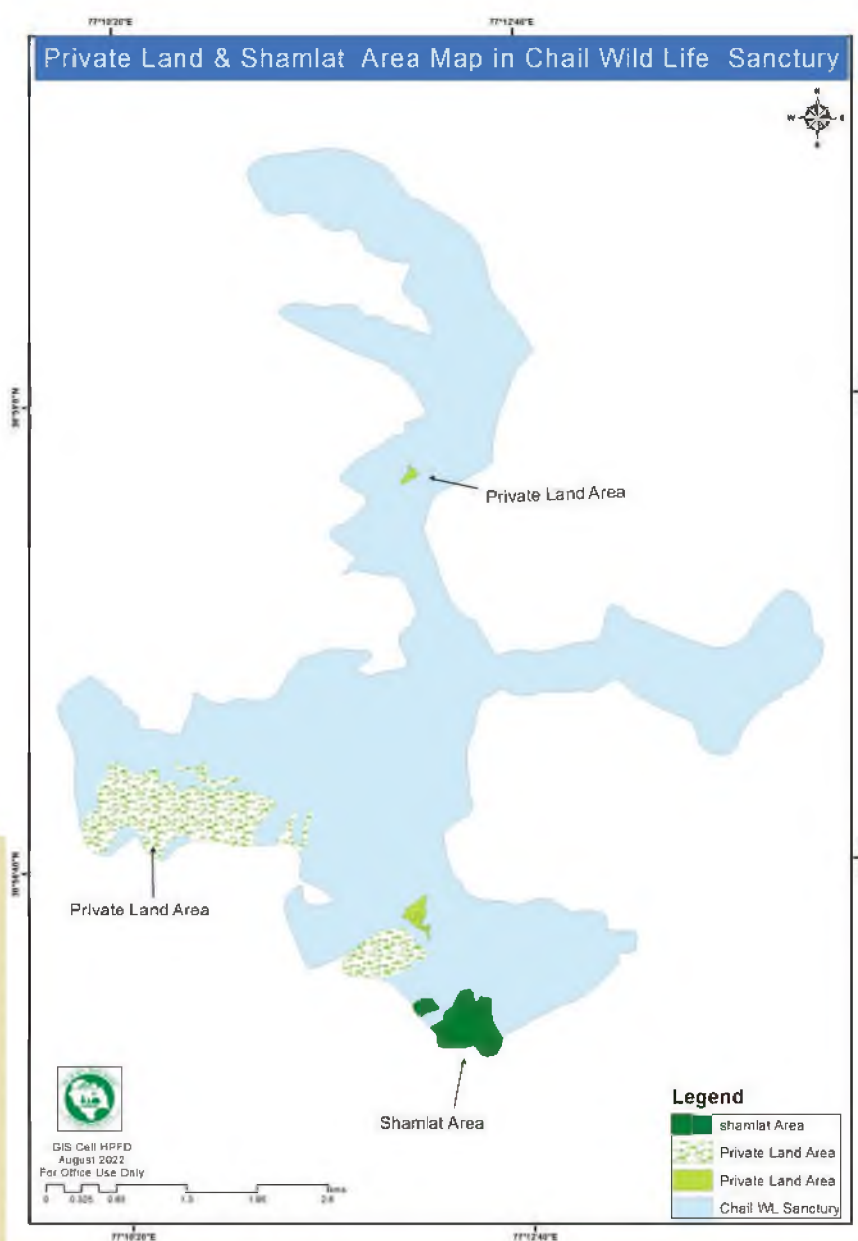
Image 6.1: Representative images for overpass and canopy bridges



d. Work under Improvement of wildlife Habitat

Various habitat management practices such as soil and moisture conservation, maintenance of fire lines, weeding should be done with extreme caution and minimum effect to natural habitat. In order to encourage herbivore population especially gorals, there is need to maintain grassland patches and regularly monitor them. Plantations should be strictly avoided in these grassland patches.

The sanctuary has a variety of habitat in vertical and horizontal profiling that supports a variety of species enabling them to co-exist like the Barking deer and the Himalayan Goral which are both herbivore species that prefer different types of habitats. Every effort should be made to preserve both of their niche habitats for overall fitness and prey-predator balance.



Map 6.4 : Private grasslands, private land areas and Shamlat Areas in Chail Sanctuary



As Chail Wildlife Sanctuary is home to a variety of avifauna, habitat management efforts can also be made to ensure that there are adequate nesting/ breeding sites for birds especially the pheasants. This sanctuary has a unique case of private ghasnis falling inside notified area of sanctuary. In this context, it is prescribed to galvanize the confidence of local community to manage area for benefit of herbivores and the Cheer Pheasant as it is the most unique habitat to them. Any scope for compensation in lieu of land acquisition from local community for these ghasnis may be explored so that these areas can be exclusively managed by forest department wildlife wing as part of sanctuary.

As the terrain of the area is having moderate slope, there is a need for periodical removal of silt especially from water retention structures and provision of more water retention ponds should be made. It is necessary to carry out repairs works and improvement of existing check dams and percolation ponds for sustained use of soil moisture conservation structures.

d. Works under the programme for conservation of keystone/ flagship species like Sambar, Himalayan Goral and Cheer -Pheasants

In order to encourage herbivore population especially gorals, there is need to maintain grassland patches and regularly monitor them. Plantations should be strictly avoided in these grassland patches. There is a need to collaborate with the Solan Forest Division for better conservation of cheer-pheasant as well as Gorals, as it has good grassland area in its jurisdiction. During breeding season of these species, entry timings for visitors would be regulated for minimal disturbance. In order to protect and conserve their habitats, necessary efforts in terms of protection from wildlife offences and fire would be taken up. Annual census would be conducted for these two species using methodology of pellet count, transact walk for Sambar and Himalayan Goral. Similarly, point sampling and call count from identified stations would be taken up for annual Cheer-Pheasant census. The control forms for same are annexed to this plan and these need to be updated regularly by the staff as per data collected during census. The habitat of these species would be identified and mapped through the same exercise.

e. Capacity building, training and providing improved field accessories

The new forest staffs managing protected area are educated and have sufficient technological acumen. This should be utilised to ensure their maximum contribution in domain of wildlife census and wildlife habitat mapping. In this domain, they should be imparted all basic training in wildlife census like transact walks, data sheet-based data collection, pellet count, point sampling, encounter rate,



vegetation sampling, camera trap-based census, pugmark census, updating of control forms etc. A mobile application can be developed that facilitates data collection and data analysis through data input by field level staff. In order to enable them to perform this, there is also a need to ensure they are sufficiently equipped with basic tools such as GPS devices, camera traps, range finders etc.

Further, the staff capacity needs concerted focus in the domain of prosecution and booking of offences. Currently, although legal powers are entrusted to forest officers, they sparingly use them because of lack of knowledge in procedure. Hence, they end up taking the help of police department in lodging FIRs. This equation needs to be changed and forest personnel should be imparted all necessary training in booking and prosecution of wildlife offences.

f. Fire Protection especially in the Chir- pine zone

These activities are to be focussed in that part of the sanctuary which is most prone to forest fire because of the in-flammability of chir pine needles. In Chail wildlife sanctuary, the fire prone areas fall mainly in Banjani Beat, Blossom and Khariyoun Beat as they have chir pine forest and patches of grasslands as represented by fire vulnerability map already mentioned in part-1.

In order to mitigate fires and protect the wildlife habitat from wild fires, the following activities are to be taken up diligently:

♦ Creation of Fire line

There is a need of construction of new fire line in fire zone, regular and proper maintenance of the existing fire lines, so as to avoid loss of natural habitat of various animals and plants. There is a need to map all the fire lines and ensure they are sufficiently spread out to safeguard various patches of forests. Following are the list of new fire lines proposed in sanctuary for fire protection:

SI No	Fire line detail	Distance	Beat
1	Kali Ka Tibba to Kandhav	2 km	Blossom
2	Kinna Nallah to Narud	3km	Banjani

♦ Collection of debris

The fire zone should be cleared of chir -pine needles and dried biomass to avoid fires. Periodical maintenance in clearing fire lines and bridle path of fuel to ensure fire breaks are functional.



♦ Participation of communities

Forests are the only source of oxygen and forest fire cause damage to whole forest ecosystem. This can be reduced by awareness and education of masses, restriction on activities that can lead to fire and participation of communities.

Firewatchers can be engaged from local community/ from eco-development committees constituted and rewards/ incentives can be given for community in case of zero fire incidents.

♦ Rapid response

Team should be created to prevent and control forest fires. They should be well equipped with fire blowers, water pumps, protective gear and all necessary equipment to fight fire. The Rapid Response team should have a composite nature of field staff and local community.

♦ Satellite Based Alerts:

All field staff from DFO level should be registered on FAST portal for SMS based satellite alerts for swift deployment and action

♦ Equipping Staff:

Modern day firefighting involves the use of various firefighting tools and protection equipment. The following tools are recommended for the wildlife staff at Chail Wildlife Sanctuary



SI No	Tools	Purpose
1	Binoculars	For the watch stations
2	Darats	For scraping and maintaining fire lines
3	Long blade knives	For cutting of trees, branches, weeds etc.
4	Power chain Saws	For cutting burning trees
5	Fire beating brooms (to be locally made from vegetative materials/chir pine branches or fire beaters from old rubber pipes procured from fire brigade stations)	For beating out the the fires
6	Hunter shoes/caps	For the fire fighters
7	Fire resistant cloth	For the fire fighters
8	Water cans	For firefighting as well as for meeting water requirements of the fire fighters
9	Leaf Blowers	For firefighting in grass lands

Table 6.1 : List of Recommended Fire Fighting Tools

g. Monitoring and Data Collection

Currently, there is a gap of baseline data in the sanctuary regarding wildlife abundance and species richness. It is prescribed that there be periodical data collection of direct and indirect evidences of wildlife by wildlife staff through transect walk, sign surveys and camera traps. The relevant datasheets for same are annexed as control forms.

Further, it is prescribed to undertake socio-economic surveys periodically in villages of zone of influence through PRA tools to understand forest dependence and needs of local community. There is also need to monitor and collect vegetative data especially on regeneration and invasive weeds.



Activities permitted in the core zone

- ♦ Total protection against all forms of biotic interferences shall be ensured.
- ♦ Only scientific studies and research activities with proper permission from head of department and not involving destructive sampling techniques shall be permitted
- ♦ The core zone will be free from usual forestry operations. Similarly, grazing, fuel wood collection and NTFP collection are prohibited.
- ♦ Only regular habitat maintenance/protection works like clearing fire lines, maintenance of existing roads, trek paths, buildings, check dams, water holes, soil and moisture conservation works apart from monitoring activities will be permitted as per the wildlife protection act.
- ♦ Manipulation of habitat in this zone for any purpose is prohibited unless permitted. Even removal of dead and wind fallen trees are also prohibited.
- ♦ Tourism shall not be allowed except in demarcated eco-tourism zone.
- ♦ New roads shall not be formed. Existing roads shall however be maintained with permission from competent authority as per prevailing laws/rules/regulations applicable to state of Himachal Pradesh.
- ♦ Construction of buildings for any purpose is prohibited except watch towers/patrol huts for the purpose of monitoring and protection.
- ♦ Administrative sign boards prepared in camouflage colour which would blend with the environment should be maintained.
- ♦ Research and monitoring activities conducted by Wildlife Wing or with due permission from PCCF(WL) shall be encouraged in the core zone for the purpose of wildlife census, prey predator density estimation, floristic survey, hydrological research etc in order to build solid baseline data and for scientific management.



6.3.2 Conservation Breeding Zone



Image 6.2 : Conservation Breeding Centre at Khariyoun

The conservation breeding zone is in Khariyun beat of the sanctuary where a part of sanctuary totalling to 2.98 Ha is demarcated and fenced for the World's only conservation breeding centre for Cheer Pheasants (*Catreus wallichii*), a species listed as 'Vulnerable' by IUCN and threatened by habitat loss and fragmentation. In this context, there is a need to conserve a diverse gene pool of Cheer Pheasant in ex-situ and reintroduce them in wild areas to supplement wild population and enhance genetic transmission and variability. This highlights the importance of the conservation breeding centre in the sanctuary. The details about the breeding centre and reintroduction are given in detail in Chapter 11.

6.3.3 Buffer Zone

The buffer Zone of Chail Water Catchment Wildlife Sanctuary is created for the purpose of shock absorbing of various biotic and anthropogenic pressures. In this regard, it is prescribed that the eco-sensitive zone notified for Chail Wildlife Sanctuary notified, vide number S.O.39(E), dated the 5th January 2022 shall act as the buffer zone

The Buffer Zone shall be regulated as per eco sensitive zone notification of Chail



Wildlife Sanctuary as well as the Eco-Sensitive Zone master plan that is to be prepared by the Monitoring Committee constituted under the notification. In this regard, it is prescribed that activities in this area are classified into prohibited, regulated and encouraged as per the notification. The same is mentioned in Chapter XI of Eco Sensitive Zone.

6.3.3.1 Programme of Activities in Buffer Zone

- a. Regulation and monitoring of construction of roads, buildings and tourist infrastructure
- b. Eco development activities for villages in the buffer zone
- c. Awareness drives among the village population inhabiting the buffer zone
- d. Management of Human-Wildlife Conflict
- e. Solid Waste Management involving local bodies and district administration
- f. Eco tourism related arrangements for visitors visiting the sanctuary

6.3.3.1.1 Works under Programme of Activities

a. Regulation and Monitoring of construction and widening of roads, buildings, tourist infrastructure etc.

Any construction or widening of roads and construction of new buildings produces debris and muck. This renders several areas of the sanctuary especially the beats of Sakori along the Chail Baazar leading to Janedghat vulnerable to debris dumping. Hence, there needs to be a strong check on new construction activities having impact on wildlife management as per the eco sensitive zone notification and master plan. It is prescribed that ESZ Monitoring Committee notified may keep vigil on such new activities coming up in zone of influence and give its recommendations for permitting activities which has to be finally recommended by the Chief Wildlife Warden of state of Himachal Pradesh.

b. Eco development activities for villages in the buffer zone

There are numerous villages in the buffer zone of the eco sensitive zone as mentioned in Chapter 4. It is essential to galvanize support of villages in the cause of conservation. In this regard, it is prescribed that chosen villages may be provided with their requirements as per PRA exercise conducted. It is prescribed to undertake entry point activities in villages to earn their goodwill and trust. These activities may be in the form of solar lights, LPG cylinders, toilets and involvement of villagers as nature guides which may be further modified as per the result of PRA exercise. An individual micro plan for villages shall be prepared on the basis of PRA exercise which shall mention in detail the activities to be carried out as part of eco development.



c. Awareness drives among the village population inhabiting the buffer zone

The buffer zone has good potential of wildlife awareness and education. In this regard, guided treks, bird watching, competitions and other awareness programs can be conducted for the groups in buffer zone so that they are made aware of wildlife potential. This may be done on days of importance in calendar year like World Environment Day, World Wildlife Way, Earth Day etc. As the boundaries of sanctuary are heavily intertwined with villages, there is also a need to make public aware of boundaries and restrictions on grazing.

d. Management of Human-Wildlife Conflict

The sanctuary has good prey base in form of herbivores and small carnivores naturally leading to good population of apex carnivore. The small size of sanctuary combined with highly uneven shape of sanctuary makes spill over of animal population inevitable and human-wildlife interactions a norm. The major interface in the buffer zone is with rhesus macaques, Sambar, porcupine, Wild Boar which account for maximum crop damage. Further, there are also instances of livestock kill by leopards. In this regard, it is proposed that villages in buffer zone may be made aware of several do's and don'ts associated with wildlife-human interactions. The options of providing visual deterrents like fox lights should be explored to reduce interface. The wildlife and territorial staff shall also be trained in management of conflict situations and be provided necessary equipment in this regard. In this context, the following activities are prescribed:

1. With regard to crop/ livestock damage that compensations be provided to affected people.
2. Provision of subsidized solar fencing to the private lands in buffer zone may be undertaken where conflict is severe.
3. Subsidized predator proofing of livestock sheds to prevent leopard kill

e. Solid Waste Management involving local bodies and district administration

Currently, there is no proper waste collection and disposal in villages in buffer zone and in Chail town. It is prescribed to coordinate with local bodies and district administration and ensure waste management in the zone of influence is optimum and littering in sanctuary area is avoided to safeguard wildlife habitat

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f. Eco tourism related arrangements for visitors visiting the sanctuary

As prescribed by MoEFCC guidelines for sustainable eco tourism in forest and wildlife areas dated 29th Oct 2021, there is a need to promote homestays managed by local communities on non-forest land. As Chail town is a renowned tourist destination, there can be capacity building of local community in hospitality and eco-tourism linkages can be made with trek routes in Chail Wildlife Sanctuary given its unique deodar landscape and grassland areas. The detailed eco tourism activities to be carried out shall be given in Chapter

6.3.4 Eco-Tourism Zone

Eco Tourism zone in Chail wildlife Sanctuary is restricted to 3 Eco/ Nature trails mainly:

No.	Name of the Trail	Distance (In kms)
1.	Kali Tibba to Khariyoun-Jhajha	10.20
2.	Ranital to Snow View	5.40
3.	Chorghatti to Snow View	4.0
4.	Chabata to Khariyoun Pheasantry	1.7

Table 6.2 : List of Nature Trails in Chail Wildlife Sanctuary

The activities prescribed in eco-tourism zone consist of nature walk and bird watching. It spreads in R17 c2 C1 of Banjani beat C2a C2b C3abc of Sakori beat C1a C1b C2a and c2b and c3 of Blossom beat and D51 C2 and C3 and R15 C1and C2 of Kharyoun beat. It is prescribed to have a philosophy of low foot print high value eco-tourism where visitors leave little impact on ecosystem but they gain substantially in terms of wildlife awareness and environmental consciousness.

This zone is that part of area where tourism is allowed to a certain extent without disturbing natural ecosystem of the forest. There are five view points in the Sanctuary which gives glimpse of the beauty of pristine forests of the Sanctuary. Gazebos/ View-points should be constructed to enhance the experience of tourist. It is prescribed to erect identification board with proper signages for important trees



species/endangered species along the trails prescribed above. Signage's depicting maps of the Sanctuary and dos and don'ts to be followed inside the Sanctuary should be erected at certain points. School children will be taken on a day trip so that they can get an idea/exposure of the vegetation of the Sanctuary.

It is prescribed to form Eco-development committee as there are villages adjacent to the protected area and benefits from eco-tourism should equally benefit them and improve their living standards. The EDCs so formed shall be vested with responsibility to carry out eco-tourism activities especially guided nature walks for the visitors thus creating a framework of community based eco-tourism for livelihood creation and enriched high value tourism experience for visitors.

6.3.4.1 Common programme for Eco-Tourism

- 1). Whenever there is forecast for heavy rain/snow the eco-tourism activities temporarily halted as a safety precaution taking into consideration the prevalent weather condition.
- 2). Field staff and EDC (proposed to be made) members who are looking after tourism activities shall be provided training on safety measures and handling disastrous situations like flash flood, fire and sudden rain etc.
- 3). Community members, school students will be taken to eco-tourism site as awareness programme on special days like world environment day, world forestry day, wildlife week etc.
- 4). Field staff and EDC members involved in eco-tourism management shall be given training on reception, catering and hospitality skills apart from training on flora, fauna, history, and other aspects of Chail wildlife sanctuary.
- 5). Eco-tourism activities shall commence from early morning especially with regard to bird watching/wildlife sightings given the greater probability of sightings during morning hours. However, the same shall be regulated during breeding season.
- 6). The Eco-Tourism activities shall be capped by carrying capacity calculated and formulated as per MoEFCC 'Guidelines on Sustainable Eco-Tourism in Forest and Wildlife Areas'. The same shall be detailed in eco-tourism chapter 7.
- 7). Wildlife education signage along the nature trail shall be developed to enrich visitor's experience.
- 8). It is prescribed to create Chail Wildlife Eco Club involving enthusiastic volunteers from schools and colleges in and around Chail to create a brand for sanctuary area with thriving flora and fauna. The Club shall regularly visit the



Sanctuary area for bird watching, wildlife safari walks and other wildlife related activities in coordination with staff.

6.3.5 Grassland Zone

This zone includes the private ghasnis which fall within notified sanctuary area. A model of 'Payment for Eco-system services' as per the existing PES policy of state of HP is suggested to manage this area. This follows that the community which is having ownership of the private grasslands may avoid extracting grass or avoids grazing in the grassland in order to maintain forage for the wildlife of the sanctuary. The Wildlife Wing shall provide them payment for the eco system service which contributes to increased biodiversity in the area. This model can thus provide a positive infusion of confidence to committees at the same time securing wildlife habitat for the herbivores and pheasants.

In the event of the above model not fructifying, it is prescribed that efforts be made for reclaiming these lands in ownership of wildlife wing forest department. In this regard, due compensation should be provided to owners to transfer ownership and give up rights of grass collection. The compensation package may be finalized after lengthy consultation and collaboration with owners involving local bodies and district administration.

6.3.6 Establishment Zone

This zone of sanctuary is the area which holds various establishments of other agencies. These establishments have been constructed long back before the notification of forest land/ sanctuary area. However, they were not denotified during the rationalization process in 2013.

As these buildings have been in existence for long and they hold significance from various perspectives viz. religious (Gurudwara Sahib, Siddh Baba Temple, Kali Ka Tibba), healthcare (Government Hospital Chail), education and defence (infrastructure of Rashtriya Military School) and horticulture/ floriculture (government owned orchards). In this context, it is prescribed that the non-forest use of the sanctuary area may be regularized as per procedure laid down under Forest Conservation Act, 1980 in case of establishments constructed after 1980. The respective user agencies may be advised to process case as per law and obtain wildlife and forest clearance for use of non-forest land. The respective proposals may also contain a wildlife conservation plan for managing and conservation specific to Chail Wildlife sanctuary.



6.3.7 Administrative zone

This includes that portion of protected area which hosts the office of the Block Officer, Guard Quarters and Trekker's Hut Chail. This zone would be managed with perspective of carrying out office work, provision of accommodation for survey, research activities and holding meetings between staff of forest department in order to carry out Protected Area Management activities.

6.4 Theme plans

Several objectives and their strategies fall in the non-zone category or strategies which are common to all zones e.g., Fire protection, maintenance of waterholes, maintenance of snags, protection of caves, overhangs, talus, anti-poaching etc. It is essential to distinguish such azonal requirements and a sub-plan for each of such requirements needs to be prepared to ensure comprehensive treatment that refers to the entire area across the zones. Such sub plans are called Themes plans. Some of them identified in the sanctuary are as follows:

1. Protection Management
2. Habitat Management
3. Human Resource Development
4. Development of infrastructure and communication

6.4.1 Protection Management

Protection in Chail Wildlife Sanctuary is accorded the highest priority given the multifarious threats to wildlife and its habitat. These threats are in the form of littering, debris/muck dumping, cattle grazing, encroachment, illicit felling/lopping. The following strategies are prescribed for controlling these threats and ensuring the sustenance and ecological integrity of the protected area.

A. Patrolling

Regular patrolling is must for effective protection of valuable flora and fauna of the Sanctuary. At present joint patrolling as well as individual patrolling both are in the vogue. Patrolling staff are equipped with wireless but no rifles are provided. Staff record every observation in their daily diary. Patrolling can be more effective if patrolling path are cleared regularly. It will provide safe movement to patrolling staff.

♦ Patrolling should focus on more vulnerable areas where there are chances of poaching, kindling of fire, lopping etc. For this, there needs to be dynamically updated vulnerability map prepared with seasonal variation for each beat. For eg, there is vulnerability of debris dumping in Sakori beat while threat of



poaching/illegal grazing is prominent at Khadiyun. Hence, there is need for frequent patrolling in these areas.

- ♦ Night patrolling should be encouraged and should be done regularly by field staff. The check post at entrance to Chail located in Banjani beat is currently rented to local body for levying green tax. This can be used for surveillance and monitoring especially using CCTV.

- ♦ Field staff should be exposed to the laws of Indian Forest Act, Wildlife Protection Act and understand the do's and don't's upon booking an offence. There should be regular training and refresher courses for staff in prosecution of offences.

- ♦ Patrolling with mobile applications that record tracks of field staff is strongly prescribed to ensure regular patrolling and monitoring. The same applications may be utilized for conducting sign surveys.

B. Protection from Littering

One of the biggest threats to sanctuary is litter pressure from Tourists, hoteliers and small vendors. In order to resist this, there is a need for selective fencing in adjacent areas where litter pressure is high. Periodical clean up drives including local NGO's, local community, small vendors and hoteliers can greatly help in relieving sanctuary of litter pressure. Field staff should regularly patrol the sanctuary area and impose fines to foster deterrence to littering. Regarding problem of waste management in sanctuary, the local body/ Chail Panchayat is developing a waste management facility away from the sanctuary. This will greatly relieve the pressure in Sanctuary especially the Sakori beat from waste management. There is a need to install more dustbins in strategic locations. Periodical cleanliness drives involving local community, Rashtriya Military School and other local stakeholders may be organized to relieve litter pressure in sanctuary.

C. Fire Protection

At present there is need of fire fighting equipment, timely and adequate maintenance of fire lines, maintenance of fire watch towers, employment of fire watchers during fire season and controlled burning which will act as fire break and hence help in checking losses incurred due to fire. Apart from this, the PA staffs shall be equipped with firefighting tools and fire protection equipment. The grasslands of Chail are vulnerable to fire and form crucial habitat of the Cheer Pheasant. In these areas, it is prescribed to use leaf blowers for fire fighting and dousing of fires. Detailed fire protection measures are already mentioned in core zone sector where fire management has been identified as a programme of activity.



D. Selective fencing of area

It is prescribed to have selective fencing of the area to minimise the threat of litter/debris/muck dumping in the protected area. It is prescribed to keep the conservation unit as open as possible in order to ensure functionality of wildlife corridor. Selective fencing would also act as a mitigation measure to trespassing of cattle into the sanctuary.

E. Coordination with Governmental and Non-Governmental Agencies

There are several organisations including WCCB, TRAFFIC, WWF and other such NGOs or governmental agencies that work in the field of wildlife crime and wildlife protection. A platform for coordinating with such agencies to understand wildlife crime network and how Chail wildlife sanctuary may be placed in that network is a key to protection activities in the sanctuary. It is thus prescribed to set up such a coordination mechanism with aforementioned agencies in order to take preventive action for wildlife protection.

F. Organising an Intelligence network

Forewarned is forearmed. All enforcement work demands that precise advance information is available before any action is initiated. Wildlife authorities need a well organised intelligence network.

Intelligence is evaluated information useful for decision making. Thus, the base for generation of intelligence is credible information. This information has to be collected, sifted and collated, analysed and evaluated before it becomes intelligence. An intelligence network should deal with all these stages of processing information. Information could be gathered from open published material and through confidential channels employing agents or sources. Information flow should be established from the field formation from the people and from the open sources. Over and above these, confidential sources and agents are to be raised, trained and placed in position to enable us to get information which, will be known only to a few.

The Asst. Conservator of Forests/ Range Officer will head the intelligence cell. For this purpose, ACF, Rangers should have intelligence experience.

As a long-term measure selected forest officers should be deputed to, undergo operational training in intelligence technique and field craft. This training could be organised with the assistance of Central Intelligence Bureau and State Police Intelligence.



The use of informants is a key component of any intelligence system. It used well informants, can determine the final result of an investigation. Developing an informant, using his information and keeping the informant over a number of years is a vital skill.

Setting up a system of information gathering analysis and evaluation is the most important facet in anti-poaching or anti-smuggling. The procedure for setting up an intelligence network is as follows.

Collection

- ♦ The collection of information must be carefully planned, co-ordinated and directed against a specific target of gaps in information. It must be reviewed at different stages of the process.
- ♦ Overt collection of information can be through investigators, law enforcement agency records and from other sources.
- ♦ Covert collection of information can be through physical or electronic surveillance, informants or undercover agents.
- ♦ Collection of data must be done in accordance with the laws of the land.

Evaluation

- ♦ All information must be verified by an independent source if possible.
- ♦ Credibility ratings must be given to each item of information.
- ♦ Decide on the leads to be followed up.

Collation

- ♦ A filing system with cross-referencing and cross-indexing should be set up.
- ♦ A coding system for this should be worked out with emphasis on quick recovery of data.
- ♦ Useless and incorrect information should be sifted out.

Analysis

- ♦ An analyst must re-assemble the investigators data.
- ♦ Preliminary hypotheses from this must be reviewed.
- ♦ Close contact must be maintained.
- ♦ The following points should be kept in mind while running an intelligence network.

Location

- ♦ The network should be headquartered at a place where the transfer of information to the recipient agencies is easy.
- ♦ The security of the location is the paramount



Staff

- ♦ The network should preferably be run by a small, efficient autonomous unit.
- ♦ Integrity, capability and personality are crucial in all staff.
- ♦ Investigators must be experienced, motivated, capable of taking initiative and of interpreting factual accuracy.
- ♦ Analysts must be intelligent, logical and precise.
- ♦ Specialist analysts should be used for certain skills such as legal issues, identification etc.
- ♦ There should be one head of the unit with complete responsibility.

Training

- ♦ The value of good observers and good reporters should be made clear.
- ♦ The complexity and sophistication of organised crime must be emphasised.
- ♦ The goals of the unit must be made clear.
- ♦ Basic training in identification of species and products should be given.
- ♦ Use of the intelligence gathered methodology of collection and analysis, new developments in collection techniques, court matters, etc., must be explained.

Security

- ♦ Background investing should be conducted on every new unit member. Periodic updates must be undertaken.
- ♦ Entry to the intelligence area should be restricted
- ♦ Files and computers must be physically and electronically protected. Duplicates must be maintained at two locations
- ♦ Phone lines, computer lines and all means of communication should be checked at periodic intervals.
- ♦ Security is not an end in itself. It should not be used to conceal mistakes, corrupt activities etc.

Potential sources of information

- ♦ Informants
- ♦ Crime scene investigation
- ♦ Documents (judicial, official, contracts, deeds, certificates, letters, books, memos etc.)
- ♦ Business and service agencies (Banks, Hotels, Tax agencies, Telephone, credit, insurance etc.,)
- ♦ Surveillance



G. Rewards for providing information

A credible reward system is the sheet anchor for generation of information. There is need to establish and operate a cash reward system for providing information. Rewards should be just appropriate and made on the spot. As is being done in the Customs Department payment of rewards should vary according to the value of the items covered by the information as per provisions of the wildlife protection act. Payment should be delinked from the disposal of cases in the courts. Rewards should be paid to all giving the information including forest and wildlife officials. Cash rewards should be payable for:

- a. information leading to the seizure of wildlife products and arrest of the offenders.
- b. Information leading to successful prosecution of cases in courts: and
- c. Information pertaining to the organization modus operandi and other details of gangs indulging in wildlife trade

All field officers should be provided with a permanent advance for payment of cash rewards. They should be encouraged to make spot payments according to a predetermined scale. At the time of inspection, senior officers should look into this aspect of work to evaluate the performance of field staff.

H. Collection of Data

All forests and wildlife officials in charge of territorial divisions and protected areas will be directed to report once a fortnight in respect of Schedule 1 and Schedule 2 species details about:

- a. Occurrence of death-whether due to natural or unnatural causes;
- b. Incidents of poaching and attempts
- c. Seizure of products related to those species
- d. Cases registered/disposals if any in the courts
- e. Encounters with poachers/causalities to wildlife staff and
- f. Details of natural calamities affecting the habitat.
- g. A computerized format will be devised and information will be relayed through NICNET.



Crime scene search

If a wildlife crime has been committed, an important starting point to the investigation is searching for evidence at the scene of the crime. The following steps are recommended:

1. Isolate scene with rope or tape.
2. Keep written notes or audio recordings.
3. Take photo.
4. Sketch area and position.
5. Search for evidence.
6. Take footprints of animals and human in the area.
7. Collect evidence.
8. Search for wounds or marks on the animal.

How to search for evidence

Use one of the methods given below to maximise efficiency.

1. Start searching point -to-point in a straight line.
2. Divide area into quadrants. Search one quadrant at a time.
3. Cover the area in a spiral manner.
4. Send your men from point to point and then back again
5. Send your men in a radial manner from the centre of a supposed circle.

Collection of evidence from crime scene

Collecting evidence from the scene of a crime has to be done in a scientific and precise manner in order for the evidence to have some use in the final investigation. The following evidence is commonly available at poaching site.



Foot print/pugmark

- ◆ Photograph print before taking impression.
- ◆ Put glass on the print.
- ◆ Your eyes must be at 90° to the print in order to avoid parallax error.
- ◆ Fill print with plaster of Paris.
- ◆ Dry collect the cast.

Blood

- ◆ Collect blood from animal's body using a dropper into a test tube. Seal it tight with a cork.
- ◆ If blood is found on soil, collect blood with soil in a test tube and seal it.
- ◆ Collect soil without blood from the scene.

Hair

- ◆ Use forceps to collect hair for evidence.
- ◆ Do not bend hair while collecting.
- ◆ Collect hair from the root if possible.
- ◆ Place in a plastic bag (not paper envelope).
- ◆ Seal and label it.

Fire arms

- ◆ Use gloves to pick up the firearms.
- ◆ Do not insert any object in to barrel of the gun.
- ◆ Note position of lock, hammer and catch and do not change it.
- ◆ Note if gun has been fired or not.

Finger print

- ◆ Photograph fingerprints before lifting them.
- ◆ If fingerprint tape is available use, it to collect print.

Bullet

- ◆ Take out bullet from animal's body without scratching it. Place it in a paper bag. Seal it and label it.
- ◆ Cartridge cases found outside should also be collected in paper bags, sealed and labelled.
- ◆ In case bullet is embedded in hard object, cut around the bullet



and place the whole block in a paper bag. Seal it and label it,

Photograph

A photograph is useful evidence. On it should be date, time, place of incident, brief description, name & signature of photographer along with location details (latitude, longitude). Always place a case no or some other identifier in each picture along with ruler or something that references size.

Conducting a Criminal Investigation

Once the evidence on the scene of the crime is collected, the next step is to conduct a criminal investigation into the crime. Remember that for an investigation to start, a crime need not have been committed and this could be the beginning of an effort to foil the crime. For simplicity you can divide the investigation into five phases.

Intelligence gathering

- ♦ Try and identify the suspects.
- ♦ Through various sources, determine the scope of activity of the suspects.
- ♦ Documents and validate all the intelligence information gathered.
- ♦ Analyse the intelligence reports.

Decision to conduct the investigation

The final decision to conduct the investigation must be taken after the background intelligence has been analysed. At this stage, you can decide to close the case if background information so indicates.

Planning the investigation

- ♦ Is there sufficient manpower?
- ♦ Who will supervise the investigation?
- ♦ Who will co-ordinate the investigation and serve as the “team leader”?
- ♦ How many investigators/officers are available to provide for surveillance, evidence analysis, technical support?
- ♦ Is the equipment available adequate and well maintained?
- ♦ Are there arrangements for the storage of evidence?



Implementing the plan

Always remember to:

- ♦ Stay flexible.
- ♦ Continue to update your intelligence.
- ♦ Continue to identify your defendants, suspects and charges.
- ♦ Gather, label, analyse, evaluate and secure your evidence.
- ♦ If needed obtain and execute arrest warrants, summons, search warrants.
- ♦ Conduct interrogations, take confessions in presence of two independent witnesses.
- ♦ Produce in court within 24 hours.
- ♦ Release synopsis of the investigation to the media.
- ♦ Prepare and submit your evidence.
- ♦ Brief lawyer.

Evaluate your results

Ask yourself what finally was accomplished. Evaluate if investigation has been a deterrent to future illegal activities and if, due to the case, more update and accurate intelligence is available.

B. Prosecution Procedures

Search / Seizure

The power of entry, search, arrest and detention are conferred under section 50 of the WPA. Police officers not below the rank of Sub-inspector have also been authorized under this section.

Investigating officer should search the suspect, his premises and his vehicle. If prima- facie evidence of contraband is found, seize them and place them in safe custody. Then arrest the suspect. A receipt of such said articles be prepared and copy thereof be given to such person in the presence of two or more independent witnesses, and whose signatures should be obtained. The arresting officer should forthwith communicate to such persons the full particulars of the offence as well as the grounds for such an arrest.

Production

Immediately after the arrest, the concerned officer must produce the arrested person and the articles seized, within 24 hours, before the concerned Magistrate. Any person can also help law enforcement by acting as a law Enforcement officer in case the crime is committed in front of the said individual. In this case private



individuals can arrest, search and seize (u/s 41 CrPc) and file provided the offence is cognizable and non-bailable.

Non bailable/ bailable offence

Offences which are cognizable and punishable with imprisonment for three years or more are non-bailable and ones which are less than three years and non-cognizable are bailable.

Conditional bail

Prosecuting officer in the event of grant of bail to an accused must ensure that the Court in its order imposes a condition that the accused shall not commit an offence similar to the offence which he is accused of. Such a condition would be deterrent for the accused to further commit such offences and expedite the cancellation of bail already granted in case the accused commits another offence under the WPA.

Confession

Law does not permit recording a statement whether confessional or otherwise of an accused except on the presence of the designated Magistrate.

Recording statements as evidence

- a) Any officer not below the rank of Asst. Director of Wildlife Preservation or the Wildlife warden is authorised to record statements of witnesses as evidence.
- b) Statement of the witness is recorded in the presence of the accused.
- c) Accused is given an opportunity to put questions, if any to such witness.
- d) Witness to sign such statement.
- e) If the accused agrees then his signatures be also appended.

Complaint

A complaint is, any allegation made orally or in writing to a Magistrate, with a view to his taking action under CR. P.C. against some person, whether known or unknown who has committed an offence. A complaint under WPA is made under Section 50(4). Such complaint can be filed only by authorized officers under section 55 of WPA. Members of the public can also file a wildlife court case by following the procedure under section 55(c).



Format of complaint

Law has not prescribed any specific format for drafting a compliant.

Contents of Complaint

Compliant must specify clearly detailed description of events, the source of the information; the enquiries made along with names of persons, places and details of the evidence collected, the instrument/weapon used.

Forensic certificate

A document certifying the species of the animal / skin / animal article or plant seized is an essential ingredient of the documents that need to be filed in the Court.

Power to file a compliant

- a) The director of Wildlife preservation or any other officer authorised on his behalf by the Central Government; or
- b) The Chief Wildlife Warden or any officer authorised on his behalf by the State Government; or
- c) Any person who has given notice of not less than 60 days, in the manner prescribed of the alleged offence. (Section 55 of WPA). The prescribed format has been appended under Wildlife Protection Rules, 1995.

Authorisation to file complaint

Complaint by an officer other than Director, Wildlife Preservation or Chief Wildlife Warden must be accompanied by a written order authorizing such officer to file the complaint.

Role of Honorary Wildlife Wardens

Para 16 of Guidelines for Appointment of Honorary Wildlife Wardens stipulates that suitable Honorary Wildlife wardens can be authorized to file complaints in courts. Honorary Wildlife Wardens should consult Chief Wildlife Warden of their state in this regard.



The following are steps in the prosecution of a wildlife criminal

- 1) Power to enter, search any premises, vehicles, etc., and seize any wild animal article etc., Section 50 of WPA
- 2) Power to stop, detain or arrest any person without warrant Section 50 WPA.
- 3) Recording of statement of the witness to the offence by Assistance Director of Wildlife Preservation or by Wildlife Warden Section 50 (8)(d) of WPA.
- 4) To produce the arrested person and articles seized before the concerned Magistrate Section 50 (4) of WPA.
- 5) Bail / Conditional grant of bail Section 437(3) (b) CrPc.
- 6) Authorisation to file complaint Section 55 of WPA.
- 7) Filing of complaint Section 55 of WPA read with section 190 CrPc.
- 8) Examination of the authorised person presenting the complaint to be dispensed with Section 200 CrPc.
- 9) Issuance of warrants/summons by Magistrate to the accused along with the copy of compliant section 204 Cr. Pc
- 10) Recording of Pre-charge evidence Section 244 CrPc..
- 11) Framing of charge Section 246 of CrPc.
- 12) Accused to state whether pleads guilty or not guilty of such charge Section 246(2) of CrPc.
- 13) Accused pleads not guilty, then witnesses whose statement had been recorded earlier to be summoned for cross examination by the accused Section 246(4) CrPc.
- 14) Accused to enter upon his defense and produce his evidence Section 247 CrPc.
- 15) Examination of the accused by court. Accused has right to refuse to answer such questions Section 313 CrPc.
- 16) Submission of arguments Section 314 CrPc.
- 17) Judgement: acquittal or conviction of the accused Section 248 Cr.Pc.



- 18) Submission of arguments or quantum of sentence, in event of conviction Section 248 CrPc.
- 19) Pronouncement of sentence/fine by court section 248 CrPC in presence of accused. Accused to be sent to jail to undergo sentence.
- 20) Appeal.

Disposal of Confiscated Specimens

An important element of a seizure is the disposal of the seized contraband. In most cases, this can be done only after the final court proceedings are completed. In other cases, especially when it is live animal, different procedures must be followed.

Options of disposal

a) Dead Specimens, parts and Derivatives:

- ❖ Donations to museums and forensic labs, for scientific research.
- ❖ Use of training and educational purposes.
- ❖ Storage.
- ❖ Destruction: This is the recommended option. Display of wildlife articles can encourage demand.

b) Live Specimens

- ❖ Return to country of origin.
- ❖ Transfer to a rescue center / Zoo.
- ❖ Return to the wild.
- ❖ Euthanasia.
- ❖ If a live animal or plant is involved, remember that the survival and the security of the animal or plant should paramount.

Seizures of wildlife should be brought to the attention of wildlife officers as soon as possible. Decisions of disposal should be made in agreement with the management authority

6.4.2 Habitat Management

The habitat management theme in Chail wildlife sanctuary is mostly linked with soil conservation, water retention, removal of weeds/exotic species and sustenance and maintenance of grasslands. These measures would substantially enrich wildlife habitats and lead to prospering of more fauna in the protected area.



6.4.2.1 Soil and water conservation measures

All drainage lines/streams should be mapped and water ponds creation shall be followed up with camera trap monitoring to ensure that wildlife is utilizing the created water holes/ponds. The water ponds/holes should be adequately spaced to ensure that fitness needs of wildlife are met. In order to maintain the water level in soil, it is proposed to construct several check structures in the form of crate wires and dry stone check structures in order to better water retention capacity of the protected area.

The following measures are prescribed in the Protected area to ensure soil and water conservation:

- (a) De-siltation of existing water holes retaining their saucer shape in order to ensure their capacity remains utilized and sufficient for wildlife.
- (b) Dry stone check dams with concrete foundation in order to regulate the flow of water and save nutrient rich top layer of soil.
- (c) Stone pitching of boundary perimeter of existing water holes to regulate the flow of water and reduce siltation rate.
- (d) New artificial water ponds need to be constructed inside the sanctuary, so that wildlife may thrive well.
- (e) Rainfall gauges are proposed to be installed in all beats of the sanctuary to evaluate the rainfall trends and change in climate over the years.
- (f) In order to check loss of top soil and leaching of nutrients, works like check dams, small water harvesting structure, percolation ponds, water holes should be done by identifying the problem area.
- (g) Muck dumping can contaminate the sources of water, this is a matter of great concern and need to be checked.
- (h) Regular monitoring through patrolling, indirect sign surveillance and camera trapping is to be performed to assess the extent of benefit of wildlife regarding waterhole/ponds created.

6.4.2.2 Control of grazing and illicit felling of timber

- (a). Grazing can be controlled by growing fodder, and grass species in the periphery of the sanctuary i.e., in community/private land in the eco-sensitive zone. This can fulfil the requirements of fodder of the nearby villagers and will also reduce the pressure of grazing in the sanctuary.



- (b). Grazing prone area should be regularly patrolled to reduced grazing pressure in the sanctuary.
- (c) It is prescribed to hold vaccination camps of livestock in zone of influence or coordinate with animal husbandry department to ensure the same.
- (d) Illicit felling can be controlled by regular patrolling, night nakkas and CCTV based surveillance. The staff should be equipped with arms to combat illicit felling.
- (e) Habitat can be well managed by spreading awareness among the people living in peripheral areas of the sanctuary regarding sources of water in the sanctuary, trees and their importance to them.

6.4.2.3 Maintenance of grasslands

♦ In order to maintain ecological integrity of grass lands and their function as a key habitat for wild herbivores especially the Himalayan Goral and Cheer-pheasant, it is prescribed to strictly avoid all plantations in grassland habitat complex of Chail Wildlife Sanctuary. It is proposed to maintain grasslands to encourage the herbivore population including near threatened Goral, Sambar and Barking Deer which in turn increase the herbivore biomass and benefit the apex carnivores. Goral usually associates in small parties of four to eight, feeding on rugged grassy hill-sides, or rocky ground in forest whereas, barking deer prefers thickly wooded hills and come to graze in the outskirts of forest.

♦ Procedure: The grassland management should be done in such a way which may not affect the other important ecological function of the sanctuary i.e., water shed capability. This can be done in following manner:

1. No plantation are to be raised in grasslands.
2. For maintenance of these meadows, manual uprooting of woody vegetation should be done regularly.
3. For control of weeds the strategies need to mainly employ mechanical methods combined with protection from biotic factors.
4. Control burning is prescribed in grasslands during culmination period of winter i.e. February-March before onset of fire season.



6.4.2.4 Species Specific Conservation Plans

6.4.2.4.1 Himalayan Goral (*Naemorhedus goral*)

The Himalayan Goral is a bovid species native to the Himalayan landscape. It is listed as Near Threatened in IUCN Red Data Book and falls in Schedule 1 of Wildlife Protection Act. It is a mammal that is threatened by poaching and hunting for its meat. In this context, it is vital from legal and ecological point to specifically conserve Himalayan Goral in the Chail Wildlife Sanctuary.



The Himalayan Goral inhabits the steep rocky slopes and grasslands of the Sanctuary. It is thus prescribed to maintain grass lands and strictly avoid plantation in the grasslands with gentle slope that are mainly used by goral for feeding. In case of extreme slopes which goral use as resting points, no specific management intervention is required. The maintenance of grassland and cliff habitat forms the core of habitat management for goral. This has been ascertained and confirmed by several research studies – Prater (1971), Mead (1989) and Gaston (1981). Further, the forest type mainly used by Gorals is the sub-tropical forest with palatable grass species of *Themeda* spp and *Chrysopogon* spp apart from shrubs and leaves of trees that form vital part of diet of animal especially in winter. The focus of management should be to conserve the said habitat type and assist in all ways natural regeneration of native grass species found in the sanctuary.

Fire protection is also crucial to protection of Himalayan Habitat as grasslands form a vulnerable and integral part of the habitat. In order to protect them from fire, there is need for maintenance of fire lines adjoining grass land complex and undertaking swift fire fighting measures during the onset of fire.

As Himalayan Goral is an animal that is vulnerable to poaching/hunting for its meat, there is a need to maintain strict vigil and patrol in the protected area. The Sanctuary area is easily accessible through road and thus is vulnerable to entry of hunters. In this context, joint night patrols are suggested to combat hunting. Further, intelligence collection and coalition as prescribed above should be followed as prescribed in addition to coordination with adjoining territorial departments, police and Wildlife Crime Control Bureau.



6.4.2.4.2 Cheer Pheasant (*Caetrus wallichii*)

The Cheer Pheasant is a pheasant species that is listed as Vulnerable by IUCN and falls in Schedule 1(Part 3) of Wildlife Protection Act. Recognizing the decline population and habitat fragmentation, the Wildlife Wing of Himachal Pradesh has initiated the conservation breeding and reintroduction in wild of this species.



The Cheer Pheasant is found in the transitional zone between oak forests and grasslands, oak forest and grass lands of Chail wildlife Sanctuary mostly in Blossom and Khariyoun beats [Status and Distribution of Cheer Pheasant in Chail Wildlife Sanctuary by Naim Akthar et al]. The grassland with roosting branches is the ideal habitat. As the transitional zone mosaic habitat is critical to the species, it is prescribed to avoid any intervention in this areas especially plantation and to maintain grassland and the transitional zone as it is.

The Cheer Pheasant habitat coincides with boundary of sanctuary adjacent to villages and experience biotic pressure in terms of grass collection, lopping and is vulnerable to hunting. It is prescribed that these areas be regularly patrolled and offences be booked regularly to foster deterrence. Apart from this, it is prescribed that eco development works like provision of gas cylinders, fodder seeds, encouraging of stall feeding etc. for adjacent villages to reduce biotic pressure and provide disturbance free habitat to Cheer Pheasants. Fire protection measures for protection of grassland habitat are also prescribed in the Cheer habitat complex.

6.4.2.4.3 Sambar (*Rusa unicolor*)

This sanctuary is one of the highest extent in terms of altitude as natural habitat for the Sambar. In order to maintain the Sambar population and ensure its prosperity, there is need to assist natural regeneration of grasses and ban oak forests which provide forage for grazing and browsing of Sambar. There is a need to maintain natural water ponds and de-silt the existing created water ponds. Sambars exhibit wallowing behaviour to maintain body temperature and in this context it is important that ponds in Sambar habitat be kept kachha



6.4.3 Human Resource Development

The Human resource for protected area management refers to the sanctuary staff. They are the ones at the forefront of all protection and conservation activities. In order to get the maximum out of the PA staff, it is prescribed to build their capacity, provide them with all necessary modern equipment, develop infrastructure and communication and ensure their welfare in terms of clothing and accommodation.

6.4.3.1 Capacity Building of Staff

Although the wildlife staffs are well trained and versed with basic forest and wildlife laws, there is a vacuum in their skill set when it comes to prosecution of wildlife offences, wildlife census and handling of computers and digital data. Any modern-day wildlife manager needs to be trained in aspects of data collection, data analysis and graphical representation of data developing spatial intelligence.

The following trainings/ workshops are herewith prescribed for wildlife staff:

- a) Booking wildlife offences under various wildlife and forest laws including drafting of damage report and how to lodge preliminary offence report/ FIR independently without police intervention.
 - b) Seizure procedure, Collection of evidences, their safe storage and production in court and disposal as applicable.
 - c) Intelligence collection, coalition and investigation techniques in wildlife crime control.
 - d) Basic wildlife census techniques including transect walk, call count, pellet count, sign survey, grid-based camera trapping including data collection and analysis using standard data sheets.
 - e) Data collection for social assessment and wildlife census using modern day wildlife data collection software tools.
 - f) Use of firearms in emergency scenario.
- Apart from workshops, it is also necessary to equip them with tools and equipment. In this regard, the following tools/ equipment are prescribed for procurement:
- i. GPS devices: All staff should be provided with GPS devices. This is vital in delineating natural resource and other assets in the protected area.
 - ii. Camera Traps: In order to carry out wildlife census and also for intelligence



gathering in case of wildlife crime

iii. Fire Rakers

iv. Fire Blowers

v. Power Chain Saws

vi. Fire protection clothing and protective gear

vii. Wireless/ Mobile phone

viii. Laptop/ Computer along with internet connection at Block Office

ix. Range Finders for wildlife census in transect walk

x. Binoculars for bird census

xi. Digital Cameras for recording photographs of various works in the sanctuary and of wildlife and the catchment landscape

6.4.3.2 Development of Infrastructure and communication

The existing infrastructure in terms of buildings, communication network, vehicle, computer etc is not adequate and there is need to strengthen the infrastructure for better management of the Sanctuary.

The buildings that need to be constructed/maintained are:

- ♦ Maintenance of Block office at Chail
 - ♦ Construction of Block Officer residence at Khariyoun
 - ♦ Guard hut at Mihani for Khariyoun beat
 - ♦ Maintenance of all other field staff quarters as per requirement
- Communication

At present there is one very old motor cycle which is in dilapidated condition and no wireless walkie-talkie has been given for communication. It is prescribed to provide a patrol vehicle for patrolling during night hours along with walkie-talkie for each patrolling officer. The Range Office working has been computerized to a great extent. It is prescribed that Range Office be converted to e-office in order to further smoothen the communication and fast track correspondence as Chail wildlife sanctuary comes under Shimla Water Catchment range. Similarly, there is a need to computerize and digitize information regarding to conservation breeding in the breeding centre/ pheasantry at Khariyoun.



6.4.3.3 Staff Welfare

The basic aspect of staff welfare is to ready the quarters of sanctuary staff. It is prescribed to construct quarters for Block Forest Officer, Guard Hut at Khariyoun and periodical maintenance of already constructed quarters.

Further, field staff shall be provided with jackets and shoes in a uniform manner at least once in 3 years. The jackets shall clearly mention sanctuary name in order to give a professional outlook to staff and clearly identify them as sanctuary staff. It shall blend well with camouflage colour largely prescribed for forest staff.



The field staff doing good work shall be appreciated through certificates recognizing them for their works and also through other rewards in the form of cash prizes. The Deputy Conservator of Forests shall take decision in this regard. Such measures would give an incentive for field staff to work better with good competitive spirit and keep their motivation high.



Chapter-7

Ecotourism, Interpretation and Conservation Education





7.1 General

The term Ecotourism has been defined as the “responsible travel to natural areas that conserves the environment, sustains the well-being of the local people, and involves interpretation and education” (TIES, 2015). Education is meant to be inclusive of both staff and guests. It is about uniting conservation, communities, and sustainable travel.

With unrestricted increasing attention to the ecological environment and the improvement of environmental awareness, ecotourism is becoming ever more prevalent, and the demand for tourism is increasing year by year (CREST, 2019).

When it comes to Chail WLS, there are several categories of visitors with a wide variety of aspirations. The common man wishes to see the spectacular natural sceneries and the wildlife within the limited time and money he can afford to spend. Most of the visitors are coming for a picnic. As Chail is near to adjacent State like Punjab and Haryana, the tourist often come to spend weekend here. The other set of visitors are of the group who has keen interest and enthusiasm to understand and learn about the mystic secrets and scientific reasons behind the wilderness and the wildlife.

However, there is a gap in awareness among visitors of Chail about Chail Wildlife Sanctuary. The average tourist coming to Chail visits the Chail Palace and Kali Mata Mandir before proceeding back. There is need to tap the underutilized potential of trek routes in the sanctuary. Similarly, there needs to be signages along the road side making people aware of the sanctuary area, the opportunities of eco-tourism in sanctuary and the do's and don't's associated with sustainable tourism in the area.

7.2 Objectives

The following are the goals of eco-tourism in the Chail wildlife sanctuary:

a. Wildlife Awareness and education: Through guided nature walks and bird watchers' trails, the visitors can understand the diverse flora, fauna, the ecosystem services that sanctuary provides and the importance of conservation of this wildlife habitat.



b. Citizen sciences-based Databases: The several visitors that come to the sanctuary are also foot soldiers who can collect data and provide the same to the wildlife Wing. This can form the base for citizen sciences-based data especially when it comes to avian fauna in sanctuary.

c. Livelihood for local Community: Eco-tourism offers several opportunities for local community in villages in zone of influence to be involved as nature guides, drivers, homestays etc. This can provide gainful employment for the youth and create a sense of goodwill between forest department and local community.

d. Aids in protection: Any increase in eco-tourism and visits of tourists would also serve to regulate and moderate offences in the protected area. This is utmost importance for Chail Wildlife Sanctuary as it has a history of offences related to illicit felling in particular and is vulnerable to littering.

e. Revenue generation: Eco tourism activities provide meaningful revenue to local community and can generate revenue for Eco-Development committees which can be further used for socio-economic development of local community and conservation education, thus creating a virtuous cycle of high value eco-tourism.

f. Low Visitor footprint: The principal aim of eco-tourism in sanctuary is to leave as little footprint as possible through regulating number of visits per day and fixation of carrying capacity on the basis of available formula models.

h. Promoting local development and sharing of economic benefits in fair manner at state, regional and local level.

The success of Ecotourism/wildlife tourism inside the sanctuary depends on the quality of the experience of tourists. As the terrain of wildlife sanctuary is hilly, the possibility of wildlife sighting is less. Hence, eco-tourism should focus on trekking inside sanctuary and the appreciation of majestic deodar landscape and grasslands apart from bird watching.

Wildlife tourism is a double-edged sword that needs to be used with care. There is always a risk of overloading tourism especially when it comes to a smaller wildlife sanctuary. It is prescribed to have tourism on foot on identified and delineated trek routes. In this context, the number of treks and number of participants in a group should be monitored and regulated based on the carrying capacity of these routes which are fixed and mentioned in the section on regulation in this chapter.



7.3 Issues/Problems

The following are the main issues /problems faced in implementing eco-tourism activities inside the sanctuary:

1. Small Size of Protected Area: The small size of sanctuary severely limits number of visitors that can be allowed per day as per carrying capacity norms.

2. Developing a feasible community based eco-tourism model: The villages surrounding the protected area are hesitant to join eco-tourism activities as they are not assured fixed income for all seasons. Currently, there is no framework of a registered society/eco-development committee as such functioning in the sanctuary which is a pre-requisite for implementation of community based eco-tourism. There is a tendency of high tourist footfall especially in winters and summers so there is a dire need to develop an economically feasible eco-tourism model that appeals to the adjacent villages.

3. Littering in Sanctuary Increasing tourist influx as well as presence of large number hotels surrounding pose a huge problem of waste management inside as well as surrounding the sanctuary. The litter pressure is substantial from Chail town and poses a threat to wildlife habitat.

4.Noise pollution due to increase in vehicles, as well increasing tourist influx which needs to be dealt with.

5. Probability of wildlife sightings are low given the hilly terrain

6. Shortage of trained personnel from eco-tourism viewpoint

7. Regulating number of visits /day: It is a challenge to arrive at a number for maximum visitors per day. The carrying capacity fixation must take into account various factors including size of protected area, size of eco -tourism zone demarcated for eco-tourism purpose, soil and moisture conservation status, breeding season of wildlife, mode of eco-tourism etc.

8. Lack of Coordination between Stakeholder Agencies: In Chail, there are various important stakeholders of tourism- which includes The Palace run by HPTDC, Kali Ka Tibba temple management committee, various restaurants and homestays operated by local community, territorial forest department which manages intertwined forest areas, local panchayats, driver unions/groups, tourist guide groups etc. The real benefit of eco-tourism can be realized only if there is strong coordination and streamlining of actions between these stakeholders.



7.4 Strategies

Eco-tourism in sanctuary shall focus on natural resources like the beautiful forest and grass land patches, the precious wildlife that includes the presence of both the majestic mammals and birds, scenic views of the landscape from vantage points and trekking experience for visitors. Eco-tourism should also be promoted taking into account the existing tourist potential of Chail which is constituted by The Chail Palace and The Kali Mandir. In this context, zonation of eco-tourism and trek routes delineated shall focus on promoting complementary linkages with these sites to harvest maximum eco-tourism potential and enable feasibility in plans for visitors.

Any form of ecological tourism should therefore be promoted duly keeping in view the concept of 'carrying capacity'. This should be strictly adhered to ensure minimal disturbance to wildlife, an enriching experience for the visitors and sustainable tourism. As a pre-requisite to this, there should be clearly identified entry points in sanctuary for all eco-tourism activities whereby number of visitors can be monitored and regulated. The philosophy of strategy of eco-tourism is to demarcate a clear zone for eco-tourism activities in the sanctuary and to provide a high value experience to regulated number of visitors in terms of wildlife awareness and education.



Image 7.1: Chail Cricket Ground and Kali Ka Tibba Mandir

7.4.1 Identification of a zone

The eco-tourism activities in the protected area shall only be limited to the eco-tourism zone identified for the said purpose and clearly delineated in the aforementioned zonation plan. The demarcated eco tourism zone involving 4 trek routes is once again represented in table and map below.

Table 7.1: Eco-tourism trek routes

No.	Name of the Trail	Distance (In kms)	Trek	Category of Trek
1.	Kali Tibba to Khariyoun-Jhajha	10.20	Trek Paths	Moderate
2.	Ranital to Snow View	5.40		
3.	Chorghatti to Snow View	4.0	Nature Trail	Soft
4.	Chabata to Khariyoun Pheasantry	1.7		

7.4.2 Mode of Eco-Tourism

The mode of tourism prescribed is nature walk and treks. There are already several roads inside the protected area which are used for common commute. Hence, the same is not prescribed from eco-tourism point of view. However, these roads can be utilized by visitors for commuting to trek path entry points. Nature walks and treks are based on beautiful forest patches, grasslands, bird watching potential and composite tourism model involving already established sites.

7.4.2.1 Chail Eco Tourism Society

All eco-tourism activities proposed shall be managed and run through the umbrella of Chail Eco Tourism society. It shall be a new society established to promote eco



tourism activities in the sanctuary. The society shall be established under the HP Societies Registration Act, 2006. The administrative structure of the society shall involve the General Board chaired by the Conservator of Forests (Wildlife), Wildlife South Circle while the Executive Secretary of the society is the Deputy Conservator of Forests (Wildlife) which meets at least twice in a year to carry out and review works under society. Further, the society shall also have an executive committee empowered to take timely decisions with respect to management of eco tourism activities in the protected area.

The official members of the society shall include the following:

1. Range Forest Officer Shimla Water Catchment Range
2. Range Forest Officer, Chail Territorial Range
3. Block Forest Officer Chail
4. Representative from Tourism Department
5. Representative of District Administration

The following are list of Non-official members:

1. Representative of Rashtriya Military School
2. Representative of Chail Palace
3. Pradhans of gram panchayats in zone of influence
4. Mahila Mandal representatives
5. Yuvak Mandal representatives
6. Representative of Kali Tibbba Seva Samiti

The General Board of Chail Eco Tourism society shall have the mandate to monitor and facilitate eco tourism, wildlife awareness and education activities in the sanctuary. The society is vested with mandate to enhance the quality of life of villagers in zone of influence and promote community based eco-tourism activities in the sanctuary within the established legal framework of sanctuary governance. The equitable sharing of benefits realized from eco-tourism with local communities shall be the focal objective of the eco-tourism society.

7.4.3 Visitor Amenities

It is prescribed that visitor amenities in the protected area premises be limited for eco-tourism purposes given already small size of protected area and other biotic and anthropogenic pressures. The following are the suggested interventions from eco-tourism standpoint:



1. Entrance Arch: Entrance arches are prescribed at various entry points of trek route. This will form dual purpose- one of giving clear indication to visitor that he or she is entering protected area and second of enabling regulation and monitoring of visitors entering the sanctuary.



Image 7.2 : Entrance Arch at Chabata- Starting point of trek number 4

2. Ticket Window and Interpretation Centre: It is proposed to upgrade block forest office and include the ticket window and interpretation facilities as part of this office where visitors can avail permits/ticket for eco-tourism activities.

3. Signage along trek path: It is proposed to enrich the trek paths with signage on wildlife, forest and ecosystem services to provide education and awareness to the visitor. The signage shall include directional, educative and caution detail to ensure an informed low footprint visit of the tourist.

4. Resting Points and Gazebos: It is prescribed to add resting points, benches,



rain shelters, gazebos along the trek paths for visitors. These are to have naturalistic outlook blending nicely with the forest back ground built in eco-friendly and temporary manner only for use of eco-tourists.

5. CCTV based Surveillance: it is proposed to have entry point surveillance as an addition to regulation and monitoring of eco-tourism in sanctuary.

6. Binoculars: it is prescribed to have binoculars on rent for birdwatcher visitors.

7.4.4 involvement of Local Communities

It is prescribed to create Chail Eco Development Committee involving interested local community members on the boundary of sanctuary in the zone of influence. A detailed PRA exercise is prescribed to identify needy villagers having suitable socio-economic background who can be involved in eco-tourism activities as nature guides. The strategies for involving them for eco-tourism based activities are as follows:

a. Framework of EDC: The said EDC will be formed under Chail Eco Tourism Society which can be formed to promote and manage eco tourism activities in sanctuary. The society shall include District Tourism Development Officer, Solan, block forest officer of Chail, local community representation from mahila mandals, gram panchayats in the zone of influence, representative of Chail Palace, Rashtriya Military School and other stakeholders.

b. Nature of involving communities: The EDC members can act as nature guides for visitors and may operate eco-shops. They may describe about the sanctuary, its history, flora and fauna of the sanctuary, about flagship species etc. so that visitors have an enriched tourism experience. Apart from this, several other villagers can be offered indirect livelihood opportunities in the form of home stays, restaurants, shopkeepers, drivers etc.

c. Revenue Sharing Framework: The revenue realized from guided nature walks based vehicles shall be shared with EDCs who can then distribute between them their share of income. The percentage of such sharing can be arrived at after detailed deliberations between the Governing Board of Chail Eco Tourism Society and EDC.

d. Training of Local Community Members: In order to maximize the visitor experience, it is prescribed that local community members be trained in hospitality, wildlife, flora of sanctuary, ecosystem services provided by sanctuary and purpose of management of wildlife sanctuary. In case of hospitality training, The Chail



Palace can facilitate the same to the staff

e. Certification: A certificate and ID card is to be provided to the trained individuals who are certified to be guides. A uniform shall be decided for nature guides to identify them and provide them a professional outlook.

f. Group size of 3-5: In sanctuary, a group size of 3-5 may be formed of incoming visitors. Each group may be accompanied by a guide that is trained and certified.

g. CSR Funding: Corporate engaged in tourism and hospitality in buffer zone of sanctuary has been reaping benefits of eco-tourism. This equation can be changed by streamlining CSR funds from such corporate entities for community based eco-tourism in region creating a hybrid model of eco-tourism. CSR funds can be used for training programmes of local community members as nature guides and other entry point activities in adjacent villages.

h. Seasonality of Eco Tourism Activities: Considering the aforementioned eco-tourism activities are highly seasonal in nature with highest footfall expected in Summer Season in months from April to July, it is prescribed that number of nature guides be also flexible as per season with more nature guides being available during the summer months and less during monsoon and winter months. During winter months, snow treks can be promoted on the already designated trek routes given it is a unique experience for visitors.

i. MoU with private agencies: In cases where partnering agencies are hotels lying outside of sanctuary area, there is need to develop comprehensive memorandum of understanding between Chail Eco Tourism Society and the partnering agency such as The Chail Palace, Tarika Resort, Tavleen Hotel by ITC etc. This shall lay down the basic principles of eco-tourism with partnering agencies with minimal disturbance, in accordance with aforementioned carrying capacity norms and providing benefits to local people directly and indirectly. Such MoUs shall clearly define the responsibilities of partnering party to adhere with existing laws, rules and regulations of sanctuary governance. This also provides opportunity to utilize CSR funds for wildlife conservation and environment protection with regard to Chail Wildlife Sanctuary



7.4.5 Possible Eco-Tourism Activities Proposed

The following are eco-tourism activities proposed during the period of management plan:

- i. **Guided nature walk/ Trek** along designated 4 trek routes as already mentioned
- ii. **Bird watchers' walks** involving members along the designated trek routes with a certified guide
- iii. **Interpretation and Eco-Shop** in interpretation centre identified
- iv. **Trekkers' Hut Chail** can be managed by EDC members and their revenue would be part of Chail Eco-tourism society
- v. **Canopy Walk** among the majestic forests of Chail for visitor interpretation and awareness on forests. It can be operated by EDC and revenue shall be part of society.



Image 7.3 : Representative Images of Canopy Walks

7.4.6 Proposed Staff Strength for Eco-tourism

No separate staff is proposed as such for conducting eco-tourism activities given small size of sanctuary. All forest guards, deputy ranger under the leadership of Range Officer is responsible for facilitating and regulating eco-tourism within sanctuary limits. Apart from this, the number of nature guides and drivers that needs to be engaged may be kept flexible depending on tourist footfall in each season.



7.4.7 Anticipated Benefits and Outcomes from Eco Tourism

The following are the anticipated benefits and outcomes from eco-tourism in the catchment area:

- i. **Wildlife awareness and education** for the visitors and knowledge about wildlife, forests and eco system services provided by the Chail Wildlife Sanctuary.
- ii. **Livelihood creation** and gainful income generation for local community.
- iii. **Citizen science based data** that can be integrated into conservation management and for population estimation of various fauna.
- iv. **Indirect benefits and job creation:** Every visitor coming into sanctuary translates into revenue generating opportunity for local community members in terms of shopkeepers, drivers, hoteliers etc.
- v. **Protection and Conservation** of the sanctuary is also aided by eco-tourism activities as presence in the sanctuary trek routes dissuades any illegal activity.

7.4.8 Liaison with other departments, institutions and agencies

7.4.8.1 Tourism Department: The District Tourism Officer, Solan District should be included as part of the Chail Eco Tourism Society and liaison is prescribed to be through the platform of General Board of Chail Eco Tourism Society. Further, it is prescribed that Chail Wildlife Sanctuary may be branded and popularized as a destination for its mesmerizing grass lands, avid nature lovers and enthusiastic bird watchers (through flagship species of Cheer Pheasant) through social and other media of the tourism department. The tourism department can also function as a fund providing agency to carry out various eco-tourism and conservation education activities in the sanctuary area.

7.4.8.2 District Administration: It is prescribed to have coordination with district administration for conducting eco-tourism activities in domain of disaster management, management of solid waste and transportation.

7.4.8.3 Eco Clubs of Schools & Colleges: The coordination is required especially when it comes to bird watching walks and flora walks with purpose of conservation and nature education. Rashtriya Military School, Chail can be a starting point for such activities given its location within sanctuary.

7.4.8.4 The Palace Chail, HPTDC: The Palace is the most popular tourist destination for visitors coming into Chail. As a facility accommodating high end tourists, there needs to be effort created for complementary linkages with sanctuary tourism as visitors can be made aware about Chail Wildlife Sanctuary and the wilderness experience it has to offer through pamphlets, brochures, signage and mention during guided tour. It is also a renowned institution in field of hospitality and hotel management. Its support shall be galvanized for purpose of providing hospitality training to nature guides and in conducting clean up drives.



7.4.8.5 Local Panchayats and Mahila Mandals: As part of Chail Eco Tourism society, coordination with local bodies is essential for conducting community based eco-tourism activities especially with regard to streamlining indirect benefits realised from eco-tourism

7.4.8.6 Hotels and other Establishments: A mechanism of coordination through EDCs formed under Chail Eco Tourism society can be created with hotels and other such establishments in Chail to promote brand of sanctuary and promote sustainable tourism in Chail.

7.4.9 Publicity

Chail Wildlife Sanctuary should get popularized as a unique destination for nature lovers and bird enthusiasts. For this there are different strategies has been used. The online publicity through the official website is active with all the details regarding the sanctuary and contact details for further information. A video documentation of sanctuary and the aforementioned nature treks is identified as a requisite to attract visitors to the landscape of Chail. Different type of programmes should be conducted by involving students from schools, colleges and common people should be carried out to get the attention of people from various part of the globe. Social media page of Shimla Wildlife Division can be used to publicize the sanctuary, the various ecological services it offers and the eco-tourism opportunities it provides thus elucidating the need for conservation.

Sanctuary Literature

The printed pamphlets and brochures about the wilderness of Chail Sanctuary should be made available for tourists. An annual magazine on Chail Wildlife sanctuary shall be published detailing various wildlife conservation and management activities undertaken. It should have a brief idea about the fauna and flora, wildlife, natural resources, landscape, history and other main attractions apart from the do's and don'ts to be followed by eco-tourists.



7.4.10 Regulations, Monitoring and Evaluation

7.4.10.1 Carrying Capacity of the PA

Carrying capacity of Chail Wildlife Sanctuary that defines maximum permissible footfall needs to be calculated given wildlife considerations and size of area. This carrying capacity limit needs to be strictly adhered to within zonation limits specified for eco-tourism in sanctuary. The carrying capacity limits is calculated vide MoEFCC guidelines (F. No. 1-57/2014 WL dated September 19th, 2018) on sustainable eco-tourism in protected areas and tiger reserves using below formulation.

$$\text{Physical Carrying Capacity} = \text{PCC} = A \times V/a \times \text{RF}$$

Where, A = available area for public use

V/a = one visitor / M2

Rf = rotation factor (number of visits per day)

Kali Tibba to Khariyoun-Jhajha	10.20
RanitaltoSnowView	5.40
ChorghattitoSnowView	4.0
ChabatatoKhariyounPheasantry	1.7

Area available for public use = 10.20km (Kali Tibba to Jhaja) + 5.40km (Ranital to Snowview) + 4 km (Chorghatti to Snow View) + 1.7 km (Chabta to Khariyoun Pheasantry) = 21.3km

It is assumed that for visitor convenience, there shall be a maximum of 5 visitors in a km stretch, $V/A = 10$

Rotation Factor = Opening Period/ Total Time Spent



Opening period is prescribed to be 11 hours from 6-5 except during breeding period of pheasants that is from April 1 –June 15. During this period, the opening time shall be 9-4 and entry before that shall be allowed only for researchers and scientists or citizen science data collection purpose. Time spent by an average visitor in sanctuary is approximately 3 hrs which gives

$$\text{Rotation Factor} = 11/3 = 3.66$$

On basis of above

$$\text{PCC for on foot visitors} = 21.30 \times 10 \times 3.66 = 781 \text{ visits/day}$$

Correction factors are to be included to this estimate to take account of 3 main factors- namely soil erosion given vulnerability of landscape, wildlife considerations (breeding season), temporary closing of roads in sanctuary due to winter and monsoon.

$$\text{Correction Factor (Soil Erosion)} = \text{Highly vulnerable stretch (km)} \times \text{Weightage factor} + \text{Moderately vulnerable stretch} \times \text{weightage factor} / \text{Area available for use}$$

$$\text{CF (SE)} = 2 \times 2 / 21.3 = 0.18$$

Correction Factor for wildlife considerations in sanctuary should take into account breeding seasons of various species.

For herbivore species like gorals and barking deer, 2 months of courtship/ breeding season is considered. Similarly for pheasants including the Cheer pheasant for which sanctuary is flagship species, a period of 3 months (from April to June) is vital for breeding. Although there is no established specific breeding season for leopards, a period of 2 months is taken for apex predator species of sanctuary. Taking into account all of above, correction factor for wildlife species is calculated as

$$\text{CFw} = 2+3+2/12 = 7/12 = 0.58$$

Sanctuary paths are temporarily closed for a period of approximately 3 months in total considering winter and monsoon. Hence correction factor for temporarily closing of roads is calculated as follows:

$$\text{CFt} = 3/12 = 0.25$$

$$\text{Real Carrying Capacity} = \text{PCC} (1-\text{CFse}) (1-\text{CFw}) (1-\text{CFt})$$

$$\text{RCC for on foot visitors} = 781 \times 0.82 \times 0.42 \times 0.75$$

$$\text{RCC for on foot visitors} = 201 \text{ visits/day}$$

The final effective carrying capacity of sanctuary is calculated by taking into



account the Managerial capacity of sanctuary. Chail Wildlife Sanctuary has adequate staff adequately trained in forest and wildlife management. Further, there are good number of watch towers in sanctuary. The trek paths easily accessible from roads are not difficult to monitor. However, there is shortage of vehicles and other monitoring mechanisms to control eco-tourism activities. Considering all of this, MC is defined to be 75%.

Effective Permissible Carrying Capacity = MC x RCC

EPCC for on foot visitors = 150 visits/ day

It is hence prescribed to permit 150 visitors in the sanctuary area for eco-tourism in all 4 defined paths as delineated in the eco-tourism zone.

7.4.10.2 Regulating Framework

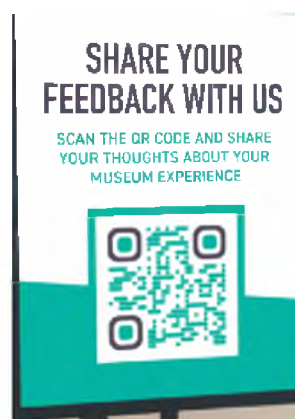
The regulation of eco-tourism is principally the job of forest department staff. The regulation is in the number of visiting tourists and with their adherence to wildlife protection laws, rules and regulations in force in state of Himachal Pradesh and India. The visitors need to be clearly made aware of do's and don'ts in sanctuary. The same is communicated to them through brochure and signage. Further, it is prescribed that nature guides be also trained in various do's and don'ts and they educate visitors and ensure such regulations are complied with.

7.4.10.3 Monitoring Techniques

The eco-tourism activities shall be monitored broadly through CCTV based surveillance technique connected to a digital dashboard or display screen at the entrance that mentions the number of visitors per day. Further, all tickets/permits issued shall be through common ticketing portal of HP Wildlife Wing which also serves as monitoring tool for number of visitors. Apart from this, forest guards shall exercise control in their respective beats to avoid negative fallouts of eco-tourism in sanctuary.

7.4.10.4 Feedback Collection Techniques

It is proposed that visitors may be given a feedback-form such that proper feedback may be recorded. Such evaluation can help in future planning exercises and also to better manage the protected area for its eco-tourism potential. There can be QR code based visitor feedback form that can be installed at the end point of trek routes. This can help the PA manager understand the various bottlenecks associated with eco-tourism in the sanctuary and work on the same.



Chapter-8

Eco-development





The term eco-development was coined by Mr Maurice F. Strong, the first Executive Director of the United Nations Environment Programme (UNEP) and it refers to an integrated approach to environment and development. It is the development at regional and local levels, consistent with the potentials of the area involved, with attention given to the adequate and rational use of natural resources, and to the application of technological styles (innovation and assimilation) and organizational forms that respect the natural ecosystems and local socio-cultural patterns.

Fundamentally, the objective of eco-development is to utilize resources to meet human requirements and to improve and maintain the quality of human life for this and future generations. To face this challenge, development must take place in a manner that integrates biological considerations with economic, social and political factors to address both human welfare and the human environment.

8.1 Objectives

Eco-development around the sanctuary need to be developed with the following objectives

- To galvanize local community participation in conservation, protection and promotion of eco-tourism in Sanctuary.
- To improve the socio-economic conditions of the people living in the buffer zone by providing them several direct and indirect livelihood options through eco-tourism and protection activities. Further, to better their quality of life through provision of essential infrastructure and services.
- To promote formation of women's self-help group and develop their skills for enhancing their income through micro-financing support with the support of Chail Eco Tourism Society.
- To meet various needs of local population which are directly correlated to forest dependence and wildlife through alternative energy in form of solar lights, LPG and immunization of livestock respectively.
- To increase the awareness among the local people regarding the role of forests and wildlife in general and this sanctuary in particular.



8.2 Specific Issues

The following are the specific issues identified to implement eco development activities:

a. Developing a feasible community based eco-tourism model: The villages surrounding the protected area are hesitant to join eco-tourism activities as they are not assured fixed income for all seasons. The low tourist footfall during winters and monsoon is a major roadblock to this. It is a significant challenge thus to develop an economically feasible eco-tourism model that appeals to the adjacent villages.

b. No framework mechanism for CBET: Currently, there is no society or EDC that can execute and monitor eco-tourism activities in Chail Sanctuary. There is thus a need to include this PA in a society and formulate an EDC for undertaking community based eco-tourism activities

c. Negative Perception: The sanctuary is highly irregular in shape and also has large Eco-Sensitive Zone. There is a negative perception among people due to the laws and restrictions a protected area brings especially when it comes to grass fodder collection. Further, the sanctuary includes several private ghasnis which greatly complicates issues of ownership, rights and cooperation. These are the best habitats for the Goral and Cheer Pheasant. The void of an amicable compromise for these habitats is a major challenge that diminishes the confidence of local community and handicaps the forest department of their cooperation when it comes to eco-development activities.

d. Biotic Pressure on sanctuary exists in the form of requirement of fuel wood, grazing etc.

8.3 Broad Strategies

The broad strategy of implementing eco development programme in the Chail Wildlife Sanctuary shall be to formulate village wise Eco Development Committees for fringe villages in buffer zone that have been identified in the management plan and to clearly define its structure, duties and responsibilities. The main activity of eco development shall be eco-tourism and developing income generation strategies to the sanctuary dependent communities. The framework for implementing eco-tourism activities has already been discussed in detail in Chapter VII. Apart from this, other eco development activity suggested include provision of micro credit facilities for income generation activities, provision of gas cylinders for people living in zone of influence to reduce their dependence on fuel wood, provision of toilets, skilling local community in handicraft/ other livelihoods and other activities as identified in detailed Participatory Rural Appraisal exercise.



8.3.1 Organizational Structure of Eco Development Committee

The following shall be salient features of organizational structure of the said EDC:

- a) The eco-development committee shall be registered under Himachal Pradesh Societies Registration Act, 2006.
- b) Membership will be voluntary and the Mahila Mandals and Gram Panchayats shall coordinate to include interested members into the EDCs.
- c) Membership Fee of Two rupee per member per year shall be collected. It shall be free for members from SC/ST community.
- d) Periodicity of meeting of EDC shall be once in 3 months and Quorum for meeting will be 25 percent of total membership

8.3.2 Executive Committee Organization

Executive Committee of EDC: For every EDC an executive committee shall be selected comprising the following members.

- a. Elected Members- not more than 3 members elected by the EDC.
- b. At least half of the elected members should be women.
- c. The concerned Forest Guard, Deputy Range Officer and one representative of a voluntary agency shall be ex officio members.
- d. Concerned Deputy Range Officer will be the Member Secretary.
- e. Term of office for elected members will be two years; election for EC has to be held every two years and members can get re-elected.
- f. Voting Rights will be available only for the elected members.
- g. No voting rights for the ex officio members.
- h. Periodicity of meeting shall be once in 2 months or whenever needed.



President of EDC: The Executive Committee will elect its own chairperson. He/she shall also be the chairperson of the Eco Development Committee also. The Term of office of President shall be two years; can be re-elected for 2nd term; should not be continued beyond three terms.

8.3.3 Fund Flow

Fund Flow of EDC : The following procedure shall be adopted for managing the fund flow to the EDC.

- a. A Joint Account, Jointly operated by the Member Secretary (Deputy Range Forest Officer) and the Chairman of the EDC shall be opened in a nearby bank.
- b. Executive Secretary of Chail Eco Tourism Society shall directly send the cheque to the EDC account based on memorandum of understanding agreed to by Chail Society and constituted Eco Development Committees that defines revenue sharing framework.
- c. Funds from the EDC account can be drawn only for the items of works passed in a resolution by the EDC.
- d. The Chairman will maintain the cash book through Member Secretary;
- e. Printed cash books will be supplied by the Forest Department.
- f. The accounts of EDC shall be annually audited by the local fund audit and also by chartered accountant.

8.3.4 Role and Responsibility of EC

The committee will be constituted at the commencement of and at the end of every term with the Range Forest Officer concerned acting as the Returning Officer for filling in the quota of elected members. The executive committee will meet at least once in two months, or more often if need be. The Member-Secretary shall be responsible for convening the meetings and maintaining the record of proceedings. He shall send one copy of the proceedings to the Executive Secretary Chail Eco Tourism Society and Range Forest Officer to keep him informed and obtain necessary guidance and approval which shall be provided by the Executive Secretary Chail Eco Tourism Society. He or she may give directions from time to time for smooth and proper functioning of the committee which will be binding on the committee.



8.3.5 EDC Duties and Responsibilities

A general body meeting of the Eco Development Committee shall be held once in every four months to review the activities and functioning of the Executive Committee. The concerned Forest Guards will have the right to participate, but no right to vote. The Member Secretary will vote in case of a tie of votes.

The reciprocal commitments of the EDC are given below:

- a) The members of the ED Committee, individually and collectively, will ensure protection against poaching grazing, fires, littering and thefts of forest produce in accordance with the eco-development micro plan.
- b) Make other villagers aware of the importance of forests.
- c) Assist the Forest Officers in carrying out forestry development works in accordance with the approved eco-development plan.
- d) Identify volunteers and interested youth to carry out eco tourism activities
- e) Assist the wildlife wing and staff in regulating anthropogenic pressure especially with regard to littering

8.3.6 Memorandum of understanding

A memorandum of Understanding needs to be signed between the Chail Eco Tourism Society and the Executive Committee of the Eco Development Committees constituted. The MOU contains undertaking given by EC members in the MOU to implement the eco development plan with utmost sincerity and devotion to prevent grazing inside the reserve totally or to a certain extent, to stop collection of fuel-wood, minor forest produce and small timber completely from the forests, to protect the reserve by themselves and to extend cooperation to the forest department staff in protection and conservation of the reserve especially from the multifarious threats i.e. littering, debris dumping, minor hunting etc. The agreement shall spell out clearly conservation approach to private grasslands which are prime habitat for Cheer Pheasant and Goral to ensure minimal disturbance to wildlife.

8.4 Past History of People Participation in Sanctuary

Currently, there exists limited people participation in management of protected area. Apart from this, some members of the local community are engaged as fire watchers and anti-grazers/ anti-poachers whereas some of them are involved in soil moisture conservation works of sanctuary. There is no history of organized participation of people in sanctuary and there is absence of framework of a society or EDC that is the prime instrument of people participation in all protected areas.



8.5 Village level site specific strategies

In order to understand the various needs of villagers, a participatory research analysis (PRA) is proposed to be conducted in adjacent villages of the Catchment area. Based on the results of the PRA, an **eco-development plan** can be created for the said villages. This plan shall broadly include development of community assets, provision of eco-friendly energy devices, development of skill set for local community and provision of sanitation facilities.

The village level site specific strategies of eco development involving the local community shall be as follows:

- Identify entry point activities to enlist support of people
- Community asset building to create meaningful infrastructure development on village common lands
- Skilling of local community in vocations and livelihoods linked to forest, eco-tourism, handicrafts etc.
- Distribution of LPG/ Solar Lights etc. at subsidized rates.
- Toilets and other waste management structures
- Provision of fodder seeds and encouraging stall feeding to livestock
- Provision of books for children in villages for purpose of education
- Any other need of village based on the result of PRA exercise

8.6 Monitoring and Evaluation

All the eco-development programmes should undergo through a monitoring and evaluation mechanism. This will ensure that the progress in the right direction and also keep the on-going activities on the right track through timely corrective measures. The monitoring team should comprise of PA personnel, representatives of EDC and NGOs. Monitoring formats should be prepared regularly and submitted for regular checking. The progress of the activities will be evaluated based on set indicators of successes. The indicators shall look at the effectiveness of eco development activities in two main fronts i.e. the improvement in living standards of fringe villages and the reduction in biotic and anthropogenic pressure on the protected area due to undertaken eco development activities.

The monitoring reports shall be made bi-annually and submitted to Deputy Conservator of Forests (Wildlife). He or she shall evaluate the same and take corrective steps to implement the eco development programme for better outcomes for conservation and living standards of fringe villages.



Chapter-9

Research, Monitoring and Training



9.1 Research

Chail Wildlife Sanctuary is relatively a new sanctuary notified after rationalization in 2013. However, there is solid body of research conducted in the sanctuary in various fields including but not limited to floristic survey, plant biodiversity, orchids, butterfly diversity, avifauna, regeneration, status and distribution of cheer pheasants, plant pathology etc. The detailed list of research studies is already mentioned in part 1 of the plan.

9.1.1 Priority Research Areas

The following are the priority research areas that are identified for the Chail Wildlife Sanctuary:

- i. **Status and Distribution of Cheer Pheasants:** There is a long time gap between previous study of 'Status of distribution of Cheer Pheasant *Catreus Wallichi* in Chail Wildlife Sanctuary, India by Naim Akhtar, ML Narang, Manoj Kumar' published in 2004. Further, there has been no study post rationalization from 100 to 16 sq km. It is prescribed to undertake a study on Cheer pheasants to evaluate its population, extent of habitat, threats to survival and impact of livestock rearing communities in zone of influence.
- ii. **Forest Fire:** The sanctuary holds potential for fire research to understand fire trends over past years and how fire map has changed over time. This is pertinent with regard to pine zone and grasslands that are vulnerable to forest fires.
- iii. **Participatory Rural Appraisal (PRA)** to understand changing aspirations of villagers in zone of influence and their perception of sanctuary management. Further, it is required to understand various needs of villagers and identify gaps where intervention can be fruitful to galvanize support for cause of conservation through betterment of quality of life.
- iv. **Study on Fragmentation of Habitat and scope for arboreal/eco-bridges:** The Chail sanctuary being traversed by several roads is heavily fragmented. There can be a study on where and how to place eco-bridges that can act as vital corridor for terrestrial animals. As chail sanctuary is home to several smaller arboreal animals like the Marten, Langur, Red Giant Squirrel, there is great scope for arboreal bridges.
- v. **Prey Predator Density Studies** to understand the complex food web and how the eco system in Chail sanctuary supports several species.



vi. **Status and Distribution of Water Holes** including how effective water holes are in terms of utilization by wildlife and scope for creation of new water holes and their suitable location.

vii. **Avian Fauna** and to understand patterns of seasonal migration of birds. Research on population estimation of Koklass and Cheer Pheasants given its flagship and ecological value

viii. **Forest Types:** Currently, 4 forest types exist in sanctuary. There is research potential to understand varying trends in forest types.

ix. **Climate Change Studies:** There is scope of research in understanding variation in temperature, rainfall and snowfall patterns in sanctuary area especially given sanctuary is located near urban built up landscapes.

x. **Study on Himalayan Goral & Sambar:** Habitat mapping of goral and dietary analysis and patterns in different seasons. Population status, trends and distribution in sanctuary and migration patterns during seasons.

xi. **Study on Amphibians & Reptiles:** There is little research done on amphibians and reptiles in Chail. Hence, there is substantial scope to study on diversity of amphibians and reptiles.

xii. **Study on leopard:** To map territorial extent of top carnivore, understand prey base and assess the total population.

xiii. **Study on Captive Cheer Pheasants:** To understand behaviour of captive cheer pheasants, breeding behaviour, genetic variations and extend of inbreeding among the captive stock.

9.2 Monitoring:

Monitoring is a key aspect of protected area management to ensure that the management plan is implemented in letter and spirit. It brings to the fore various issues that crop up while managing the wildlife sanctuary and ensures the entire establishment remains alert and on the job.



9.2.1 Wildlife Monitoring

The following are various monitoring techniques for evaluating wildlife population and habitat assessment:

1. The animal encounter rate and sign encounter rate

This technique should be used for monitoring of animals. Trails 4 to 5 km long should be laid. The trail should be walked on a fixed date once every month. The data collection on the trail should include animal encounter, animal signs and habitat parameters. Animal sign survey and animal encounter rate survey should be carried out separately and data should be input to relevant control forms by field staff. Data analysis should be done carefully.

2. Pugmark method

This method should be used for estimating leopard population. Training in the proper technique is very important to prevent the staff from making mistakes.

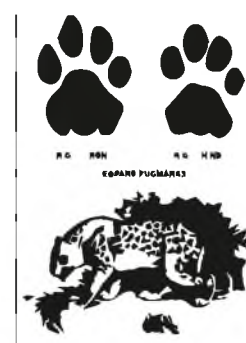


Image 9.1:
Leopard pugmark

3. The line transect method

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

The transect lines should be walked once a month. Training in recording the observations is very important. The staff should be well trained in making observations at the beginning of the exercise. The transect walk method involves noting down the observations of signs of various species during the walk. It is critical for estimation of carnivore and assessing population of herbivore in the sanctuary. The data sheet for noting down observations during transect walk is annexed to this management plan as control forms.



Image 9.2: Pellets of Himalayan Goral

4. The Point Count method

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



analysis should be done carefully.

In case of pheasants, the call count method is prescribed. In this method several call count stations are temporarily marked in the wildlife sanctuary. A monitoring team consisting of 2 wildlife staff is deputed for the each call station. The team observes the call count in a radius of 300m and notes the approximate distance and direction of call using compass. On the basis of this information, the data sheets are filled and spatial abundance information regarding pheasants is computed. This method is prescribed for Red Jungle Fowl, Khali and Cheer Pheasants in the sanctuary.

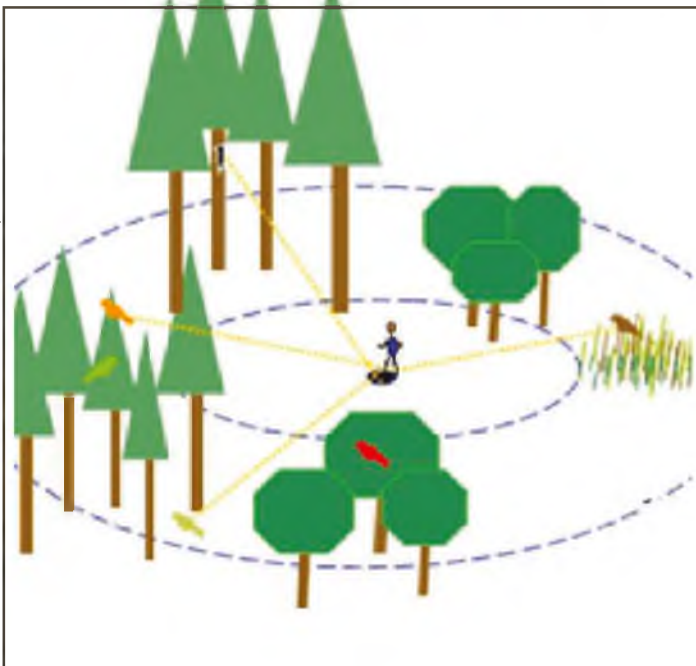


Image 9.3: Representative Image for point count

5. Camera Trap Based Monitoring

In order to evaluate wildlife population, identify corridors and habitats, trap camera based monitoring is prescribed. In this method, the whole sanctuary is divided into 2x2 sq km grids and camera trap is laid in each 2x2 sq km grids. The said camera traps are kept stationary for a period of 30 days after which images are retrieved. The exercise is done for all such grids.

location of camera traps should be fixed such that it is at intersection of different trails or near water sources. This increases chances of wildlife sightings and offers good data. It is prescribed that after period of 30 days camera trap locations be changed for getting meaningful data.



Image 9.4: installation of Camera Traps for monitoring

9.2.2 Vegetation Monitoring

In order to monitor vegetation, sample plot based monitoring is prescribed. Sample plots of 0.1 Ha are randomly chosen in each forest type classified. The 0.1 Ha area is a square plot of 31.62m as prescribed by National Working Plan Code. The total number of trees of each species within the sampling plot to evaluate the species richness and diversity. In order to evaluate shrubs and herbs, nested quadrates within the 0.1 Ha sampling plot of 3x3m and 1x1m are laid out and similarly shrub and herb diversity is recorded.



Regeneration assessment is a critical aspect of vegetation monitoring. In order to evaluate regeneration, regeneration plots of 2x2 m are laid out along designated transect walks. 20 such regeneration plots are laid out along the transect walk and regeneration plots are monitored for regeneration of Deodar, Oak, Pine species.

9.2.3 Monitoring Woods

The sanctuary has little presence of weeds and invasive alien species. It is prescribed that weed presence and infestation be regularly monitored.

9.2.4 Socio- Economic Monitoring

The socio-economic landscape of Chail and adjacent area is unique that it is heavily dependent on tourism and agriculture/horticulture/floriculture apart from cattle rearing. As time goes on, the general trend is more and more people are moving from primary sector economy to service sector economy. This may have positive impact for sanctuary as it reduces forest based dependence and provides greater space and lesser disturbance for wildlife. At the same time, trend of unemployed youth is increasing. It is in this backdrop that community based eco-tourism involving local community of Chail attains importance.

There is a need for strong monitoring of construction of roads and buildings in zone of influence as this may lead to problem of debris dumping in sanctuary. Similarly, the influx of tourists and mushrooming of shops, tourist complexes without proper solid waste management is again a major threat that needs to be monitored to tackle the problem of littering.

9.2.5 Weather Monitoring

As climate change is taking over the world, it is prescribed that weather related data including temperature, rainfall, snowfall patterns, wind speeds and humidity may be procured periodically from IMD. The monitoring shall aid in climate data and trends of temperature and precipitation.

Along with monitoring of weather, there is a need to undertake climate change impact studies particularly with respect to the sanctuary. This includes change in forest fire trends, drying up of water ponds, change in vegetation and altitudinal zonation, change in habitat preferences of wildlife and change in hydrology and water retention pattern of sanctuary.



9.2.6 Pathological Monitoring

The Chail Wildlife sanctuary has a history of plant diseases in form of Phytophthora fungal infection in Deodars. Similarly, the paper 'Description of a new whitefly, *Pealius satakshiae* Dubey (Hemiptera: Aleyrodidae), infesting *Quercus leucotrichophora* (Fagaceae) in the Western Himalaya, India' also documents a new whitefly species infesting Ban Oaks in Chail Sanctuary. It is prescribed to strongly monitor these pathological trends and ensure corrective action at the earliest to mitigate threat of diseases.

9.2.7 Drone Based Monitoring

It is prescribed to leverage drones for monitoring of wild fires, encroachments, illicit felling, mapping of invasive species, movement of wildlife etc. in the PA. This can be a novel addition to the monitoring techniques in the sanctuary

9.3 Training

Wildlife management has emerged as a science. The different cadre of wildlife staff is to be imparted with certain level of basic training and education on wildlife management. It is proposed to carry out regular training programmes on matter of wildlife protection and conservation in aspects of wildlife laws, intelligence collection, prosecution of offences, use of firearms, wildlife census techniques, eco-tourism and eco development.

9.3.1 On the Job Training

It is a form of training where wildlife staff are attached with experienced staff in order to understand the requirements of job and duties and responsibilities. The On the Job Training phase provides sense of responsibility and accountability to wildlife staff and ready them for the bigger challenges that await them.

9.3.2 Formal Training Courses

The wildlife staff can be enrolled in formal training courses in fields of wildlife forensics, crime control, wildlife census that is conducted by institutions like Wildlife Institute of India, Wildlife Crime Control Bureau. The Deputy Conservator of Forests (Wildlife) may be trained for PG Diploma in Wildlife Management.

9.3.3 Training in use of firearms

The wildlife staff are always at risk to interactions with poachers/hunters/ smugglers of wildlife articles and products. In this context, it is crucial that they are provided weapons and training on how and when to use them and what are the legal do's and don'ts associated with use of weapons.



9.3.4 Training In Intelligence

A crucial part of wildlife protection and conservation is the formation of an intelligence network consisting of trustworthy informants. Further, modern day techniques of gathering cyber intelligence, camera trap based intelligence and CCTV based data are crucial in gathering intelligence. In this regard, it is proposed that wildlife staff be imparted skills in intelligence collection, coalition and analysis to understand patterns of wildlife offences and take preventive and curative action. This involves building vulnerability maps. The Police department and WCCB can play a crucial role in this regard.

9.3.5 Training in investigation

The vital aspect of prosecution of wildlife offences involves investigation procedure and collection of evidences and witness statements. In this context, it is required to impart investigation skills for wildlife staff for collection of evidences, their safe custody and exhibition during trial.

9.3.6 Training in wildlife forensics

Wildlife forensics is critical aspect of investigation and collection of evidences. However, it is not realistic to expect that wildlife staff at range level be trained in wildlife forensics as it is a specialized field in which articles can be handled by trained professionals. In this context, it is prescribed that wildlife staff be made aware of the possibilities of wildlife forensic so that they utilize its possibilities after linking up with institutions or organizations performing such forensics.

9.3.7 Training in prosecution of wildlife offences

While forest officers are given powers under forest and wildlife laws to book offences, file FIR/Damage Reports and complaint to the magistrate, it is often seen that forest officers don't use the power and instead approach the police. In this context, it is prescribed that all wildlife staff be imparted training in prosecution of wildlife offences with each offences as a case study. The training shall clearly spell out the duties, role and responsibility vested upon wildlife staff in this regard.



9.3.8 Training in Eco Development & Eco Tourism

Currently, there is no framework of society or EDCs constituted for carrying out eco-tourism and eco-development activities in sanctuary. In this context, there is an urgent need to impart training for wildlife staff on the models of eco development and community based eco-tourism practiced in PAs of other states. It is prescribed to conduct exposure visits of staff to other protected areas outside the state to understand organizational structure of eco-tourism societies, eco development committees and ways and means of involving local community in eco-tourism activities and how benefits realized can be transferred to them.

9.3.9 Training in Wildlife Census

It is prescribed that wildlife staff be trained in various techniques of data collection of wildlife with regard to call count, sign survey, pellet count, encounter rate, camera trap based survey and other common techniques of data collection.

9.3.10 Training in GIS/IT

With the advent of IT in wildlife management, there are various applications and portals that integrate wildlife data collection and spatial analysis. It is prescribed that wildlife staff be trained in GIS based analysis and IT based data collection techniques for streamlined data gathering and data analysis deriving spatial intelligence particularly with respect to fire burnt area assessment, regeneration survey, abundance of species and other such habitat parameters.

9.4 Establishing a Learning Centre

It is prescribed to utilize Chail Wildlife Sanctuary and Conservation Breeding Centre at Khariyoun in particular as a unique learning centre for field staff, forestry graduates, officers where they can be imparted knowledge and specialized techniques on conservation breeding, conservation of habitat and management of wildlife corridors.



Chapter-10

Organization and administration





10.1 Structure and Responsibilities

Total area of the Sanctuary is 16 sq km. Range Forest Officer is in-charge of the sanctuary. There are 16 sanctioned posts which has four beats i.e. Blossom beat, Sakori beat, Khariyoun beat and Banjani beat and a pheasantry at Khariyoun.

Sanctioned staff at Chail Sanctuary

Sr. No.	Designation	Existing number of posts
1	Block officer	2
2	Forest Guard	5
3	Peon	1
4	Chowkidar	1
5	Animal Attendant	1
6	Mali	2
7	MPW	1
8	Forest worker	2
9	Enclosure Cleaner	1

It is proposed to have an independent range officer in charge of sanctuary given it holds the world's only conservation breeding centre for Cheer pheasants and sanctuary extends to 16 sq km.



10.2 Staff Amenities:

Field staff of the sanctuary has to work with numerous constraints. They have to remain in forest fighting against all odds like weather confronting wild animals possible encounter with poachers. One of the basic requirements for management is to keep the field staff motivated for contributing to the course of conservation of the sanctuary.

Some of the basic amenities required to be provided to the staff are

- ★ Supply of uniform and jungle boot in time.
- ★ Rain coats and Jackets to protect them from monsoon and harsh winter
- ★ Provision for supply of search lights and batteries
- ★ Fire protection gear including clothing, boots and equipment
- ★ Regular health check up for staffs
- ★ Electronic devices including laptops, cameras, walkie talkies, binoculars, mobile phones for communication
- ★ GPS devices for each forest guard



Chapter 11

Conservation Breeding Programme for Chlor Pheasants





11.1 Introduction

Himachal Pradesh has a great role to play in the field of pheasant conservation. This state alone represents seven species of pheasant out of total seventeen species found in India and fifty one species found in the whole world. Out of seven, two species namely Western Tragopan and Cheer Pheasant have been declared vulnerable and are listed in IUCN Red data book. The presence or absence of pheasants indicates the ecological health of the area. The areas with the optimum population of the pheasants are ecologically healthy areas.

Cheer pheasant, a peacock like bird; wallichi- named after Dr. N. Wallich, botanist and superintendent of East India Company's Garden at Calcutta (pheasants of India and their aviculture P-21) formerly ranged from Pakistan to the west central Nepal in Western Himalayas (Ali & Ripley 1980, Declacour 1977). Many populations are now thought to number less than 10 individuals (kalsi 1998) in isolated pockets of suitable habitat (McGowan and Garson, 95) a circumstance with alarming implications for conservation of this species.

In April, 1979 there were approximately 40 pairs of Cheer pheasant in Chail Wildlife Sanctuary at an average density of 6 pairs per sq km (Gaston and Singh 1980). This population apparently declined by around 50 percent between 1979 and 1983 (Garson 1983) although the disparity in calling birds might be partly explained by seasonal effects. The most recent published study in case of wild cheer pheasants in chail 'Status of distribution of Cheer Pheasant *Catreus Wallichi* in Chail Wildlife Sanctuary, India by Naim Akhtar, ML Narang, Manoj Kumar' published in 2004. This study reports around 65 pairs of Cheer pheasants in Chail Wildlife Sanctuary. However, there has been long gap of 18 years after this study and sanctuary has also undergone reorganization post this. Hence, it is essential that a new study to evaluate Cheer Pheasant population is undertaken.

The population decline of this pheasant species is a cause of serious concern. The Himachal Pradesh state has initiated an intensive in-situ conservation programme to save the valuable bio-diversity and presently about 15 percentage of the total geographical area is under Protected Area Network which is quite high as compared to the national average. But still there are pressures on the habitat of this species and its survival depends on the control of these pressures as well as effective support by a conservation breeding project to build up viable wild populations. IUCN states that, "If the decision to bring a taxa on under ex-situ



management is left until extinction is imminent, it is frequently too late to effectively implement, thus risking permanent loss of the taxa on. Moreover, ex-situ conservation should be considered as a tool to ensure the survival of the wild population, conserve a genetically diverse gene pool in captive environment and supplement the wild population to establish new genetic linkages.

11.2 Conservation Breeding: Objectives and Strategy

Conservation breeding is quite different from captive breeding. In a conservation breeding programme the birds learn the survival skills from the parents. A successful conservation breeding project will provide the opportunity to re-introduce the pheasant to the wild conservation breeding- requires aviaries of sufficient size for a whole family of pheasants to be parent reared and be raised whilst not destroying the foliage therein.

General Objective

The general objective of programme will be ex-situ conservation of red data listed Cheer pheasants for the purpose of conserving the gene pool, possible re introduction in the home range to strengthen their wild populations, creating awareness about their conservation imperatives and knowing more about their habits, behaviour and breeding biology.

Specific Objectives

The following specific objectives are being laid to achieve the above mentioned general objective.

- ♦ To develop sound infrastructure for the conservation breeding programme of Cheer pheasant.
- ♦ To introduce stock of totally unrelated pairs of Cheer pheasants for conservation breeding programme and to develop necessary quarantine protocol and facilities for accession of any rescued/injured/transferred birds.
- ♦ To provide stress free environments to the birds in captivity so as to ensure their survival and induce natural behaviour.
- ♦ To standardize techniques for conservation breeding of Cheer pheasants with the support from World Pheasant Association and other concerned organisation/institutions.
- ♦ To initiate their release/ re-introduction in pre-investigated areas within the home range as per the existing stipulations of IUCN and with the help of WPA.
- ♦ To act as a rescue and rehabilitation centre for injured/ abandoned Cheer pheasants rescued from the wild.
- ♦ To orient, train and build capacity of staff in pheasantry management and related subjects.



- ♦ To develop facilities for education and interpretation for officer trainees/ range officer trainees at Chail so as to create an understanding and awareness about the need for conservation breeding of pheasants.
- ♦ To facilitate the research work relating to the subjects like behaviour ecology, breeding biology, feeding regime etc.

Conservation Breeding Strategy

There are three methods of captive breeding of pheasants i.e. incubation by natural mother, incubation by broody hens and artificial incubation in incubators. All these three methods of incubation have their advantages and limitations depending upon the objectives of the programme. The incubator method of hatching eggs might be very good to build populations for conservation of the gene pool of a particular species in captivity, but the efficacy of this method in developing populations for release/re-introduction in the wild is yet to be tested. Similarly, the method of incubation by broody hens, though pretty successful, is fought with the problem of finding /preparing the broody hen at the most at the most appropriate time. Alternate technique of keeping of stock of broody hens for the purpose is expensive besides eating into the infrastructural resource of the centre. The best way to multiply population of pheasant species to fulfil all stated objectives therefore, seems to be incubation by the natural mother, which also imparts early lesson to the chicks in defending themselves from natural dangers and finding right type of food. The same has been practised in pheasantry at Khariyoun for long and it is prescribed to continue the method of natural incubation.

Appreciation of the major differences between 'captive breeding' and 'conservation breeding' is very crucial to the success of this programme aimed at ex-situ conservation of red data listed cheer pheasant and their eventual re-introduction in the wild. The WPA experience shows that confident, secure birds breed best. Therefore, there needs to be a 'good keeper regime' to help settle birds and to provide conditions that will encourage them to raise their own young. Birds that are not concerned by cleaning regimes and other visits into their aviary have proved to be best at providing the sort of parenting to equip their young with many survival skills. Similarly, re-introduction experience gained by WPA definitely proves that only parent-reared birds stand any chance of survival on release in the wild. There is not even a single instance which gives a complete model of successful re-introduction of Cheer pheasants in the wild. Greater success can be ensured if large enough enclosures for living together of whole family are provided before taking up their release in the wild. It is, therefore, necessary that the pheasantry should be managed for the conservation breeding and not merely for the captive breeding.

Some interesting and intuitive field research has been done at Blossom pheasantry in Chail, findings of which can very well be applied to this conservation breeding programme. Cheer pheasants enjoy grass and also digging for roots and



tubers, as well as insects in the soil. The tray of grass is used well by the birds. Providing of more grasses and provision of regular re-seeding area would encourage and permit more natural behaviour.

11.3 Site for Conservation Breeding

Chail Wildlife Sanctuary mainly Blossom and Khariyoun area constitutes the World's most important refuges for IUCN red data 'vulnerable' Cheer pheasants (Gaston & Singh, 1980, Garson 1983-87). The natural population of cheer pheasant showed apparent decline in the surveys conducted in 1979, 1983. There exist two pheasantries viz. at Blosson and



Image 11.1: View of Khariyoun Pheasantry

khariyoun. Blossom pheasantry exclusively housed cheer pheasants but now is obsolete and at khariyoun pheasantry, both red jungle fowl and kalij pheasants in addition to Cheer pheasant used to be housed there but, now it is having and breeding cheer pheasants exclusively. These pheasantries were established long back in 1987-88. No action plan was made earlier. The size of the aviaries too was very small and overall infrastructure was inadequate.

Location and Status of the Site

The site is located very near to the existing khariyoun project with a distance of nearly 7km from Block Office HQ at Chail. The site falls in reserve forest D 51 Jhajha and is surrounded by mixed forests. The aspect is mainly south- eastern and receives maximum sun during the winters which is good for the cheer pheasants. The open hilly moderate slope is mainly covered with grass and occasional scrub like *Berberis Aristata*, *Principia* and few seedlings to pole stage deodar which can be retained as such in the enclosures to provide natural hides to the birds.

11.4 Conservation Breeding Project Proposal

The Conservation breeding project proposal has already approved by the Central Zoo Authority. 14 Nos of breeding enclosures have already been constructed and these enclosures are large enough Pheasantry and are suitable in form of large area, providing a safe environment, naturalistic outlook and enrichment. The area around old pheasantry as well as proposed Cheer Conservation Breeding Project at khariyoun has been fenced with angles iron interlink chain fencing and anti snake border fencing. The approved project



document would be a guiding document in implementing this conservation breeding programme. One more pen is being constructed during the year and will be complete soon.

11.5 Status of Conservation Brooding in Khariyoun Pheasantry



Image 12.2: Pheasant Pens at Khariyoun

Currently, the Khariyoun pheasantry is exclusively used for conservation breeding programme of Cheer Pheasants. In this facility, Cheer Pheasants are provided an ex-situ environment consisting of 14 pens and as on date 64 birds are kept in the pheasantry for purpose of breeding and reintroduction. Almost all the enclosures are having naturalistic feel and are greatly enriched for Cheer Pheasants providing them nesting site, breeding sites, roosting branches etc.

The details of birds housed in the pheasantry is attached as annexure 11.

The age structure of the current population is represented in Figure 2. The age structure is representative of the 65 individuals (24.41.0) currently present in the pheasantry. Overall, the age structure depicts a young population with a bias towards females. The population indicates majority of individuals in the reproductively active-age classes. It is recommended to prefer males in future addition to wild founders or exchange programs as the population of males are relatively less and nowild male is currently present



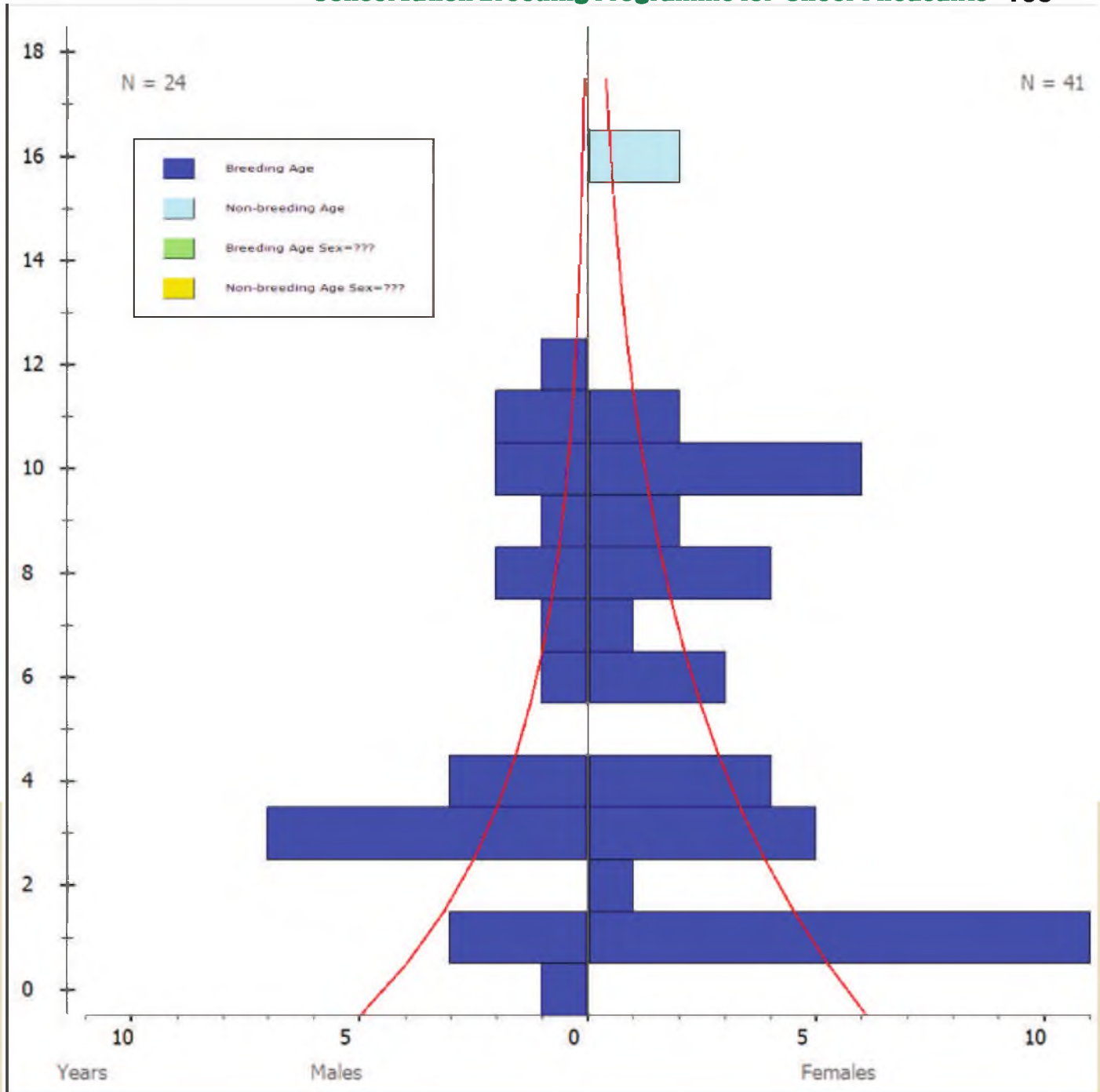


Image 10.3 : Age class of captive cheer pheasant stock at Khariyoun pheasant

11.6 Diet of Cheer Pheasants

The diet of the bird consists of cereals, fruits, nuts and roots apart from natural forage they find in the enclosures. These are provided to them in feeding pots made out of stone. A large part of diet is sourced from a poly house which is developed inside the facility that grows different cereals, roots and tubers in diet of cheer pheasant.



11.7 Human Resource

In order to effectively implement the breeding programme, there is a need for human resource who are sufficiently skilled and are allotted clearly defined roles. The facility as a whole is managed under Deputy Conservator of Forests(Wildlife), Shimla Wildlife Division supervised and guided by Chief Wildlife Warden of state and Chief Conservator of Forests(Wildlife) South. The Range Forest officer Catchment looks after day to day affairs through Block Forest Officer designated separately for pheasantry. A Veterinary Officer is part of the personnel who regularly supervises the health of birds, imparts medicines, diagnoses any health condition and affirms to the veterinary protocol in case of selected family prior to reintroduction in wild.



A biologist is posted who looks after the enclosure enrichment, selection of birds for pairing, selection of reintroduction site, bird behaviour, ringing and tagging of birds for monitoring etc. He or she is assisted by a research assistant who is the exclusive scientific backbone of the project. She/he is tasked with routine monitoring of the reintroduction programme through camera trapping, radio surveillance and identifying suitable sites for reintroduction apart from setting up and ensuring compliance to a strict protocol regime for reintroduction.

Apart from technical staff, the class IV staff including animal attendants, enclosure cleaners is most important part of the Cheer Pheasant conservation breeding program. The class IV staff at Khariyoun are vastly experienced and this has greatly benefitted the programme over the years to maintain great standards of housing and cleanliness.

The above mentioned personnel are sufficient and it is proposed to retain staff strength as is for the programme.

11.8 Reintroduction Programme

The ultimate objective of conservation breeding programme is to release the birds in the wild and establish a population of breeding pheasants in areas where its numbers have declined substantially and alarmingly. In pursuance of these objectives, 11 birds were released in 2018 and 9 birds were released in 2019 in a site called Seri selected for its low population and suitable habitat of Cheer Pheasants. The transportation of the selected birds was done using specially padded wooden boxes to avoid injury and stress. The method of release was soft release where pheasants were kept in soft pens for a period of 21 days prior to release for acclimatization and predator training.



The monitoring of population in Seri suggests that there was a 20% survival rate for the birds in reintroduced site which is considered a solid success rate when it comes to pheasant reintroduction programmes. Further, a good wild population of 3-4 pairs has started to establish in Seri showing signs of success of reintroduction. It was hence suggested that reintroduction may hence move to a new site for subsequent release programmes.



Image 10.4 : Site for Soft Pen at Mehla-Shilli

A detailed study was undertaken in 2022 to select a new suitable site for release program taking into account various factors of suitability of habitat, historical presence, genetic path flows, community support, presence of predators etc. In this study, a site Mehla-Shilli in Theog Forest division was chosen for release as it showed a low population of Cheer Pheasants with an excellent grassland habitat combined with solid community support and low predator pressure. It is prescribed that reintroduction for next 3-4 years be conducted in this site following results of which further decision may be taken.

11.9 Monitoring of Cheer Pheasant Programme

In the pheasantry, the main mode of monitoring is through CCTV based surveillance of enclosures and transmission of data. All the enclosures and birds are monitored this way to note the behaviour of birds and understand the breeding aspects of birds. In the



reintroduced site, CCTV surveillance exists for the birds when they are in soft pen. Once released, they are monitored using radio surveillance i.e. VHF tags, receivers and camera trapping where reintroduced birds are identified using rings.



Chapter 12

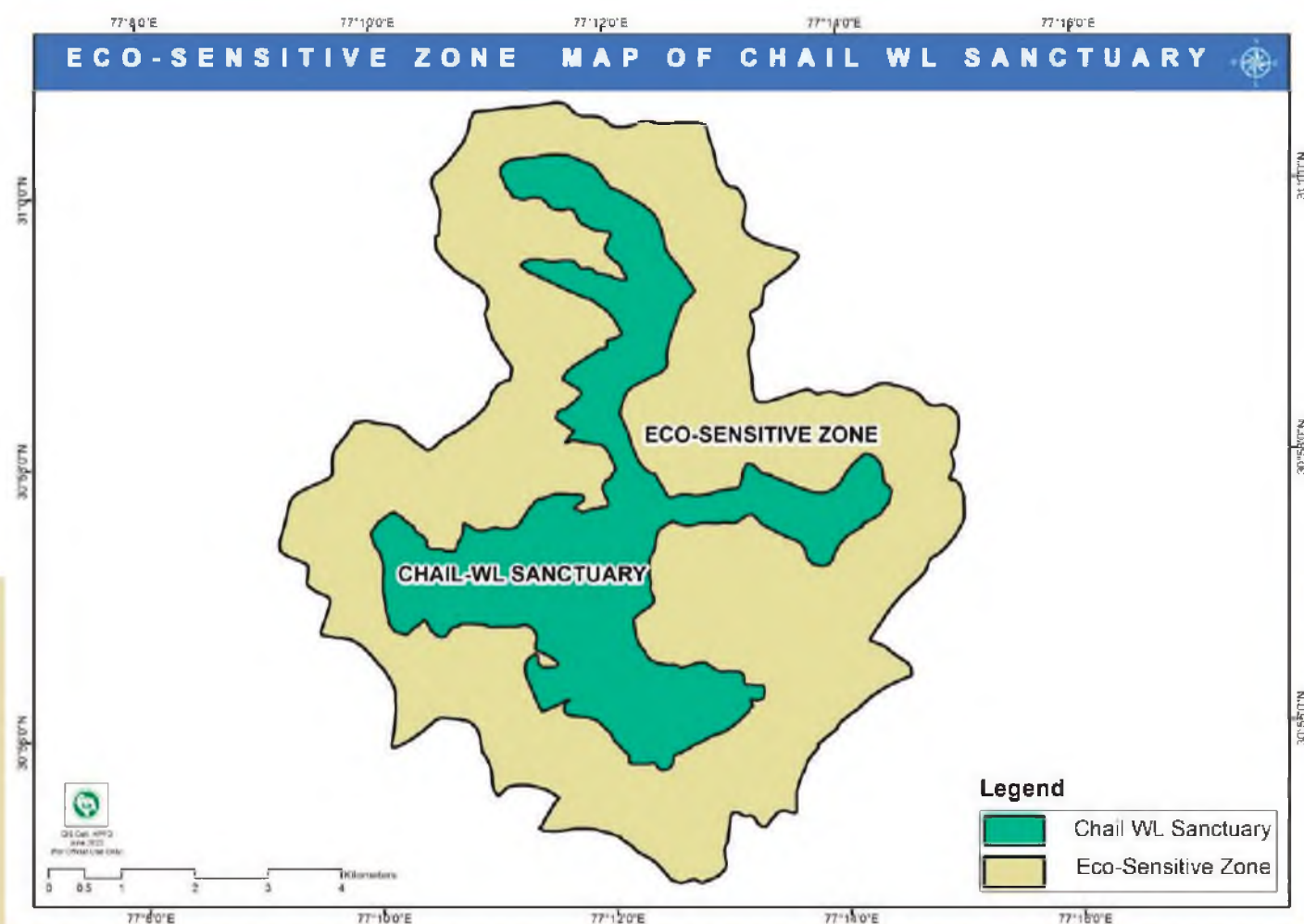
Eco Sensitive Zone





12.1 Eco Sensitive Zone Area and Extent

The final notification of eco sensitive zone of Chail Wildlife Sanctuary was issued by Ministry of Environment, Forests and Climate Change vides S.O 39(E) dated 5th Jan 2022. The extent of area as notified is shown in Map below:



Map 12.1 : Eco Sensitive Zone of Chail Wildlife Sanctuary

The Eco-sensitive Zone shall be to an extent of 0.5 kilometres to 3.26 kilometres around the boundary of Chail Wildlife Sanctuary and the 34.04 square kilometre area of the Eco-sensitive Zone comprises of 20.44 square kilometres of forest land and 13.60 square kilometres of private land



12.2 Restrictive Activities in ESZ

The aforementioned notification clearly categorizes activities in eco sensitive zone into prohibited, regulated and promoted activities. The table detailing same is as below

Sl. No.	Activity	Description
A. Prohibited Activities		
1.	Commercial mining, stone quarrying and crushing units.	(a)All new and existing mining (minor and major minerals), stone quarrying and crushing units shall be prohibited with immediate effect except for meeting the domestic needs of bona fide local residents including digging of earth for construction or repair of houses within the Eco- sensitive Zone; (b)The mining operations shall be carried out in accordance with the order of the Hon'ble Supreme Court dated the 4th August, 2006 in the matter of T.N. Godavarman Thirumulpad Vs. UOI in W.P.(C) No.202 of 1995 and dated the 21st April, 2014 in the matter of Goa Foundation Vs. UOI in W.P.(C) No.435 of 2012.
2.	Setting of industries causing pollution (Water, Air, Soil, Noise, etc.).	New industries and expansion of existing polluting industries in the Eco-sensitive Zone shall not be permitted: Provided that non-polluting industries shall be allowed within the Eco-sensitive Zone as per classification of Industries in the guidelines issued by the Central Pollution Control Board in February, 2016, as amended from time to time, unless otherwise specified in this notification and in addition the non-polluting cottage industries shall be promoted.
3.	Setting of industries causing pollution (Water, Air, Soil, Noise, etc.).	
4.	Use or production or processing of any hazardous substances.	Prohibited



Sl. No.	Activity	Description
5.	Discharge of untreated effluents in natural water bodies or land area.	Prohibited
6.	Setting up of new saw mills.	New or expansion of existing saw mills shall not be permitted within the Eco-sensitive Zone.
7.	Setting up of brick kilns.	Prohibited
8.	Use of polythene bags.	Prohibited
9.	Fishing by mechanical means.	Prohibited

B. Regulated Activities

10.	Commercial establishment of hotels and resorts.	shall be permitted within one kilometer of the boundary of the protected area or upto the extent of the Eco-sensitive Zone, whichever is nearer, except for small temporary structures for eco-tourism activities: Provided that, beyond one kilometer from the boundary of the protected area or upto the extent of the Eco-sensitive Zone whichever is nearer, all new tourist activities or expansion of existing activities shall be in conformity with the Tourism Master Plan and guidelines as applicable.
11.	Construction activities.	(a) New commercial construction of any kind shall not be permitted within one kilometer from the boundary of the protected area or upto extent of the Eco-sensitive Zone, whichever is nearer: Provided that, local people shall be permitted to undertake construction in their land for their use including the activities mentioned in sub-paragraph (1) of paragraph 3 as per building bye-laws to meet the residential needs of the local residents. Provided further that the construction activity related to small scale industries not causing pollution shall



Sl. No.	Activity	Description
		be regulated and kept at the minimum, with the prior permission from the competent authority as per applicable rules and regulations, if any. (b) Beyond one kilometer it shall be regulated as per the Zonal Master Plan.
12.	Small scale non polluting industries.	Non polluting industries as per classification of industries issued by the Central Pollution Control Board in February, 2016, as amended from time to time and non-hazardous, small-scale and service industry, agriculture, floriculture, horticulture or agro-based industry producing products from indigenous materials from the Eco-sensitive Zone shall be permitted
13.	Felling of trees.	(a) There shall be no felling of trees in the forest or Government or revenue or private lands without prior permission of the Competent Authority in the State Government. (b) The felling of trees shall be regulated in accordance with the provisions of the concerned Central or State Act and the rules made there under.
14.	Collection of Forest produce or Non- Timber Forest produce.	Regulated as per the applicable laws.
15.	Erection of electrical and communication towers and laying of cables and other infrastructures.	Taking measures of mitigation as per the applicable laws, rules and regulations and available guidelines.
16.	Infrastructure including civic amenities.	Regulated under applicable laws (underground cabling may be promoted).
17.	Widening and strengthening of existing roads and construction of new roads.	Taking measures of mitigation as per the applicable laws, rules and regulations and available guidelines.
18.	Undertaking other activities related to tourism like flying over the Eco- sensitive Zone area by hot air balloon, helicopter, drones, Microlites, etc.	Regulated as per the applicable laws.



Sl. No.	Activity	Description
19.	Protection of hill slopes and river banks.	Regulated as per the applicable laws.
20.	Movement of vehicular traffic at night.	Regulated for commercial purpose under applicable laws.
21.	Ongoing agriculture and horticulture practices by local communities along with dairies, dairy farming, aquaculture and fisheries.	Permitted as per the applicable laws for use of locals.
22.	Establishment of large-scale commercial livestock and poultry farms by firms, corporate and companies.	Regulated as per the applicable laws except for meeting local needs.
23.	Discharge of treated waste water or effluents in natural water bodies or land area.	The discharge of treated waste water or effluents shall be avoided to enter into the water bodies and efforts shall be made for recycle and reuse of treated waste water. Otherwise the discharge of treated waste water or effluent shall be regulated as per the applicable laws.
24.	Commercial extraction of surface and ground water.	Regulated as per the applicable
25.	Solid waste management.	Regulated as per the applicable laws.
26.	Introduction of exotic species.	Regulated as per the applicable laws.
27.	Eco-tourism.	Regulated as per the applicable laws.
28.	Commercial sign boards and hoardings.	Regulated as per the applicable laws.
29.	Open Well, Borewell, etc. for agriculture and other usages.	Regulated as per the applicable laws.

C. Promoted Activities

30.	Rain water harvesting.	Shall be actively promoted.
31.	Organic farming.	Shall be actively promoted.
32.	Adoption of green technology for all activities.	Shall be actively promoted.
33.	Cottage industries including village artisans, etc.	Shall be actively promoted.



Sl. No.	Activity	Description
34.	Use of renewable energy and fuels.	Bio-gas, solar light, etc. shall be actively promoted.
35.	Agro-Forestry.	Shall be actively promoted.
36.	Plantation of Horticulture and Herbals.	Shall be actively promoted.
37.	Use of eco-friendly transport.	Shall be actively promoted.
38.	Skill Development.	Shall be actively promoted.
39.	Restoration of degraded land or forests or habitat.	Shall be actively promoted.
40.	Environmental awareness.	Shall be actively promoted.



12.3 Management of Eco Sensitive Zone

In order to manage eco sensitive zone of Chail Wildlife Sanctuary, a monitoring committee has been constituted vide aforementioned notification chaired by the Conservator of Forests (T) Solan and Member Secretary being Divisional Forest Officer, Solan Division. The following table represents the list of members of the monitoring committee:

Sl. No.	Constituent of the Monitoring Committee	Designation
1.	Conservator of Forests (T), Solan	Chairman, <i>ex officio</i> ;
2.	Deputy Conservator of Forests (WL), Shimla	Member, <i>ex officio</i> ;
3.	One representative of Non-governmental Organizations working in the field of environment (including heritage conservation) to be nominated by the State Government	Member;
4.	Regional Executive Engineer of State Pollution Control Board	Member, <i>ex officio</i> ;
5.	Senior Town planner of the area	Member, <i>ex officio</i> ;
6.	An expert in the field of Ecology to be nominated by State Government	Member;
7.	An expert in the field of Biodiversity from State Biodiversity Board	Member, <i>ex officio</i> ;
8.	Divisional Forest Officer, Shimla	Member, <i>ex officio</i> ;
9.	Divisional Forest Officer, Solan	Member-Secretary, <i>ex officio</i> .

The committee shall devise an eco-sensitive zonal master plan to prepare a road map for management in eco sensitive zone and implementing the notification in letter and spirit. The Zonal master plan shall evaluate the scope of various prohibited, regulated and promoted activities in the ESZ and suggest ways and means to enforce them.

Roles and Responsibilities of Monitoring Committee

1. The tenure of the Monitoring Committee shall be for a period of three years from the date of issue of Notification
2. The Monitoring Committee shall monitor the compliance of the provisions of this Notification.
3. The Monitoring Committee shall not allow the activities that are covered in the Schedule to the notification of the Government of India in the erstwhile Ministry of Environment and Forests number S.O. 1533 (E), dated the 14th September, 2006, and are falling in the Eco-sensitive Zone, including the prohibited activities as



specified in the Table under paragraph 4 thereof. Only white categories of industries shall be considered as specified in the guidelines issued by the Centre Pollution Control Board for “classification of Industries, 2016”.

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

5. The Member Secretary of the Monitoring Committee or the





Budget Sheet



13.1 Proposed Year-Wise Budget Summary for the next 10 Years 2021-2031 (In Lakhs)

S. No	Name of work	2022-23		2023-24		2024-25		2025-26		2026-27		2027-28		2028-29		2029-30		2030-31		2031-32		Remarks
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	
A. Habitat Improvement																						
1	Fodder, fruit, Plantation	-	-	-	-	2Ha	2.30	-	-	2Ha	2.30	-	-	2Ha	2.30	-	-	-	-	-	-	
2	1st year Maintenance	-	-	-	-	-	-	2Ha	0.80	-	-	2Ha	0.80	-	-	2Ha	0.80	-	-	-	-	
3	2nd year Maintenance	-	-	-	-	-	-	-	-	2Ha	0.40	-	-	2Ha	0.40	-	-	2Ha	0.40	-	-	
4	3rd year Maintenance	-	-	-	-	-	-	-	-	-	-	2Ha	0.20	-	-	2Ha	0.20	-	-	2Ha	0.20	
5	Construction of Overpasses	-	-	-	-	-	-	1	500	-	-	-	-	-	-	1	500	-	-	-	-	Works can be done by PWD
6	Canopy Bridges for arboreal animals	-	-	1Nos	10.0	-	-	1No	12.0	-	-	-	-	1No	20.0	-	-	-	-	-	-	
7	Biologist for PA	L/S	4.0	L/S	4.25	L/S	4.50	L/S	4.75	L/S	5.0	L/S	5.25	L/S	5.50	L/S	5.75	L/S	6.0	L/S	6.25	
B. Forest Protection																						
1	Survey and Demarcation	-	-	L/S	0.75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Survey will be done with the help of revenue department to demarcate missing boundary pillar
2	Construction of missing boundary pillar	-	-	-	-	-	-	30	3.5	35	4.0	-	-	-	-	-	-	-	-	-	-	
3	Repair of existing boundary pillar	-	-	-	-	-	-	-	-	-	-	50	4.0	50	4.5	-	-	-	-	-	-	
4	Construction of new boundary pillar	-	-	-	-	-	-	-	-	-	-	-	-	-	25	3.0	25	3.25	-	-	-	

S. No	Name of work	2022-23		2023-24		2024-25		2025-26		2026-27		2027-28		2028-29		2029-30		2030-31		2031-32		Remarks
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	
5	Create new fire lines	-	-	-	-	2 km	1.0	2 km	1.0	1 km	0.50	-	-	-	-	-	-	-	-	-	-	Blossom Beat
6	Maintenance of fire lines & fire paths	2.5 km	0.20	2.5 km	0.20	2.5 km	0.20	3.5 km	0.25	4.5 km	0.30	4.5 km	0.30	4.5 km	0.30	4.5 km	0.30	4.5 km	0.30	4.5 km	0.30	
7	Anti-poaching activities	300 Man days	1.05	300 Man days	1.10	300 Man days	1.15	300 Man days	1.20	300 Man days	1.25	300 Man days	1.30	300 Man days	1.35	300 Man days	1.40	300 Man days	1.45	300 Man days	1.50	
8	Fire watchers	L/S	1.5	L/S	1.5	L/S	1.75	L/S	1.75	L/S	1.75	L/S	2.0	L/S	2.0	L/S	2.0	L/S	2.0	L/S	2.0	
9	Maintenance of patrolling paths	L/S	2.00	L/S	2.00	L/S	2.50	L/S	2.50	L/S	2.50	L/S	3.00	L/S	3.00	L/S	3.00	L/S	3.00	L/S	3.00	
10	Interlinked chain fencing	-	-	-	-	200 mtr	5.00	200 mtr	5.00	250 mtr	7.00	250 mtr	7.00	100 mtr	4.00	-	-	-	-	-	-	
11	Maintenance of Inter Link Chain Fencing	-	-	L/S	1.00	-	-	L/S	1.00	-	-	-	-	L/S	1.5	-	-	-	-	L/S	1.5	
12	Construction of Watch Towers	-	-	L/S	1.00	-	-	L/S	1.00	-	-	-	-	L/S	1.5	-	-	-	-	L/S	1.5	
13	Maintenance of Watch tower	-	-	-	-	1 No	3.00	1 No	3.00	1 No	3.00	1 No	3.00	1 No	3.00	1 No	3.00	-	-	-	-	
14	Cleanliness Drive	L/S	0.30	L/S	0.30	L/S	0.30	L/S	0.50	L/S	0.50	L/S	0.50	L/S	0.50	L/S	0.75	L/S	0.75	L/S	0.75	

C. Soil and water conservation works

1	De-silting of water ponds	3	0.60	3	0.60	5	1.0	5	1.0	5	1.0	3	0.60	3	0.60	5	1.25	5	1.25	3	0.80	
2	Construction of Dry Stone check Dam	10	4.00	10	4.00	10	4.00	12	5.00	12	5.00	15	6.00	15	6.00	15	6.00	15	6.00	15	6.00	
3	Bioengineering works	L/S	1.20	L/S	1.20	L/S	1.40	L/S	1.60	L/S	1.80	L/S	1.80	L/S	1.80	L/S	1.80	L/S	1.80	L/S	1.80	
4	Construction of Water Harvesting Structure	-	-	-	-	-	-	-	-	-	-	-	-	L/S	6.00	-	-	-	-	-	-	

S. No	Name of work	2022-23		2023-24		2024-25		2025-26		2026-27		2027-28		2028-29		2029-30		2030-31		2031-32		Remarks
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	

D.Training and Workshops

1	Exposure visit for staff within and outside state	-	-	L/S	3.0	L/S	2.00	-	-	L/S	3.00	-	-	-	-	L/S	4.00	-	-	L/S	4.00	
2	Education and Awareness	L/S	1.50	L/S	1.50	L/S	1.50	L/S	2.00	L/S	2.00	L/S	2.00	L/S	2.50	L/S	2.50	L/S	3.00	L/S	3.00	
3	Wildlife week celebration	L/S	1.00	L/S	1.00	L/S	1.00	L/S	1.00	L/S	1.50	L/S	1.50	L/S	1.50	L/S	1.50	L/S	2.00	L/S	2.00	
4	Training & Refreshment of trainees of IFS, SFS, Range Officers & Others	L/S	1.5	L/S	1.5	L/S	1.5	L/S	1.75	L/S	1.75	L/S	1.75	L/S	1.75	L/S	2.0	L/S	2.0	L/S	2.0	

Staff Welfare activities

1	Amenities of staff	L/S	0.75	L/S	0.75	L/S	0.75	L/S	1.00	L/S	1.00	L/S	1.00	L/S	1.25	L/S	1.25	L/S	1.50	L/S	1.50	
2	Connectivity Charges to Staff	L/S	0.30	L/S	0.30	L/S	0.30	L/S	0.40	L/S	0.40	L/S	0.40	L/S	0.50	L/S	0.50	L/S	0.50	L/S	0.50	
3	Provision of ration for patrolling parties	L/S	0.50	L/S	0.50	L/S	0.50	L/S	0.60	L/S	0.60	L/S	0.60	L/S	0.75	L/S	0.75	L/S	0.75	L/S	0.80	

Infrastructure

1	Construction of BO Quarter Khariyoun Pheasantry	-	-	-	-	1	30.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2	Construction of Forest Guard Quarter Khariyoun	-	-	-	-	-	-	1	20.0	-	-	-	-	-	-	-	-	-	-	-	-	
3	Construction of Feed Store for Khariyoun Pheasantry	-	-	-	-	-	-	-	-	1	10.0	-	-	-	-	-	-	-	-	-	-	
4	Construction of Store at Chall	-	-	-	-	-	-	-	-	-	-	1	5.0	-	-	-	-	-	-	-	-	
5	Maintenance of Staff Quarters and Range office	L/S	2.00	L/S	2.00	L/S	2.50	L/S	2.50	L/S	2.50	L/S	3.00	L/S	3.00	L/S	3.00	L/S	3.00	L/S	3.00	
6	Maintenance of trekkers Hut Chall	-	-	-	-	L/S	5.0	-	-	-	-	-	-	L/S	3.00	-	-	-	-	-	-	

Equipment

1	Purchase of Binoculars	5no	0.50	5no	0.50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2	Purchase of GPS/PDA	5no	1.00	5no	1.00	-	-	-	-	-	-	-	-	-	-	-	-	5no	1.25	-	-	
3	Purchase of camera	-	-	-	-	1no	1.50	-	-	-	-	-	-	-	-	-	-	1no	2.50	-	-	
4	Trap cameras	4	1.00	-	-	4	1.0	-	-	5	1.50	-	-	5	1.50	-	-	-	-	5no	1.5	
5	Fire Fighting Equipment	-	-	L/S	1.00	-	-	L/S	1.00	-	-	L/S	1.00	-	-	L/S	1.25	-	-	L/S	1.25	

S. No	Name of work	2022-23		2023-24		2024-25		2025-26		2026-27		2027-28		2028-29		2029-30		2030-31		2031-32		Remarks
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	

Eco-Tourism Development

1	Development and implementation of signage system	L/S	1.5	L/S	1.75	L/S	2.0	L/S	2.0	L/S	2.0	L/S	2.25	L/S	2.25	L/S	2.25	L/S	2.5	L/S	2.50	
2	Printing Sanctuary publicity literature	L/S	1.00	L/S	1.00	L/S	1.0	L/S	1.25	L/S	1.25	L/S	1.5	L/S	1.5	L/S	1.5	L/S	1.5	L/S	1.5	
3	Upgradation of Block Office into Information Centre cum Souvenir Shop	-	-	1 No	20.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4	Entrance Arches for Trekking paths	-	-	1 No	80.00	-	-	1 No	10.00	-	-	-	-	1 No	10.00	-	-	1 No	25.0	-	CSR funds may be explored	
5	Canopy Walk	-	-	-	-	1 No	80.00	-	-	-	-	-	-	-	-	-	-	-	-	-	CSR funds may be explored	

Eco Development Activities

1	Participatory Rural Appraisal for villages in zone of influence	-	-	32 Nos	7.0	-	-	-	-	-	-	-	-	-	-	-	-	1 No	2.00	-	-	
2	Preparation of Village level micro plan	-	-	32 Nos	10.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
3	Entry Point Activities for villages in zone of influence	-	-	10 villages	50.0	10 villages	50.0	10 villages	50.0	-	-	-	-	-	-	-	-	-	-	-	-	
4	Micro-financing	-	-	L/S	10.0	L/S	10.0	L/S	10.0	L/S	10.0	L/S	10.0	L/S	10.0	L/S	10.0	L/S	10.0	L/S	10.0	
5	Skill Development for villages	-	-	L/S	5.0	-	-	-	-	L/S	5.0	-	-	L/S	8.0	-	-	-	-	L/S	10.0	

Monitoring and Population Estimation

1	Annual population monitoring exercise	L/S	0.75	L/S	0.75	L/S	1.0	L/S	1.00	L/S	1.00	L/S	1.25	L/S	1.25	L/S	1.50	L/S	1.50	L/S	1.50	
2	Printing of Annual Report of the activities of the sanctuary	L/S	0.30	L/S	0.30	L/S	0.30	L/S	0.40	L/S	0.40	L/S	0.40	L/S	0.50	L/S	0.50	L/S	0.50	L/S	0.50	

S. No	Name of work	2022-23		2023-24		2024-25		2025-26		2026-27		2027-28		2028-29		2029-30		2030-31		2031-32		Remarks
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	
3	Study on Status and Distribution of Cheer Pheasants in Chail Sanctuary	-	-	-	-	-	-	1 No	5.0	-	-	-	-	-	-	-	-	1	6.0	-	-	
4	Study on forest fires	-	-	1No	5.0	-	-	-	-	-	-	-	-	-	-	1No	5.0	-	-	-	-	
5	Evaluation and review of management plan	-	-	-	-	-	-	1 No	0.75	-	-	-	-	-	-	-	-	-	-	-	-	
6	Study on Climate Change	-	-	-	-	-	-	-	-	1 No	10.0	-	-	1 No	1.5	-	-	-	-	-	-	
7	Study on status and distribution of water holes	-	-	-	-	-	-	-	-	-	-	-	-	1 No	3.0	-	-	-	-	-	-	
8	Faunal Estimation Study	-	-	-	-	-	-	1 No	10.0	-	-	-	-	-	-	-	-	-	-	1 No	1.5	
9	Periodic Survey of Avi -Fauna and publication of reports	-	-	1 No	2.5	-	-	-	-	-	-	-	-	-	-	1 No	5.0	-	-	-	-	
10	Periodic Survey of Butterfly and publication of reports	-	-	-	-	1 No	1.00	-	-	-	-	-	-	-	-	-	-	1 No	1.5	-	-	

Office contingencies

1	Purchase of furniture articles to FRH, Range office	-	-	L/S	2.00	-	-	-	-	-	-	-	-	L/S	2.0	-	-	-	-	-	-	
2	Stationary, Electricity bills etc	L/S	0.70	L/s	0.70	L/s	0.80	L/s	0.8	L/s	0.90	L/s	0.90	L/s	0.90	L/s	0.90	L/s	1.0	L/s	1.0	
3	New/Repair & maintenance of Computer/ Laptop Tablet/ Printer	L/S	1.0	-	-	-	-	-	-	L/S	1.5	-	-	-	-	-	-	L/S	2.0	-	-	
4	Procurement of Vehicle for patrolling	L/S	1.0	-	-	-	-	L/S	15.0	-	-	-	-	-	-	-	-	-	-	-	-	

Conservation Breeding of Cheer Pheasant

1	Maintenance of Enclosures	L/S	2.00	L/S	2.50	L/S	2.50	L/S	3.00	L/S	3.00	L/S	3.00	L/S	3.00	L/S	3.00	L/S	3.00	L/S	3.00	
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S. No	Name of work	2022-23		2023-24		2024-25		2025-26		2026-27		2027-28		2028-29		2029-30		2030-31		2031-32		Remarks
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	
2	Enrichment of enclosures	L/S	0.50	L/S	0.50	L/S	0.80	L/S	0.80	L/S	0.80	L/S	0.80	L/S	1.0	L/S	1.0	L/S	1.0	L/S	1.0	
3	Feeding	L/S	4.0	L/S	4.50	L/S	4.50	L/S	4.50	L/S	4.50	L/S	5.0	L/S	5.0	L/S	5.0	L/S	5.0	L/S	5.0	
4	Monitoring of Reintroduced Pheasants	L/S	6.00	L/S	6.00	L/S	6.00	L/S	6.00	L/S	7.00	L/S	7.00	L/S	7.00	L/S	7.00	L/S	10.00	L/S	10.00	
5	Signage	-	-	1No	3.00	-	-	-	-	L/S	3.00	-	-	-	-	1No	5.0	-	-	-	-	
6	Training Modules	-	-	L/S	1.0	L/S	1.0	L/S	1.0	L/S	1.0	L/S	1.0	L/S	1.0	L/S	1.0	L/S	1.0	L/S	1.0	
7	CCTV Monitoring	L/S	0.50	L/S	0.50	L/S	0.50	L/S	0.50	L/S	0.80	L/S	0.80	L/S	0.80	L/S	0.80	L/S	0.80	L/S	0.80	
8	Maintenance of Service Path	-	-	1No	1.0	-	-	-	-	-	-	-	-	-	-	1No	1.0	-	-	-	-	
9	Landscaping	-	-	1No	5.0	-	-	-	-	-	-	-	-	-	-	1No	5.0	-	-	-	-	
10	Modification of polyhouse to enclosure	1.0	7.0	-	-	-	-	-	-	-	-	-	-	-	-	1No	5.0	-	-	-	-	
11	Research Assistant for Cheer Pheasant program	L/S	4.0	L/S	4.25	L/S	4.50	L/S	4.75	L/S	5.0	L/S	5.25	L/S	5.50	L/S	5.75	L/S	6.0	L/S	6.25	



Appendices

APPENDIX 1

Notification of Chail Wildlife Sanctuary

(Authourative English text of this Department Notification Number FFE-B-F(6)-25/99 dated 23/10/99 as required under clause(3) of article 348 of the constitution of India.)

GOVERNMENT OF HIMACHAL PRADESH

DEPARTMENT OF FORESTS.

No. FFE-B-F(6)-25/99-Dated Shimla -2

Notification

Whereas Notification under section 18 of the Wildlife (Protection) Act 1972 was issued vide Government Notification No.6-23/73-SF dated 21/3/1976 declaring its intention to constitute chail sanctuary in district Solan.

And whereas proclamation is required under section 21 of the said Act was published in the regional language and circulated in every Town and village covered by the above Notification on 3/1/1998. No objections whatsoever were received from the public within the prescribe period. It is therefore, felt that there is no need either to exclude or include land from the limits of the sanctuary and consequently no action is required to be taken under section 24 and 25 of the Act.

And whereas the Governor Himachal Pradesh considers that Chail Wildlife Sanctuary is of adequate ecological faunal geomorphologic natural or zoological significance. 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 Chail area as Sanctuary with immediate effect for the purpose of protecting, propagating or developing wildlife or its environment.

The limits of the area of the Sanctuary shall be as under:-

NORTH :- Chaura and Bhlawag of Shimla Forest Division.

NORTH-EAST :- Ahani khad between Village Kaniola and Nalha Janedghat

SOUTH-WEST :- Ashni khad

SOUTH EAST :- Giri river from its origin at Gawura with Ashni khad and Giri River upstream up to range boundary of Chail, up to village Thund.

Area: 109 sq. Kms.

BY order

COMMISSIONER-CUM-SECRETARY (Fts.) to the Government of Himachal Pradesh.

Endst. No. FFE-B-F(6)-25/99-Dated Shimla -2,the 23-10-1999 copy forwarded for favour of information and necessary action to:-

All the Administrative Secretaries to the Govt. of H.P. Shimla -171002.

1. All the Divisional Commissioners in H.P.
2. All the Heads of Department of H.P.
3. The Principal Chief Conservator of Forests, H.P.
4. The Chief Wildlife Warden H.P. Shimla-2.
5. All the Deputy Commissioners in H.P.
6. The Controller, Printing and Stationary Deptt. H.P. Shimla-5 for publication and Rajpatra.
Five copies of the Rajpatra be sent to his Department.
7. The Chief Conservator of Forests in H.P.
8. All the Divisional Forests Officer (Wildlife) in H.P.
9. Guard File (100 spare copies)

Secretary (Forests) to the
Government of Himachal Pradesh

APPENDIX 2

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

GOVERNMENT OF HIMACHAL PRADESH

DEPARTMENT OF FORESTS

No.FFE-B-F(6)-11/2005-II/Chail

Dated Shimla-2,the 7th June,2013

NOTIFICATION

Whereas a Notification under Section 26A of the Wildlife (protection) Act,1972 (53 of 1972) was issued by the Government vide Notification No. FFE-B-F(6)-25/99 dated 23rd October 1999, to declare Chail as Wildlife Sanctuary comprising of an area of 109 Sq km:

And whereas, the matter with regard to rationalization of the Wildlife Sanctuaries and National Parks in Himachal Pradesh was under consideration of the Hon'ble Supreme Court in IA No. 139/2010 in Write petition Civil No. 337 of 1995 titled Centre for Environmental Law.WWF-1 Versus Union of India and Others.

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

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

And whereas, the Hon'ble Supreme Court vide order dated 01/02/2013, passed in IA No.155 (earlier IA N139/2010), has permitted the State Government to issued final Notifications under Sections 26A ,35(4) and 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 Chail Wildlife Sanctuary, out of actual ground area of 108.53 sq. Km ,92.53 sq. Km area is hereby denotified (comprising of 84 villages list attachedas Annexure-1 including Chail main bazaar comprising an area of 141 kitas measuring 3-06-86 ha of Sakori Reserve Forest R18 Compartment No.2 B as Chak) . The remaining area of 16.00 Sq km (408.53 sq.km- 92.53sq km) shall constitute the Chail Wildlife Sanctuary after rationalization;

Now, therefore, the Governor Himachal Pradesh in exercise of the powers vested in her under section 26 A of the Act Ibid is pleased to declare the remaining area of 16.00 sq.km as 'Chail Wildlife Sanctuary'with immediate effect for the purpose of protecting , propagating and developing wildlife and its environment:

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

Sr.No	Name of Wildlife Sanctuary	Constituents i)District ii)Forest Division	Boundaries of Chail Wildlife Sanctuary
1	Chail Wildlife Sanctuary	i) Solan and Shimla ii)Shimla(WL) Division	<p>NORTH: Boundary starts from boundary pillar No.22 of Binu RF/23 and turns to right side then follows the boundary passing through boundary pillar No.21 near point 1955 mtr and 2139 mtr, which situated on Shimla and Solan District boundary-cum-Forest Divisional Boundary of Shimla and Solan Division, then follows the same District-cum-Forest Divisional boundary via Sakoriu RF/2 through BPNO. 53,52,51,50.49 and right side near B,P No. 49 .Further boundary moves the small tributary of nallas up stream upto road and across the road and joins at meeting point of the various roads near point 2230 mtr. Then along road leadinbg to RH (MES) then follows the small ridge down upto B.P. No.4 of Bhojdin RF/25 and via B.P. 5,6,7 up to 8. Then moves down upto a small tributary of nalla-cum-outer boundary of village Dealk via B.P. 4 up to B.P. 3 of Malan shil PF/89.</p> <p>EAST: From boundaries pillar No. 3 of Malan shil PF/89 boundary routes through the BP No -2, 1B, 1A & 1 up to District cum – Forest Divisional boundary then turn to left side and passive via BP NO-5 to 32 of Bhojdin PF /89. Then along the branch of small nalla flowing from point 2061 mtr up to road and follows the road upto BP No. 29 of Bhojdin RF/25 and then along BP No-30 up to 36.</p> <p>SOUTH: From boundary pillar No. 36 of Bhojdin RF/25 boundary goes via BP No. 37 to 46 near point 2176 mtr. And follows the ridge near Hinner plantation and turns to left side in a small tributary of nalla upto a crossing point of a foot path from Hinner village to Karog village. Then follows the same path to left side up to a ridge boundary of jhajha khariyoun PF/88 now turns to left side and follow the boundary of jhajha khariyoun PF 88 up to to BP NO. 17. Now boundary turn to left side from the crossing of 1700 mtr,. Contour up to a small tributary of nalla which originates near BP. No. 6 of jhajha khariyoun PF/88 and follows the same tributary of nallaup stream upto B.P. No. 6 of jhajha khariyoun PF/88.</p>

			<p>WEST: From the point of B.P. No. 6 of jhajha khariyoun PF/88 Boundary moves via BP No. 5,4,3,2 and up to road before B.P. No. 1 and follows the road upto B.P. No. 3 of khariyoun RF/21 in nalla then along the tributary of small nalla down stream up to its confluence with main nalla just below kohla village. Then follows the nalla up stream up to confluence oint of tributary of same nalla which flows right side and originate from near B.P. No. 30 of jhajha khariyoun PF/88. Then follows the same tributary of nalla up to B.P. No. 30 of jhajha khariyoun PF/88 further boundary passess through BP No. 24 to 1 of Sakori RF/24 and then follows the left side boundary of Binnu RF/23 via 13 Nos of B.P. without nos then along B.P. No. 56,54,53 upto B.P. No. 22 of Binnu RF/23.</p> <p>Boundary as per scale 1:15000</p>
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This area is situated within the Geo- coordinates North Lat. 31°00'15" N &Long. 77°11'45" E East
Lat. 30°57'45" N &Long. 77°57'45"E South Lat. 30°55'44" N & Long. 77°12'15"E West Lat.
30°57'28" N &Long. 77°09'47"E, which falls on survey of India topo sheet No. 53F/1 & 53E/4 scale
1: 1500000 and 53F/1/NE & 53E/4 /SE on scale 1:15000.

Area of Chail Wildlife Sanctuary 16 Sq. km

By order

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

Endst No.

As above

Dated Shimla -2 the 7 th June 2013

Copy forwarded to:-

10. All the Administrative Secretaries to the Govt. of H.P. Shimla -2.
11. All the Divisional Commissioners, Shimla, Mandi & Dharamshala, HP.
12. All the Heads of Department of H.P.
13. The Principal Chief Conservator of Forests, HP Shimla -1.
14. The Principal Chief Conservator of Forests, (Wildlife) HP Shimla-1
15. All CCFs /DFOs(Wildlife) in HP.
16. All the Deputy Commissioners in H.P.
17. All CCFs /DFOs in HP.
18. ALR-cum-Under Secretary Law to the Government of Himachal Pradesh.
19. The Commissioners, Municipal Corporation, Shimla.
20. The controller H.P. Printing & Stationary Department Shimla -5 for publication in the RajPatra
(Extra- ordinary) Five Copies of the Raj Patra be sent to this Department.
21. Guard File.

Under Secretary (Forests) to the
Government of Himachal Pradesh

APPENDIX 3
Compartment wise area of Wildlife Sanctuary Chail

Sr. No.	Name of Range	Name of Block	Name of Beat	Name of Forest/Compartment	Area in Ha.	Total area in Ha
1			Banjani Beat	R17 C1	25.60	300.20
				R17 C2	48.20	
				R17 C3	23.60	
				R17 C4	34.80	
				R17 C5	34.40	
				R17 C6	34.80	
				R17 C7	28.00	
				R17 C8	47.60	
				R17 C9	23.60	
				Total	300.20	
2	SWC Dhalli	Chail	Sakori Beat	R18 C1a	39.20	309.93
				R18 C1b	58.80	
				R18 C2a	16.40	
				R18 C2b	26.13	
				R18 C2c	28.00	
				R18 C3a	14.40	
				R18 C3b	20.00	
				R18 C3c	20.80	
				D89 C1	86.20	
					309.93	
3	SWC Dhalli	Chail	Blossom Beat	R19 C1a	59.60	465.60
				R19 C1b	55.20	
				R19 C2a	28.40	
				R19 C2b	34.00	
				R19 C3	52.00	
				R19 C4a	19.20	
				R19 C4b	17.20	
				R19 C5a	14.00	
				R19 C5b	18.00	
				D52 C4a	18.00	
				Govt Shamlat	50.00	
				Pvt. Ghasni	100	
4	SWC Dhalli	Chail	Khariyoun Beat		465.60	
				R15 C1	28.80	528.27
				R15 C1	28.80	
				D51 C2	83.20	
				D51 C3	40.00	
				D51 C4		
				Govt Shamlat	71.00	
				Pvt. Ghasni	192.47	

APPENDIX 4
List of Plants found in Chail Wildlife Sanctuary

Sr.No.	Botanical Name	Common Name	Nature
1	Cedrus Deodara	Deodar	Tree
2	Quercus leucotrichophora	Ban	
3	Ficus spp	Fig Tree	
4	Toona ciliate	Tooni	
5	Pinus roxburghii	chil	
6	Pyrus pashia	kainth	
7	Celtis australis	khidak	
8	Aesculus indica	khanor	
9	Prunus spp	pajja	
10	Rhododendron arboretum	Buransh	
11	Pinus wallichiana	Kail	
12	Myrica esculenta	kafal	
13	Populus ciliata	Himalayan poplar	
14	Diospyros lotus	Malook	
15	Cornus capitata	Himalayan Strawberry Tree	
16	Sapindus spp	Reetha	Shrub
17	Rubus ellipticus	Golden Himalayan raspberry	
18	Rubus parvifolius	Thimbleberry	
19	Rubus niveus	Mysore raspberry	
20	Berberis lycium	Indian lycium	
21	Boenninghausenia albiflora	White Himalayan Rue	
22	Cassia floribunda	Senna	
23	Coriaria nepalensis	Masuri Berry	
24	Daphne cannabina		
25	Desmodium floribundum		
26	Desmodium triflorum	Creeping Tick Trefoil	
27	Hypericum spp.	Goatweed	
28	Lonicera Quinquelocularis	Translucent Honeysuckle	
29	Meriandra Strobilifera	Cone-Bearing sage	
30	Myrsine Africana	Cape myrtle	
31	Osyris arborea	osyris	
32	Randia Tetrasperma	Himalayan Randia	
33	Rosa brunonii	Himalayan musk rose	
34	Lyonia ovalifolia	Fetterbush	
35	Sarcococca saligna	Sweet box	
36	Solanum Pseudocapsicum	Jerusalem cherry	
37	Viburnum cylindricum	Kala Titmaliya	
38	Prinsepia utilis	Bekhal	
39	Cassia mimosoides	Feather leaved casia	
40	Rosa moschata	Musk rose	

41	Bambusa spp.	Bans	
42	Woodfordia fruticosa	Fire flame bush	
43	Adenocaulon bicolour	Trail plant	Herb
44	Ainsliaea aptera	Wingless Ainsliaea	
45	Anaphalis busua	Tall pearly everlasting	
46	Anemone rivularis	Riverside windflower	
47	Argemone Mexicana	Mexican poppy	
48	Arisaema spp	Cobra lily	
49	Artemisia raxburghiana	Roxburgh's Wormwood	
50	Asclepias curassavica	Blood flower	
51	Bidens pilosa	Black jack	
52	Bistorta Spp	Common bistort	
53	Carpesium cernuum	Nodding carpesium	
54	Cnicus argyranthus	Cnicus argyranthus	
55	Commelina obliqua	Day flower	
56	Dicliptera bupleuroides	Thorowax Foldwing	
57	Epipactis latifolia	Broad leaved helleborine	
58	Erigeron annuus	Daisy fleabane	
59	Flemingia strobilifera	Luck plant	
60	Fragaria indica	Wild strawberry	
61	Galium triflorum	Fragrant bedstraw	
62	Gerbera lanuginose	Barberton daisy	
63	Girardinia diversifolia	Himalayn nettle, nilghiri nettle	
64	Justicia simplex	Small justica	
65	Lespedeza gerardiana	Bush Clover	
66	Plectranthus incanus	Spur flower	
67	Plectranthus striatus	Indian coleus	
68	Potentilla Katherine	Katherine Dykes	
69	Rhynchosia sericea	Snoutbean	
70	Roscoeia purpurea	Kakoli plant	
71	Rubia cordifolia	Indian madder	
72	Rumex nepalensis	Nepal Dock	
73	Salvia glutinosa	Sticky sage	
74	Thymus serpyllum	Wild thyme	
75	Salvia spp.	Common sage	
76	Senecio nudicaulis	Bare stem ragwort	
77	Strobilanthes alatus	Kashmir acanthus	
78	Taraxacum officinale	Common Dandelions	
79	Verbascum Thapsus	Great mullein	
80	Viola canescens	Himalayan white violet	
82	Viola Serpens	Banapsha,	

83	<i>Apluda mutica</i>	<i>Apluda mutica</i>	
84	<i>Avena fatua</i>	Wild oat	
85	<i>Cenchrus Ciliaris</i>	Foxtail buffalo grass	
86	<i>Chrysopogon montanus</i>	Reddish-Yellow beard grass	
87	<i>Dicanthium annulatum</i>	Marvel grass	
88	<i>Echaninochola colona</i>	Jungle rice, deccan grass	
89	<i>Fimbristylis rigidula</i>		
90	<i>Heteropogon contortus</i>	Spear grass	
91	<i>Oplismenus Burmannii</i>	Burmann's basketgrass	
92	<i>Setaria Gauca</i>	Yellow foxtail	
93	<i>Themeda anathera</i>	Loonder grass	
94	<i>Urochloa panicoides</i>	Liverseed grass	
95	<i>Dryopteris nigropaleacea</i>	Wood fern	
96	<i>Onychium contiguum</i>		Ferns
97	<i>Polystichum spp.</i>	Shield fern	
98	<i>Pteris cretica</i>	Cretan brake fern, ribbon fern, table fern	
99	<i>Woodsia elongate</i>	Cliff fern	
100	<i>Vitis himalayana</i>	Bhambti, phlankur	
101	<i>Hedera helix</i>	Common ivy	Climber
102	<i>Brachycorythis obcordata</i>	Heart shaped Short Helmet orchids	Orchids
103	<i>Goodyera biflora</i>	Two flowered Goodyera	
104	<i>G. repens</i>	Creeping chalk lover	
105	<i>Habenaria intermedia</i>	Riddhi	
106	<i>H. marginata</i>		
107	<i>H. pectinata</i>		
108	<i>Herminium lanceum</i>	Lanceleaf herminium	
109	<i>Satyrium nepalense</i>		
110	<i>Crepidium acuminatum</i>	Spur orchids	
111	<i>Epipactis gigantea</i>	Stream orchid	
112	<i>Malaxis muscifera</i>	Jeevak	Medicinal plant
113	<i>Berginia lingulata</i>	Pathar Chatta plant, Pashan bhed	
114	<i>Viola Odorata</i>	Banksha	
115	<i>Morchella esculenta</i>	Guchi	
116	<i>Achyranthis bidentata</i>		
117	<i>Curcuma aromatic</i>	Jungli Haldi	
118	<i>Punica granatum</i>	Daroo	
119	<i>Berberis aristata</i>	Kashmal	
120	<i>Zanthoxylum armatum</i>	Tirmir	
121	<i>Polystichum setiferum</i>	Soft shield fern, Linger	
122	<i>Berginia lingulata</i>	Pathar Chatta plant, Pashan bhed	

40		Black headed jay	Garrulus lanceolatus
41		Yellow billed Blue Magpie	Urocissa flavirostris
42		Red billed Blue Magpie	Urocissa erythroryncha
43		Spotted Nutcracker	Nucifraga caryocatactes
44		Large Billed Crow	Corvus macrorhynchos
45		Grey Treepie	Dendocitta formosae
46	Stenostiridae	Grey Headed Canary Flycatcher	Culicicapa ceylonensis
47	Paridae	Coal tit	Periparus ater
48		Grey crested tit	Lophophanes dichrous
49		Green backed tit	Parus monticolus
50		Cinereous Tit	Parus cinereus
51		Yellow browed tit	Sylviparus modestus
52		Black-lored tit	Parus xanthogenys
53	Cisticolidae	Striated Prinia	Prinia crinigera
54		Jungle Prinia	Prinia sylvatica
55	Hirundinidae	Dusky crag Martin	Ptyonoprogne concolor
56		Red rumped swallow	Cecropis daurica
57	Pscnonotidae	Red vented Bulbul	Pycnonotus cafer
58		Himalayan Bulbul	Pycnonotus leucogenys
59		Black Bulbul	Hypsipetes leucocephalus
60	Phylloscopidae	Hume's Warbler	Phylloscopus humei
61		Grey Hooded Warbler	Phylloscopus xanthoschistos
62	Cattidae	Brown-flanked bush Warbler	Horornis fortipes
63	Aegithalidae	Black Throated Tit	Aegithalos concinnus
64	Zosteropidae	Oriental White eye	Zosterops palpebrosus
65	Timaliidae	Black chinned Babbler	Stachyridopsis pyrrhops
66		Rusty-cheeked Scimitar Babbler	Pomatorhinus erythrogenys
67	Leiothrichidae	Jungle Babbler	Turdoides striata
68		White Throated laughing Thrush	Garrulax albogularis
69		Streaked laughing Thrush	Trochalopteron lineatum
70		Variegated laughing Thrush	Trochalopteron variegatum
71		Rufous sibia	Heterophasia capistrata
72	Sittidae	Chestnut-bellied Nuthatch	Sitta cinnamoventris
73	Certhia	Bar-tailed Treecreeper	Certhia himalayana
74	Sturnidae	Common Myna	Acridotheres tristis
75	Turdidae	Scaly Thrush	Zoothera dauma
76		Grey winged Blackbird	Turdus boulboul
77		Tickell's Thrush	Turdus unicolor
78	Muscicapidae	Asian Brown Flycatcher	Muscicapa latirostris
79		Indian Robin	Saxicoloides fulicatus
80		Verditer Flycatcher	Eumyias thalassinus
81		Indian Blue Robin	Luscinia brunnea

APPENDIX 5
List of Birds of Chail Wildlife Sanctuary

Sr. No.	Family	Common Name	Zoological Name
1.	Phasianidae	Hill partridge	Arborophila torqueola
2		Indian Peafowl	Pavo cristatus
3		Black Francolin	Francolinus francolinus
4		Red Jungle Fowl	Gallus gallus
5		Cheer pheasant	Catreus wallichi
6		Kalij pheasant	Lophura leucomelanos
7	Columbidae	Oriental Turtle Dove	Streptopelia orientalis
8		Blue rock Dove	Columba livia
9		Spotted Dove	Spilopelia chinensis
10		Wedge-tailed Green Pigeon	Treron sphenurus
11	Cuculidae	Asian Koel	Eudynamys scolopaceus
12		Large Hawk-Cuckoo	Hierococcyx sparveroides
13		Himalayan Cuckoo	Cuculus saturatus
14	Caprimulgidae	Grey Nightjar	Caprimulgus jotaka
15	Accipitridae	Bearded vulture	Gypaetus barbatus
16		Himalayan Griffon	Gyps himalayensis
17		Black Kite	Milvus migrans
18	Strigidae	Mountain Scopes-Owl	Otus spilocephalus
19		Collard scopes-Owl	Otus lettia
20		Asian Barred owlet	Glaucidium cuculoides
21	Megalaaimidae	Great Barbet	Psilopogon virens
22		Blue Throated Barbet	Megalaima asiatica
23	Picidae	Himalayan Woodpecker	Dendrocopos himalayensis
24		Scaly bellied woodpecker	Picus squamatus
25		Brown fronted woodpecker	Leiopicus auriceps
26		Fulvous-breasted Woodpecker	Dendrocopos macei
27		Grey Headed woodpecker	Picus canus
28	Falconidae	Common Kestrel	Falco tinnunculus
29	Psittaculidae	Rose ringed Parakeet	Psittacula krameri
30		Slaty-headed Parakeet	Psittacula himalayana
31		Plum-headed Parakeet	Psittacula cyanocephala
32	Campephagidae	Long tailed Minivet	Pericrocotus ethologus
33		Small Minivet	Pericrocotus cinnamomeus
34	Vireonidae	White-browed Shrike-Babbler	Pteruthius aeralatus
35	Rhipiduridae	White-throated Fantail	Rhipidura albicollis
36	Dicuridae	Black Drongo	Dicrurus macrocercus
37		Ashy Drongo	Dicrurus leucophaeus
38	Monarchidae	Asian Paradise-Flycatcher	Terpsiphone paradisi
39	Corvidae	Eurasian Jay	Garrulus glandarius

82		Blue whistling thrush	Myophonus caeruleus
83		Ultramarine Flycatcher	Ficedula superciliaris
84		Blue-capped Rock-Thrush	Monticola cinclorhynchus
85		Common/Siberian Stonechat	Saxicola maurus
86		Pied Bush chat	Saxicola caprata
87		Grey Bushchat	Saxicola ferreus
88	Passeridae	House sparrow	Passer domesticus
89		Russet Sparrow	Passer rutilans
90	Motacillidae	Grey Wagtail	Motacilla cinerea

APPENDIX 6
List of Reptiles and Amphibians found in Chail Wildlife Sanctuary

Sr. No	Local Name	Common Name	Zoological Name
A. Reptiles			
1	Krait	Common Indian Krait	Bungarus caeruleus
2	Raaf	Himalayan pit viper	Gloydius himalayanus
3		Himalayan trinket	Coelognathus helena
4		Collared Black headed snake	Sibynophis collaris
5		Striped Keelback snake	Amphiesma stolatum
6		Common trinket snake	Coelognathus helena
7		Checkerd keelback	Xenochrophis piscator
9		Common wolf snake	Lycodon capucinus
B. Amphibians			
10	Chhipkali	Himalayan agama	Paralaudakia himalayana
11	Mendak	Asian common toad	Duttaphrynus melanostictus
12	Mendak	Himalayan toad	Duttaphrynus Himalayanus
13	chhipkali	Chinese skink	Plestiodon chinensis

APPENDIX 7

List of Butterflies

Sr.No.	Family	Common Name	Zoological Name
1	Nymphalidae	Common Tree Brown	Lethe rohria
2		Plain Earl	Tanacia jahnu
3		Gaudy Brown	Euthalia lubentina
4		Orange oak leaf	Kallima inachus
5		Common Palm fly	Elymnias hypermnestra
6		The Indian fritillary	Argyreus hyperbius
7		The rustic	Cupha erymanthis
8		Naga tree brown	Lethe naga
9		The king crow	Euploea klugii
10		High Brown Fritillary	Fabriciana adippe
11		Common Leopard	Phalanta phalantha
12		Blue admiral	Kaniska carnace
13		Small tortoiseshell	Aglaia cashmirensis
14		Spotted Demon	Notocrypta fiesthmalli
15		Blue pansy	Junonia orthiya
16		Plain tiger	Danaus chrysippus
17		Glassy tiger	Parantica aglea
18		Queen of Spain Fritillary	Issoria lathonia
19		Common Wall	Lassiommata schakara
20		Painted Lady	Vanessa cardui
21		Common copper	Lycaena phlaeas
22		Bhutan Sergeant	Athyma jina
23	Pieridae	Common grass yellow	Eurema hecabe
24		Small grass yellow	Eurema brigitta
25		Common Brimstone	Gonepteryx rhamnii
26		Dark clouded yellow	Colias erate
27		Bath White	Pontia daplidice
28		Hill Jezebel	Delias belladonna
29		Spotless Grass Yellow	Eurema laeta
30		Pioneer white	Belenois aurota
31		Great backvein	Aporia agathon

32	Lycanidae	White bordered Copper	Lycaena pavanna
33		Sorrel Sapphire	Heliophorus sena
34		Dark glass blue	Zizzeria karsandra
35		Ciliate blue	Athene emolus
36		Common Blue	Polyommatus icarus
37		Pale grass blue	Pseudozizzeria maha
38		Common copper	Lycaena phaleus
39		Purple Sapphire	Heliophorus epicles
40		The plain hedge blue	Celastrina lavendularis
41		Dark oak blue	Arhopala rama
42		Orange bordered Argus	Aricia astrarche
43	Papilionidae	Common blue Apollo	Parnassius hardwickii
44		Common yellow swallow tail	Papilio machaon
45		Common Windmill	Atrophaneura polyeuctus
46		Common silver line	Cigaritis valcanus
47		Common Mime	Papilio clytia
48	Hesperidae	Dark yellow banded Flat	Celaenorhinus auritivitta
49		Fulvous pied flat	Pseudocoladenia dandan
50		Himalayan Dart	Polanthus dara

APPENDIX 8
Offence Cases in last 10 years

Sr. No.	Year	Kind of offence	No. Of offence	Status
2	2013-14	Illicit Felling	6	Compounded
		Lopping	1	Compounded
3	2014-15	Illicit Felling	2	Compounded
		Lopping	2	Compounded
		Dumping	1	Compounded
4	2015-16	Illicit Felling	Nil	
		Encroachment		
		Lopping		
		Dumping		
5	2016-17	Illicit Felling	1	Compounded
		Lopping	5	Compounded
6	2017-18	Illicit Felling	3	1 case pending, 1case decided, other are untraced
		Lopping	2	Compounded
		Dumping	5	Compounded
7	2018-19	Illicit Felling	3	1 case pending other are untraced
		Lopping	2	Compounded
8	2019-20	Illicit Felling	5	2 case decided other are untraced
		Lopping	11	Compounded
9	2020-21	Illicit Felling	5	1 case pending, other are untraced
		Lopping	24	Compounded
10	2021-22	Illicit Felling	1	Un traced
		Lopping	2	Compounded
		Dumping	2	Compounded

APPENDIX-9
List of Boundary pillars

Sr. No.	Boundary Pillar No.	GPS Location	Remarks
I. Khariyoun Beat			
1	1	N 30°57.449, E 077°10.817 Elevation-1762	Present
2	2	N 30°57.414, E 077°10.742 Elevation-1727	Missing
3	3	N 30°57.707, E 077°10.669 Elevation-1855	Missing
4	4	N 30°57.228, E 077°10.666 Elevation-1947	Present
5	5	N 30°57.127, E 077°10.615 Elevation-2005	Present
6	6	N 30°57.159, E 077°10.67 Elevation-2014	Present
7	7	N 30°57.111, E 077°10.756 Elevation-2025	Present
8	8	N 30°57.078, E 077°10.889 Elevation-2031	Present
9	9	N 30°57.115, E 077°10.989 Elevation-1989	Present
10	10	N 30°57.117, E 077°11.080 Elevation-2017	Present
11	11	N 30°57.166, E 077°11.154 Elevation-2026	Present
12	12	N 30°57.236, E 077°11.147 Elevation-1989	Present
13	13	N 30°57.254, E 077°11.299 Elevation-1968	Present
14	14	N 30°57.311, E 077°11.303	Present
15	15	N 30°57.421, E 077°11.283 Elevation-1837	Missing
16	16	N 30°57.515, E 077°11.169 Elevation-1778	Present
17	17	N 30°57.489, E 077°11.068 Elevation-1761	Present
18	18	N 30°57.456, E 077°10.958 Elevation-1765	Present
19	1	N 30°57.638, E 077°10.318 Elevation-	Present
20	2	N 30°57.623, E 077°10.059 Elevation-	Present
21	3	N 30°57.598, E 077°09.971 Elevation-1857	Present
22	4	N 30°57.564, E 077°09.898 Elevation-1867	Present
23	5	N 30°57.613, E 077°09.787 Elevation-1866	Present
24	6	N 30°57.32, E 077°09.457 Elevation-	Present
25	7	N 30°57.288, E 077°09.509 Elevation-	Present
26	8	N 30°57.336, E 077°10.503 Elevation-	Present
27	9	N 30°57.167, E 077°10.047 Elevation-	Present
28	10	N 30°57.144, E 077°10.164 Elevation-	Present

29	11	N 30°57.07, E 077°10.337 Elevation-	Present
30	12	N 30°57.13.4, E 077°11.3.6 Elevation-2033	Present
31	13	N 30°57.74, E 077°11.40 Elevation-1971	Present
32	14	N 30°57.20, E 077°11.118 Elevation-1920	Present
33	15	N 30°56.536, E 077°11.116 Elevation-	Missing
34	16	N 30°57.30, E 077°11.15.3 Elevation-1798	Missing
35	30	N 30°57.398, E 077°11.319 Elevation-1958	Missing
36	31	N 30°57.457, E 077°11.305 Elevation-1906	Missing
37	32	N 30°57.488, E 077°11.301 Elevation-1907	Present
38	33	N 30°57.496, E 077°11.271 Elevation-1901	Present
39	34	N 30°57.512, E 077°11.265 Elevation-1894	Present
40	35	N 30°57.554, E 077°11.268 Elevation-1900	Present
41	36	N 30°57.588, E 077°11.280 Elevation-1909	Present
42	37	N 30°58.006, E 077°11.317 Elevation-1900	Present
II. Banjani Beat			
43	1	N 30°59'13.9'', E 077°12'44.6'' Elevation-	Present
44	2	N 30°59'24.4'', E 077°12'27.9'' Elevation-1994	Present
45	3	N 30°59'25.8'', E 077°12'23.4'' Elevation-	Present
46	4	N 30°59'32.2'', E 077°12'20'' Elevation-2070	Present
47	5	N 30°59'47.3'', E 077°12'19.6'' Elevation-2060	Present
48	6	N 30°59'505'', E 077°12'17.6'' Elevation-2071	Present
49	7	N 30°59'53.2'', E 077°12'13.5'' Elevation-2109	Present
50	8	N 30°59'55.9'', E 077°12'9.3'' Elevation-2087	Present
51	9	N 30°59'56.2'', E 077°12'1.7'' Elevation-2105	Present
52	10	N 30°59'58.4', E 077°12'09'' Elevation-2097	Present
53	11	N 30°59'59.2'', E 077°11'57.8'' Elevation-2050	Missing
54	12	N 31°0'1.3'', E 077°11'56.3'' Elevation-2040	Present
55	13	N 30°59'58.2'', E 077°11'59.9'' Elevation-2092	Missing
56	14	N 30°59'59'', E 077°11'57.7'' Elevation-2042	Present
57	15	N 31°0'1.4'', E 077°11'56.3'' Elevation-2050	Present
58	16	N 30°0'8.5'', E 077°11'48.7'' Elevation-	Present

59	17	N 31°0'11.7", E 077°11'39.4" Elevation-1939	Present
60	18	N 31°0'13.6", E 077°11'36.2" Elevation-1938	Present
61	19	N 31°0'14.4", E 077°11'32.1" Elevation-1971	Present
62	20	N 31°0'12.2", E 077°11'27.5" Elevation-1963	Present
63	21	N 31°00'13.8", E 077°11'25.1" Elevation-1828	Present
64	22	N 31°00'17.3", E 077°11'9.2" Elevation-1762	Present
65	23	N 31°00'206", E 077°10'51.41" Elevation-1695	Present
66	24	N 31°00'206", E 077°10'51.41" Elevation-1695	Present
67	25	N 31°00'8.1", E 077°10'57.9" Elevation-1785	Present
68	26	N 31°00'5.3", E 077°10'57.9" Elevation-1904	Present
69	27	N 31°00'5.3", E 077°11'1.8" Elevation-1904	Present
70	28	N 31°00'206", E 077°11'7.7" Elevation-1695	Present
71	29	N 31°00'5.2", E 077°11'18.7" Elevation-1903	Present
72	30	N 31°00'6.6", E 077°11'25.7" Elevation-2020	Present
73	31	N 31°00'0.3", E 077°11'30.4" Elevation-2057	Present
74	32	N 30°59'55", E 077°11'38.1" Elevation-1728	Present
75	33	N 30°59'48.9", E 077°11'34.3" Elevation-1846	Present
76	34	N 30°59'55", E 077°11'38.1" Elevation-1836	Present
77	35	N 30°59'48", E 077°11'35.3" Elevation-1826	Present
78	36	N 30°59'48", E 077°11'35.3" Elevation-1826	Present
79	37	N 30°59'43.8", E 077°11'51.0" Elevation-1867	Present
80	38	N 30°59'41.9", E 077°11'52.1" Elevation-1909	Present
81	39	N 30°59'41.2", E 077°12'1.5" Elevation-1896	Present
82	40	N 30°59'37.1", E 077°12'0.2" Elevation-1840	Present
83	41	N 30°59'31.1", E 077°11'53.8" Elevation-1846	Present
84	42	N 30°59'27.8", E 077°12'0.8" Elevation-1869	Present
85	43	N 30°59'17.3", E 077°12'0.9" Elevation-1665	Present
86	44	N 30°59'20.9", E 077°11'55.7" Elevation-1726	Present
87	45	N 30°59'24.3", E 077°11'45.7" Elevation-1721	Present
88	46	N 30°59'24.9", E 077°11'42.7" Elevation-1660	Missing
89	47	N 30°59'26.2", E 077°11'29.3" Elevation-1704	Missing

90	48	N 30°59'28.3", E 077°11'21.2" Elevation-1681	Missing
91	49	N 30°59'26.5", E 077°11'17.1" Elevation-1671	Present
92	50	N 30°59'29.3", E 077°11'12.6" Elevation-1675	Present
93	51	N 30°59'28.9", E 077°11'9" Elevation-1663	Present
94	52	N 30°59'27.2", E 077°11'3.2" Elevation-1697	Present
95	53	N 30°59'24.9", E 077°11'4.8" Elevation-1701	Present
96	54	N 30°59'23.0", E 077°11'12.1" Elevation-1731	Present
97	55	N 30°59'17.5", E 077°11'28.8" Elevation-1805	Present
98	56	N 30°59'16.6", E 077°11'35.5" Elevation-1832	Present
99	57		
100	58	N 30°59'09.2", E 077°11'45.7" Elevation-1875	Present
101	59	N 30°59'6.8", E 077°11'53.8" Elevation-1871	Present
102	60	N 30°59'4.0", E 077°11'55.7" Elevation-1953	Present
103	61	N 30°58'59.0", E 077°11'56.9" Elevation-1998	Present
104	62	N 30°58'55.2", E 077°11'59" Elevation-2020	Present
105	63	N 30°58'9", E 077°11'57.2" Elevation-1950	Present
106	64	N 30°58'51.9", E 077°11'53.5" Elevation-1907	Present
107	65	N 30°58'50.4", E 077°11'48.9" Elevation-1877	Present
108	66	N 30°58'48.5", E 077°11'46.9" Elevation-1878	Present
109	67	N 30°58'44.9", E 077°11'48.4" Elevation-1885	Present
110	68	N 30°58'43.4", E 077°11'45.8" Elevation-1895	Present
111	69		Missing
112	70	N 30°58'45.3", E 077°11'41.3" Elevation-1858	Present
113	71	N 30°58'43.4", E 077°11'38.4" Elevation-1862	Present
114	72	N 30°58'40.8", E 077°11'32.6" Elevation-1883	Present
115	73	N 30°58'38.7", E 077°11'36.9" Elevation-1865	Present
116	74	N 30°58'37.5", E 077°11'52.3" Elevation-1965	Present
117	75	N 30°58'43.2", E 077°11'57.6" Elevation-2027	Present
118	76	N 30°58'47.5", E 077°12'6.5" Elevation-2064	Present
119	77	N 30°58'47.9", E 077°12'6.7" Elevation-1990	Present
120	78	N 30°58'47.0", E 077°12'6.7" Elevation-2100	Present

121	79	N 30°58'51.5", E 077°12'23.1" Elevation-2040	Present
122	80	N 30°58'58.9", E 077°12'30.4" Elevation-2093	Present
123	81	N 30°59'01.7", E 077°12'32.8" Elevation-2152	Present
III. Blossom Beat			
124	1	N 30°96.528, E 077°21.23.6 Elevation-2074	Present
125	2	N 30°96.643, E 077°21.063 Elevation-2050	Missing
126	3		Missing
127	4	N 30°96.519, E 077°11.804 Elevation-2081	Missing
128	5	N 30°57.753, E 077°13.226 Elevation-2091	Missing
129	6	N 30°57.765, E 077°13.365 Elevation-2064	Missing
130	7	N 30°57.720, E 077°13.428 Elevation-2087	Present
131	8	N 30°57.715, E 077°13.453 Elevation-2077	Present
132	9	N 30°57.547, E 077°13.477 Elevation-2122	Present
133	10	N 30°57.526, E 077°13.433 Elevation-2080	Present
134	11	N 30°57.574, E 077°13.374 Elevation-2090	Present
135	12	N 30°57.658, E 077°13.230 Elevation-2080	Present
136	13	N 30°51.678, E 077°13.116 Elevation-2040	Present
137	14	N 30°57.414, E 077°12.505 Elevation-2078	Present
138	15	N 30°57.601, E 077°12.691 Elevation-2070	Present
139	16	N 30°57.613, E 077°12.610 Elevation-2086	Present
140	17	N 30°57.568, E 077°12.334 Elevation-2030	Present
141	18	N 30°57.501, E 077°12.334 Elevation-2030	Present
142	19	N 30°57.412, E 077°12.192 Elevation-1998	Present
143	20	N 30°57.302, E 077°12.167 Elevation-1947	Present
144	21	N 30°57.243, E 077°12.107 Elevation-1977	Present
145	22	N 30°57.074, E 077°12.131 Elevation-1969	Present
146	23	N 30°56.995, E 077°12.134 Elevation-1988	Present
147	24		Missing
148	25		Missing
149	26	N 30°56.631, E 077°12.093 Elevation-2033	Present
150	27	N 30°56.558, E 077°12.120 Elevation-2038	Present

151	28	N 30°56.408, E 077°12.166 Elevation-2070	Present
152	29	N 30°56.367, E 077°12.217 Elevation-2012	Present
153	30	N 30°56.360, E 077°12.372 Elevation-1948	Missing
154	31	N 30°56.523, E 077°12.544 Elevation-1730	Missing
155	32	N 30°56.589, E 077°12.756 Elevation-1721	Missing
156	33	N 30°56.500, E 077°12.806 Elevation-1760	Missing
157	34	N 30°56.441, E 077°12.959 Elevation-1989	Missing
158	35	N 30°56.267, E 077°13.215 Elevation-1839	Present
159	36	N 30°56.223, E 077°13.163 Elevation-1893	Missing
160	37	N 30°56.200, E 077°13.149 Elevation-1906	Missing
161	38	N 30°56.119, E 077°13.119 Elevation-1955	Missing
162	39		Missing
163	40	N 30°56.124, E 077°13.098 Elevation-1996	Present
164	41	N 30°56.081, E 077°13.039 Elevation-2018	Present
165	42	N 30°56.546, E 077°12.994 Elevation-2066	Present
166	43	N 30°56.020, E 077°12.896 Elevation-2015	Present
167	44	N 30°56.081, E 077°13.039 Elevation-2018	Present
168	45	N 30°55.987, E 077°12.698 Elevation-2149	Present
169	46	N 30°55.968, E 077°12.589 Elevation-2154	Present
170	47	N 30°56.056, E 077°12.394 Elevation-2122	Present
171	48		Missing
172	49		Missing
173	50	N 30°56.548, E 077°11.874 Elevation-1996	Present
174	51		Present
IV. Sakori			
175	1	N 30°58'40.24'', E 077°11'32.06'' Elevation-1856	Present
176	2	N 30°58'38.80'', E 077°11'36.64'' Elevation-1913	Present
177	3		Missing
178	4		Missing
179	5	N 30°58'34.65'', E 077°11'37.74'' Elevation-1960	Present
180	6	N 30°58'32.69'', E 077°11'39.07'' Elevation-1998	Present

181	7	N 30°58'34.2", E 077°11'41.58" Elevation-1986	Present
182	8	N 30°58'34.94", E 077°11'47.19" Elevation-2010	Present
183	9	N 30°58'30.11", E 077°11'52.01" Elevation-2080	Present
184	10	N 30°58'26.91", E 077°11'48.25" Elevation-2092	Missing
185	11		Missing
186	12	N 30°58'22.66", E 077°11'42.10" Elevation-2023	Present
187	13		Missing
188	14	N 30°58'11.37", E 077°11'29.63" Elevation-1968	Present
190	15	N 30°58'4.69", E 077°11'29.16" Elevation-1883	Present
191	16		Missing
192	17		Missing
193	18		Missing
194	19	N 30°58'00.30", E 077°11'39.66" Elevation-1901	Present
195	20	N 30°57'55.13", E 077°11'53.83" Elevation-2033	Present
196	21	N 30°57'51.18", E 077°11'54.62" Elevation-2062	Present
197	22	N 30°57'47.16", E 077°11'50.05" Elevation-2082	Present
198	23	N 30°57'40.64", E 077°11'50.25" Elevation-2062	Present
199	24	N 30°57'37.01", E 077°11'44.04" Elevation-1980	Present
200	25	N 30°57'33.65", E 077°11'39.14" Elevation-1967	Present
201	26	N 30°57'29.45", E 077°11'32.62" Elevation-1963	Present
202	27	N 30°57'24.34", E 077°11'33.99" Elevation-1960	Present
203	28	N 30°57'20.76", E 077°11'32.88" Elevation-1955	Present
204	29	N 30°57'15.66", E 077°11'34.24" Elevation-1946	Present
205	30	N 30°57'11.99", E 077°11'35.29" Elevation-1946	Present
206	31	N 30°57'00.93", E 077°11'37.80" Elevation-1913	Present
207	32	N 30°56'7.99", E 077°11'6.16" Elevation-1966	Present
208	33	N 30°57'02.26", E 077°12'04.29" Elevation-2010	Present
209	34	N 30°57'06.29", E 077°12'02.01" Elevation-2019	Present
210	35	N 30°57'07.77", E 077°11'59.50" Elevation-2040	Present
211	36	N 30°57'11.20", E 077°11'58.48" Elevation-2060	Present
212	37	N 30°57'15.16", E 077°11'57.53" Elevation-2087	Present
213	38	N 30°57'23.16", E 077°11'58.62" Elevation-2132	Present

214	39	N 30°57'27.92'', E 077°12'00.62'' Elevation-2128	Present
215	40	N 30°57'34.78'', E 077°12'02.06'' Elevation-2191	Present
216	41		Missing
217	42		Missing
218	43		Missing
219	44	N 30°57'46.04'', E 077°12'16.05'' Elevation-2245	Present
220	45	N 30°57'8.05'', E 077°12'04.80'' Elevation-2197	Present
221	46		Missing
222	47	N 30°58.539, E 077°12.358 Elevation-2085	Present
223	48		Missing
224	49	N 30°57'57.26'', E 077°12'22.10'', Elevation-2051	Present
225	50	N 30°58.147, E 077°12.201 Elevation-2064	Present
226	51	N 30°58'20.92'', E 077°12'05.70'' Elevation-2064	Present
227	52	N 30°58'30.09'', E 077°12'09.02'' Elevation-2034	Present
228	53	N 30°58.665, E 077°12.392 Elevation-2047	Present
229	54	N 30°58.785, E 077°12.120 Elevation-2100	Present
230	55	N 30°58.479, E 077°12.067 Elevation-1990	Present
231	56	N 30°58'4.32'', E 077°11'05.76'' Elevation-2027	Present
232	57	N 30°58'37.5'', E 077°11'52.3'' Elevation-1985	Present
233	58	N 30°58'38.7'', E 077°11'36.9'' Elevation-1865	Present



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अधिसूचना

नई दिल्ली 5 जनवरी 2022

का.आ. 39(अ).—प्रारूप अजधसूचना भारत के राजपत्र, असाधारण, भारत सरकार के पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय की अजधसूचना सं. का.आ. 3631 (अ), तारीख 15 अक्टूबर, 2020, द्वारा प्रकाजित की गई थी जिसमें ऐसे सभी व्यक्तियों से, जिनकी उससे प्रभावित होने की संभावना थी, उस तारीख से, जिसको उी अजधसूचना को अन्तर्विष्ट करने वाली राज्य पत्र की प्रतियां जनता को उपलब्ध करा दी गई थीं, साथ की अवधि के भीतर अपेक्षा और सुझाव आमंत्रित किए गए थे

और, उक्त प्रारूप अधिसूचना को अंतरविष्ट करने वाली राज्य पत्र की प्रतियां जनता को तारीख 15 अक्टूबर 2020 को उपलब्ध करा दी गई थी;

और, पूर्व उक्त प्रारूप अधिसूचना के प्रत्युत्तर में व्यक्तियों और परियों के से कोई आक्षेप और सुझाव प्राप्त नहीं हुए और चल वन्य जीव अभ्यारण हिमाचल प्रदेश के सोलन और शिमला जिलों में उप हिमालय क्षेत्र में शिमला से लगभग 45 किलोमीटर की दूरी में स्थित है और स्थानिक वनस्पति और जीव जंतु की विविधता को वास प्रदान करता है वन्य जीव अभ्यारण का कुल क्षेत्रफल 16.00 वर्ग किलोमीटर है

और, वन्य जीव अभ्यारण में मिश्रित वनों के रूप में बहुत अच्छी वनस्पति है जबकि घास और झाड़ियों के साथ खुली भी अपशिष्ट भूमि भी विद्यमान है क्षेत्र की प्रमुख प्रजातियों में देवदार(केड्स देवदार) द्वारा ऊपरी हिस्सा आच्छादित है अन्य प्रजातियों में बान ओक (क्वे रकस लुकोररचोफोरा), कै ल (जपनस वाल्लीजचअना), स्ट्रूस, जसल्वर फर, पोपलार, रोडोडेंड्रोन (रोडोडेंड्रोन फ्रू जगजनम),

चीड़ कैथ खानोर अस्कूलस इंडीका अकेशिया मोलिस्सीमा आदि शामिल है मध्य का विवरण नगण्य है और भूमि पर वनस्पति अनेक जारी की प्रजातियों जैसे डिस्मोदीयुम इंडिगरोफेर सैलिक्स बरबेरिस् रोसा रबूस् और दफनार्ड आदि द्वारा अच्छादित है इसमें घासों प्रणगो और संवहनी जड़ी बूटियों की विभिन्न प्रजातियां भी सम्मिलित है

और, चैल वन्यजीव अभयारण्यों के पारिस्थितिकी जीव जंतु वनस्पति भू आकृति विज्ञान और मनोरंजन आत्मक और अनुसंधान एवं शिक्षण संदर्भ से कई महत्वपूर्ण मूल्य है अभयारण्य वन्यजीव की विशिष्टि विविधता के वास के लिए जाना जाता है। अभयारण्य में मुख्य जीव जंतु में चित्तीदार हिरण (मुंजतअकस मुंतिक)सांभर (रुसा यूनी कॉलर) तेंदुआ (पेन्थेरा प्रड्यूस)काला भालू (उद्युस अमेरकनुस), घोरल (नेमोरेडस ग्रीसेउस), रीसस बंदर (मकाका मुलाष्टा) , लंगूर (सेम्नोजपथेकस स्टपा), साही (इरेजथीन स्टपा), आदि पाए जाते हैं;

और, चल वन्यजीव अभयारण्य के मुख्य पक्षियों में चीर तीतर(कतरेउस वल्लीची)चुकार काजलि (लुफू रा स्टपा.) टेड जंगली मुर्गा भारतीय मयूर (पावो डिस्टेटस), धब्बेदार वूड कबूतर (कोलुमबा होइगसोनी),हिमालयन कठफोइवा (डेंड्रोकोपोस हिमालयनसस), आदि हैं इसके अतिरिक्त क्षेत्र में अकेशेरुकी, उभर्चर और सरीसृप भी पाए जाते हैं;

और, चैल वन्यजीव अभयारण्यों जैतारण न्युज़ और इसके समीपवर्ती क्षेत्र जैव भौगोलिक वर्गीकरण के जैव भौगोलिक

जोन 2 (हिमालयन जोन) के अधीन आते हैं यह क्षेत्र यमुना नदी के जल क्षेत्र में स्थित हैं और यमुना में वर्षा के प्रभाव को नियंत्रित करता है और यह भू वैज्ञानिक रूप से नाजुक और कटाव प्रवण हिमालय में मृदा की सुरक्षा करता है जैविक रूप से शिमला वॉटर कैचमेंट वन्यजीव अभयारण्य के साथ क्षेत्र में अच्छी संरक्षण इकाई और देवदार के बेहतरीन। निर्मित होते हैं जो संबंधित जीव-जंतुओं को आश्रय प्रदान करता है

और, चैल वन्यजीव अभयारण्यों के चारों ओर के क्षेत्र को, जिसका विस्तार और सीमाएं इस अजधसूचना के पैरा 1 में विनिर्दिष्ट है परिस्थितिक पर्यावरण और जैव विविधता की दृष्टि से परिस्थितिक संवेदी जोन के रूप में सुरक्षित और संरक्षित करना तथा उक्त पारिस्थितिक पारिस्थितिक संवेदी जोन में उद्योगों या उद्योगों की श्रेणियों के प्रचालन तथा प्रसंस्करण को प्रतिषेध करना आवश्यक है

अतः आप केंद्रीय सरकार पर्यावरण (संरक्षण) नियम, 1986 के नियम 5 के उप नियम (3) के साथ पाठित पर्यावरण (संरक्षण) अधिनियम 1986, (1986 का 29) (जिससे इसमें इसके पश्चात पर्यावरण अधिनियम कहा गया है) की उप धारा (1) तथा धारा 3 की उपधारा (2) के खंड (v) और खंड (xiv) एवं उप धारा (3) के द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए हिमाचल प्रदेश राज्य में सोलन और शिमला जिला के जेल वन्यजीव अभयारण्य की सीमा के चारों ओर 0.5 किलोमीटर से 3.26 किलोमीटर तक तक विस्तारित क्षेत्र को चैल वन्यजीव अभयारण्य परिस्थिति संवेदी जोन (जिससे इसमें इसके पश्चात पारिस्थितिक संवेदी जोन कहा गया है के रूप में अधिसूचित करती है) जिस का विवरण निम्न अनुसार है, अर्थात:

1. पारिस्थितिक संवेदी जोन का विस्तार और सीमा-1 परिस्थिति संवेदी जोन का विस्तार की सीमा के चारों ओर 0.5 किलोमीटर से 3.26 किलोमीटर तक होगा और पारिस्थितिक संवेदी जोन का क्षेत्रफल 34.04 वर्ग किलोमीटर है जिसके अंतर्गत वन भूमि 20.04 वर्ग किलोमीटर और निजी भूमि 13.60 किलोमीटर है

- 2) चैल वन्यजीव अभयारण्य और इसके पारिस्थितिक संवेदी जॉन की सीमा का विवरण **उपाबंध -I** के रूप में संलग्न है।
- 3) सीमा विवरण और अक्षांश और देशांतर के साथ पारिस्थितिक संवेदी जॉन को सीमा अंकित करते हुए चैल वन्य जीव अभयारण्य के मानचित्र **उपाबंध-II** के रूप में संलग्न हैं।
- 4) पारिस्थितिक संवेदी जॉन और चैल वन्य जीव अभयारण्य की सीमा के भू निर्देशकों की देशों की सूची **उपाबंध -III** की **सारणी क** और **सारणी ख** में दी गई है।
- 5) मुख्य मुख्य बिंदुओं के निर्देशकों के साथ पारिस्थितिक संवेदी जॉन के अंतर्गत आने वाले ग्रामों की सूची **उपाबंध -IV** के रूप में संलग्न है।

2.पारिस्थितिक संवेदी जॉन के लिए आंचलिक महायोजना-1)राज्य सरकार, पारिस्थितिक संवेदी जून के प्रयोजनों के लिए राजपत्र में अधिसूचना के प्रकाशन की तारीख से 2 वर्ष की अवधि के भीतर स्थानीय व्यक्तियों के परामर्श से और राज्य के सक्षम प्राधिकारी के अनुमोदन के लिए इस अधिसूचना में दिए गए अनुबंधों का पालन करते हुए आंचलिक महायोजना तैयार करेगी और राज्य में सक्षम प्राधिकारी द्वारा सम्यक रूप से अनुमोदित किया जाएगा।

2)राज्य सरकार द्वारा पारिस्थितिक समिति जॉन के लिए आंचलिक महायोजना ऐसी रीति से जो इस अधिसूचना में विनिर्दिष्ट किए गए हैं,के अनुसार तथा सुसंगत केंद्रीय और राज्य विधियों के अनुरूप और केंद्रीय सरकार द्वारा जारी मार्ग निर्देशों यदि कोई हो, द्वारा तैयार होगी

3)आंचलिक महायोजना उक्त योजना में पारिस्थितिकी और पर्यावरण में बातों को सम्मिलित करने के लिए राज्य सरकार के निम्नलिखित विभागों के परामर्श से तैयार होगी:-

- (i) पर्यावरण
- (ii) वन और वन्य जीव
- (iii) कृषि
- (iv) राजस्व
- (v) शहरी विकास
- (vi) पर्यटन
- (vii) ग्रामीण विकास
- (viii) ऊंचाई और बाढ़ नियंत्रण
- (ix) नगरपालिका
- (x) पंचायती राज
- (xi) हिमाचल प्रदेश राज्य प्रदूषण नियंत्रण बोर्ड और
- (xii) लोक निर्माण विभाग

4)आंचलिक महायोजना अनुमोदित विद्यमान भू -उपयोग"अवसंरचना और क्रियाकलापों पर कोई निर बंधन अध्यारोपित नहीं करेगी जब तक की इस अधिसूचना में इस प्रकार विनिर्दिष्ट ना हो और आंचलिक महायोजना सभी अवसंरचना और क्रियाकलापों में , जो अधिक दक्षता और पारिस्थितिक अनुकूल हो का संवर्धन करेगी।

- 5) आंचलिक महायोजना में अनाच्छादित क्षेत्रों के जीर्णोद्धार विद्यमान जल निकायों के संरक्षण, आवाह क्षेत्रों के प्रबंधन, जल संभरो के प्रबंधन, भूतल जल के प्रबंधन, मृदा और नमी संरक्षण, स्थानीय समुदायों की आवश्यकताओं तथा परिस्थिति और पर्यावरण से संबंधित ऐसे अन्य पहलुओं, जिन पर ध्यान देना आवश्यक है, के लिए उपबंध होंगे।
- 6) आंचलिक महायोजना विद्यमान और प्रस्तावित भूमि उपयोग विशेषताओं के ब्यूरो से अनुसमर्थित मानचित्र के साथ सभी विद्यमान पूजा स्थलों ग्रामों और नगरीय बस्तियों, वनों के प्रकार और किस्मों, कृषि क्षेत्रों, उपजाऊ भूमि हरित क्षेत्र जैसे उद्यान और उसी प्रकार के स्थान, उद्यान कृषि क्षेत्र, फलों उद्यान, झीलें और अन्य जल निकायों का अभ्यंकन करेगी।
- 7) आंचलिक महायोजना पारिस्थितिकी संवेदी जोन में विकास को विनियमित करने के लिए प्रक्रिया प्रदान की जाएगी और सारणी में सूचीबद्ध पैरा- 4 प्रतिषद और विनियमित क्रियाकलापों का अनुपालन करेगी और स्थानीय समुदायों की जीविका को सुरक्षित करने के लिए पारिस्थितिकी अनुकूल विकास को सुनिश्चित और उसके अभिवृद्धि भी करेगी।
- 8) आंचलिक महायोजना प्रादेशिक विकास योजना की सह विस्तारी ही होगी।
- 9) राज्य सरकार द्वारा अनुमोदित आंचलिक महायोजना इस अधिसूचना के उप बंधों के अनुसार निगरानी के लिए अपने कृत्य को करने के लिए राज्य सरकार द्वारा निगरानी समिति के लिए एक संदर्भ दस्तावेज तैयार करेगी।

3) राज्य सरकार द्वारा किए जाने वाले उपाय: राज्य सरकार इस अधिसूचना के उप बंधुओं को प्रभावित करने के लिए निम्नलिखित उपाय करेगी अर्थात:-

1) भू उपयोग: (क) पारिस्थितिकी संवेदी जोन में वनों, उद्यान कृषि क्षेत्रों, कृषि क्षेत्रों, मनोरंजन के प्रयोजनों के लिए चिन्हित किए गए पार्कों और खुले स्थानों का वाणिज्यिक या आवासीय या औद्योगिक संबद्ध विकास क्रियाकलापों के लिए उपयोग या सम परिवर्तन नहीं होगा

परंतु पारिस्थितिकी संवेदी जोन के भीतर उपरोक्त भाग क में विनिर्दिष्ट प्रयोजनों से भिन्न प्रयोजनों के लिए कृषि और अन्य भूमिका समपरिवर्तन निगरानी समिति की सिफारिश पर और यथा लागू और क्षेत्रीय नगर योजना अधिनियम और केंद्रीय सरकार या राज्य सरकार के अन्य नियमों तथा भी नियमों के अधीन सक्षम प्राधिकारी के पूर्व अनुमोदन से, और इस अधिसूचना के उप बंधुओं द्वारा स्थानीय निवासियों की निम्नलिखित आवासीय आवश्यकताओं को पूरा करने के लिए अनुज्ञात किया जाएगा जैसे :

- i) विद्यमान सड़कों को चौड़ा करना और उन्हें सुदृढ़ करना तथा नई सड़कों का संनिर्माण;
- ii) बुनियादी ढांचा और नागरिक सुविधाओं का संनिर्माण और नवीकरण ;
- iii) प्रदूषण उत्पन्न न करने वाले लघु उद्योग;
- iv) कुटीर उद्योग जिनके अंतर्गत ग्रामीण उद्योग भी है; सुविधाजनक भंडार और अन्य सुविधाएं सहायक पारिस्थितिक पर्यटन जिसके अंतर्गत गृह वास सम्मिलित है ; और
- v) पैरा 4 में दिए गए संबंधित क्रियाकलापों ;

परंतु यह और की प्रादेशिक नगर योजना अधिनियम और राज्य सरकार के अन्य नियमों और विनियमों के अधीन सक्षम प्राधिकारी के पूर्व अनुमोदन और संविधान के अनुच्छेद 244 के उपबंधों तत्समय प्रवृत्त विधि के उपबंधों

अनुपालन के बिना जिसके अधीन अनुसूचित जनजाति और अन्य परंपरागत वन निवासी (वन अधिकारों की मान्यता) अधिनियम 2006 (2007 का 2) है वाणिज्य औद्योगिक विकास क्रियाकलापों के लिए जनजातीय भूमि का उपयोग अनुज्ञात नहीं होगा।

परंतु यह और भी पारिस्थितिकी संवेदी ज़ोन के भीतर भू अभिलेखों में उप समझा कोई गलती, निगरानी समिति के विचार प्राप्त करने के पश्चात राज्य सरकार द्वारा प्रत्येक मामले में एक बार ठीक होगी और उक्त गलती के उस सुधार की सूचना केंद्र सरकार के पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय को दी जाएगी;

परंतु यह और भी की गलती के सुधार में इस उप पैरा के अधीन यथा उपबंधत इसके सिवाय किसी भी दशा में भू-उपयोग का परिवर्तन सम्मिलित नहीं होगा

(ख) वनीकरण तथा वास जीर्णोद्धार क्रियाकलापों सहित अनुप्रयुक्त या अनुत्पदक कृषि क्षेत्रों में पुनः वनीकरण करने के प्रयास किए जाएंगे

(2) प्राकृतिक जल स्रोत - आंचलिक आंचलिक महायोजना में सभी प्राकृतिक झरनों के आवाह क्षेत्रों की पहचान की जाएगी और उनके संरक्षण और नवीकरण के लिए योजना सम्मिलित होगी और राज्य सरकार द्वारा ऐसे क्षेत्रों पर या उनके निकट विकास क्रियाकलापों प्रतिष्ठित करने के बारे में जो ऐसे क्षेत्रों के लिए अहितकर हो ऐसी रिति से मार्गदर्शक सिद्धांत तैयार किए जाएंगे;

(3) पर्यटन या पारिस्थितिक पर्यटन - (क) पारिस्थितिक संवेदी ज़ोन के भीतर सभी नए

पारिस्थितिकी पर्यटन क्रियाकलाप या विद्या मंत्र क्रियाकलापों का विस्तार योजना के अनुसार पारिस्थितिक संवेदी ज़ोन के लिए होगा

(ख) पारिस्थितिक पर्यटन महायोजना राज्य पर्यटन विभाग द्वारा राज्य पर्यावरण और वन विभाग के परामर्श से तैयार होगी;

(ग) पर्यटन महायोजना आंचलिक महायोजना के एक घटक के रूप में होगी;

(घ) पर्यटन महायोजना पारिस्थितिकी संवेदी ज़ोन की बहन क्षमता के आधार पर तैयार की जाएगी;

(ङ) पारिस्थितिकी पर्यटन संबंधी क्रियाकलाप निम्नानुसार भी नियमित होंगे, अर्थात्;

(i) संरक्षित क्षेत्र की सीमा से 1 किलोमीटर के भीतर या पारिस्थितिकी संवेदी ज़ोन के विस्तार तक इनमें जो भी निकट है नए वाणिज्यिक होटल और रिसॉर्ट के सनिर्माण अनुज्ञात नहीं होंगे;

परंतु यह की संरक्षित क्षेत्र की सीमा से 1 किलोमीटर की दूरी से परे पारिस्थितिकी संवेदी ज़ोन विस्तार तक होटल और रिसॉर्ट का स्थापना केवल पूर्व परिभाषित और नामनिर्दिष्ट क्षेत्रों में पर्यटन महायोजना के अनुसार पारिस्थितिकी पर्यटन सुविधाओं के लिए ही अनुज्ञात होगा

(ii) पारिस्थितिकी संवेदी ज़ोन के भीतर सभी नए पर्यटन क्रियाकलापों या विद्यमान पर्यटन क्रियाकलापों का विस्तार केंद्रीय सरकार के पर्यावरण वन और जलवायु परिवर्तन मंत्रालय के मार्गदर्शक सिद्धांतों के द्वारा तथा राष्ट्रीय बाघ संरक्षण प्राधिकरण द्वारा जारी पारिस्थितिकी पर्यटन पारिस्थितिकी और पारिस्थितिकी विकास पर बल देते हुए समय-समय पर लिया था संशोधित जारी मार्गदर्शी सिद्धांतों के अनुसार होगा;

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

12.संनिर्माण और विध्वंस अपशिष्ट प्रबंधन:- पारिस्थितिकी संवेदी जोन में संनिर्माण और विध्वंस अपशिष्ट प्रबंधन का निपटान भारत सरकार के पर्यावरण वन और जलवायु परिवर्तन मंत्रालय की समय-समय पर यथा संशोधित अधिसूचना सं.सां.का.न 317 (अ), तारीख 29 मार्च 2016 द्वारा प्रकाशित संनिर्माण और विध्वंस अपशिष्ट प्रबंधन नियम 2016 के उपबंध के अनुसार किया जाएगा

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

14.)यानीय यातायात :- यातायात कि यानीय गतिविधियां आवास के अनुकूल विनियमित होगी और इस संबंध में आंचलिक महायोजना में विशेष उपबंध सम्मिलित किए जाएंगे और आंचलिक महायोजना के तैयार होने और राज्य सरकार के सक्षम प्राधिकारी द्वारा अनुमोदित होने तक निगरानी समिति सुसंगत अधिनियम और उसके अधीन बनाए गए नियमों और विनियमों के अनुसार यानीय क्रियाकलापों के अनुपालन को निगरानी करेगी।

15)यानी प्रदूषण लागू विधियों के अनुपालन में वाहन प्रदूषण का निवारण और नियंत्रण किया जाएगा और स्वच्छक ईंधन के उपयोग के लिए प्रयास किए जाएंगे।

16)औद्योगिक इकाइयां :- (i) राजपत्र में इस अधिसूचना के प्रकाशन या उसके पश्चात पारिस्थितिकी संवेदी जोन के भीतर कोई नए प्रदूषित उद्योगों की स्थापना की अनुमति नहीं दी जाएगी।

(ii) केंद्रीय प्रदूषण नियंत्रण बोर्ड द्वारा फरवरी -2016 में जारी समय-समय पर यथा संशोधित मार्गदर्शक सिद्धांतों में उद्योगों के वर्गीकरण के अनुसार जब तक की अधिसूचना में इस प्रकार विनिर्दिष्ट ना हो पारिस्थितिकी संवेदी जोन के भीतर केवल गैर प्रदूषण कारी उद्योगों को अनु जात किया जाएगा और इसके अतिरिक्त गैर प्रदूषण कारी उद्योगों को बढ़ावा दिया जाएगा।

पहाड़ी ढलानों को संरक्षण.- पहाड़ी ढलानों का संरक्षण निम्न अनुसार होगा:-

(क) आंचलिक महायोजना पहाड़ी ढलान ऊपर क्षेत्रों का संकेत होगा जहां किसी भी ने संनिर्माण की अनुजा नहीं दी जाएगी।

(ख) कटाव के एक उच्च डिग्री के साथ विद्यमान खड़ी पहाड़ी ढलान या ढलान पर किसी भी संनिर्माण की अनुजा नहीं दी जाएगी

4.पारिस्थितिकी संवेदी जोन में प्रतिषद और विनियमित किए जाने वाले क्रियाकलापों की सूची:- पारिस्थितिकी संवेदी जोन में सभी क्रियाकलाप पर्यावरण अधिनियम के उपबंध और उसके अधीन बनाए गए नियमों जिसके अंतर्गत तटिये विनियमन जोन 2011 और पर्यावरणीय समाघात निधारण अधिसूचना 2006 और अन्य लागू विधियों के जिसमें वन संरक्षण अधिनियम 1980 (1980 का 69) भारतीय वन अधिनियम, 1927 (1927 का 16), वन्य जीव संरक्षण अधिनियम, 1927 (1927 का 16), है और यह संशोधन द्वारा शासित होंगे और नीचे दी गई सारणी में विनिर्दिष्ट रीति में नियमित होंगे अर्थात:-

iii) आंचलिक महा योजना का अनुमोदन किए जाने तक, पर्यटन के लिए विकास और विद्यमान पर्यटन क्रियाकलापों के विस्तार को वास्तविक स्थल में विनिर्दिष्ट संवीक्षा और निगरानी समिति की सिफारिश पर आधारित संबंधित विनियामक प्राधिकरण द्वारा अनुज्ञा किया जाएगा और पारिस्थितिकी संवेदी जॉन के भीतर किसी में होटल या रिसॉर्ट वाणिज्यिक स्थापना का सनिर्माण अनुज्ञा नहीं किया जाएगा

(4) नैसर्गिक विरासत:- पारिस्थितिकी संवेदी जोन में महत्वपूर्ण नैसर्गिक विरासत के सभी स्थलों जैसे जिन कोश आरक्षित क्षेत्र, शैल वीरचनाएं, जलप्रपात झरनों, घाटी मार्गों, उपवनो, गुफाएं, स्थलों, भ्रमण, अश्वरोहण, प्रपातो आदि की पहचान की जाएगी और विरासत संरक्षण योजना आंचलिक महायोजना के भाग के रूप में परीक्षण और संरक्षण के लिए तैयार की जाएगी।

5) मानव निर्मित विरासत स्थल:- पारिस्थितिकी संवेदी जोन में भवनों, संरचना शिल्प- तथ्य, ऐतिहासिक, स्थापत्य, सौंदर्य पूरक और सांस्कृतिक महत्व के क्षेत्रों की और उक्त क्षेत्रों पहचान और उनके संरक्षण के लिए विरासत योजना आंचलिक महायोजना के भाग के रूप में तैयार की जाएगी

6) ध्वनि प्रदूषण:- पर्यावरण अधिनियम अधीन ध्वनि प्रदूषण (विनियमन और नियंत्रण) नियम 2000 में नियत उपबंध के अनुसार पारिस्थितिकी संवेदी जोन में ध्वनि प्रदूषण के नियंत्रण और निवारण का अनुपालन किया जाएगा

7) वायु प्रदूषण:- पारिस्थितिक संवेदी जोन में वायु प्रदूषण के निवारण और नियंत्रण का वायु (प्रदूषण निवारण और नियंत्रण) अधिनियम 1981 (1981 का 14) और उसके अधीन बनाए गए नियमों के उपबंधों के अनुसार अनुपालन किया जाएगा

8) बहिस्त्राव का निस्सरण:- पारिस्थितिकी संवेदी जोन में उपचारित बहिस्त्राव का निस्सरण साधारण मानको के उपबंध के अनुसार पर्यावरण अधिनियम और उसके अधीन बनाए गए नियमों के अधीन आने वाले पर्यावरणीय प्रदूषण के निस्तरण के लिए साधारण मानको या राज्य सरकार द्वारा नियम नियत मानको, जो भी अधिक कठोर हो, के उपबंध के अनुसार होगा।

9) ठोस अपशिष्ट:- ठोस अपशिष्ट का निपटान और प्रबंधन निम्नानुसार किया जाएगा:-

(क) पारिस्थितिकी संवेदी जोन में ठोस अपशिष्ट का निपटान और प्रबंधन भारत सरकार के पर्यावरण वन और जलवायु परिवर्तन मंत्रालय की अधिसूचना संख्या का. आ. 1357 तारीख 8 अप्रैल, 2016 के द्वारा प्रकाशित ठोस अपशिष्ट प्रबंधन नियम 2016 के उप बंधुओं के अनुसार किया जाएगा अकार्बनिक पदार्थों का निपटान पारिस्थितिकी

संवेदी जोन से बाहर चिन्हित किए गए स्थानों पर पर्यावरण -अनुकूल रीति से किया जाएगा।

(ख) पारिस्थितिकी संवेदी जोन में मान्य प्रौद्योगिकी का उपयोग करते हुए विद्यमान नियमों और विनियमों के अनुरूप ठोस अपशिष्ट का सुरक्षित और पर्यावरण- अनुकूल प्रबंधन अनु ज्ञात किया जाएगा

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

(क) पारिस्थितिकी संवेदी जोन में जैव चिकित्सा अपशिष्ट का निपटान भारत सरकार के पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय की अधिसूचना सं.सा.का.न 343 (अ), तारीख 28 मार्च 2016 के द्वारा प्रकाशित जैव चिकित्सा अपशिष्ट प्रबंधन नियम 2016 के उपबंधों के अनुसार किया जाएगा।

(ख) पारिस्थितिकी संवेदी जोन में मान्य प्रतियोगिताओं का उपयोग करते हुए विद्यमान नियमों और विनियमों के अनुरूप जैव चिकित्सा अपशिष्ट का सुरक्षित और पर्यावरण अनुकूल प्रबंधन अनु ज्ञात किया जाएगा।

सारणी

क्रम सं. (1)	क्रियाकलाप	वर्णन
क. प्रतिषिद्ध क्रियाकलाप		
1.	वाणिज्य खनन पत्थर उत्खनन और अपघर्षण इकाइयां।	<p>क) पारिस्थितिकी संवेदी ज़ोन के भीतर स्थानीय निवासियों की घरेलू आवश्यकताओं जिसमें के मकानों के सनिर्माण व मरम्मत के लिए धरती को खोदना सम्मिलित है के सिवाय सभी प्रकार के नए और विद्यमान खनन लघु और वृहद खनिज पत्थर उत्खनन और अपघर्षण इकाइयां तत्काल प्रभाव से प्रतिषिद्ध होगी।</p> <p>ख) खनन प्रचालन, 1995 की रिट याचिका संख्या नंबर 202 में टी.एन. थिरुमुलपाद बनाम भारत संघ के मामले में माननीय उच्चतम न्यायालय के आदेश 4 अगस्त 2006 और 2012 की रिट याचिका (सिविल) संख्या 435 में गोवा फाउंडेशन बनाम भारत संघ के मामले में तारीखा अप्रैल 2014 के आदेश के अनुसरण में होगा।</p>
2.	प्रदूषण (जल, वायु, मृदा, ध्वनि, आदि उत्पन्न करने वाले उद्योगों की स्थापना।	<p>पारिस्थितिकी संवेदी ज़ोन में कोई नया उद्योग लगाने और वर्तमान प्रदूषण कारी उद्योगों का विस्तार करने की अनुज्ञा नहीं होगी</p> <p>परंतु केंद्रीय प्रदूषण नियंत्रण बोर्ड द्वारा फरवरी. 2016 में जारी समय-समय पर यथा संशोधित मार्गदर्शक सिद्धांतों में उद्योगों के वर्गीकरण के अनुसार जब तक की अधिसूचना में ऐसा विनिर्दिष्ट ना हो, पारिस्थितिकी संवेदी ज़ोन के भीतर गैर प्रदूषण कारी उद्योगों को अनुज्ञात किया जाएगा और इसके अतिरिक्त गैर प्रदूषण कारी कुटीर उद्योगों को बढ़ावा दिया जाएगा।</p>
3.	बहुत जल विद्युत परियोजना की स्थापना	प्रतिषिद्ध

		<p>परंतु यहां के स्थानीय लोगों को अपनी आवाज संबंधी निम्नलिखित आवश्यकताओं को पूरा करने के लिए, पैरा 3 के उप पैरा(1)में सूचीबद्ध क्रियाकलापों सहित अपने उपयोग के लिए, अपनी भूमि भवन उप विधियों के अनुसार, करने की अनुज्ञा होगी परंतु यह और की, गैर प्रदूषण कारी लघु उद्योगों से संबंधित संनिर्माण क्रियाकलाप लागू नियम और विनियम, यदि कोई हों,के अनुसार सक्षम प्राधिकारी की पूर्व अनुमति से विनियमित किए जाएंगे और वे न्यूनतम होंगे।</p> <p>ख) एक किलोमीटर क्षेत्र से परे आंचलिक महायोजना के अनुसार विनियमित होंगे</p>
12.	प्रदूषण उत्पन्न ना करने वाले लघु उद्योग	<p>फरवरी 2016 में केंद्रीय प्रदूषण नियंत्रण बोर्ड द्वारा जारी उद्योगों में वर्गीकरण के अनुसार समय-समय पर यथा संशोधित गैर प्रदूषण कारी उद्योग और अपररसंकटमर में में लघु और सेवा उद्योग, कृषि ,पुष्प कृषि ,उद्यान कृषि या पारिस्थितिकी संवेदी जून से देशी सामग्री से उत्पादों को उत्पन्न करने वाले कृषि आधारित उद्योग सक्षम प्राधिकारी द्वारा अनुज्ञात होंगे</p>
13.	वृक्षों की की कटाई	<p>(क)राज्य सरकार में सक्षम प्राधिकारी की पूर्व अनुज्ञा के बिना वन सरकारी या राजस्व या निजी भूमि पर या वनों में वृक्षों की कटाई नहीं होगी</p> <p>(ख) वृक्षों की की कटाई संबंधित केंद्रीय या राज्य अधिनियम या उसके अधीन बनाए गए नियमों के उपबंध के अनुसार भी विनियमित होंगे</p>
14	वन उत्पादों या गैर काष्ठ वन उत्पादों का संग्रहण	लागू विधियों के अनुसार वे विनियमित होंगे।
15.	विद्युत और संचार टावरों का परिनिर्वाण और केबलों के बिछाए जाने और अन्य बुनियादी ढांचे।	लागू विधियों के अधीन विनियमित होंगे (भूमिगत केबल के बिछाए जाने को बढ़ावा दिया जा सकेगा)।

16.	नागरिक सुख सुविधाओं सहित अवसंरचनाए	न्यूनीकरण उपायों को लागू विधियों नियमों और विनियमनों हो और उपलब्ध मार्गदर्शक सिद्धांतों के अनुसार किया जाना।
17.	विद्यमान सड़कों को चौड़ा करना और उन्हें सुदृढ़ करना तथा नवीन सड़कों का संनिर्माण	न्यूनीकरण उपायों को लागू विधियों, नियमों और विनियमनों और उपलब्ध मार्गदर्शक सिद्धांतों के अनुसार किया जाएगा।
18	पर्यटन से संबंधित अन्य क्रियाकलाप जैसे गर्म वायु गुब्बारे, हेलीकॉप्टर ड्रोन माइक्रोलाइफ आदि द्वारा पारिस्थितिकी संवेदी जोन क्षेत्र के ऊपर से उड़ना जैसे क्रियाकलाप करना	लागू विधियों के अनुसार भी विनियमित होंगे।
19.	पहाड़ी ढालों और नदी तटों का संरक्षण	लागू विधियों के अनुसार भी विनियमित होंगे।
20.	रात्रि में यानी कि यातायात का संचालन	लागू विधियों के अधीन वाणिज्यिक प्रयोजन के लिए भी विनियमित होंगे
21	स्थानीय समुदायों द्वारा चल रही कृषि और बागवानी प्रथाओं के साथ दुग्ध शाला, दुग्ध उद्योग, कृषि और मछली पालन।	स्थानीय लोगों के उपयोग के लिए लागू विधियों के अधीन अनुज्ञात होंगे।
22	फर्म, निगम और कंपनियों द्वारा बड़े पैमाने पर वाणिज्यिक पशु और कुक्कुट फार्मों की स्थापना।	स्थानीय आवश्यकताओं को पूरा करने के लिए लागू विधियों के अधीन भी विनियमित होंगे।
23	प्राकृतिक जल निकायों या सही क्षेत्र में उपचारित बहिस्त्राव का निस्तारण।	जल निकायों में उपचारित अपशिष्ट जल और वह इस तरह के निस्तारण से बचा जाएगा और अपशिष्ट जल के पुनःचक्रण और पुनःउपयोग के लिए प्रयास किए जाएंगे। अन्यथा लागू विधियों के अनुसार उच्चारित बहिस्त्राव के पुनर्चक्रण या प्रवाह के निर्वहन को विनियमित
24	सही और भूजल का वाणिज्यिक निष्कर्ष	लघु विधियों के अनुसार भी विनियमित होंगे।

25.	ठोस अपशिष्ट का प्रबंधन	लघु विधियों के अनुसार भी विनियमित होंगे।
26.	विदेशी प्रजातियां को लाना	लघु विधियों के अनुसार भी विनियमित होंगे।
27.	पारिस्थितिकी पर्यटन	लघु विधियों के अनुसार भी विनियमित होंगे।
28.	वाणिज्य सूचना पट्ट और होर्डिंग	लघु विधियों के अनुसार भी विनियमित होंगे।
29.	खुला कुआं, बोर कुआं, आदि कृषि और अन्य उपयोग के लिए	लघु विधियों के अनुसार भी विनियमित होंगे।
30.	वर्षा जल संचयन।	सक्रिय रूप से बढ़ावा दिया जाएगा।
31.	जैविक खेती	सक्रिय रूप से बढ़ावा दिया जाएगा।
32.	सभी गतिविधियों के लिए हरे प्रौद्योगिकी को अंगीकृत करना।	सक्रिय रूप से बढ़ावा दिया जाएगा।
33.	कुटीर उद्योगों जिसके अंतर्गत ग्रामीण कारीगर भी है	सक्रिय रूप से बढ़ावा दिया जाएगा।
34.	नवीकरणीय ऊर्जा और ईंधन का उपयोग	बायोगैस सौर प्रकाश इत्यादि को बढ़ावा दिया
35.	कृषि वानिकी	सक्रिय रूप से बढ़ावा दिया जाएगा।
36.	बागान लगाना और जड़ी बूटियों का रोपण	सक्रिय रूप से बढ़ावा दिया जाएगा।
37.	परिस्थिति के अनुकूल परिवहन का सक्रिय उपयोग	सक्रिय रूप से बढ़ावा दिया जाएगा।
38.	कौशल विकास	सक्रिय रूप से बढ़ावा दिया जाएगा।
39.	निम्नीकृत भूमि/वन/वास की बहाली	सक्रिय रूप से बढ़ावा दिया जाएगा।
40.	पर्यावरणीय जागरूकता	सक्रिय रूप से बढ़ावा दिया जाएगा।

4.	किसी पर इस संकट में पदार्थ का उपयोग किया उत्पादन या प्रसंस्करण प्रतिशत	प्रतिशिद्ध
5.	प्राकृतिक जल निकायों या क्षेत्र भूमि में अनुपचारित बहिस्राव का निसारण	प्रतिशिद्ध
6.	नई आरा मिलों की स्थापना	पारिस्थितिकी संवेदी जोन के भीतर नहीं आरा मिलों की स्थापना और विद्यमान आरा मिलों का विस्तार अनुज्ञात नहीं होगा
7.	ईट भट्टों की स्थापना करना	प्रतिशिद्ध
8.	पॉलिथीन बैगों का उपयोग	प्रतिशिद्ध
9.	यंत्रिय तरीके से मछली पकड़ना	प्रतिशिद्ध
आ. विनियमित क्रियाकलाप		
10.	वाणिज्यिक होटल और रिसॉर्टों की स्थापना	पारिस्थितिकी पर्यटन क्रियाकलापों लघु अस्थाई संरचनाओं के सिवाय संरक्षित क्षेत्र की सीमा से 1 किलोमीटर के भीतर या पारिस्थितिकी संवेदी जोन विस्तार तक इनमें जो भी निकट है नए वाणिज्यिक होटल और रिसॉर्टों को अनुज्ञात नहीं किया जाएगा परंतु यह की संरक्षित क्षेत्र की सीमा से 1 किलोमीटर के परे या पारिस्थितिकी संवेदी जोन के भीतर तक इनमें से जो भी निकट हो सभी नए पर्यटन क्रियाकलाप या विद्यमान क्रियाकलाप का विस्तार पर्यटन महायोजना और यथा लागू
11.	संनिर्माण क्रियाकलाप	क) संरक्षित क्षेत्र की सीमा से 1 किलोमीटर के भीतर या पारिस्थितिकी संवेदी जोन के विस्तार तक इनमें से जो भी निकट हो, किसी भी प्रकार के नए वाणिज्यिक संनिर्माण की अनुज्ञा नहीं

- 4.)उन क्रियाकलापों की, जो भारत सरकार के तत्कालीन पर्यावरण और वन मंत्रालय की अधिसूचना संख्या का. आ. 1533 (अ) तारीख 14 सितंबर 2006 की अनुसूची में सम्मिलित नहीं है और जो पारिस्थितिकी संवेदी जून में आते हैं सिवाय इसके पैरा 4 के अधीन सारणी में यथा विनिर्दिष्ट प्रतिशत क्रियाकलापों के निगरानी समिति द्वारा वास्तविक विनिर्दिष्ट स्थलिये आशाओं के आधार पर संवीक्षा की जाएगी और उसे संबंध विनियामक प्राधिकरण को निर्दिष्ट किया जाएगा
- 5.)निगरानी समिति का सदस्य सचिव या संबंध उपायुक्त ऐसे व्यक्ति के विरुद्ध जो इस सूचना के किसी उपबंध का उल्लंघन करता है पर्यावरण अधिनियम की धारा 19 के अधीन परिवाद फाइल करने के लिए सक्षम होगा।
- 6.)निगरानी समिति मुद्दा दर मुद्दा के आधार पर अपेक्षाओं पर निर्भर रहते हुए संबद्ध विभागों के प्रतिनिधियों या विशेषज्ञों औद्योगिक की संग मया संबंध पणधारियों के प्रतिनिधियों को अपने विचार विमर्श में सहायता के लिए आमंत्रित कर सकेगी
- 7) निगरानी समिति प्रत्येक वर्ष की कि 30 मार्च तक के अपने क्रियाकलापों की वार्षिक कार्यवाही रिपोर्ट राज्य के मुख्य वन्यजीव वार्डन को उपाबंद V सलंगन में उक्त वर्ष के तीस जून तक प्रस्तुति करेगी।
- 8)केंद्रीय सरकार का पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय निगरानी समिति को अपने कृतियों के प्रभावी निर्वहन के लिए ऐसे निर्देश दे सकेगा जो वह ठीक समझें।
- 7.अतिरिक्त उपाय:-**इस अधिसूचना के बंधुओं को प्रभावी बनाने के लिए केंद्रीय सरकार और राज्य सरकार अतिरिक्त उपाय यदि कोई हो विनिर्दिष्ट कर सकेंगे।
- 8.उच्चतम न्यायालय आदि के आदेश :-**इस अधिसूचना के उपबंध भारत के माननीय उच्चतम न्यायालय या उच्च न्यायालय का या राष्ट्रीय हरित अधिकरण द्वारा पारित किए गए या पारित किए जाने वाले आदेश यदि कोई हो, के अधीन होंगे।

[फा.सं. 25/50/2015-ई एस जेड-आरई]
डॉ. सतीश चंद्र गढ़कोटी, वैज्ञानिक जी

उपाबंध- I

चैल वन्यजीव अभयारण्य और इसलिए पारिस्थितिकी संवेदी रोड की सीमा का विवरण
सारणी-क चैल वन्यजीव अभयारण्य की सीमाओं का विवरण

क्र.सं.	दिशा	सीमा विवरण
1.	उत्तर	शिमला वन विभाग के प्रभाग के चोम भलवाग्
2.	उत्तर पश्चिम	कन्नोआला गांव और नाला जनेर घाट के बीच अश्वनी खड़
3.	दक्षिणी पश्चिमी	अश्वनी खड़
4.	दक्षिणी पूर्व	अश्वनी खड़ के साथ गौरा में अपने संगम से गिरी नदी

पारिस्थितिकी संवेदी जोन अधिसूचना की निगरानी के लिए निगरानी समिति : इस अधिसूचना के प्रबंधों की प्रभावी निगरानी के लिए, केंद्रीय सरकार, पर्यावरण संरक्षण, अधिनियम 1986 की धारा 3 की उप धारा (3) के अधीन निगरानी समिति का गठन करती है जो निम्नलिखित से मिलकर बनेगी अर्थात्-

क्र.सं.	निगरानी समिति का गठन	पदनाम
1	वन संरक्षक (टी), सोलन	अध्यक्ष, पदेन
2	उपवन संरक्षक वन्यजीव शिमला	सदस्य पदेन
3	पर्यावरण के क्षेत्र में काम करने वाले गैर सरकारी संगठनों के एक प्रतिनिधि विरासत संरक्षण सहित राज्य सरकार द्वारा नामित किया जाना है	सदस्य
4	राज्य प्रदूषण नियंत्रण बोर्ड के क्षेत्रीय कार्यकारी अभियंता	सदस्य, पदेन
5	क्षेत्र के वरिष्ठ शहर योजनाकार	सदस्य, पदेन
6	राज्य सरकार द्वारा नामित पारिस्थितिकी के क्षेत्र में एक विशेषज्ञ	सदस्य,
7	राज्य जैव विविधता बोर्ड से जैव- विविधता के क्षेत्र में एक विशेषज्ञ	सदस्य, पदेन
8	संभागीय वन अधिकारी, शिमला	सदस्य, पदेन
9	संभागीय वन अधिकारी, सोलन	सदस्य, सचिव पदेन

निर्देश निबंधन:

- (1) निगरानी समिति इस अधिसूचना के उप बंधुओं के अनुपालन को निगरानी करेगी।
- (2) निगरानी समिति का कार्यकाल अगले आदेश होने तक किया जाएगा परंतु युवाओं की समिति के गैर सरकारी सदस्यों को समय-समय पर राज्य सरकार द्वारा नाम निर्दिष्ट किया जाएगा।
- (3) उन क्रियाकलापों की जो भारत सरकार के तत्कालीन पर्यावरण और वन मंत्रालय की अधिसूचना संख्या का (आ) 1533 (अ), तारीख 14 सितंबर 2006 की अनुसूची में सम्मिलित हैं, और जो पारिस्थितिकी संवेदी जोन में आते हैं सिवाय इसके जो पैरा 4 के अधीन सारणी में यथा विनिर्दिष्ट प्रतिशत क्रियाकलाप के प्रतिशत क्रियाकलापों के निगरानी समिति द्वारा वास्तविक विनिर्दिष्ट स्थलीय दिशाओं के आधार पर संवीक्षा की जाएगी और अधिसूचना के उप बंधुओं के अधीन पूर्व पर्यावरण अनापति के लिए केंद्रीय सरकार के पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय को निर्दिष्ट किया जाएगा।

सारणी- ख चल वन्यजीव अभयारण्य के चारों ओर पारिस्थितिकी संवेदी जोन का क्षेत्र विवरण

पारिस्थितिकी संवेदी जोन में सम्मिलित वनों की सूची				
क्र.सं.	वन संभाग का नाम	वन श्रेणी के नाम	वन के नाम	क्षेत्र हेक्टेयर में
1.	शिमला (वन्यजीव) संभाग	चैल	आर.एफ. चकलून सी.1.	28.4
2.	शिमला (वन्यजीव) संभाग	चैल	आर.एफ. चकलून सी-2	50.40
3.	शिमला (वन्यजीव) संभाग	चैल	डी-39 धमधार सी-1	30.4
4.	शिमला(वन्यजीव) संभाग	चैल	डी-39 धमधार सी-2	30.00
5	शिमला(वन्यजीव) संभाग	चैल	डी-40 जाझा-खानी	20.4
6	शिमला(वन्यजीव) संभाग	चैल	डी-41 खानकोला	4.4
7	शिमला(वन्यजीव) संभाग	चैल	डी-42 चाबरी सी-1	47.6
8	शिमला(वन्यजीव) संभाग	चैल	डी-42 चाबरी सी-2	40.00
9	शिमला(वन्यजीव) संभाग	चैल	डी-42 चाबरी -43 पौश	28.4
10	शिमला(वन्यजीव) संभाग	चैल	डी-44 चेउन्थ सी-1	10.4
11	शिमला(वन्यजीव) संभाग	चैल	डी-44 चेउन्थ सी-2	40.00
12	शिमला(वन्यजीव) संभाग	चैल	डी-45 टटब्बा- कथेर सी।	12
13	शिमला(वन्यजीव) संभाग	चैल	सी-1ख	24
14	शिमला(वन्यजीव) संभाग	चैल	सी-2क	16
15	शिमला(वन्यजीव) संभाग	चैल	सी-2ख	22.4
16	शिमला(वन्यजीव) संभाग	चैल	डी-46 चकलून सी-1	6
17	शिमला(वन्यजीव) संभाग	चैल	डी-46 चकलून सी-2	34.80
18	शिमला(वन्यजीव) संभाग	चैल	डी-46 चकलून सी-3	8.80

41	शिमला(वन्यजीव) संभाग	चैल	यू-254 बनलोग	121
42	शिमला वन संभाग	काली वन श्रेणी	यू- 248 महेसू	8
43	शिमला वन संभाग	काली वन श्रेणी	डी-88 भालावग सी11	74.8
44	शिमला वन संभाग	काली वन श्रेणी	डी-88 भालावग सी12	117.4
कुल				2044.30

पारिस्थितिकी संवेदी जोन में सम्मिलित पंचायतों ग्रामों की सूची

क्र.सं.	वन संभाग का नाम	पंचायतों के नाम	ग्राम का नाम
1	शिमला(वन्यजीव) संभाग	चैल	मेहानी
2		सकोरी	सकोरी
3		बंजीनी	बीन्नु
4		बंजीनी	जनरुध
5		बंजीनी	बंजीनी
6		बंजीनी	खन्ना
7		बंजीनी	शिलाई
8		झाड़ी	झाड़ा
9		झाड़ी	कोरो
10		झाड़ी	कोहला
11		झाड़ी	शकोग्
12		झाड़ी	महोग
13		झाड़ी	कथला
14		झाड़ी	छबरी

19	રિખાલ(વસુપીવ) ડાંગા	પૈલ	ડી-47 બીજી રિલાઈ ડી-1	58.4
20	રિખાલ(વસુપીવ) ડાંગા	પૈલ	ડી-47 બીજી રિલાઈ ડી-2	93.6
21	રિખાલ(વસુપીવ) ડાંગા	પૈલ	ડી-48 રિલાઈ ડી 1	36
22	રિખાલ(વસુપીવ) ડાંગા	પૈલ	ડી-48 રિલાઈ ડી 2	25.6
23	રિખાલ(વસુપીવ) ડાંગા	પૈલ	ડી-48 રિલાઈ ડી 3	12.4
24	રિખાલ(વસુપીવ) ડાંગા	પૈલ	ડી-49 બંપીલી ડી 1	14
25	રિખાલ(વસુપીવ) ડાંગા	પૈલ	ડી-49 બંપીલી ડી 2	22
26	રિખાલ(વસુપીવ) ડાંગા	પૈલ	ડી-49 બંપીલી ડી 3	16
27	રિખાલ(વસુપીવ) ડાંગા	પૈલ	ડી- 50 સકોટી	32.5
28	રિખાલ(વસુપીવ) ડાંગા	પૈલ	ડી-51 પાડા છેડીડ ડી	84
29	રિખાલ(વસુપીવ) ડાંગા	પૈલ	ડી-51 પાડા છેડીડ ડી 3 (આ)	42.4
30	રિખાલ(વસુપીવ) ડાંગા	પૈલ	ડી-52 ઓપડીવ ડી 1	129.2
31	રિખાલ(વસુપીવ) ડાંગા	પૈલ	ડી-52 ઓપડીવ ડી 2	90
32	રિખાલ(વસુપીવ) ડાંગા	પૈલ	ડી-52 ઓપડીવ ડી 1 ક	18.40
33	રિખાલ(વસુપીવ) ડાંગા	પૈલ	ડી-52 ઓપડીવ ડી 1 ય	58.40
34	રિખાલ(વસુપીવ) ડાંગા	પૈલ	ડી-89 અલિલ ડી-2	100.4
35	રિખાલ(વસુપીવ) ડાંગા	પૈલ	ડી-89 અલિલ ડી-3	64.4
36	રિખાલ(વસુપીવ) ડાંગા	પૈલ	પૂ-249 યદટલ	81
37	રિખાલ(વસુપીવ) ડાંગા	પૈલ	પૂ-250 રાંત	70
38	રિખાલ(વસુપીવ) ડાંગા	પૈલ	પૂ-251 રાંપટ	40
39	રિખાલ(વસુપીવ) ડાંગા	પૈલ	પૂ-251 અલબીલ	73
40	રિખાલ(વસુપીવ) ડાંગા	પૈલ	પૂ-253 રાંટા રૂઆઈ	77

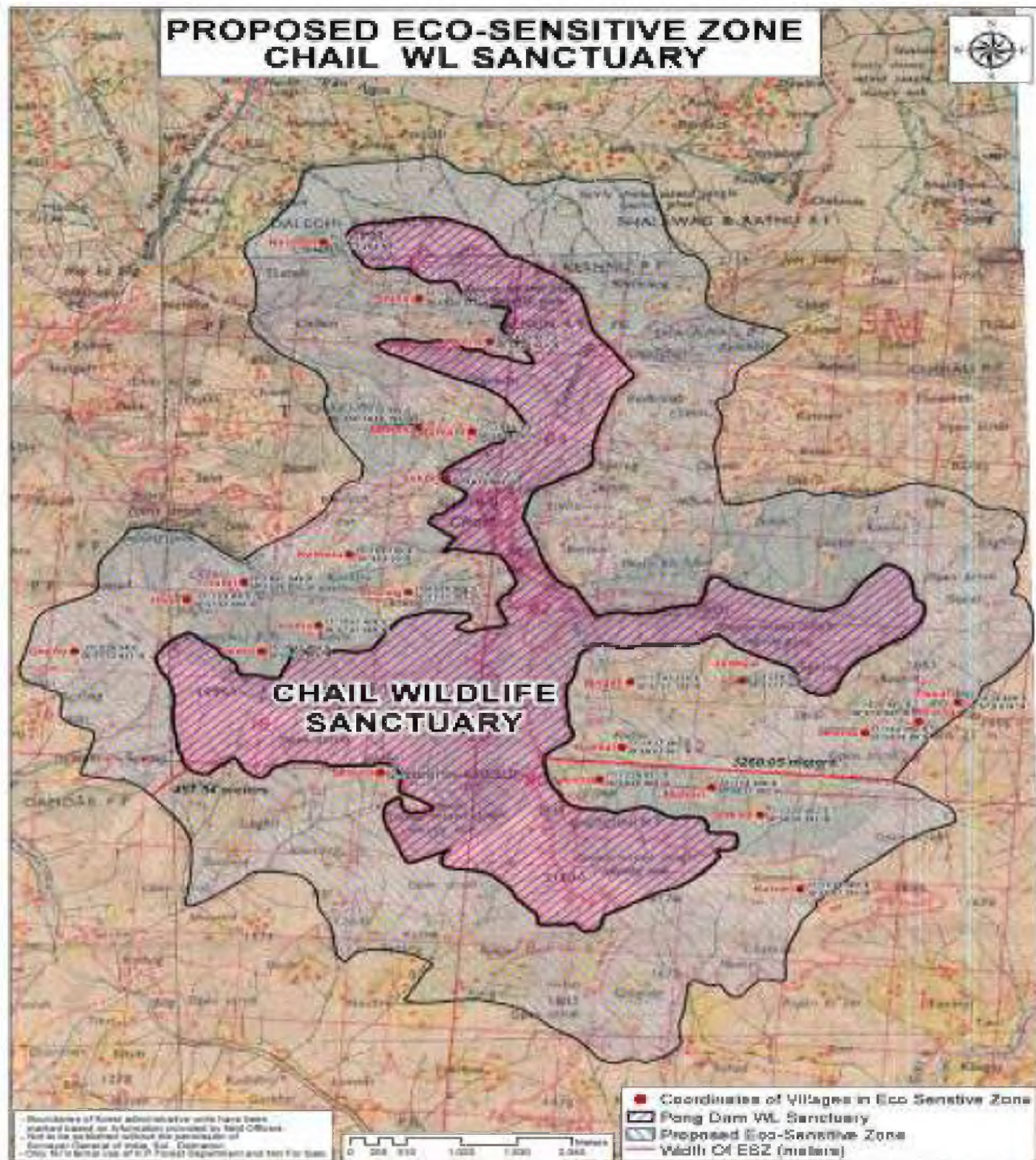
THE GAZETTE OF INDIA : EXTRAORDINARY

15		झाड़ी	पौश
16		धांगील	सवेरा
17		धांगील	घेन्ति
18		नगली	नगली
19		नगली	जदयाल
20		नगली	जेतना
21		नगली	टिक्कर
22		नगली	नवाग
23		नगली	कनोआरि
24		नगली	कानो
25		नगली	हुक्कल
26		नगली	घेवा
27		नगली	महोरी
	कु ल क्षेत्र	1360.00 हेक्टेयर	

भारतीय सर्वेक्षण एस ओ आई टोपी सीट पर मुख्य स्थानों के अक्षांश और देशांतर के साथ जैन वन्यजीव अभयारण्य के पारिस्थितिकी संवेदी जोन का मानचित्र



भारतीय सर्वेक्षण एस ओ आई टोपी सीट पर मुख्य स्थानों के अक्षांश और देशांतर के साथ जैन वन्यजीव अभयारण्य के पारिस्थितिकी संवेदी ज़ोन के अंतर्गत आने वाले ग्रामों के अवस्था को दर्शाने वाला मानचित्र



सारणी (क) चैल वन्यजीव अभयारण्य के मुख्य अ वस्थानों स्थानों के भूनिर्देशांक

क्र.सं.	देशांतर (पू)	अक्षांश (उ)
1	77°12' 9.028"	30°59' 55.996"
2	77°12' 41.596"	30°59' 13.809"
3	77°13' 10.067"	30°57' 57.425"
4	77°14' 11.62"	30°58' 0.813"
5	77°13' 48.095"	30°57' 11.485"
6	77°13' 12.233"	30°57' 35.032"
7	77°12' 20.855"	30°56' 57.615"
8	77°13' 16.783"	30°56' 17.749"
9	77°12' 27.758"	30°55' 43.617"
10	77°11' 22.6"	30°56' 9.821"
11	77°10' 31.696"	30°56' 53.335"
12	77°10' 8.171"	30°57' 38.918"
13	77°11' 9.451"	30°57' 31.078"
14	77°11' 37.117"	30°58' 55.447"
15	77°11' 36.708"	30°58' 36.867"
16	77°12' 7.204"	30°58' 55.988"
17	77°11' 16.299"	30°59' 27.448"
18	77°11' 6.504"	31°0' 9.629"

सारणी (ख): पारिस्थितिकी संवेदी जोन के मुख्य अ वस्थानों स्थानों के भू-निर्देशांक

क्र.सं.	देशांतर (पू)	अक्षांश (उ)
1	77°11' 56.018"	30°0' 32.698"
2	77°12' 52.2"	30°0' 27.653"
3	77°13' 11.255"	30°59' 55.123"

4	77°13' 38.648"	30°59' 29.381"
5	77°13' 13.418"	30°59' 4.081"
6	77°13' 16.331"	30°58' 25.072"
7	77°13' 53.284"	30°58' 28.708"
8	77°14' 56.187"	30°58' 20.27"
9	77°14' 54.255"	30°57' 49.534"
10	77°15' 0.733"	30°57' 30.081"
11	77°14' 43.614"	30°57' 13.781"
12	77°14' 11.807"	30°56' 38.437"
13	77°14' 32.66"	30°56' 22.254"
14	77°13' 44.047"	30°55' 52.892"
15	77°13' 31.797"	30°55' 22.973"
16	77°12' 59.635"	30°55' 23.43"
17	77°12' 43.558"	30°54' 52.633"
18	77°11' 20.121"	30°55' 18.073"
19	77°11' 30.036"	30°55' 31.449"
20	77°10' 59.42"	30°55' 33.492"
21	77°10' 38.367"	30°56' 7.228"
22	77°10' 5.272"	30°55' 55.415"
23	77°9' 29.847"	30°56' 45.995"
24	77°9' 9.836"	30°57' 22.93"

25	77°9' 37.129"	30°57' 56.195"
26	77°9' 48.653"	30°58' 18.877"
27	77°10' 25.934"	30°58' 6.559"
28	77°11' 8.898"	30°58' 36.673"
29	77°10' 56.63"	30°59' 16.531"
30	77°10' 32.137"	30°59' 37.956"
31	77°10' 31.006"	31°0' 6.103"
32	77°10' 53.512"	31°0' 35.546"

उपा बंद-IV

भू- निर्देशकों के साथ चैल वन्यजीव अभयारण्य के पारिस्थितिकी संवेदी जोन के अंतर्गत आने वाले ग्रामों की सूची

क्र.सं.	ग्राम का नाम	देशांतर (पू)	अक्षांश (उ)
1.	मेहानी	77°11' 30.249"	30°58' 56.195"
2.	सकोरी	77°11' 39.054"	30°58' 36.602"
3.	बीनू	77°10' 42.251"	31°0' 22'496"
4.	नरोध	77°10' 58.509"	30°0' 7.254"
5.	बंजीनी	77°11' 48.3"	30°58' 54.261"
6.	खिना	77°11' 55.413"	30°59' 28.471"
7.	शिलाई	77°11' 31.195"	30°59' 45.238"
8.	झांझा	77°10' 8.04"	30°57' 51.599"
9.	कोरो	77°10' 33.444"	30°57' 31.615"
10.	कोहला	77°10' 53.428"	30°57' 41.099"
11.	शकोग्	77°11' 24.929"	30°57'53.293"
12.	महोग	77°11' 44.235"	30°57' 53.801"

13.	कथाला	77°11' 4.775"	30°58' 8.027"
14.	चाबरी	77°10' 27.944"	30°57' 58.035"
15.	पौश	77°9' 13.677"	30°58' 35.462"
16.	सेवाला	77°11' 13.751"	30°56' 44.703"
17.	घेन्टी	77°9' 28.58"	30°57' 32.631"
18.	नगली	77°12' 41.139"	30°57' 17.728"
19.	जदयाल	77°13' 20.091"	30°57' 17.558"
20.	जेथना	77°14' 2.092"	30°56' 56.897"
21.	जतक्कार	77°14' 34.609"	30°57' 8.074"
22.	नवाग	77°14' 20.891"	30°57' 0.961"
23.	कनोरी	77°13' 38.382"	30°55' 57.791"
24.	कनू	77°12' 29.623"	30°56' 40.808"
25.	हुक्काल	77°12' 37.583"	30°56' 53.001"
26.	घेवा	77°13' 25.003"	30°56' 26.243"
27.	महोरी	77°13' 8.406"	30°56' 37.082"

उपा बंद-V

की गई कार्रवाई संबंधी रिपोर्ट का प्रपत्र :-

- 1) बैठकों की संख्या और तारीख
- 2) बैठकों का कार्यवृत्त (कृपया मुख्य उल्लेखनीय बिंदुओं का उल्लेख करें बैठक के कार्यवृत्त को एक पृथक उपाबंध में उपाबंद करें बंद करें)
- 3.) आंचलिक महायोजना की तैयारी की प्रास्थिति जिसके अधीन पर्यटन महायोजना भी है
- 4) भू अभिलेख में सदृश्य त्रुटियों के सुधार के लिए व्यवहार किए गए मामलों का सार (पारिस्थितिकी संवेदी जोन उपाबंध के रूप में संलग्न किए जाएं)
- 5) पर्यावरण समाघात निधारण अधिसूचना 2006 के अधीन आने वाले क्रियाकलापों की समीक्षा के मामलों का सार। बयोरे एक पृथक् उपाबंध के रूप में संलग्न किए जाएं।
- 6) पर्यावरण (संरक्षण) अधिनियम, 1986 की धारा 19, के अधीन दर्ज की गई शिकायतों का सार।
- 7) कोई अन्य महत्वपूर्ण विषय।

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

- (1) Land use.-** (a) Forests, horticulture areas, agricultural areas, parks and open spaces earmarked for recreational purposes in the Eco-sensitive Zone shall not be used or converted into areas for commercial or residential or industrial activities:
Provided that the conversion of agricultural and other lands, for the purposes other than that specified at part (a) above, within the Eco-sensitive Zone may be permitted on the recommendation of the Monitoring Committee, and with the prior approval of the competent authority under Regional Town Planning Act and other rules and regulations of Central Government or State Government as applicable and vide provisions of this Notification, to meet the residential needs of the local residents and for activities such as:-
(i) widening and strengthening of existing roads and construction of new roads;
(ii) construction and renovation of infrastructure and civic amenities;
(iii) small scale industries not causing pollution;
(iv) cottage industries including village industries; convenience stores and local amenities supporting ecotourism including home stay; and
(v) promoted activities given under paragraph 4:

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

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

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

(b) Efforts shall be made to reforest the unused or unproductive agricultural areas with afforestation and habitat restoration activities

- (2) Natural water bodies.-** The catchment areas of all natural springs shall be identified and plans for their conservation and rejuvenation shall be incorporated in the Zonal Master Plan and the guidelines shall be drawn up by the State Government in such a manner as to prohibit development activities at or near these areas which are detrimental to such areas.

- (3) Tourism or Eco-tourism.- (a) All new eco-tourism activities or expansion of existing tourism activities within the Eco-sensitive Zone shall be as per the Tourism Master Plan for the Eco-sensitive Zone.
(b) The Eco-Tourism Master Plan shall be prepared by the State Department of Tourism in consultation with State Departments of Environment and Forests.
(c) The Tourism Master Plan shall form a component of the Zonal Master Plan.
(d) The Tourism Master Plan shall be drawn based on the study of carrying capacity of the Eco-sensitive Zone.
(e) The activities of eco-tourism shall be regulated as under, namely:-

**MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE
NOTIFICATION**

New Delhi, the 5th January, 2022

S.O. 39(E).—WHEREAS, a draft notification of the Government of India in the Ministry of Environment, Forest and Climate Change was published in the Gazette of India, Extraordinary, vide number S.O. 3631(E), dated the 15th October, 2020, inviting objections and suggestions from all persons likely to be affected thereby within a period of sixty days from the date on which copies of the Gazette containing the said notification were made available to the public;

AND WHEREAS, copies of the Gazette containing the said draft notification were made available to the public on the 15th October, 2020;

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

AND WHEREAS, the Chail Wildlife Sanctuary is located at a distance of around 45 kilometres from Shimla in sub-Himalayan region in Solan and Shimla districts of Himachal Pradesh and provides home to a variety of endemic flora and fauna. The total area of the Wildlife Sanctuary is 16.00 square kilometres;

AND WHEREAS, the Chail Wildlife Sanctuary has very good vegetation in the form of mixed forests while open wasteland along with grasses and shrubs also exists. Deodar (*Cedrus deodara*) is the dominant species of the area occupying the top canopy. Other species include ban oak (*Quercus leucotrichophora*), kail (*Pinus wallichiana*), spruce, silver fir, poplar, rhododendron (*Rhododendron ferrugineum*), chir, kainth, khanor (*Aesculus indica*), Acacia mollissima, etc. Middle story is negligible and ground flora is covered by a number of shrub species like Desmodium, Indigofera, Salix, Berberis, Rosa, Rubus, and Daphnae etc, it also includes various species of grasses, ferns and vascular herbs;

AND WHEREAS, the Chail Wildlife Sanctuary has several important values from ecological, faunal, floral, geomorphologic, and recreational and research or educational perspective. The Sanctuary is known to harbour an exceptional variety of wildlife. The main fauna found in the Sanctuary are barking deer (*Muntiacus muntjak*), sambar (*Rusa unicorn*), leopard (*Panthera pardus*), black bear (*Ursus americanus*), ghoral (*Naemorhedus griseus*), Rhesus monkey (*Macaca mulatta*), langur (*Semnopithecus spp.*), porcupine (*Erethizon spp.*), etc;

AND WHEREAS, the main avifaunas of the Chail Wildlife Sanctuary are cheer pheasant (*Catreus wallichii*), chukar Kalij (*Lophura spp.*), red jungle fowl (*Gallus gallus*), Indian pea fowl (*Pavo cristatus*), speckled wood pigeon (*Columba hodgsonii*), Himalayan wood pecker (*Dendrocopos himalayensis*), etc. Besides, invertebrates, amphibians and reptiles are also found in the area;

AND WHEREAS, the Chail Wildlife Sanctuary and its adjoining areas falls under the Biogeographic Zone - 2 (Himalayan zone) of the Biogeographic classification. The area lies in the watershed of Yamuna River and regulates the run of precipitation into Yamuna and it also protects the soil in the geologically fragile and erosion prone Himalayas. Biologically, the area along with Shimla Water Catchment Wildlife Sanctuary form a good conservation unit and one of the finest forests of Deodar that supports the associated fauna;

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

NOW, THEREFORE, in exercise of the powers conferred by sub-section (1) and clauses (v) and (xiv) of sub-section (2) and sub-section (3) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986) (hereafter in this notification referred to as the Environment Act) read with sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, the Central Government hereby notifies an area to an extent varying from 0.5 kilometres to 3.26 kilometres around the boundary of Chail Wildlife Sanctuary, in Solan and Shimla Districts in the State of Himachal Pradesh as the Chail Wildlife Sanctuary Eco-sensitive Zone (hereafter in this notification referred to as the Ecosensitive Zone) details of which are as under, namely: -

- 1. Extent and boundaries of Eco-sensitive Zone.** – (1) The Eco-sensitive Zone shall be to an extent of 0.5 to 3.26 kilometres around the boundary of Chail Wildlife Sanctuary and the 34.04 square kilometre area of the Eco-sensitive Zone comprises of 20.44 square kilometres of forest land and 13.60 square kilometres of private land.
(2) The boundary description of Chail Wildlife Sanctuary is at Annexure-I.
(3) The maps of the Chail Wildlife Sanctuary demarcating Eco-sensitive Zone along with boundary details and latitudes and longitudes are appended at **Annexure-IIA and Annexure-IIB**
(4) Lists of geo-coordinates of the boundary of Chail Wildlife Sanctuary and Eco-sensitive Zone are given at **Table A and Table B of Annexure-III**.
(5) The list of villages falling in the Eco-sensitive Zone along with their geo co-ordinates at prominent points is appended at **Annexure-IV**.
- 2. Zonal Master Plan for Eco-sensitive Zone.** – (1) The State Government shall, for the purposes of the Eco-sensitive Zone prepare a Zonal Master Plan within a period of two years from the date of publication of this notification in the Official Gazette, in consultation with local people and adhering to the stipulations given in this notification and get it duly approved by the competent authority in the State.
(2) The Zonal Master Plan for the Eco-sensitive Zone shall be prepared by the State Government in such manner as is specified in this notification and also in consonance with the relevant Central and State laws and the guidelines issued by the Central Government, if any.
(3) The Zonal Master Plan shall be prepared in consultation with the following Departments of the State Government, for integrating the ecological and environmental considerations into the said plan:-
 - (i) Environment;
 - (ii) Forest and Wildlife;
 - (iii) Agriculture;
 - (iv) Revenue;
 - (v) Urban Development;
 - (vi) Tourism;
 - (vii) Rural Development;
 - (viii) Irrigation and Flood Control;
 - (ix) Municipal;
 - (x) Panchayati Raj;
 - (xi) Himachal Pradesh State Pollution Control Board; and
 - (xii) Public Works Department
(4) The Zonal Master Plan shall not impose any restriction on the approved existing land use, infrastructure and activities, unless so specified in this notification and the Zonal Master Plan shall factor in improvement of all infrastructure and activities to be more efficient and eco-friendly.
(5) The Zonal Master Plan shall provide for restoration of denuded areas, conservation of existing water bodies, management of catchment areas, watershed management, groundwater management, soil and moisture conservation, needs of local community and such other aspects of the ecology and environment that need attention.
(6) The Zonal Master Plan shall demarcate all the existing worshipping places, villages and urban settlements, types and kinds of forests, agricultural areas, fertile lands, green area, such as, parks and like places, horticultural areas, orchards, lakes and other water bodies with supporting maps giving details of existing and proposed land use features.
(7) The Zonal Master Plan shall provide mechanism for regulating developmental activities in Eco-sensitive Zone and adhere to prohibited and regulated activities listed in the Table in paragraph 4 and also ensure and promote eco-friendly development for security of local communities' livelihood.
(8) The Zonal Master Plan shall be co-terminus with the Regional Development Plan.
(9) The Zonal Master Plan so approved by the State Government shall be the reference document for the Monitoring Committee for carrying out its functions of monitoring in accordance with the provisions of this notification.

- (l) new construction of hotels and resorts shall not be allowed within one kilometre from the boundary of the protected area or upto the extent of the Eco-sensitive Zone whichever is nearer:

Provided that beyond the distance of one kilometre from the boundary of the protected area till the extent of the Eco-sensitive Zone, the establishment of new hotels and resorts shall be allowed only in pre-defined and designated areas for eco-tourism facilities as per Tourism Master Plan;

- (ii) all new tourism activities or expansion of existing tourism activities within the Eco-sensitive Zone shall be in accordance with the guidelines issued by the Central Government in the Ministry of Environment, Forest and Climate Change and the eco-tourism guidelines issued by National Tiger Conservation Authority (as amended from time to time) with emphasis on eco-tourism, ecoeducation and eco-development;
- (iii) until the Zonal Master Plan is approved, development for tourism and expansion of existing tourism activities shall be permitted by the concerned regulatory authorities based on the actual site specific scrutiny and recommendation of the Monitoring Committee and no new hotel, resort or commercial establishment construction shall be permitted within Eco-sensitive Zone area.
- (4) Natural heritage.**- All sites of valuable natural heritage in the Eco-sensitive Zone, such as the gene pool reserve areas, rock formations, waterfalls, springs, gorges, groves, caves, points, walks, rides, cliffs, etc. shall be identified and a heritage conservation plan shall be drawn up for their preservation and conservation as a part of the Zonal Master Plan.
- (5) Man-made heritage sites.**- Buildings, structures, artefacts, areas and precincts of historical, architectural, aesthetic, and cultural significance shall be identified in the Eco-sensitive Zone and heritage conservation plan for their conservation shall be prepared as part of the Zonal Master Plan.
- (6) Noise pollution.** - Prevention and control of noise pollution in the Eco-sensitive Zone shall be complied in accordance with the provisions of the Noise Pollution (Regulation and Control) Rules, 2000 under the Environment Act.
- (7) Air pollution.**- Prevention and control of air pollution in the Eco-sensitive Zone shall be compiled in accordance with the provisions of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981) and the rules made thereunder.
- (8) Discharge of effluents.**- Discharge of treated effluent in the Eco-sensitive Zone shall be in accordance with the provisions of the General Standards for Discharge of Environmental Pollutants covered under the Environment Act and the rules made thereunder or standards stipulated by State Government whichever is more stringent.
- (9) Solid wastes.**- Disposal and Management of solid wastes shall be as under:-
- (a) the solid waste disposal and management in the Eco-sensitive Zone shall be carried out in accordance with the Solid Waste Management Rules, 2016, published by the Government of India in the Ministry of Environment, Forest and Climate Change vide notification number S.O. 1357 (E), dated the 8th April, 2016; the inorganic material may be disposed in an environmental acceptable manner at site identified outside the Eco-sensitive Zone;
- (b) safe and Environmentally Sound Management (ESM) of Solid wastes in conformity with the existing rules and regulations using identified technologies may be allowed within the Eco-sensitive Zone.
- (10) Bio-Medical Waste.**- Bio-Medical Waste Management shall be as under:-
- (a) the Bio-Medical Waste disposal in the Eco-sensitive Zone shall be carried out in accordance with the Bio-Medical Waste Management Rules, 2016 published by the Government of India in the Ministry of Environment, Forest and Climate Change vide notification number G.S.R. 343 (E), dated the 28th March, 2016.
- (b) safe and Environmentally Sound Management of Bio-Medical Wastes in conformity with the existing rules and regulations using identified technologies may be allowed within the Eco-sensitive Zone

- (11) Plastic waste management.-** The plastic waste management in the Eco-sensitive Zone shall be carried out as per the provisions of the Plastic Waste Management Rules, 2016, published by the Government of India in the Ministry of Environment, Forest and Climate Change vide notification number G.S.R. 340(E), dated the 18th March, 2016, as amended from time to time.
- (12) Construction and demolition waste management.-** The construction and demolition waste management in the Eco-sensitive Zone shall be carried out as per the provisions of the Construction and Demolition Waste Management Rules, 2016 published by the Government of India in the Ministry of Environment, Forest and Climate Change vide notification number G.S.R. 317(E), dated the 29th March, 2016, as amended from time to time.
- (13) E-waste.-** The e - waste management in the Eco-sensitive Zone shall be carried out as per the provisions of the E-Waste Management Rules, 2016, published by the Government of India in the Ministry Environment, Forest and Climate Change, as amended from time to time.
- (14) Vehicular traffic.-** The vehicular movement of traffic shall be regulated in a habitat friendly manner and specific provisions in this regard shall be incorporated in the Zonal Master Plan and till such time as the Zonal Master plan is prepared and approved by the Competent Authority in the State Government, the Monitoring Committee shall monitor compliance of vehicular movement under the relevant Acts and the rules and regulations made thereunder.
- (15) Vehicular pollution.-** Prevention and control of vehicular pollution shall be in compliance with applicable laws and efforts shall be made for use of cleaner fuels.
- (16) Industrial units.-** (i) On or after the publication of this notification in the Official Gazette, no new polluting industries shall be permitted to be set up within the Eco-sensitive Zone.
(ii) Only non-polluting industries shall be allowed within the Eco-sensitive Zone as per the classification of Industries in the guidelines issued by the Central Pollution Control Board in February, 2016, as amended from time to time, unless so specified in this notification, and in addition, the non-polluting cottage industries shall be promoted.
- (17) Protection of hill slopes.-** The protection of hill slopes shall be as under:-
(a) the Zonal Master Plan shall indicate areas on hill slopes where no construction shall be permitted;
(b) construction shall not be permitted on existing steep hill slopes or slopes with a high degree of erosion.
- 4. List of activities prohibited or to be regulated within Eco-sensitive Zone.-** All activities in the Eco-sensitive Zone shall be governed by the provisions of the Environment Act and the rules made thereunder including the Coastal Regulation Zone, 2011 and the Environmental Impact Assessment Notification, 2006 and other applicable laws including the Forest (Conservation) Act, 1980 (69 of 1980), the Indian Forest Act, 1927 (16 of 1927), the Wildlife (Protection) Act, 1972 (53 of 1972), and amendments made thereto and be regulated in the manner specified in the Table below, namely:-

TABLE

Sl.No (1)	Activity(2)	Description(3)
1.	Commercial mining, stone quarrying and crushing units.	<p>(a) All new and existing mining (minor and major minerals), stone quarrying and crushing units shall be prohibited with immediate effect except for meeting the domestic needs of bona fide local residents including digging of earth for construction or repair of houses within the Ecosensitive Zone;</p> <p>(b) The mining operations shall be carried out in accordance with the order of the Hon'ble Supreme Court dated the 4th August, 2006 in the matter of T.N. Godavarman Thirumulpad Vs. UOI in W.P.(C) No.202 of 1995 and dated the 21st April, 2014 in the matter of Goa Foundation Vs. UOI in W.P.(C) No.435 of 2012.</p>

2.	Setting of industries causing pollution (Water, Air, Soil, Noise, etc.).	<p>New industries and expansion of existing polluting industries in the Eco-sensitive Zone shall not be permitted:</p> <p>Provided that non-polluting industries shall be allowed within the Eco-sensitive Zone as per classification of Industries in the guidelines issued by the Central Pollution Control Board in February, 2016, as amended from time to time, unless otherwise specified in this notification and in addition the non-polluting cottage industries shall be promoted.</p>
3.	Establishment of major hydro-electric project	Prohibited
4.	Use or production or processing of any hazardous substances.	Prohibited.
5.	Discharge of untreated effluents in natural water bodies or land area.	Prohibited.
6.	Setting up of new saw mills.	New or expansion of existing saw mills shall not be permitted within the Eco-sensitive Zone.
7.	Setting up of brick kilns.	Prohibited.
8.	Use of polythene bags.	Prohibited.
9.	Fishing by mechanical means.	Prohibited.
B. Regulated Activities		
10.	Commercial establishment of hotels and resorts.	<p>No new commercial hotels and resorts shall be permitted within one kilometer of the boundary of the protected area or upto the extent of the Eco-sensitive Zone, whichever is nearer, except for small temporary structures for eco-tourism activities:</p> <p>Provided that, beyond one kilometer from the boundary of the protected area or upto the extent of the Eco-sensitive Zone whichever is nearer, all new tourist activities or expansion of existing activities shall be in conformity with the Tourism Master Plan and guidelines as applicable.</p>
11.	Construction activities.	<p>(a) New commercial construction of any kind shall not be permitted within one kilometer from the boundary of the protected area or upto extent of the Eco-sensitive Zone, whichever is nearer:</p> <p>Provided that, local people shall be permitted to undertake construction in their land for their use including the activities mentioned in sub-paragraph (1) of paragraph 3 as per building bye-laws to meet the residential needs of the local residents.</p>

		<p>Provided further that the construction activity related to small scale industries not causing pollution shall be regulated and kept at the minimum, with the prior permission from the competent authority as per applicable rules and regulations, if any.</p> <p>(b) Beyond one kilometer it shall be regulated as per the Zonal Master Plan.</p>
12.	Small scale non polluting industries.	Non polluting industries as per classification of industries issued by the Central Pollution Control Board in February 2016, as amended from time to time and non-hazardous, small-scale and service industry, agriculture, floriculture, horticulture or agro-based industry producing products from indigenous materials from the Eco-sensitive Zone shall be permitted by the competent Authority.
13.	Felling of trees.	<p>(a) There shall be no felling of trees in the forest or Government or revenue or private lands without prior permission of the Competent Authority in the State Government.</p> <p>(b) The felling of trees shall be regulated in accordance with the provisions of the concerned Central or State Act and the rules made thereunder</p>
14.	Collection of Forest produce or Non Timber Forest produce.	Regulated as per the applicable laws.
15.	Erection of electrical and communication towers and laying of cables and other infrastructures	Regulated under applicable laws (underground cabling may be promoted).
16.	Infrastructure including civic amenities.	Taking measures of mitigation as per the applicable laws, rules and regulations and available guidelines.
17.	Widening and strengthening of existing roads and construction of new roads.	Widening and strengthening of existing roads and construction of new roads.
18.	Undertaking other activities related to tourism like flying over the Ecosensitive Zone area by hot air balloon, helicopter, drones, Microlites, etc	Regulated as per the applicable laws.
19.	Protection of hill slopes and river banks.	Regulated as per the applicable laws

20.	Movement of vehicular traffic at night.	Regulated for commercial purpose under applicable laws.
21.	Ongoing agriculture and horticulture practices by local communities along with dairies, dairy farming, aquaculture and fisheries.	Permitted as per the applicable laws for use of locals.
22.	Establishment of large-scale commercial livestock and poultry farms by firms, corporate and companies.	Regulated as per the applicable laws except for meeting local needs.
23.	Discharge of treated waste water or effluents in natural water bodies or land area.	The discharge of treated waste water or effluents shall be avoided to enter into the water bodies and efforts shall be made for recycle and reuse of treated waste water. Otherwise the discharge of treated waste water or effluent shall be regulated as per the applicable laws.
24.	Commercial extraction of surface and ground water	Commercial extraction of surface and ground water
25.	Solid waste management.	Regulated as per the applicable laws.
26.	Regulated as per the applicable laws.	Regulated as per the applicable laws.
27.	Eco-tourism.	Regulated as per the applicable laws.
28.	Commercial sign boards and hoardings.	Regulated as per the applicable laws.
29.	Open Well, Borewell, etc. for agriculture and other usages.	Regulated as per the applicable laws.
30.	Rain water harvesting.	Shall be actively promoted.
31.	Organic farming	Shall be actively promoted.
32.	Adoption of green technology for all activities	Shall be actively promoted.
33.	Cottage industries including village artisans, etc.	Shall be actively promoted.
34.	Use of renewable energy and fuels.	Bio-gas, solar light, etc. shall be actively promoted.
35.	Agro-Forestry.	Shall be actively promoted.
36.	Plantation of Horticulture and Herbals.	Shall be actively promoted.
37.	Use of eco-friendly transport.	Shall be actively promoted.

38.	Skill Development.	Shall be actively promoted.
39.	Restoration of degraded land or forests or habitat.	Shall be actively promoted
40.	Environmental awareness.	Shall be actively promoted

5. Monitoring Committee for Monitoring the Eco-sensitive Zone Notification.- For effective monitoring of the provisions of this notification under sub-section (3) of section 3 of the Environment (Protection) Act, 1986, the Central Government hereby constitutes a Monitoring Committee, comprising of the following, namely:

Sl. No.	Constituent of the Monitoring Committee	Designation
1	Conservator of Forests (T), Solan	Chairman, ex officio;
2	Deputy Conservator of Forests (WL), Shimla	Member, ex officio;
3.	One representative of Non-governmental Organizations working in the field of environment (including heritage conservation) to be nominated by the State Government	Member,
4.	Regional Executive Engineer of State Pollution Control Board	Member, ex officio;
5.	Senior Town planner of the area	Member, ex officio;
6.	An expert in the field of Ecology to be nominated by State Government	Member,
7.	An expert in the field of Ecology to be nominated by State Government	Member, ex officio;
8.	Divisional Forest Officer, Shimla	Member, ex officio;
9.	Divisional Forest Officer, Solan	Member-Secretary, ex officio.

6. Terms of reference. – (1) The Monitoring Committee shall monitor the compliance of the provisions of this notification.

(2)The tenure of the Monitoring committee shall be till further orders, provided that the non-official members of the Committee shall be nominated by the State Government from time to time.

(3)The activities that are covered in the Schedule to the notification of the Government of India in the erstwhile. Ministry of Environment and Forests number S.O. 1533 (E), dated the 14th September, 2006, and are falling in the Eco-sensitive Zone, except for the prohibited activities as specified in the Table under paragraph 4 thereof, shall be scrutinised by the Monitoring Committee based on the actual site-specific conditions and referred to the Central Government in the Ministry of Environment, Forest and Climate Change for prior environmental clearances under the provisions of the said notification.

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

- (5) The Member-Secretary of the Monitoring Committee or the concerned Deputy Commissioner(s) shall be competent to file complaints under section 19 of the Environment Act, against any person who contravenes the provisions of this notification.
- (6) The Monitoring Committee may invite representatives or experts from concerned Departments, representatives from industry associations or concerned stakeholders to assist in its deliberations depending on the requirements on issue to issue basis.
- (7) The Monitoring Committee shall submit the annual action taken report of its activities as on the 31st March of every year by the 30th June of that year to the Chief Wildlife Warden in the State as per proforma appended at Annexure-V.
- (8) The Central Government in the Ministry of Environment, Forest and Climate Change may give such directions, as it deems fit, to the Monitoring Committee for effective discharge of its functions.
7. Additional measures.- The Central Government and the State Government may specify additional measures, if any, for giving effect to provisions of this notification.
8. Orders of Supreme Court, etc.- The provisions of this notification shall be subject to the orders, if any passed or to be passed by the Hon'ble Supreme Court of India or the High Court or the National Green Tribunal.

[F. No.25/50/2015-ESZ-RE]
Dr. SATISH C. GARKOTI, Scientist 'G'

ANNEXURE- I

BOUNDARY DESCRIPTION OF CHAIL WILDLIFE SANCTUARY AND ITS ECO-SENSITIVE ZONE

Table A: Boundaries Description of the Chail Wildlife Sanctuary

S.No	Direction	Boundary Description
1.	North	Choma and Bhalwag of Shimla Forest Division
2.	North West	Ashwani Khad between Kannoala Village and Nalla Janerghat
3.	South-West	Ashwani Khad
4.	South-East	Giri River from its confluence at Gaura with Ashwani Khad

Table B: Area statement of the Eco-sensitive zone around Chail Wildlife Sanctuary

LIST OF FORESTS TO BE INCLUDED IN THE ECO-SENSITIVE ZONE				
S. No	Name of Forest Division	Name of Forest Range	Name of Forest	Area in hectare
1.	Shimla (WI) Division	Chail	R.F. Chaklyan C.I.	28.4
2.	-do-	-do-	-do- C-2	50.40
3.			D-39 Dhamdhar C-1	30.4
4.			-do- C-2	30.00
5.			D-40 Jajha-Khani	20.4
6.			D-41 Khancola	4.4
7.			D-42 Chabri C-1	47.6
8.			-do- C-2	40.00
9.			-do-43 Poash	28.4
10.			D-44 Cheunth C-1	10.4

9		Do	Koro
10		Do	Kohla
11		Do	Shakog
12		Do	Mahog
13		Do	Kathala
14		Do	Chhabri
15		Do	Poash
16		Dhangeel	Sewera
17		do	Ghainti
18		Nagali	Nagali
19		Nagali	Jadyal
20		Do	Jethna
21		Do	Tikker
22		Do	Nawag
23		Do	Kanoari
24		Do	Kano
25		Do	Hukkal
26		Do	Ghewa
27		Do	Mahori
Total area		1360.00 ha	

ANNEXURE- IIA
MAP OF ECO-SENSITIVE ZONE OF CHAIL WILDLIFE SANCTUARY ALONG WITH LATITUDE AND LONGITUDE OF PROMINENT LOCATIONS ON SURVEY OF INDIA (SOI) TOPOSHEET



11.	Shimla (WL) Division	Chail	-do-C-2	40.00
12.	-do-	-do-	D-45 Tibba-Kather C1	12
13.			C-1b	24
14.			C-2a	16
15.			C-2b	22.4
16.			D-46 Chaklyon C-1	6
17.			-do- C-2	34.80
18.			-do-C-3	8.80
19.			D-47 Binnu Shilai C1	58.4
20.			-do- C2	93.6
21.			D-48 Shillai C1	36
22.			-do- C2	25.6
23.			-do- C3	12.4
24.			D-49 Banjini C1	14
25.			-do- C2	22
26.			-do- C3	16
27.			D- 50 Sakori	32.5
28.			D-51 Jajha Kheriun C1	84
29.			-do- C3 (Part)	42.4
30.			D-52 Bhojdeen C1	129.2
31.			-do- C2	90
32.			-do- C3a	18.40
33.			-do- C3b	58.40
34.			D-89 Malansheel C2	100.4
35.			-do- C3	64.4
36.			U-249 Khadrab	81
37.			U-250 Shanet	70
38.			U-251 Sherpur	40
39.			U-252 Malansheel	73
40.			U-253 Dhera Dhuai	77
41.			U-254 Banlog	121
42.	Shimla forest division	Kali Forest Range	U- 248 mahesu	8
43.	Do	Do	D-88 Bhalawag C11	74.8
44.	do	do	-do- C12	117.4
Total				2044.30

LIST OF PANCHAYATS/VILLAGES INCLUDED IN THE ECO-SENSITIVE ZONE

S. No.	Nam of Forest Division	Name of Panchayat	Name of Village
1	Shimla (WL) Division	Chail	Mehanii
2		Sakori	Sakori
3		Banjini	Binnu
4		Do	Nirudh
5		Do	Banjini
6		Do	Khinna
7		Do	Shillai
8		Jhajhi	Jhajha

ANNEXURE- IIB

MAP SHOWING LOCATION OF VILLAGES INSIDE THE ECO-SENSITIVE ZONE OF CHAIL WILDLIFE SANCTUARY ALONG WITH LATITUDE AND LONGITUDE OF PROMINENT LOCATIONS ON SURVEY OF INDIA (SOI) TOPOSHEET



ANNEXURE-III

TABLE A: GEO- COORDINATES OF PROMINENT LOCATIONS OF CHAIL WILDLIFE SANCTUARY

Sl. No	Longitude (E)	Latitude (N)
1	77°12' 9.028"	30°59' 55.996"
2	77°12' 41.596"	30°59' 13.809"
3	77°13' 10.067"	30°57' 57.425"
4	77°14' 11.62"	30°58' 0.813"

5	77°13' 48.095"	30°57' 11.485"
6	77°13' 12.233"	30°57' 35.032"
7	77°12' 20.855"	30°56' 57.615"
8	77°13' 16.783"	30°56' 17.749"
9	77°12' 27.758"	30°55' 43.617"
10	77°11' 22.6"	30°56' 9.821"
11	77°10' 31.696"	30°56' 53.335"
12	77°10' 8.171"	30°57' 38.918"
13	77°11' 9.451"	30°57' 31.078"
14	77°11' 37.117"	30°58' 55.447"
15	77°11' 36.708"	30°58' 36.867"
16	77°12' 7.204"	30°58' 55.988"
17	77°11' 16.299"	30°59' 27.448"
18	77°11' 6.504"	31°0' 9.629"

TABLE B: GEO-COORDINATES OF PROMINENT LOCATIONS OF ECO-SENSITIVE ZONE

Sl. No	Longitude (E)	Latitude (N)
1	77°11' 56.018"	30°0' 32.698"
2	77°12' 52.2"	30°0' 27.653"
3	77°13' 11.255"	30°59' 55.123"
4	77°13' 38.648"	30°59' 29.381"
5	77°13' 13.418"	30°59' 4.081"
6	77°13' 16.331"	30°58' 25.072"
7	77°13' 53.284"	30°58' 28.708"
8	77°14' 56.187"	30°58' 20.27"
9	77°14' 54.255"	30°57' 49.534"
10	77°15' 0.733"	30°57' 30.081"
11	77°14' 43.614"	30°57' 13.781"
12	77°14' 11.807"	30°56' 38.437"
13	77°14' 32.66"	30°56' 22.254"
14	77°13' 44.047"	30°55' 52.892"
15	77°13' 31.797"	30°55' 22.973"
16	77°12' 59.635"	30°55' 23.43"
17	77°12' 43.558"	30°54' 52.633"
18	77°11' 20.121"	30°55' 18.073"
19	77°11' 30.036"	30°55' 31.449"

20	77°10' 59.42"	30°55' 33.492"
21	77°10' 38.367"	30°56' 7.228"
22	77°10' 5.272"	30°55' 55.415"
23	77°9' 29.847"	30°56' 45.995"
24	77°9' 9.836"	30°57' 22.93"
25	77°9' 37.129"	30°57' 56.195"
26	77°9' 48.653"	30°58' 18.877"
27	77°10' 25.934"	30°58' 6.559"
28	77°11' 8.898"	30°58' 36.673"
29	77°10' 56.63"	30°59' 16.531"
30	77°10' 32.137"	30°59' 37.956"
31	77°10' 31.006"	31°0' 6.103"
32	77°10' 53.512"	31°0' 35.546"

ANNEXURE-IV

LIST OF VILLAGES COMING UNDER ECO-SENSITIVE ZONE OF CHAIL WILDLIFE SANCTUARY ALONG WITH GEO-COORDINATES

Sl. No	Name of Village	Longitude (E)	Longitude (N)
1	Mehani	77°11' 30.249"	77°10' 27.944"
2	Sakori	77°11' 39.054"	77°10' 27.944"
3	Binoo	77°10' 42.251"	77°10' 27.944"
4	Naroodh	77°10' 58.509"	77°10' 27.944"
5	Banjani	77°11' 48.3"	77°10' 27.944"
6	Khinna	77°11' 55.413"	30°59' 28.471"
7	Shillai	77°11' 31.195"	30°59' 45.238"
8	Jhaja	77°10' 8.04"	30°57' 51.599"
9	Koro	77°10' 33.444"	30°57' 31.615"
10	Kohla	77°10' 53.428"	30°57' 41.099"
11	Shakog	77°11' 24.929"	77°11' 24.929"
12	Mahog	77°11' 44.235"	30°57' 53.801"
13	Kathala	77°11' 4.775"	30°58' 8.027"
14	Chabri	77°10' 27.944"	30°57' 58.035"
15	Poash	77°11' 13.751"	30°58' 35.462"
16	Sewala	77°11' 13.751"	30°58' 35.462"

17	Ghenti	77°9' 28.58"	
18	Nagali	77°12' 41.139"	
19	Jadhya	77°13' 20.091"	
20	Jethna	77°14' 2.092"	
21	Tikkar	77°14' 34.609"	
22	Nawag	77°14' 20.891"	
23	Kanori	77°13' 38.382"	
24	Kano	77°12' 29.623"	
25	Hukkal	77°12' 37.583"	
26	Ghewa	77°13' 25.003"	
27	Mahori	77°13' 25.003"	

ANNEXURE –V

Performa of Action Taken Report:-

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



Control Forms



CONTROL FORMS
FORM WM-1
CREATION OF NEW ARTIFICIAL WATERHOLES

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

Note:

Category :Masonry anicut, earthen bund, lined depression, borewell and pump, reservoir, spring fed, tanker fed, guzzler, aquifer; permanent or temporary

Location : By compartment or by a named feature and name given if any

Performance : Successful, partially successful, failure (given reasons for the latter two)

FORM WM-1.1
MAINTENANCE OF WATERHOLES: NATURAL

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

Note:

Category : Spring, seep, natural depression, a flowing stretch, reservoir

Location : By compartment or by a named feature and name given if any

Nature of work : Desilting, provision of apron, any other category

Performance : Successful, partially successful, failure (reasons for the last two)

FORM WM- 1.2
MAINTENANCE OF WATERHOLES: ARTIFICIAL

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

Note:

Category : Masonry anicut, earthen bund, lined depression, borewell and pump, spring fed, tanker fed, guzzler, aquifer

Location : By compartment or by a named feature and name given if any

Year : Year of maintenance, with year of establishment in parenthesis

Nature of work : Desilting, grouting, repairing leaks, repair to mechanical parts, closing anicut openings, any other work

Performance : Successful, partially successful, failure (reasons for the latter two)

FORM WM- 2
RESTORATION OF HABITAT: CONTROL OF REGENERATION OF WOODY SPECIES IN
GRASSLANDS

Sr.No.	Location/name of site	Year	Extent of area (ha)	Species controlled	Operation	Total Cost	Cost/ha	Remarks
1	2	3	4	5	6	7	8	9

Note:

Location : By compartment, site name, etc.

Species controlled : List the species

Operation : Uprooting, cutting, burning etc. manual or mechanised methods.

Remarks : The measures of success, suitability of methods,

FORM WM- 2.1
RESTORATION OF HABITAT: SOIL CONSERVATION MEASURES- INITIAL OPERATIONS
AND SUBSEQUENT MAINTENANCE

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

Note:

Location: By compartment, name of site or landmarks .

Extent of area : Total area identified for such treatment, In case of streams or gullies, the length involved.

Area treated : If linear features then quote length; otherwise area.

Operation : Structures involved such as gully plugs, trench-cum-mound, spurs and bunds etc. quote quantity nos. and cmt. Of earthwork.

Remarks : Mention if initial work or maintenance.

FORM WM- 2.2
RESTORATION OF HABITAT: PLANTING, SOWING-INITIAL OPERATION

Sr.No.	Location	Year	Extent of area (ha)	Species	Planting stock	Spacing	Operations	Total cost	Cost /ha	Remarks
1	2	3	4	5	6	7	8	9	10	11

Note:

Location : By compartment, or landmarks .

Casualty replacement : Mention planting stock by species, number and kind (polythene bag, root shoot, rhizome etc).

Operations : Planting, sowing technique, protection measures.

Remarks : Operational problems. Protection problems, any other useful information.

Assess & mention survival percentage & growth before taking up casualty replacement

FORM WM- 3
ANIMALS: MEASURES TRENDS IN POPULATION (YEAR)

Sr.No.	Species	Population estimation methodology	Adult		Sub-adults		Operations	Total Cost	Cost/ha	Remarks
			Male	Female	Male	Female				
1	2	3	4	5	6	7	8	9	10	11

Note:

Population: e.g. pugmark, line transact, scan, roadside counts etc., area covered, sampling intensity

Estimation : data treatment, extrapolation where involved. In case of indices of density or dung, count mention those figures under the remarks' column; protection problems, any other useful information.

Remarks : Operational problems, protection problems, any other useful information.

Indices of density or dung count details to be recorded here.

FORM WM- 3.1
ANIMALS: NEW RECORDS

Sr.No.	Species	Location	Year	How discovered	Details of number, age, sex	Habitat description	Remarks
1	2	3	4	5	6	7	8

Note:

Animals will include vertebrates and invertebrates

How discovered : Sighting, dead specimen, reliability of sighting, captured specimen, inconvertible other evidence

Number, age, sex etc :As applicable to vertebrates

Habitat description :Broad habitat description such as vegetation, and elements such as water, large old trees, snags, down log material. Use microhabitat descriptors only if relevant

Remarks : Any other useful information.

FORM WM- 3.2

ANIMALS: MORTALITY OTHER THAN THAT ATTRIBUTABLE TO AN OFFENCE

[illegible]

Note:

Location : By compartment, landmark etc.

Sex and age : As per parameters for age class. Sex, if possible, to identify Discovered in what condition :carcass, complete or partial. Skull or any other recognisable remains collected where only some remains of an animal are found.

Cause of mortality : If known e.g. territorial fight, accident, possible disease (following post-mortem results) , old age, cause difficult to determine, predation etc.

Remarks : Any other useful information..

FORM WM- 3.3
ANIMALS: MORTALITY ATTRIBUTED TO POACHING OR AN ACT OF VANDALISM

Sr.No.	Species	Location	Cause of mortality				Remarks
			Number	Sex	age	Class	
1	2	3	4				5

Note:

Location : By compartment, landmark etc.

Sex and age : As per parameters for age class. Sex, if possible, to identify Discovered in what condition :carcass, complete or partial. Skull or any other recognisable remains collected where only some remains of an animal are found.

Cause of mortality : If known e.g. territorial fight, accident, possible disease (following post-mortem results) , old age, cause difficult to determine, predation etc.

Remarks : Any other useful information.

FORM WM-4
PLANTS: NEW RECORDS

Sr.No.	Family	Species	Year	Location	Habitat	Status	Remarks
1	2	3	4	5	6	7	8

Note:

Habitat : Description by vegetation associates at various levels, % canopy closure if relevant, soil/site, microhabitat elements such as higher level of moisture, woody debris or humus etc.

Status : A broad idea on its frequency, national status e.g. endangered, rare, endemic etc.

Remarks : Any specific information.

FORM WM-4.1
PLANTS: DISEASE AND MORTALITY

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

Note:

Location : By compartment or landmarks.

Particulars of disease : In case of trees, the mortality by diameter classes and number, symptoms, insect pest activity or any other external indicators if visible, none if not seen. No mortality but infestation detected, mention that as morbidity.

Area affected: In hectares.

Remarks: Any specific environmental condition, or site factors you may suspect as being related to the problem or any other useful information.

FORM WM-4.2
PLANTS: ILLEGAL AND LEGAL COLLECTION

Sr.No.	Year	Species	Location	Details of materials	Quantity	Trade particulars	Remarks
1	2	3	4	5	6	7	8

Note:

Location : By compartment or landmarks.

Details of materials : To include timber, firewood, bamboo, NWPs. Plants collected could be of local significance or of trade significance on a national or international scale. Distinguish between legal and illegal activity in the remarks' column.

Quantity : In appropriation units

Trade particulars : What is traded? Portions, partially processed or processed material and where are the major trade centres, known or suspected to be?

Remarks : Any other useful information.

Legal collection applies to PA, if permitted for research; to TUZ or to the buffer zone.

FORM WM-5
GRAZING OF DOMESTIC LIVESTOCK

Sr.No.	Grazing unit no..	List of villages in the unit	Village-wise listed population of cattle	Capacity of the unit (cattle units) and number of cattle grazed	Total cattle units grazed		Remarks
					Legal	Illegal	
1	2	3	4	5	6	7	8

Note:

Remarks: (1) Mention number of cattle immunised against FMD, RP, anthrax as the case might be and the number of cattle without the prophylactic cover.

(2) If grass is allowed to be cut for cattle being stall-fed, mention the village and number of such cattle.

FORM WM-6
INTER -AGENCY PROGRAMMES: AGENCIES AND SCHEMES
(GOVERNMENT) YEAR

Sr.No.	Name of agency	Central or State	Number and name of scheme operated	Physical and financial targets		Area and location	Remarks
				Given	Achieved		
1	2	3	4	5	6	7	8

Note:

Name of scheme : To include all activities in the Govt. sector, i.e. construction, use of resources, development processes etc. mention names of schemes, projects or normal operations. This will address all departments in the management area and those activities outside but capable of influencing the management area.

Remarks : Success, adverse impacts, incompatibility with PA management objectives or failures should be mentioned. Detailed notes to go in the PA book

FFORM WM-6.1
PROGRAMMES OF NGOS YEAR

Sr.No.	Name of agency	HQ location	Nature of scheme operated	Physical and financial targets		Area and location	Remarks
				Given	Achieved		
1	2	3	4	5	6	7	8

Note:

Remarks : Success or adverse impacts, incompatibility with PA management objectives or failures should be mentioned. Detailed notes to go in th e PA book. These programmes and activities could

FORM WM-7
CONSTRUCTION*/MAINTENANCE* OF INFRASTRUCTURE:
ROADS & BRIDGES (*EXISTING/NEW) YEAR

Sr.No.	Category	Range	Surface	Name or number	Length covered(km)	Cross drainage works, bridges or culverts with types	Total cost and status
1	2	3	4	5	6	7	8

Note:

Category of road :National highway, State highway, district road etc. Public road, forest road or open only to managers should be stated.

Surface type : Black topped, metal, earth etc. Applies to roads. Name or number :As the case may be.

Cross drainage type : e.g. for culverts-box, Hume pipe culverts etc.

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

Status : Work completed or ongoing. State also the agency responsibility; state whether operational or non-operational Strike out which is not applicable. Use separate forms as required; for construction & for maintenance details

FORM WM-7.1
CONSTRUCTION */MAINTENANCE* OF INFRASTRUCTURE:
BUILDING (*EXISTING/NEW) YEAR

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

Note:

Nature of building : e.g. residential, office, store, chauki, watch tower, tourist facility, hide, barrier, patrolling camp (temporary or permanent) etc.

Location : By compartment or village or landmark as appropriate.

Type of construction : Masonry (brick/stone), log or wooden, metal, local material etc.

Status : Completed or ongoing.

:Strike out which is not applicable. Use separate forms as required; for construction and for maintenance details.

FORM WM-7.2
DEVELOPMENT*/ MAINTENANCE* OF INFRASTRUCTURE:
COMMUNUCATION (EXISTING/NEW) YEAR

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

Note:

Type of facility : e.g. telephone, wireless

Location : Staff Hq location, village, landmark etc.

Advantage gained : Area served, staff locations connected etc.

Remarks : Record status- complete. Ongoing, functional, non-functional

:Strike out that is not applicable. Use separate forms as required; for new facility and maintenance.

FORM WM-7.3
DEVELOPMENT*/ MAINTENANCE* OF INFRASTRUCTURE: VEHICLES
(*EXISTING/ NEW) YEAR

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

Note:

Kind of vehicle : Jeep ,trailer .tractor, truck, minibus, tanker, motorcycle, bicycle, boat (paddle or motor), launch, car, riding elephant, ponies, etc..

Intended use : Management support, patrolling/antipoaching, tourism etc.

Remarks : Any other useful information. Mention written off vehicles, retired or dead animals.

: Strike out the inapplicable. Use separate forms as required to indicate acquisition, maintenance.

FORM WM-7.4
DEVELOPMENT OF INFRASTRUCTURE: MANPOWER RECRUITMENT*/
EXISTING MANPOWER YEAR

Sr.No.	Category of post	Number	Status		Scale of pay	Intended Deployment/deployed as	Remarks
			Recruited	Vacant			
1	2	3	4	5	6	7	8

Note:

Status : Permanent, temporary, contractual

Intended deployment : State purpose e.g. conservation education, research, antipoaching, etc as applicable..

Remarks : Any other useful information. New recruits within the year should be mentioned.

This will also include officers and staff obtained on transfer/deputation. Likewise changes due to personnel going out on transfer, deputation, retirement, removal, resignation, death should be reflected in this column.

:Strike off that which is not applicable. Accordingly, use additional forms.

One for recruitment and one for the existing manpower.

FORM WM-7.5
DEVELOPING INFRASTRUCTURE: CONSTRUCTION BOUNDARIES, FENCES,
CPTS, EPTS, ENCLOSURES, ENCLOSURES (*EXISTING/NEW) YEAR

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

Note:

Category : Kind of boundary e.g. compartment, block, zone etc. In case of fences: power fence, others

Location : By compartment or suitable landmark.

Numbers : In case of enclosures, enclosures, number of pillars etc. as applicable.

Specifications : As applicable to the construction: dry rubble, chain link, local material, height, area, depth, width etc.

Remarks : Any other relevant information.

: Strike out that is applicable. Use a form each for maintenance of existing features and for new features

FORM WM-7.6
DEVELOPING INFRASTRUCTURE: FIRELINES (*EXISTING/NEW) YEAR

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

Note:

Category : Main or subsidiary etc.

: Strike out that which is inapplicable. Use one from each for maintenance of existing Fireline and creation of new.

FORM WM-8 TOURISM YEAR

Total number of visitors all categories

Name of complex:

Total revenue earned:

Sr.No.	The category of visitors by month and number				Indian				No. of day visitors	No. staying overnight and revenue
	Adult			Children	Foreigners	Rural	Urban	Revenue		
	Month	Male	Female							
1	2	3	4	5	6	7	8	9	10	11

Note:

: Coulm 2 to 5 will be written in three successive lines for the month pertinent, one below the other.

First line information pertains to foreign tourists. Put a tick () in col.6. Second and third line details rural and urban tourists respectively. Put a tick () in col. 7, column 8 as applicable.

FORM WM-8.1
ECO-TOURISM-PARTNERS YEAR

Sr.No.	Identity of eco-tourism entrepreneur	Infrastructure	Programmes	Investment	Kind and extent of benefits to local people	Benefits to PA & resources
1	2	3	4	5	6	7

FORM WM-8.2 (A) & (B)
ECO-TOURISM-VISITORS ASPIRATIONS YEAR

Visitors category	Number	Interested in									
		Plants	Bird watching	Animal sighting	Photography	Sketching	Scenic place	Cultural/historical sites	Pilgrimage	Trekking	Other
1	2	3	4	5	6	7	8	9	10	11	12

Note:

:8.4 (A) is for urban population

8.4 (B) is for rural population

Create separate forms 8.4 (A) & 8.4 (B) that are otherwise identical

FORM WM-9
OUTBREAK OF FIRES YEAR

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

Note:

Location : By compartments

Reasons : Established or suspected.

Estimated loss : e.g. number of trees damaged, stacked firewood/timber/bamboo destroyed/damaged by volume and cost, wild animals dead, particulars of sensitive sites affected, other property or life destroyed

Remarks : State particularly problems encountered in detection and suppression and any other useful information. State also whether the extent of fires has been mapped.

FORM WM-10
OFFENCE CASES DETECTED YEAR

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

Note:

Category : e.g. illegal cutting of trees, illegal firewood, illegal NWP, Poaching, encroachment, illegal cattle grazing etc. category should be codified by letters of alphabet
Remarks : Any other useful information. This should also include the number of cases pending decision with the department.

: The cases under column 8 pertain to area of non-PA status under management which do not involve an endangered species (schedule-1).

FORM WM-11
INCENTIVES AND REWARDS/AWARDS YEAR

Sr.No.	Range	Number of recipients: incentives/reward for detecting offences	No. of recipients award for outstanding service	Kind of reward	Number of recipients	Remarks
1	2	3	4	5	6	7

Note:

Kind of reward : e.g. a medal like the Shaurya Chakra, any other such awards instituted by the State or Central Government

Remarks : Any other useful information. If an award carries cash, mention the amount.

FORM WM-12
RESEARCH PROJECTS UNDER IMPLEMENTATION THROUGH PA
MANPOWER WITH OR WITHOUT
COLLABORATION WITH OTHER AGENCIES YEAR

Sr.No.	Title	Completed	Ongoing	New	Status	Financial outlay (Rs)	Expenditure	Remarks
1	2	3	4	5	6	7	8	9

Note:

Completed : State date of completion and the status of the project report.

Ongoing : State since when the project is under operation and expected period of completion.

New : State the date of commencement and duration.

Status State the progress towards achievement of objectives; or project which has been dropped or held in abeyance etc.

Remarks : Any other relevant information. If the project is in collaboration with any other agency or is a contractual arrangement, state the situation and the name of the collaborating agency. If animal/plant specimen are being collected, state authority and where the collection is being housed.

FORM WM-12.1
RESEARCH PROJECTS UNDER IMPLEMENTATION BY OTHER
AGENCIES YEAR

Sr.No.	Title	Completed	Ongoing	New	Status	Financial outlay (Rs)	Expenditure	Remarks
1	2	3	4	5	6	7	8	9

Note:

Completed : State date of completion and the status of the project report.

Ongoing : State since when the project is under operation and expected period of completion.

New : State the date of commencement and duration.

Status State the progress towards achievement of objectives; or project which has been dropped or held in abeyance etc.

Remarks : Any other relevant information. State the name of the agency. If animal/plant species are being collected, state authority and where the collections are being housed.

FORM WM-13
SURVEY AND INVENTORIES YEAR

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

Note:

Completed : State date of completion and the status of the project report.

Ongoing : State since when the project is under operation and expected to be completed.

New : State the date of commencement and duration.

By PA personnel : Will include collaboration or contractual arrangement. State the case as relevant.

Other agency : State the name of the agency.

Remarks : If specimen of plants/animals are being collected, state where the collection is being housed and authority. Any other useful information.

FORM WM-14
THE MONITORING PROGRAMME YEAR

Sr.No.	Title of the programme	Date of initiation	Responsible agency	Technique	Status of collaboration and analysis of data	Remarks
1	2	3	4	5	6	7

Note:

Technique : e.g. PCQ, belt transact, line transact and plots, pugmarks etc. by the title of the technique

Status of collaboration : write only if applicable.

FORM WM-15
ECODEVELOPMENT PROGRAMME: TARGETS AND IMPLEMENTATION
YEAR

Sr.No.	Nature of the programme	Sector (Central/state) or NGO sponsored	Targets set		Achievements		Village (buffer/enclaved)	Remarks
			Physical	Financial	Physical	Financial		
1	2	3	4	5	6	7	8	9

Note:

Nature of the programme : e.g .pasture development, fodder plantations, establishing biogas units, livestock improvement, establishment and development of sericulture, revival of local skills such as handicrafts, water harvesting systems, adults education etc.

Village : Site where programmes is being implemented-whether buffer or inside PA

Remarks : Site problems, state failures and reasons thereof ,reasons for not attaining targets, for non-implementation or deviation etc. Stat whether it is on the right tracks in context of achievement of objectives. State the date of commencement and duration.

FORM WM-16
PROGRESS OF ALL STRATEGIES UNDER THE ZONE AND THEME PLANS
YEAR

Sr.No.	Zone/Theme	Nature of strategy	Targets as per the schedule of operations/APO*		Achievements		Location	Remarks
			Physical	Financial	Physical	Financial		
1	2	3	4	5	6	7	8	9

Note:

Zone/Theme plan : Mention title..

Village : e.g. demarcation of boundary, creation of artificial water source, salt lick, maintenance of water sources (desilting), cutting and burning of Fireline, prescribed burning, weed control, immunization of cattle, maintenance of nature trails, setting up wayside exhibits, recruitment of staff, number of villages translocated, settled on new sites etc.

Location : Where pertinent, mention location e.g. weed control in comptt. 105, 111.117. right tracks in context of achievement of objectives. State the date of commencement and duration.

Remarks : State problems, failures and reasons thereof, shortfall and reason, deviations if any and reasons, non-implementation with reasons etc.

*APO : (Annual Plan of operations.) Under Col.4 &5, each column will have two figures. First the figure as per the schedule of operations in the plan and next to it in the same column the figure as per APO. If they differ it amounts to a deviation

FORM WM-17
PROGRESS OF LEGAL SETTLEMENTS UNDER THE WILDLIFE (PROTECTION) ACT 1972
IN CONTEXT OF ATTAINMENT OF THE STATUS OF A WLS/NP YEAR

Sr.No.	Nature of settlement/enquiry & section under the Act	Progress achieved till the commencement of the year under report	Progress achieved during the year	Remarks
1	2	3	4	5

Note:

Remarks : State the problems encountered and any other useful information such as reasons for inadequate/lack of progress.

FORM WM-18
A SUMMARY OF ALLOTMENT OF FUNDS, REVENUE AND EXPENDITURE
YEAR

Sr.No.	Plan/non-plan/any other grant	Sector Central/State/Other	Allotment received		Expenditure Incurred		Revenue realised	Remarks
			Non-recurrent	Recurrent	Non-recurrent	Recurrent		
1	2	3	4	5	6	7	8	9

Note:

Explain under expenditure, over expenditure, savings and surrenders. Stat the extent of demand for the year as per the schedule of operations/APOI in the remark's column.

FORM LS-1
EXISTING CORRIDORS-CONSERVATION INPUTS REQUIRED

Sr.No.	Identity of the corridor	Length/Section	Nature of inputs/treatment	Target	Agency/cies identified	Constraints	Anticipated investment
1	2	3	4	5	6	7	8

Note:

Col.2 : by name ,number, etc.

Col 3 : Total length, if only a particular section is relevant, mention the section

FORM LS-2
EXISTING CORRIDORS-CONSERVATION INPUTS ACCOMPLISHED

Sr.No.	Identity of the corridor	Length/Section Addressed	Nature of inputs/ treatment	Agency	Target set	Achievement	Constraints	Investment	Remarks
1	2	3	4	5	6	7	8	9	10

Note:

Col. 10 State success and quality of achievement. Anything else that is significant.

FORM LS-3
EXISTING CORRIDORS-MONITORING HABITAT RECOVERY

Sr.No.	Identity of the corridor	Length/Section monitored	Inputs/ treatment that had been provided	Monitoring technique/process	Indicators of recovery	Nature of progress	Constraints	Remarks
1	2	3	4	5	6	7	8	9

Note:

Col 9: Indicate the quality and measure of success

FORM LS-4
POTENTIAL CORRIDORS-CONSERVATION INPUTS REQUIRED

Sr.No.	Identity of the corridor	Length/Section	Nature of inputs/treatment	Target	Agency/cies identified	Constraints	Anticipated investment
1	2	3	4	5	6	7	8

Note:

See from LS-1

FORM LS-5
POTENTIAL CORRIDORS-CONSERVATION INPUTS ACCOMPLISHED: YEAR

Sr.No.	Identity of the corridor	Length/section addressed	Nature of inputs/treatment	Agency	Target set	Achievements	Constraints	Investment	Remarks
1	2	3	4	5	6	7	8	9	10

Note:
see form LS-2

FORM LS-6
POTENTIAL CORRIDORS-MONITORING HABITAT RECOVERY
YEAR

Sr.No.	Identity of the corridor	Length/section monitored	Inputs/treatment that had been provided	Monitoring technique/process	Indicators of recovery	Nature of progress	Constraints	Remarks
1	2	3	4	5	6	7	8	9

Note:
See form LS-3

FORM LS-7
CONNECTING MULTI-AGENCY PROGRAMS IN LANDSCAPE BASED PLANNING
PARTNERS DURING YEAR:

Sr.No.	District	Sector Central/state/Other (specify)	Agency & work area/speciality	Program coverage	Agreed input and mechanism	Financial implications/investment & source
1	2	3	4	5	6	7

Note:

Col. 4 : Main agency agenda e.g. livestock production, health, education, irrigation

Col. 5 : Indicate by either administrative unit e.g. tehsil, or number of village i.e. target

Col.6 : What has the agency agreed on to deliver? Through agency plan/scheme?

FORM LS-8
MONITORING EXTENT AND MULTI-AGENCY PROGRAMS YEAR

Sr.No.	District	Sector/central/State/Other (Specify)	Agency	Objectives & targets	Achievement & standard	Constraints	Extent of investment	Remarks
1	2	3	4	5	6	7	8	9

Note:

:Co.I 6 The standard of achievement to be based on (1) verification of targets (2) perception of satisfaction of people and their own assessment

Col. 7 (1) as reported by agency (2) as perceived by people concerned.

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- 8.Management Plan of Nellai Wildlife Sanctuary by Sh. K. Thirumal IFS
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