सत्यमेव जयते

Department of Wildlife Protection J&K Government

The Management Plan
of
Jasrota Wildlife Sanctuary

Period
2020-21 to 2029-30

By:

Vijay Kumar, SFS
Wildlife Warden
Kathua

Prepared by:

Wildlife Division Kathua

Boulevard Road, Near Lalit Grand Palace, Srinagar – 190001. Tel/Fax No: 0194-2501069
(May - October)
Mandi - Hills (Near Ashoka Hotel) Jammu – 180005.
Tele/Fax: 0191-2572570
(November - April)
Website: www.jkwildlife.com
Email: jkwildlife72@gmail.com
jkwildlife72@gmail.com

Government of Jammu & Kashmir
Office of the Chief Wildlife Warden

Subject:- Approval of the Management Plan of **"Jasrota Wildlife Sanctuary"**

Whereas, the draft Management Plan for Jasrota Wildlife Sanctuary has been prepared by Wildlife Warden, Kathua.

Whereas, the draft of said Management Plan has undergone various reviews at different levels and suggestions and observations made by the participants were incorporated.

Whereas, the Committee constituted vide this office order No. 13 of 2020 dated 28-01-2020 held its meetings on 21.08.2020, 28.11.2020, 13.02.2021 and 24.05.2021 and discussed the Draft Management Plan for Jasrota Wildlife Sanctuary thoroughly.

Whereas, the Committee in its final meeting held on 24.05.2021, recommended for approval of Management plan of Jasrota Wildlife Sanctuary for the period 2020-2030 subject to the incorporation of suggested points in the meeting.

Whereas, the Regional Wildlife Warden Jammu vide his No. RWLWJ/2021-22/1635-36 Dated 30-06-2021 has submitted that the points suggested in the final meeting of the Committee have been incorporated in Management plan of Jasrota Wildlife Sanctuary and has recommended for its approval.

Therefore, under the authority vested under section 33 of Wildlife protection Act 1972, the undersigned accords approval to the Management Plan for **"Jasrota Wildlife Sanctuary"** for the period 2020-2030.

(Suresh Kr. Gupta)IFS
Chief Wildlife Warden
Jammu and Kashmir

No:- WLP/Res/2021-22/201-204 **Dated:- 01.07.2021**

Copy to the :-

1. Commissioner Secretary to Govt, Forest, Environment and Ecology Department, Civil Secretariat, Jammu for kind information.
2. Regional Wildlife Warden, Jammu.
3. Wildlife Warden, Kathua Division.
4. Pvt. Secretary to Principal Chief Conservator Forests, J&K Govt. for kind information of PCCF/HoFF.

Suresh Kr. Gupta, IFS
Chief Wildlife Warden
Jammu & Kashmir

Foreword

The Jasrota Wildlife Sanctuary was notified by the Government of Jammu and Kashmir vide SRO 151 dated 19th March, 1987. The Protected Area has been managed by the Wildlife Protection Department since its notification. In order to ensure the management on scientific basis, the present Management Plan for Jasrota Wildlife Sanctuary has been prepared with the application of latest technology available and inclusion of latest concepts of management. This Management Plan shall serve as an authentic document for scientific baseline data for future management of wildlife in the area.

The Management Plan has been prepared keeping in view the guidelines laid down by Sh. W B Sawarkar and is a mile stone in achieving set goals & objectives. The implementation of plan shall become guiding mechanism for further Planning and Management of Jasrota Wildlife Sanctuary.

I congratulate Dr. Kumar M.K, IFS Regional Wildlife Warden, Jammu and Mr. Vijay Kumar, SFS Wildlife Warden, Kathua who have contributed whole heartedly in preparation of this Management Plan in time bound manner.

Suresh Kr. Gupta, IFS

PREFACE

The Jasrota Wildlife Sanctuary which came into existence vide S.R.O No.151 Dated: 19th March, 1987 under section (17) of Jammu & Kashmir Wildlife (Protection) Act, 1978. Jasrota Wildlife Sanctuary is located in district Kathua at a distance of 75 Kms from Jammu towards Lakhanpur via National Highway 44 in Jammu and Kashmir UT. The sanctuary covers an area of 10.04 square kilometers and falls between 32° 27' to 32° 31' North Latitude and 75° 22' to 75° 26' East Longitude. The tract is located on survey of India GT sheets 43 P/7 and 43 P/6 on 1:50,000 scale. It covers an altitude range of 350 m to 611 m above sea level.

The present Management Plan (2020-21 to 2029-30) of Jasrota Wildlife Sanctuary is the first ever plan for planning wildlife management. Non-availability of adequate authentic scientific baseline data and lack of documentation has been a major constraint in preparation of this management plan.

The exercise for compilation of this plan involved a lot of teamwork. I am highly indebted to Sh. Suresh K. Gupta, IFS, Principal Chief Conservator of Forests/ Chief Wildlife Warden, J&K Govt. for providing all expedient guidance and directions during the preparation of this Management Plan.

I am gratified to the Addl. Principal Chief Conservators of Forests, Eco-tourism J&K Sh. J. Frankoi, IFS for his valuable support and guidance.

I admiringly acknowledge the valuable technical guidance provided by Dr. Kumar M.K, IFS, Regional Wildlife Warden, Jammu during the entire process of compilation and finalization of the present plan.

I take this opportunity to place on record my heartfelt gratitude towards Dr. Neeraj Sharma, Senior Assistant Professor Institute of Mountain Environment, University of Jammu, Bhaderwah Campus, J&K for sparing his valuable time and help in enlisting flora and fauna of the Sanctuary.

I express my sincere thanks to Sh. Guldev Raj Trustee of The Himalayan Avian-NGO for his valuable inputs during the preparation of

Management Plan. I duly acknowledge the inputs from Dr. Abhijit Das, Dr. J. A. Johnson & Dr. K. A. Sivakumar Wildlife Institute of India, Dehradun from time to time.

My sincere thanks to Mr. Majid Farooq, Administrative Officer/Scientist Coordinator/PI (Climate Change Center/ ENVIS/ISRO Projects) Department of Ecology, Environment and Remote Sensing, for his contribution in preparation of maps that are essential for the Management Plan. My Special thanks to Sh. Kuldeep Mehta (Survey Officer, PI Division) for his valuable inputs for preparation of maps.

I duly acknowledge the inputs from field, particularly by Sh. Bishamber Singh, Range Forest Officer, Jasrota Wildlife Sanctuary and also from other field staff including Forester, Guards and other staff, which greatly helped in prioritizing the strategies in the management plan. I also thank my office staff for their help in preparing the management plan.

I express my sincere thanks to Mr. Sanjeev Kumar, Wildlife Guard and S. Paramjeet Singh, Wildlife Guard who helped in typing and compilation. My sincere thanks also due to all local people, members of PRI & S.C and officers of various departments whose ideas and suggestions in one form or another have helped in framing some of the strategies of this plan.

Dated: 5th August, 2021

Vijay Kumar, SFS
Wildlife Warden
Kathua

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EXECUTIVE SUMMARY OF THE MANAGEMENT PLAN

The Jasrota Wildlife Sanctuary is spread over a total area of 10.04 Square Kilometers. The flora and fauna represent rich biological significance of this Sanctuary. The vegetation of the sanctuary comes under the major group "Sub tropical Northern Mixed Dry Deciduous Forests". A wide variety of sub-tropical broad-leaved tree and shrubs are found in the area. Large area of the sanctuary is covered with shrubs and weeds where as some pure patches of bamboo are also found at places. The broad-leaved forest consists of deciduous species.

The Sanctuary hosts a wide variety of fauna and avifauna typical to the area of sub-tropical climate. Important flora reported from the Jasrota Wildlife Sanctuary are Khair *(Acacia catechu),* Sirris *(Albizzia lebbeck),* Phalai *(Acacia modesta),* Brankut or bhainkar *(Adhatoda vasica),* Garana *(Carissa opaca),* Bael *(Aegle marmelos),* Simul *(Bombax ceiba),* Bamboo *(Dendrocalamus strictus),* tillu or Shisham *(Dalbergia sissoo),* Pipal *(Ficus religiosa),* Bargad *(Ficus bengalensis),* Amaltas *(Cassia fistula),* Palas *(Butea monosperma),* Mango *(Mangifera indica),* Kambal *(Lannea grandis),* Amla *(Emblica officinalis),* Kachnar *(Bauhinia variegata),* Ber *(Zizyphus jujuba),* Branker *(Adhatoda vasica),* Cyntha *(Dodonaea viscosa), Phyllanthus emblica, Mallotus philippensis, Bauhinia vahlii, Tinospora cordifolia, Holarrhena antidysenterica, Lantana camara, Woodfordia fruticosa, Colebrookea oppositifolia, Calotropis procera* etc. *Euphorbia royleana* is also found on rocky areas. Chir Pine *(Pius roxburghii*) forest in found on outer dry foothills of Shiwalik Range.

Important mammalian fauna reported from the Jasrota Wildlife Sanctuary are Nilgai *(Boselaphus tragocamelus),* Spotted deer *(Axis axis),* Sambar *(Rusa unicolor),* Wild boar *(Sus scrofa),* Barking deer *(Muntiacus muntjak),* Rhesus macaque *(Macaca mulatta),* Jackal *(Canis aureus),* Jungle Cat *(Felis chaus),* Common Palm Civet *(Paradoxurus hermaphrodites),* Small Indian Civet *(Viverricula indica),* Hare *(Lepus nigricollis),* Indian pangolin

(Manis crassicaudata), Porcupine *(Hystrix Indica),* Mongoose *(Herpestes edwardsii)* and Northern Palm Squirrel *(Funambulus pennanti).* Among the birds, Pea fowl *(Pavo cristatus),* Red Jungle fowl *(Gallus gallus),* Bush Quail *(Prediculata asiatica),* Green Pigeon *(Treron phoenicoptera),* Blue Rock Pigeon *(Columba livia),* Red Turtle Dove *(Streptopelia tranquebarica),* Indian Roller *(Coracias benghalinus),*Black Partirdes *(Francolinus francolinus),* Spotted Owlet *(Athene brama),* Parakeets *(Psittacula cyanocephala),* Hoopoe *(Upupa epops),* Bulbul *(Pycnonotus species),* Black kite *(Milvus migranis),* Koel *(Eudynamys scolopacea),* Woodpeckers, Bablers *(Turdoides caudatus)* were most commonly recorded. Important water fowl reported from the Jasrota Wildlife Sanctuary are Mallard *(Anas platyrhnchos),* Pin tail *(Anas acuta),* Gadwal *(Anas Stepera),* Common teal *(Anas crecca),* Wigeon *(Anas penelope),* Common Pochard *(Aythya ferina)*

The objectives of management can be briefly summarized below:

1. To conserve and protect habitat, restore physical integrity of the area in addition to restoring the degraded portion of the sanctuary so that endangered and endemic flora and fauna inhabiting the area are adequately protected and propagated.
2. To mitigate Man-animal conflict and to create awareness among the people in general and the children in particular about nature and wildlife with particular emphasis on the ecological role of the sanctuary area.
3. To promote Eco-tourism for conservation, awareness, education and scientific exploration without affecting the sensitive ecosystem adversely.
4. To reduce the dependence of the people on forest-based resources in the zone of influence, with sensitivity to cultural and economic wellbeing of the communities, through eco-development activities
5. To improve capacity building of staff and local communities for efficient management of the sanctuary through better training and infrastructure.
6. To promote scientific and ecological studies that will help the sanctuary management in assessing the physical and biological resources, planning

for conservation of these resources and monitoring the health of the habitat.

Major problems sanctuary management faces which adversely affect the achievement of these objectives include encroachments, inadequate staff, lack of basic infrastructural facilities and human settlement inside sanctuary. Despite the richness of the natural beauty, the facilities for eco-tourism are grossly inadequate. The efforts of education and awareness generation have been less than adequate.

The present management plan has been compiled following the manual for planning wildlife management in protected areas and managed forests by Wildlife Institute of India.

It comprises of **three parts**; **Part One** dealing with four chapters: Chapter 1- Introduction to the area, Chapter 2- Background information & attributes, Chapter 3- History of management & present practices and Chapter 4- The Protected Area & the interface Land use situation. **Part Two** deals with the rest of the seven Chapters namely: Chapter 5- Vision, Objectives and problems in achieving the objectives, Chapter 6- The Strategies, Chapter 7- Man Animal Conflicts, Chapter 8- Eco-tourism, interpretation and Conservation Education, Chapter 9- Eco-development, Chapter 10- Research, Monitoring & Training, Chapter 11- Organization and Administration and Chapter 12- The Budget. **Part three** comprises of various Annexure and control forms pertaining to the management of the sanctuary.

In Chapter 6 (The Strategies), the sanctuary has been divided into three zones: namely, Core zone, Buffer zone and Eco-restoration zone and the strategies have also been identified for these zones. Theme plans have been developed for the sanctuary area for protection from poaching, fire protection, soil and moisture conservation and water management, animal health surveillance, man-animal coexistence and development of infrastructure and communication.

The Chapters 7, 8 & 9 that deal with Man Animal Conflicts, Eco-tourism Interpretation and Conservation Education, Eco-development respectively,

have proposed various measures for conducting these activities. Chapter-10 deals with the Research, Monitoring & Training required for effective management of the sanctuary. Chapter-11 deals with Organization and Administration that would be required both at central and state level for fulfilling these. Chapter-12 deals with the Budget.

Sd/-
Vijay Kumar, SFS
Wildlife Warden
Kathua

Part-I

The Protected area:

The existing Situation

CHAPTER-I

INTRODUCTION TO THE AREA

1.1 Name, location, constitution and extent.

This Management Plan pertains to the notified wildlife area of the Jasrota Wildlife Sanctuary. The Sanctuary was notified back to pre-independence period vide cabinet order No.71-C of 1945 dated 17.07.1945 as Reserve forest. The Sanctuary was finally notified by the Govt. of Jammu & Kashmir vide SRO 151 dated 19.03.1987 under section (17) of Jammu & Kashmir Wildlife (Protection) Act, 1978. (Annexure-I). The Jasrota Wildlife Sanctuary is located in district Kathua at a distance of 75 Kms from Jammu towards Lakhanpur via National Highway 44 in Jammu and Kashmir UT. The sanctuary covers an area of 10.04 square kilometers and falls between 32° 27' to 32° 31' North Latitude and 75° 22' to 75° 26' East Longitude. The tract is located on survey of India GT sheets 43 P/7 and 43 P/6 on 1:50,000 scale. It covers an altitude range of 350 m to 611 m above sea level.

The Sanctuary is located between the river Ujh in the East and Lodoli Wali Khad in the West, which is the tributary of Ujh River. The Jasrota Wildlife Sanctuary is spread over 10.04 Km^2. The area is almost rectangular in shape with Dhaloti Ridge dividing it into two segments/section. The Sanctuary is of considerable Conservation significance at Global/ National as well as regional levels. The main attraction of the Jasrota Wildlife Sanctuary is population of Cheetal, Sambhar and Muntjac. There are also different kinds of birds in the Sanctuary which are worth watching and the entire area sustains mainly the bamboo plantation. Like several protected areas in the Himalayan region, Jasrota Wildlife Sanctuary is also interspersed by human habitation. The boundaries of the Jasrota Wildlife Sanctuary are as under:

North: Villages Gurah Surjan, Amala, Dhaloti, Tibba, Furlain, Mun and Gurnam Wala.

South: Village Jasrota, Amala, Channi and Khanpur and Ujh Canal.

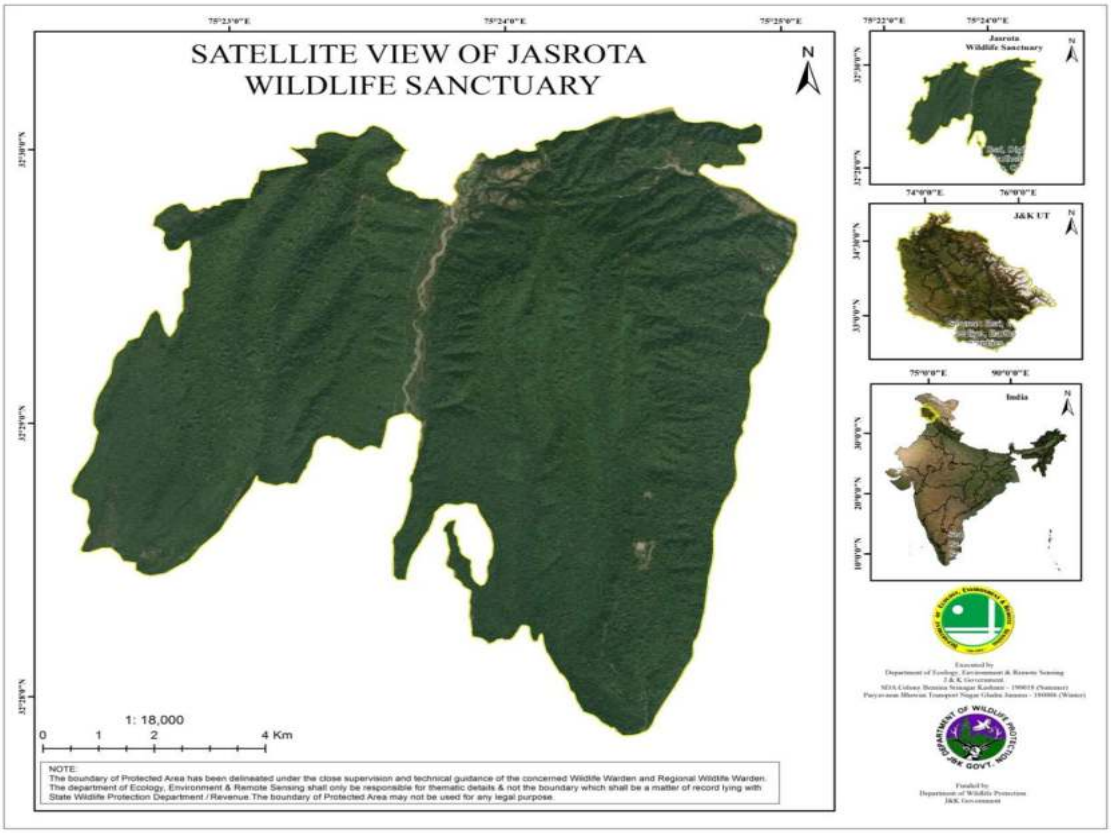
West: A seasonal Lodoli wali khad.

Jasrota Wildlife Sanctuary consists of one Block (Jasrota Block) comprised of six compartments with their attributes provided as under:

Table: 1.1 Compartment details of Jasrota Wildlife Sanctuary.

Block	Compartments No.	Area in (Ha) (Area Calculated by Dot Grid Method)	GIS Area in (Ha) (Area Calculated by GIS)
Jasrota	Co.1 /JSR	225.50	193.15
	Co.2/JSR	117.00	88.63
	Co.3/JSR	125.00	150.20
	Co.4/JSR	162.00	149.51
	Co.5/JSR	107.50	121.37
	Co.6/JSR	84.00	57.53
Total		**821 Ha**	**760.39 Ha**

(Source: Working Plan Kathua Forest Division)



1.2 Access & Approach

The Jasrota Wildlife Sanctuary is approachable by air, rail and a good network of roads. The nearest airport at Jammu is 80 Kms away from Jasrota and the nearest rail head is at Kathua, 25 kms eastwards of the sanctuary. National highway NH-44 passes at a distance of 1.5 Km from the Jasrota (*i.e* Rajbagh) southwards of the sanctuary. A vast network of village roads exists in the area.

1.3 Statement of Significance:

1.3.1 Historical Significance: The Sanctuary derives its name from the historic Jasrota Fort. Earlier it was declared as Game reserve under the provision of old game Act of 1942 by Late Maharaja of J&K. It came under the Administrative control of J&K Department of Wildlife Protection in 1984. Jasrota was one of ten States founded by members of the Jammu ruling family. It was probably the first to be established, although its origin is disputed. Some sources say that it was founded by Raja Jasdev of Jammu (1020-1053) and given to his brother, Karan Dev. Others say that Karan Dev was a son of Bhujdev, a ruler of Jammu, and the State came into existence in either the 12th or 13th Century. When Karan Dev military powers enabled him to win over the Jagirdars and landlords of the area. In this latter interpretation, Jasdev was Karan Dev's nephew. There is agreement that Karan Dev was the founder of the ruling Jasrota family to rule Jasrota independently. Randhir Singh, who rigned from 1805 to 1820 had to acknowledge Ranjit Singh, the founder of the sikh Empire, as his superior. Although Randhir Singh's brother, bhuri Singh was nominally recognized as his successor, Ranjit singh annexed the territory in 1934 and converted it in to a Jagir that was gifted to Hira Singh, a son of Dhian Singh, the Dogra Prime minister of Lahore, who was also a nephew of Gulab Singh.

It was Hira Singh who built the present fort at Jasrota, although its foundation dates from around the 12th or 13thCentrury and had been developed as a

fortified town by Dev rulers. Hira Singh was mostly an absent ruler but he aspired to develop Jasrota in lines of Jammu that shared a similar topography.

1.3.2 Ecological Significance: The Jasrota Wildlife Sanctuary is influenced by South-West monsoon hence supporting scrub and sub-tropical pine forest of the group 9 (including Type 9/C1-Himalyan Sub-tropical forests, Sub Type 9/C1a-Lower Shiwalik Chir pine forests) of the champion and Seth classification.

The flora and fauna represent rich biological significance of this Sanctuary. The vegetation of the sanctuary comes under the major group "Sub tropical Northern Mixed Dry Deciduous Forests". A wide variety of sub-tropical broad leaved tree and shrubs are found in the area. Large area of the sanctuary is covered with shrubs and weeds interspersed with pure patches of bamboo at places. The broad-leaved forest consists of deciduous species.

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1.4 Values of the Sanctuary:

1.4.1 Biodiversity Values.

- Prime habitat of Chital Deer.
- Exceptional diversity of birds.
- Significant population of insects especially butterflies and moths.
- Potential corridor for animal movements especially large mammals.

1.4.2 Education and research values.

- Research and Monitoring values associated with biodiversity, human-Wildlife interaction, natural regeneration assessment and eco- restoration.
- High potential for nature education and nature exploration.
- Values related to bird watching, trekking etc.
- Values related to nature interpretation.
- Values related to aesthetic sensibility.

CHAPTER-2

BACKGROUND INFORMATION AND ATTRIBUES

2.1 Boundaries: The boundary description of Jasrota Wildlife Sanctuary as per the Govt. of Jammu & Kashmir notification vide SRO 151 dated 19.03.1987 is as follows:

North: -Villages Gurah Surjan, Amala Dhaloti, Tibba Fourlain Mun, Guramwala.

South: - Jasrota, Amala, Channi and Khumpur villages and Ujh Canal.

East: - Ruin of Ladoli Khad

2.1.1 The Eco-sensitive Zone: The Eco-sensitive Zone of Jasrota Wildlife Sanctuary was notified by Ministry of Environment, Forests and Climate Change New Delhi vide Notification No. S.O.3871 (E) dated: 28 October 2019.

I. The Eco-sensitive zone shall be to an extent of 60 m to 2022 m around the boundary of Jasrota Wildlife Sanctuary. The extents of the Eco-Sensitive Zone from the boundary of Jasrota Wildlife Sanctuary are varies from 437m to 1260 m in the North-east, 1106 m to 2022 m in the North, 207 m to 686 m in the South, 122 m to 597 m in the South-west, 1302 m to 1673 m in the West, 517 m to 1436 m in the Northwest, 65 m to 194 m in the East, 60 m to 981 m in the Southeast.

II. The total area of the Eco-Sensitive Zone is 12.56 Km^2 which includes 5.51 Km^2 state land which includes six villages Danoh, Ladoli, Gurha Surjan, Dhewal, Chanpura and Moni. The ESZ also includes 2.584 Km^2private, state and miscellaneous lands of villages Moni, Jasrota, Dhaloti, Amala and Dhamyal.

III. In the South and South-west areas, the Eco Sensitive Zone boundary line passes through North of the villages Jasrota, Dhaloti, Amala and Dhamyal.

IV. In the western and North-western side, Eco Sensitive Zone boundary passes through to south of village Dewal crosses the Ladoli wali Khad and passes

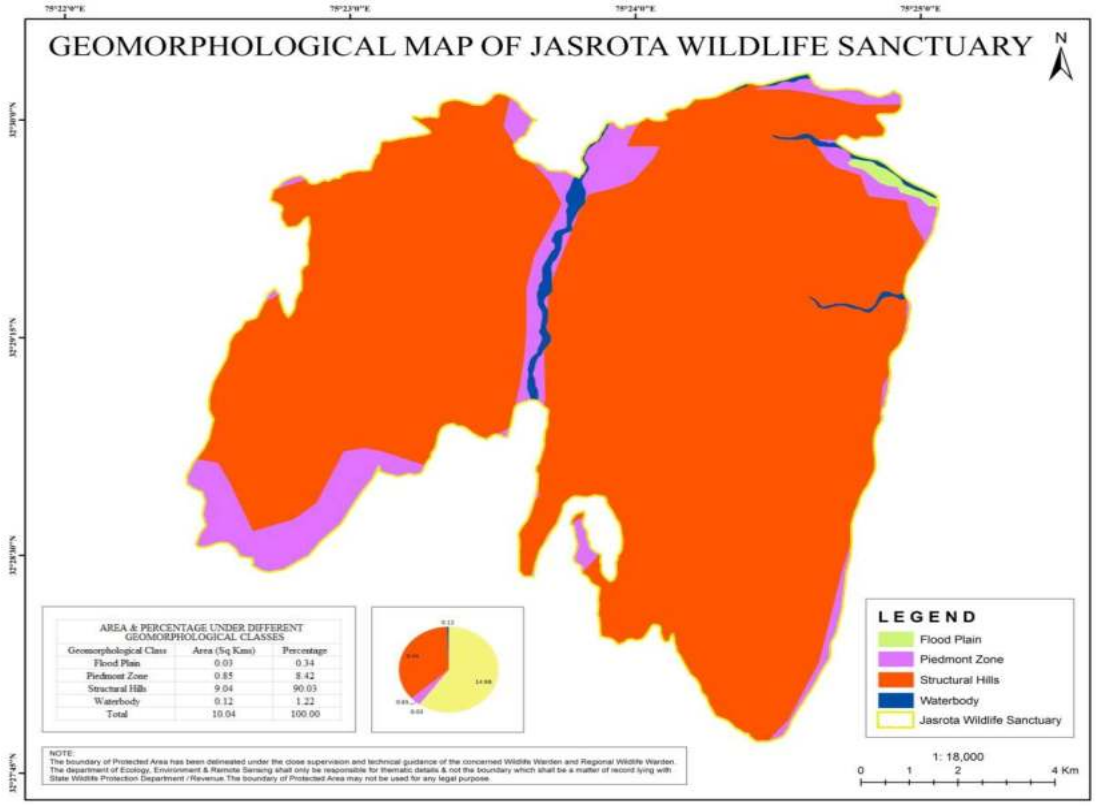
through the Forest Co.7/JSR, Co. 8/JSR in the west, through compt. 81/JSR in the northwest, 82/JSR and 83/JSR in the Northern side which are part of Sunanal forests, TarotaPera forest, Kori Bagan Forest and Barot Forests of Jasrota Range of Forest Division Kathua. The Eco Sensitive Zone transverse through the Jagir Khad in the North, meets with the River Ujh in the Northeast direction through ogri Khad. The Eco Sensitive Zone boundary passing Eastern of village Chandwan Beliari in west.

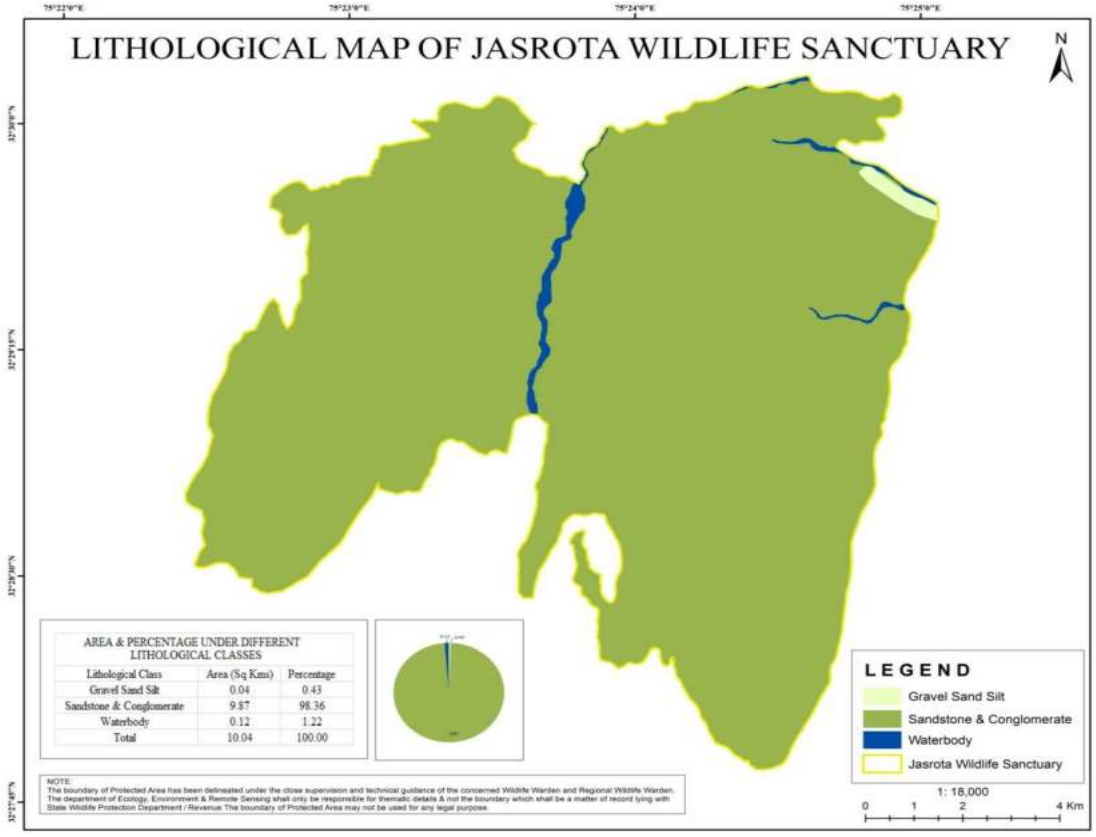
V. In the North and Northeast Directions, Eco Sensitive Zone boundary passes through the Jagir Khad along the northern and eastern side of Village Moni.

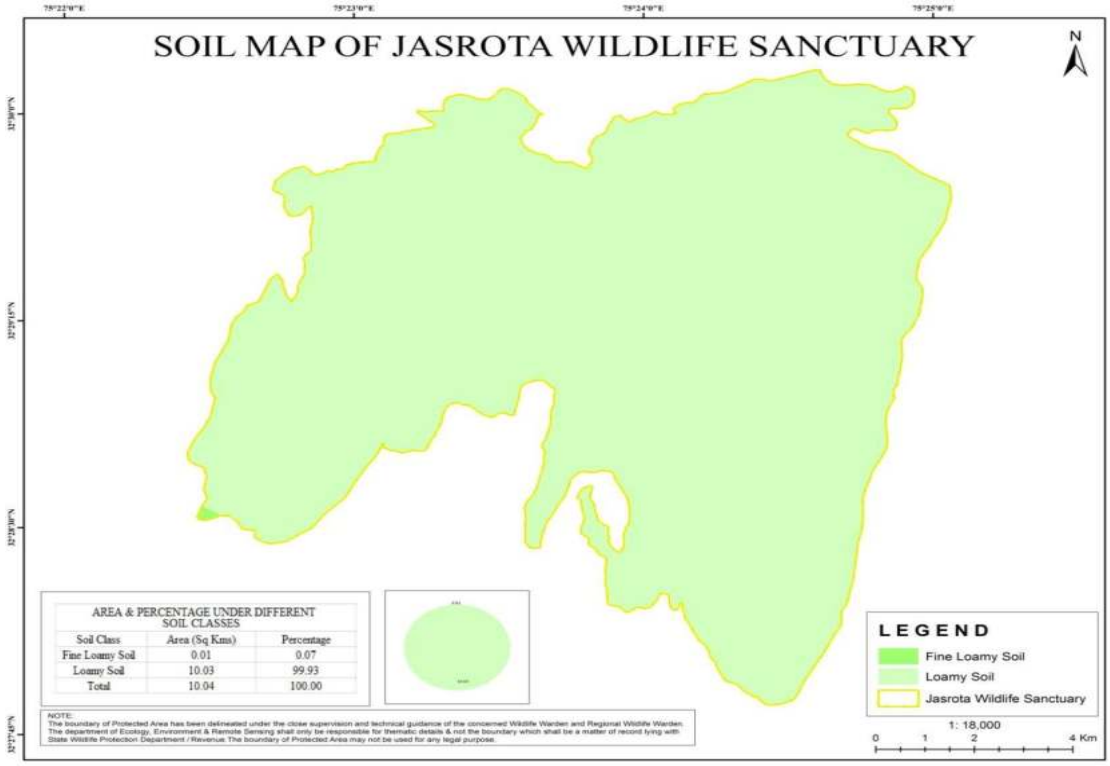
VI. In the Eastern and South-eastern side, the Eco Sensitive Zone boundary passes along with the river Ujh, crosses the Ujh Barrage, moves along with the Ujh Canal and then crosses Rajbagh Jakhole road, runs to North of temple and then crosses to Northern side of village Mala. From Village Mala, the line crosses the Gura Surjan Khad and moves towards North of Village Dhaloti.

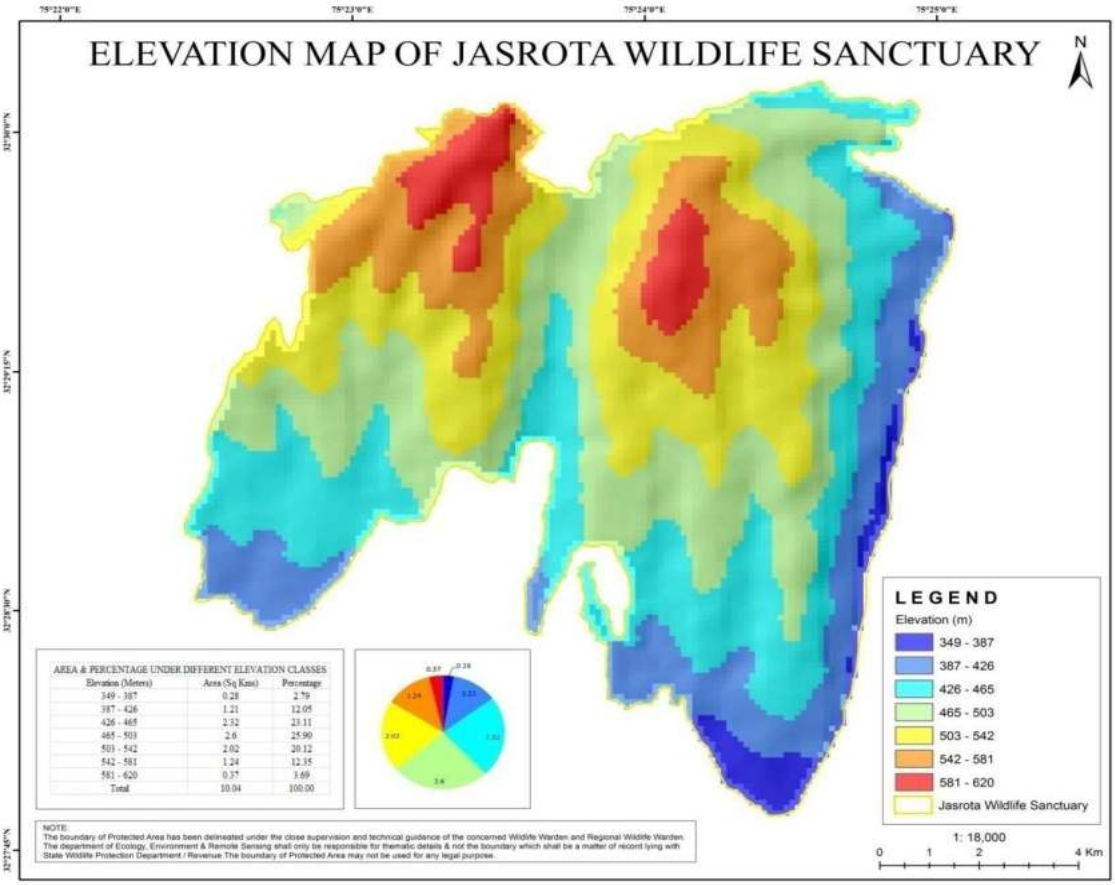
2.2 Geology, Rock and Soil: The main rock type in and around area is a mixture of boulders and pebbles of various sizes. The soil is primary in nature and comprises shallow immature soils containing a large proportion of uncompressed–materials and minerals grains. The texture is sandy and loam. Their origin explains why they are so unstable and liable to landslides and erosions.

2.3 Terrain: The Jasrota Wildlife Sanctuary lies in the heart of Shivalik Range of the Himalayan Mountains. The topography of the area is hilly with moderate to steep slopes has an elevation varying from 350 mtrs to 610 mtrs from the MSL. The area is traversed by many ridges and Nallas and is drained by Lodo Wali Khads, which finally drains into Ujh River. Most of the adjoining area is under intensive agriculture and the drainage is good.


GEOMORPHOLOGICAL MAP OF JASROTA WILDLIFE SANCTUARY
N
AREA & PERCENTAGE UNDER DIFFERENT GEOMORPHOLOGICAL CLASSES
Geomorphological Class | Area (Sq Kms) | Percentage
Flood Plain | 0.03 | 0.34
Piedmont Zone | 0.85 | 8.42
Structural Hills | 9.04 | 90.03
Waterbody | 0.12 | 1.22
Total | 10.04 | 100.00
LEGEND
Flood Plain
Piedmont Zone
Structural Hills
Waterbody
Jasrota Wildlife Sanctuary
1: 18,000
0 1 2 4 Km


LITHOLOGICAL MAP OF JASROTA WILDLIFE SANCTUARY
N
AREA & PERCENTAGE UNDER DIFFERENT LITHOLOGICAL CLASSES
Lithological Class | Area (Sq Kms) | Percentage
Gravel Sand Silt | 0.04 | 0.43
Sandstone & Conglomerate | 9.87 | 98.36
Waterbody | 0.12 | 1.22
Total | 10.04 | 100.00
LEGEND
Gravel Sand Silt
Sandstone & Conglomerate
Waterbody
Jasrota Wildlife Sanctuary
1: 18,000
0 1 2 4 Km


SOIL MAP OF JASROTA WILDLIFE SANCTUARY
N
AREA & PERCENTAGE UNDER DIFFERENT SOIL CLASSES
Soil Class | Area (Sq Kms) | Percentage
Fine Loamy Soil | 0.01 | 0.07
Loamy Soil | 10.03 | 99.93
Total | 10.04 | 100.00
LEGEND
Fine Loamy Soil
Loamy Soil
Jasrota Wildlife Sanctuary
1: 18,000
0 1 2 4 Km


ELEVATION MAP OF JASROTA WILDLIFE SANCTUARY
N
AREA & PERCENTAGE UNDER DIFFERENT ELEVATION CLASSES
Elevation (Meters) | Area (Sq Kms) | Percentage
349 - 387 | 0.28 | 2.79
387 - 426 | 1.21 | 12.05
426 - 465 | 2.32 | 23.11
465 - 503 | 2.6 | 25.90
503 - 542 | 2.02 | 20.12
542 - 581 | 1.24 | 12.35
581 - 620 | 0.37 | 3.69
Total | 10.04 | 100.00
LEGEND
Elevation (m)
349 - 387
387 - 426
426 - 465
465 - 503
503 - 542
542 - 581
581 - 620
Jasrota Wildlife Sanctuary
1: 18,000
0 1 2 4 Km

2.4 Climate: The Jasrota Wildlife Sanctuary experiences very hot summer and moderate winters. The temperature varies from 6°C during winters to 45°C during summer. January is the coldest month though the temperature never touches the zero degree. The area receives bulk of precipitation in the form of monsoon from mid-June to mid-September and also experiences winter rains. The average annual rainfall is about 1000 mm.

2.4.1 Temperature recorded around the Jasrota Wildlife Sanctuary

Table: 2.1 Mean Temperature (in ºC) recorded around the Jasrota Wildlife Sanctuary

Month	2017		2018		2019		2020	
	Min ºC	Max ºC	Min ºC	Max ºC	Min ºC	Max ºC	Min ºC	Max ºC
January	12	18	13	20	15	20	13	17
February	16	23	16	23	16	20	18	23
March	19	26	21	29	21	25	20	24
April	27	34	26	33	21	35	28	32
May	31	36	31	38	35	39	33	38
June	32	37	33	38	38	43	37	41
July	31	35	30	35	34	38	35	40
August	29	35	29	33	31	34	32	33
September	28	35	26	31	29	33	28	32
October	24	33	27	32	27	31	26	31
November	18	26	22	27	22	26	23	25
December	15	22	17	22	15	20	15	21

Source: - SKAUST Jammu

2.4.2 Rainfall in the Jasrota Wildlife Sanctuary

Table: 2.2 Rainfall (in cm) in the Jasrota Wildlife Sanctuary

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
2011	0.28	3.85	2.40	0.83	0.16	6.70	3.75	10.71	6.32	0.21	0.17	0.99
2012	5.24	0.84	0.92	0.00	0.00	3.26	0.00	22.95	5.18	0.58	0.18	1.52
2013	2.11	5.53	0.52	0.29	0.00	6.43	17.78	21.48	2.86	4.89	0.85	1.53
2014	3.43	3.89	3.48	1.97	1.14	1.68	5.05	10.63	7.65	0.77	0.00	0.33
2015	0.70	3.190	8.95	2.49	0.34	2.88	11.95	11.55	8.30	1.12	0.04	0.00
2016	0.08	0.00	3.99	0.54	0.25	4.26	12.13	11.36	0.86	0.11	0.00	0.00

2017	1.15	0.56	1.46	0.47	1.25	2.12	9.34	7.45	4.51	1.02	0.46	1.64
2018	0.16	3.60	3.08	0.36	1.14	4.61	5.49	6.89	1.91	0.02	0.17	0.41
2019	1.75	0.69	0.35	1.90	1.27	7.65	8.04	5.90	2.12	0.62	0.09	1.27
2020	1.15	1.62	1.21	1.96	1.01	0.52	5.49	6.16	2.86	4.89	0.85	1.53

Source: Department of Environment & Remote Sensing.

2.4.3 Humidity: The humidity of the area reaches its maximum during the month of July-August. It reads 85%-90%.

2.4.4 Wind Speed: Wind speed is high in higher elevation of the Sanctuary. However, no authenticated records are available.

2.5 Water Sources: The Sanctuary has a natural boundary of river Ujh which serves as a source of water to the compartment 1, while the rest of compartments are rain fed and dependent on monsoon. The natural and artificial ponds also serve as source of water for the animals and birds. The area is well drained by several nallahs and streams, which are fed by rains. However, much of the area is dry and desolate due to arid environment and very low relative humanity.

2.6 Range of Wildlife, Status, distribution and habitat: The Sanctuary offers a wide range of habitat types to the flora and Fauna. Species like leopard, Wild Boar, chital deer, Sambar deer are commonly spotted inside and sometimes outside the Sanctuary as well.

2.6.1 Vegetation

2.6.1.1 Forest Types: The vegetation of the Jasrota Wildlife Sanctuary comes under the major group "Sub-tropical Northern mixed Dry Deciduous Forests" as per the revised classification by champion and Seth. On the basis of vegetation, the area is divided into three natural regions (Sharma *et al*., 1981)

1. The flat semi-arid land.

2. Jammu Kandi and its extension.

3. Sub-tropical pine forests.

1. **The Flat Semi-arid Land**: The semi-arid land cup up of innumerable ravines is situated between 300-400 m and is influenced by the south west monsoon, supporting scrub forest. Extensive cultivation and human colonization have reduced the forests to few relic pockets like the patch of *Butea monosperma*, along Pathankot road and small patches of *Acacia modesta*. Majority of the species are planted e.g *Mangifera indica*, *Syzygium cumini, Dalbergia sissoo, Ficus bengalensisis, Ficus religiosa.* Some introduced trees have been naturalized to the extent of farming natural forests of *Acacia nilotica*. The herbaceous vegetation compress a variety of annual and perennial weeds like *Argemone mexicana, Coronpus didymus, Cleome viscosa, Oxalis corniculate Tribulus terrestris, Tephrosia hamiltonii, Cassia occidentails, Xanthium strumarium. Saccharum spontaneum* and *S. munja* covers sandy patches.
2. **Jammu Kandi and its extension**: The low hillocks support fairly dense vegetation of small trees and shrubs. This region supported 3 types of forests.
   i. ***Acacia* Forests:** Spreading over the tops and upper slopes of the hillocks. These forests are dominated by *Acacia modesta, Adhatoda vasica* associated species like *Ziziphus mauritiana* shrubby plants such as *Capparis separia*. The most conspicuous climbers are *Tinospora cordifolia*, *Abrus precatorious*, *Ipomoea spp.* and *Trichosanthes cucumerina, Diplocyclos palmatus* etc.
   ii. ***Bauhinia* Forests:** The forests comprise of *Woodfordia fruticosa, Dodonaea viscosa, Emblica officinalis*, *Grewia optiva, Ehretia laevis*, *Mallotus philippensis*. In addition to this climber are *Ichnocarpus frutescens*, *Vallaris solanacea*, *Cryptolepis buchanani*.
   iii. ***Lannea coromandelica* - *Hymenodictyon excelsum* Forests**: This forest develops in the shady and cooler corners of the hillocks, *Lannea coromandelica* is a dominant tree followed by *Hymenodictyon excelsum*. Other frequently encounted trees *Grewia optiva, Aegle marmelos*, *Diospyros cordifolia* and *Bombax ceiba.*

3. **Sub-Tropical Pine Forests:** The foothills are clothed by semi- deciduous tropical forests in the lower reaches and sub-tropical forests at the higher reaches.
   i) ***Dodonaea* scrub:** This is permanently shrubby landscape covering the low sand stone hillocks. *Dodonaea viscosa* is the dominant shrub, among which isolated individual elements of *Carrisa opacum* and *Adhatoda vasica* grow.
   ii) **Mixed Semi-deciduous Forests:** This type of forests cover the lower slopes of the hills. Species diversity is high in vegetation type, but a characteristic feature is the lack of dominance by any species. The common species are *Emblica officinalis*, *Terminalia chebula*, *Ficus* species.
   iii) **Sub-Tropical Pine Forests:** Almost pure stands of Chir *(Pinus roxburghii)* are absent.

2.6.2 Description of Major species reported from Jasrota Wildlife Sanctuary

1. ***Boselaphus tragocamelus*.**

Class : Mammalia
Order : Artiodactyla
Family : Bovidae
IUCN Status : Least Concerned

The nilgai (*Boselaphus tragocamelus*) (/ˈnɪlgaɪ/, literally meaning "blue cow") is the largest Asian antelope and is ubiquitous across the northern Indian subcontinent. It is the sole member of the genus *Boselaphus* and was described by Peter Simon Pallas in 1766. The nilgai stands 1–1.5 m (3.3–4.9 ft) at the shoulder; males weigh 109–288 kg (240–635 lb), and the lighter females 100–213 kg (220–470 lb). A sturdy thin-legged antelope, the nilgai is characterized by a sloping back, a deep neck with a white patch on the throat, a short crest of hair along the neck terminating in a tuft, and white facial spots. A column of pendant coarse hair hangs from the ridge below the white patch.

2. *Canis aureus.*

Class	**:**	**Mammalia**
Order	**:**	**Carnivora**
Family	**:**	**Canidae**
IUCN Status	**:**	**Least Concerned**

The **Golden jackal** (*Canis aureus*) is a wolf-like canid that is native to Southeast Europe, Southwest Asia, South Asia, and regions of Southeast Asia. The jackal is smaller and possess shorter legs, a shorter tail, a more elongated torso, a less-prominent forehead, and a narrower and more pointed muzzle. The golden jackal's coat can vary in color from a pale creamy yellow in summer to a dark tawny beige in winter. It is listed as 'least concern' on the IUCN Red List due to its widespread distribution and high density in areas with plenty of available food and optimum shelter.

3. *Bungarus caeruleus*

Class	**:**	**Reptilia**
Order	**:**	**Squamata**
Suborder	**:**	**Serpentes**
Family	**:**	**Elapidae**
IUCN Status	**:**	**Threatened**

The common Krait (*Bungarus caeruleus)*, also known as the wolf krait, is a species of highly venomous snake of the genus *Bungarus* native to the Indian subcontinent. It is a member of the "big four" species, inflicting the most snake bites on humans in Bangladesh and India. This common krait is distributed from Sindh to West Bengal, throughout South India and Sri Lanka at elevations up to about 1,600 m (5,200 ft). It has also been recorded in Afghanistan, Bangladesh, and Nepal. It lives in a wide variety of habitats, from fields and low scrub jungle, as well as settled areas.

4. ***Herpestes edwardsi*.**

Class : Mammalia
Order : Carnivora
Suborder : Feliformia
Family : Herpestidae
IUCN Status : Least Concerned

The **Indian grey mongoose** (*Herpestes edwardsi*) is a mongoose species native to the Indian subcontinent and West Asia. It is listed as Least Concern on the IUCN Red List. The grey mongoose inhabits open forests, scrublands and cultivated fields, often close to human habitation. It lives in burrows, hedgerows and thickets, among groves of trees, and takes shelter under rocks or bushes and even in drains. It is very bold and inquisitive but wary, seldom venturing far from cover. It climbs very well. Usually found singly or in pairs. It preys on rodents, snakes, birds' eggs and hatchlings, lizards and variety of invertebrates.

5. ***Hystrix indica*.**

Class : Mammalia
Order : Rodentia
Family : Hystricidae
IUCN Status : Least Concerned

The Indian crested porcupine (*Hystrix indica*) is a hystricomorph rodent species native to southern Asia and the Middle East. It is listed as Least Concern on the IUCN Red List. It belongs to the Old World porcupine family, Hystricidae. Indian crested porcupines have a very broad and mostly herbivorous diet. The Indian crested porcupine is a large rodent, weighing 11–18 kg (24–40 lb). Their body (from the nose to the base of the tail) measures between 70 and 90 cm (28 and 35 in) with the tail adding an additional 8–

10 cm (3.1–3.9 in). The lifespan of wild Indian crested porcupines is unknown, but the oldest known captive individual was a female that lived to be 27.1 years old.

6. *Naja naja.*

Class : Reptilia
Order : Squamata
Suborder : Serpentes
Family : Elapidae
IUCN Status : Threatened Species

The Indian Cobra (*Naja naja*), also known as the spectacled cobra, Asian cobra, or binocellate cobra, is a species of the genus *Naja* found in India, Pakistan, Bangladesh, Sri Lanka, Nepal, and Bhutan, and a member of the "big four" species that inflict the most snakebites on humans in India. It is distinct from the king cobra which belongs to the monotypic genus Ophiophagus. The Indian cobra is revered in Indian mythology and culture, and is often seen with snake charmers. It is now protected in India under the Indian Wildlife Protection Act (1972).

7. *Lepus nigricollis ruficaudatus*.

Class : Mammalia
Order : Lagomorphia
Family : Leporide
IUCN Status : Least Concerned

The Indian hare (*Lepus nigricollis*), also known as the black-naped hare, is a common species of hare native to the Indian subcontinent. *Lepus nigricollis* are generally found in areas where large tracts of bush and jungle alternate with farmland. *Lepus nigricollis* are also called black-naped hares due

to the patch of black fur that runs along the nape of the neck. The top of the tail is also black and the back and face are brown with black hairs scattered throughout. The underparts are white. Total length ranges from 40 to 70 cm and weight ranges from 1.35 to 7 kg.

8. ***Macaca Mulatta.***

Class : Mammalia
Order : Primates
Suborder : Haplorhini
Family : Cercopithecidae
IUCN Status : Least Concerned

The **Rhesus macaque (***Macaca mulatta*), colloquially rhesus monkey, is a species of Old World monkey. It is listed as least concern in the IUCN Red List of Threatened Species in view of its wide distribution, presumed large population, and its tolerance of a broad range of habitats. It is native to South, Central, and Southeast Asia and has the widest geographic range of all non-human primates, occupying a great diversity of altitudes and a great variety of habitats, from grasslands to arid and forested areas, but also close to human settlements.

9. ***Manis crassicaudata.***

Class : Mammalia
Order : Pholidota
Family : Manidae
IUCN Status : Endangered species

The Indian pangolin (*Manis crassicaudata*), also called thick-tailed pangolin and scaly anteater is a

pangolin native to the Indian subcontinent. Like other pangolins, it has large, overlapping scales on its body which act as armour. It can also curl itself into a ball (volvation) as self-defence against predators such as the tiger. The colour of its scales varies depending on the colour of the earth in its surroundings. It is an insectivore, feeding on ants and termites, digging them out of mounds and logs using its long claws, which are as long as its fore limbs. It is nocturnal and rests in deep burrows during the day.

10. *Muntiacus muntjac.*

Class : Mammalia
Order : Artiodactyla
Family : Cervidae
IUCN Status : Least Concerned

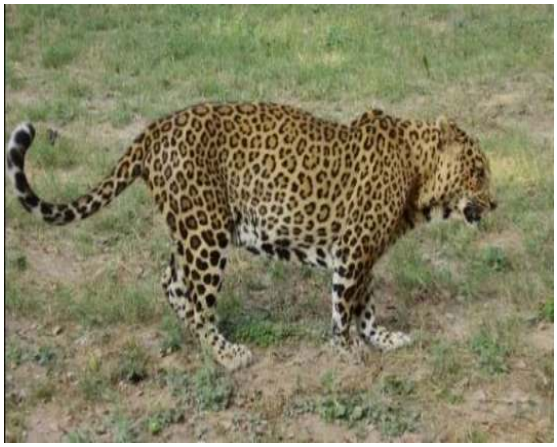
The **Indian muntjac** (*Muntiacus muntjak*), also called the southern red muntjac and barking deer, is a deer species native to South and Southeast Asia. This muntjac has soft, short, brownish or greyish hair, sometimes with creamy markings. It is among the smallest deer species. It is an omnivore and eats grass, fruit, shoots, seeds, bird eggs, and small animals, and occasionally scavenges on carrion. Its calls sound like barking, often when frightened by a predator, hence the common name "barking deer". These deer are highly alert creatures. When put into a stressful situation or if a predator is sensed, muntjacs begin making a bark-like sound. Barking was originally thought of as a means of communication between the deer during mating season, as well as an alert. It is listed as Least Concern on the IUCN Red List.

11. *Rusa unicolor*

Class : Mammalia
Order : Artidactyla
Family : Corvidae
IUCN Status : Vulnerable species

The sambar (*Rusa unicolor*) is a large deer native to the Indian subcontinent, South China, and Southeast Asia that is listed as a vulnerable species on the IUCN Red List since 2008. Populations have declined substantially due to severe hunting, local insurgency, and industrial exploitation of habitat. The name "sambar" is also sometimes used to refer to the Philippine deer, called the "Philippine sambar" and Javan rusa, called the "Sunda Sambar". It is listed as vulnerable species on the IUCN Red List.

12. *Panthera pardus.*



Class : Mammalia
Order : Carnivora
Family : Felidae
IUCN Status : Vulnerable

The **Indian leopard** (*Panthera pardus fusca*) is a leopard subspecies widely distributed on the Indian subcontinent. The species Panthera pardus is listed as Vulnerable on the IUCN Red List because populations have declined following habitat loss and fragmentation, poaching for the illegal trade of skins and body parts, and persecution due to conflict situations. The largest skull of a leopard

was recorded in India in 1920 and measured 28 cm (11.0 in) in basal length, 20 cm (7.9 in) in breadth, and weighed 1,000 g (2 lb 4 oz).

13. *Axis axis.*

Class : Mammalia
Order : Artiodactyla
Family : Cervidae
IUCN Status : Least Concerned

The chital (*Axis axis),* also known as spotted deer, chital deer, and axis deer, is a species of deer that is native to the Indian subcontinent. It was first described by German naturalist Johann Christian Polycarp Erxleben in 1777. A moderate-sized deer, male chital reach nearly 90 cm (35 in) and females 70 cm (28 in) at the shoulder. While males weigh 30–75 kg (66–165 lb), the lighter females weigh 25–45 kg (55–99 lb). It is sexually dimorphic; males are larger than females, and antlers are present only on males. The upper parts are golden to rufous, completely covered in white spots. The abdomen, rump, throat, insides of legs, ears, and tail are all white. The antlers, three-pronged, are nearly 1 m (3.3 ft) long.

14. *Sus scrofa*.

Class : Mammalia
Order : Artiodactyla
Family : Suidae
IUCN Status : Least Concerned

The Indian boar *(Sus scrofa)*, also known as the Andamanese pig or Moupin pig is a subspecies of wild boar native to India, Nepal, Burma, western Thailand and Sri Lanka. The Wild Boar is an animal with an extremely wide distribution with the

number of estimated Wild Boar subspecies ranging from 4 to 25. The Wild Boar is an extremely adaptable animal as it is found in a variety of different habitats, eats almost anything that will fit in its mouth and not only runs fast, but also swims well too. They are also commonly known as European Wild Pigs, Hogs or simply Boars.

15. *Indian Python.*

Class : Reptilia.
Order : Squamata.
Family : Pythonidae.
IUCN Status : Near threatened.

Indian python (*Python molurus*) is a large, non-venomous python species native to tropical and subtropical regions of the Indian subcontinent and Southeast Asia. It is known by the common name Indian python. The rock python's color pattern is whitish or yellowish with the blotched patterns varying from tan to dark brown shades. This varies with terrain and habitat. *Python molurus* occurs in India, southern Nepal, Pakistan, Sri Lanka, Bhutan, Bangladesh, and probably in the north of Myanmar. Like all snakes, Indian pythons are strict carnivores and feed on mammals, birds, and reptiles indiscriminately, but seem to prefer mammals. Oviparous, up to 100 eggs are laid by a female, which she protects and incubates. The Indian python is classified as lower risk/near threatened on the IUCN Red List of Threatened Species

16. *Viverricula indica.*

Class : Mammalia
Order : Carnivora
Suborder : Feliformia
Family : Viverridae
IUCN Status : Least Concerned

The small Indian civet (*Viverricula indica*) is a civet native

to South and Southeast Asia. It is listed as Least Concern on the IUCN Red List because of its widespread distribution, widespread habitat use and healthy populations living in agricultural and secondary landscapes of many range states. It has a coarse brownish grey to pale yellowish-brown fur, with several longitudinal black or brown bands on the back and longitudinal rows of spots on the sides.

17. *Vulpes vulpes.*

Class : Mammalia
Order : Carnivora
Family : Canidae
IUCN Status : Least Concerned

Vulpes is a genus of the sub-family Caninae. The members of this genus are colloquially referred to as true foxes, meaning they form a proper clade. The word "fox" occurs in the common names of species. True foxes are distinguished from members of the genus Canis, such as domesticated dogs, wolves, jackals and coyotes, by their smaller size (5–11 kg), longer, bushier tail, and flatter skull. They have black, triangular markings between their eyes and nose, and the tip of their tail is often a different color from the rest of their pelt. The typical lifespan for this genus is between two and four years, but can reach up to a decade.

18. *Aquila nipalensis.*

Class : Aves
Order : Accipitriformes
Family : Accipitridae
IUCN Status : Endangered

The steppe eagle (*Aquila nipalensis*) is a large bird of prey. Like all eagles, it belongs to the family Accipitridae. The steppe eagle's well-feathered legs illustrate it to be a member of the

subfamily Aquilinae, also known as the "booted eagles". The steppe eagle is in many ways a peculiar species of eagle. It is a specialized predator of ground squirrels on the breeding ground, also taking other rather small mammals and other prey, doing so more often when ground squirrels are less consistently found. The steppe eagle is large and impressive raptor and quite a large eagle. However, as a member of the genus Aquila, it is fairly medium-sized. Females can range to 15% larger with greater dimorphism by weight, which is more pronouncedly dimorphic than by linear dimensions. Total length can range from 60 to 89 cm (24 to 35 in) in fully-grown steppe eagles. It is listed as Endangered on the IUCN Red List.

Checklist of mammals

S.No.	Scientific Name	Common Name	Family	IUCN status
1.	*Axis axis*	Chital	**Cervidae**	LC
2.	*Boselaphus tragocamelus*	Nilgai	**Bovidae**	LC
3.	*Canis aureus*	Golden Jackal	**Canidae**	LC
4.	*Felis chaus*	Jungle Cat	**Felidae**	LC
5.	*Funambulus pennantii*	Northern Palm Squirrel	**Sciuridae**	LC
6.	*Herpestes edwardsi*	Common Grey Mongoose	**Herpestidae**	LC
7.	*Hystrix indica*	Indian Crested Porcupine	**Hystricidae**	LC
8.	*Lepus nigricollis ruficaudatus*	Rufous-Tailed Hare	**Leporidae**	LC
9.	*Macaca mulatta*	Rhesus Macaque	**Cercopithecidae**	LC
10.	*Manis crassicaudata*	Indian Pangolin	**Manidae**	EN
11.	*Megaderma spasma*	Lesser False Vampire Bat	**Megadermatidae**	LC
12.	*Muntiacus muntjak*	Muntjac	**Cervidae**	LC
13.	*Panthera pardus*	leopard	**Felidae**	VU
14.	*Paradoxurus hermaphroditus*	Common Palm Civet	**Viverridae**	LC
15.	*Rusa unicolor*	Sambar Deer	**Cervidae**	VU

16.	*Sus scrofa*	Wild Boar	**Suidae**	LC
17.	*Viverricula indica*	Small Indian Civet	**Viverridae**	LC

Checklist of Birds (Based on direct sightings/ calls)

S.No.	Scientific Name	Common Name	Family	IUCN status
1.	*Abrornis humei*	Hume's Leaf Warbler	**Phylloscopidae**	LC
2.	*Accipiter badius*	Shikra	**Accipitridae**	LC
3.	*Acridotheres tristis*	Common Myna	**Sturnidae**	LC
4.	*Actitis hypoleucos*	Common Sandpiper	**Scolopacidae**	LC
5.	*Aegithina tiphia*	Common Iora	**Aegithinidae**	LC
6.	*Alcedo atthis*	Common Kingfisher	**Alcedinidae**	LC
7.	*Amaurornis phoenicurus*	White-breasted Waterhen	**Rallidae**	LC
8.	*Anthus rufulus*	Paddy field pipit	**Motacillidae**	LC
9.	*Aquila nipalensis*	Steppe eagle	**Accipitridae**	EN
10.	*Ardea cinerea*	Grey Heron	**Ardeidae**	LC
11.	*Ardea intermedia*	Intermediate Egret	**Ardeidae**	LC
12.	*Ardeola grayii*	Indian Pond Heron	**Ardeidae**	LC
13.	*Bubulcus ibis*	Cattle Egret	**Ardeidae**	LC
14.	*Butastur teesa*	White-eyed Buzzard	**Accipitridae**	LC
15.	*Buteo rufinus*	Long-legged Buzzard	**Accipitridae**	LC
16.	*Cacomantis passerinus*	Gray-bellied Cuckoo	**Cuculidae**	LC
17.	*Certhia himalayana*	Bar-tailed Treecreeper	**Certhiidae**	LC
18.	*Ceryle rudis*	Pied Kingfisher	**Alcedinidae**	LC
19.	*Chelidorhynx hypoxanthus*	Yellow-bellied Fairy-fantail	**Stenostiridae**	LC
20.	*Chrysomma sinense*	Yellow-eyed Babbler	**Paradoxornithidae**	LC
21.	*Cinnyris asiaticus*	Purple Sunbird	**Nectariniidae**	LC
22.	*Circaetus gallicus*	Short-toed Snake-Eagle	**Accipitridae**	LC
23.	*Clamator jacobinus*	Pied Cuckoo	**Cuculidae**	LC
24.	*Columba livia*	Rock Pigeon	**Columbidae**	LC
25.	*Copsychus saularis*	Oriental Magpie Robin	**Muscicapidae**	LC

26.	*Corvus macrorhynchos*	Large-billed Crow	**Corvidae**	LC
27.	*Corvus splendens*	House Crow	**Corvidae**	LC
28.	*Cyornis rubeculoides*	Blue-throated Flycatcher	**Muscicapidae**	LC
29.	*Dendrocitta vagabunda*	Rufous Treepie	**Corvidae**	LC
30.	*Dendrocopos canicapillus*	Gray-capped Pygmy Woodpecker	**Picidae**	LC
31.	*Dendrocopos macei*	Fulvous-breasted Pied Woodpecker	**Picidae**	LC
32.	*Dicrurus hottentottus*	Hair crested drongo	**Dicruridae**	LC
33.	*Dicrurus leucophaeus*	Ashy Drongo	**Dicruridae**	LC
34.	*Dicrurus macrocercus*	Black Drongo	**Dicruridae**	LC
35.	*Dinopium benghalense*	Lesser Golden-backed Woodpecker	**Picidae**	LC
36.	*Egretta garzetta*	Little Egret	**Ardeidae**	LC
37.	*Elanus caeruleus*	Black-winged Kite	**Accipitridae**	LC
38.	*Eudynamys scolopaceus*	Asian Koel	**Cuculidae**	LC
39.	*Falco peregrinus peregrinator*	Shaheen Falcon	**Falconidae**	LC
40.	*Falco Subbuteo*	Eurasian Hobby	**Falconidae**	LC
41.	*Falco tinnunculus*	Eurasian Kestrel	**Falconidae**	LC
42.	*Francolinus pondicerianus*	Grey Francolin	**Phasianidae**	LC
43.	*Galerida cristata*	Lark, Crested	**Alaudidae**	LC
44.	*Gallus gallus*	Red Junglefowl	**Phasianidae**	LC
45.	*Geokichla citrine*	Orange-headed Thrush	**Turdidae**	LC
46.	*Glaucidium cuculoides*	Asian Barred Owlet	**Strigidae**	LC
47.	*Gymnoris xanthocollis*	Yellow-throated Sparrow	**Passeridae**	LC
48.	*Gyps bengalensis*	White-rumped Vulture	**Accipitridae**	CE
49.	*Gyps himalayensis*	Himalayan Vulture	**Accipitridae**	NT
50.	*Halcyon smyrnensis*	White-throated Kingfisher	**Alcedinidae**	LC

51.	*Hierococcyx varius*	Common Hawk Cuckoo	**Cuculidae**	LC
52.	*Hirundo rustica*	Barn swallow	**Hirundinidae**	LC
53.	*Hypothymis azurea*	Black-naped Monarch	**Monarchidae**	LC
54.	*Lanius schach*	Long-tailed Shrike	**Laniidae**	LC
55.	*Lonchura punctulata*	Scaly-breasted Munia	**Estrildidae**	LC
56.	*Merops orientalis*	Green Bee-eater	**Meropidae**	LC
57.	*Microcarbo niger*	Little Cormorant	**Phalacrocoracidae**	LC
58.	*Milvus migrans*	Black Kite	**Accipitridae**	LC
59.	*Monticola rufiventris*	Chestnut-bellied Rock Thrush	**Muscicapidae**	LC
60.	*Motacilla alba*	White Wagtail	**Motacillidae**	LC
61.	*Motacilla maderaspatensis*	White-browed Wagtail	**Motacillidae**	LC
62.	*Myophonus caeruleus*	Blue Whistling Thrush	**Muscicapidae**	LC
63.	*Neophron percnopterus*	Egyptian Vulture	**Accipitridae**	EN
64.	*Niltava sundara*	Rufous-bellied Niltava	**Muscicapidae**	LC
65.	*Nycticorax nycticorax*	Black-crowned Night Heron	**Ardeidae**	LC
66.	*Ocyceros birostris*	Indian Grey Hornbill	**Bucerotidae**	LC
67.	*Oenanthe fusca*	Brown Rock Chat	**Muscicapidae**	LC
68.	*Oriolus kundoo*	Indian Golden Oriole	**Oriolidae**	LC
69.	*Orthotomus sutorius*	Common Tailorbird	**Cisticolidae**	LC
70.	*Parus cinereus*	Cinereous Tit	**Paridae**	LC
71.	*Parus monticolus*	Green-backed Tit	**Paridae**	LC
72.	*Passer cinnamomeus*	Russet Sparrow	**Passeridae**	LC
73.	*Passer domesticus*	House Sparrow	**Passeridae**	LC
74.	*Pavo cristatus*	Indian Peafowl	**Phasianidae**	LC
75.	*Pellorneum ruficeps*	Puff throated babbler	**Pellorneidae**	LC
76.	*Perdicula asiatica*	Jungle Bush quail	**Phasianidae**	LC
77.	*Pericrocotus ethologus*	Long-tailed Minivet	**Campephagidae**	LC

78.	*Pernis ptilorhynchus*	Oriental Honey-buzzard	**Accipitridae**	LC
79.	*Phoenicurus fuliginosus*	Plumbeous Water Redstart	**Muscicapidae**	LC
80.	*Phoenicurus ochruros*	Black Redstart	**Muscicapidae**	LC
81.	*Phylloscopus xanthoschistos*	Grey-hooded Leaf Warbler	**Phylloscopidae**	LC
82.	*Picumnus innominatus*	Speckled Piculet	**Picidae**	LC
83.	*Pitta brachyura*	Indian Pitta	**Pittidae**	LC
84.	*Pomatorhinus erythrogenys*	Rusty Cheeked Scimitar babbler	**Timaliidae**	LC
85.	*Pomatorhinus horsfieldii*	Indian Scimitar babbler	**Timaliidae**	LC
86.	*Prinia hodgsonii*	Grey-breasted Prinia	**Cisticolidae**	LC
87.	*Prinia socialis*	Ashy Prinia	**Cisticolidae**	LC
88.	*Psilopogon asiaticus*	Blue-throated Barbet	**Megalaimidae**	LC
89.	*Psilopogon haemacephalus*	Coppersmith Barbet	**Megalaimidae**	LC
90.	*Psilopogon zeylanicus*	Brown-headed Barbet	**Megalaimidae**	LC
91.	*Psittacula cyanocephala*	Plum-headed Parakeet	**Psittaculidae**	LC
92.	*Psittacula eupatria*	Alexandrine Parakeet	**Psittaculidae**	NT
93.	*Psittacula krameri*	Rose-ringed Parakeet	**Psittaculidae**	LC
94.	*Pycnonotus cafer*	Red-vented Bulbul	**Pycnonotidae**	LC
95.	*Pycnonotus leucogenis*	Himalayan Bulbul	**Pycnonotidae**	LC
96.	*Rhipidura albicollis*	White-throated Fantail	**Rhipiduridae**	LC
97.	*Saxicola caprata*	Pied Bushchat	**Muscicapidae**	LC
98.	*Saxicola ferreus*	Grey Bushchat	**Muscicapidae**	LC
99.	*Saxicoloides fulicatus*	Indian Robin	**Muscicapidae**	LC
100.	*Stachyridopsis pyrrhops*	Black-chinned babbler	**Timaliidae**	LC
101.	*Streptopelia chinensis*	Spotted Dove	**Columbidae**	LC
102.	*Streptopelia decaocto*	Eurasian Collared Dove	**Columbidae**	LC

103.	*Streptopelia senegalensis*	Laughing Dove	**Columbidae**	LC
104.	*Sturnia pagodarum*	Brahminy Starling	**Sturnidae**	LC
105.	*Sturnus vulgaris*	Common Starling	**Sturnidae**	LC
106.	*Sylvia curruca*	Lesser Whitethroat	**Sylviidae**	LC
107.	*Tephrodornis pondicerianus*	Common Woodshrike	**Vangidae**	LC
108.	*Terpsiphone paradisi*	Indian Paradise Flycatcher	**Monarchidae**	LC
109.	*Turdoides striata*	Jungle Babbler	**Leiothrichidae**	LC
110.	*Turdus boulboul*	Grey-winged Blackbird	**Turdidae**	LC
111.	*Upupa epops*	Common Hoopoe	**Upupidae**	LC
112.	*Vanellus indicus*	Red-wattled Lapwing	**Charadriidae**	LC
113.	*Zosterops palpebrosus*	Oriental White-eye	**Zosteropidae**	LC

Checklist of Woody plants

S.No.	Scientific Name	Life form	Family
1.	*Abutilon indicum*	Nanohanerophyte	**Malvaceae**
2.	*Acacia catechu*	Macrophanerophyte	**Mimosaceae**
3.	*Acacia modesta*	Macrophanerophyte	**Mimosaceae**
4.	*Acacia nilotica ssp. Indica*	Macrophanerophyte	**Mimosaceae**
5.	*Aegle marmelos*	Macrophanerophyte	**Rutaceae**
6.	*Albizia lebbeck*	Macrophanerophyte	**Mimosaceae**
7.	*Antidesma diandrum*	Nanophanerophyte	**Euphorbiaceae**
8.	*Asparagus adscendens*	Nanophanerophyte	**Liliaceae**
9.	*Bauhinia variegata*	Macrophanerophyte	**Caesalpiniaceae**
10.	*Bombax cieba*	Macrophanerophyte	**Bombacaceae**
11.	*Bridelia verrucosa*	Macrophanerophyte	**Euphorbiaceae**
12.	*Butea monosperma*	Macrophanerophyte	**Fabaceae**
13.	*Calotropis procera*	Nanophanerophyte	**Asclepiadaceae**
14.	*Capparis sepiaria*	Nanophanerophyte	**Capparidaceae**
15.	*Carissa opaca*	Nanophanerophyte	**Apocynaceae**
16.	*Cassia fistula*	Macrophanerophyte	**Caesalpiniaceae**
17.	*Cassia glauca*	Macrophanerophyte	**Caesalpiniaceae**
18.	*Colebrookea oppositifolia*	Nanophanerophyte	**Lamiaceae**
19.	*Cordia dichotoma*	Macrophanerophyte	**Boraginaceae**

20.	*Crataeva adansonii*	Macrophanerophyte	**Capparidaceae**
21.	*Dalbergia sissoo*	Macrophanerophyte	**Fabaceae**
22.	*Ehretia laevis*	Macrophanerophyte	**Ehretiaceae**
23.	*Elaeodendron roxburghii*	Macrophanerophyte	**Celastraceae**
24.	*Ficus auriculata*	Macrophanerophyte	**Moraceae**
25.	*Ficus benghalensis*	Macrophanerophyte	**Moraceae**
26.	*Ficus hispida*	Macrophanerophyte	**Moraceae**
27.	*Ficus palmata*	Macrophanerophyte	**Moraceae**
28.	*Ficus racemosa*	Macrophanerophyte	**Moraceae**
29.	*Ficus religiosa*	Macrophanerophyte	**Moraceae**
30.	*Flacourtia indica*	Nanophanerophyte	**Flacourtiaceae**
31.	*Grewia optiva*	Macrophanerophyte	**Tiliaceae**
32.	*Gymnosporia royleana*	Nanophanerophyte	**Celastraceae**
33.	*Helicteres isora*	Nanophanerophyte	**Sterculiaceae**
34.	*Lannea coromandelica*	Macrophanerophyte	**Anacardiaceae**
35.	*Lantana camara*	Nanophanerophyte	**Verbenaceae**
36.	*Leea edgeworthii*	Macrophanerophyte	**Leeaceae**
37.	*Leucaena leucocephala*	Macrophanerophyte	**Mimosaceae**
38.	*Mallotus philippensis*	Macrophanerophyte	**Euphorbiaceae**
39.	*Mangifera indica*	Macrophanerophyte	**Anacardiaceae**
40.	*Melia azedarach*	Macrophanerophyte	**Meliaceae**
41.	*Mimosa rubicaulis*	Nanophanerophyte	**Mimosaceae**
42.	*Mitragyna parvifolia*	Macrophanerophyte	**Rubiaceae**
43.	*Morus alba*	Macrophanerophyte	**Moraceae**
44.	*Murraya koenigii*	Nanophanerophyte	**Rutaceae**
45.	*Myrsine africana*	Nanophanerophyte	**Myrsinaceae**
46.	*Nyctanthes arbortristis*	Nanophanerophyte	**Verbenaceae**
47.	*Oroxylum indicum*	Macrophanerophyte	**Bignoniaceae**
48.	*Phanera vahlii*	Liana	**Caesalpiniaceae**
49.	*Phyllanthus emblica*	Macrophenerophyte	**Euphorbiaceae**
50.	*Pinus roxburghii*	Macrophanerophyte	**Pinaceae**
51.	*Pistacea integeriima*	Macrophanerophyte	**Anacardiaceae**
52.	*Premna barbata*	Macrophanerophyte	**Verbenaceae**
53.	*Pyrus pashia*	Macrophanerophyte	**Rosaceae**
54.	*Rhamnus triquetra*	Nanophanerophyte	**Rhamnaceae**
55.	*Rubus ellipticus*	Nanophanerophyte	**Rosaceae**
56.	*Spermadictyon suaveolens*	Nanophanerophyte	**Rubiaceae**
57.	*Syzygium cumini*	Macrophanerophyte	**Myrtaceae**

58.	*Terminalia chebula*	Macrophanerophyte	**Combretaceae**
59.	*Toona ciliata Roem.*	Macrophanerophyte	**Meliaceae**
60.	*Trema politoria*	Macrophanerophyte	**Ulmaceae**
61.	*Vallaris solanacea*	Nanophanerophyte	**Apocynaceae**
62.	*Vitex negundo*	Nanophanerophyte	**Verbenaceae**
63.	*Wendlandia heynei*	Macrophanerophyte	**Rubiaceae**
64.	*Wrightia tomentosa*	Macrophanerophyte	**Apocynaceae**

Checklist of Butterfly (based on direct sightings/ calls)

S.No.	Scientific Name	Common Name	Family
1.	*Ariadne merione*	Common castor	**Nymphalidae**
2.	*Athyma perius*	Common sergeant	**Nymphalidae**
3.	*Belenois aurota*	Pioneer	**Pieridae**
4.	*Caprona ransonneti*	Golden Angle	**Hesperiidae**
5.	*Catopsilia Pomona*	Common emigrant	**Pieridae**
6.	*Catopsilia pyranthe*	Mottled emigrant	**Pieridae**
7.	*Celaenorrhinus leucocera*	Common spotted Flat	**Hesperiidae**
8.	*Cepora nerissa*	Common Gull	**Pieridae**
9.	*Chilades lajus*	Lime blue	**Lycaenidae**
10.	*Chilades pandava*	Plains cupid	**Lycaenidae**
11.	*Coladenia indrani* *	Tricolour pied flat *	**Hesperiidae**
12.	*Colias erate*	Pale clouded yellow	**Pieridae**
13.	*Curetis bulis*	Bright sunbeam	**Lycaenidae**
14.	*Cyrestis thyodamas*	Common map	**Nymphalidae**
15.	*Danaus chrysippus*	Plain tiger	**Nymphalidae**
16.	*Danaus genutia*	Striped tiger	**Nymphalidae**
17.	*Delias eucharis*	Indian jezebel	**Pieridae**
18.	*Erionota torus**	Rounded palm Redeye	**Hesperiidae**
19.	*Euchrysops cnejus*	Gram blue	**Lycaenidae**
20.	*Euploea core*	Common crow	**Nymphalidae**
21.	*Euploea mulciber*	Striped blue crow	**Nymphalidae**
22.	*Eurema andersonii*	One spot grass yellow	**Pieridae**
23.	*Hypolimnas misippus*	Danaid Eggfly	**Nymphalidae**
24.	*Ixias pyrene*	Yellow orange tip	**Pieridae**
25.	*Junonia almana*	Peacock pansy	**Nymphalidae**

26.	*Junonia atlites*	Grey pansy	**Nymphalidae**
27.	*Junonia hierta*	Yellow pansy	**Nymphalidae**
28.	*Junonia lemonias*	Lemon pansy	**Nymphalidae**
29.	*Junonia orithya*	Blue pansy	**Nymphalidae**
30.	*Leptotes plinius*	Zebra Blue	**Lycaenidae**
31.	*Lethe europa*	Bamboo treebrown	**Nymphalidae**
32.	*Matapa aria*	Common branded Redeye	**Hesperiidae**
33.	*Neptis hylas*	Common sailor	**Nymphalidae**
34.	*Papilio demoleus*	Lime Swallowtail	**Papilionidae**
35.	*Papilio polytes*	Common Mormon	**Papilionidae**
36.	*Parantica aglea*	Glassy tiger	**Nymphalidae**
37.	*Phalanta phalantha*	Common leopard	**Nymphalidae**
38.	*Pieris brassicae*	Large cabbage white	**Pieridae**
39.	*Prosotas nora*	Common line blue	**Lycaenidae**
40.	*Pseudozizeeria maha*	Pale grass blue	**Lycaenidae**
41.	*Rapala nissa*	Common Flash	**Lycaenidae**
42.	*Sarangesa dashara dashara*	Indian common small flat	**Hesperiidae**
43.	*Spindasis vulcanus*	Common Silverline	**Lycaenidae**
44.	*Surendra quercetorum*	Common Acacia Blue	**Lycaenidae**
45.	*Tarucus hazara*	Dark violet pierrot	**Lycaenidae**
46.	*Telicota bambusae*	Oriental dark palm-dart	**Hesperiidae**
47.	*Tirumala limniace*	Blue tiger	**Nymphalidae**
48.	*Ypthima asterope*	Common three-ring	**Nymphalidae**

***New record for JK UT**

Details of Rare, Endangered and Threatened species as per IUCN Red List found in Jasrota Wildlife Sanctuary.

S.No.	Scientific Name	Common Name	Family	IUCN status
1.	*Aquila nipalensis*	Steppe eagle	**Accipitridae**	EN
2.	*Gyps bengalensis*	White-rumped Vulture	**Accipitridae**	CE
3.	*Gyps himalayensis*	Himalayan Vulture	**Accipitridae**	NT
4.	*Manis crassicaudata*	Indian Pangolin	**Manidae**	EN
5.	*Neophron percnopterus*	Egyptian Vulture	**Accipitridae**	EN
6.	*Panthera pardus*	leopard	**Felidae**	VU
7.	*Psittacula eupatria*	Alexandrine Parakeet	**Psittaculidae**	NT
8.	*Rusa unicolor*	Sambar Deer	**Cervidae**	VU

Pictures of Rare, Endangered and Threatened species as per IUCN Red List found in Jasrota Wildlife Sanctuary.

1. Steppe eagle. *(Photo Credit: Dr. Neeraj Sharma)*

2. White-rumped Vulture. *(Photo Credit: Dr. Neeraj Sharma)*

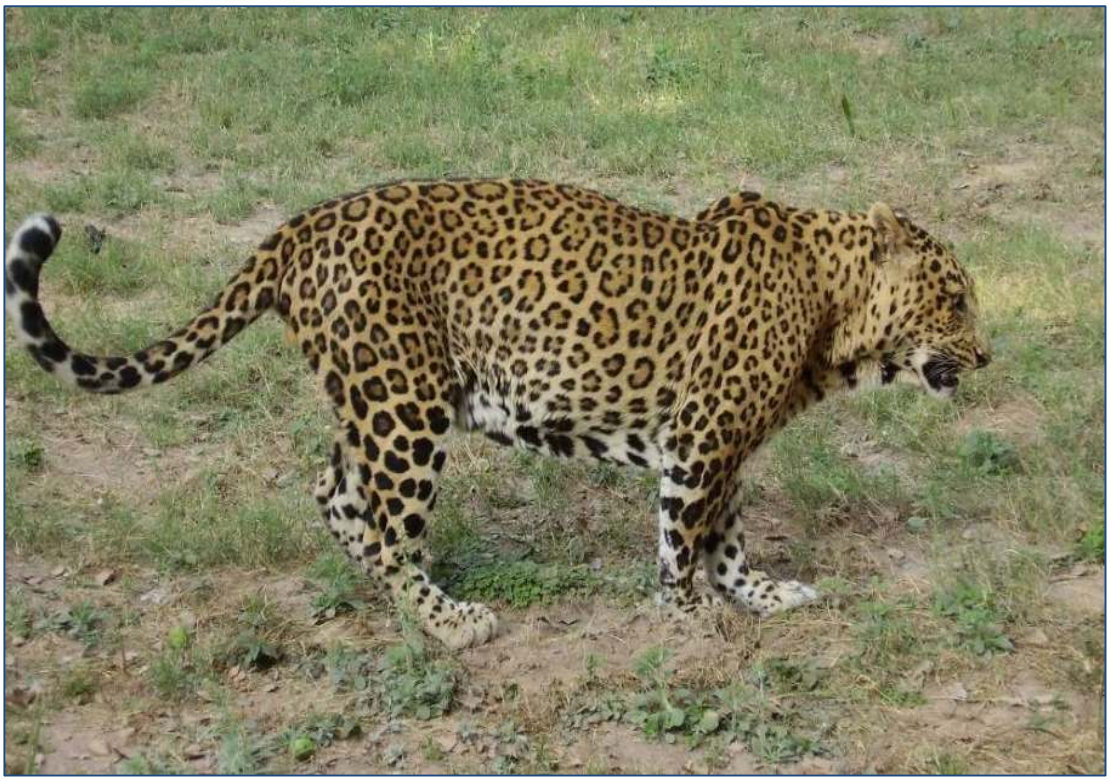
Plate-1

3. Himalayan Vulture. *(Photo Credit: Dr. Neeraj Sharma)*

4. Indian Pangolin. *(Photo Credit: Wildlife Division Kathua)*

Plate-2

5. Egyptian Vulture. *(Photo Credit: Dr. Neeraj Sharma)*



6. Leopard *(Photo Credit: Wildlife Division Kathua)*

Plate-3

7. Alexandrine Parakeet . *(Photo Credit: Dr. Neeraj Sharma)*

8. Sambar Deer. *(Photo Credit: Dr. Neeraj Sharma)*

Plate-4

Panoramic View of Jasrota Wildlife Sanctuary.

Plate-5 *(Photo Credit: Wildlife Division Kathua)*

Prominent Wildlife in Jasrota Wildlife Sanctuary






Plate-6 *(Photo Credit: Wildlife Division Kathua)*

Common Birds found in Jasrota Wildlife Sanctuary

Plate-7 *(Photo Credit: Dr. Neeraj Sharma)*

Common Butterflies found in Jasrota Wildlife Sanctuary

Plate-8 *(Photo Credit: Dr. Neeraj Sharma)*

Camera Trap Pictures in Jasrota Wildlife Sanctuary

Sambar deer

Monkeys merry

Sambar deer

Sambar deer

Sambar deer

Peafowls

Plate-9 *(Photo Credit: Dr. Neeraj Sharma)*

Camera Trap Pictures in Jasrota Wildlife Sanctuary

Short toed snake eagle

Barking deer

Wild boar

Indian crested porcupine

Indian Pangolin

Lesser false vampire bat (Grid-12)

Plate-10 (*Photo Credit: Dr. Neeraj Sharma)*

Camera Trap Pictures in Jasrota Wildlife Sanctuary

Small Indian Civet (Grid-12) (late Evening)

Common Palm Civet (Grid-5) (Night)

Sambar (Male) (Grid-12) (Evening)

Sambar (Female with young) Grid 13

Grey Mongoose (Grid-13) (Late Morning)

Golden Jackal (Grid-10) (Midnight)

Plate-11 *(Photo Credit: Dr. Neeraj Sharma)*

CHAPTER-3

HISTORY OF MANAGEMENT AND PRESENT PRACTICES

3.1 General: Jasrota was founded by Raja Jasdev in 1019 AD. He was descendant of the Royal house of Jammu. He passed it on to his uncle Raja Karan Dev. The Rulers of Jasrota is the name of branch of kachwaha Clan range of Suryavanshi Rajputs. The Jasrota's are Sub clan of Sangotre/Jamwals (native of Jammu province of Jammu and Kashmir). They migrated from Rajasthan at the time of Aurangzeb towards North where they could re-unite and attach Mughal Emperor Aurangzeb-Jasrota was their Capital and then they migrated to different parts of India.

Jasrota Wildlife Sanctuary is situated on the banks of river Ujh around 75 KM to from Jammu city towards the Northern side Kathua District in the U.T of J&K covering an area of 10.04 Km^2 .The protected area was notified as Sanctuary by the J&K Govt., Forest department. Vide S.R.O No.151 Dated:- 19th March, 1987 and falls between 32°.27' to 32°.31' North latitude and 75°.22' to 75°.26' East longitude. The Sanctuary is located between river Ujh in the east and Lodoli Wali Khad in the West. The Northern boundaries of the Jasrota Wildlife Sanctuary has the villages Gurah Surja, Mala, Taloti, Tibba, Furlain, Mun, Gurnam Wala; while the southern part has the villages Jasrota, Mala, Shani and khanpur and Canal ujh. In the western side ruins of Lodmoli Khad is located.

The fort of Jasrota was constructed by the King of Jasrota. It is said that originally the fort had seven gates but presently only four gates exist. Jasrota has been mentioned as an important state of Jammu Hills during the medieval period. Now the place has been covered under Jasrota wildlife sanctuary but still Jasrotia Rajputs meet once in a year to remember their great history and also organize a Jagya for the Temple which has built inside the park. The Sanctuary mainly sustains bamboo plantation. Major animal species found here include chital deer (*Axis deer*), Rhesus macaque, barking deer, Sambar

and, it is also has a variety of birds including peafowl, red jungle fowl, jungle Bush quail, green pigeon and blue neck pigeon. The best time in the year to visit is March and May or September to March because these are the months when birds and animals of this beautiful Sanctuary come out and the view is a remarkable. The ancient Temple of Mahakali reconstructed a few years back now has emerged as a famous pilgrimage centre. It attracts thousands of people during Navratras. The Shrine of holy Goddess is situated bon a hillock in the outskirts of all Jasrota village, 5 km from Rajbagh on Jammu Jammu-Kathua-Pathankote National and 20 Km from Kathua town.

In the absence of adequate man power and financial resources, only a limited management inputs have gone into the sanctuary. These include nature trails in a few villages and water conservation. A system of informers to curb nature illegal activities such as poaching, etc. is also being strengthened.

3.2 Review of Past Management:

Till now there is no Approved Management Plan for Jasrota Wildlife Sanctuary. However, a Management Plan for 2013-14 to 2017-18 was drafted by Wildlife Division Kathua with the following objectives:

I. To conserve and protect the lower Sub-Himalayan biodiversity including threatened and endangered species of flora and fauna along with their habitats.

II. To protect the catchment areas of all the nallas originating within Wildlife sanctuary.

III. To minimize conflict between the local people and wildlife and maintain a harmony between man and nature.

IV. To reduce local peoples' dependency on the natural resources of the PA and enhance enterprise-based livelihood opportunities without changing the traditional and cultural values.

V. To showcase the conservation efforts in the Indian Sub-Himalayan and promote Wildlife Sanctuary as an Eco-Tourism destination and thereby harness the support for conservation.

VI. To evolve a system of participatory Wildlife Sanctuary management and promote long term research and monitoring of endangered species and their habitat

3.3 NTFP (Non-Timber Forest Produce): The agricultural villages namely Gurah Surjan, Amala, Dhaloti, Tibba, Furlain, Mun, Gurnam Wala, Jasrota, Mala, Channi and khanpur lies adjoining to the boundaries of the Sanctuary. The population is predominantly Dogri speaking. They mainly depend on agriculture for their livelihood. The forest dependency is mainly for the collection of firewood.

3.4 Leases: In Wildlife sanctuary, felling is not permitted so no area has been leased.

3.5 Major management activities:

3.5.1 Construction of natural trails and foot paths: 3 Km nature/Bird watching trails constructed with in the Jasrota Wildlife Sanctuary in Co.1 and Co.2 for the bird watching activities.

Table No. 3.1 Detail of fresh path/patrolling

S.No.	Fresh Path /Patrolling	Location
1	Co.1/JSR to Co.3/JSR	3 Km
2	Co.3/JSR to Co.5/JSR	2Km
3	Co.1/JSR to Co.2/JSR	2Km
4	Co.3/JSR to Co.4/JSR	2 Km
5	Co.4a/JSR to Co.5/JSR	2 Km

3.5.2 Development of Water holes: Water holes are constructed with in the Sanctuary area for providing water facility to the wild animals reside within the Sanctuary area.

Table No. 3.2 Construction of Water holes in Jasrota Wildlife Sanctuary.

Year	Scheme	Comptt. No.	No of water holes
2017-18	CAMPA	Co.2/JSR	1 No.
		Co.4/JSR	1 No.
2018-19	CAMPA	Co.5/JSR	1 No.
2019-20	CAMPA	Co.4/JSR	1 No.
	CAMPA	Co.4a,b/JSR	1 No

3.5.3 Construction of observation posts/watch towers: Watch tower merged with the surroundings shall be constructed to observe the animals undisturbed in the natural habitats. The watch towers shall be of great help while conducting census and survey or studying the animal behavior in their natural surroundings. These shall also be used for effective watch and ward of the area. Three watch towers are constructed in Co.3, Co.4 & Co. 6 of Jasrota Wildlife Sanctuary.

3.5.4 Construction of Guard huts: One guard hut along with septic tank is constructed in Wildlife complex Jasrota for wildlife/anti-poaching staff.

3.5.5 Soil, Moisture Conservation measures: The soil conservation work will be carried throughout the Sanctuary in erosion prone areas. The Sanctuary falls under lower Shivalik zone and is characterized with recent geological formations. In order to check soil erosion following works will be carried out.

I. Construction of check dams.

II. Nallas training works.

III. Land slide control.

Table No. 3.3 Soil, Moisture Conservation / Water Harvesting Structure in Jasrota Wildlife Sanctuary.

Year	Scheme	Comptt No.	DRSM (in Cum)	Ponds (in No.)	Crate Work (in cum)
2017-18		Co.1,2,4/JSR	90 cum		
		Co.1/JSR	1500 cum		
		Co.2/JSR	1000 cum	__	__
		Co.4/JSR	800 cum		
		Co.5/JSR	700 cum	__	__
2018-19		Co.5,6/JSR	400 cum	__	__
		Co.2/JSR	87 cum	__	110 cum
		Co.1/JSR	86 cum		110 cum
		Co.4a/JSR	__	1 No.	110 cum
		Co.4b/JSR	__	1 No.	110 cum

3.5.6 Plantation: In the buffer zone, the area under scrub which is degraded and deforested shall be rehabilitated by habitat manipulation or by planting suitable species of local plants.

Table No. 3.4 Plantation activities In Jasrota Wildlife Sanctuary (2015-16 to 2019-20)

Year	Scheme	Compartment No.	Saplings (in No.)
2017-18	CAMPA	Co.1/JSR	27000 No.
		Co.2/JSR	
		Co.3/JSR	
		Co.4/JSR	
2018-19	CAMPA	Co. 1/JSR	1500 No.
	CAMPA	Co. 4b/JSR	300 No.
		Co. 4b/JSR	8000 No.
		Co. 1/JSR.	3200 No.
		Co. 2/JSR	
		Ornamental Plants	5600 No.
		Co. 1/ JSR.	2600 No.
		Co. 6/JSR.	

3.5.7 Antipoaching activities: Wild animals are always under constant threat of poaching. The people for protection of their crops, live-stock, or to advent the trade of wild animal derivatives or their body parts kill theses wild animals. The department is fighting vehemently against theses poachers. Constant vigil requires to be kept on these poachers. Watch towers are to be erected inside

protected area near water holes or at vital places. Establishment of anti-poaching posts and adjacent to protected area with deployment of Informers inside and adjacent to protected area will help to nab the culprits. Sometimes poachers take advantage of feeble legal process against them. Cases against them are to be contested properly by engaging legal counsel's department. Most important factor to strengthen the anti-poaching operations against poachers is the mobility in and outside protected area and a close liaison with police, courts and with anti-poaching squad, informers for surprise raids and timely results.

3.5.8 Habitat Improvement: The Wild habitat are always subjected to degradation through biotic and abiotic interference. The natural calamities like floods, forest fires, thunders, lightening, and drought are some natural miseries but man's greed in the form of poaching, tree felling, encroachment, diversion of Wildlife area for agricultural practices, annihilates the Wildlife and its habitat. These detrimental activities are to be arrested by initiating some management interventions. The protected area requires some soil conservation activities like dry stone rubble masonry works (D.R.S.M), gully plugging works to contain soil run-off. The degraded habitats are to be upgraded by way of plantation of fruit bearing trees with barbed wire closures.

Wildlife habitats are to be protected against devastating forest fires which sometimes engulf chunk of wildlife areas and even perishes precious wild animals. The clearance of old fire lines, besides making of new fire lines is a must in the protected area. The skilled labours are to be engaged in the fire protection squads. The fire-control equipments like jig-saw, shovels, helmets, fire extinguisher, and rakes are to be purchased to extinguish the forest fires in time. Participation of the local people is to be given top priority as in many cases local turned fruitful in dousing forest fires, before Government agencies operate in time. Weed infestation has posed a challenge in habitat

management which is being addressed by the department by engaging of local labours.

3.5.9 Weed Removal:

Table No. 3.5 Lantana removal in Jasrota Wildlife Sanctuary (2015-16 to 2019-20)

Year	Scheme	Comptt. No.	Area treated (in Ha)
2017-18	CAMPA	Co. 13 to Co.5/JSR	16 Ha
2018-19	CAMPA	Co.2/JSR	2.5 Ha
2019-20	CAMPA	Co.1/JSR	4 Ha
		Co.2/JSR	4 Ha
		Co.3/JSR	4 Ha
		Co.4a,b/JSR	4 Ha
		Co.5/JSR	4 Ha
		Co.6/JSR	4 Ha

3.5.10 Fire line:- Various fire lines/paths are made in the Jasrota Wildlife Sanctuary.

Table No. 3.6 List of Fire lines since 2015-16

S.No.	Year	Name of fire line	Length in KM	Remarks
1	2015-16	-	-	
2	2016-17	-	-	
3	2017-18	-	-	
4	2018-19	-	-	
5	2019-20	Co.2/JSR	2Km	
		Co. 4/JSR	2Km	
		Co.1,2/JSR	2Km	
		Co.5,6/JSR	4Km	
6	2020-21	Co.2/JSR	2Km	Maintenance
		Co. 4/JSR	2Km	
		Co.1,2/JSR	2Km	
		Co.5,6/JSR	4Km	

3.6 Forest Protection: The Jasrota Wildlife Sanctuary shares its boundary in the Northern side with the villages Gurah Surjan, Amala, Dhaloti, Tibba, Furlain,

Mun, Gurnam Wala; while the southern part has the villages Jasrota, Mala, Channi and khanpur. The Jasrota Wildlife Sanctuary is mostly demarcated except at a few stretches and hence the possibility of encroachments in un-demarcated areas is high.

3.6.1 Legal status: With the promulgation of the J&K Wildlife Protection Act,1978, the area was declared as Wildlife Sanctuary in 1978 Vide Govt. order No: 151 dated: 09.03.1987, since than the Wildlife in the past two decade.

3.6.2 Poaching: - As per records no poaching has been reported in the Sanctuary since past 2 decades.

Table No. 3.7 Detail of Poaching cases since 2015-16

S.No.	Year	No. of Cases	Name of Species Poached	Remarks
1	2015-16	Nil	-	
2	2016-17	Nil	-	
3	2017-18	Nil	-	
4	2018-19	Nil	-	
5	2019-20	Nil	-	

3.7 Dependency on area.

3.7.1 Domestic livestock grazing: The available stretches of grass lands in the Sanctuary are still being used by villagers for cattle grazing. Unregulated grazing may cause spread of many communicable diseases to the wildlife of the Sanctuary.

3.7.2 Fire wood collection: The villagers collect fire wood from the adjoining forest area.

3.8 Current Land use Practices and Problems:

3.8.1 Agro-pastoralism: The Jasrota wildlife Sanctuary is surrounded by number of villages. The residents are mainly farmers and their agricultural lands

extend right up to the boundaries of the Sanctuary. Constant vigil by the field staff so far has prevented any intrusion but in the absence of a reliable fencing, the threat of encroachment looms large.

The area experiences enormous grazing pressure during winter season from the domestic cattle and sheep owned by the nomadic Gujjars. Owing to the ever-increasing livestock population the grazing pressure on the sanctuary is immense. The extent of grazing is far beyond carrying capacity of pasture land and is adversely affecting the natural regeneration of the forests. The over grazing results in degradation of the habitat besides causing damage to the germinating seedlings, shrubs and grasses.

3.8.2 Forest Fires: Forests fire are global phenomenon and cause extensive loss to bio diversity. Forests fire are seasonal and they usually start in the dry season. The dried-up grass and trees are prone to natural fires and manmade fires which cause damage to forests and Wildlife.

Table No. 3.8 Fire incidents since 2015-16 in Jasrota Wildlife Sanctuary

S.No.	Year	Location/ Comptt	Area Burnt	Remarks
1.	2015-16	Nil	-	No such case reported.
2.	2016-17	Nil	-	-
3.	2017-18	Nil	-	-
4.	2018-19	Adjoining area	0.5 Ha.	No Major Damage/ ground fire. Suppressed by control room team with the help of fire watcher engaged for same purpose.
5.	2019-20	Nil	Nil	-
6.	2020-21	4a/Jsr and 5/Jsr	2 Ha.	No Major Damage/ ground fire. Suppressed by control room team with the help of fire watcher engaged for same purpose

3.8.3 Weed infestation: The large area of the Sanctuary is infested with weeds like *Lantana* and *Parthenium.* Although, the *Lantana* provides shelter to many animals but have negative impact on the management of natural grasslands. The natural grasslands have been infested with *Parthenium* which is a challenge for management.

3.8.4 Grazing:- The domestic livestock of local residents graze along the boundaries resulting in conflict with large cats and poses a grazing pressure on Sanctuary.

3.8.5 Inter agency programmes and problems:- As such there is problem of unemployment in the areas particularly for the youth. There are no major developmental programmes running except Government initiatives through Panchayats and agriculture labour work being made available by private farmers.

3.9 Population Estimation:

3.9.1 Population Estimation conducted during March 2014: A census was conducted in Jasrota Wildlife Sanctuary, District Kathua, Jammu and Kashmir. It lasted for two days, from 16th March 2014 to 17th March 2014. The methodology followed was a combination of direct as well as indirect sighting. The frontline staff of Jasrota Wildlife Sanctuary, Department of Wildlife Protection, Jammu and Kashmir were trained prior to the census exercise. Training about the basic concept of the line transect and the variables to be recorded on the transect lines was provided. The staff was taught to identify and differentiate between signs of different species such as hoof marks, pellet groups, scats, pug marks, vocalization etc. Use and handling of camera traps were also taught. The exercise consisted of a 2 Km line transect for direct and indirect sightings of ungulate, carnivore and other mammalian species presence in the protected area. Block count method was used for surveying water fowl. Equipment used during the Block count include compass (Suunto KB 20), camera trap (Moultrie A5 Game camera), rangefinder and binoculars (Nikon Action 10*40 CF).

RESULTS: Four predetermined transects were walked on two consecutive days to get 2 replicates. An effort of 16 km of transect walk and 16-man hours were invested recording direct and indirect animal signs on the line transect. A length of 5000 m was survey in the block counts for waterfowl and 30 min of man hour was invested.

Direct observation and population estimates: A total of 50 observations (N) were made encompassing all animals which were directly and indirectly sighted. In all, 13 species of animals of different orders were directly sighted, out of which, 10 were mammalian species and 3 avian species each. Amongst N=50 sightings, Rhesus monkey (*Macaca mulatta*) comprised highest percentage of 33%, followed by Red Jungle Fowl (*Gullus gallus*) 19% and Muntjack (*Muntiacus muntjac*) 10% while, Chital (*Cervus axis*) comprised only 8% (Figure 1). There are camera trap and indirect records of Sambar. Nilgai records are also present but there were no direct sightings.

Table: 3.9 Species encounter rate in Jasrota Wildlife Sanctuary (2014).

Species	Encounter rate (n/Km)
Common Palm Civet (*Paradoxurus him, aphroditus)*	0.25
Rhesus Monkey (*Macaca mulatta*)	3.75
Barking deer (*Muntiacus muntjak*)	1.25
Pea fowl (*Pavo cristatus*)	0.5
Red Jungle Fowl (*Gallus gallus*)	2.25
Wild pig (*Sus scrofs*)	0.5
Porcupine (*Hystricx indica*)	0.25
Chital (*Axis axis*)	1
Jungle cat (*Felis chaus)*	0.5
Hare (*Lepus nigricollis*)	0.75
Fox (*Velps bengalensis*)	0.5
White Rumped Bulture (*Gyps bengalensis)*	0.25
Leopard (*Panthera pardus*)	0.25

Figure: 3.1 Species encounter rate in Jasrota Wildlife Sanctuary (2014).

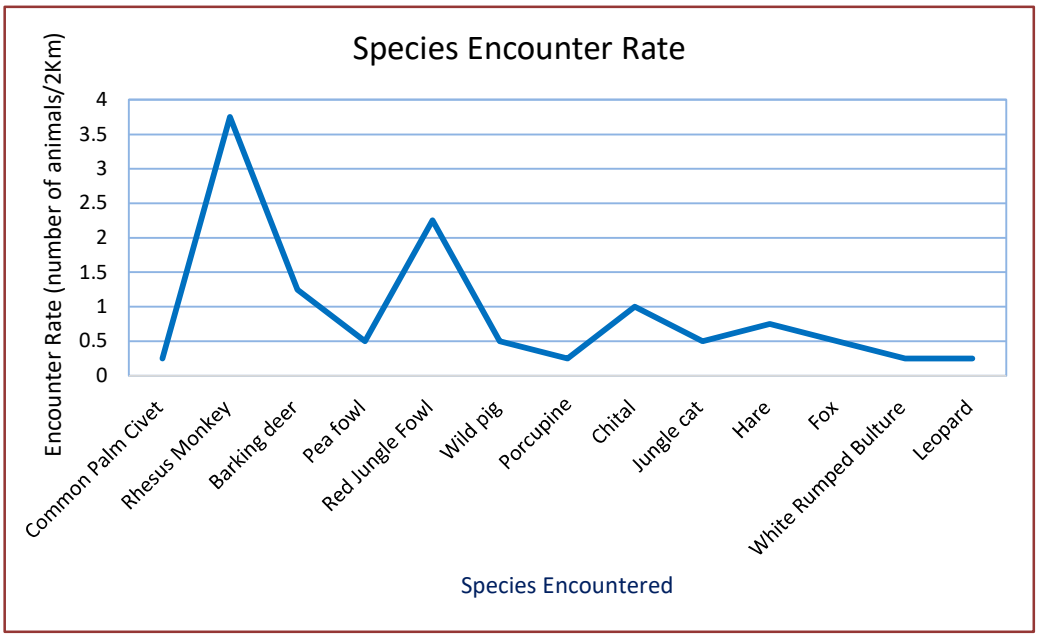
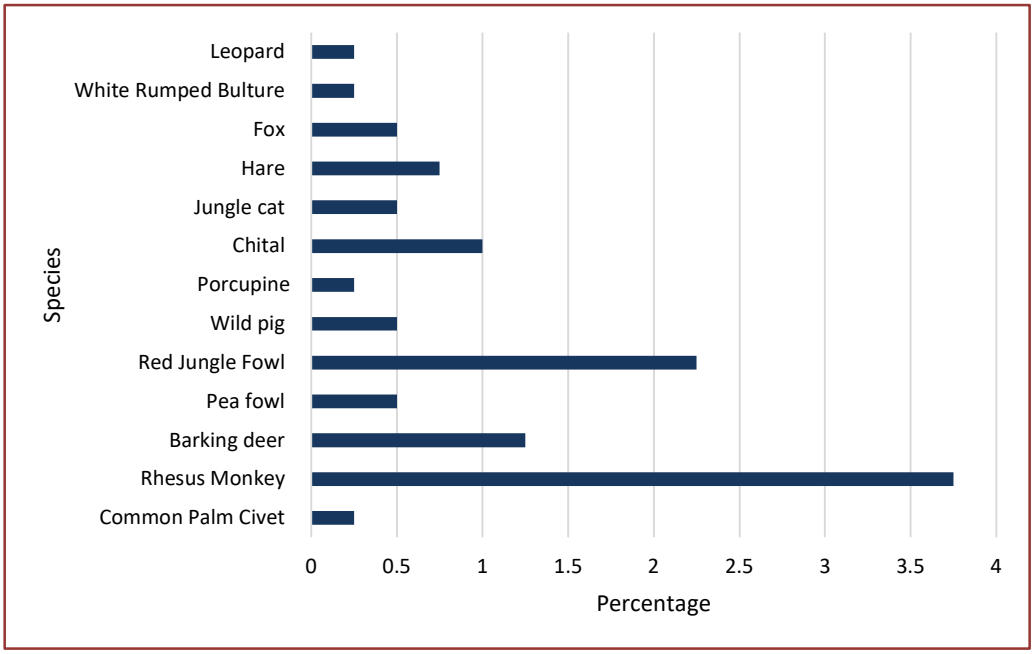


Figure: 3.2 Species Percentage in Jasrota Wildlife Sanctuary (2014).



3.9.2 Population Estimation and Monitoring (2020-21): Population estimation and monitoring of wild animals (mammals, birds and butterflies) in Jasrota Wildlife Sanctuary was again carried during December 2020 to May 2021 by

the Institute of Mountain Environment, University of Jammu Bhaderwah Campus, J & K.

Methodology and field protocols

Field Sampling:

The survey was carried out between September 2020 to January 2021 including the camera trapping and standard line transect walk in Jasrota Wildlife Sanctuary. For field sampling, the whole study area arbitrary divided into sixteen (16) grids and the size of each grid is 1 km^2 (Figs 3.3 & 3.4).

Fig 3.3. FCC of Jasrota Wildlife Sanctuary (10 km^2), Kathua

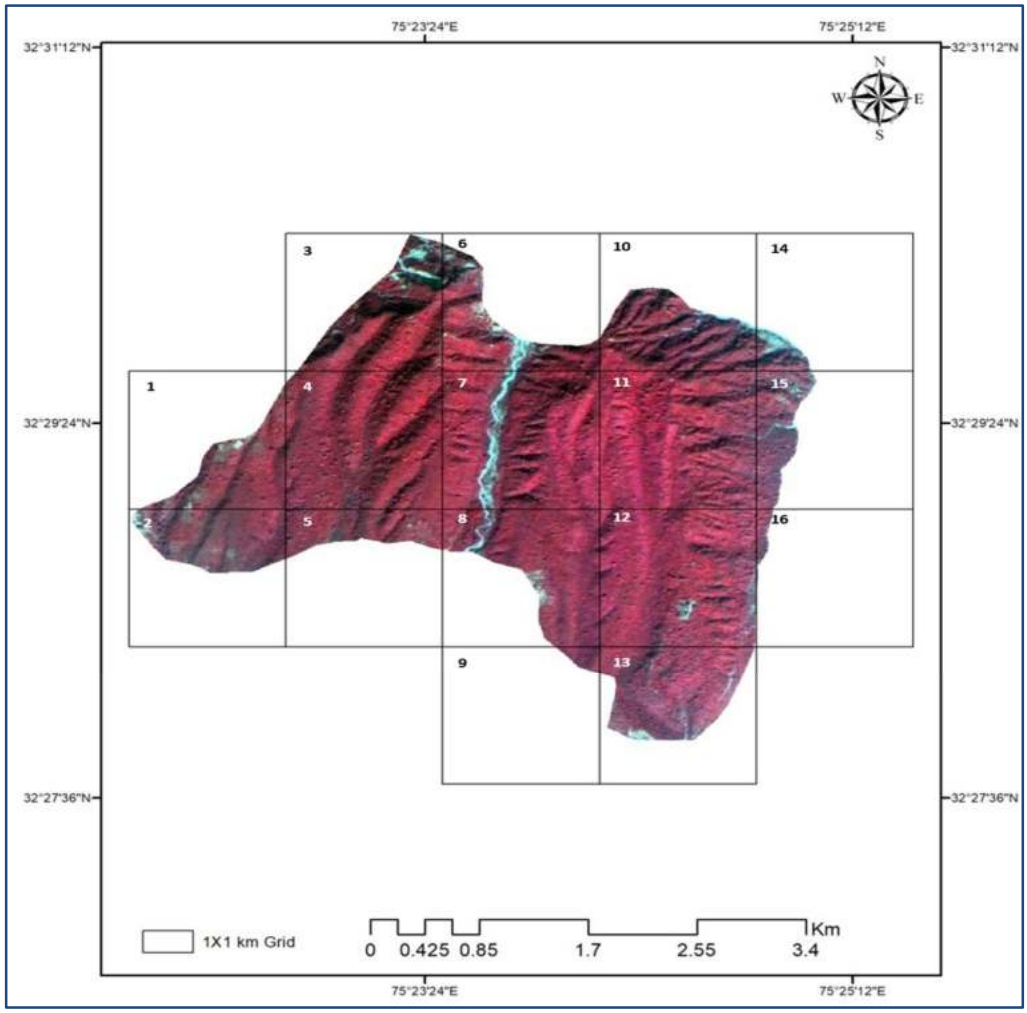
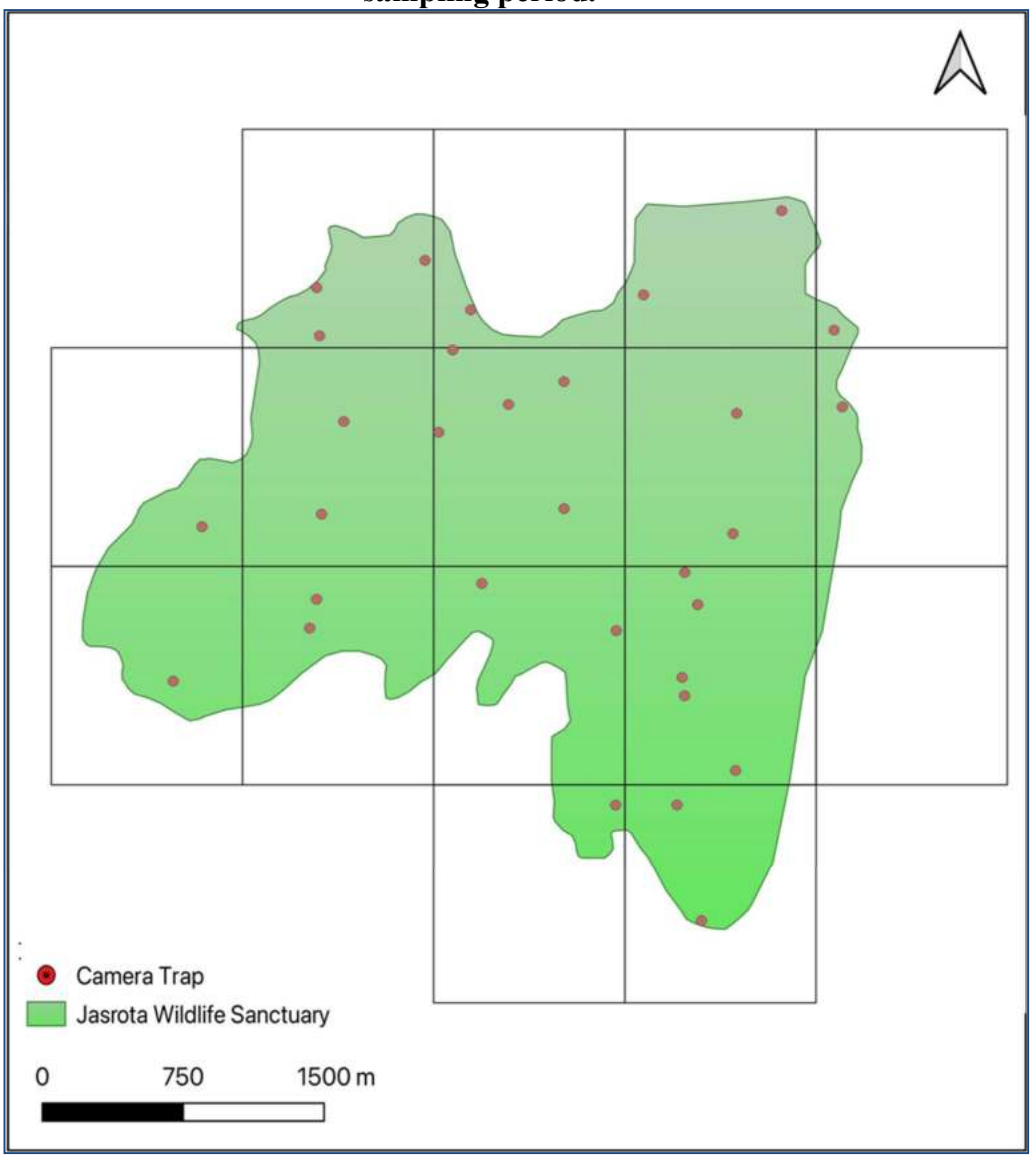


Fig. 3.4 Location of IR Cameras (Camera traps) installed during the sampling period.



Line transects method (distance sampling)

Predetermined two line transects of variable length (mean length = 0.5 km) per grid were walked twice or thrice a month (Burnham *et al*. 1980, Buckland *et al.* 1993, Silviera *et al.* 2003) distantly placed from each other to avoid double counts. A team of 2-3 trained personnel were engaged in the transect walks conducted during morning (starting 15 minutes before sunrise for 2 hours) and evening hours (before sunset) to record animal and bird species.

The start and end points of each transect was recorded using GPS (Garmin 7) and the distance of each animal sighted was record using the Nikon rangefinder. The number of individuals and species of animals sighted directly were recorded during the survey. The indirect evidences such as pug marks, scats, burrows, dens, quills, bones, droppings and other signs were noted with their geo-coordinates for analysis.

Camera trapping (detection / non detection)

The camera traps (IR Cameras) were installed in all sixteen grids except 9, 14 and 16 owing to high anthropogenic disturbances. At each station, the camera traps were deployed 50 cm above the ground (Jenks et al. 2011, O'Connell et al.2011, Tobler *et al.* 2008) along the paths, forest trails, water holes, and other locations likely to record the animal movement in the landscape. The cameras were set to operate round the clock programmed to take sequential photographs with 5 seconds' delay. All the cameras were deployed for a period of 15 days and checked weekly to download the data or replacement of batteries. The detection of the species in each camera was analysed using occupancy framework (Mackenzie *et al*. 2003) by treating days of operation as sampling replicates.

Questionnaire survey (Secondary analysis)

The secondary observations of the species' occurrence and human-wildlife interactions were collated using the questionnaire approach. Structured interviews were conducted with the respondents that mainly comprised of the ground staff of department of forest and wildlife conservation, farmers, nomads and locals including the women folk. The questionnaire included the queries about the current and past occurrence of wild mammals, their distribution, and population trend. Besides it, people's perception towards wildlife in context of human-wildlife interactions in and around PA was also noted.

Data analysis:

All the images were extracted out of the camera traps retrieved from the field. Besides wild animals and birds, the photographs of human traffic (ground staff, villagers, pilgrims and passer byes) and domestic animals (livestock, dogs) were segregated for further analysis. The animals and birds up to species level were identified using field guides viz., Menon (2014) and Grimmet *et al*. (2014). The blank captures including the exposures where the species were unidentifiable besides the data on humans and livestock were excluded from the current analysis. Each photo was rated as an independent event, if the time between consecutive photographs of the same subject was more than 30 minutes (O'Brien *et al.,* 2003). As study is not focused on identifying individual animals, the arbitrary time between independent photos was unbiased. Transect-sampling and camera-trap data were pooled to estimate the species abundance and diversity in MS Excel and Past version 4.1 (Hammer *et al.*, 2001) software. The overall density of mammals was calculated by dividing total number of species by the total area of the sanctuary. The grid wise population density of the species was calculated by dividing the total number of individuals of the species in the grid by the total area of all grids. Menon (2014) and Johnsingh (2013) was followed for assigning dietary guilds to mammals.

Results:

Richness and diversity attributes of mammals

Camera traps were deployed at 31 locations in sixteen ($1km^2$) grids for 581 nights. The observations could not be retrieved for 3 locations due to the device malfunctioning, card damage and theft. A total of 16 species of mammals belonging to 7 orders and 13 families were recorded. Out of the total species recorded, family Cervidae carries the high number of 3 species followed by Viverridae (2 species) whereas the families Cercopithecidae, Felidae, Canidae, Herpestidae, Bovidae, Suidae, Leporidae, Manidae, Sciuridae, Hystricidae, and Megadermatidae occupied one species each .

According to IUCN 2021, only two species viz., Indian Pangolin *(Manis crassicaudata)* and Sambar Deer (*Rusa unicolor)* are placed in Threatened category as Endangered and Vulnerable respectively and remaining all other species (n=14) fall in Least Concern category. Besides mammals, 24 species of birds and one reptile (Indian Monitor Lizard) have been captured by Infra-red cameras in the whole landscape.

Analysis of their feeding behaviour revealed that out of total 16 mammals, seven species are omnivores followed by herbivores (n=6), insectivores (n=2) and carnivore (n=1). Among the omnivores, Rhesus macaque (*Macaca mulatta)* exhibited the highest relative abundance (RA= 38.67%) followed by Wild Boar (RA= 6.56), Northern palm squirrel (RA= 2.71%), Common palm civet (RA= 0.85%), Small Indian Civet (RA = 0.38%), Common grey mongoose (RA= 0.28%) and Golden jackal (RA = 0.23%). Of the six herbivores, Sambar (RA= 21.17%) was the most encountered and Rufous-tailed hare (RA = 0.23%) was the least. Indian pangolin (RA= 0.28%) and Lesser false vampire bat (RA= 2 .47%) among the insectivores showed low relative abundance. Jungle cat, the only carnivore was least encountered (RA= 0.04%). The observed relative abundance of the species encountered during the current investigations is presented. It is worth to mention that out of the 16 mammals observed, only 11 species were observed based on the direct and indirect evidence recorded during the transect walks (distance sampling). The Jungle cat, Small Indian Civet, Common Palm Civet, Rufous-Tailed Hare, Indian Pangolin were not observed directly owing to their nocturnal habits and cryptic behavior. Based on the capture rate, 70 % of all the camera traps had captured at least one mammal species in first 18 days. The day to first detection for individual species ranged from one (Rhesus macaque and Sambar deer) to 35 days (Golden jackal). The average day to first photographic detection for all mammals in Jasrota WLS is provided in Fig. 3.6.

Fig.3.5 Relative abundance of mammals observed in Jasrota Wildlife Sanctuary.

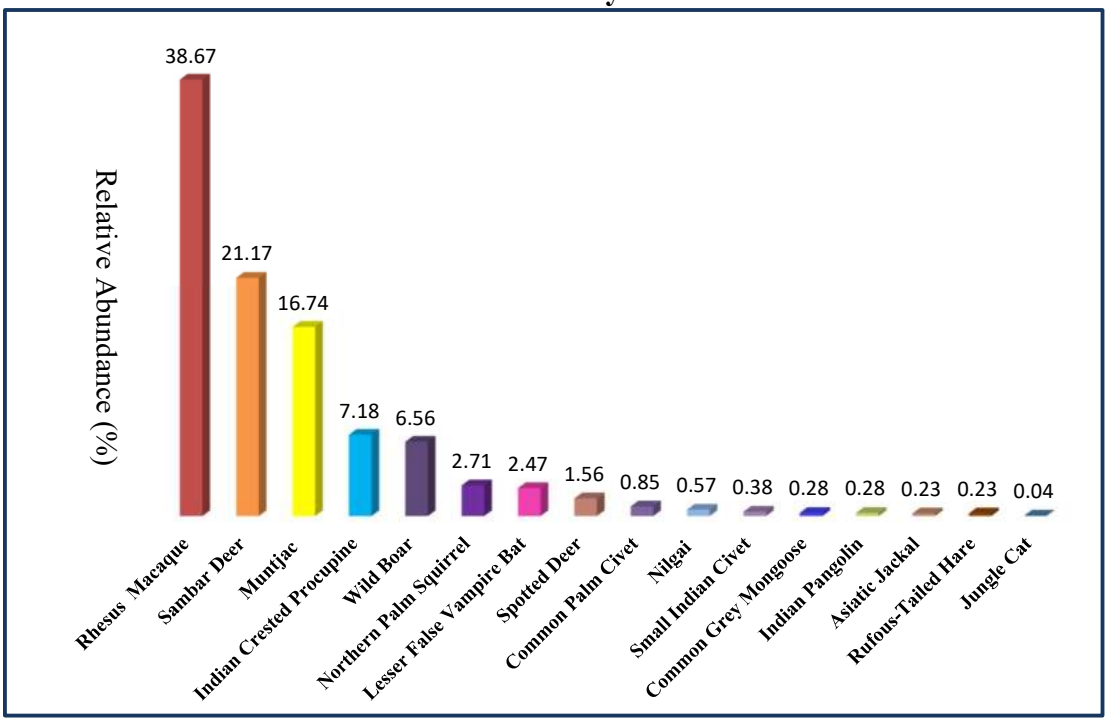
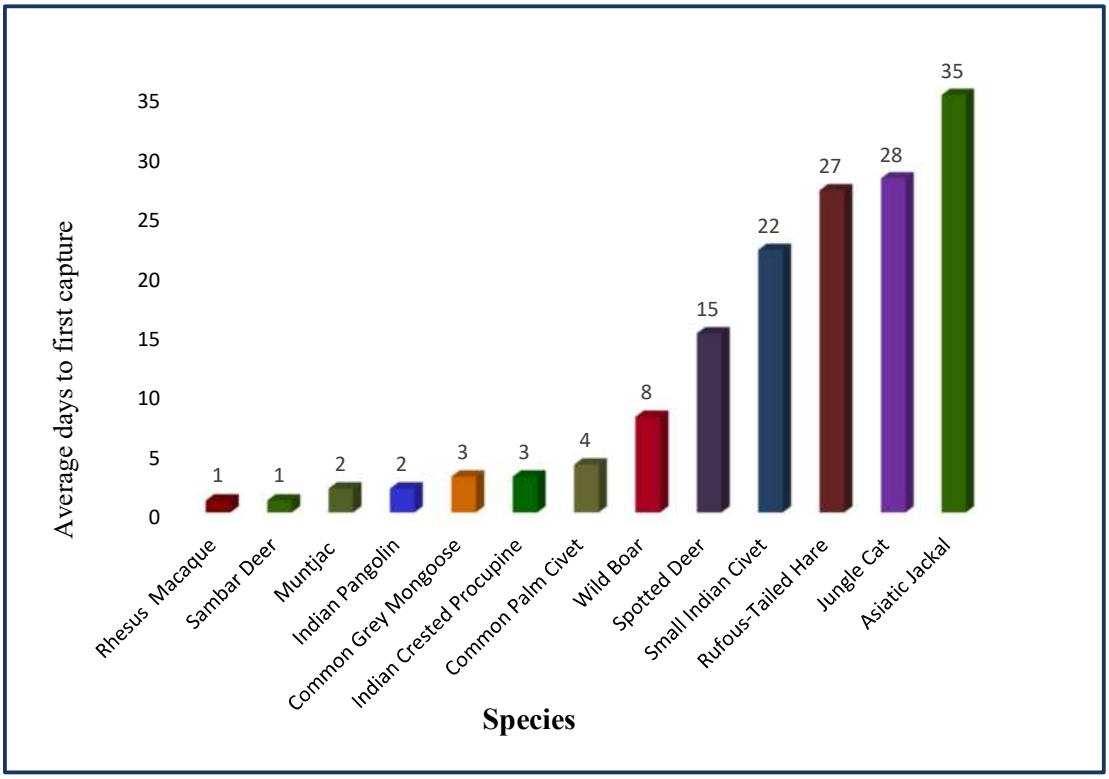


Fig.3.6 Average day to first photographic detection for species in Jasrota Wildlife Sanctuary.



3.9.3 Prescription for expansion of Jasrota Wildlife Sanctuary: - Based upon the abundances, richness and relative density of Wildlife as analyzed in the above scientific studies, it is prescribed that the expansion of Jasrota Wildlife Sanctuary towards west and north-west can be considered in future.

3.10 Tourism interpretation and conservation education: -Danger of forest causes by careless smoking.

I. Water pollution with polythene carried by tourists. Degradation of habitat due to excess tourism affecting wild animals.

II. Irresponsible visitor's behavior leading to accident involving wild animals or human being.

3.10.1 Research monitoring and training: - The Research in Wildlife and Forest Ecology is being carried by the different agencies including Department of Zoology, Botany and Environmental Sciences, University of Jammu. The Wildlife surveys and census is done on regular basis by the Wildlife department. Well organized research on biological and socio-economic aspects helps in arriving at appropriate management decisions. A few ecological studies and floral and faunal surveys conducted in Sanctuary by different departments have helped in basic understanding of the Sanctuary. However, several long term and short studies are yet to be carried out in the Sanctuary.

3.11 Administrative set up: - Presently, Jasrota Wildlife Sanctuary is one of the Administrative unit of Wildlife Division Kathua under the overall management of Wildlife Warden Kathua. The Sanctuary is managed by Range Officer, Jasrota with headquarter at Jasrota who is assisted by one Forester stationed at Jasrota. The day-to-day activities and protection of Sanctuary is carried out through Wildlife Guards, Helpers and Need based labourers.

3.12 Infrastructure: -

3.12.1Buildings: - Infrastructure include Range Office, Chowkidar Hut, Guard Hutt, Inspection Hut, Control Room, Rescue Centre.

Table No. 3.10 Building Details: -

S.No.	Building Name
1	Range Office Complex Jasrota
2	Guard Hut Gurha Sooja
3	Guard Hut Amala
4	Guard Hut Jasrota
5	Guard Hut Ladoli

Control Room/ Rescue Centre	Geo-Coordinates
Control Room	32°27'52.20"N 75°24'29.01"E
Rescue centre	32°27'52.20"N 75°24'29.01"E

3.12.2 Roads: - There are two major roads in the Sanctuary namely Amala to Gurha Surja, Jasrota to Chain Pora. Besides, a few fair-weather roads are also there in the Sanctuary.

1.	Amala to Gurha Surja	2 Kms
2.	Jasrota to Chain Pora	2.5 Kms

3.13 Communication: - An effective communication in terms of road and telecommunication is highly essential for effective monitoring. The mobiles are the effective mode to facilitate communication among the frontline staff and park managers.

POSTAL ADDRESS

Wildlife Warden Wildlife Division Kathua -184101 Telephone No. 01922-234622 Email address: wildlifekathua1@gmail.com Mobile No. +91 9419154255	Range Officer Wildlife Range Jasrota-184143 Email address:- rangerjasrotawls@gmail.com Mobile No. +91 9419212594

3.14 Summary of threats to Wildlife.

1. **Grazing by Nomadic grazers: -** The Jasrota Wildlife Sanctuary is under a heavy pressure of grazing i.e. livestock population of local people and nomadic grazers. This pressure increases during the winter months when nomadic Gujjar and Bakerkwals in large number along with their livestock populations descend to the area of this Sanctuary. These cattle population graze almost in every compartment of the Sanctuary even after the notification of the area as a Wildlife Sanctuary. These nomadic grazers need to be provided with alternate areas outside the Sanctuary. The first important step in controlling the menace in the area is to close or control grazing.
2. **Fires: -** Forest fires are a global phenomenon and cause extensive loss to biodiversity. Forests fires are seasonal and usually occur in the dry season. Owing to the long dry spell during the summer and autumn season, the dry grass and trees become prone to natural and manmade fires inflicting huge damage to forests and Wildlife.
3. **Protection: -**Crop raiding by the wild animals is another problem. Sambar and Wild boar are damage the crops to a larger extent. Besides these, peafowls and monkeys also damage the crop. Cattle are worst sufferers in view of paucity of limited fodder availability.

The wildlife division is extremely facing shortage of staff. Protection infrastructure is highly inadequate and mobility of staff is a problem, though local casual staff is available for protection. Antipoaching team is also created for handling man-animal conflict situation. Occasionally encroachment is an issue and it is basically due to unclear boundaries of the area and demand for land use for expanding agriculture that is prevalent in the surrounding area.

Besides, following threats poses challenge for Wildlife management in the Sanctuary:

i. Invasive alien species
ii. NTFP collection

iii. Illicit felling
iv. Firewood collection
v. Human-wildlife conflict
vi. Soil erosion
vii. Encroachments
viii. Poachers and smugglers
ix. Wildlife diseases

3.15 Training: - The present staff has not undergone any form of training in Wildlife management, use of advanced equipments like GPS, Camera trap, radio collaring etc. and maintenance and use of firearms and wireless. The lack of trained staff seriously affects the Sanctuary programmes.

3.16 Vehicles: - at present, there is only one Bolero available with this division and is used extensively for Wildlife Warden. It is grossly inadequate to meet the requirements if Wildlife Protection in the whole district. Rental vehicles are hired for rescue and release of straying wildlife and mobile patrolling, etc as per requirement.

CHAPTER 4

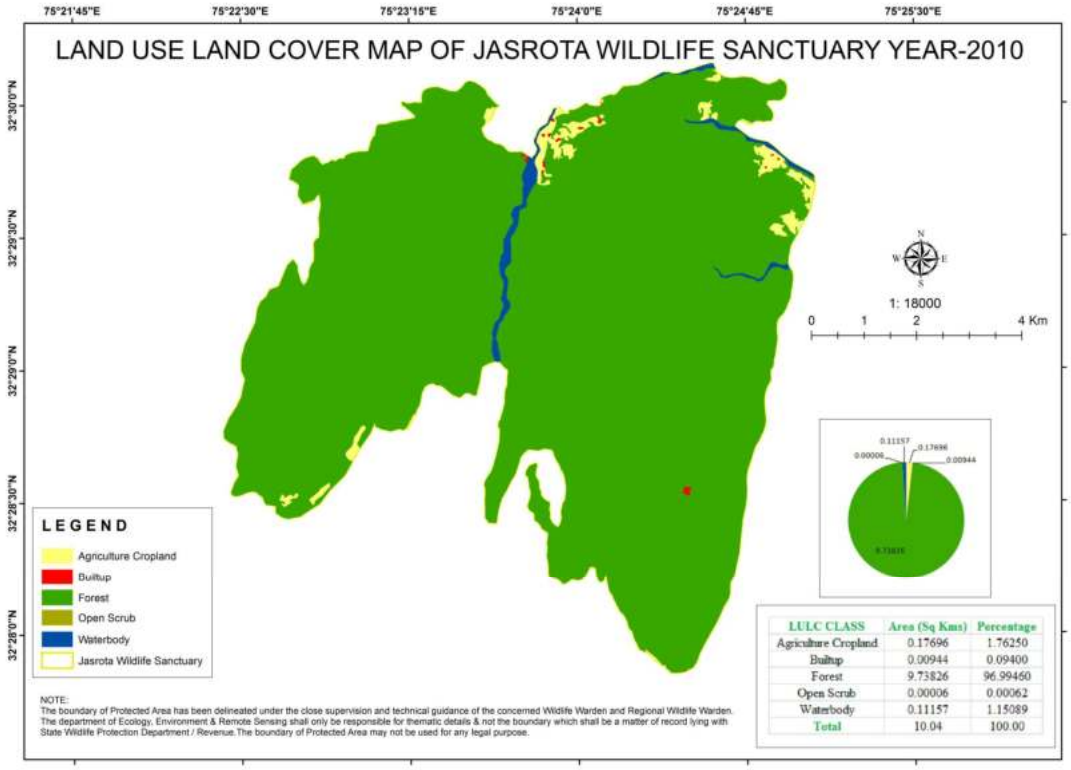
THE PROTECTED AREA AND THE INTERFACE LAND USE SITUATION.

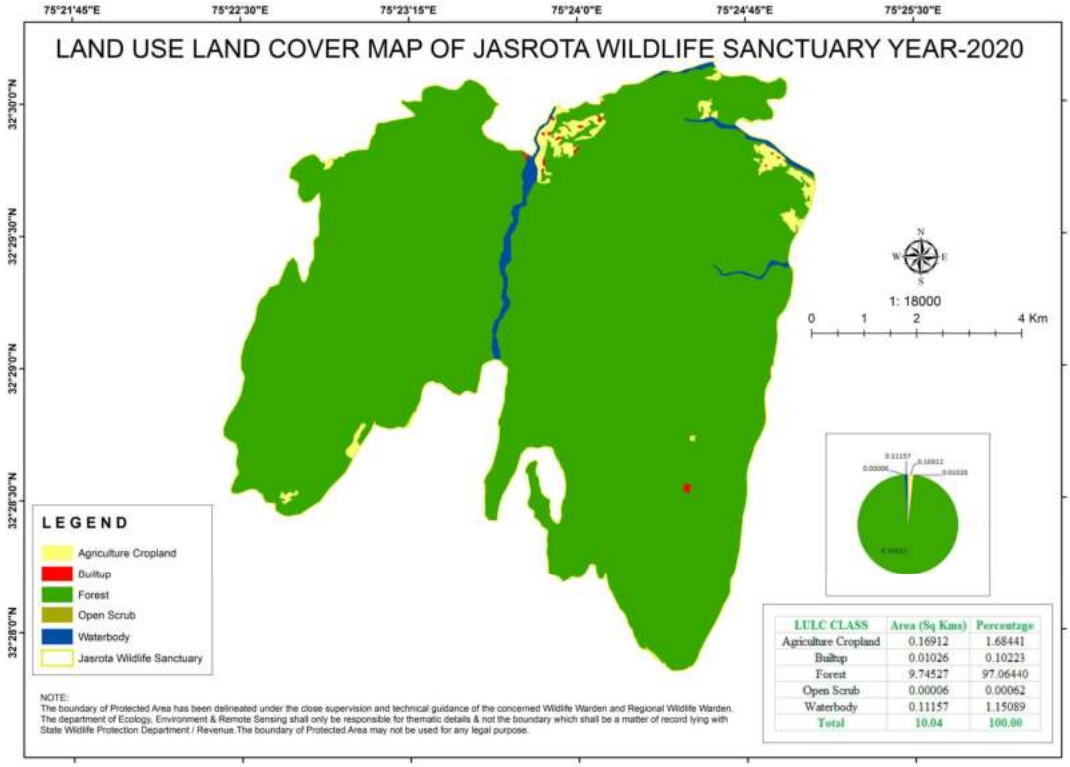
4.1 The existing situation in the zone of influence.

As the rights remain unsettled, it is not possible to distinguish between the genuine right holders and the encroachers. The zone of influence within sanctuary varies from the activities of those who occupy the lands within, to those outside who use the sanctuary for livelihood purposes. There are 10 villages located surrounding the boundaries of the sanctuary. The livelihood of villagers is agriculture, animal husbandry, poultry and Dairy activities. Prior to declaration of sanctuary, people used to be dependent on the natural resources of the areas such as livestock grazing, firewood collection. The villages located near to the sanctuary have some negative impacts like crop raiding and loss of livestock due to straying of wild animals from the sanctuary. Traditionally the fringe residents are conservation oriented and therefore extent of alienation is not very significant but today because of increase in crop damage by Wild Boar, Nilgai, Sambar Deer, Porcupine and livestock depredation by leopard the attitude is changing. The zone of influence of Jasrota Wildlife Sanctuary is identified with in 0.5 km/ 500 m of the legal boundaries.

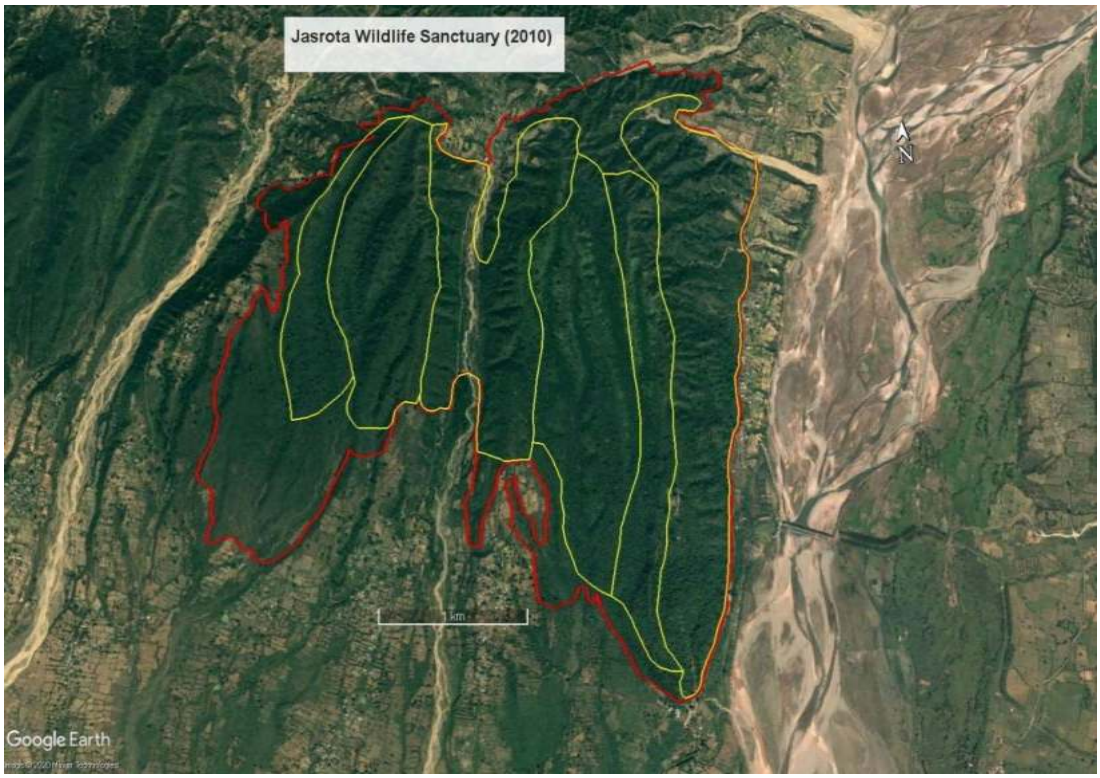
4.1.1 PA- People interference:

In the past, the area was mainly used by the villagers for grazing their cattle. People enter the sanctuary for firewood and cattle grazing. The various sources from the sanctuary meet their various purposes. Now, the people frequently suffer crop raiding by wild animals especially wild boar.


LAND USE LAND COVER MAP OF JASROTA WILDLIFE SANCTUARY YEAR-2010
75°21'45"E
75°22'30"E
75°23'15"E
75°24'0"E
75°24'45"E
75°25'30"E
32°30'0"N
32°29'30"N
32°29'0"N
32°28'30"N
32°28'0"N
1: 18000
0 1 2 4 Km
LEGEND
Agriculture Cropland
Builtup
Forest
Open Scrub
Waterbody
Jasrota Wildlife Sanctuary
NOTE:
The boundary of Protected Area has been delineated under the close supervision and technical guidance of the concerned Wildlife Warden and Regional Wildlife Warden. The department of Ecology, Environment & Remote Sensing shall only be responsible for thematic details & not the boundary which shall be a matter of record lying with State Wildlife Protection Department / Revenue.The boundary of Protected Area may not be used for any legal purpose.
LULC CLASS | Area (Sq Kms) | Percentage
Agriculture Cropland | 0.17696 | 1.76250
Builtup | 0.00944 | 0.09400
Forest | 9.73826 | 96.99460
Open Scrub | 0.00006 | 0.00062
Waterbody | 0.11157 | 1.15089
Total | 10.04 | 100.00


LAND USE LAND COVER MAP OF JASROTA WILDLIFE SANCTUARY YEAR-2020
75°21'45"E
75°22'30"E
75°23'15"E
75°24'0"E
75°24'45"E
75°25'30"E
32°30'0"N
32°29'30"N
32°29'0"N
32°28'30"N
32°28'0"N
1: 18000
0 1 2 4 Km
LEGEND
Agriculture Cropland
Builtup
Forest
Open Scrub
Waterbody
Jasrota Wildlife Sanctuary
NOTE:
The boundary of Protected Area has been delineated under the close supervision and technical guidance of the concerned Wildlife Warden and Regional Wildlife Warden. The department of Ecology, Environment & Remote Sensing shall only be responsible for thematic details & not the boundary which shall be a matter of record lying with State Wildlife Protection Department / Revenue.The boundary of Protected Area may not be used for any legal purpose.
LULC CLASS | Area (Sq Kms) | Percentage
Agriculture Cropland | 0.16912 | 1.68441
Builtup | 0.01026 | 0.10223
Forest | 9.74527 | 97.06440
Open Scrub | 0.00006 | 0.00062
Waterbody | 0.11157 | 1.15089
Total | 10.04 | 100.00

(Figure 4.1: Comparative Google Images of 2010 and 2020)



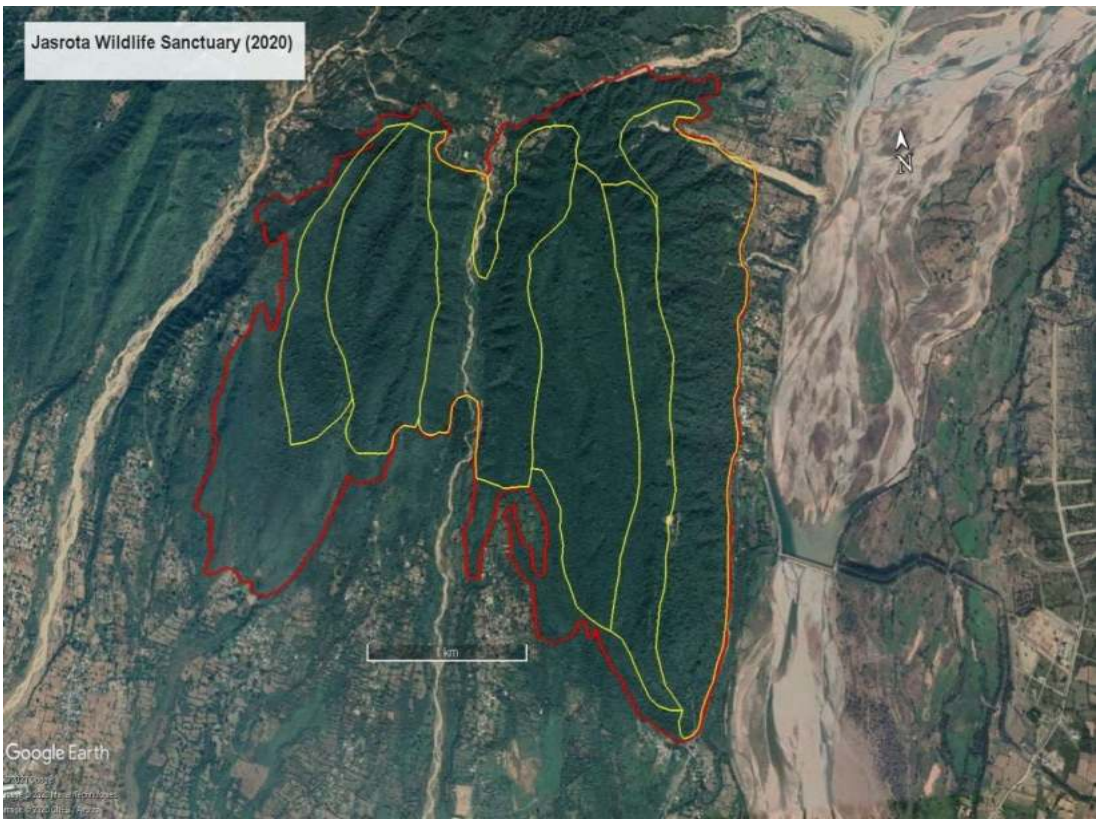


Table 4.1: Landuse change in Jasrota Wildlife Sanctuary (2010 – 2020)

LU/LC CLASS	JASROTA WILDLIFE SANCTUARY (2010)		JASROTA WILDLIFE SANCTUARY (2020)		Change in sq.kms
	Area Sq.kms	Percentage	Area Sq.kms	Percentage	
Agriculture Cropland	0.177	1.763	0.169	1.684	-0.008
Built up	0.009	0.094	0.010	0.102	0.001
Forest	9.738	96.990	9.745	97.064	0.007
Open Scrub	0.000	0.006	0.000	0.001	0.000
Water	0.112	1.151	0.112	1.151	0.000
Total	**10.04**	**100**	**10.04**	**100**	

4.2 The development programmes and conservation issues:

Major activity around the area is expanding agriculture. The agriculture also required massive inputs in the form of fertilizers and insecticides. Another major issue is extensive construction in the surrounding area which needs to be planned so as to ensure its compatibility with the area. An evaluation of government agency programmes for development, implication for sanctuary area. There are several governments and non-government agencies are working in the development of area and wildlife department is also working in the development of sanctuary area. The department looks for the betterment and development of area and construction the several activities like water harvesting structure, plantation, watch tower, trial road, bird watching trials etc. and other facilities for tourist visited in the area.

4.2.1 Summary of problems faces by people that affect the management of the protected area.

People have main four problems that affect the management.

1. Unemployment
2. Crop protection

3. Scarcity of fodder for cattle.
4. Pending status of settlement of fights.

Unemployment seems to be the main problem faced by the villagers. The local villagers are depending on their own private agriculture land and a few run shops. They tend to collect forest produced in large scale to earn money.

4.2.2 Evaluation of Government and Non- Government Agencies.

There are several governments and some non-government agencies are working in development of area and the wildlife department is also working in development of sanctuary area like construction of water harvesting structure, plantation, watch tower, bird watching trail etc. and other facilities for tourist visited in the area.

4.2.3 The interplay of market forces and their impact.

Due to the lack of proper marketing system, the marginal farmers of the area may undergo exploitation by intermediaries.

4.2.4 Eco developmental initiatives.

Though dialogues have been initiated for eco-development activities, it has not taken shape due to certain conflicts related to settlement of rights. Efforts towards meaningful eco-development are still going on. The sanctuary does not have a trained team for the planning, implementing and coordinating of eco-development activities.

Table 4.2: Year wise Eco-development Activities in Jasrota Wildlife Sanctuary

Year	Eco-development Activity	Scheme	Financial (in lacs)	Expenditure
2015-16	Construction Community bathroom Jasrota village.	CSS	0.50	0.50
	Construction of water pond at village Amala.	CSS	1.00	1.00
2016-17	-__	__-	-__	__-
2017-18	-	-	-	-

2018-19	__	__	__	__
2019-20	Platform around tree constructed.	CAMPA	0.69733	0.69733
	Construction of plate form at MS AMALA.	CAMPA	0.99581	0.99581
	Construction of plate form near tube well Jasrota.	CAMPA	0.52848	0.52848
	Construction of plate form at HSS Bakhta.	CAMPA	0.68655	0.68655
	Construction of plate form near HSS Bakhta.	CAMPA	0.39467	0.39467
	Construction of inspection path. Co.1,2	CAMPA	0.45000	0.45000
	Construction of inspection path.Co.4	CAMPA	0.30300	0.30300

Rescue Operations in and around Jasrota Wildlife Sanctuary





Plate-12

Rescue Operations in and around Jasrota Wildlife Sanctuary






Plate-13

Habitat Management Interventions in Jasrota Widlife Sanctuary






Plate-14

Wildlife Habitat Management interventions in Jasrota Wildlife Sanctuary






Plate-15

Wildlife Habitat Management interventions in Jasrota Wildlife Sanctuary






Plate-16

Wildlife Habitat Management interventions in Jasrota Wildlife Sanctuary






Plate-17

Part-II

PROPOSED MANAGEMENT

CHAPTER 5

VISION, OBJECTIVES AND PROBLEMS IN ACHIEVING THE OBJECTIVES

VISION: Wildlife Management with Special Emphasis on conservation of Biodiversity and Watershed Management.

5.1. Management objectives:

1. To conserve and protect habitat, restore physical integrity of the area in addition to restoring the degraded portion of the sanctuary so that endangered and endemic flora and fauna inhabiting the area are adequately protected and propagated.
2. To mitigate man-animal conflict and to create awareness among the people in general and the children in particular about nature and wildlife with particular emphasis on the ecological role of the sanctuary area.
3. To promote Eco-tourism for conservation, awareness, education and scientific exploration without affecting the sensitive ecosystem adversely.
4. To reduce the dependence of the people on forest-based resources in the zone of influence, with sensitivity to cultural and economic well-being of the communities, through eco-development activities.
5. To improve capacity building of staff and local communities for efficient management of the sanctuary through better training and infrastructure.
6. To promote scientific and ecological studies that will help the sanctuary management in assessing the physical and biological resources, planning for conservation of these resources and monitoring the health of the habitat.

5.2 Problems/constraints in achieving the objectives of management.

Objective 1:- To conserve and protect the habitat, restore the physical integrity of the area in addition to restoring the degraded portion of the sanctuary so that endangered and endemic flora and fauna inhabiting the area are adequately protected and propagated.

Challenges	Proposed Strategies
1. Encroachment and Boundaries not consolidated.	• Proper demarcation & 100% fixation of B.P in Wildlife area during the Plan period. • Coordination with FPF/ Territorial staff/ Revenue/ Police personal. • Capacity building and training.
2. Rights not determined/Settled.	• Coordination with Eco-development committees/ Biodiversity committees. • Right settlement through respective committee. • Involvement of panchayats.
3. Pressure of grazing by seasonal nomads.	• Alternate grazing lands outside the Sanctuary should be identified.
4. Invasion of weeds.	• Manual removal of weeds and plantation of local grass slips and leguminous sp.
5. Fire	• Strengthening of Control Room. • Fire Lines. • Engagement of seasonal fire watchers. • Awareness camps. • Equipments- firefighting. • Involvement of local/Panchayats.
6. Tough terrain.	• Inspection paths. • Natural Trails. • Catchment area treatment. • Water points/water holes/ salt licks.

Objective 2: - To mitigate man-animal conflict and to create awareness among the people in general and the children in particular about nature and wildlife with particular emphasis on the ecological role of the sanctuary area.	
Challenges	**Proposed Strategies**
1. Challenge posed by nilgai, wild boar, porcupine and monkey.	• Monkey menace needs to be mitigated on scientific basis. • Estimation of monkey population. • Plantation of Fruit crops. • Awareness among tourist to stop feeding monkey along the roadside.

2. Wild Animal movements in human habitation.	• Awareness among people in respect of habits of Leopards. • Do's and don'ts. • Removal of weed for free movement of animals. • Avoid unregulated grazing. • Optimum use of crackers/ drum beating. • Sensitization of locals.

Objective 3: To promote Eco-tourism for conservation, awareness, education and scientific exploration without affecting the sensitive ecosystem adversely.	
Challenges	**Proposed Strategies**
1. No resources person.	• Capacity building for locals and other resource persons as part of Eco-tourism promotion initiative. • Awareness camps among the people.
2. Nature interpretation facility.	• Interpretations are required at grass root level in collaboration with panchayat members. • Celebration of important days like World wetlands day/ Environment Day/ Wildlife week. • Regular programme in different schools to inculcate the feeling of responsiveness among children. • Awareness through media-print/ electronic media/ Posters. • Provision for Nature Interpterion Centre.

Objective 4: To reduce the dependence of the people on forest-based resources in the zone of influence, with sensitivity to cultural and economic well-being of the communities, through eco-development activities.	
Challenges	**Proposed Strategies**
1. Rights of locals not settled.	• Demarcation. • Settlement of Rights.
2. Inadequate Co-operation from panchayats and other	• Regular meeting at different hierarchical level and implementation of decisions

departments.	made in consultation with Wildlife Protection.
3. Zone of influence not demarcated.	• Demarcation of land in zone of influence is required with revenue department.
4. Crop damaged by wildlife animal wild boar, sambhar, nilgai and cattle lifting by large carnivore.	• Production of Sufficient food/fodder requirement for wild animals within protected area. • Management of herbivorous population.
5. Agriculture is the only means of livelihood.	• Generation of alternative livelihoods for locals.

Objective 5: To improve capacity building of staff and local communities for efficient management of the sanctuary through better training and infrastructure.	
Challenges	**Proposed Strategies**
1. Inadequate training and capacity building of staff.	• Training programme with relevant institutions.
2. Lack of information on Biodiversity.	• Periodic population estimation of Wildlife. • Ethno-botanical knowledge sharing by locals.

Objective 6: To promote scientific and ecological studies that will help the sanctuary management in assessing the physical and biological resources, planning for conservation of these resources and monitoring the health of the habitat.	
Challenges	**Proposed Strategies**
1. No population estimates/ inadequate studies of wildlife and habitat.	• Population estimation. • Other researches through various institutions.
2. Inadequate data on impact of Tourism.	• To check the tourism pressure on specific entry. • Entry of Plastics should be banned with tourist.
3. Inadequate detail of graziers/ domestic animals dependent on wildlife area (Forest dependent communities).	• Domestic animals census needs to be done. • Graziers dependency on sanctuary area should be maintained on the basis of carrying capacity.

5.3 Management Effectiveness Evaluation (MEE) report of 2018-19:

Although, there is no Management Effectiveness Evaluation Report of Jasrota Wildlife Sanctuary but, the actionable points suggested in the Management Effectiveness Evaluation report (2018-19) of Surinsar-Mansar Wildlife Sanctuary has been considered & incorporated in the present Management Plan of Jasrota Wildlife Sanctuary due to similar nature of management practices.

CHAPTER 6

THE STRATEGIES AND ACTION

Boundaries, Zonation, zone plans and Theme plans.

6.1 Boundaries. The Jasrota Wildlife Sanctuary is inhabited by 10 villages, Since the rights have not been settled so there is huge pressure of encroachment in the Protected Area. The Wildlife Protection department shall facilitate for settlement of rights. Legal boundaries of the Sanctuary are as per the notification given in the Annexure.

6.2 Zonation and Zone Plan. The objectives of the zonation are to provide a geographical framework to manage the sanctuary. Sanctuary zonation scheme has been developed to:

- Provide a geographical framework to manage the Sanctuary.
- Indicate which management directions have priority in particular part of the Sanctuary.
- Indicate the types and levels of use appropriate throughout the Sanctuary, assist in minimizing existing and potential conflicts between uses and activities, or between these and the protection of Sanctuary values.
- Provide a basis for assessing the suitability of future activities and development proposals.

6.2.1 Zonation. In order to achieve the objectives, the sanctuary is divided into the following zones.

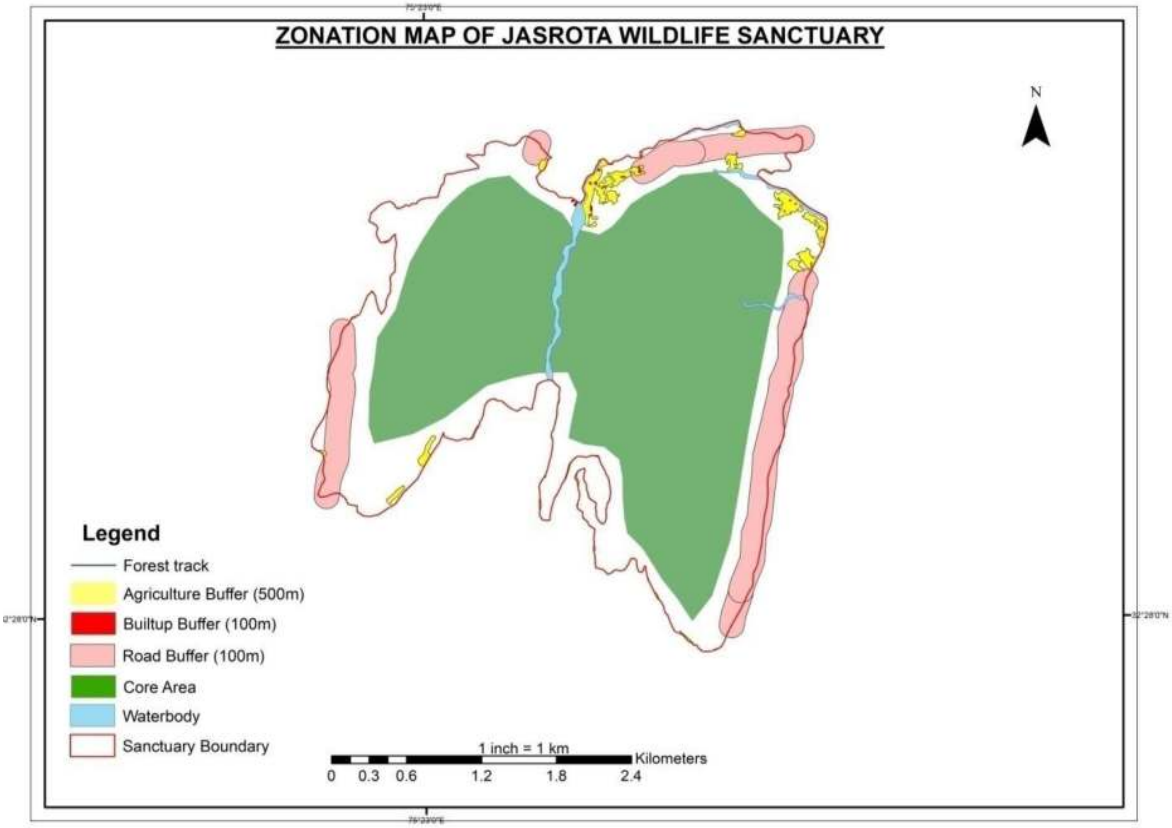
A. Core zone. The "no disturbance" zone is called the core zone. In other words no public moment is allowed in this core zone. Part of Compartment 1/JSR, 2/JSR, 3/JSR, 4/JSR, 5/JSR and 6/JSR are in this zone comprising of total area **755.19 Ha.**

B. Buffer Zone. Buffer zone of the Sanctuary consists of the tourism zone and the eco-development zone.

i. **Eco-tourism zone and Interpretation zone**

ii. **Eco-development zone**

C. **Eco-restoration zone.** This zone primarily comprises of the existing plantations, weed infested and degraded areas within the buffer zone.



6.2.2 Zone plans.

6.2.2.1 Plan for Core zone:- The "no disturbance" zone is called the core zone. In other words no public moment should be allowed in core zone. Part of Compartment 1/JSR, 2/JSR, 3/JSR, 4/JSR, 5/JSR and 6/JSR are are in this zone comprising of total area **755.19 Ha.** In the core zone, the following activities should be carried out during the plan period.

- Fire protection measures.
- Water holes.
- Consolidation and maintenance of boundary.
- Protection camps i.e anti-poaching camps.
- Communication facilities.
- Habitat improvement/ Management.

6.2.2.2 Plan for Buffer Zone. Buffer zone of the Sanctuary consists of Eco-tourism zone and the eco-development zone.

i. **Plan for Eco-tourism and Interpretation zone:** Although tourism is considered as important source of employment to a large number of travel agents, local guides and local communities but within the Jasrota Wildlife Sanctuary it has to be managed in a way that it should not becoming taxing on the natural resources of the Sanctuary. Large parties of tourists often require equally large infrastructure including camping gear and support staff.

Hence, all tourism activities within the premises of sanctuary needs to be organized by sanctuary management through community-based organizations. Major activities proposed for management of tourism in the sanctuary include identification and designation of camping sites away from sensitive wildlife habitats, better garbage disposal to manage tourism in an organized manner.

Activities under Eco-tourism.

- The Kali Mata temple and Kul-Devta of Jasrotia Biradri is situated inside the sanctuary. The Jasrotia Biradri have Annual Congregation dedicated to their Kul-Devta in the month of March every year. The religious tourism is however confine to buffer zone only but, needs to be monitored.
- It is proposed to establish visitor information centers and develop simple en-route signage for the benefit of visitors.

Socio-Religious Significance in Jasrota Wildlife Sanctuary

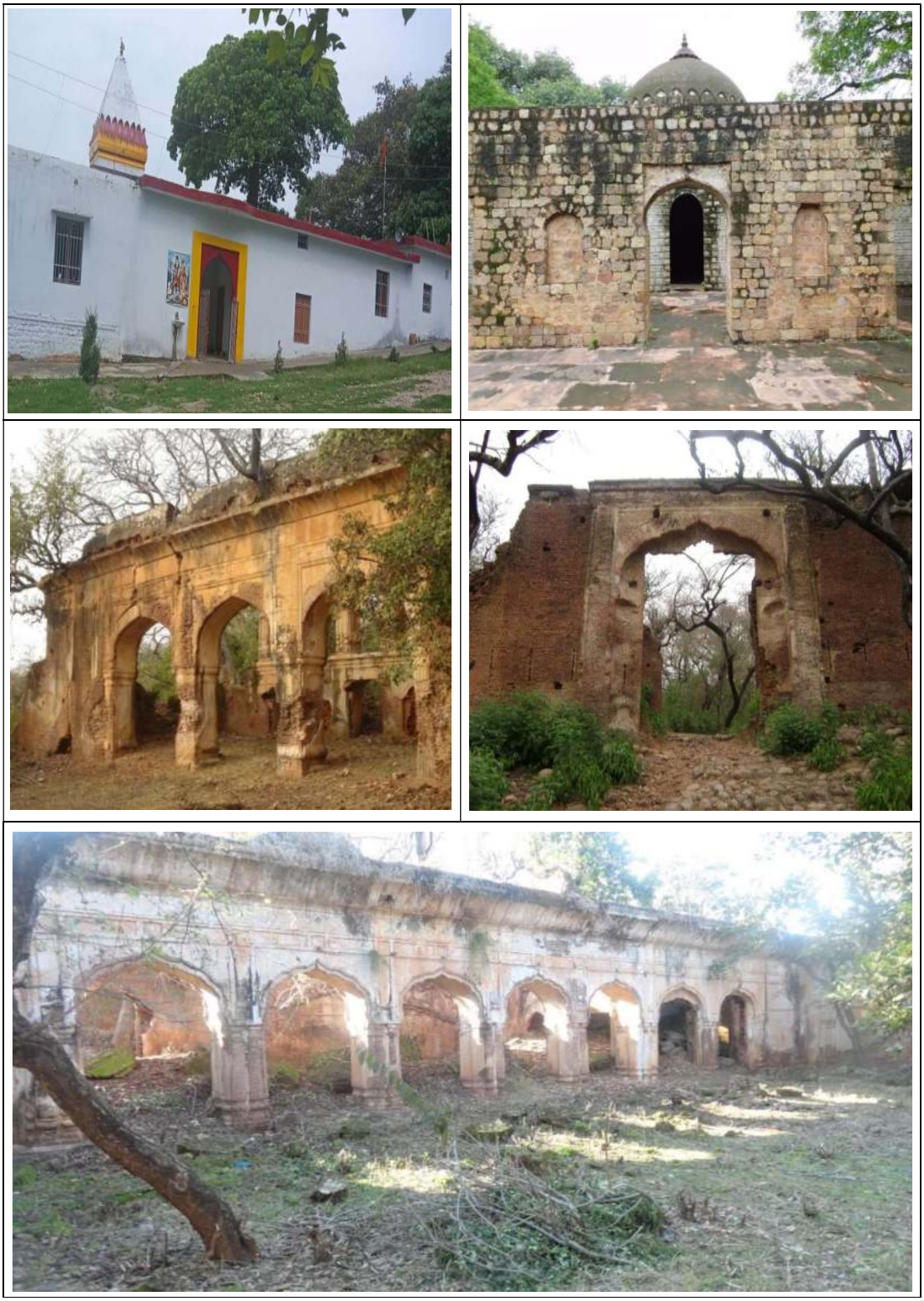


Plate-18

Strategies and Activities.

- Environmental conservation awareness.
- Facilitating nature-based regulated tourism.
- Soil and Moisture Conservation works.
- Regular desilting of Water Harvesting Structures.
- Development of catchment area by means of plantation/ DRSM/ Silt chambers.
- Proper demarcation and fixation of Boundary Pillars in wildlife area.
- Capacity building and training.
- Weeds like *Lantana/ parthenium* should be manually removed.
- Habitat improvement with special focus on Pasture development.

ii. **Plan for Eco-development zone**. The major issues related to people-Protected Area interface are human wildlife conflict. In the villages around the sanctuary are dependent on the Protected Area. The Eco development programmes are yet to take off mainly due to hostility of local people regarding settlement of rights and also due to paucity of funds and absence of trained staff and support team. To strengthen the people Protected Area interface, the following strategies and activities are proposed.

- Development of appropriate barriers to prevent wildlife especially wild boar entering the farmlands timely assessment of wildlife dangers.
- To conduct habitat improvement programmes within the sanctuary to prevent the animal from drifting outside.
- Designing and implement community-based ecotourism programmes.
- Imparting training to staff.

For regulating and control over grazing, firewood and NWFP collection and transportation of goods through mules, the following strategies are proposed.

1) Grazing:

- Study and monitor the number, extent and impact of grazing.
- Reduce number of cattle by providing alternate livelihood and encourage staff feeding.
- Ensure vaccination of cattle- twice a year. Move proposal for notifying veterinary hospitals near Protected Area as supporting agency.

2) Firewood collection:

- Study the extent and impact of firewood collection.
- Prevent collection of indigenous species as fuel wood.
- Exotic species may be permitted to be collected as fuel wood with mutual commitments as part of phased removal of exotics.
- Propose fuel wood plantation, wherever required within community land/ Eco-development zone.
- Provide energy saving devices.

3) NTFP.

- Study the extent and impact of Non-Timber Forest Produce collection.
- Proposed alternate livelihood to prevent unscientific/ unsuitable collection.
- Encourage regeneration of Non- Timber Forest Produce and medicinal plant species.

6.2.2.3 Plan for Eco-restoration Zone. In order to protect the natural resources of the protected zone the following strategies and activities are proposed.

- Consolidation and maintenance of boundary.
- Establishments of administrative units.
- Proposed anti-poaching camps.
- Patrolling schedule.
- Management of cattle grazing.
- Fire Management strategies.

- Deployment of staff.
- Protection equipments.
- Communication facilities.
- Watch Towers.

6.3 THEME PLANS:

- **Theme Plan for Protection.**
- **Theme Plan for Habitat and Watershed Management.**
- **Theme Plan for Fire Protection.**

6.3.1 THEME PLAN FOR PROTECTION

6.3.1.1 Infrastructure related to Protection.

i. **Antipoaching Camps:** Antipoaching camps should be conducted at certain corridors mentioned in zonation map.

ii. **Check post:** Existing Forest Check post at Anna Danga just outside the Sanctuary needs to be made functional jointly with Wildlife Protection Department to check wildlife crimes.

iii. **Roads & Trek paths:** Even though there is one road within the core area of the Sanctuary.

iv. **Vehicles:** Maintenance and timely replacement of departmental vehicles.

v. **Communication:** The existing wireless towers, permanent sets, mobile sets are to be maintained for effective communication. Official SIM cards for mobile sets are to be provided to the field staff upto the level of Wildlife Guards.

vi. **Protection Equipment:** Existing 1 Tranquilizing Gun (Non-functional), Proposed 1 Long range, 2 Short Range T. Guns/pistol including darts, Drugs with accessories, Distribution of crackers in and around the Sanctuary.

vii. **Buildings:** Construction/ Maintenance of existing infrastructure is proposed.

viii. **Camping Equipments:** Camping equipments / field gears such as sleeping bags, tents, carry bags, shoes, socks, torches, camera, binoculars, search lights, night vision equipments, GPS etc will be procured and supplied to all the staff.

ix. **Use of advance technology:** Provision for computer and accessories, internet facilities, software, use of modern tool and technology including drones and other advanced technological inputs will be procured and used for better and efficient management of the Sanctuary.

x. **Boundary Consolidation:** The Boundaries on fringe areas, especially near habitation shall be delineated and consolidated by installation of boundary pillars (BP) accordingly during the period of current management Plan.

xi. **Staff Welfare:** The optimum staff strength and their basis requirements for day to day activities for welfare shall be considered and fulfilled.

xii. **Capacity building:** Staff will be trained in matters related to the provisions of wildlife and forest Acts, Rules and Regulations, identification of wildlife articles in trade, weapon handling and maintenance, intelligence gathering and wildlife crime investigation.

xiii. **Wildlife Veterinary care:**

- Establishment of a veterinary unit under the guidance of a veterinary surgeon.
- Procurement of tranquilizing equipments.
- Capacity building training programmes.
- Rescue Van.

6.3.2 THEME PLAN FOR HABITAT AND WATERSHED MANAGEMENT.

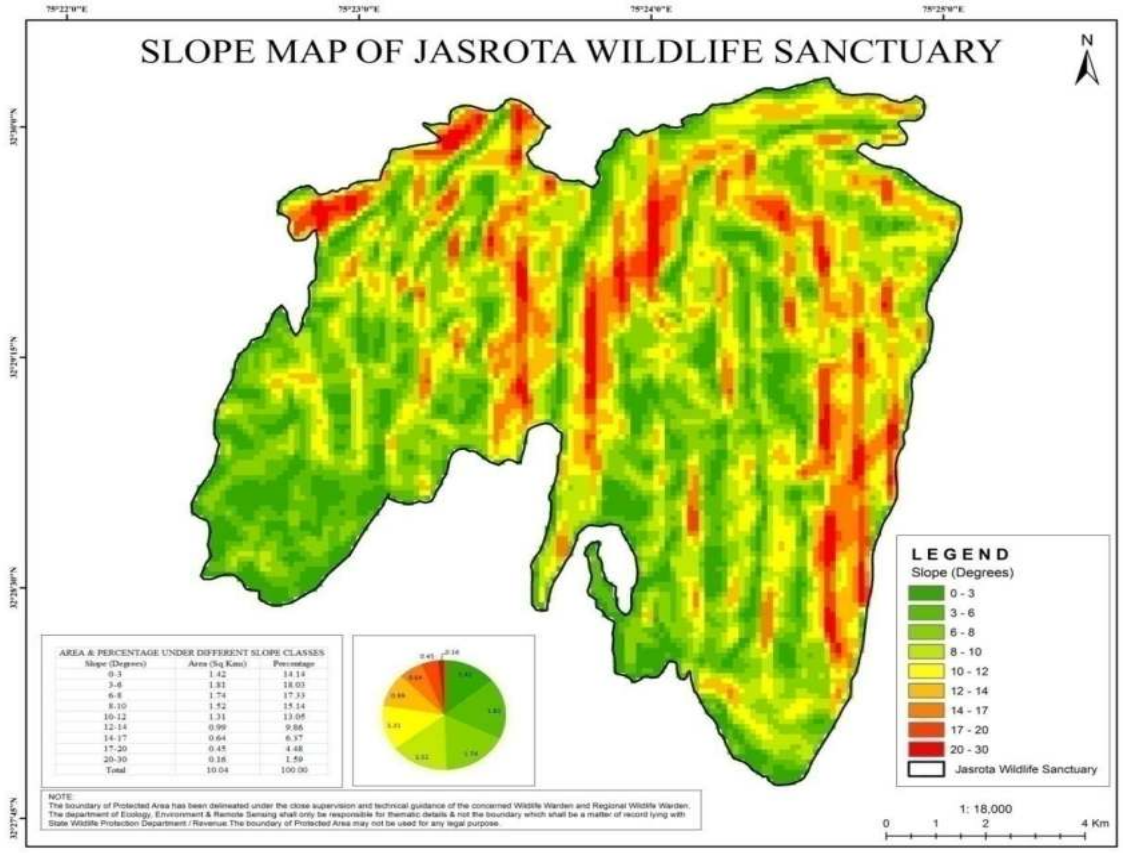
i. **Watershed Management / Soil and Moisture Conservation.**

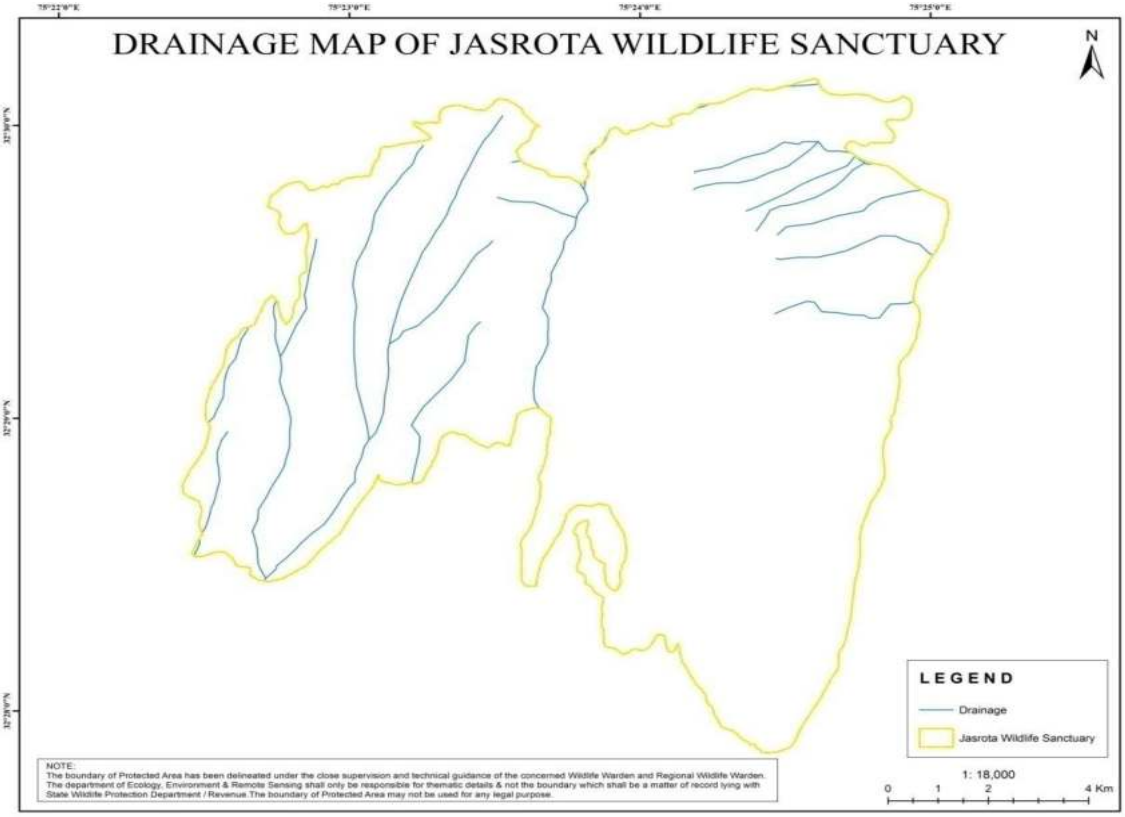
- Mapping and Monitoring of water sources – water holes, check dams, Ponds, streams and other natural sources.
- Updating of drainage map and vegetation map on regular basis.
- Construction and maintenance of water harvesting structures.

- The seasonal Dhaloti Khad shall be treated by construction of series of check dams for soil and moisture conservation during the plan period.
- The landslide areas shall be treated by crate works and plantation of soil binding species like *Agave*, *Moringa sp., Lannea sp., Morus spp., Gliricidia sp.* etc.

Table No. 6.1 List of Natural/Artificial Water Sources in Jasrota Wildlife Sanctuary.

S. No	Co.no	Name of Structure	Geo-coordinates
1	1/JSR (Near Kalibir Mandir)	Pond	N 32 º 28'536" E75º 24'502"
2	1/JSR (Near Mahal)	Pond	N 32 º 28'712" E75º 24'509"
3	1/JSR (Near Road Side)	Water Hole	N 32 º 28'421" E75º 24'345"
4	1/JSR (Near Kalibir Mandir)	Water Hole	N 32 º 28'370" E75º 24'520"
5	2/JSR JSR (Near Range Office)	Water Hole	N 32 º 27'885" E75º 24'475"
6	2/JSR (Near Rescue Centre)	Water Hole	N 32 º 27'917" E75º 24'396"
7	2/JSR (Near Maqubal home)	Water Hole	N 32 º 28'054" E75º 24'293"
8	4/JSR (Near Amala Tanki)	Water Hole	N 32 º 28'264" E75º 24'312"
9	2/JSR (Near Machan)	Water Hole	N 32 º 28'420" E75º 24'353"
10	3/JSR	Water Hole	N 32 º 28'350" E75º 24'348"
11	4a/JSR	Water Hole	N 32 º 29'473" E75º 23'732"
12	4a/JSR (New Closure)	Water Hole	N 32 º 29'579" E75º 23'763"
13	5/JSR	Water Hole	N 32 º 28'593" E75º 23'172"
14	4b/JSR (Near Road Side)	Water Hole	N 32 º 29'237" E75º 23'639"


SLOPE MAP OF JASROTA WILDLIFE SANCTUARY
N
LEGEND
Slope (Degrees)
0 - 3
3 - 6
6 - 8
8 - 10
10 - 12
12 - 14
14 - 17
17 - 20
20 - 30
Jasrota Wildlife Sanctuary
AREA & PERCENTAGE UNDER DIFFERENT SLOPE CLASSES
Slope (Degrees) | Area (Sq.Kms) | Percentage
0-3 | 1.42 | 14.14
3-6 | 1.81 | 18.03
6-8 | 1.74 | 17.33
8-10 | 1.52 | 15.14
10-12 | 1.31 | 13.05
12-14 | 0.99 | 9.86
14-17 | 0.64 | 6.37
17-20 | 0.45 | 4.48
20-30 | 0.16 | 1.59
Total | 10.04 | 100.00
NOTE:
The boundary of Protected Area has been delineated under the close supervision and technical guidance of the concerned Wildlife Warden and Regional Wildlife Warden. The department of Ecology, Environment & Remote Sensing shall only be responsible for thematic details & not the boundary which shall be a matter of record lying with State Wildlife Protection Department / Revenue.The boundary of Protected Area may not be used for any legal purpose.
1: 18,000
0 1 2 4 Km


DRAINAGE MAP OF JASROTA WILDLIFE SANCTUARY
N
LEGEND
Drainage
Jasrota Wildlife Sanctuary
NOTE:
The boundary of Protected Area has been delineated under the close supervision and technical guidance of the concerned Wildlife Warden and Regional Wildlife Warden. The department of Ecology, Environment & Remote Sensing shall only be responsible for thematic details & not the boundary which shall be a matter of record lying with State Wildlife Protection Department / Revenue.The boundary of Protected Area may not be used for any legal purpose.
1: 18,000
0 1 2 4 Km

ii. **Habitat improvement and Management**

- The habitat should be restored by patch sowing and low-cost seed balls.
- Regular maintenance of water holes and water supply to water holes during dry season by water tanks.
- The landslide prone area should be treated by planting soil binding species like *Agave*, *Moringa sp., Lannea sp., Morus spp., Gliricidia sp.* and grass species.
- The eradication of weeds should be followed by plantation of grass slips, fruits and fodder saplings.

iii. **Management of Weeds.**

- Eco-restoration activities will be taken up in weed eradicated areas.
- Continuous monitoring shall be done in areas where weeding was once done.
- Possibility of making use of the materials from these weeds by the local people with the help of necessary training should be proposed.
- Weed management in the plantations and other degraded forest areas in the buffer zone can be converted into a labour generating programme for the local communities.

iv. **Management of Plantations and Grasslands.**

- The weed removal shall be followed by plantation of saplings of fruits, fodder and palatable grass slips of *Seteria sphaceleta, Panicum maximum, Cenchrus ciliaris, Cenchrus setigrus, Pennisetum purpureum, Pennisetum pedicellatum* to ensure the sustained availability of grasses for young fawn/calves.

- The local leguminous species alongwith soil binding species like *Agave*, *Moringa sp., Lannea sp., Gliricidia sp.* should be encouraged alongwith grass slips.

Table No. 6.3 Natural Grasslands infested with in Jasrota Wildlife Sanctuary

S. No	Comptt. no	Area	Geo-coordinates
1	3/JSR	3 Ha	N 32 º 28'646" E75º 24'094"
2	3/JSR	3 Ha	N 32 º 28'350" E75º 24'348"
3	4a/JSR	4 Ha	N 32º 29'424" E75º 23'720"
4	4a/JSR	3 Ha	N 32 º 28'973" E75º 23'693"
5	4a/JSR	3 Ha	N 32 º 28'875" E75º 23'655"
6	4b/JSR (Road side)	3 Ha	N 32 º 29'033" E75º 23'589"
7	4b/JSR (Road side)	3 Ha	N 32 º 29'243" E75º 23'627"
8	1/JSR	3 Ha	N 32 º 29'442" E75º 24'949"
9	1/JSR (Near Road Side strip Chanpura)	2 Ha	N 32 º 29'372" E75º 24'962"
10	1/JSR (Near Kalibir Mandir)	3 Ha	N 32 º 29'491" E75º 24'514"
11	1/JSR (Near Kalibir Mandir)	3 Ha	N 32 º 28'487" E75º 24'492"
12	1/JSR (Near Mahal)	2 Ha	N 32 º 28'712" E75º 24'509"
13	2/JSR (Near Machan)	2 Ha	N 32 º 28'505" E75º 24'348"
14	2/JSR (Near Rescue Shed)	2 Ha	N 32 º 27'900" E75º 24'395"
15	5/JSR (Closure)	3 Ha	N 32 º 29'065" E75º 23'392"
16	5/JSR (Closure)	4 Ha	N 32 º 29'107" E75º 23'351"
17	6,5/JSR	4 Ha	N 32 º 30'177" E75º 23'394"
18	6,5/JSR	4 Ha	N 32 º 30'135" E75º 23'577"

6.3.3 THEME PLAN FOR FIRE PROTECTION.

i. General guidelines for preparation and implementation of Fire Management Plan.

- Identify the cause and consequences of fire.
- Provide adequate training to fire-fighting squad in fighting fires and self-defense.
- Develop infrastructure by procuring necessary equipment and materials required for fire protection based on annual assessment.
- Ensure timely implementation of interventions.

ii. Fire Management Strategies.

a) Fire Prone Areas:

- **High fire prone areas:** Co. 1/JSR, 3/JSR, 4/JSR & 6/JSR adjoining to village Jasrota/ Chainpura, Dhaloti & Ladoli respectively are the High fire prone Compartments/ Areas.
- **Low fire prone areas:** Co. 2/ JSR, & Co.5/JSR, adjoing to village Amala & Gurah surjan are the low fire prone Compartments/ Areas.

iii. Deploying firewatchers.

- **Fire watchers** will be engaged throughout the season for efficient fire protection activities. The number of persons engaged for this purpose will be decided based on the intensity of fire and severity of drought.

iv. Awareness and Training.

- Awareness campaigns may be arranged for **fringe areas** people and representatives of societies on the impact of fires on forests. This may be done by mass involvement of people, talks, information display boards, banners, etc. **Panchayats based awareness campaigns** highlighting fire preventive and containment measures among

children and youth in the localities should be arranged during the fire season. Creative programmes in this regard should be conducted.

v. **Training programmes.**

- Training programmes for **staff, watchers** and other **members of the community involved** in fire protection should be organized.

vi. **Fire watchtowers and communication network**.

- The present infrastructure and communication facilities will be made use of in fire protection to prevent the fire incidents and to mobilize additional forces in case of necessity.

vii. **Firefighting equipment.**

- The equipments like gum boots, fire resistant suit etc. may be procured and made available to the fire management groups for effective tackling fire.

viii. **Fire Reporting/Mapping.**

- The daily reporting of the fire incidents should be recorded as per format given in the control form.

CHAPTER 7

Human-Wildlife Conflict

7.1 Human-Wildlife conflict

Human-Wildlife conflict simply refers to the interaction between man and Wildlife animal and resulting into negative impact on man and his resources or animal and its habitat. Conflicts between the man and animal have occurred since the dawn of humanity. However, it has come to light ever more frequently in recent times.

With changing times and an ever-increasing population, the lines between human settlements and forests have started to blur, resulting into more conflicts. The result of this conflict is severe which result into the loss of crops to farmers, human beings getting injured or killed and concerns for wildlife conservation as well.

Often many strategies have been employed by people to minimize their loss. Administrative agencies are using different tactics to minimize these conflicts. However, most of these methods and strategies have been proved ineffective in minimizing the conflict.

This has increased a need to understand why and how such conflicts ensue and what could be done to minimizing these conflicts and protection of both man and animal.

7.2 Kinds of Human-Wildlife conflicts

The incidents of Man-Animal Conflicts can be categorized into following major types:

- Human beings get killed or injured by wild animals in Man-animal Conflicts.

- Livestock/Cattle reared by man get killed or injured in Man-animal conflicts.
- Crop raised by man get damaged in Man-animal conflicts.
- Wild animals get killed or injured in Man-animal conflicts.

7.3 Causes of conflict

- **Fragmentation and shrinking of habitat**: The conservation of forest land for non-forest purposes results into wildlife habitat shrinking. This makes that landscape unavailable for wild animals as their needs are not fulfilled. This results in animals straying out of habitat in search of food, water or shelter bringing them in conflict with humans.

- **Road Kills:** In recent times, expansion of road and rail network through Wildlife areas has resulted in animals getting killed or injured in accidents on roads or railway tracks.

- **Land use transformations:** In recent times, due to growing demand for food, there is rapid conversion of forest lands into farm fields for cultivation. Also, forest is being cleared for mining and developmental activities resulting in destruction of habitat of wildlife. This results into herbivores straying out of the forest and causing depredation of crops.

- **Infestation of wildlife habitat:** Infestation of wildlife habitat by the invasive exotic weeds like Lantana, Parthenium etc. have resulted in decreased availability of edible grasses for the wild herbivores. As a result, herbivores come out of forest area and cause depredation of agricultural crops on the fringes

- **Impact of human activities:** The increasing population has led to many human settlements coming up near the peripheries of protected areas and encroachment in the forest lands by local people for cultivation and

collection of food and fodder etc. thus increasing pressure on limited natural resources in the forests.

- **Livestock grazing:** Livestock grazing in the forest areas has increased man-animal conflicts as carnivorous are attracted to easy prey thus becoming the direct enemy of man. Livestock grazing has also led to the shortage of food for wild herbivores as they have to compete with livestock for food.

- **Decreased prey base caused by poaching of herbivores:** Due to illegal poaching in forest areas the prey base is on the decline as a result carnivore are forced to roam into nearby villages in search of food. This leads to the killing of cattle by these carnivores, thus bringing them into conflict with humans.

7.4 Consequences for humans

The aftermaths of the human-wildlife conflict are more serious in the tropics and in developing countries where livestock holdings and agriculture are an important part of livelihoods and incomes of people in rural areas.

- **Injury or loss of human lives:** People living near forest areas and buffer zones are mostly at risk of attack by carnivores, straying out of forest areas in search of food.
- **Crop depredation:** The destruction of crops by wild animals like Wild boar, Monkey, Nilgai, Porcupine etc. can result in loss of income of rural households and it can also threaten the household s food security.
- **The killing of livestock:** The killing of livestock by carnivores destroys income source of agro-pastoralists who depend exclusively on cultivation and production of livestock. The loss of a family's small herd

of cattle to predators can effectively destroy that family's wealth and way of life.

7.5 Consequences for wildlife and environment

- **The killing of wild animals:** The killing of wild animals in retaliation for incidents of human-wildlife conflict is a common reaction, even though the identification of the real culprit is seldom possible. This has also resulted into wiping out of the whole population of some species from certain areas and also endangering their existence.
- **Destruction of habitat:** Due to increase in demand for land for housing and cultivation, forest lands are increasingly being transformed into farm fields and housing projects etc. resulting in the destruction of habitat for wildlife.
- **Destruction of ecosystem:** Due to the killing of wild animals and diversion of forestland for non-forest purposes many ecosystems across the world are on the verge of being destroyed.

7.6 Proposed strategies:

Department has already taken up many possible mitigation measures, such as construction of chain-link fencing, engaging local labour for man-animal conflict resolution, additional staff deployment, etc. for scaring away the wild animals from cultivation areas. Following measures will be taken up during the plan period for addressing human wildlife conflict issues.

- In fringe areas of Sanctuary cracker shall be distributed to scare wildlife from habitation.
- Construction of chain-link fencing in encroachment prone area
- Bio fencing by planting *Agave, Rosa, Euphorbia* etc. at suitable areas.
- Provision for deploying animal scaring squads consisting of staff, watchers and local people with vehicle and arms required.

- Provision for improving existing forest roads, trek paths
- Efficacy of existing conflict mitigation methods will be assessed and necessary modifications will be made. Monitoring of problematic animals should be carried out.
- Habitat improvement activities will be taken up in the buffer to provide sufficient fodder within Sanctuary.
- To enlist public support in conservation, awareness programmes should be conducted for general public and media persons on various aspects of human-wildlife conflict issues.
- People will be encouraged to change crop patterns.
- Use of Modern tools like GPS, Radio collar, Camera trap to monitor Man-Animal conflicts hotspots.

Man-animal conflicts have bad consequences not only for the mankind and the society but also for the wildlife. Though we cannot completely avoid the man-animal conflict, it can be minimized and controlled to a large extent by adoptive following measures are adopted sincerely.

7.6.1 To control poaching: Poaching of wild animals especially herbivores should be strongly checked so that the number of wild animals can be stabilized and equilibrium between the numbers of prey animals and predators in the forest ecosystem can be maintained.

7.6.2 Wildlife corridors: Wildlife corridors will provide a safe pathway to animals in the human-inhabited and developed areas. This will not only protect the animals from road kills but it can also steer them away from the human population thus prevent the man-animal conflict.

7.6.3 Awareness Programmes: It is important to create awareness among people and sensitize them about the Do's and Don'ts in the forest areas to minimize the conflicts between man and animal.

7.6.4 Solar Fencing around agriculture fields: Agriculture fields situated near wildlife habitat/forest areas can be protected by stone fencing or solar fencing.

7.6.5 Paying Compensation to the people: Compensation should be paid promptly to the victims of wildlife attack so as to maintain harmony between man and wildlife. In case of crop loss/ damage due to wild animals, the compensation may be covered under Pradhan Mantri Fasal Bima Yojana (PMFBY) as per admissibility.

7.6.6 Eco-development activities: Eco-development activities in villages around Protected Areas to elicit the cooperation of the local community in the management of the Protected Areas can also help in minimizing the conflict.

7.6.7 Eco-Tourism: Eco-Tourism in the wildlife areas can also help to create an alternate source of income for local people and boost the local economy thus it can also help in minimizing man-animal conflict on account of crop depredation or livestock killing.

7.6.8 Use of ICT: Information technology tools like GIS, GPS, camera trap, high-frequency radio collars etc. can help track the movement of animals and warn the local population. It can also monitor hotspots of man-animal conflict. Identifying conflict hot spots helps to pinpoint required manpower and funding to proactively address the issue of man-animal conflict.

CHAPTER 8

ECO-TOURISM, INTERPRETATION AND CONSERVATION EDUCATION.

8.1. Introduction

Regulated eco-tourism in the form of nature education and interpretation tours is the main objective of visitor use and management programs. Average annual tourist inflow for the last five years is 9,000 to 10,000 with the maximum number the months of April to June.

For effective management of ecotourism and education interpretation activities, a separate Tourism Zone for tourism, interpretation and conservation education activities is delineated.

8.2. Objectives:

- Provide wilderness experience to visitors through regulated ecotourism
- Developing Jasrota Wildlife Sanctuary as a Centre of Excellence for conservation awareness and nature education

8.3. Problems

Major problems identified in visitor management are the following.

- Inadequate eco-tourism packages.
- Improper system of waste management within the tourism zone
- Lack of sufficient staff and teams with expertise for conducting education extension programmes.
- Inadequate training programmes for staff.
- Entry of private vehicles in the tourism zone.
- Tourism density concentrated near Jasrota Wildlife Sanctuary.

8.4. Strategies and Actions

8.4.1. Strategies to develop Jasrota Wildlife Sanctuary as a Centre of Excellence for Conservation Awareness and Nature Education

The major problems identified in developing Jasrota Wildlife Sanctuary as a centre of excellence for conservation awareness and nature education lack required infrastructure for in-house and extension awareness programmes, lack of sufficient trained staff and lack of enough publicity and education materials. To overcome the deficiencies and to strengthen education, interpretation and extension activities, the following are proposed.

- A specialized team to plan, orient, conduct and follow up conservation awareness and nature education programmes will be constituted in the Sanctuary. The team would consist of Range Officer, field staff with good aptitude and communication skills for awareness creation and members of the panchayat with good knowledge of the area, terrain, biodiversity and values of the Sanctuary. Resource persons from outside may also be involved in education programmes.
- Special education programmes on themes like ecology, biodiversity, cultural significance, watershed values and ecosystem services, etc will be developed with the help of researchers/experts.
- More importance will be given to field interpretation of the Sanctuary values and suitable nature trails will be identified for the same.
- Staff involved in implementation of education programmes should be well trained and a panel of resource persons will be identified for taking classes in the awareness camps.
- Training will be given to member of local community as guides to visitors and nature camp participants.
- Important days / events related to wildlife and environment conservation should be conducted in the Sanctuary with the participation of public.

- One of the major constraints conducting education and interpretation programmes is lack of required infrastructure at the Sanctuary. Hence development of the following infrastructure is proposed during Plan period.
- Interpretation Centre near Range office should be managed to communicate history of Sanctuary, conservation significance and activities to all sectors of visitors. Equipments requiring minimum maintenance but with effective and maximum output shall be installed.
- Souvenir shops as sale outlet for the products of local made in Jasrota Wildlife Sanctuary.
- Maintenance of existing infrastructure and Inspection huts at Jasrota Wildlife Sanctuary.
- Strengthening of Nature Interpretation Centre (NIC) is recommended for future consideration.

8.4.2. Strategies for Regulated Tourism.

Issues related to regulation of tourism activities within the Sanctuary Eco-tourism zone are not properly demarcated, inadequate tourism packages, large number of private vehicles in the tourism zone, inadequacies in waste management and infrastructure and trained manpower.

Following activities are proposed for effective visitor management and improving visitor satisfaction.

1. Fixing carrying capacity for Visitation.
2. Maintenance of notified Trekking routes in Jasrota Wildlife Sanctuary as per Annexure III.
3. Plastic is totally prohibited in the Sanctuary and this will be ensured by the guides and staff on duty.

CHAPTER 9

ECO-DEVELOPMENT

Involvement of people in management of forests and natural resources is envisaged in the National Forest Policy, 1988. Since early 1990s, many protected areas in the country started addressing the issues related to people's dependency on forests and their livelihood security. The Jasrota Wildlife Sanctuary spreads over 10.04 sq kms and is inhabited by 8 villages having 735 households and 3450 souls resulting in heavy biotic pressure.

9.1 Objectives

Main objective of eco-development inputs proposed in this plan is to improve livelihood opportunities and reduce negative impact of people on Sanctuary and vice versa.

9.2 Specific issues

The major pressures on the forests by the fringe area people and vice versa are the following:

- Pressures for resource use such as fire wood collection, grazing, unscientific collection of NTFP, etc.
- Non-utilization of land with nomads.
- Inadequate documentation of traditional knowledge.
- Non identification of zone of influence.
- Lack of micro planning support team.
- Man-animal conflict.
- Non settlement of forest rights.
- Lack of alternate employment.

- Inadequate infrastructure for local communities and
- Inadequate environmental awareness.

9.3 Broad Strategies

To address the above issues, following broad strategies and actions are proposed.

- Formation of a Microplan support team
- Consultation of BMC/PRI to address specific issues and preparation of microplans.
- Revisiting of microplans following the guidelines for participatory management.
- Providing alternate livelihood support to reduce dependency on Sanctuary.
- Measures to reduce negative impact of Sanctuary on people.
- Training to the staff and EDC members in various aspects of implementation of eco-development activities.
- Awareness creation among the fringe area people to achieve the above strategies.

9.4 Measures to reduce negative dependencies on the Forests

Major negative dependencies of people in the settlements include cattle grazing, firewood collection, and unscientific collection of NTFP. To address these issues, following measures are suggested.

9.5 Cattle Grazing

The Jasrota Wildlife Sanctuary spreads over 10.04 sq kms and is inhabited by 8 villages (Annexure-II) having 735 households and 3450 souls resulting in heavy biotic pressure. But, no Eco-Development committee (EDC) has been constituted till date.

Following activities are proposed for effective management of the problem:

- Carry out timely vaccination of cattle as per the provisions of Wild Life (Protection) Act, 1972.
- Encourage stall feeding.
- Initiate dialogue with the people to phase out cattle.
- Create awareness among dependent community and stakeholders.

9.6 Unscientific collection of NTFP

No scientific information is available on the methods of collection of NTFPs, like honey, medicinal plants etc., quantity of resources removed and their impact on ecosystem. To address the issue, following prescriptions are made.

- Generate data on the species collected and map the zone of influence.
- Study the resource availability and restrict/regulate collection of threatened species, or impose seasonal regulations in collection based on the information generated in the study.
- Stop collection of NTFPs from critical wildlife habitats.
- Impart training in scientific collection, storage, value addition and marketing of NTFPs.
- Encourage cultivation of medicinal plants.

9.7 Firewood collection

Firewood is collected for self-use by nomads and local people in the buffer. Though this is not a major problem at present, measures needed to be taken to contain the issue to an optimum level by specifying areas for collection and quantity that can be removed. Following options are proposed to address the problem:

- Fuel wood reserve may be proposed in the settlements or peripheral area of settlement. People may be encouraged to plant fuel wood species in the space available within their settlements.
- Fuel efficient devices (LPG gas, solar system) should be promoted and encouraged.
- Bio-gas plants should be supported.

9.8 Eco-development activities.

Eco-development activities including supply of wood-saving cooking appliances, energy saving devices and other forest produce saving devices & construction of pond, path, bowli, etc. in consultant with local communities shall be carried out by the Wildlife Protection Department.

CHAPTER 10

RESEARCH, MONITORING AND TRAINING.

Research, monitoring and training are among the weakest areas in wildlife management. The need is acknowledged but there is very little progress. Research has suffered due to lack of policy, unclear objectives, priorities, inadequate funding support; lack of adequate employment opportunities inclusive of reasonable career advancement prospects and therefore want of suitable personnel.

The Sanctuary was declared in 1987 and not explored much from the biodiversity point of view. In order to accomplish the plan objectives, the following research, monitoring and training activities are proposed.

10.1 Research.

Major gaps identified in information include inadequate documentation of small mammals, reptiles, amphibians, fishes and invertebrates, weeds etc, gaps in information on flora and fauna in buffer area and inadequate dissemination of available information. An institutional mechanism for conduct of research, collation and dissemination of information is required. Liaison with academic and research institutions and involvement of staff will also improve the database required for management.

The major research activities to be taken up in the Sanctuary are as follows:

I. Study & monitoring number, extent and impact of grazing.

II. Conduct studies to document flora and fauna of the Protected Area including RET and endemics.

III. Study and document traditional knowledge of indigenous communities.

IV. Study and identify invasive species that have negative impact on eco-tourism.

V. Study the extent of the wildlife damage problem including the wildlife and crops involved.

VI. Conduct studies on small mammals, rodents, bats, insectivores and lesser carnivores, reptiles, amphibians and invertebrates.

VII. Introduce short term management-oriented research – impact of fire, man-animal conflict etc.

VIII. Study succession in grasslands.

IX. Develop long term monitoring plots in different types of habitats to study the changes in phenology, animal behaviour and species shift with respect to climate change and vegetation dynamics.

X. Review of practices for removal of weeds.

XI. Study the status of weeds and provide suggestions for phased removal.

XII. Continuous monitoring of weed infested areas and areas where weeding was done.

XIII. Evaluation and monitoring of fire and its impact.

XIV. Identification of strategies for fire management including controlled burning.

XV. Quantification of loss in various habitats.

XVI. Prepare fire management plan with the output from research and monitoring.

10.2 Monitoring.

Regular monitoring of habitat, biodiversity, wild animal population, impact of climate change etc. should be done by the research unit. The findings of the monitoring programmes could be used in management decisions of the Sanctuary. Initial data collection should be done by the staff of the Division who will be properly trained by the research unit for the purpose. Soil processes in forest ecosystems and indicators of soil quality to be analyzed. Biodiversity database for major forest types should be developed and the uses of this biodiversity to be examined. The effect of changes in ecosystem structure and functioning in response to global biophysical and sociological impacts on the delivery of ecosystem services, both tangible and non-tangible, should be documented.

The following monitoring strategies should be taken up during the plan period.

I. Population monitoring of herbivores.

II. Annual estimation of major mammals

III. Annual surveys of Birds, reptiles, amphibians, and invertebrates

IV. Monitor wildlife cases – especially involving leopard and maintain proper records

V. Monitoring of problematic animals.

VI. Monitoring the seasonal water availability in natural streams, check dams and waterholes and generate maps.

VII. Review and implement wildlife health monitoring protocol.

VIII. Establish a logbook to record observation of all Antipoaching camps, in and around Sanctuary.

IX. Monitor and document the impact of human activities on natural habitats, including the spread of disease, impact of fires started to facilitate grazing and NTFP collections.

X. Monitor mortality of wild animals and document.

XI. Monitoring regeneration status and soil erosion.

XII. Regular wildlife health monitoring.

XIII. Population monitoring of selected species of flora and fauna.

XIV. Monitoring of intrusion and regeneration of invasive species.

XV. Monitoring the regeneration of natural species in the restoration zone.

XVI. Monitoring impact of eco-ecotourism programmes.

10.2.1 Radio collaring:

A collar with an attached radio transmitter that is put on an wild animal so that its movements in its natural habitat can be remotely monitored. Radio tracking involves fitting the study animal with a radio collar. These collars are designed to minimize impact on the animals' behaviour and to maximize their detectability. The use of tracking collars is one of the most common methods of monitoring wild animals.

1. It allows researchers and managers to collect baseline data like home range sizes, daily movements, behavioural data and diet.
2. Radio tracking involves fitting the study animal with a radio collar. These collars are designed to minimize impact on the animals' behaviour and to maximize their detectability.
3. They come in a variety of belt and battery sizes; in general, the weight of the collar should be no more than 4 to 5 percent of the animal's body

weight for mammals, depending on the species. For example, the weight of a collar for a wild dog shouldn't exceed 450 grams.

Depending on the species of animal, the collars can be customized with sensors to recognize different movement activity, temperature and even mortality. When the movement sensor detects no movement, after a pre-programmed period of time, it changes the pulse rate to a higher or lower rate indicating change in behaviour (*e.g.,* resting or stationary). In Jasrota Wildlife Sanctuary, Radio collaring of RET and Rescued species is prescribed for effective Monitoring of Wildlife.

10.3 Training.

Various training programmes for skill development should be regularly organized frequently for the staff of all categories. Following topics are proposed for training to improve the capacity of staff and EDC members.

I. Understanding of relevant sections and rules made there under of laws in Forest Act, Wildlife Protection Act, IPC, CrPC, Arms Act, NDPS Act, Environmental Protection Act, Guidelines, Policies and recommendations of subjects related environment and Forests etc.
II. Training on identification of wildlife parts and products.
III. Understanding of principles and procedures of intelligence gathering.
IV. Instructions for safe keeping of seized materials/parts.
V. Knowledge of various types of arms, ammunition and their use and maintenance.
VI. Knowledge of fire management, assessing loss due to fire, preparation of fire plan.
VII. Knowledge of predator specific signs of killings, monitoring of cattle lifting cases, disposal of carcass etc.
VIII. Knowledge of procedures to deal with human injuries and death caused by wild animals.

IX. Knowledge on significance of soil conservation treatments.

X. Significance of habitat monitoring including protocols and periodicity.

XI. Understanding population estimation methodologies, use of compass, range finders, night vision equipments, GPS and camera traps.

XII. Daily monitoring protocol and its implementation.

XIII. Knowledge of zoonotic diseases, prevention of infectious diseases.

XIV. Knowledge of collection, preservation and transport of samples.

XV. Knowledge in handling of sick and injured animals.

XVI. Scientific collection, storage and value addition of NTFP.

XVII. Training to staff and guides in visitor management, conduct of ecotourism programmes etc and enhance skill in identification of birds, butterflies, tree species and medicinal plants.

XVIII. Knowledge of first aid, stress management and personality development.

Presently the Project on **Population estimation and monitoring of wild animals (mammals, birds and butterflies) in the protected areas of the Kathua Wildlife Division** is under progress by the Institute of Mountain Environment, University of Jammu, Bhaderwah Campus J&K.

Further, it is prescribed that a periodic research-oriented survey at least every 5 year should be conducted to access the biodiversity and status of wildlife in the sanctuary.

CHAPTER 11

ORGANISATION AND ADMINSTRATION

11.1 Objectives

Main objective of administration programme is to ensure that technical and administrative staff required to manage the Sanctuary effectively are approved, developed and posted. Improvements in financial organizational systems should aim for the financial sustainability for the Sanctuary.

11.2 Staff pattern

The present Sanctioned staff strength of Wildlife Division, Kathua is as follows:

Annexure "A10" to order No. 92 of 2020 Dated: 10.08.2020.

S.No.	Category of Post	Pay Level	Sanctioned Strength	Working Strength
Gazetted				
1.	Wildlife Warden	Level 8	1	1
2.	Range Officer Gr-I	Level 6E	1	1
	Total Gazetted		**2**	**2**
	Non- Gazetted			
1.	Range Officer Gr-II	Level 6	1	0
2.	Wildlife Forester	Level 5	4	5
3.	Senior Assistant	Level 5	1	0
4.	Junior Assistant	Level 4	2	0
5.	Deputy Foresters	Level 3B	1	0
6.	Wildlife Guards/ Anti-poaching Guard	Level 2	30	4
7.	Watcher	Level 2	1	0
8.	Orderly	SL1	1	0
9.	Chowkidar	SL1	1	1
10.	Helper	SL1	26	31
	Total Non- Gazetted		**68**	**41**
	Total Strength		**70**	**43**

In addition to the Working strength, following staff is also working in this division with details as under:

General Service Assistant (GSA) - 4 Nos
Rehbar-e-Janglaat – 1 No.

The Wildlife Division Kathua is facing acute shortage of Ministerial and field staff to manage day to day Wildlife activities. Accordingly, it is prescribed to fill the vacant posts with following details as given under table 11.1.

Table No. 11.1 Additional staff required:

Category	No. of post required
Senior Assistant	1
Junior Assistant	1
Deputy Foresters	1
Wildlife Guards/ Anti Poaching Guard	26
Driver	1

Table No. 11.2 Working staff strength in Jasrota Wildlife Sanctuary

S.No	Category of Post	Working Strength	Proposed Working Strength
1.	Range Officer Grade-II	1	1
2.	Forester	1	1
3.	Deputy Foresters	0	1
4.	Junior Assistant	0	1
5.	Wildlife Guard	0	4
6.	Watcher	0	4
7.	Chowkidar	0	2
8.	Helpers	6	4
9.	GSA	1	0
	Total	**9**	**18**

11.3 Duties and Responsibilities

11.3.1 Wildlife Warden Kathua:

The Sanctuary is managed by Wildlife Warden who works under the guidance of Regional Wildlife Warden, Jammu. Main responsibilities of Wildlife Warden are as under. He shall:

- supervise and coordinate all the matters related to wildlife protection and management of PAs, ecological critical areas, critical watersheds, wetlands of international importance, and environmental management under Wildlife Preservation Act and other Ordinance, Rules and Regulations and Directives issued by the government from time to time;
- be responsible for overall administration of the sanctuary.
- be responsible to take necessary measures and efforts to fulfill national obligations towards wildlife, biodiversity and other forestry and environmental related international treaties, protocols and conventions endorsed by the government;
- be responsible for completion of all works within the budget provision of the division and distribution of funds within his budget grant among the ranges under him;
- be responsible for all correspondences relating to wildlife management from time to time;
- be responsible for taking programme related to conservation and management of PAs. Supervision of environmental management and nature conservation functions outside the PAs;
- be responsible for drawing up programme for monitoring, survey and research in the PAs in relation to wildlife and biological diversity;
- be responsible for preparation of budget and revised budget of his division.
- be responsible for appointment, promoting, disciplinary action, disposal of appeal cases,

- be responsible for providing proper executive and operational guidelines to the field staff of the Wildlife & Nature Conservation Divisions. Exercise control and supervision on the Divisions under his jurisdiction;
- be responsible for preparation of development annual programme related to conservation of biodiversity and eco-tourism;
- be responsible for preparation and annual inspection of divisional offices within his jurisdiction;
- be responsible for proper execution of all development programmes within his circle;
- be responsible for auditing of divisional accounts.
- technical sanctions within his powers;
- be responsible for drawing and disbursing in respective offices as well as submission of accounts to the Accountant General.

11.3.2 Range Officer Wildlife Range Jasrota:

The Range Officer Wildlife Range Jasrota as officer in-charge for Jasrota Wildlife Sanctuary will directly report to the Wildlife Warden.

The following are responsibilities for Range Officer. He/she will:

- be responsible for overall administration of the Range within his jurisdiction;
- be responsible for exercise of powers given under various Acts and Rules there under;
- help Wildlife Warden in conducting smooth administration of the Division in which they are posted;
- help Wildlife Warden in the matter of maintenance of discipline of the Division;
- be responsible for the matter of raising plantation and nursery for habitat improvement within his jurisdiction;

- be responsible for execution of development programme related to protected area management and wildlife conservation within his jurisdiction;
- be responsible for the matter of checking theft and pilferage of forest produces and wildlife;
- be responsible of checking encroachment of Wildlife areas;
- facilitating and catalyzing linkages for livelihood programs in the identified landscape zones;
- maintain close liaison with FD staff responsible for the management of neighbouring forests and social forestry plantations; and any other duties assigned by the WLW.

CHAPTER 12

THE BUDGET

12.1 Plan Budget

The main financial allotment to this Division is under various budget heads as detailed below.

Table 12.1 Jasrota Wildlife Sanctuary Allotment (in Lacs).

Plan Heads	2015-16	2016-17	2017-18	2018-19	2019-20
Campa 2015-16	22.78	109.20	287.99	62.412	96.15
Revaild 2014-15	12.50	23.07	102.00	152.2978	157.06
CSS	18.96	17.068	19.595	21.11	0.00
Capex	0.00	6.81	5.50	11.42	4.02
NPCA	0.00	0.00	0.00	0.00	0.00
Grand Total	**54.24**	**156.148**	**415.085**	**247.2398**	**257.23**

Table 12.2 Budget Allotment in Kathua Wildlife Division Under Non-Plan (in Lacs).

Code	Heads	2015-16	2016-17	2017-18	2018-19	2019-20
001	Salaries	229.30	190.0	208.80	297.58	123.56
002	T.E	0.25	0.14	0.05	0.10	0.172
006	Telephone	0.075	0.05	0.13	0.10	0.10
007	OE	0.05	0.18	0.25	0.10	0.25
008	Electricity	0.50	0.70	0.68	1.10	0.50
009	Rent Rate and Taxes	0.00	0.20	0.20	0.25	0.00
010	Material and Supplies	4.00	9.00	11.00	8.60	9.568
014	POL	0.05	0.20	0.40	0.10	0.20
0011	Books Period ideals and pub.	0.00	0.00	0.20	0.00	0.00
017	Honorarium and remuneration	0.00	0.00	0.00	0.00	5.295
020	Machinery & Equipments	1.45	0.00	0.60	0.30	0.00
021	Training	0.80	0.75	0.75	0.25	0.00

023	Maintenance & Repair	0.50	0.20	0.60	0.90	0.605
037	Prof & Spl Service Charges	0.25	0.05	0.12	0.00	0.04
054	Furniture and Furnishing	1.00	0.00	0.00	0.00	0.00
070	Arms and Ammunition	0.30	0.20	0.25	0.15	0.07
071	Medical Reimbursement	0.30	0.00	0.00	0.00	0.00
098	Advertisement and Publication	0.90	2.50	1.00	0.60	0.00
180	Protection from fire	0.20	0.00	0.00	0.00	0.00
320	Research Survey	0.25	0.00	0.00	0.00	0.00
363	Outsourcing of upkeep	2.52	2.52	2.52	3.496	1.697
633	Compensation	2.15	6.00	5.00	0.00	6.00
641	Define pension scheme	0.285	0.434	0.27	0.59	0.00
670	Pension and other benefits	6.6674	15.5025	0.00	11.75	0.00
	G.Total	**251.7974**	**228.6265**	**232.82**	**325.966**	**148.057**

Table 12.3 Budget Allotment in Jasrota Wildlife Sanctuary Under different schemes (in Lacs).

Plan Heads	2015-16	2016-17	2017-18	2018-19	2019-20
Campa 2015-16	22.78	109.20	287.99	62.412	96.15
Campa Revalidated 2014-15	12.50	23.07	102.00	152.2978	157.06
CSS	18.96	17.068	19.595	21.11	0.00
Capex	0.00	6.81	5.50	11.42	4.02
NPCA	0.00	0.00	0.00	0.00	0.00
G.Total	**54.24**	**156.15**	**415.09**	**247.24**	**257.23**

Table 12.4 Proposed Budget in Jasrota Wildlife Sanctuary for 10 years (2020-21 to 2029-30)

SL. No.	Activity	Financial requirement (Lakhs)										
		1st Year (2020-21)	2nd Year (2021-22)	3rd Year (2022-23)	4th Year (2023-24)	5th Year (2024-25)	6th Year (2025-26)	7th Year (2026-27)	8th Year (2027-28)	9th Year (2028-29)	10th Year (2029-30)	Total
A.	**Improvement of Wildlife Habitat**											
1.	Plantation including fruits /fodder species.	0.00	0.00	4.50	5.00	6.00	5.50	6.50	6.00	6.00	6.50	**46.00**
2.	BUC in old closures	1.35	0.60	1.50	2.00	3.00	2.00	3.00	2.50	3.00	3.00	**21.95**
3.	Lantana/weeds/ bushes clearance for growing of grasses and free movement of wild animals/restoration of the areas by patch sowing, grass slips, broadcasting of seeds etc.	8.36	3.66	8.70	9.00	8.70	9.00	9.00	9.00	9.50	9.50	**84.42**
4.	Grass Slips.	0.85	1.05	1.50	2.00	1.50	1.50	2.50	2.00	2.00	2.00	**16.90**
5.	Patch Showing.	0.45	0.75	0.88	2.00	2.50	2.50	3.00	3.00	2.95	2.95	**20.98**
6.	Construction/Maintenance of water hole.	3.60	1.50	0.90	3.60	2.00	5.00	4.00	2.00	0.90	4.00	**27.50**
7.	Providing of water supply to water holes during dry season by water tank.	1.00	1.00	1.00	1.50	1.50	2.00	2.00	2.50	2.50	2.50	**17.50**
8.	Construction/Maintenance of inspection path in Jasrota Wildlife Sanctuary.	61.57	30.00	5.00	5.00	5.00	5.00	5.00	6.00	6.00	6.00	**134.57**

SL. No.	Activity	Financial requirement (Lakhs)										
		1st Year (2020-21)	2nd Year (2021-22)	3rd Year (2022-23)	4th Year (2023-24)	5th Year (2024-25)	6th Year (2025-26)	7th Year (2026-27)	8th Year (2027-28)	9th Year (2028-29)	10th Year (2029-30)	Total
B.	**Protection of plantation and PA s demarcation**											
9.	Repair and renovation of Chainlink fencing at Jasrota Wildlife Sanctuary.	0.99	2.30	2.50	3.50	3.00	3.00	3.00	3.50	3.50	3.50	**28.79**
10.	Construction of Watch Tower.	0.00	28.00	28.00	3.00	32.00	35.00	35.00	35.00	35.00	35.00	**266.00**
11.	Consolidation of Boudaries by fixation of Boundary pillars (BP's).	0.00	6.50	6.50	6.50	7.00	7.00	7.00	7.50	7.50	7.50	**63.00**
C.	**Soil and Moisture conservation Works.**											
12.	Construction/ Repair Chainlink fencing at Jasrota Wildlife Sanctuary adjoining fringe village.	65.00	65.00	65.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	**210.00**
13.	DRSM/Gully Plugging/check dams in soil erosion prone areas.	6.56	4.95	5.00	6.00	5.00	5.50	4.00	5.00	4.00	5.00	**51.01**
14.	Planting of Soil binder species /grass slips etc in slopy /landslide areas.	0.75	0.75	0.75	1.50	1.50	2.00	2.00	2.50	2.50	2.00	**16.25**
15.	Laying of Crates.	0.00	4.00	3.00	3.00	3.00	3.00	3.00	1.50	4.00	3.00	**27.50**
16.	Construction/ Maintenance of Bowli.	0.00	1.20	2.00	3.00	3.00	3.00	2.00	2.00	1.00	1.00	**18.20**
17.	Construction/ Maintenance of Pond.	4.58	2.70	2.50	2.50	2.80	2.80	3.00	3.00	3.00	3.50	**30.38**

SL. No.	Activity	Financial requirement (Lakhs)										
		1st Year (2020-21)	2nd Year (2021-22)	3rd Year (2022-23)	4th Year (2023-24)	5th Year (2024-25)	6th Year (2025-26)	7th Year (2026-27)	8th Year (2027-28)	9th Year (2028-29)	10th Year (2029-30)	Total
D.	**Forest Fire prevention and control measures**											
18.	Construction of fire line 10 m in width with standard specification	0.00	0.00	0.00	4.00	2.00	0.00	0.00	0.00	0.00	0.00	**6.00**
19.	Maintenance of fire line with standard specification	1.17	1.17	1.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	**10.84**
20.	Payment for Fire Protection Labour (SoS) for 3 months.	2.70	2.70	3.00	3.00	3.50	3.50	3.50	4.00	4.00	4.00	**33.90**
21.	Contingency/unforeseen expenses including office/ Computer stationery, vehicle, POL/repair and maintenance of equipment's etc.	1.20	2.50	2.50	2.50	2.50	3.00	3.00	3.50	3.50	3.50	**27.70**
E.	**Establishment, operation and maintenance of animal rescue centre, control room and veterinary treatment facilities.**											
22.	Purchase of snake sticks, snake box, cages etc.	0.00	0.00	2.00	3.00	3.00	3.50	4.00	4.50	5.00	5.50	**30.50**
23.	Purchase of crackers used during rescue operations	0.00	1.15	1.50	1.50	1.50	2.00	3.00	3.00	3.00	3.50	**20.15**
24.	Procurement of green fodder/ feed for rescued animals	1.00	0.90	1.00	1.50	1.50	2.00	2.00	2.00	2.50	2.50	**16.90**

SL. No.	Activity	Financial requirement (Lakhs)										
		1st Year (2020-21)	2nd Year (2021-22)	3rd Year (2022-23)	4th Year (2023-24)	5th Year (2024-25)	6th Year (2025-26)	7th Year (2026-27)	8th Year (2027-28)	9th Year (2028-29)	10th Year (2029-30)	Total
25.	Hiring of private vehicles for rescue operation and human animal conflict resolution.	0.50	1.15	2.00	2.00	2.00	2.50	2.50	2.50	3.00	3.00	**21.15**
26.	Purchase of Drugs/tranquilizing drugs/ medicines etc. for Wild animals	0.00	1.10	1.50	1.50	2.00	1.50	2.00	2.00	2.50	2.50	**16.60**
27.	Purchase of net/ rope/ harness tarpal licks, helments/ Long shoe/ Fire equipment, etc.	1.00	1.15	1.00	1.00	1.50	1.50	1.50	2.00	3.50	3.50	**17.65**
28.	Purchase of supplements/Darts/drugs/ Salt licks for kept Wild animals.	1.50	1.00	1.50	1.50	2.00	2.00	2.00	2.00	2.50	3.00	**19.00**
29.	Expenses for running of control room	1.50	1.25	2.00	3.00	2.50	2.50	3.50	3.00	3.00	4.00	**26.25**
30.	Purchase/ Maintenance of Rescue vehicle.	9.00	0.00	0.50	0.50	1.00	0.50	9.00	0.50	0.50	0.50	**22.00**
31.	Contingency/ unforeseen expenses including office/ Computer stationery, vehicle, POL/repair and maintenance of equipment's etc.	1.50	1.50	1.50	2.50	3.00	3.00	3.00	3.00	3.00	4.00	**26.00**
32.	Purchase of Drone camera for monitoring of wildlife.	0.00	2.50	0.00	0.00	3.00	0.00	0.00	3.00	0.00	3.50	**12.00**
33.	Purchase of Radio Collaring devices for monitoring of wildlife.	0.00	0.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	**40.00**

SL. No.	Activity	Financial requirement (Lakhs)										
		1st Year (2020-21)	2nd Year (2021-22)	3rd Year (2022-23)	4th Year (2023-24)	5th Year (2024-25)	6th Year (2025-26)	7th Year (2026-27)	8th Year (2027-28)	9th Year (2028-29)	10th Year (2029-30)	Total
F.	**Eco-development activities including supply of wood-saving cooking appliances and other forest produce saving devices etc in forest fringe villages in consultation with local communities**											
33.	Purchase of gas stove, etc and other solar cooking appliances for distribution among locals	2.00	1.00	2.00	5.00	6.00	6.00	6.00	3.00	5.00	5.00	**41.00**
34.	Ecodevelopment activities like construction of pond, path, bowli etc. in consultation with local communities.	0.00	2.00	10.00	15.00	25.00	20.00	20.00	15.00	20.00	10.00	**137.00**
G.	**Construction of residential and official buildings for front line staff/ Infrastructure development.**											
35.	Maintenance and up gradation of Training centre including Barracks at Jasrota Wildlife Sanctuary with modern technology.	1.70	17.00	2.00	5.00	2.00	2.00	2.50	2.50	3.00	5.00	**42.70**
36.	Construction/Maintenance of infrastructure for field staff/ frontline staff.	0.30	14.00	2.00	1.50	2.00	1.00	1.00	2.50	2.00	1.00	**27.30**
H.	**Construction, up-gradation and maintenance of inspection paths, fire lines, watch towers etc**											

SL. No.	Activity	Financial requirement (Lakhs)										
		1st Year (2020-21)	2nd Year (2021-22)	3rd Year (2022-23)	4th Year (2023-24)	5th Year (2024-25)	6th Year (2025-26)	7th Year (2026-27)	8th Year (2027-28)	9th Year (2028-29)	10th Year (2029-30)	Total
37.	Construction /Maintenance of inspection path 1.5 m wide	0.00	2.70	3.00	3.00	2.00	2.00	2.00	2.00	3.00	3.00	**22.70**
38.	Construction of watch Tower/ Machan.	0.00	0.90	2.00	2.00	2.00	2.50	2.50	3.00	1.50	1.50	**17.90**
I.	**Casual engagement of Labour to supplement the field staff**											
39.	Provision for wages of Need based/ casual Labour/ engaged under CAMPA.	3.24	2.92	3.50	3.50	3.00	3.50	3.50	4.00	4.00	4.00	**35.16**
40.	Payment for local Labour/informers for Anti-poaching Works/ Man-Animal conflict resolution.	2.78	5.58	5.80	6.00	6.00	6.50	6.50	6.50	7.00	7.00	**59.66**
J.	**Publicity cum awareness programmes.**											**0.00**
41.	Organizing of Awareness Camps	2.00	0.90	2.00	3.00	1.00	2.00	2.00	3.00	3.00	4.00	**22.90**
42.	Celebrations of wildlife week, Van-Mahotsav, etc.	0.90	0.90	1.00	1.50	2.00	2.50	2.50	2.50	2.00	2.50	**18.30**
43.	Printing of awareness material regarding man-animal conflict, flora and fauna etc.	1.50	0.90	1.00	1.50	1.50	1.50	2.00	2.00	2.00	2.50	**16.40**

SL. No.	Activity	Financial requirement (Lakhs)										
		1st Year (2020-21)	2nd Year (2021-22)	3rd Year (2022-23)	4th Year (2023-24)	5th Year (2024-25)	6th Year (2025-26)	7th Year (2026-27)	8th Year (2027-28)	9th Year (2028-29)	10th Year (2029-30)	Total
44.	Installation of Hoarding and Sign Boards in adjacent to the Protected area along the National Highway/ link roads etc.	0.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	**12.00**
K.	**Documentation of Biological Diversity.**											
45.	Listing, detailing, examination and documentation and printing of biodiversity	1.00	1.50	1.50	2.00	30.00	2.00	2.50	2.50	3.00	33.00	**79.00**
46.	Research, monitoring and evaluation.	1.00	0.00	15.00	2.00	18.00	2.00	20.00	0.00	20.00	20.00	**98.00**
5.	**Grand Total (A to K)**	**191.55**	**222.33**	**203.53**	**143.60**	**212.00**	**180.80**	**199.00**	**182.50**	**197.85**	**226.45**	**1959.61**

Note: ***The financial estimate/ Budget Proposed shall be subject to the Govt. scheduled Rates issued from time to time.***

Part-III

ANNEXURES

Annexure- I

GOVERNMENT OF JAMMU AND KASHMIR
GOVERNMENT OF JAMMU AND KASHMIR
CIVIL SECTT: FOREST DEPARTMENT
(WILDLIFE PROTECTION)

.....

N O T I F I C A T I O N
JAMMU, THE 19TH MARCH, 1987

SR0-151:- Whereas, it appears to the Government that the area specified in Annexure-"A" to this Notification, has adequate ecological, faunal, floral, geomorphological significance for purposes of the protecting, propagating and developing Wildlife or its environment.

Now, therefore, in exercise of the powers conferred by section 17 of the Jammu and Kashmir Wildlife (protection) Act, 1978, the Government hereby declare the said area as a Sanctuary.

By Order of the Government of Jammu and Kashmir.

Sd/-
(N.R. GUPTA)
Secretary to Government.

No. FST/WL/san/jasrota/87 Dated:-19.3.1987

Copy for information and necessary action to the:-

1. Secretary to Government, Law Department.
2. Secretary to Government, Revenue Department.
3. Chief Wildlife Warden, Srinagar.
4. Deputy Commissioner of the concerned District.
5. Manager Government Press for favour of Publication in Government Gazette.
6. Stock file.

Sd/-
(Hamid-Ullah)
Deputy Secretary to Government,
Forest Department

*Hamdari*19/3

STATUS SURVEY REPORT OF THE PROPOSED JASROTA WILDLIFE SANCTUARY

Notification: The area has been named after, Jasrota Fort (Now ruins) once citadel of mighty chieftain.

Proclamation: The Wildlife Sanctuary is located on the right of river Ujh, towards the north of Vill. Jasrota and situated about 70 Kms, North West of winter capital Jammu.

Boundaries: North- Villages Gurah Surjan, Amala, Dhaloti, Tibba fourlain Mun, Guramwala.

South:- Jasrota, Amala, Channi and Khumpur villages and canal Ujh.

East:- Ruine of Ladoli Khad

The proposed area covers an area of 10.04 Hactares.

Approach: The proposed Sanctuary is accessible by a link road 3-5 Kms passing through village Rajbagh situated on Jammu-Pathankot National Highway.

Threats: The local habitation surrounding the area and falling in the vicinity indulge in collection of fire wood and take their live stock in the area for grazing.

Legal Status: The area was under the administrative and technical control of forest Department till 1984-85 now being administrated by the department of Wildlife Protection.

Configuration: The areas Hilly and broken by large Khuds running from north to south.

Climate: The climate is sub-tropical and experience monsoon.

Condition : **COMPOSITION AND CONDITION OF CROP**

The area sustains only the Bamboo plantation fested by habitat form and density of the Species and controlled by a number

including explore altitude and above all biotic interferences, Bamboo plantation is associated by other broad-leaved species like *Acacia catechu, Acacia arabica, Dalbergia sisoo, Aegle marmelos, Lannea grandis etc.* The shrubs have a very rich dominance by *Lantana camara, carrisa spinarum (*garna*), Dadonea viscosa* etc and climbers such as *Bauhinia vahlii* etc come into composition.

Distribution of Bamboo canopy richly met in the compartments 1,2 and 3 towards east of proposed Sanctuary, While some compartments i.e 4,5 & 6 towards the West sustain concentration of wood cove.

Once the area was very rich in wide variety of fauna and due to excessive biotic interference like poaching unlimited grazing and afforestation few species are left which are stated as under:-

1. Chital or spotted Deer *(Axis axis)*
2. Barking Deer. *(Muntiacus muntejak)*
3. Wild Boar. *(Sus scrofa)*
4. Rhesus monkey *(Macaca Mulatta)*
5. Jackal *(Canis aureus)*
6. Hare *(Lepus nigricollis)*
7. Porcupine *(Hystrix indica)*

Avi-Fauna:

The proposed area holds a distinction of harbouring rich and variety of pheasant besides, other migratory and resident birds.

The check list of birds is as under:

1. Pea fowl (*Pavo cristatus)*
2. Red jungle fowl (*Gallus gallus)*

3. Red Bush Quail (*Prediculata asiatica)*
4. Green Pigeon *(Tragpon phoenicopera)*
5. Blue Rock Pigeon (Columba livia)
6. Red Turtle Dove (Streptopelia tranquebarica)

Recommendations:-

The late Maharaja of Jammu and Kashmir identified the area as a Wildlife Reserve in view of sustaining a rich potential of cheetal population. But after independence, the population size of cheetal and other associates dropped down due to indiscriminate habitat destruction, mass poaching and other biotic interferences. The area of interest still hold stray congregation of cheetal and other rare and threatened species. In order to protect the habitat and the Wildlife species therein. It is proposed that the area may be declared as a Wildlife Sanctuary under Section (17) of Jammu and Kashmir Wildlife (Protection) Act, 1978.

*****

Annexure- II

Year wise statement of death/injury cases due to Man Wild animal Conflict of Wildlife Division Kathua.													
Year	**O.B**		**Received**		**Total**		**Settled**		**Pending**		**Total Amount Paid (Rs)**		**Remarks**
	Death	**Injury**	**Death**	**Injury**	**Death**	**Injury**	**Death**	**Injury**	**Death**	**Injury**	**Death**	**Injury**	
2011-12	0	0	0	3	0	3	0	3	0	0	0	23200	1.Sh. Masood Ahmed S/o Sh. Tota Bakarwal R/o Dhar Sarthal Bani. Amount paid Rs. 3200/= 2.Sh. Mohd Youns S/o Sh. Ab. Gani R/o Raore Distt Samba. Amount paid Rs. 10,000/- 3.Sh. Mohd Tahir S/o Sh. Ibrehim R//o Raore Distt Samba. Amount paid Rs. 10000/=
2012-13	0	0	0	2	0	2	0	2		0	0	10000	1. Mrs.Sawtri Devi W/o Late Taj Ram R/o Daghore Tehsil Samba Amount paid Rs. 5000/= 2. Ms Kanu Salgotra D/o Sh. Raj Kumar Daghore Tehsil Samba Amount paid Rs. 5000/=

2013-14	0	0		0		0	0	0	0	0			No such case has received by this office during the year.
2014-15	0	0	0	2	0	2	0	2	0	0	0	100000	1.Smt. Skina Begum S/O Mohd. Ramzan R/O Lohai Tehsil Bani Distt. Kathua. Amount paid Rs.100000/=
												15000	2 Smt. Amina Begum W/O Noor Hussain R/O Sandroon Tehsil Bani Distt. Kathua. Amount paid Rs. 15000/=
2015-16	0	0	0	0	0	0	0	0	0	0	0	0	
2016-17	0	0	2	0	2	0	1	0	1	0	300000	0	Smt. Krishna Devi W/O Sh. Baba Ram R/O Chak Manga Gujjran Samba injury/death by Wild Boar. Amount paid Rs. 300,000/- Ms. Neha Devi D/O Sh. Harbans Lal R/O Mansar Disstt. Samba death by Snake bite. The case has been resubmitted vide this office No. WLW/K/842 dated 28.02.2017 for the review and re-consideration as this is the first case of snake bite for ex-gratia and the decision of higher authorities is still awaited.
2017-18	1	0	1	0	2	0	1	0	1	0	300000	0	1. M/s Saima Devi W/o Mansa Ram R/o Dhaggar Tehsil (Saroola) Bani. Amount

												paid Rs. 300,000/-
2018-19	1	0	0	0	1	0	0	0	1	0	0	0	
2019-20	1	0	2	0	3	0	2	0	1	0	300000	0	1. One case is pending since 2016-17 2. Case of Late Sh. Kartar Singh S/O Sh. Munshi Ram R/O Lahri Tehsil Billawar died due to leopard attack on 02.07.2019. The case has been sanctioned vide Chief Wildlife Warden order No. 17 of 2020 Dated 13.02.2020.Compensation of INR 300000/= has been paid to the legal heir of the deceased.
											300000	0	3. Case of Late Sh. Parshotam Kumar S/O Mahinder Kumar R/O Makwal Tehsil Ramkote died due to leopard attack on 11.11.2019. The case has been sanctioned vide Chief Wildlife Warden order No. 154-of 2019 Dated:-26-11-2019. Compensation of INR 300000/= has been paid to the legal heir of the deceased
2020-21	1	0	0	0	0	0	0	0	1	0	0	0	
2021-22	1	0	0	0	0	0	0	0	1	0	0	0	
											1200000	**148200**	

Annexure- III

Government of Jammu and Kashmir
Forest, Ecology & Environment Department,
Civil Secretariat, J&K, Srinagar.

Subject: Promotion of Eco-Tourism by allowing Trekking on the identified routes falling inside the Wildlife Protected Areas of the State.

Ref. No:- State Administrative Council Decision No. 160/17/2019 dated 03.07 2019.

Government Order No: - 215 - FST of 2019.
D a t e d: 15 -07-2019.

Sanction is hereby accorded to the notification and development of eleven (11) Trekking routes by Wildlife Department, as per the Annexure 'A' of this Government Order for allowing guided Trekking opportunities in pristine Wildlife Protected Areas and involving local communities for livelihood improvement. The Wildlife Department shall workout detailed modalities for management of the Trekking routes/ Programmes.

By order of the Government of Jammu & Kashmir.

Sd/
(Manoj Kumar Dwivedi) IAS
Commissioner/Secretary to Government
Forest. Env. & Ecology Department

No-FST/Land/02/2005 Dated: 15-07-2019

Copy to the:

1. Pr. Chief Conservator of Forests, J&K Srinagar.
2. Chief Wildlife Warden, J&K. Srinagar.
3. Director Archives & Archaeology J&K, Srinagar.
4. OSD with Advisor(K) to Hon'ble Governor, J&K.
5. Pvt Secy. to Commissioner/Secretary to Government, General Administration Department.
6. Pvt Secy. to Commissioner/Secretary to Government, Forest, Env. & Ecology Department.
7. Pvt Secy. to Special Secy.(T), Forest Department.
8. Government Order file (W2 SC).

Riyaz -Ul-Haq
Under Secretary to Government
Forest, Env. & Ecology Department.

Annexure to Government Order No: 215 – FST of 2019 dated 15-07-2019

S.No	Region	Name of the Wildlife Protected Area	Name of the proposed Trekking Route	Length in KMS	Duration of Trek
1.	Kashmir	Brain & Khonmoh Wildlife Conservation Reserve	Cheshmashahi – Zowra	10	1 day (5 Hour Duration Ascend)
2.	-do-	Dara Wildlife Conservation Reserve & Dachigam National Park	Dara – Mahadev – Back	10 x 2	2 day (6 & 4 hour Duration) Ascend as well as Descend
3.	-do-	Overa Aru Wildlife Sanctuary & Dachigam National Park	Aru – Tarsar – Marsar & back	25x2	4 day (6 hour Duration/Day) Ascend /Descend
4.	-do-	Overa Aru Wildlife Sanctuary	Aru – Kolhai Glacier	23 x 2	4 day (6 hour Duration/Day) Ascend /Descend
5.	-do-	Dara Wildlife Conservation Reserve	Dara – Hayen	13	1 day (5 hour Duration) Descend
6.	Jammu	Nandni Wildlife Sanctuary	Nandni to Bail Khad and Back	5.5	1 day (2 hour Duration)
7.	-do-	Sudhmahadev Wildlife Conservation Reserve	Mantali to Patnitop	12.5	1 day (6 hour Duration)
8.	-do-	Jasrota Wildlife Sanctuary	Sanctuary Gate to Gura Surjan	6	1 day (3 hour Duration)
9.	-do-	Surinsar Mansar Wildlife Sanctuary	Sagoon Surinsar to Purmandal	12	1 day (6 hour Duration)
10.	-do-	-do-	Covering Forest Co: No 5&8/JDR (Staring & End Point Same)	9.8	1 day (4 hour Duration)
11.	-do-	-do-	Covering Forest Co: No 7 JDR (Staring & End Point Same)	7.6	1 day (3.5 hour Duration)

Annexure- IV
CONTROL FORMS

FORM – 1

Restoration of habitat: Weed control

S. No	Location & name of site	Year	Extent of area(Ha)	Species of weed	Operation	Total Cost	Cost/ha	Remarks
1	2	3	4	5	6	7	8	9

Location : By compartment, site name or land feature

Operation : Uprooting, cutting, burning, ploughing, manual or by using animals or machinery.

Remarks : Measure of success and or problem faced

FORM – 2

Restoration of habitat: Controlled burning

Sl. No	Location & name of site	Year	Extent of area(Ha)	Area treated(ha)	Period	Total Cost	Cost/ha	Remarks
1	2	3	4	5	6	7	8	9

Location : By compartment, site name or land

Feature Period : Date of starting operation and completion.

Remarks : Mention resultant structure (e.g. a mosaic, %burned, % intact), Problems

FORM-3

Restoration of habitat: Soil conservation measures- Initial operations and subsequent maintenance.

Sl. No	Location & name of site	Year	Extent of area(Ha)	Area treated(ha)	Period	Total Cost	Cost/ha	Remarks
1	2	3	4	5	6	7	8	9

Location : By compartment, site name or land

Extent of area : Total area identified for such treatment. In case of streams or gullies, the length involved

Area treated : If linear feature then quote length; otherwise area

Operation : Structures involved such as gully plugs, trench-cum-mound, terracing, spurs and bunds etc.

Remarks : Mention if initial work or maintenance.

FORM-4

Creation of new artificial waterholes.

Sl. No	Category	Year	Location	Cost	Performance
1	2	3	4	7	8

Category : Masonry anticut, 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 (give reason for the latter two)

FORM-5

Maintenance of Waterholes-Natural.

Sl. No	Category	Perenial/ seasonal	Location	Year	Nature of Work	Cost	Performance
1	2	3	4	5		6	7

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 : Successful, partially successful, failure (give reason for the latter two)

FORM-5

Maintenance of Waterholes- Artificial.

Sl. No	Category	Perenial/ seasonal	Location	Year	Nature of Work	Cost	Performance
1	2	3	4	5		6	7

Category : Masonry anticut, earthen bund, lined depression, borewell and pump, reservoir, spring fed, tanker fed, guzzler, aquifer, etc.

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 works.

Performance : Successful, Partialy successful, failure (give reason for the latter two)

FORM –6

Animals – New records

Sl. No	Species	Location	Year	How discovered	Details of number, age, sex	Habitat description	Remarks
1	2	3	4	5	6	7	8

Note : Animal will include vertebrates and invertebrates

How discovered : Sighting, dead specimen, reliability of sighting, captured specimen, incontrovertible other evidence.

No., age, sex, etc. : As applicable to vertebrates

Habitat description : Broad habitat description such as vegetation, and elements such as water, large old trees, den trees, snags, down log material. Use microhabitat descriptors only if relevant.

Remarks : Any other useful information

FORM – 7

Animals – Mortality other than that attributable to an offence

Sl. No	Species	Location	Year	Sex and age	Number	How discovered	Cause of mortality	Remarks
1	2	3	4	5	6	7	8	9

Location : By compartment, landmark etc.

Sex and age : As per parameters for age class, Sex, if possible to identify.

He discovered : Carcass, complete or partial, skull or any other recognizable remains collected where only some remains of an animal are found.

Cause of mortality : If known, e.g. territorial fight, accident, possible disease (following postmortem results), old age, cause difficult to determine, predation etc.

Remarks : Any other useful information

FORM – 8

Animals – Mortality attributed to poaching or an act of vandalism

Sl. No	Species	Location	Cause of mortality, number, sex, age class	Remarks
1	2	3	4	5

Location : By compartment or landmarks

Cause of mortality : whether the animal was intact or remains found, article or trophy to be recorded, Cause if known e.g. Animal snared, shot, or poisoned etc.

Remarks : Any other useful information, especially matters of illegal trade.

FORM – 9

Animals – Predation on domestic live stock by wild carnivores

S. No	Range	Month	Category of livestock killed	Location	Number	Compens-ation paid	Carnivore involved	No. of case Undecided	Remarks
1	2	3	4	5	6	7	8	9	10

Col.4 : Buffalo, cow, bullock (adult, sub-adult, calf), camel, horse, donkey, sheep, goat, poultry, etc.

Col.5 : Comptt. No. or landmarks where killed and the village of the owner.

Col.8 : Indicate species responsible for the kill if identify is confirmed.

Col.9 : Either in progress or dropped.

Col.10 : Record observations like- attended or unattended animals, killed in forest or waterhole or in the pen/shed, field and whether kill was in area closed to livestock trespass.

FORM – 10

Animals: Killing of a human by Wild life or injury caused

Sl. No	Range	Month	No. of incidents	No. of people killed, age & sex	Location, circumstances & species	No. of people injured, age & sex	Location, circumstances & species	Compens sation (Rs.)
1	2	3	4	5	6	7	8	9

Location, circumstances: Location by camptt. No., the village to which the person belongs and a description of the site and species activity such as- open grassy patch, cutting grass, or under a mahua tree collecting flowers etc. Mention species on proof.

FORM – 11

Animals: Wildlife damage to private or public property

Sl. No	Range	Month	The category of property	Extent of damage	Species involved and number	Remarks
1	2	3	4	5	6	7

Location : By comptt. No., village survey no., name of village or land mark.

Category of property : e.g. Agriculture field-wheat, huts in a village, any kind of vehicle.

Extent of damage : Crop damage by area, estimated loss of produce and monetary loss. Similar yard sticks for other items like partial or total destruction of huts and belongings with estimated monetary loss.

Remarks : Any relevant information or circumstances e.g. Wild elephant was provoked by people.

FORM – 12

Plants: New records

Sl. No	Range	Kind of produce	Species	Quantity	Revenue realized	Free of change quantity	Agency involved	
							Local people	Out siders
1	2	3	4	5	6	7	8	

Kind of produce : Mention Name, can be biological or geomorphic in origin

Species : If applicable

Quantity : Use the appropriate units

Local people : applies to people within Sanctuary.

FORM – 13

NWFP Collection: Plants and other produce Range

Sl. No	Year	Kind of produce	Species	Quantity	Revenue realized	Free of charge quantity	Agency involved	
							Local people	Out siders
1	2	3	4	5	6	7	8	

Kind of produce : Mention Name, can be biological or geomorphic in origin

Species : If applicable

Quantity : Use the appropriate units

Local people : applies to people within Sanctuary.

FORM – 14

Grazing of domestic livestock

Sl. No	Year	Grazing unit No.	List of villages in the unit	Village-wise listed population of cattle	Capacity of the unit(cattle units) an number of cattle grazed	Total cattle unit grazed		Remarks
						Legal	Illegal	
1	2	3	4	5	6	7	8	9

Remarks : (i) Mention number of cattle immunized against FMD, RP, anthrax as the case might be and the number of cattle without the prophylactic cover

(ii) If grass is allowed to be cut for cattle being stall-fed, mention the village and number of such cattle.

FORM – 15

Programmes of NGO's

Sl. No	Year	Name of agency	HQ location	Nature of the scheme operated	Physical & financial targets		Area & location	Remarks
					Given	achieved		
1	2	3	4	6	7	8	9	10

Remarks: Success, adverse impacts, incompatibility with Sanctuary management objectives or failures should be mentioned. These programmes and activities could be within the management area or those that are outside the management area but are capable of influencing the state of the management area-either complimenting efforts or adversely impacting.

FORM – 16 A

Construction of Infrastructure: Roads and Bridges (New) Range

S. No	Year	Category	Surface	Name or number	Length covered	Cross, drainage works, bridges with type	Total cost and status
1	2	3	4	5	6	7	8

Category of road : National/State highway, district road etc. Public road or open only to managers should be stated

Surface type : Black toped, metal, earth etc. Applies to road.

Name/number : as the case may be

Cross drainage type : e.g. for culverts-box, hosepipe culverts etc.

Bridge Type : Wooden trestle, suspention, metal multy span, masonry arch etc

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

FORM – 16 B

Maintenance of Infrastructure: Roads and Bridges (existing) Range

Sl. No	Year	Category	Surface	Name or number	Length covered	Cross, drainage works, bridges with type	Total cost and status
1	2	3	4	5	6	7	8

Category of road : National/State highway, district road etc. Public road or open only to managers should be stated

Surface type : Black toped, metal, earth etc. Applies to road.

Name/number : as the case may be

Cross drainage type : e.g. for culverts-box, hosepipe culverts etc.

Bridge Type : Wooden trestle, suspention, metal multy span, masonry arch etc.

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

FORM – 17

Construction of Infrastructure: Buildings (New) Range

Sl. No	Year	Nature of the building	Location	Type of construction	Number	Total cost	Status
1	2	3	4	5	6	7	8

Nature of the building : E.g. Residential (guard), office, store, chauki, watch tower, tourist facility, hide, barrier, patrolling camp, (temporary/permanent) etc.

Location : The 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.

FORM – 18 A

Developing Infrastructure: Fire lines (New).

Sl. No	Year	Fire line Category or width	Name of points Connected	Length (Mt)	Cost	Remarks
1	2	3	4	5	6	8

Category : Main or subsidiary etc. Record width.

FORM – 18 B

Outbreaks of fires: Jasrota Wildlife Sanctuary.

Sl. No	Year	Location	Extant (ha)	Dates		Reason	Estimated loss	Remark s
				Detected	Controlled			
1	2	3	4	5		6	7	8

Location : By compartment

Reason : Established or suspected

Estimated Loss : e.g. no. of trees damaged, stacked firewood/ timber/ bamboo destroyed/ damaged by volume and cost, wild animals dead, particulars of sensitivity 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 fire has been mapped.

FORM – 19

Offence cases detected: Jasrota Wildlife Sanctuary.

Sl. No	Year	Category	Numbers	No. of cases detected		No. of cases under process	No. of cases compounded	Remarks
				Successful	Failure			
1	2	3	4	5		6	7	8

Category : e.g. Illegal cutting of trees, illegal firewood, illegal NTFP, poaching, encroachment, illegal grazing etc., Category 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 col. 8 pertain to area of Non PA status under management which do not involve an endangered species. (Schedule-I).

FORM – 20

Research projects under implementation through PA manpower with or without collaboration with other agencies Jasrota Wildlife Sanctuary.

Sl. No.	Year	Title	Completed	Ongoing	New	Status	Financial outlay (Rs)	Expenditure incurred (Rs)	Remarks
1	2	3	4	5	6	7	8	9	10

Completed : State date of completion and the status of the project reports

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 projects which has been dropped or held in abeyance etc.

Remarks : Any other relevant information. If the project is 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 collections are being housed

FORM – 21

Survey and inventories: Jasrota Wildlife Sanctuary.

Sl. No	Year	Title of survey, inventory activity	Completed	Ongoing	New	By PA	By other agency	Remarks
1	2	3	4	5	6	7	8	9

Completed : State date of completion of field work and the status of the report.

Ongoing : State since when the is it under operation and when is expected to be completed.

New : State the date of commencement and duration.

By PA personal : Will include collaboration or contractual arrangement. State the case as relevant.

Other agency : State the name of the agency.

Remarks : If specimen plants/animals are being collected, state where the collections are being housed and authority. Any other useful information.

FORM – 22

The Monitoring programme: Jasrota Wildlife Sanctuary.

Sl. No	Year	Title of the programme	Date of initiation	Responsible agency	Technique	Status of collaborate on and analysis of data	Remarks
1	2	3	4	5	6	7	9

Technique : PCQ, belt transect, line transect and plots, pugmarks etc. by the title of the technique.

Status of collaboration: write only if applicable

FORM – 23

Format for firwood collection in Jasrota Wildlife Sanctuary.

House No.	Whether using fuelwood	Whether LPG/biogas available	Whether kerosene is used	Actual fuelwood consumption (quintal)	% Consumption met from Pvt. land	% Consumption met from forests
1						
2						

FORM- 24

Format for fodder/ grass for stall feeding in Jasrota Wildlife Sanctuary.

House No.	Fodder available as a by-product from agro crops		Fodder from fodder crops		Total fodder production (quintal)
	Crop	Quantity (quintal)	Crop	Quantity (quintal)	
1					
2					

FORM – 25

Eco development programme: Targets and implementation Jasrota Wildlife Sanctuary.

Sl. No	Year	Nature of the programme	Sector (Central/ State) or NGO sponsored	Target set		Achievements		Village (buffer/ enclaved)	Remark
				Physical	Financial	Physical	Financial		
1	2	3	4	5		6		7	8

Nature of the programme : e.g. pasture development, fodder plantations, establishing biogas plants, livestock improvement, establishment and development of sericulture, revival of local skills such as handicraft, water harvesting systems, adult education. Etc.

Village : Site where programme is being implemented-whether buffer or inside PA.

Remarks : State problems, state failures and thereof, reasons for not attaining targets, for non-implementation or deviation etc. State whether it is on the right tracks in context of achievement of objectives.

Annexure- V

Government of Jammu & Kashmir
Office of the Chief Wildlife Warden, J&K

Boulevard Road, Near Lalit Grand Palace, Sr
190001 Tel/Fax No: 0194-2501069 (May-Oc
Manda - Hills (Near Ashoka Hotel) Jammu -
Tele/Fax: 0191-2572570 (November-Ap

Minutes of the meeting held under the Chairmanship of Chief Wildlife Warden, Jammu and Kashmir on 21.08.2020 to discuss the draft Management Plans of Wildlife Sanctuaries of Jammu region.

A meeting was held at Wildlife Complex, Manda Jammu under the Chairmanship of the Chief Wildlife Warden, Jammu and Kashmir to discuss the draft Management Plans of Wildlife Sanctuaries of Jammu region on 21.08.2020. The meeting was attended by following members of the committee constituted vide No. 13 of 2020 dated 28.01.2020 and officers:

1. Shri J. Frankoi, IFS, Addl. Pr. CCF, Ecotourism
2. Shri Samuel Changkiza, IFS, CF East Circle, Jammu
3. Dr. Harpreet Kaur, Spl. Secretary, Technical, Forest Administrative Deptt.
4. Shri Vijay Kumar, Wildlife Warden, Kathua
5. Shri Anil Kumar Atri, Wildlife Warden, Jammu
6. Shri Amit Sharma, Wildlife Warden, Jambu Zoo
7. Dr. Arun Gupta, Wildlife Warden, Headquarter / Research
8. Dr. R. S. Katoch, Veterinary Asstt. Surgeon, Jammu
9. Shri Tahir Mahmood Mirza, Wildlife Prosecutor
10. Shri Guldev Raj from NGO (Himalayan Avian).

Regional Wildlife Warden, Jammu could not attend due to health problem.

At the outset, the Chief Wildlife Warden J&K welcomed the participants and advised concerned Wildlife Wardens to make presentations one by one. The draft Management Plans of various Wildlife Sanctuaries of Jammu region were presented by the respective Wardens, issues raised during presentation were discussed and decisions taken as under:

1. Surinsar-Mansar Wildlife Sanctuary:

The Wildlife Warden, Kathua made presentation regarding draft Management Plan of Surinsar-Mansar Wildlife Sanctuary. He mentioned that the previous Management Plan of the Sanctuary was not approved by the Competent Authority of the time. He further mentioned that the total area of the Sanctuary as per Notification is 97.82 km^2 wherein almost 50% is agricultural land. After detailed discussions following decisions were taken:

a) The actual area of Sanctuary to be checked on GIS platform.
b) Land use of the sanctuary area during last 10 years through available Google images should be analyzed and incorporated.
c) The financial implications of the plan should be given component wise and not scheme wise.
d) The financial implications should have provisions for rate revision as per standing Government orders.
e) The Management Plan should focus on Sanctuary management and not lake management which is a separate document being prepared by Wildlife Institute of India.
f) The Management Plan should reflect specific measures to conserve key species of the area.
g) While making prescriptions, it should be noted that proposed activities should conform to the provisions of Wildlife Protection Act and relevant orders of the Hon'ble Supreme Court.
h) The Management Plan should be prepared keeping in view the guidelines laid down by Shri W B Sawarkar.
i) The extent of area with respect to forest land, agriculture land, government land and other land need to be worked out and presented in the next meeting.

2. Jasrota Wildlife Sanctuary:

Wildlife Warden, Kathua also presented the Management Plan of Jasrota Wildlife Sanctuary. He mentioned that it is a small Sanctuary with 7.60 km^2 area. Various issues during the presentation were discussed and decisions taken as under:

a) The actual area of sanctuary to be checked on GIS platform.
b) Land use of the Sanctuary area during last 10 years through available Google images should be analyzed and incorporated.
c) The financial implications of the plan should be given component wise and not scheme wise.
d) The financial implications should have provisions for rate revision as per standing Government orders.
e) The Management Plan should reflect specific measures to conserve key species of the area.
f) While making prescriptions, it should be noted that proposed activities should conform to the provisions of Wildlife Protection Act and relevant orders of the Hon'ble Supreme Court.
g) The Management Plan should be prepared keeping in view the guidelines laid down by Shri W B Sawarkar.
h) The gap between the Forest area and Sanctuary area, which was not clear in the maps shown during presentation, need to be worked out and clarified in the next meeting.
i) The delineation of boundaries should be clearly recorded in the map after ground verification.
j) The extent of area with respect to forest land, agriculture land, government land and other land need to be worked out and presented in the next meeting.

3. Ramnagar Wildlife Sanctuary:

The draft Management Plan of Ramnagar Wildlife Sanctuary was presented by Wildlife Warden, Jammu. He mentioned that the previous Management Plan was not approved by the Competent Authority of the time.

a) The actual area of Sanctuary to be checked on GIS platform.
b) Land use of the Sanctuary area during last 10 years through available Google images should be analyzed and incorporated.
c) The financial implications of the plan should be given component wise and not scheme wise.
d) The financial implications should have provisions for rate revision as per standing Government orders.
e) The Management Plan should reflect specific measures to conserve key species of the area.
f) While making prescriptions, it should be noted that proposed activities should conform to the provisions of Wildlife Protection Act and relevant orders of the Hon'ble Supreme Court.
g) The Management Plan should be prepared keeping in view the guidelines laid down by Shri W B Sawarkar.
h) The delineation of boundaries should be clearly recorded in the map after ground verification.
i) The extent of area with respect to forest land, agriculture land, government land and other land need to be worked out and presented in the next meeting.
j) The issue with regard to diversion of Sanctuary area for other uses as per orders of Competent Authority need to be examined vis-à-vis terms and conditions laid down by the sanctioning authority. The prescription should mention about taking over of additional area to be added to the Sanctuary in lieu of diversions.

5. Tattakuti Wildlife Sanctuary:

Wildlife Warden, Jambu Zoo presented the draft Management Plan of Tattakuti Wildlife Sanctuary. He mentioned that this is the first attempt to make a Management Plan of this Sanctuary. Various issues during the presentation were discussed and decisions taken as under:

a) The actual area of Sanctuary to be checked on GIS platform.
b) Land use of the Sanctuary area during last 10 years through available Google images should be analyzed and incorporated.

Various issues during the presentation were discussed and decisions taken as under:

a) The actual area of Sanctuary to be checked on GIS platform.
b) Land use of the Sanctuary area during last 10 years through available Google images should be analyzed and incorporated.
c) The financial implications of the plan should be given component wise and not scheme wise.
d) The financial implications should have provisions for rate revision as per standing Government orders.
e) The Management Plan should reflect specific measures to conserve key species of the area.
f) While making prescriptions, it should be noted that proposed activities should conform to the provisions of Wildlife Protection Act and relevant orders of the Hon'ble Supreme Court.
g) The Management Plan should be prepared keeping in view the guidelines laid down by Shri W B Sawarkar.
h) The delineation of boundaries should be clearly recorded in the map after ground verification.
i) The extent of area with respect to forest land, agriculture land, government land and other land need to be worked out and presented in the next meeting.
j) Since the Sanctuary is adjoining Jammu city, adequate focus in the Management Plan should be given to awareness component involving locals keeping in view the monkey menace.
k) The prescriptions should also refer to the balance area of the Sanctuary to be taken over from the Territorial Forest Division.

4. Nandini Wildlife Sanctuary:

The Wildlife Warden, Jammu also presented draft Management Plan of Nandini Wildlife Sanctuary. The Wildlife Prosecutor apprised that some area of the Sanctuary has been diverted for non-forestry uses as per the legal provisions and hence suggested for reworking the boundaries and area. Various issues during the presentation were discussed and decisions taken as under:

c) The financial implications of the plan should be given component wise and not scheme wise.
d) The financial implications should have provisions for rate revision as per standing Government orders.
e) The Management Plan should reflect specific measures to conserve key species of the area.
f) While making prescriptions, it should be noted that proposed activities should conform to the provisions of Wildlife Protection Act and relevant orders of the Hon'ble Supreme Court.
g) The Management Plan should be prepared keeping in view the guidelines laid down by Shri W B Sawarkar.
h) The delineation of boundaries should be clearly recorded in the map after ground verification.
i) The extent of area with respect to forest land, agriculture land, government land and other land need to be worked out and presented in the next meeting.
j) Special focus with regard to the research and survey in the Sanctuary need mention. This is in view of unique features of Sanctuary area.

Issued with the approval of Chief Wildlife Warden, J&K.

(Dr. Arun Gupta)
Wildlife Warden
Headquarter

No: WLP/Res/Mgmt.Plan/2020/530-37. Date: 28-.08.2020

Copy to the:

1. Conservator of Forests, East Circle, Jammu
2. Regional Wildlife Warden, Jammu Region, Jammu
3. Spl. Secretary, Technical, Forest Administrative Deptt.
4. Wildlife Warden, Kathua
5. Wildlife Warden, Jammu
6. Wildlife Warden, Rajouri-Poonch
7. Wildlife Warden, Jambu Zoo
8. Shri Guldev Raj from NGO (Himalayan Avian).

Minutes of the meeting of Standing Committee on draft Management Plan of PA's of Jammu Region.

To discuss the draft Management Plans of Protected Areas of Jammu region, meeting of the Standing Committee constituted vide Order No. 13 of 2020 dated: 28-01-2020 was held on 28th November, 2020 in the Information Centre of Manda Zoo at 10.30 AM.

01). List of Standing Committee members and special invitees' took part in the meeting is listed in ANNEXURE "A" to this MoM.

02). At the outset Member Secretary welcomed Chairman, members and other special invitees and briefed the Committee regarding decision of the previous meeting w.r.t draft Management Plan prepared by Management Plan Officers (MPO) and WWF team lead by Dr Pankaj Chandan in respect of draft Management Plan KHANP.

03). Following were the decision taken Protected Area (PA) wise after detailed deliberation.

(I) **Jasrota Wildlife Sanctuary:**

Wildlife Warden, Kathua Wildlife Division presented the draft Management Plan of Jasrota Wildlife Sanctuary. After giving a brief account on draft revision viz a viz previous decision taken by the SC, WLW Kathua elaborated sanctuary area reconciliation with GIS data and "Land Use Land Cover" change over 10 years time. Following were the various decisions taken after detailed discussion.

a) To carryout ground truthing of change detected in land use pattern and incorporate appropriate management proposal as per Management Plan objectives.

b) To reconsider buffer zone as 500mts and redraw core zone accordingly.

c) To delineate and consolidate boundaries on fringe areas, especially near habitation, accordingly, keeping provisions for Boundary Pillar (BP) installation.

d) Draft MP to incorporate bibliography/references of earlier research/documentation carried out by various research institutions in brief.

e) Keeping in consideration the herbivore population and grazing pressure, draft MP plan to reflect extent of natural blanks/grass lands viz a viz other forest types and identify potential areas as per optimum requirement to be maintained under grass land.
f) Geo-tagging of water bodies and plan for their maintenance.
g) Draft MP to have a special mention about micro biodiversity hot spot and related conservation measures.
h) Wherever feasible management plan to make provision for different management circle like afforestation, improvement, soil moisture conservation, etc.
i) Sufficient plan consideration and financial provisioning for creation and maintenance of Water Harvesting Structures (WHS).
j) Appropriate consideration and financial provisioning for up-gradation/improvement of rescue centre and protection equipments.
k) Adequate mention of religious tourism, its impacts on sanctuary and sustainable measures for mitigation.
l) To reflect optimum staff strength requirement and likely impact of inadequate staffing.
m) Considering the existing high level of slope and erosion potential draft plan to have adequate provision for Catchment Area Treatment (CAT) of major watersheds.
n) Plan proposal for use of modern tools and technology, inter alia to have provision for drone.

(II) **Surinsar-Mansar Wildlife Sanctuary:**

Wildlife Warden, Kathua Wildlife Division presented the draft Management Plan of Surinsar-Mansar Wildlife Sanctuary. After giving a brief account on draft revision viz a viz previous decision taken by the SC, WLW Kathua elaborated sanctuary area reconciliation with GIS data and "Land Use Land Cover" change over 10 years time. Following were the various decisions taken after detailed discussion.

a) To carryout ground truthing of change detected and incorporate appropriate management proposal as per Management Plan objectives.
b) To reconsider buffer zone as 500mts and redraw core zone accordingly.

c) To delineate and consolidate boundaries on fringe areas, especially near habitation, accordingly, keeping provisions for Boundary Pillar (BP) installation.

d) Draft MP to incorporate bibliography/references of earlier research/documentation carried out by various research institutions in brief.

e) Keeping in consideration the herbivore population and grazing pressure, draft MP plan to reflect extent of natural blanks/grass lands viz a viz other forest types and identify potential areas as per optimum requirement to be maintained under grass land.

f) Wherever feasible management plan to make provision for different management circle like afforestation, improvement, soil moisture conservation, etc.

g) Geo-tagging of water bodies and plan for their maintenance.

h) Draft MP to have a special mention about micro biodiversity hot spot and related conservation measures.

i) Sufficient plan consideration and financial provisioning for creation and maintenance of Water Harvesting Structures (WHS).

j) Considering the existing high level of slope and erosion potential draft plan to have adequate provision for Catchment Area Treatment (CAT) of major watersheds.

k) Appropriate consideration and financial provisioning for up-gradation/improvement of rescue centre and protection equipments.

l) Adequate mention of religious tourism, its impacts on sanctuary and sustainable measures for mitigation.

m) To reflect optimum staff strength requirement and likely impact of inadequate staffing.

n) Plan proposal for use of modern tools and technology, inter alia to have provision for drone.

(III) **Kishtwar High Altitude National Park (KHANP):**

Following were the observations of the Standing Committee with respect to revised draft management plan of KHANP.

a) Special section devoting to hangul and snow leopard conservation and recovery.

b) Management Plan to address issues of fringe areas including community dependence if any on the KHANP.
c) Adequate focus on importance of aquatic flora and flora.
d) Existing corridor for connecting KHANP with adjoining forest across Pir Panjal, Ladak and Himachal be reflected and referred.
e) Keeping in consideration the herbivore population and grazing pressure, draft MP plan to reflect extent of natural blanks/grass lands viz a viz other forest types and identify potential areas as per optimum requirement to be maintained under grass land.
f) Geo-tagging of water bodies and plan for their maintenance.
g) To reflect optimum staff strength requirement and likely impact of inadequate staffing.
h) Wherever feasible management plan to make provision for different management circle like afforestation, improvement, soil moisture conservation, etc.
i) Plan proposal for use of modern tools and technology, *inter alia* to have provision for drone, camera trap, and voice/weather recorder.

(IV) **Tatakuti Wildlife Sanctuary (TWS):**

Detailed power point presentation on draft management plan of tatakuti wildlife sanctuary was given by Sh. Amit Sharma. Following were the observations of the Standing Committee with respect to draft management plan of TWS.

a) Relevant observations as mentioned in respect of Jasrota and Surinsar-Mansar WS.
b) Ten year change analysis of land use land cover pattern.
c) Management plan for the whole of the wildlife area including freshly notified area of 66 SqKm.
d) Itemized past five year plan allotment and perspective five year budgetary proposals.
e) Special chapters on key species conservation.
f) Separate chapter on Man Animal Conflict including monkey menace.
g) Wherever feasible management plan to make provision for different management circle like afforestation, improvement, soil moisture conservation, etc.

(V) **Ramnagar and Nandini Wildlife Sanctuary:**

Observations as mentioned in earlier MoM dated 21-08-2020 issued vide communication No. WLP/Res/Mgmt/2020/530-37 dated: 28-08-2020 and relevant comments made out above in respect of Jasrota and Surinsar-Mansar WS.

Issued with the approval of Chief Wildlife Warden, Government of J&K.

03/02/2021

(Dr. Kumar, MK) IFS
Regional Wildlife Warden
Jammu.

No: RWLWJ/2021/ 457-70 **Dated:** 3-02/2021

1. Copy submitted to Chairman Standing Committee (CWLW) for his kind information.
2. Copy to all Committee members for information.

Department of Wildlife Protection
Office of the Regional Wildlife Warden Jammu
Manda Hills Jammu Near Hotel Ashok Phone : 0191-2544575 Fax: 2520948
email: ccfwildlifejammu@gmail.com

Subject: Minutes of the meeting of Standing Committee on draft Management Plan of PA's of Jammu Region.

To discuss the draft Management Plans of Protected Areas of Jammu Region, meeting of the Standing Committee constituted vide Order No. 13 of 2020 dated: 28-01-2020 was held on 13th February, 2021 in the Information Centre of Manda Zoo at 11.00 AM.

List of Standing Committee members and special invitees' who took part in the meeting is listed in ANNEXURE "A" to this MoM.

At the outset Member Secretary welcomed Chairman, members and other special invitees and briefed the Committee regarding decision of the previous meeting w.r.t draft Management Plan prepared by Management Plan Officers (MPO) and WWF team lead by Dr Rohit Rattan, Associate Coordinator, WWF India in respect of draft Management Plan KHANP.

Following were the decision taken, Protected Area (PA) wise after detailed deliberation.

(I) **Surinsar-Mansar and Jasrota Wildlife Sanctuary:**

Wildlife Warden, Kathua Wildlife Division presented the draft Management Plan of Jasrota Wildlife Sanctuary. The Standing Committee after hearing detailed account on draft revision viz a viz decisions taken by the SC at its previous meetings took following decisions after detailed discussion.

a) In Chapter 2:

1. Details/description of main animals including morphology and scientific nomenclature should be as per latest norms. Main animal list should also reflect IUCN status in addition to status as in Wildlife protection Act 1972 and CITES classification.

b) In Chapter 5:

1. Management Plan ***vision*** should be written as "wildlife management with special emphasis on conservation of biodiversity and watershed management".
2. Management plan ***objective 2*** shall include "management of challenges posed by nilgai, wildboar, porcupine and monkey"
3. Management plan ***objective 3*** should also include capacity building for locals and other resource persons as part of eco-tourism promotion initiative.

4. Provision for Nature Interpretation Centre (NIC) is kept as enabling for future such consideration.
5. To articulate and include crop loss/damage due to wild animals under Pradhan Mantri Fasal Bima Yojana (PMFBY) for compensation as per admissibility.

c) **Chapter 6:** relating to habitat management/improvement shall *inter alia* to mention about following aspects:

1. Watershed based soil-moisture conservation approach with the mention of micro-watershed nomenclature.
2. Other means of animal monitoring like camera trap, thermal recorders, bird call/sound recorder, infra-red camera etc.
3. Planting/ Sowing of local legume species should be made part of fodder augmentation.

d) Action points related to Management Effectiveness Evaluation (MEE) should be incorporated in the draft.

e) Eco-tourism related activities should be restricted to buffer zone and notified trekking route along with connected details should be enclosed in appropriate chapter.

f) Details of Protected Area (PA) diversion are made part of the draft in the form annexure for the purpose of record, reference and decision support.

(II) **Ramnagar Wildlife Sanctuary:**

Wildlife Warden, Jammu Wildlife Division presented the draft Management Plan of Ramnagar Wildlife Sanctuary. After giving a brief account on draft revision *viz a viz* previous decision taken by the SC, WLW Jammu elaborated sanctuary area reconciliation with GIS data and "Land Use Land Cover" change over 10 years time. Following were the various decisions taken after detailed discussion.

a) Details/description of main animals including morphology and scientific nomenclature should be as per latest norms.

b) Main animal list should also reflect IUCN status in addition to status as in Wildlife protection Act 1972 and CITES classification.

c) Management Plan to have ***vision*** and ***objectives*** (similar to Jasrota Wildlife Sanctuary).

d) Management plan shall include "management of challenges posed by nilgai, wildboar, porcupine and monkey"

e) Management plan should also include capacity building for locals and other resource persons as part of eco-tourism promotion initiative.

f) To articulate and include crop loss/damage due to wild animals under PMFBY for compensation.

g) Action points related to Management Effectiveness Evaluation (MEE) should be incorporated in the draft.

h) Eco-tourism related activities should be restricted to buffer zone and notified trekking route along with connected details should be enclosed in appropriate chapter.
i) Details of Protected Area (PA) diversion are made part of the draft in the form annexure for the purpose of record, reference and decision support.
j) Watershed based soil-moisture conservation approach with the mention of micro-watershed nomenclature.
k) Other means of animal monitoring like camera trap, thermal recorders, bird call/sound recorder, infra-red camera etc.
l) Planting/ Sowing of local legume species should be made part of fodder augmentation.
m) Very little scope for zonation because of smaller sanctuary size.
n) Provision for chain link fencing of boundary especially area adjoining National Highway or settlement.
o) All trek route to be geo-tagged and detailed in the draft management plan.
p) Pending issue of settlement of local rights is to be mentioned.
q) To reflect optimum staff strength requirement and likely impact of inadequate staffing.
r) Budgetary provision mentioned in the draft management plan to be rationalised.

(III) Kishtwar High Altitude National Park (KHANP):

Observations of the Standing Committee at its meeting dated 28th November, 2020 and relevant record note issued vide No: RWLWJ/2021/4457-70 dated 03-02-2021were reiterated. Accordingly, WWF team lead by Dr. Rohit Rattan after doing the needful and after incorporating other relevant observation as was decided by the SC w.r.t to other NP/S will present their draft to the SC at its next meeting.

(IV) Tatakuti Wildlife Sanctuary (TWS):

Detailed power point presentation on draft management plan of tatakuti wildlife sanctuary was given by Sh. Amit Sharma. Following were the observations of the Standing Committee with respect to draft management plan of TWS.

a) To carryout ground truthing of change deducted in land use pattern and incorporate appropriate management proposal as per Management Plan objectives.
b) To consider buffer zone as 500m and redraw core zone accordingly.
c) To delineate and consolidate boundaries on fringe areas, especially near habitation, accordingly, keeping provisions for Boundary Pillar (BP) installation.
d) Man Animal conflict to be dealt (species, period, damage, intervention, cost, etc.) in a separate chapter.
e) Management Plan draft to have executive summary at the beginning.

f) Major animals description containing morphology, zoological name, WLPA 1972, IUCN status, CITES status, etc.

g) Management Plan to have ***vision*** and ***objectives***. (Similar to Jasrota Wildlife Sanctuary).

h) Management plan shall include "management of challenges posed by nilgai, wildboar, porcupine and monkey"

i) Management plan should also include capacity building for locals and other resource persons as part of eco-tourism promotion initiative.

j) To articulate and include crop loss/damage due to wild animals under PMFBY for compensation.

k) Action points related to Management Effectiveness Evaluation (MEE) should be incorporated in the draft.

l) Eco-tourism related activities should be restricted to buffer zone and notified trekking route along with connected details should be enclosed in appropriate chapter.

m) Details of Protected Area (PA) diversion, if any, are made part of the draft in the form annexure for the purpose of record, reference and decision support.

n) Watershed based soil-moisture conservation approach with the mention of micro-watershed nomenclature.

o) Other means of animal monitoring like camera trap, thermal recorders, bird call/sound recorder, infra-red camera etc.

p) Meteorological data of last five years and their interpretation.

q) Provision for Nature Interpretation Centre (NIC)/Rescue Centre are kept as enabling for future such consideration.

r) Draft Management plan to mention details about funding under different schemes during the past five years, budgetary proposal for next five years, various reporting formats, key species conservation/recovery plan, micro-biodiversity hotspots,etc.

s) Detailing of settlement/ pending status of forest rights.

t) Wherever feasible draft management plan to have provision for different management circle like afforestation, improvement, soil moisture conservation, etc.

Issues with the approval of Chief Wildlife Warden, Government of J&K.

11/05/21

(Dr. Kumar, MK) IFS
Regional Wildlife Warden
Jammu

No: RWLWJ/2021/ 814-20 **Dated:** 11-05-2021

1. Copy submitted to Chairman Standing Committee (CWLW) for his kind information.
2. Copy to all Committee members for information.

Department of Wildlife Protection
Office of the Regional Wildlife Warden Jammu
Manda Hills Jammu Near Hotel Ashok Phone : 0191-2544575 Fax: 2520948
email: ccfwildlifejammu@gmail.com

Subject: **Minutes of the meeting of Standing Committee on draft Management Plan of Jasrota and Surinsar-Mansar Wildlife Sanctuaries.**

To discuss the draft Management Plans of Jasrota and Surinsar-Mansar Wildlife Sanctuaries, meeting of the Standing Committee constituted vide Order No. 13 of 2020 dated: 28-01-2020 was held on 24th May, 2021 through video conference at 11.00 AM.

List of Standing Committee members and special invitees' who took part in the meeting is listed in ANNEXURE "A" to this MoM.

At the outset Member Secretary welcomed Chairman, members and other special invitees and briefed the Committee regarding decision of the previous meeting which was held on 13th February, 2021 w.r.t draft Management Plan prepared by Management Plan Officer (MPO) in respect of Jasrota and Surinsar-Mansar Wildlife Sanctuaries.

In continuation with the last meeting of the Standing Committee's decision *i.e.* the in principle approval of the draft submitted by Wildlife Warden Kathua in respect of Jasrota and Surinsar-Mansar Wildlife Sanctuaries, the final draft was checked and proof read for it's factual correctness, grammatical error etc. by Wildlife Warden Kathua, Dr. Neeraj Sharma and Regional Wildlife Warden Jammu.

Wildlife Warden Kathua in his presentation briefed about observation of the Standing Committee in the past 4 meetings held on 7th August, 2020, 21st August, 2021, 28th November, 2020 and 13th February, 2021 viz-a viz incorporation of such observations in the final draft Management Plan of Jasrota and Surinsar-Mansar Wildlife Sanctuaries. Followed by his ramrks, Regional Wildlife Warden Jammu informed the members of the Standing Committee about the completeness of the final draft, minor modifications and document comprehensiveness.

Following were the decision taken about final draft of Jasrota and Surinsar-Mansar Wildlife Sanctuaries after detailed deliberation.

1. To carryout corrections/modifications pointed out by members of the Standing Committee in the final draft submitted by the Wildlife Warden Kathua.
2. Addition/ improvement of the Rare, Endangered and Threatened species mentioned in the document.
3. In case of Jasrota Wildlife Sanctuary to incorporate the recommendations of the management effectiveness evaluation report of Surinsar-Mansar Sanctuary because of its near similar ecosystem, biotic pressure, administrative setup etc.

4. The Capex budget, Man-Power deployment and infrastructure existence viz-a-viz their requirement should be Sanctuary specific.
5. A team of members of the Standing Committee namely Dr. Neeraj Sharma, Management Plan Officer (MPO) concerned and Regional Wildlife Warden, Jammu to carry-out the proof reading of draft Management Plan.
6. The list of the formats included as Annexure to the draft Management Plan to include the details of fire wood collections and grass/fodder collections within the protected area.
7. The zone of influence of mega fauna for man-animal interaction to be worked-out and mentioned as per the eco-sensitive zone range.
8. Listing of local species such as Lannea, Albizia, Glyricidia, Mulberry, Mringa as species for fodder augmentation in addition to local legume species; and also as species for soil binding/ slope stabilization by vegetative means. Similarly, inclusion of local species like Rosa, Rubex and Euphorbia etc. as bio-fencing species wherever if required.
9. To make a mention of mean average temperature in degree Celsius and mean average rainfall in millimeter alongwith source of temperature and rainfall data in their respective tables and also carry-out the rechecking as suggested about minimum, maximum average temperature and to complete the 5 months left out temperature and rainfall data for the year, 2020.
10. Wildlife Warden shall include portrait images (at least 10 images) of important flora & fauna in the Management Plan document.

With the above observations and after satisfying that the earlier observations of the Standing Committee have been incorporated in the draft Management Plan; the Standing Committee has unanimously approved the draft Management Plan presented by the Wildlife Warden Kathua. Further, advised him to circulate the final corrected draft of the Management Plan of Jasrota and Surinsar-Mansar Wildlife Sanctuaries after incorporating the suggestions of the Standing Committee dated: 24.05.2021 to the Standing Committee members for the comments, if any, and to submit it formally to the Chief Wildlife Warden through Regional Wildlife Warden for formal accord of approval.

Finally, meeting ended with the vote of thanks.

27/05/21

(Dr. Kumar, MK) IFS
Regional Wildlife Warden
Jammu

No: RWLWJ/2021/ 1068-76 **Dated:**27-05-2021

1. Copy submitted to Chairman Standing Committee (CWLW) for his kind information.
2. Copy to all Committee members for information.

Annexure-VI

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