

Gulmarg
Wildlife Santuary
Management Plan 2025-35

Department of Wildlife Protection Jammu & Kashmir

सत्यमेव जयते



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FOREWORD

The Gulmarg Wildlife Sanctuary is well known for its rich biodiversity and scenic beauty. The Sanctuary harbours several iconic species such as the Kashmir Musk Deer and Himalayan Brown Bear.

The Department of Wildlife Protection has formulated a comprehensive management plan for the sanctuary. This plan prescribes site-specific interventions for habitat protection, invasive species control and ecotourism regulation. It lays emphasis on community engagement for conservation and livelihood enhancement.

I extend my sincere appreciation to Sh. Intisar Suhail, Wildlife Warden and field teams whose dedication and expertise have shaped this plan. I also gratefully acknowledge the contributions of the expert committee, particularly Dr. Anzar A. Khuroo whose insights have enriched the document. Contribution of Sh. Tawheed Ahmad Deva, IFS, Regional Wildlife Warden, Kashmir, Sh. Rashid Yahya Naqash, Regional Wildlife Warden (Headquarter) and technical staff is also acknowledged.

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PART 1

EXISTING SITUATION

CHAPTER-1

Introduction to the Area

1.1 Name and Situation

Gulmarg Wildlife Sanctuary is named after the famous tourist destination of Gulmarg, situated very close to the Line of Control (LOC) in the Baramulla district of Jammu and Kashmir. Gulmarg, meaning a "meadow of flowers" was named so by Sultan Yusuf Shah of the Chak Dynasty (c. 1579-1586) who frequented the place with his wife Habba Khatoun in the 16th century. It is believed that the Mughal emperor Jahangir collected wild flowers of 21 different varieties for his gardens from here. In the 19th century, British Civil servants started using Gulmarg as a retreat to escape summers in North Indian plains and this is how the place earned its fame as a preferred summer retreat. In the later times, due to its slopes being suited for skiing, Gulmarg also became a favourite winter destination for skiers.

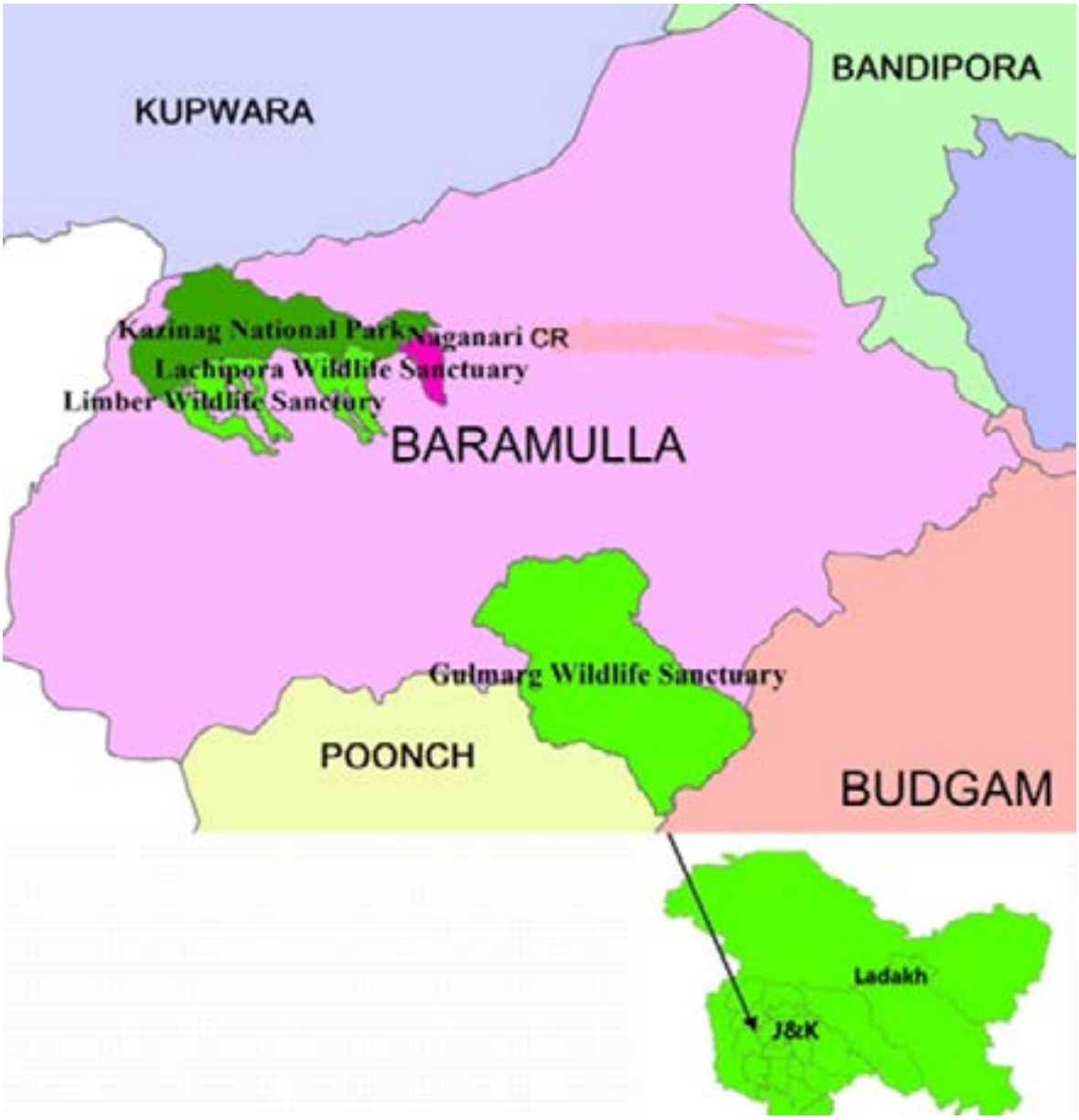


Figure: 1.1: Map showing the location of Gulmarg Wildlife Sanctuary

The forest areas of Gulmarg were earlier notified as Gulmarg Biosphere Reserve vide Govt. order No. FST/20 of 1981, dated 04-02-1981 issued under No. FST/GP-9/80, dated 04-02-1981 (Appendix-III). On the merits of its wildlife potential, the area was upgraded to the status of a Wildlife Sanctuary vide Government SRO No. 149, dated 19-03-1987 issued under No. Fst/WL/Sanc./Gulmarg/87: dated: 19-03-1987 (Appendix-IV). Located between 33°55′ to 34°60′ North Latitude and 74°17′ to 74°79′ East longitude and having the altitude ranges between 2,400 to 4,300m (amsl), the sanctuary is roughly rectangular in shape. The sanctuary can be located on the GT 43 J/8 of Survey of India.

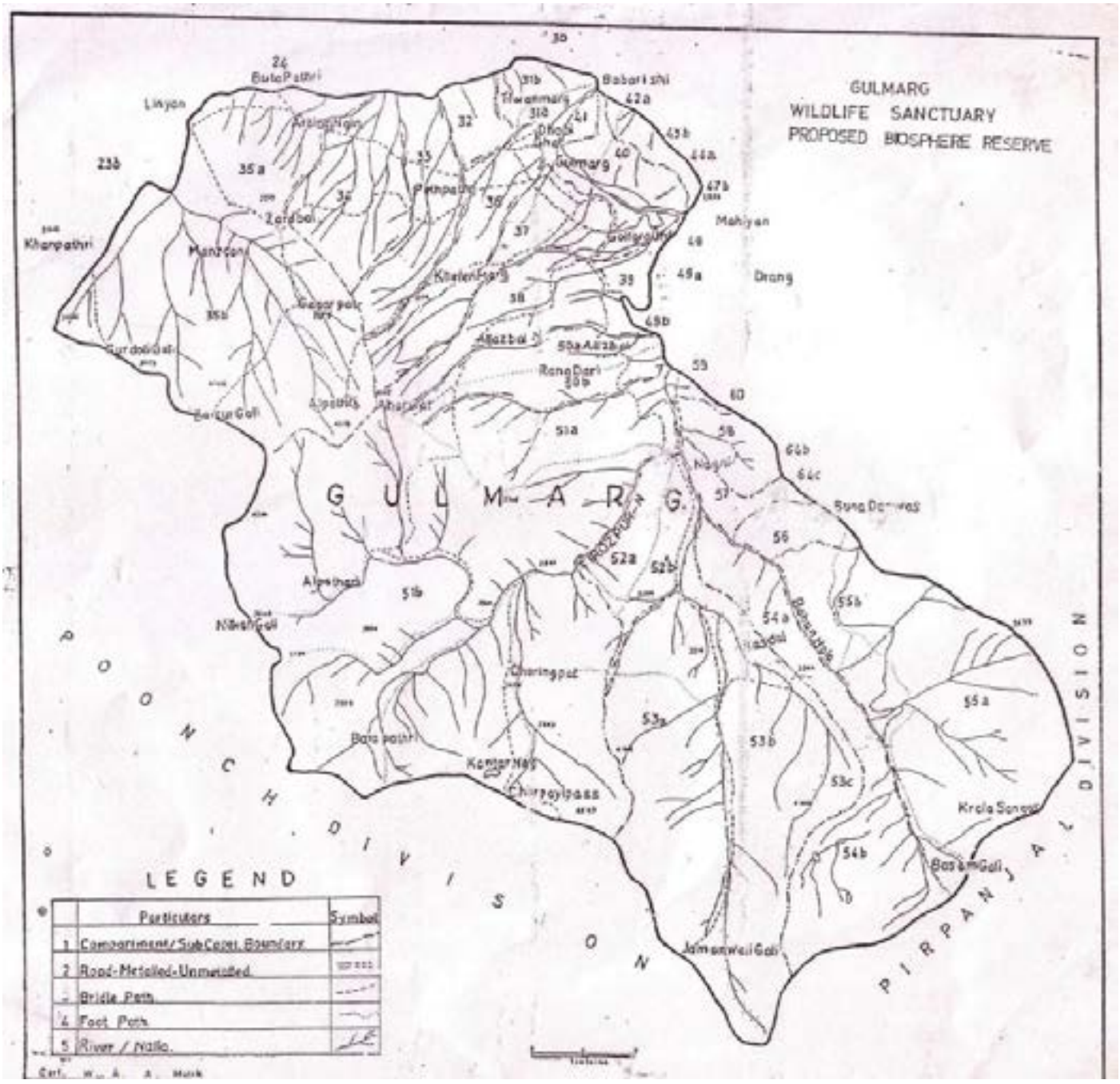


Figure: 1.2: Map as annexed to the notification of Gulmarg Wildlife Sanctuary, earlier declared as a Biosphere Reserve.

1.2 Area & Extent

The total area of Gulmarg Wildlife Sanctuary is roughly 180 sq kms and involves the upper catchment of Ferozpur *nallah* and forests surrounding the Gulmarg Bowl. Administratively, the sanctuary forms a part of Gulmarg Wildlife Range, with head-quarter at Tangmarg and is spread over two sub-range administrative units, namely Block Ferozpura/Tangmarg and Block Gulmarg. The sanctuary comprises of 20 forest compartments namely 31/Gul, 32/Gul, 33/Gul, 34/Gul, 35/Gul, 36/Gul, 37/Gul, 38/Gul, 39/Gul, 40/Gul, 41/Gul, 50/Gul, 51/Gul, 52/Gul, 53/Gul, 54/gul, 55/Gul, 56/Gul, 57/Gul and 58/Gul. Of these Compartments 54/Gul to 58/Gul are treated as upper elevation of the sanctuary whereas Compartments 31/Gul to 41/Gul form the "Gulmarg Bowl".

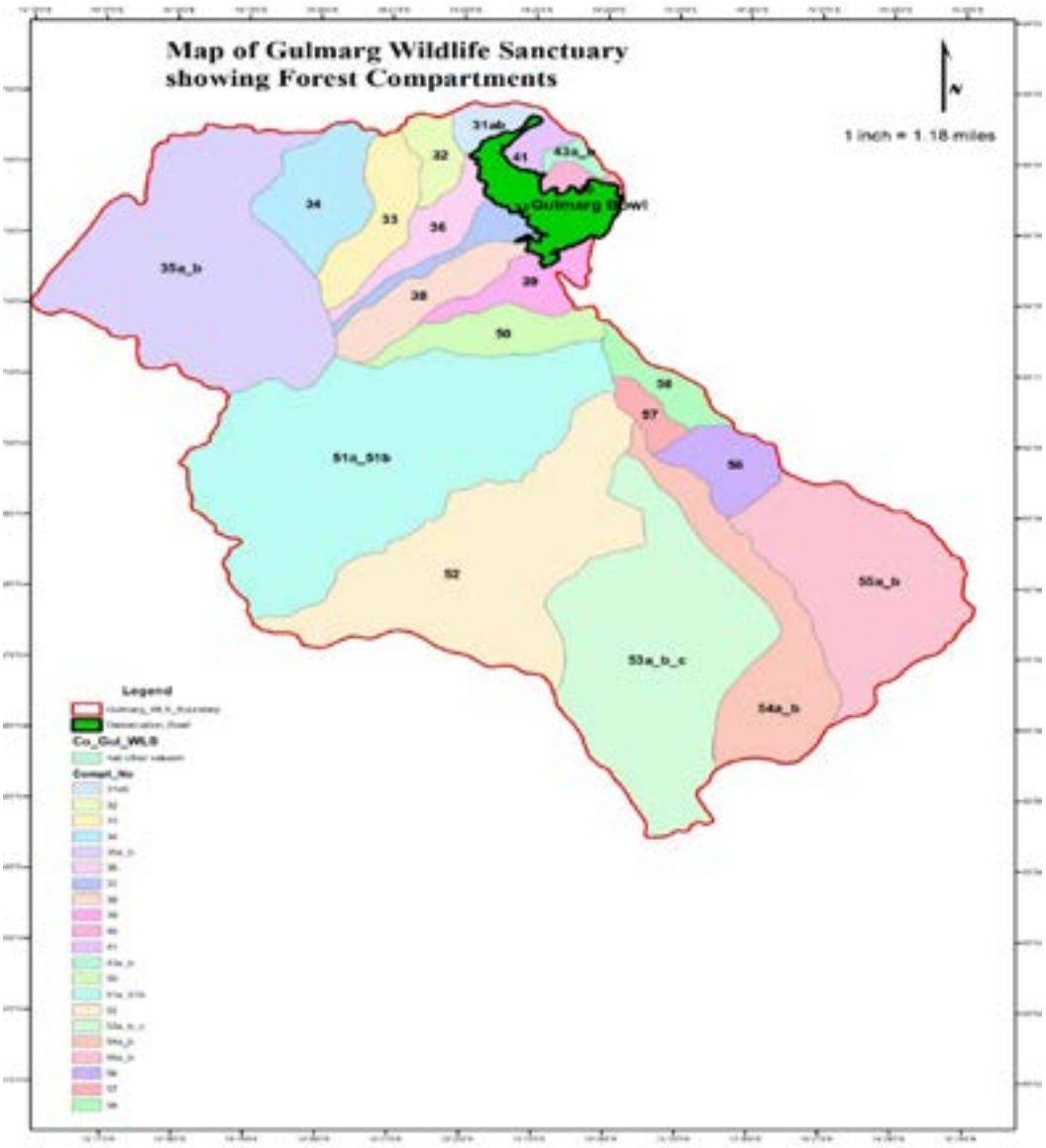


Figure: 1.3: Map showing forest compartments of Gulmarg Wildlife Sanctuary.

1.3 Approach & Access

Gulmarg, being a tourist resort, is well connected to the capital Srinagar, through a black-topped road. The nearest Airport, Srinagar is around 60 km and the nearest railhead, Mazhama around 30 km away.

1.4 Significance & Conservation value

Gulmarg Wildlife Sanctuary is home to some rare and endemic mammalian species which include Kashmir Musk deer, *Moschus cupreous* (IUCN: *Endangered*; CITES: *Appendix I*), Common Leopard, *Panthera pardus* (IUCN: *Vulnerable*; CITES: *Appendix I*), Himalayan Brown Bear, *Ursus arctos* (IUCN: *Least Concern*; CITES: *Appendix II*), and Kashmir Gray Langur, *Semnopithecus ajax* (IUCN: *Endangered*; CITES: *Appendix I*).

The sanctuary has been designated as an Important Bird Area (IBA) under one of the Birdlife International's important programmes spread across 100 countries (Rahmani *et al.*, 2013). This programme aims to identify, monitor and protect a global network of priority sites for conservation of the world's birds and associated biodiversity. IBAs have now been recognized as sites of high biodiversity importance and designated as *"Important Bird & Biodiversity Areas"*.

The threatened bird species recorded in the sanctuary include Egyptian Vulture, *Neophron percnopterus* (IUCN: *Endangered*; Birdlife Data Zone: *Endangered*); Bearded Vulture, *Gypaetus barbatus* (IUCN: *Near Threatened*; Birdlife Data Zone: *Near Threatened*); Himalayan Vulture, *Gyps himalayansis* (IUCN: *Near Threatened*; Birdlife Data Zone: *Near Threatened*) and Kashmir Flycatcher, *Ficedula subrubra* (IUCN: *Vulnerable*; Birdlife Data Zone: *Vulnerable*).

Besides being an area of high conservation value, the sanctuary being situated in proximity of a world-famous tourist destination acquires added significance in terms of its tourism-related socio-economic value which is directly linked to the preservation of its ecology.

CHAPTER-2

Background Information

2.1 Boundaries

The prominent features on different directions along the boundary of the Gulmarg Wildlife Sanctuary include:

North: Jhelum Valley Forest Division **South**: Pirpanjal Forest Division

East: Village Drang **West:** Poonch Forest Division

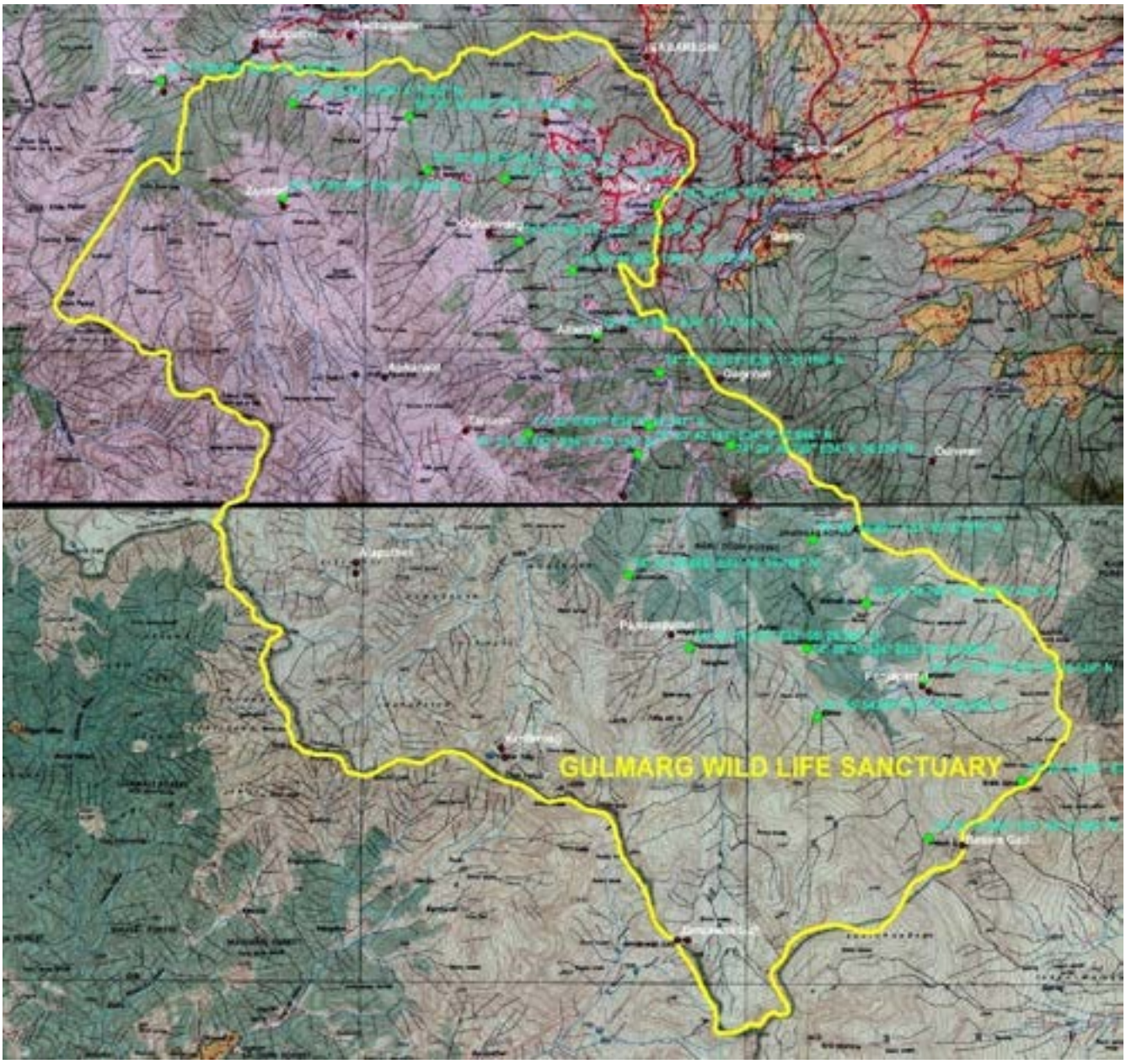
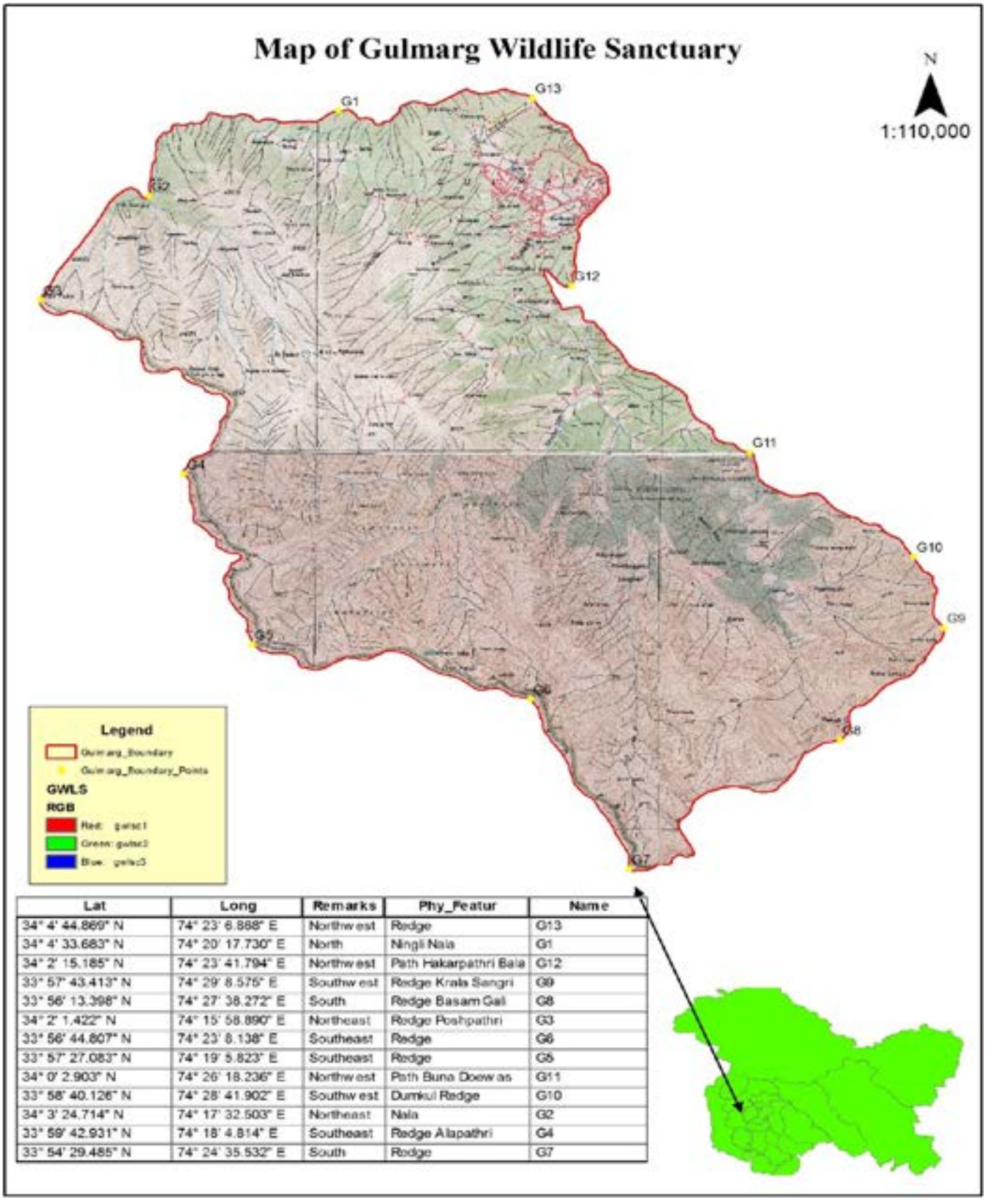


Figure: 2.1: Map showing Gulmarg Wildlife Sanctuary boundary & adjacent areas



Lat	Long	Remarks	Phy_Featur	Name
34° 4' 44.869" N	74° 23' 6.888" E	Northwest	Ridge	G13
34° 4' 33.683" N	74° 20' 17.730" E	North	Ningli Nala	G1
34° 2' 15.185" N	74° 23' 41.794" E	Northwest	Path Hakarpathri Bala	G12
33° 57' 43.413" N	74° 29' 8.575" E	Southwest	Ridge Krala Sangri	G9
33° 56' 13.398" N	74° 27' 38.272" E	South	Ridge Basam Gali	G8
34° 2' 1.422" N	74° 15' 58.890" E	Northeast	Ridge Poshpathri	G3
33° 56' 44.807" N	74° 23' 8.138" E	Southeast	Ridge	G6
33° 57' 27.083" N	74° 19' 5.823" E	Southeast	Ridge	G5
34° 0' 2.903" N	74° 26' 18.236" E	Northwest	Path Buna Doewas	G11
33° 58' 40.126" N	74° 28' 41.902" E	Southwest	Dumkul Ridge	G10
34° 3' 24.714" N	74° 17' 32.503" E	Northeast	Nala	G2
33° 59' 42.931" N	74° 18' 4.814" E	Southeast	Ridge Alapathri	G4
33° 54' 29.485" N	74° 24' 35.532" E	South	Ridge	G7

Figure: 2.2: Map showing Gulmarg Wildlife Sanctuary boundary delineation

2.2. Geology, Rock and Soil

The Pir Panjal Range contains rock formations belonging to the Pre-Paleozoics, Paleozoics, Mesozoics and Cenozoics. The rock formations can be grouped as the recent and sub-recent (*Karewa*) deposits of the flatter and gently inclined valley parts and the older formations of the hilly parts. The hilly parts embrace more solid rock systems of schist, slates, limestone and shale together with volcanic rocks known as Panjal Trap. The soil in the area is of 'good depth' and 'clayey to loamy' in nature, as they were generated from such clay rock systems as Panjal sedimentaries and *Karewas.* The soil varies with the underlying rock formation and the soil depth depends majorly on the slope and the dip of the rocks; steeper the slope, shallower the soil (Ticku 1977).

Some *Karewas*, existing at the 'golf links' of Gulmarg are covered by a fine deposit of fine yellow or brown sandy earth known as "Loess." It forms a thick mantle of several foot depth and is regarded in origin as wind-borne dust blown over from the plains.

The soils in the Pir Panjal Range are generally slightly acidic to neutral on higher reaches and neutral to slightly alkaline at lower altitudes. They have a high to very high organic carbon content. Brown Forest Soil types are most common and contain a good humus content with uniform distribution of oxides, hydrous oxides and hydroxides.



Figure: 2.3: Rocky cliff Formations in Gulmarg Wildlife Sanctuary (Photo: Amit Sharma)

2.3 Terrain and Drainage

The topography of Gulmarg Wildlife Sanctuary is mountainous with slopes of moderate to steep gradient broken by rocky cliffs. The landscape is dominated by mountainous valleys, rugged cliffs and upland pastures. The altitude of the Panjal ridge varies from 3500 to 5000m. It is characterized by deeply cut valleys and precipitous gorges (Chakraborty 1983).

The western and southern sides are steep while the eastern mountainous ridge is gentler to moderate slope. The gentle and graded nature of the slope on the northern flank makes it ideally suited to the accumulation of snow. Pertinently, all Pir Panjal glaciers rest on the northern slopes. The terrain is undulated, crisscrossed by gullies and numerous smaller mountain-drains or *nars.* The altitude of the sanctuary varies from 2200m above msl (Drung) to 4390m above msl (Apharwat peak).

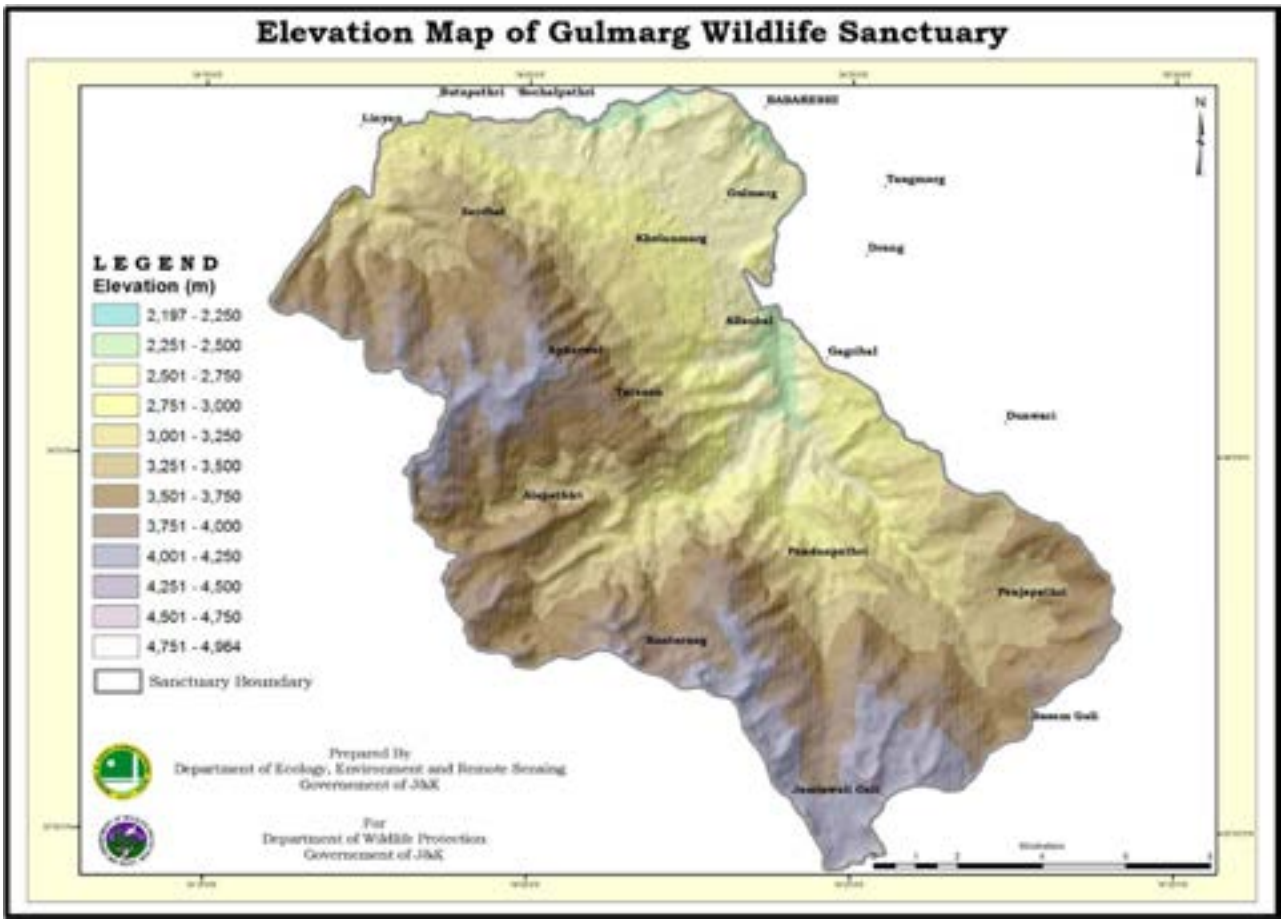


Figure: 2.4: Map showing Slope Gradient in Gulmarg Wildlife Sanctuary

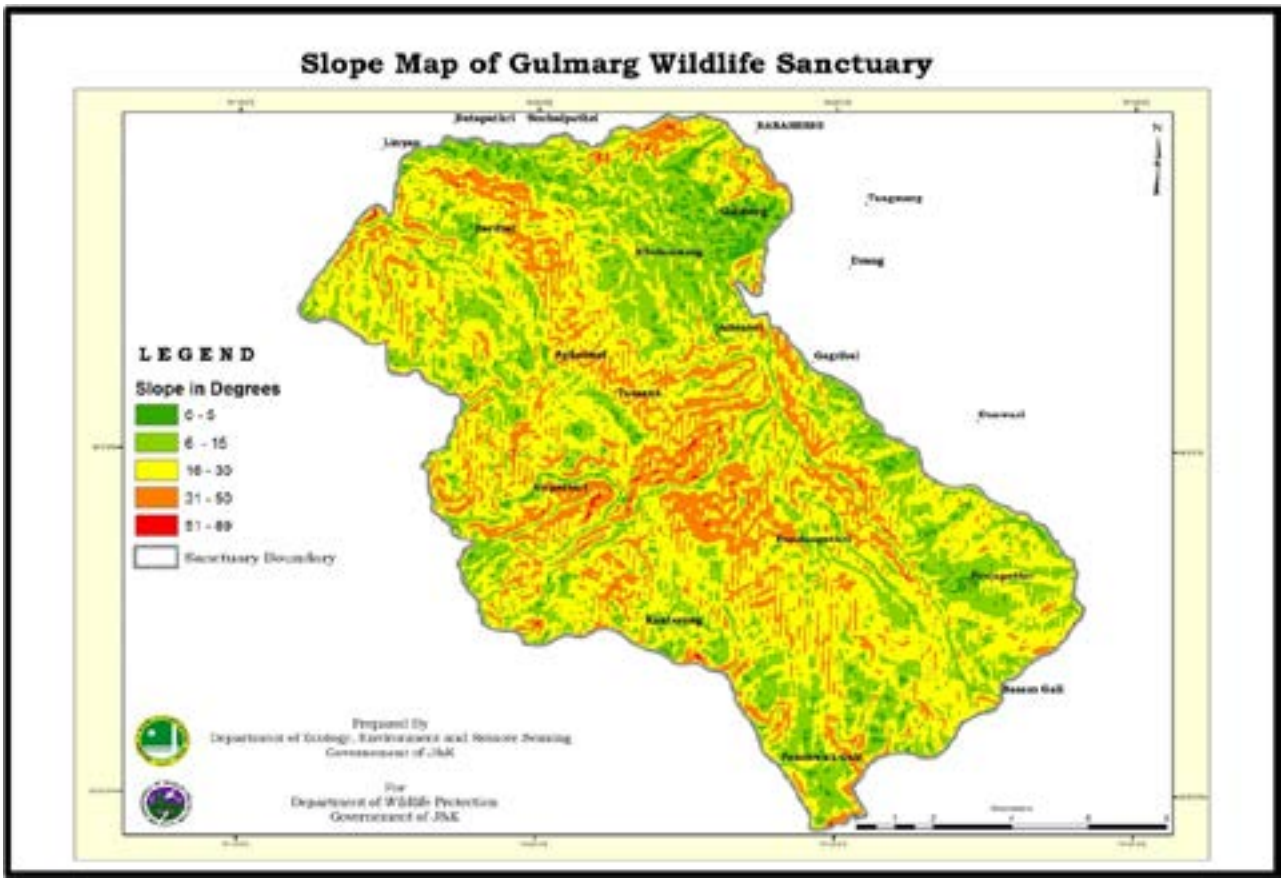


Figure: 2.5: Map showing Elevation Range in Gulmarg Wildlife Sanctuary

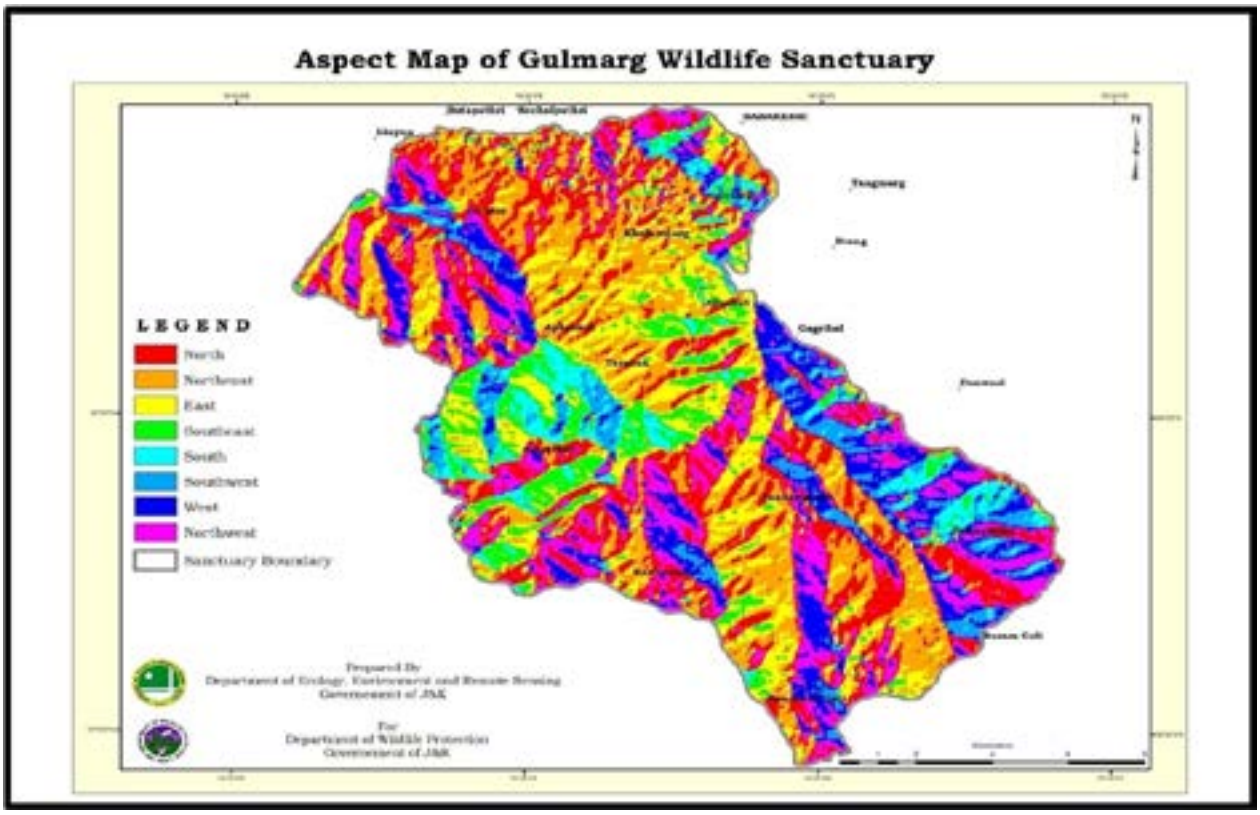


Figure: 2.6: Map showing Aspect in Gulmarg Wildlife Sanctuary

The major stream draining the Gulmarg Wildlife Sanctuary is the Ferozpur *nallah*, which arises from its tributaries, the smaller *nallahs* (Table:1).

Table 1: Drainages & Water Sources in Gulmarg Wildlife Sanctuary

BLOCK TANGMARG		
S.No	**Forest Compartment**	**Drainage (*Nallah*)**
1	49-50	Hakerpathri *nallah*
2	50 (b)	Soee *nallah*
3	51 (a)	Hapat Khud *nallah*
4	51 (a)	Tarazan *nallah*
5	52 (b)	Burjtal/Badganj *nallah*
6	53 (b)	Jamia Wali *nallah*
7	54 (a) (b)	Basam gali *nallah*
8	54 (a)	Kaoodal *nallah*
9	54-55	Paijan *nallah*
10	55	Vehnar *nallah*
BLOCK GULMARG		
11	35 (a)	Arain *nallah*
12	33	Path pathri *nallah*
13	31	Ningli *nallah*
14	34	Zardbal *nallah*
15	35 (b)	Manzdan *nallah*
16	37	Allambal nallah
17	37	Khillan marg nallah



Figure: 2.7: Map showing Gulmarg Wildlife Sanctuary Drainage (water resources)

2.4. Climate

Although the general pattern of weather and climate over the Himalaya is governed by the summer monsoon system of Asia (Mani, 1981), the weather systems in Kashmir valley are chiefly affected by extra tropical western system (Western Disturbances), which moves in winter over the north of the sub-continent from west to east.

The climate of the area may be described as Sub-Mediterranean to typically Temperate with higher degrees of variation in precipitation and dryness. Generally, two spells of dryness are experienced, one in June and another in September to November. Snow during winter is the main source of precipitation and in some parts of the sanctuary may be found till June. Heavy snowfall occurs in the Pir Panjal range which decreases rapidly eastward (Chakraborty, 1983). The average annual precipitation in Gulmarg is about 988.8 to 1855.6mm.

Four distinct seasons occur across the year: spring (March-May), summer (June-August), autumn (September-November) and winter (December-February). The winters are cold while the summers are pleasant. The entire sanctuary, however, generally remains under snow cover from the Ist week of December to 15th of April. During winter the average temperatures remain between –4.0° C (minimum) and 11.0° C (maximum) while during summer season the average temperatures have been recorded between 13.0° C (minimum) and 29.0° C (maximum). In winters, from December to February, temperature may sometimes drop down to - 10° C.

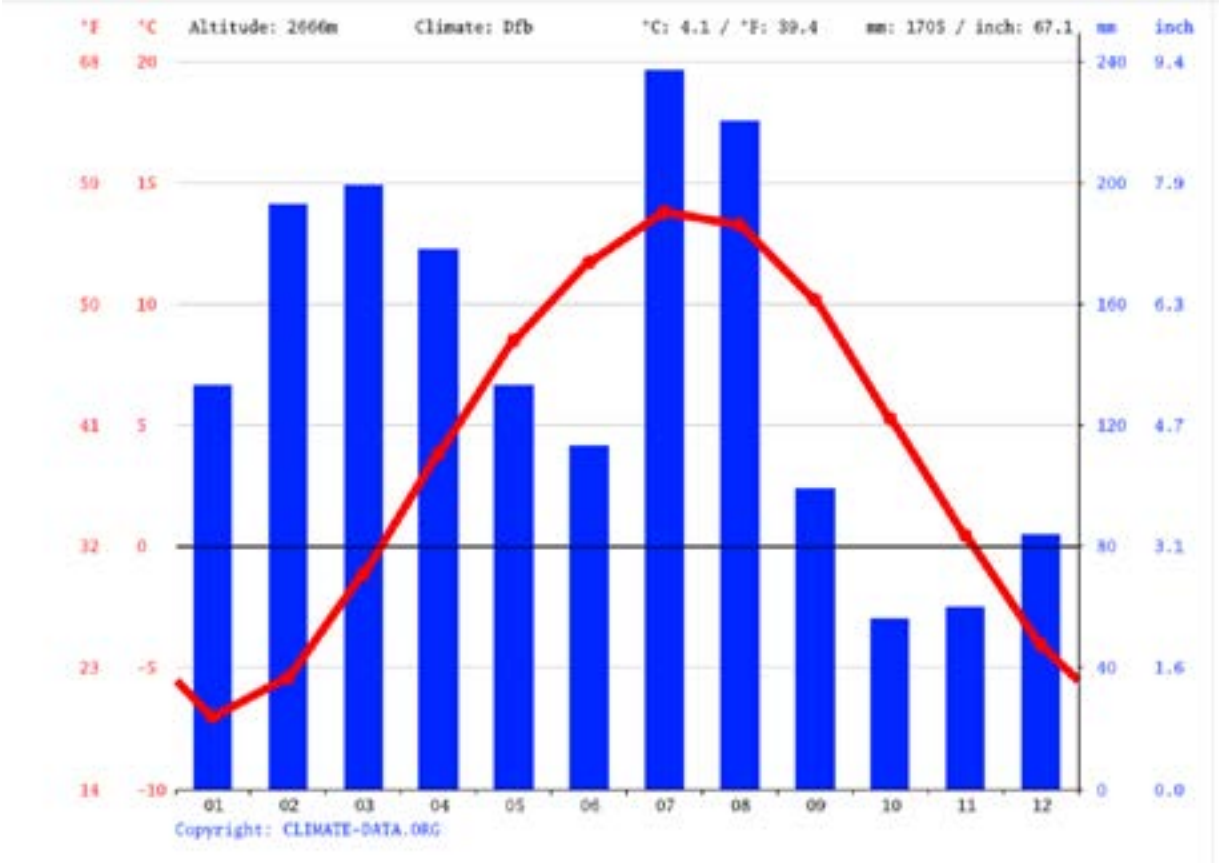


Figure: 2.8: Monthly Temperature & Precipitation in Gulmarg

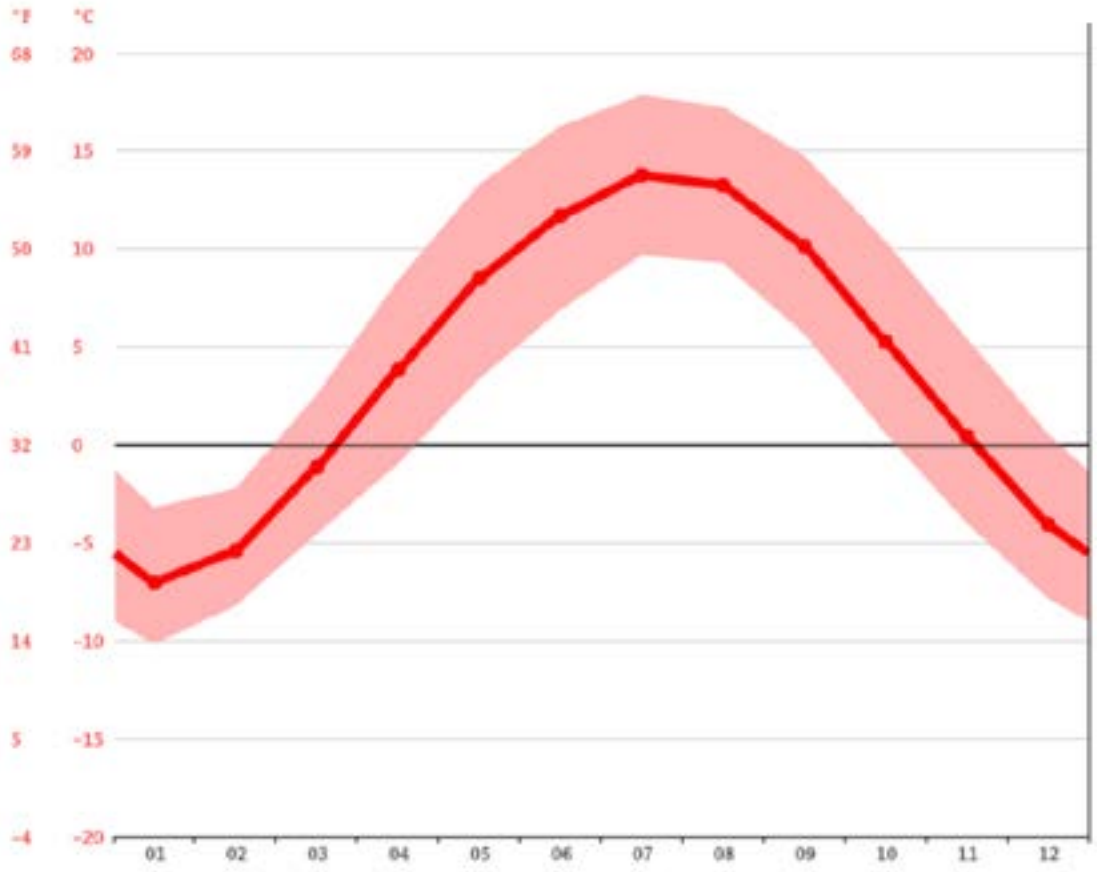


Figure: 2.9: Monthly Average Temperature in Gulmarg

CHAPTER-3

Flora & Fauna

3.1 Flora

3.1.1 Major vegetation types:

The major vegetation types found in Gulmarg Wildlife Sanctuary are:

Riverine: (below 2500m): The riverine vegetation includes the stream side flora which is confined to the main *nallahs* and their tributaries. This is typically constituted of conifer species like the Blue Pine and Fir in lower areas whereas along the higher areas it is open grasslands. The dominating shrubs are *Viburnum grandiflorum, Berberis lycium, and Sorbaria tomentosa.* Other tree species found here are *Aesculus indica* and *Juglans regia* associated with *Ulmus villosa, Robinia pseudoacacia, Populus ciliata and Salix caprea.*

Middle slopes/Temperate zone: (2500-3100m) Blue Pine and Fir forests dominate the middle slopes, associated with Spruce (*Picea smithiana*). The broad-leaved trees associated at some locations include Maple (*Acer caesium)* and *Prunus cornuta.* The dominant shrub species include *Rosa brunonii, Indigofera heterantha, Taxus wallichiana* and *Isodon rugosus.* The ground cover is dominated by Kashmir Elder (*Sambucus wightiana*) and *Stipa sibirca.*

Sub-alpine: (3100 -3500m) The Fir and Birch (*Betula utilis*) forests dominate the subalpine vegetation. The associated tree species include Spruce and Blue Pine while the dominant shrubs are species of *Juniperus, Lonicera* and *Caragana.* The ground cover is dominated by the herb species, *Sambucus wightiana* and grasses like *Stipa sibirca.* Blue Pine is also associated with *Rosa brunonii,* Birch and Elm (*Ulmus wallichiana*). Other dominant shrub species include *Indigofera heterantha.* Part of the sub-alpine habitat is dominated by sub-alpine meadows and scrub.

Alpine (3500– 4000m): The alpine meadows comprise the alpine pastures, locally known as "margs" and are used as summer pastures by migratory herders and local shepherds. These meadows harbour open grassland communities and form the characteristic alpine vegetation. Chief constituents of these communities include the following colourful alpine herbs with various medicinal uses: *Aconitum heterophyllum*, *Aquilegia nivalis*, *Callianthemum* spp., *Aster* spp., *Salvia hians*, *Phlomis bracteosa*, *Geranium himalayense*, *Potentilla atrosanguinea*, *P. kashmirica*, *Geum elatum* and *Selinum vaginatum,* to name a few. A few ground-hugging sub-shrubs like *Salix flabellaris* and *Gaultheria trichophylla* with the hygrophilous herbs like *Aconiyum violaceum,* and several species of *Pedicularis*, *Primula* spp, *Anemone* and *Ranunculus* are also common here (Puri 2011). At places where the glaciers descend to alpine meadows, *Rhododendron hypenathum* are also present (Dar *et al.*, 2002). The species of *Juniperus, Caragana* and *Lonicera* are other shrubs present in this zone.

Rock Faces (above 4000m): This altitude starts to replace the medows with rock dominated terrain. The rocky areas contain sparse vegetation but some of cliffs and hill tops are covered by dwarf evergreen shrubs including *Juniperus recurva, Rhododendron hypenathum* etc. associated with herbs, *Stachya sericea, Geum elatum, Veronica melissifolia* and medicinal plants like *Sausurrea sacra.*

3.1.2 Plant Communities:

As per the study, '*Floristic Composition of the Gulmarg'* by Dr. Nazir Ahmad Bhat (1984), there are five plant communities recognised in the region:

1. Deciduous Forest Community

This community is confined from the village Kunzar (2300m) to Tangmarg (2230m). The community is dominated by deciduous trees like *Juglans regia*, *Prunus cerasus, Salix caprea*, *Parrotiopsis jacquemontiana* and supported by shrubs of *Viburnum grandiflorum, Euonymus hamiltonianus*, *Indigofera heterantha*, *Astragalus grahamianus*, *Berberis vulgaris* and others. The annual and perennial herbs include *Mentha longifolia, Lathyrus pratensis, Trifolium repens, T. pretense, Lotus corniculatus, Polygonum alpinum, Iris ensata, Fumaria indica*, *Stellaria media, Lychnis coronaria, Capsella bursa-pastoris, Cardamine macrophylla, Hemerocallis fulva, Gagea persica, Colchicum luteum.* Also, *Robinia pseudoacacia*, a valuable tree for control of soil erosion, has been planted near Tangmarg at the base of an evergreen forest community.

2. Evergreen Forest Community

Two major evergreen forest communities occur between Tangmarg and Gulmarg and between Gulmarg and Khilanmarg. Both the communities are of evergreen temperate type. The first community between Tangmarg (2200m) and Gulmarg (2670m) is dominat-

Kail community:

i) *Pinus wallichiana, Abies pindrow, Picea smithiana.*
ii) *Populus ciliata, Corpus columna, Acer pictum, Prunus padus.*
iii) *Viburnum nervosum, Indigofera gerardiana, Desmodium tiliaefolium, Salix sp., Skimmea sp , Rosa sp.*
iv) *Sambucus ebulus*
v) *Frageria vesca, Viola serpens, V. odorata, Salvia glutinosa, Thymus serpyllum.*

Kail-Fir community:

i) *Pinus wallichiana, Abies pindrow*
ii) *Viburnum nervosum, Rosa sp., Cotoneaster sp., Rhododendron sp.*
iii) *Sambulcus ebubus*
iv) Viola sp., Frageria vesca, Salvia sp.

Fir- Kail Community:

i) *Abies pindrow, Pinus wallichiana, Picea smithiana*
ii) *Aesculus indica, Prunus padus,*
iii) *Viburnum nervosum, V foetens, Skimmia laureola,*
iv) *Sambucus ebulus, Polygonum sp , Ptendium aquilinum Frageria vesca, Geranium wallichianum, Anemone sp.*

Fir Community:

i) *Abies pindrow, A spectabilis, Picea smithiana, Pinus wallichiana*
ii) *Acer caesium, Acer pictum, Aesculus indica, Taxus baccata, Betula utilis*
iii) *Viburnum foetens, Skimmia laureola, Rosa sp, Spiraea sp.*
iv) *Sambucus ebulus, Polygonum sp, Rumex sp.*
v) *Frageria vorca, Viola spp, Geranium wallichianum, Gentiana kurroo, Strobilanthus sp.*

Figure: 3.1: Vegetation Communities in Gulmarg Wildlife Sanctuary

ed by *Abies pindrow* and supported by *Pinus wallichiana* and *Cedrus deodara*. The tree growth at base is supported by shrubs like *Sambucus wightiana, Rosa webbiana*, *R. moschata* and *Indigofera heterantha*. Annual and perennial herbs covering the forest floor include *Geranium wallichianum, Androsace rotundifolia, Corydalis diphylla*, *Fragaria nubicola*, *Poa annua, Lamium album*, *Stellaria media*, *Myosotis arvensis*, and others.

The second community between Gulmarg (2670m) and Khilanmarg (3000m) has the same dominant vegetation as the first one *Picea smithiana*, however, replaces *Pinus wallichiana* and *Cedrus deodara* considerably. Towards higher belts (3500m) the vegetation is solely represented by *Betula utilis* which rises upto alpine peaks (4430m). The common shrubs of this community include *Viburnum grandiflorum*, *Skimmia laureola*, *Rosa moschata* and *Berberis vulgaris*. Various annual and perennial herbs of the community include *Anemone obtusiloba*, *Fragaria vesca*, *Polygonatum verticillatum*, *Valeriana hardwickei*, *Actaea spicata* and others.

3. Aquatic Vegetation

This community is represented by amphibious species growing in rivers, small streams and by the side of narrow water channels. Such water bodies are found below Tangmarg (2100m), between Tangmarg (2200m) and Gulmarg (2676m), at Gulmarg (2676m) and between Gulmarg (2670m) and Khilanmarg (3000m). The water bodies are of permanent nature as the source of water is the perpetual snow belt occurring at higher altitudes (above 4000m). The most common species of such water bodies include *Caltha palustris*, Epilobium latifolium, *E. parviflorum, Poa pratensis*, *Strobilanthes alatus*, *Mentha long folia*, *Pedicularis siphonantha*, *Impatiens glandulifera*, *Codonopsis rotundifolia*, *Ranunculus sceleratus*, *Nepeta govaniana*, *Swertia petiolata*, *Gentiana venusta*, *Potentilla argyrophylla*, *Geum urbanum*, *Filipendula vestita*, *Circaea alpina*,

4. Grassland community

The grassland community occurs at Gulmarg (2676m) forming the golf-course at this altitude. The community consists of a large number of annual and perennial grasses. The species include *Brachypodium pinnatum*, *Phleum alpinum*, *Poa alpina*, *P. annua*, *P. falconeri*, *P. nepalensis*,

Rottboellia speciosa, Agrostis gigantea, *Alopecurus geniculatus*, *Bromus arvensis*, *Chrysopogon gryllus*, *Cynodon dactylon*, *Digitaria sanguinalis*, *Echinochloa colonum*, *Festuca levingei*, *Oryzopsis fasciculata*, and others. Sedges and rushes like *Juncus compressus*, *J. lampocarpus*, *Carex brunnea*, *C. nubigena*, *C. wallichiana* also occur in such communities.

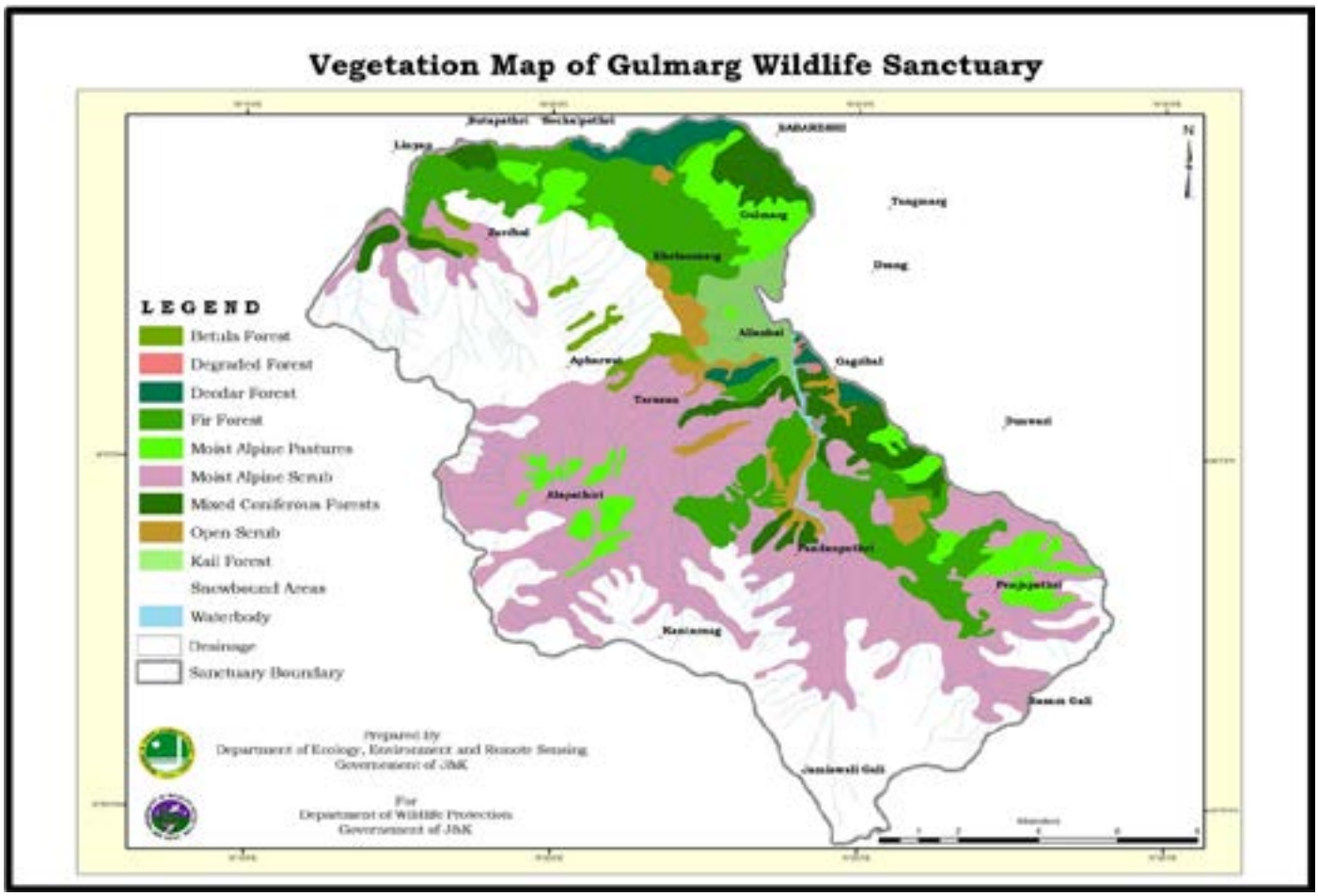
The community Is supported by a few non-grass members of *Alisma plantago-aquatica* (near water bodies). *Anemone rupestris*, *Potentilla curviseta, P. argyrophylla* and *Iris hookeriana*. The non-grass members are few and scattered in the community.

5. Alpine Community

This community is confined to green slopes, occurring between Khilanmarg (3000m) and Apharwat (4430m). It is dominated by shrubs of *Rhododendron campanulatum*, *R. hypenathum*, *Gaultheria trichophylla, Juniperus communis* and a few rare *Salix* species.

The beautiful and variously coloured annuals and perennials include *Bergenia ligulata*, *Androsace sempervirens*, *Campanula aristata*, *Polygonum affine*, *Fritillaria roylei*, *Aconitum heterophyllum*, *Anemone obtusiloba*, *Ranunculus hirtellus*, *Primula rosea*, *P. macrophylla*, *Delphinium cashmerianum*, *Salvia hians*, *Swertia petiolata*, *Gentiana carinata*, *Viola biflora* and others.

The warm and sunny days being few (July-October) in alpine regions, the annuals and perennials have a very short span of life. Majority of members have well developed, perennating underground parts which enable them to flower every year.



S.No.	Species	Place	Altitude Range(m)
1.	*Aralia cachemirica*	Ferozpura Nalla	2180
2.	*Atropa acuminata*	Ferozpura Nalla	2180
3.	*Tussilago farfara*	Tangmarg	2200
4.	*Tulipa Steliata*	Tangmarg	2280
5.	*Caltha palustris*	Tangmarg to Khilanmarg	2200-3000.
6.	*Podophyllum hexandrum*	Gulmarg to Khilanmarg	2650-3000
7.	*Parnassia nubicola*	Gulmarg	2670
8.	*Swertia petiolata*	Gulmarg to Apharwat	2670-3400
9.	*Anemone obtusiloba*	Gulmarg to Apharwat	2670-3400
10.	*Aconitum violaceum*	Khilanmarg to Apharwat	3000-3900
11.	*Rhododendron campanulatum*	Apharwat	3700
12.	*Fritillaria roylei*	Apharwat	3700-3500

Of the 475 species, recorded in the Gulmarg, five belong to vascular cryptogam, four gymnosperms and the remaining to angiosperms. Of these, the dicots include 396 species and monocots 60 species. The dominant families are:

Family	No. of Species
Asteraceae	5O
Rosaceae	35
Poaceae	33
Lamiaceae	27
Brassicaceae	24
Ranunculaceae	22
Caryophyllaceae	21
Apiaceae	20
Papilionaceae	19

The genera with maximum species include:

Genera	**Species**
Potentilla	11 species
Poa	9 species
Polygonum	9 species
Rubus	3 species
Veronica	7 species
Nepeta	7 species
Primula	6 species
Gallium	6 species
Aster	6 species

A complete checklist of the plant species found in Gulmarg Wildlife Sanctuary is given in Appendix-III

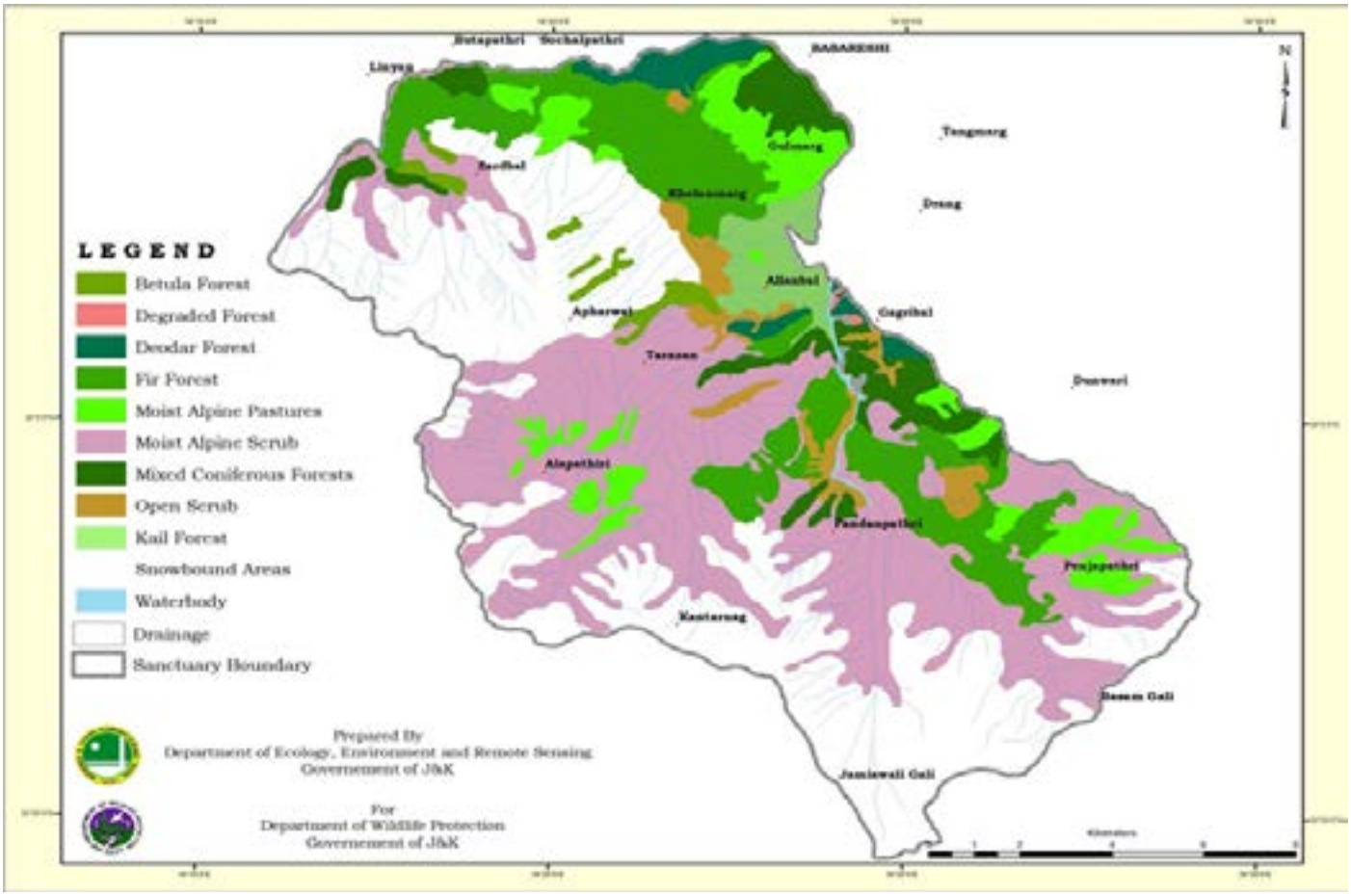
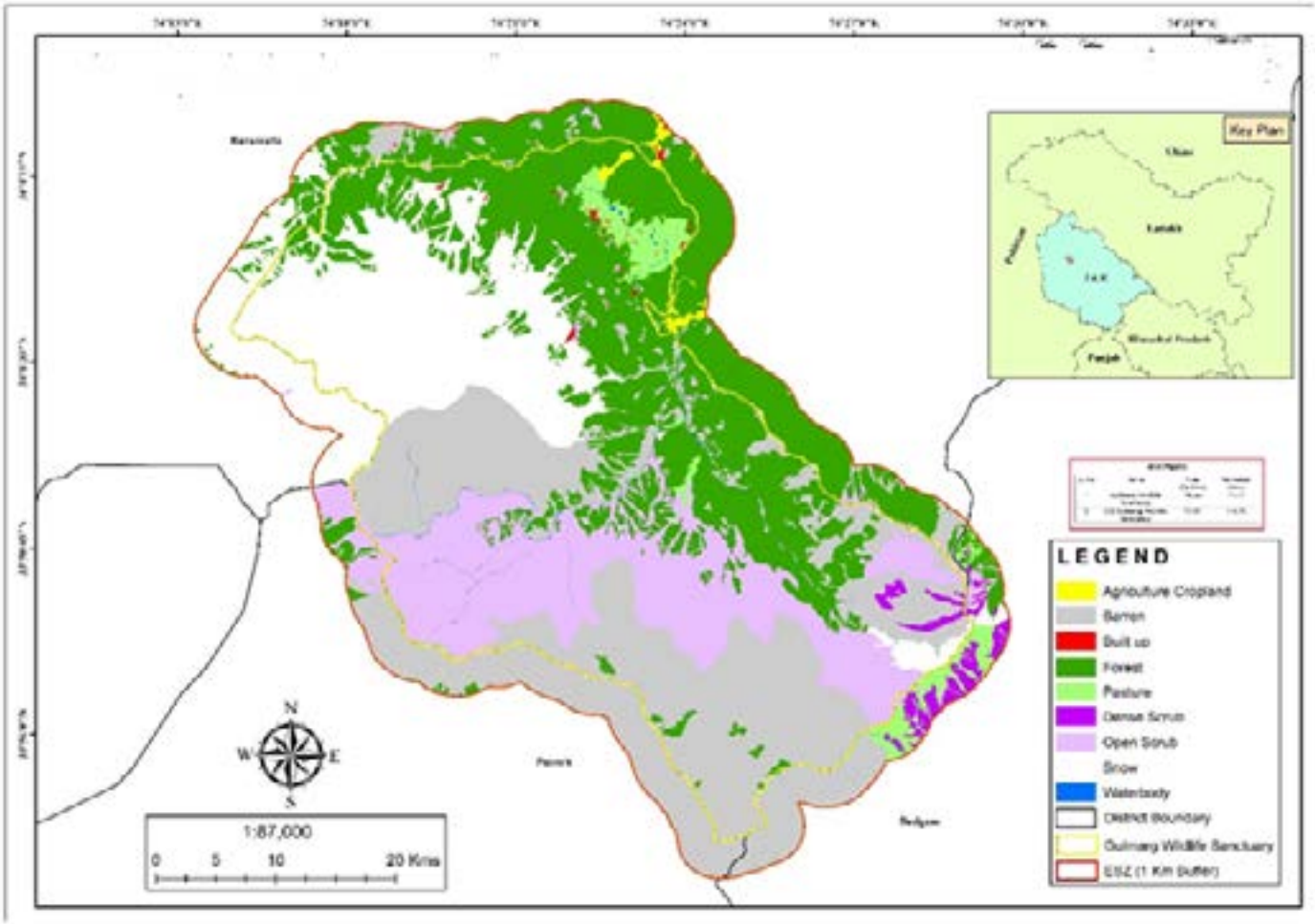


Figure: 3.2: Map showing different Vegetation types in Gulmarg Wildlife Sanctuary





Pinus wallichiana (Kail)



Picea smithiana (Spruce)



Abies pindrow (Fir)



Cedrus deodara (Deodar)

Figure: 3.4: Conifer Needles (Photos: Amit Sharma)



Figure: 3.7: Alpine meadow, rich in medicinal plants (Photo: Amit Sharma)

3.1.3 Medicinal plants

The Pir Panjal Range of mountains is famously known for the wealth of medicinal plants it harbors. Some important ones are *Aconitum heterophyllum, Artemisia absinthium*, *Dioscorea deltoidea, Saussurea costus, Meconopsis aculeata, Geum elatum, Jurinea macrocephala, Codonopsis ovata, Picrorhiza kurroa, Potentilla spp., Corydalis govaniana, Saxifraga ligulata*. Banday (1997) has listed more than 65 species of mosses in Gulmarg area, whereas Shapoo (2013) has found four species of orchids which include *Cypripedium cordigerum***,** *Dactylorhiza hatagirea***,** *Epipactis royleana***,** and *Goodyera repens.*



Cypripadium cordigerum



Dactylorhiza hatagirea

Figure: 3.8: Medicinal Plants of Gulmarg Wildlife Sanctuary (Photos: Amit Sharma)



Epipactis royleana



Goodyrea repens

Figure: 3.9: Medicinal Plants of Gulmarg Wildlife Sanctuary (Photos: Riyaz Ahmad)

3.2 Fauna

According to the bio-geographic demarcation of Jammu and Kashmir by Rodgers and Panwar (1988), the Gulmarg Wildlife Sanctuary falls in the North-west Himalayan Province (Province 2A) of the Himalayan zone. This Province includes the whole Kashmir valley, characterized by temperate and sub-tropical Vegetation. The faunal life is of this region is distinguished by the absence of many species which inhabit the Indian peninsula, but by the presence of many species of Indo-Chinese forms which do not occur in the peninsula, but commonly occur in the central and North-Eastern Himalayas, Southern China and Myanmar (Hilaluddin, 1997). Faunal elements show affinities with Northern Palearctic fauna as well as Eastern and Oriental fauna, forming a unique assemblage of great conservation value.

3.2.1 Mammals:

23 species of mammals have been recorded within the limits of Gulmarg Wildlife Sanctuary (Table 2), which include six species that are threatened as per the IUCN Red List.

Kashmir Musk Deer *(Moschus cupreus)*

Originally a sub-species of the Alpine Musk Deer (*Moschus chrysogaster*), the Kashmir Musk Deer is now treated as a separate species (Groves et al., 1995 & Grubb, 2005). This is an 'Endangered' species under the IUCN Red List (IUCN 2012) and included in the Appendix I of the CITES & Schedule I of the Indian Wildlife (Protection) Act, 1972.

The presence of Kashmir Musk Deer in Gulmarg Wildlife Sanctuary is well established, but the distribution is limited to the sub-alpine forests and alpine scrub areas making its sighting very rare. The threats include poaching and habitat degradation



Figure: 3.10: Kashmir Musk Deer (Photo: Intesar Suhail)



Figure: 3.11: Himalayan Brown Bear (Photo: Syed Mustahsen)

Himalayan Brown Bear (*Ursus* arctos*)*

The presence of the Himalayan Brown Bear in the Gulmarg Wildlife Sanctuary is very well known and has been confirmed by recent sightings. A Schedule I species as per the Indian Wildlife (Protection) Act, 1972, the Brown Bear occurs in the sub-alpine and alpine regions (3000-5000m) and the sightings are usual during summers. They often come into conflict with the nomadic graziers (*Bakarwals)* and cause damage to their flocks. Recently conflict incidents involving Brown Bear have been reported from fringe villages situated at considerably lower elevations. Threats include retaliatory killings by nomads.

Asiatic Black Bear (*Ursus thibetanus*)

Black Bear is the smaller of the two bears found in the Sanctuary and inhabits lower to middle altitudes confining to within the forested areas. Of late, the valley has seen a rise in man-bear conflicts and although not much conflict is witnessed within the sanctuary, there are some high conflict areas in proximity.



Figure: 3.12: Asiatic Black Bear (Photo: Intesar Suhail)

Table 2: *Mammals of Gulmarg Wildlife Sanctuary*

S.No	Common Name	Scientific Name	Status		
			IUCN Category	CITES Appendix	JWPA Schedule
1	Kashmir Musk Deer	*Moschus cupreus*	**EN**	I	I
2	Grey Goral	*Naemorhedus bedfordi*	**NT**	I	I
3	Indian Muntjac	*Muntiacus muntjak*	LC	II	I
4	Himalayan Brown Bear	*Ursus arctos*	LC	II	I
5	Asiatic Black Bear	*Ursus thibetanus*	LC	I	II
6	Kashmir Gray Langur	*Semnopithecus ajax*	**EN**	I	II
7	Rhesus Macaque	*Macaca mulatta*	LC	II	II
8	Gray Wolf	*Canis lupus*	LC	I	I
9	Golden Jackal	*Canis aureus*	LC	III	II
10	Red Fox	*Vulpes vulpes*	LC	III	II
11	Common Leopard	*Panthera pardus*	**NT**	I	I
12	Leopard Cat	*Prionailurus bengalensis*	LC	I	I
13	Jungle Cat	*Felis chaus*	LR	UL	II
14	Himalayan Palm Civet	*Paguma larvata*	LC	III	II
15	Yellow-throated Marten	*Martes flavigula*	LC	III	II
16	Siberian Weasel	*Mustela sibirica*	LC	III	II
17	Mountain Weasel	*Mustela altaica*	**NT**	III	II
18	Himalayan Stoat	*Mustela ermine*	LC	III	II
19	Grey Mongoose	*Herpestes edwardsii*	LC	III	II
20	Eurasian Otter	*Lutra lutra*	**NT**	I	I
21	Royle's Pika	*Ochotona royeli*	LC	III	IV
22	Kashmir Flying Squirrel	*Eoglaucomys fimbriatus*	LC	III	UL
23	Indian Crested Porcupine	*Hystrix indica*	LC	III	IV

EN=Endangered; NT=Near-Threatened, LR=Low Risk, LC=Least Concern; UL=Un-listed

Kashmir Gray Langur
(Semnopithecus ajax)

Formerly considered as a sub-species of the Himalayan Gray Langur, *Semnopithecus entellus* (Molur et al. 2003), it is now treated as a separate species. This primate has been classified as 'Endangered' under the IUCN Red List and is an Appendix I species as per CITES categorization. In Gulmarg, the troops of Kashmir Gray Langur are a common sight around *Botapathree* and nearby areas. No major threats have been recorded for the species from the sanctuary.



Figure: 3.13: Kashmir Grey Langur (Photo: Syed Mustahsen)

Common Leopard
(Panthera pardus)

The Leopard is known to inhabit the lower forested habitats of the sanctuary. Encounters are common around Drung, Gulmarg and Kongdoori areas. Leopards are also involved in the human-wildlife interface and are responsible for considerable damage to the domestic livestock in and around the sanctuary. Threats mainly include retaliatory killings and diminishing natural prey base.



Figure: 3.14: Common Leopard (Photo: Intesar Suhail)

3.2.2 Avifauna:

Around a hundred and thirty species of birds have been documented from Gulmarg Wildlife Sanctuary which include an impressive assemblage of Galliformes, raptors, and passerines. Owing to the presence of high-altitude mountain passes and alpine lakes, the sanctuary is known to be an important transit for several migratory species on passage between their summer and winter destinations. Notable among the bird species are:



Figure: 3.15: Himalayan Griffon (Photo: Intesar Suhail)

Vultures: Three species of vultures are found in Hirpora Wildlife Sanctuary, and all of these are enlisted as threatened under the IUCN Red List. These include Himalayan Griffon, *Gyps himalayensis* (Near Threatened), Bearded Vulture or Lammergeier, *Gypaetus barbatus* (Near Threatened) and Egyptian Vulture, *Neophron percnopterus* (Endangered).



Figure: 3.16: Himalayan Snowcock (Photo: Intesar Suhail)

Galliformes: The species found in the sanctuary are Chukar Partridge *(Alectoris chukar),* Himalayan Monal (*Lophophorus impejanus*), Koklass (*Pucrasia macrolopha*) and the Himalayan snowcock (*Tetraogallus himalayensis*).



Figure: 3.17: Orange Bullfinch (Photo: Intesar Suhail)

Passerines: As a group, passerines outnumber all others and include several endemic and restricted range species like Orange Bullfinch *(Pyrrhula aurantiaca)*, Kashmir Nuthatch (*Sitta cashmirensis*), Kashmir Nutcracker (Nucifraga multi-punctate) and the globally threatened Kashmir Flycatcher (*Ficedula subrubra*).

Others: Other important bird species found in the protected area are: Raptors like Golden Eagle *(Aquila chrysaetos),* Eurasian Hobby *(Falco Subbuteo*) and Tawny Owl *(Strix aluco)*; Woodpeckers including Himalayan Woodpecker *(Dendrocopos himalayensis),* Brown-fronted Woodpecker *(Dendrocopos auriceps)* and Scaly-bellied Woodpecker *(Picus squamatus*); Corvids like Eurasian Jackdaw (*Corvus monedula*), Red-billed Chough *(Pyrrhocorax pyrrhocorax)* and Yellow-billed Chough *(Pyrrhocorax graculus)*; Thrushes including Chestnut Thrush (*Turdus rubrocanus*), Tickell's Thrush *(Turdus unicolor*) and Black-throated Thrush (*Turdus atrogularis*) and Accentors including Altai Accentor *(Prunella himalayana*), Rufous-breasted Accentor (*Prunella strophiata*) and Black-throated Accentor *(Prunella atrogularis*). The complete checklist of the birds documented in Gulmarg Wildlife Sanctuary is given in Appendix-I.



Figure 3.18: Scaly-bellied Woodpecker
(Photo: Intesar Suhail)



Figure 3.19*:* Red-billed Chough
(Photo: Syed Mustahsen)



Figure 3.20: Black-throated Thrush
(Photo: Intesar Suhail)



Figure 3.21: Black-throated Accentor
(Photo: Intesar Suhail)

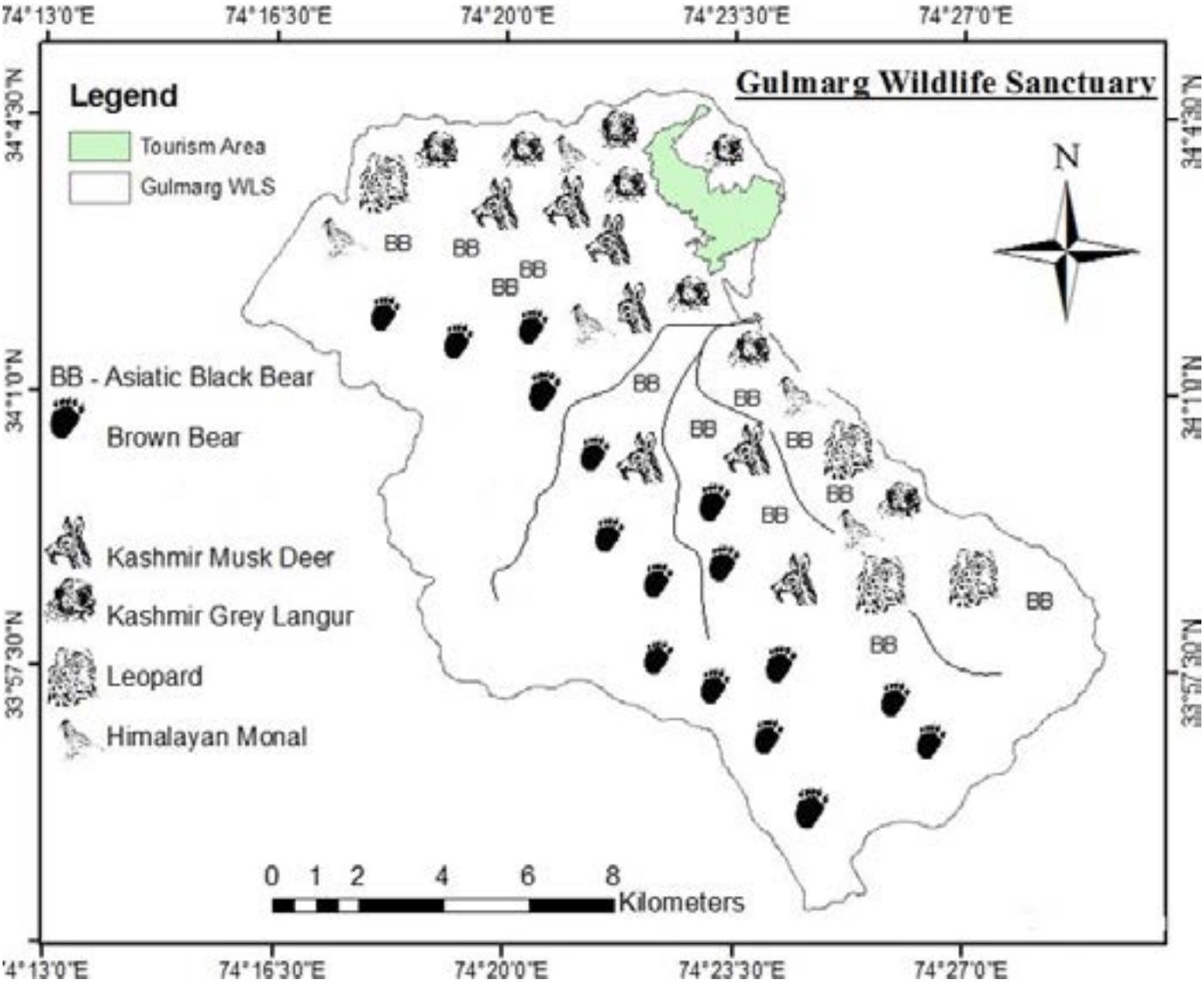


Figure:3.22: Map showing distribution of key faunal species in Gulmarg WLS

Table 3: *Encounter Rate of Key mammal species in Gulmarg WLS*

S.no	Species	Encounter rate/Km walk
1	Himalayan Brown Bear	2.3
2	Asiatic Black Bear	3.1
3	Leopard	1.5
4	Kashmir Musk deer	0.5
5	Kashmir Grey Langur	2.1
6	Tibetan Wolf	0.8
7	Red fox	1.2

3.2.3 Butterflies:

Butterflies (order Lepidoptera; suborder Rhopalocera) are the most brilliantly colored attractive insects. As compared to the floral, mammalian and avifaunal elements, we have little information on the butterfly fauna of Gulmarg. Wynter-Blyth in his famous book, *The butterflies of India*, published in 1957 mentioned only 4 butterfly species distributed in 3 families and 4 genera from Gulmarg. However, field surveys conducted at Gulmarg, during 2006-08 (Qureshi et al., 2013), revealed presence of 31 butterfly species distributed in 8 families and 27 genera. The study found that the dominant family was Nymphalidae (36%) followed by Pieridae (23%), Satyridae (19%), Lycaenidae (10%) whereas Danaidae, Hesperiidae, Libytheidae and Papilionidae were represented by 3% each. In Gulmarg the butterflies are active from April to November and highest distribution has been observed in summer season.



Large tortoise-shelled



Mountain Argus



Chocolate Pansy

Figure 3.23: Some Butterflies of Gulmarg Wildlife Sanctuary (Photo: Amit Sharma)

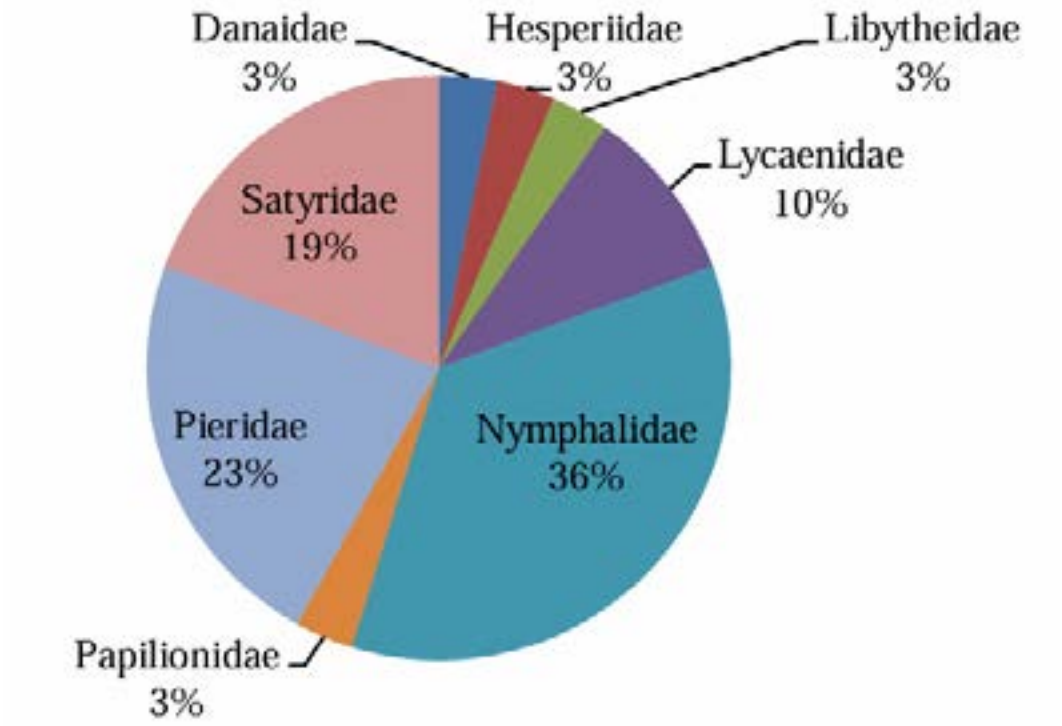


Figure 3.24: *Family-wise abundance of Butterflies in Gulmarg* (Qureshi et al., 2013)

Table 4: *Butterflies of Gulmarg Wildlife Sanctuary* (Qureshi et al., 2013)

S.No.	Scientific Name	Common Name	Flight Period	Host plants
Family I: Danaidae				
1	*Danaus chrysippus* Linnaeus	Plain Tiger	May to August	*Lantana* sp., **Tagetus patula* .
Family II: Hesperiidae				
2	*Pelopidas mathias* (Fabricius)	Small Branded Swift	June to October	**Digitalis purpurea,* Grasses.
Family III: Libytheidae				
3	*Libythea lepita* Moore	Common Beak	May to September	*Celtis australis, *Rubus ulmifolius*
Family IV: Lycaenidae				
4	*Aricia agestis* (Denis and Schiffermuller)	Orange-Bordered Argus	May to October	**Mentha longifolia*
5	*Lampides boeticus* Linnaeus	Pea Blue	May to September,	*Vigna* sp.
6	*Lycaena phlaeas* (Linnaeus)	Common Copper	May to September	*Rumex nepalensis, * Tagetus patula,*
Family V: Nymphalidae				
7	*Aglais cashmirensis* (Kollar)	Indian Tortoiseshell	March to November	**Digitalis purpurea, Tagetus patula, Taraxacum officinale, ^Urtica diocia,*
8	*Argyreus hyperbius* (Johanssen)	Indian Fritillary	May to September	*Viola tricolor*
9	*Childrena childreni* (Gray)	Large Silverstripe	May to October	**Budlleja asiatica *Mentha longifolia, Viola tricolor*
10	*Cynthia cardui* (Linnaeus)	Painted Lady	April to November	*Artemesia vulgaris, Blumea* sp., **Tagetus petula, *Thymus serpyllum, Urtica diocia*
11	*Hypolimnas misippus* (Linnaeus)	Danaid Eggfly	May to October	*Portulaca grandiflora*
12	*Issoria lathonia* (Linnaeus)	Queen of Spain Fritillary	May to September	*Taraxacum officinale, Viola* sp.,
13	*Junonia iphita* (Crammer)	Chocolate Pansy	May to September	**Thymus serpyllum*
14	**Junonia orithya* (Linnaeus)	Blue Pansy	May to October	Grasses, **Mentha longifolia, *Rubus ulmifolius,*

11	*Hypolimnas misippus* (Linnaeus)	Danaid Eggfly	May to October	*Portulaca grandiflora*
12	*Issoria lathonia* (Linnaeus)	Queen of Spain Fritillary	May to September	*Taraxacum officinale*, *Viola* sp.,
13	*Junonia iphita* (Crammer)	Chocolate Pansy	May to September	**Thymus serpyllum*
14	**Junonia orithya* (Linnaeus)	Blue Pansy	May to October	Grasses, **Mentha longifolia*, **Rubus ulmifolius*,
15	*Kaniska canace* (Linnaeus)	Blue Admirable	May to September	Grasses
16	*Neptis hylas* (Linnaeus)	Common Sailor	May to September	**Mentha longifolia*, *Rubus ulmifolius*, ** Thymus serphyllum*
17	*Vanessa indica* (Herbst)	Indian Red Admirable	May to September	**Digitalis purpurea*, *^Urtica diocia*
18	*Papilio machaon* Menetries	Common Yellow Swallowtail	May to September	*Taraxacum officinale*
Family VII: Pieridae				
19	*Aporia leucodice* (Eversmann)	Himalayan Blackvein	April to October	**Thymus serpyllum*, **Viola tricolor*
20	*Colias electo fieldi* Menetries	Dark Clouded Yellow	April to November	** Digitalis purpurea*, **Medicago polymopha*, ** Ranunculus* sp., ** Tagetus patula*, *Taraxacum officinale*
21	*Colias erate* Esper	Pale Clouded Yellow	April to October	**Medicago polymopha*, ** Tagetus patula*, *Taraxacum officinale*,
22	*Gonepteryx rhamni* (Linnaeus)	Common Brimstone	May to September	*Rhamnus* sp.,
23	*Pieris brassicae* (Linnaeus)	Large Cabbage White	March to November	** Digitalis purpurea*, **Medicago polymopha*, ** Mentha longifolium*, ** Rubus ulmifolius*, **Tagetus patula*, ** Taraxacum officinale*, ** Thymus serpyllum*
24	*Pieris canidia* (Sparrman)	Indian Cabbage White	May to October	*Sisymbrium* sp.
25	*Pontia daplidice* (Linnaeus)	Bath White	May to October	*Rubus ulmifolius*, **Tagetus petula*, ** Taraxacum officinale*, ** Thymus serpyllum*,

Family VIII: Satyridae				
26	*Aulocera brahminus* (Blanchard)	Narrow-Banded Satyr	May to September	**Carduus edelbergi*, **Mentha longifolia*
27	*Aulocera padma* (Kollar)	Great Satyr	May to September	*Carduus edelbergi*
28	*Callerebia mani* (De Niceville)	Yellow Argus	May to September	Grasses, **Datisca cannabina* **Origanum vulgare*
29	*Maniola pulchella* (Felder)	Tawny Meadowbrown	June to September	**Tagetus patula*
30	*Melanitis phedima* (Stoll)	Dark Evening Brown	June to September	*Oryza sativa*
31	*Pararge everesmanni cashmiensis* Eversmann	Yellow Wall	May to September	Grasses

Abbreviations used in the table. * New record; ^ Larval food plant; sp- species.

CHAPTER-4

Management: Past & Present

4.1 History of Management

The forest areas of Gulmarg, part of Pir Panjal forests, were earlier declared as a Biosphere Reserve vide Govt. order No: FST/20 of 1981, dated 04-02-1981 issued under Endtt. No: FST/GP-9/80, dated 04-02-1981. The area was upgraded to the status of Wildlife Sanctuary vide Government SRO No: 149, dated 19-03-1987 issued under Endtt. No: Fst/WL/Sanc. /Gulmarg/87: dated:19-03-1987.

Historically the sanctuary has been a part of the Pir Panjal Forest Division. As per records the first scientific working plan for Pir Panjal Division, including the Gulmarg forests was prepared by B. Sher Singh in 1925. The working plan advocated silvicultural practices with a view to making the then low-rated fir pay as a timber. The first revision of the plan was prepared by R.L. Khajuria, that retained the broad outlines of the previous plan. The second revision of the plan was prepared by Habib Khan, and it remained operative till 1964. The main feature of this plan was the replacement of Conversion to Uniformity by Indian Selection System in respect of Fir. A third revision of the Pir Panjal Working Plan was entrusted to P.N. Pandita, whose plan came into force from April 1965 and was extended to 1977. The main feature of this Working Plan was a switch over to the metric system in consonance with the National policy and that the total enumerations were proposed to be conducted in both the regulated and selection working circles. The next Working Plan for the Pir Panjal Division was prepared by B.L. Ticku in 1977. Though the management prescribed in the previous plan had not been materially changed, the new Plan did introduce certain important innovations. The old method of evaluating stocks by enumerating the trees had been given up in favour of a more scientific, economical and less cumbersome point sampling method. Special stress was laid on pastureland development and the new Plan also regarded sub-alpine and alpine blanks as culturable areas. Ticku (1977) also described the complication of the grazing problem according to its socio-economic as well as socio-political nature and suggested detailed surveys, ecological studies and research on the regeneration of forage species and large-scale application of mitigation measures.

After its notification as a wildlife PA, the first management plan for the Gulmarg Wildlife Sanctuary (2005-2009) was formulated by Mohammad Maqbool Baba followed by the second (2011-14) by the same author. The third and more comprehensive management plan (2015-2020) for the sanctuary, was authored by Mohammad Sadiq Mir & Amit Sharma. The sanctuary has over the years been managed according to the prescriptions and management protocols outlined in the afore-cited management plans, which formed the basis for formulation of the Annual Plans of Operation (APOs), submitted for each financial year, against which funds under various schemes were released for execution of various management interventions and conservation/development activities.

4.2 Present Management

4.2.1 Administrative Setup, Organisational Structure & Human Resource:

The sanctuary is under the administrative control of Wildlife Division North Kashmir. There is one Forest Range, namely the Gulmarg Wildlife Range, with headquarters at Tangmarg and two Forest Blocks, the Tangmarg Block and the Gulmarg Block that administratively manage the whole sanctuary area (Figure 4.1). The sanctuary area comprises of 20 compartments of Gul (Gulmarg) series namely 31/Gul, 32/Gul, 33/Gul, 34/Gul-3, 35/Gul, 36/Gul, 37/Gul, 38/Gul, 39/Gul, 40/Gul, 41/Gul, 50/Gul, 51/Gul, 52/Gul, 53/Gul, 54/Gul, 55/Gul, 56/Gul, 57/Gul & 58/Gul. Of these, only nine compartments, compartment No. 50/Gul to 58/Gul (i.e compartments 50/Gul to 53/Gul of Drang Nalla and compartments 54/Gul to 58/Gul of Ferozpur Nalla) are managed by the Wildlife Protection Department, whereas rest of the eleven compartments, compartment Gul/31 to Gul/41 are under the administrative control of the Tangmarg Forest (Territorial) Division of the Forest Department.

The frontline staff exclusively deployed to manage the sanctuary comprises of just seven individuals which is grossly inadequate to protect, monitor and manage its 180 sq. km. area. Current staff strength in Gulmarg Wildlife Sanctuary is given below:

Table 5: *Staff Position in Gulmarg Wildlife Sanctuary*

S. No.	Designation	Sanctioned	Posted (as on 01.01.2025)	Remarks
2	Range Officer	1	0	
3	Forester	2	2	One Working as I/c Range Officer
4	Forest Guard	14	2	One of them working as I/c Forester
5	Watcher/Helper	8	2	
6	Mali	1	1	
7	Rehbar-e- Junglat	-	-	

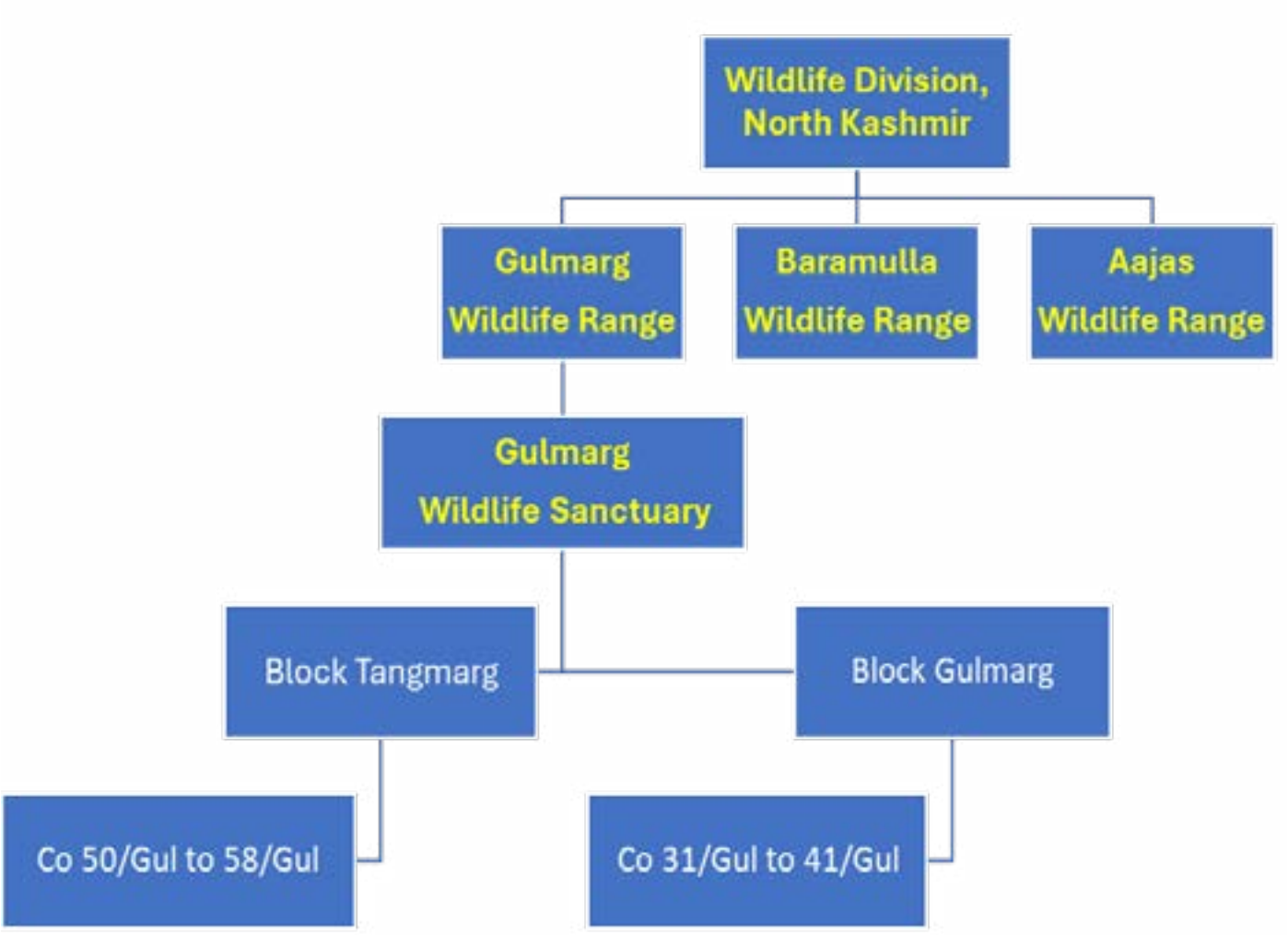


Figure 4.1: Administrative Setup

4.3 Present Management Practices:

a) Habitat Management: Currently and in terms of the previous plans the habitat management practices followed mainly include consolidation of boundaries by way of fencing, augmentation of natural regeneration by way of formation of closures (closed areas), plantations, soil and water conservation measures and pasture development.

b) Protection & Surveillance: The forest compartments of the sanctuary have patrolling units or beats that are regularly patrolled by the frontline staff. The areas that are vulnerable to offences like timber smuggling and poaching are regularly patrolled. Anti-poaching camps are seasonally established inside the sanctuary for surveillance and protection against poaching and other wildlife offences. Data containing information about the wildlife offences committed in the PA is maintained at Range level and updated and submitted to the Division office (Wildlife Warden) on a prescribed format on a monthly basis. The boundary of the PA has been demarcated and is under the process of consolidation by way of fencing, wherever required.

c) Research and Monitoring: Some Wildlife research studies, mostly in collaboration with independent research organisations and universities have been conducted in the PA and a few are still in progress. These studies are helping to produce a baseline information on the threatened species of flora and fauna of the sanctuary.

d) Awareness & Publicity: The different awareness and publicity activities that the previous plans envisaged are being implemented regularly. They include awareness programmes & workshops for stakeholders; publishing of publicity material like posters, pamphlets, brochures and calendars; installation of signages & hoardings and organization of programmes in connection with the observance of the 'Wildlife Week.'

4.4 Eco Sensitive Zone:

The Eco Sensitive Zone (ESZ) for Gulmarg Wildlife Sanctuary has been notified vide S.O. 2141(E), dated: 06.05.2022 (Appendix-V) and covers an area of 62.2 sq km. The extent of the ESZ around the sanctuary varies from zero to 4.1 kilometers (Table:6).

Table 6: *Extent of ESZ around Gulmarg Wildlife Sanctuary*

Direction	Extent (km)
North	4.1
North-East	2.11
East	0.0
South-East	2.48
South	0.05
South-West	0.012
West	0.012
North-West	2.4

The digitized mapping of the ESZ has been completed and the maps form an annexure to the ESZ notification.

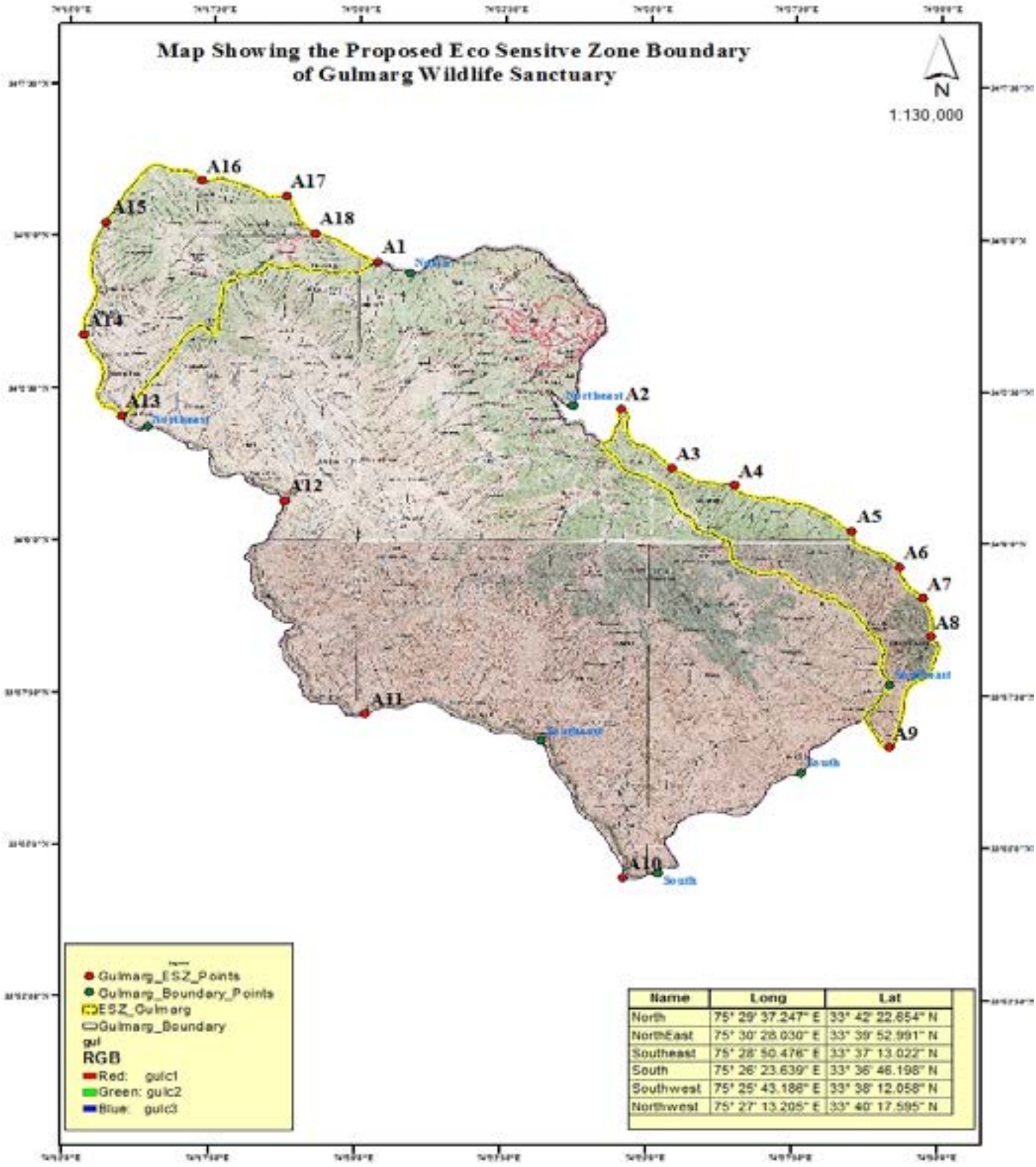


Figure 4.2: Map showing Eco-Sensitive Zone of Gulmarg Wildlife Sanctuary

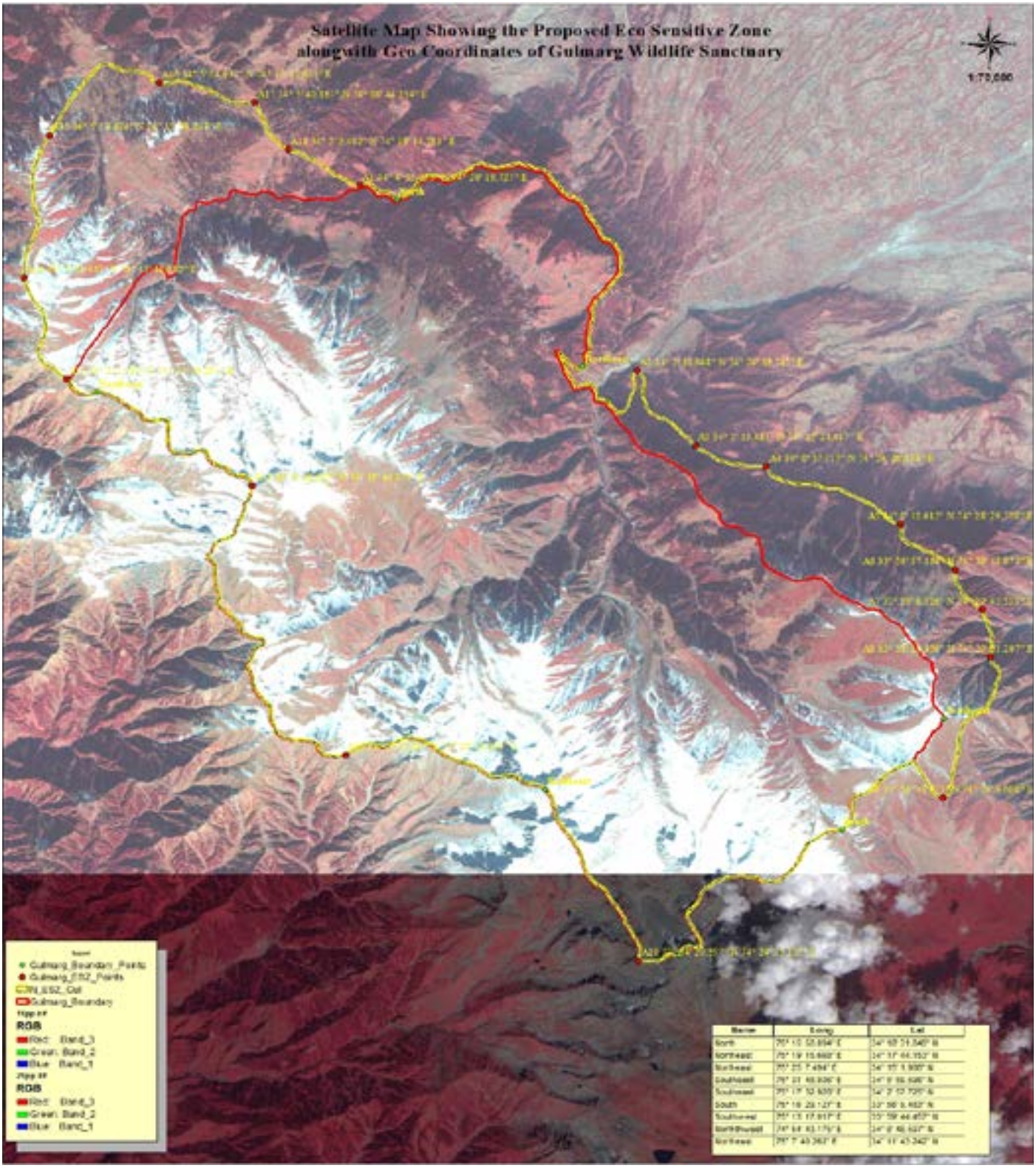


Figure 4.3: Satellite Map showing Eco-Sensitive Zone of Gulmarg Wildlife Sanctuary

The ESZ notification requires the government to take specific measures with respect to the following attributes for giving effect to its provisions:

- Land Use
- Natural water Bodies
- Tourism or Eco-tourism, Natural Heritage & Man-made Heritage Sites
- Noise Pollution & Air Pollution
- Discharge of Effluents, Solid Wastes Bio-medical wastes
- Plastic, Construction & Demolition Waste Management
- E-waste Management
- Vehicular Traffic & Pollution
- Industrial Units
- Protection of Hill Slopes

The Notification also provides a list of activities to be prohibited or regulated within the ESZ. The preparation of the Zonal Master Plan (ZMP) for the ESZ, as envisaged in the above notification has been initiated in consultation with the relevant specified departments viz Environment, Forest, Agriculture, Revenue, Urban Development, Tourism, Rural Development, Irrigation & Flood Control, Pollution Control Committee, Panchayati Raj and Public Works Department and is expected to be completed within the stipulated time of 2 years.

CHAPTER-5

Problems & Challenges in Management

The problems in management of Gulmarg Wildlife Sanctuary are manifested in threats to the wildlife and its habitat and various obstacles and challenges faced by the managers in employing interventions to overcome these threats. Gulmarg Wildlife Sanctuary has almost the same set of problems as commonly faced by other Protected Areas in the region, with added challenges arising due to its proximity to a tourist destination of international fame. Some major threats include forest fires, heavy snow, avalanches, heavy inflow of tourists, etc. In some areas, historical modification to ecosystems (clearing, burning, grazing, introduction of invasive species) and catastrophic events (drought, wildfire, flooding) have an impact on ecological processes.

5.1 Competitive Livestock Grazing

The wild herbivores are threatened by competition with domestic livestock. Unlike these native grazers which wander from area to area, sheep/goat/cattle will concentrate in place, particularly riverian areas, for long periods of time grazing on grasses and trampling on most vegetation. This greatly reduces the suitability of the land for natural grazers and the loss of grasses and shrubs eliminates important cover for deer fawns from predators.

The Gulmarg area experiences huge livestock grazing pressures during summer season from the domestic cattle and sheep owned by nomadic Gujjars and Bakarwals. The Gujjars, Bakarwals and Banyaris are traditional graziers who spend winter in the warmer plains of Jammu and with the onset of summer migrate along with their livestock to the lush green alpine pastures of the valley. These nomads from Poonch and Rajouri enter the Sanctuary area through the mountain passes of Deewar Gali, Chorpanchal Gali, Jamia Wali Gali and Basam Gali and graze their livestock in the alpine pastures of Pandan pathri, Paijan pathri found within the sanctuary limits. The annual migration of the nomadic herders from the warmer plains of Jammu commences in late spring, when the passes just open and the return migration from the colder areas of the valley concludes in late autumn, when the first snows are about to close the passes. Some of these passes form a gateway to the Gulmarg Wildlife Sanctuary and it is therefore subjected to immense grazing pressures both from the herders that remain within its limits throughout the grazing season and from those who use it as a transit to travel to other destinations in Kashmir. Besides, resident Gujjars and shepherds also take their livestock to the pastures in summer.



5.1: A Nomadic herder with his livestock (Photo: Intesar Suhail)

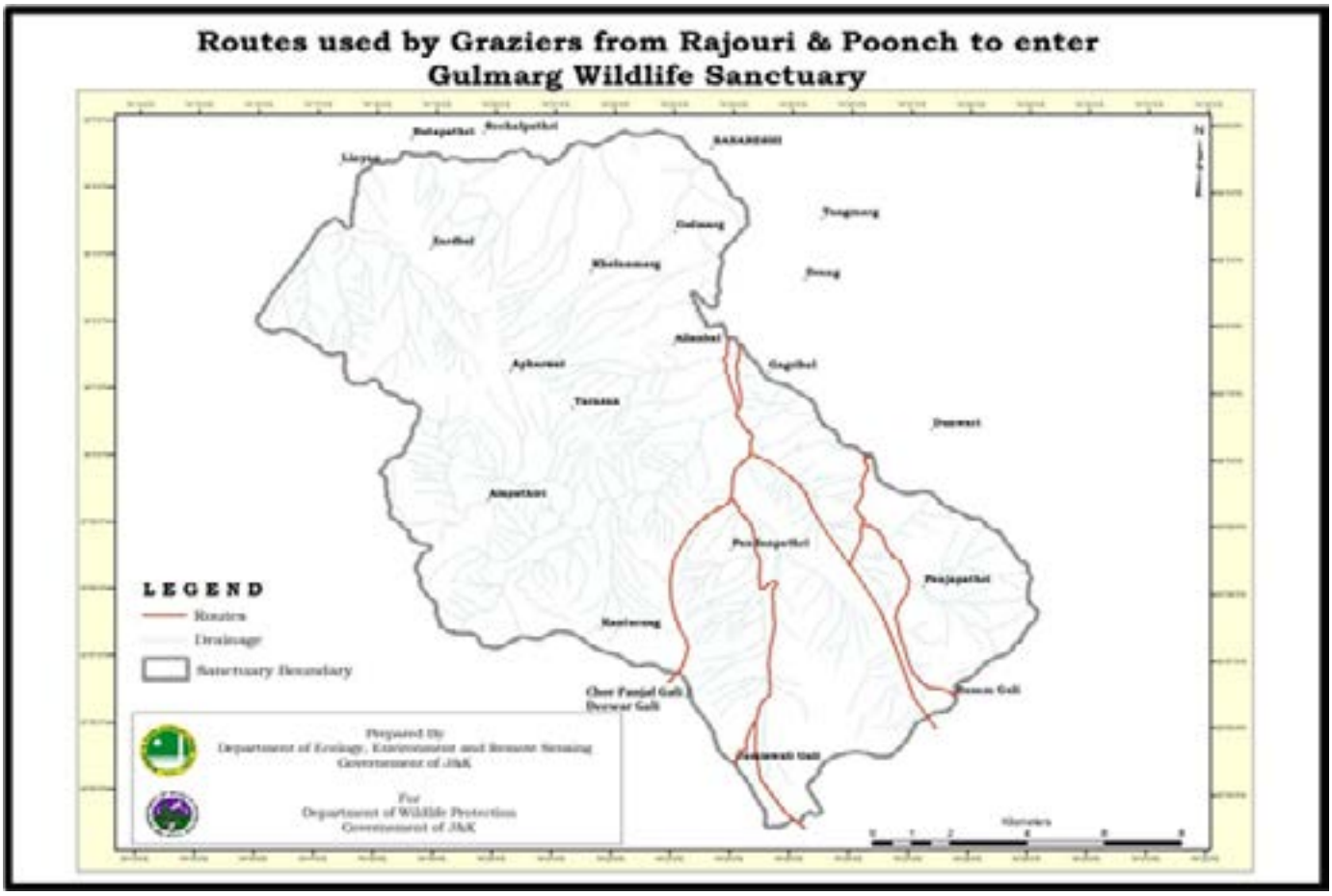


Figure 5.2: Routes used by Nomadic Herders

The extent of grazing in Jammu & Kashmir is far beyond the production capacity of the pasture-lands and is adversely affecting the regeneration of natural vegetation (Seth, 1994). Uncontrolled grazing degrades the ecology, hindering the natural plant succession and facilitating colonization of unpalatable hard/spiny species of *Euphorbia, Polygonum, Artemesia* etc. (Ahmedullah, 1997).

5.2 Encroachment Threat

There are no revenue villages or permanent human habitations within the Gulmarg Wildlife Sanctuary. However, the threat of encroachment is faced from temporary structures seasonally used as shelters by the nomadic grazers and locally called *Dhoks* or *Kothas* and from the hoteliers who have been allotted leased lands.



Figure 5.3: A cluster of traditional *Dhoks* (Photo: Amit Sharma)

5.2.1 *Kothas/Dhoks* of the Nomads:

The *Dhoks* or *Kothas* are the temporary structures made of timber and mud, used as seasonal dwelling shelters by the nomadic grazers. Built in the high-altitude summer pastures, the traditional grazing grounds (*Behaks*) seasonally used by the nomads, the *kothas* mostly consist of a single large room with a hearth on one side. However, owing to the tourist inflow, some of the *Kothas* have been re-modelled into make-shift tea-stalls and provision outlets. As per the records available there are approximately 378 *kothas* in the sanctuary, out of which approximately 207 are in Gulmarg Block and 171 in Tangmarg Block.



Figure 5.4: Some Re-modelled Dhoks (Photo: Amit Sharma)

5.2.2 Hotels & Allied Infrastructure:

A vast portion of land in the Gulmarg Bowl has been allotted to Gulmarg Development Authority and Tourism Department. In addition to that some land has been allotted to Hoteliers for commercial use. The Hon'ble High Court of Jammu, Kashmir and Ladakh has taken suo moto cognizance in this regard and as of now no new construction can be carried out in the area. All the construction including repair, renovation activity is being strictly monitored by the Hon'ble High Court. Presently there are around 50 small and big hotels operating in and around Gulmarg and threat of encroachment is always there.

5.3 Unsustainable Tourism

Gulmarg is a world-famous all-season tourist destination. It has been regarded as the 'heartland of winter sports in India' and is equally visited in summer months. The high inflow of tourists has influenced the fragile eco-system of Gulmarg, and tighter regulations have been in demand to save it from unsustainable tourism. Tourism activities in and around Gulmarg have brought several challenges related to environmental safety which need to be tackled effectively.

5.3.1 Solid Waste Generation:

Almost every tourist who visits Kashmir arrives at Gulmarg. In 2023 an unprecedented 16.5 lakh tourists visited the place. Generation of solid waste due to the footfall of such a large scale poses a real threat to the ecology and improper disposal/dumping of both the biodegradable (food material) as well as non-biodegradable waste exacerbates the problem. It results in littering of the areas, particularly the outer circular road, a grave threat to the fragile ecosystem of the Gulmarg Wildlife Sanctuary. Littering of bio-degradable waste also results in an increase in human-wildlife conflict as the food waste attracts Black Bears and stray dogs which in turn attract leopards.



Figure 5.5: Improper Disposal of Solid Waste (Photo: Amit Sharma)

5.3.2 Extensive Tourism Activities: The provision and use of a range of recreation facilities for tourists in Gulmarg have the potential to cause ecological disturbances. The tourism activities do not change significantly between the snow and non-snow periods.

a) Cable-car (Gondola): The cable-car at Gulmarg or the Gulmarg Gondola is considered as the second longest and the second highest cable-car in the world. It runs in two phases from an elevation of 2650m to 3950m within the sanctuary area and ferries about 600 people per hour. It is operated for seven hours a day. Apart from disturbances caused by the huge footfall, the impact on the landscape due to the visibility of the infrastructure, the Gondola has a likely impact on vegetation, soil structure and is a potential cause of noise pollution and habitat fragmentation affecting movement patterns of wild animals.



Figure 5.6: The Gulmarg Gondola (Photo: Internet)

b) Skiing & Heli-skiing: Gulmarg has existed as a ski resort since 1927. It is one of the highest lift-served ski resorts in the world and provides a ski run of about 3km. In addition to the gondola, three ski lifts and one chair lift also service the skiers. Gulmarg is advertised as having a larger percentage of 'backcountry' skiing areas, which essentially form part of the higher elevations of Gulmarg Wildlife Sanctuary. Overall, an area of around 1.2 hectares of the sanctuary land is used for skiing at locations like Khilanmarg, Chootinali, Apharwath and Haapatkhod with a skiable slope length of 25km.



Figure 5.7: Skiing in Gulmarg (Photo: Amit Sharma)



Figure 5.8: Road-hits (Leopard & Jungle Cat) on Gulmarg-Tangmarg Road (Photos: Amit Sharma)

c) Vehicular Traffic & Off-roading: Roads in Gulmarg provide access to destinations as well as enable a wide range of recreational activities related to tourism. The Gulmarg-Tangmarg road or GT Road is a 13 km single lane road with hilly and undulating terrain and passes through a dense conifer forest. It experiences huge vehicular movement all year round and there are occasional reports of wildlife mortalities due to vehicle hits. In the winter season, with snow and extreme slippery conditions, the movement of vehicles becomes difficult, often causing traffic jams that last for hours. The main road that passes through the Gulmarg Bowl upto the Asha Post is also frequented by vehicles. The All-Terrain Vehicles or ATVs used for commercial tourist rides ply on the roads within Gulmarg up to Butapathree. Although there are restrictions on the ATVs to remain confined to the metalled roads, violations are often reported where they venture off-roads and cause damage to the meadows. Off-Road driving vehicles may lead to degradation of areas by the development of a maze of tracks or by physical damage to vegetation by trampling and compaction and erosion of soils.

d) Horse-riding: Horse riding is one of the oldest tourism-related activities operational in Gulamrg area since half a century, if not more. This activity is carried out between May to October when there is no snow on the ground. Although the ponies used in the activity are registered with the Tourism Department/ Gulmarg Development Authority, but regulations are often violated and the number of ponies/horses operating in Gulmarg area is believed to be beyond the carrying capacity. The geomorphology of the alpine areas is very sensitive to compaction and is easily eroded. For this reason, alpine and sub-alpine environments are much more susceptible to trampling damage than most other environments. Subalpine vegetation communities are most susceptible to such damage, particularly where there is intensive use and/or where the soil moisture is high. Scientific research in the sub-alpine and montane areas has found that horses create an

extensive network of trails wherever they move, as a result of compaction of the soil. Dry soils need only 20-50 passes by unshod horses before significant compacting occurred. This means that a group of four horses would only need to pass twice a day for 5 days along a new track to cause significant compaction. Horse and pony movements create networks of trails, compact soil, cause widening and collapse of stream banks, damage and contribute to erosion.



Figure 5.9: A porter with his horse in Gulmarg (Photo: Amit Sharma)

e) Snow-Biking & Snow-Sledginging: Snow bikes are motorized single-tracked oversnow vehicles capable of carrying one-two people. There are around 60 snow bikes registered with the GDA and operational in Kongdoori area, but the actual number operating is more. Sledge riding, an eco-friendlier activity than snow biking has also been very popular in Gulmarg since a long time. A tourist riding a wooden sledge is pulled along the snow-covered roads or allowed to downslide the gentler slopes. The Oversnow vehicles, particularly the motorized ones can not only be a source of noise and air pollution but can also damage the fragile alpine environments and make ruts in snow which can be a hazard even for the skiers.



Figure 5.10: Snow Bikes in Kongdory, Gulmarg (Photo: Amit Sharma)



Figure 5.11: Tourists riding snow sledges, Gulmarg (Photo: Amit Sharma)

5.4 Lack of Human Resource, Infrastructure & Equipment

The inadequate staff, lack of infrastructure and equipment is an important constraint in the management of any Wildlife Protected Area (PA). Gulmarg Wildlife Sanctuary, as other PAs, is facing an acute dearth of manpower. As shown in Table 4 (Chapter 4), there are at present only seven frontline staff against a sanctioned strength of 26, managing the sanctuary, which is grossly inadequate for an area of 180 sq km comprising of difficult Himalayan terrain spread over 20 forest compartments. In terms of official/residential infrastructure, apart from a Range Office at Tangmarg and an inspection hut at Gulmarg there are only two staff quarters, one each at Drung (block Tangmarg) and Gulmarg. The vast majority of upper areas like Butapathree and Affarwatt don't even have temporary shelters to accommodate the staff in times of need. Other infrastructure like protective fencing at vulnerable locations, check posts, animal rescue centres and control rooms are also not available.

Equipment in handling the human-wildlife conflict situations like tranquillizing guns and accessories, trapping & transporting cages, nets, ladders, night vision devices although available, requires regular replenishment. Enrichment of camping gear and tentments for the patrolling frontline staff and survey tools like GPS, binoculars, range finders, cameratraps, digital cameras etc. is also required.



Figure 5.12: Range Office at Tangmarg (Photo: Amit Sharma)



Figure 5.13: Inspection Hut at Gulmarg (Photo: Amit Sharma)

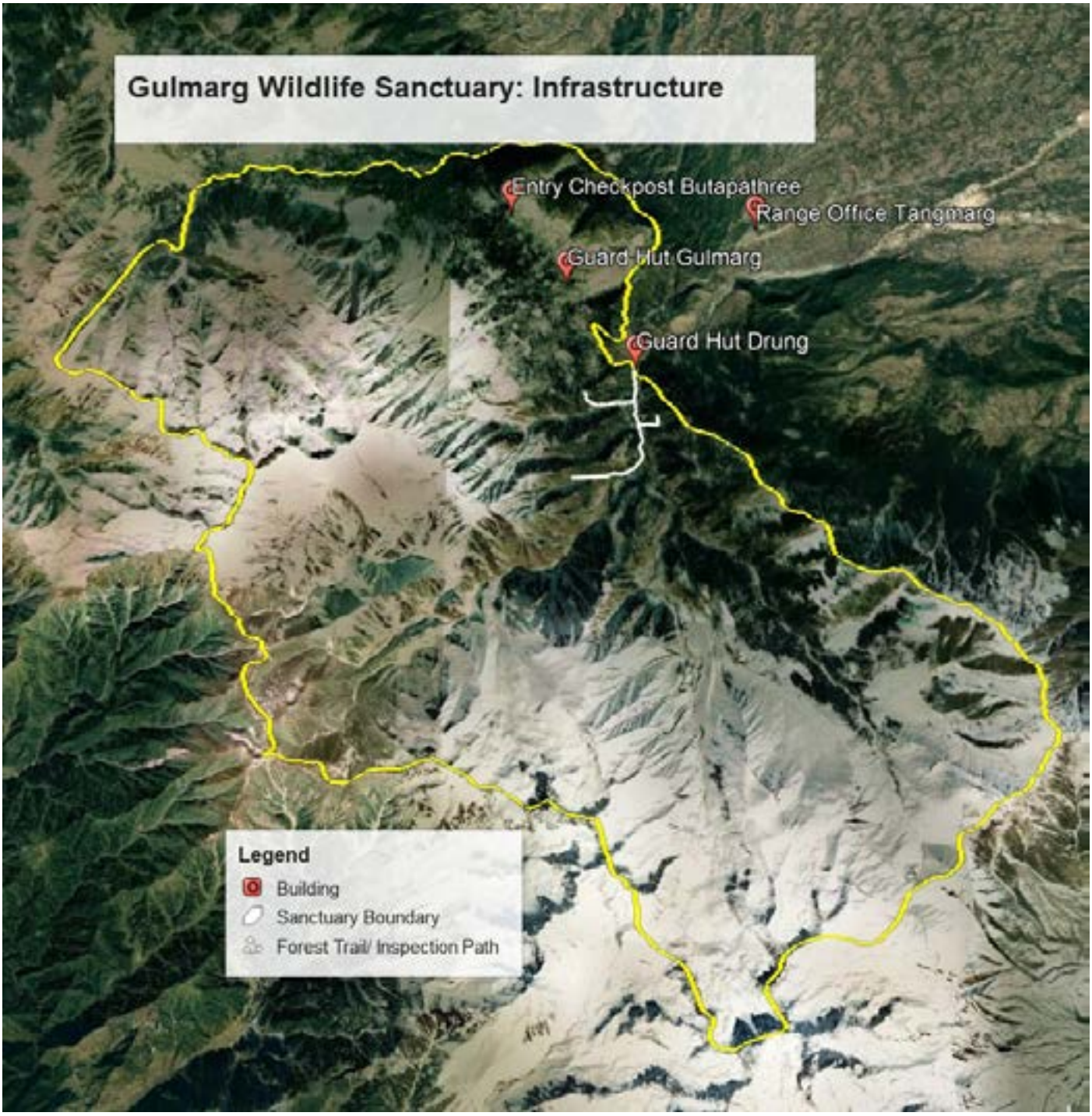


Figure 5.14: Map showing existing Infrastructure in Gulmarg Wildlife Sanctuary

5.5 Firewood, Fodder & NTFP collection

Climatic conditions in winters in the area are very harsh and fuelwood needs for domestic energy are very high. This leads to heavy pressure on natural forests for fuel during winters. Excessive lopping, which results with large scale demand for fuelwood is very detrimental to the forest trees, seriously affecting their growth and making them prone to other damage by parasites. Intensive lopping for fuelwood is noticed in the densely populated low altitude villages and on the tracks leading to high altitude summer pastures. The seasonal inhabitants of Dhoks as well as the permanent locals of the adjoining villages like Rangawali, Drang, Treran etc. venture into the forests aand resort to lopping of branches, collection of fallen wood (dead dried wood) which is stored for cooking and heating during winters.

The livestock owners also collect fodder (palatable grass and leaves) for their cattle in summer months and store them for use in winters. Another form of Non-Timber Forest Produce (NTFP) which are prone to illegal extraction are the medicinal herbs and mushrooms. Species with high medicinal properties e.g. *Trillidium govanianum* (Tripathri), *Aconitum heterophyllum* (Patris/patis), *Fritillaria roylei* (Sheethkar), *Picrorhiza kurrooa* (kuthki), *Morchella esculenta* (Gucchi) are most vulnerable. People sometimes collect wild vegetables and other medicinal herbs of economic value at unripe stages, which greatly affects their

regeneration. Valued for a wide range of uses including food, tea, animal fodder, vegetables, mushrooms (Gucchi), the medicinal herbs also face a lot of threat. They are also damaged by the grazing livestock of local communities and nomads. Due to a sharp rise in human population and corresponding increase in livestock, these uses have multiplied manifold, crossing the limits of sustainability, resulting in a rapid decline in the size and carrying capacity of these resources. Since the collection coincides with the nesting and egg-laying time of the ground-nesting birds like pheasants, the collectors disturb the nests and chicks.

5.6 Forest Fires

Forest fires have historically not been a real threat in Gulmarg, but of late due to deficient precipitation, the area has experienced several forest fires. Tangmarg Block of the sanctuary, because of the movement of nomads (gujjars, bakarwals and chopans) is particularly at a higher risk of accidental or deliberate forest fires. Chances of such fires increase, during the hot and dry summer and autumn season (July to November).

Table 7: *Forest Fire Incidents in Gulmarg Wildlife Sanctuary (last 5 years)*

Year	No. of Fire Incidents	Area Affected (ha)	Type of Vegetation Affected
2020-21	01	02	Grasses & bushes
2021-22	01	10	Grasses, bushes and fallen trees
2022-23	01	05	Grasses & bushes
2023-24	03	17	Grasses, bushes and fallen trees
2024-25	02	03	Grasses & bushes



Figure 5.15: Ground Fire in a Conifer Forest (Photo: Intesar Suhail)

5.7 Invasive Species

Due to over-grazing in certain parts of the sanctuary the weed infestation and manifestation of invasive species has become an issue in the sanctuary. The areas most affected include compartments 50, 51, 52, 56 and57. The most common invasive species infesting Gulmarg area include *Leucanthemum vulgare, Anthemis cotula, Datura stramonium, Xanthium spinosum* and *Cannabis sativa.* Being historically a tourist destination, Kashmir as a whole has experienced intentional introduction of several alien species for ornamental purposes, particularly in the public gardens, private parks and tourist spots. In Gulmarg conifer forests, the invasive species, Ox-eye daisy, *Leucanthemum vulgare* has been found to significantly influence the natural habitat (Khuroo et. al., 2010). The study has concluded that there is a potential inhibitory role of this invasive species in retarding the natural regeneration of the seedlings of other species in the forest ground floor and that by its invasion of the meadows, it can completely transform the natural landscape.



Figure 5.16: Invasive *Leucanthemum vulgare* in Gulmarg (Photo: Khuroo et. al., 2010)

5.8 Multi-Departmental Control

The land area officially notified as Gulmarg Wildlife Sanctuary is under the administrative control and physical possession of many government departments and allied agencies. Gulmarg Wildlife Sanctuary is divided into two parts, Compartment No. 54 to 58 is treated as the upper elevation of the sanctuary whereas Compartment No. 31 to 41 is treated as "Gulmarg Bowl". The upper elevations of Compartment No. 50-58 i.e 50-53 of Drang Nalla and 54-58 of Ferozpur Nalla have been handed over to Wildlife Department by the Forest Department, whereas rest of the Compartment No. 31-41 are still under the administrative control of Forest Department.

The area under Gulmarg Bowl that as per notification forms a part of the Gulmarg Wildlife Sanctuary, falling within the Compartment Numbers 37, 38, 39, 40 & 41 contains multi-departmental assets controlled by various government departments and agencies Jammu & Kashmir Cable Car Corporation (Gulmarg Gondola), Jammu & Kashmir Tourism Development Corporation (Hutments, Gulmarg Golf Club), Jammu & Kashmir Tourism Department/Gulmarg Development Authority (Other tourism infrastructure including Children's Park). Other government and allied agencies having assets in the area include the Jammu & Kashmir Fisheries Department, Agriculture Departnment (Potato farm), Jal Shakti Department and Indian Army (High Altitude Warfare School and camps/posts).

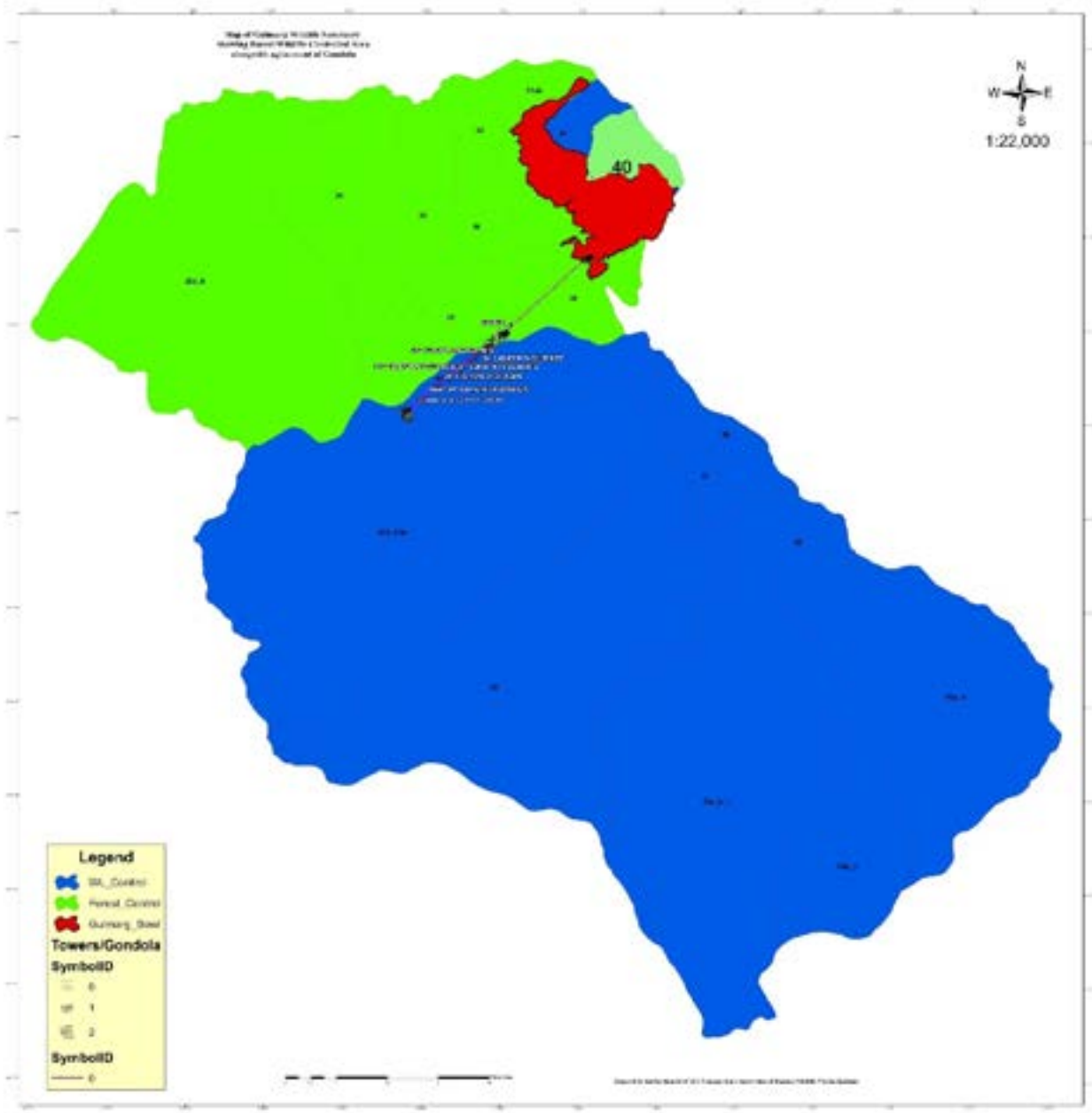


Figure 5.17: Map showing areas under "Gulmarg Bowl", Wildlife & Forest Control

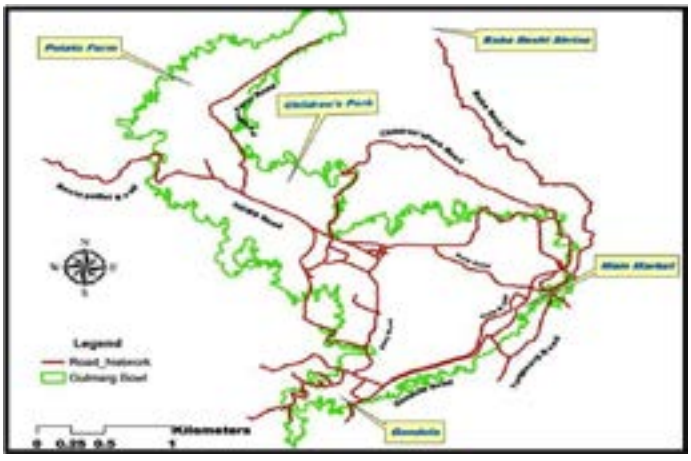


Figure 5.18: Map showing the "Gulmarg Bowl"



Figure 5.19: Map showing Tourism related Assets in the "Gulmarg Bowl"

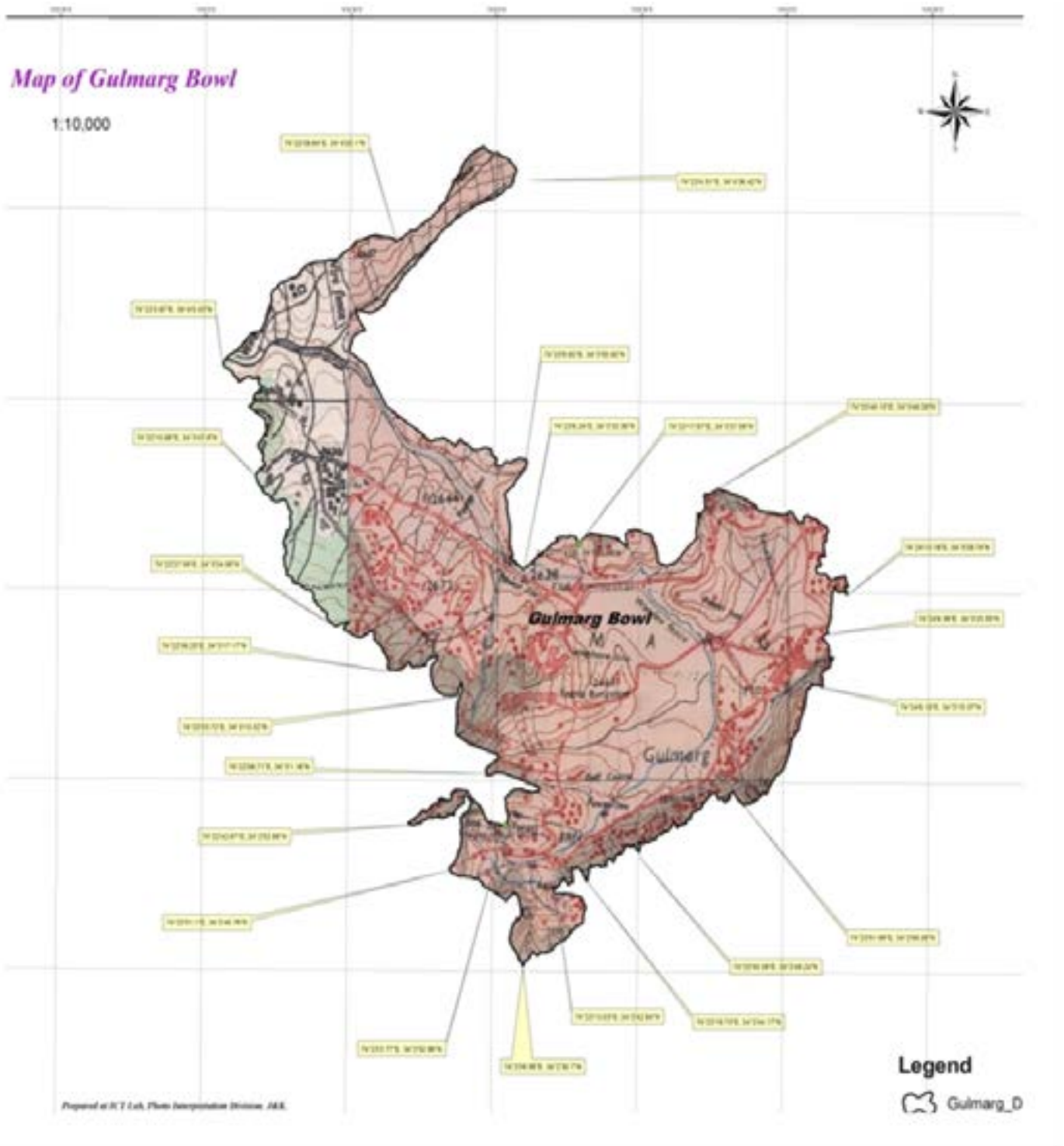


Figure 5.20: Map showing "Gulmarg Bowl" with geo-tagged boundary locations

Land measuring 15494 Kanals & 13 Marlas, presently under the "Gulmarg Bowl", was transferred to the State Revenue Department from the Forest Department by virtue of a Cabinet order in the year 1971 (before the notification of the wildlife sanctuary). In 2005, by virtue of a government order, the said land was transferred to the Gulmarg Development Authority for "development of tourist infrastructure in accordance with the master plan".

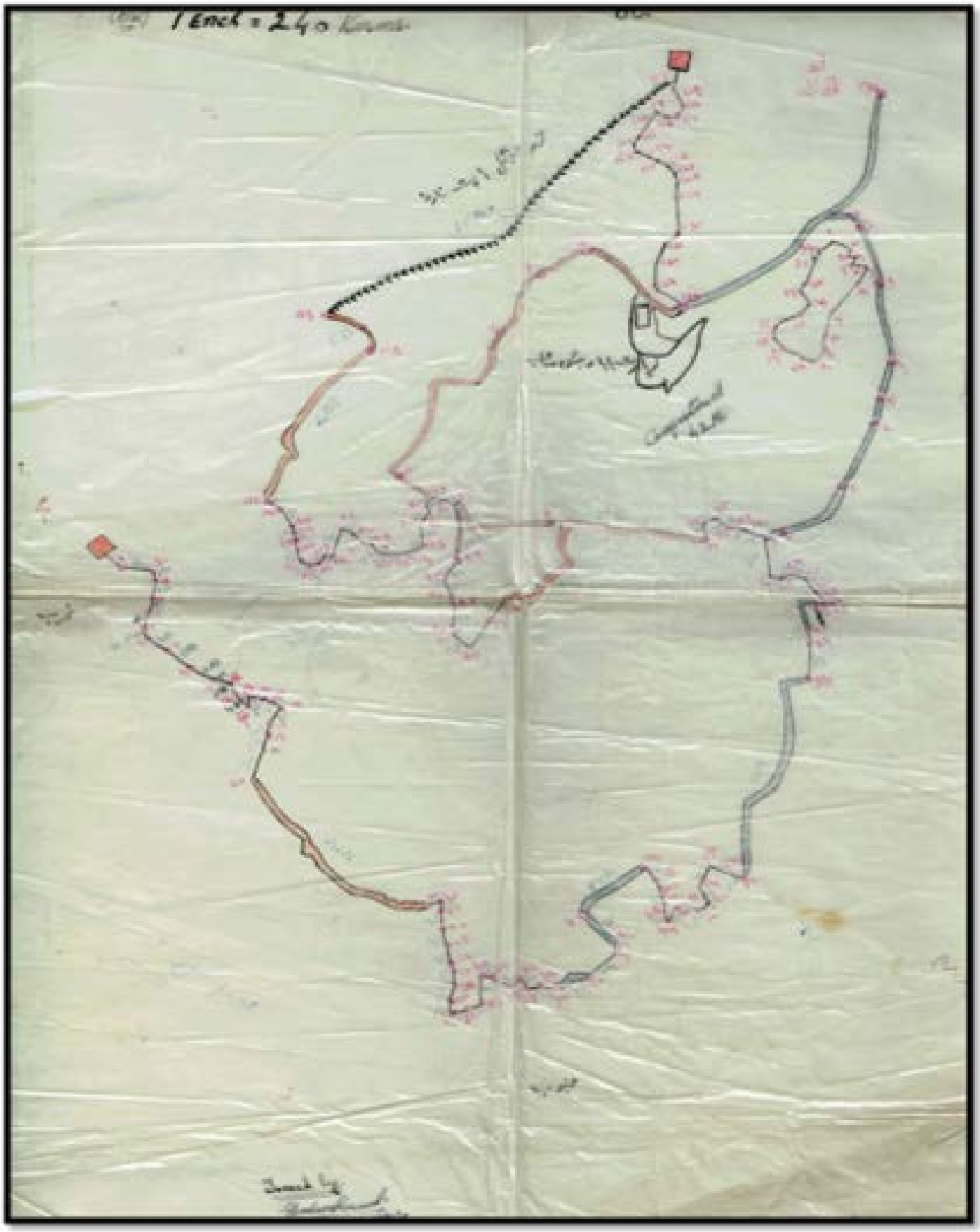


Figure 5.21: Revenue Demarcation Map of “Gulmarg Bowl”

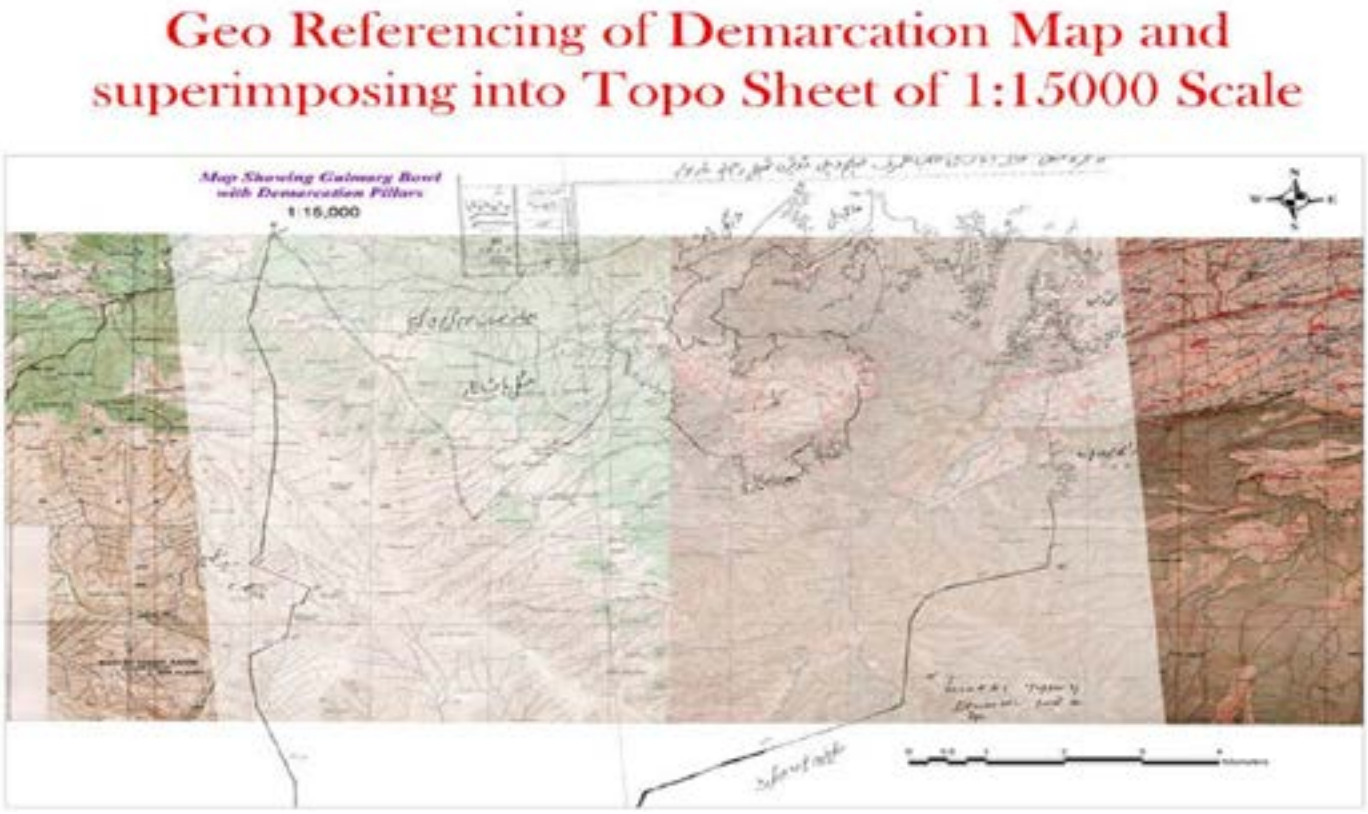


Figure 5.22: Demarcation Map of "Gulmarg Bowl" as superimposed on Topo Sheet (1:15000)

5.9 Pathological Problems

A number of notifiable infectious diseases that affect horses and livestock including equine infectious anaemia, strangles and anthrax can be transmitted to the wildlife. The domestic cattle and sheep harbor many of the same parasitic diseases that attract deer and may even introduce other ailments to which the deer are not normally exposed (Whitehead, 1950). Horses and other livestock are known to carry the parasite *Cryptosporidium parvum*, which can cause serious gastroenteritis in humans and animals if it contaminates drinking water. If any of the exotic diseases such as Equine Influenza (EI), equine encephalomyelitis, Potomac fever and other exotic infectious disease occurs, it would have a major impact on wildlife. Waste from livestock is a major cause of pollution, pathogenic bacteria blooms, and reduced oxygen levels in streams. One cow excretes between 30 and 40 pounds of urine and between 29 and 70 pounds of manure a day that often is directly deposited in streams. This waste raises the levels of nitrogen and phosphorus in the aquatic environment causing algae blooms that lower dissolved oxygen levels threatening fish and other organisms.

5.10 Human-Wildlife Conflict

Conflict between humans and the wildlife inside the sanctuary occurs when Brown Bear, Black Bear, Wolf or Leopard attack and kill livestock owned by the nomadic herders. Alternatively, conflicts also occur when wild animals stray into the villages and are encountered by humans. These encounters then lead to a negative interaction between the wild animal and the humans giving rise to the human-wildlife conflict.

Inside the sanctuary, although a few sporadic incidents of livestock depredation by Brown Bear have come to fore, no case of human death or injury in wildlife attack has been reported in the last ten years. Most of the human-wildlife conflict incidents are reported from near human habitations outside the boundaries of the sanctuary, largely where the forest forming the catchment is not a wildlife protected area. The data from last ten years shows that there has been a steady increase in the number of incidents reported but proportionately the number of human causalities has shown a decline, suggesting an improvement in departmental response (Table 8).

During the last ten years (2015-16 to 2024-25) there have been 881 incidents of human-wildlife conflict, mostly involving Black Bear and Leopard in tehsil Tangmarg. These incidents have resulted in two human deaths and 70 human injuries. During these years, approximately 500 times, the frontline staff have been successfully able to save the wild animals involved in the conflict.

Table 8: Human-wildlife Conflict Incidents and Human Casualties in Tangmarg, Tehsil

Year	No. of Incidents	Human Injuries	**Human Deaths**
2015-16	21	10	00
2016-17	85	06	00
2017-18	79	04	00
2018-19	52	06	00
2019-20	45	11	00
2020-21	83	14	01
2021-22	95	06	00
2022-23	126	04	00
2023-24	156	03	01
2024-25	139	06	00
Total	**881**	**70**	**02**

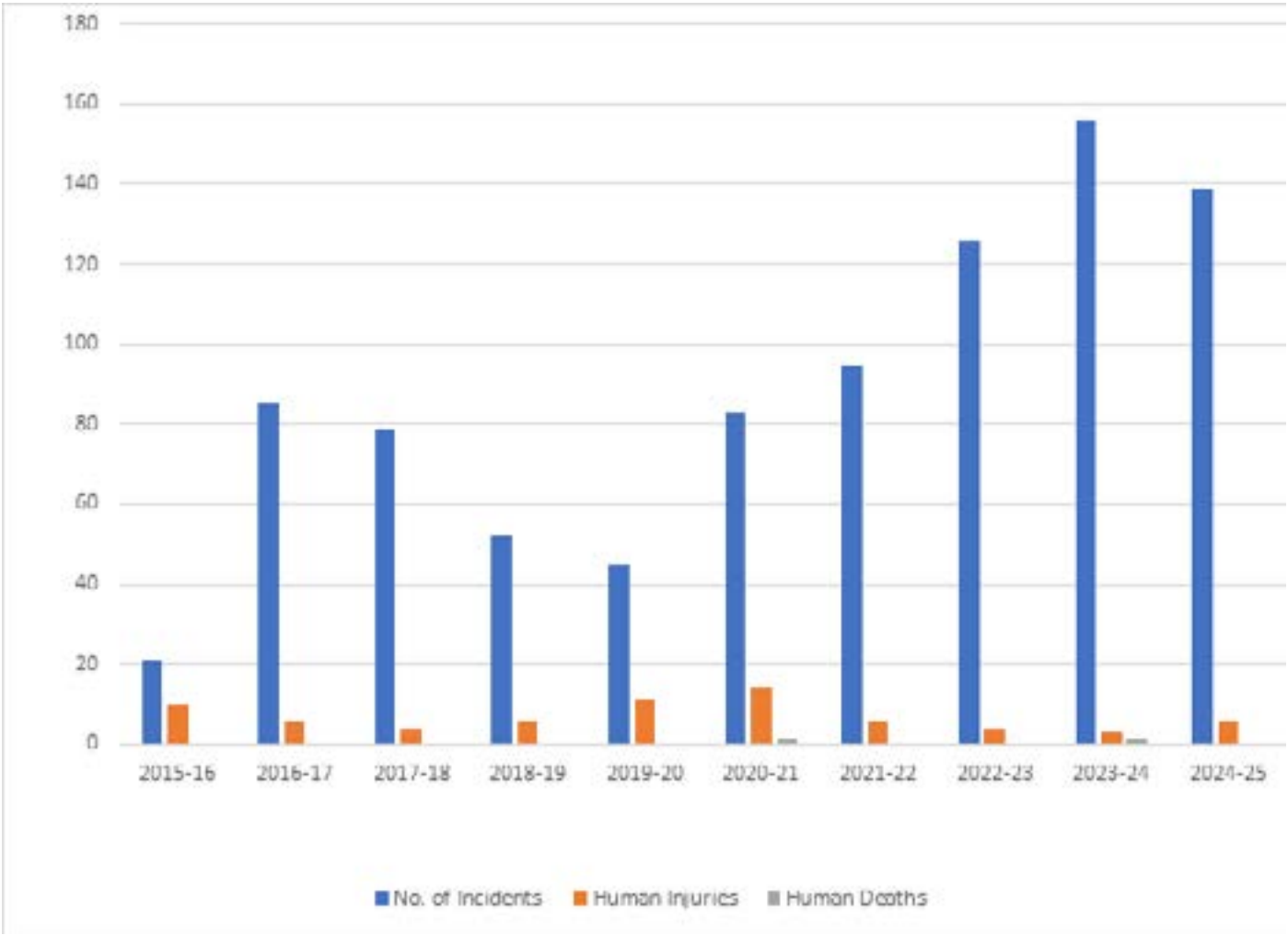


Figure 5.23: Graph showing Number of Human Deaths & Injuries in Tangmarg Tehsil (Last ten years)

PART 2

PROPOSED MANAGEMENT

CHAPTER-6

The Vision, Objectives & Management Strategy



Figure 6.1: Kashmir Musk Deer, the flagship species of Gulmarg WLS (Photo: Intesar Suhail))

6.1. The Vision

Gulmarg Wildlife Sanctuary, an archetype for the conservation of the Himalayan flora and fauna, harbours certain animal species that are globally threatened and serve as excellent flagships for conservation of high-altitude ecosystems. Such species are glamorous and have the public appeal to serve as symbols of conservation. Gulmarg has the globally threatened Kashmir Musk Deer, two species of bear and an excellent population of pheasants. The sanctuary thus has a lot to offer in terms of species conservation and any plan formulated must address issues of concern in respect of all these species.

The management aspires to conserve the unique and threatened assemblage of flora, fauna along with their critical habitats to ensure long term conservation of the ecosystem for the flow of ecosystem services in the region.

6.2. Management Goals

Using Kashmir Musk Deer as the flagship, the goal is to conserve its key habitats, other important species contained in the area would automatically get protection. The strategy to achieve this is to strengthen the protection measures whereas at the same time involve the local communities in such initiatives so that they see benefits

accruing to them as well.

To protect the Kashmir Musk Deer as a flagship for the conservation of

other threatened flora and fauna of Gulmarg WLS.

The goal can be achieved by several ways includes improved patrolling to reduce or stop poaching, protect the habitat by removing or regulating pressures on the habitats like grazing, biomass extraction, containing forest fires and at the same time restoring habitats by arresting soil erosion and regenerating grasslands to produce fodder for wild animals.

While all these activities are necessary, the poaching cannot be reduced without patrolling which means more and better trained staff, who have the necessary equipment and the inspection paths and night halts to perform their duties. Similarly, habitats cannot be protected unless alternatives are provided to the present users. The impact of all the activities must then be assessed by periodic animal surveys so that trends of populations and changes can be detected and corrected if necessary. The management goals of the Protected Area largely aim at contributing towards meeting the following Goals of India's National Wildlife Action Plan (2017-31):

- Conservation of threatened species
- Control of poaching and illegal trade in wildlife
- Regulation of NTFP collection, livestock grazing
- Encouraging people's participation in wildlife conservation
- Training & development of human resources
- Strengthening of research and monitoring

6.3 Objectives of Management

- To meet the management goals following objectives have been stipulated for the plan period i.e. 2025-35:
- To monitor the status and threats to the key wildlife species, such as Kashmir Musk Deer, Brown Bear and plan management interventions
- To assess the status and threats to rare medicinal plants & forage species of Kashmir Musk Deer and plan their restoration
- To reduce anthropogenic pressure especially the livestock grazing and restore the fragile high-altitude ecosystems as viable wildlife habitats
- To understand the human-wildlife conflict and put management suggestions to avoid retaliatory killings of problem animals
- To undertake eco-development activities in fringe areas for reducing the dependence of people on natural resource of the sanctuary
- To provide incentives & amenities to local, bona-fide communities and involve them in conservation
- To prevent encroachments and take measures to stop non-compatible land-use in the eco-sensitive zone
- Protect high altitude wetlands from pollution.
- To ensure capacity building of the frontline staff and to implement staff welfare measures
- To improve infrastructure and human resource to strengthen protection and surveillance
- To facilitate and undertake long-term and short-term basic and applied field research by coordinating with various local and national institutions/organisations.

6.4. Issues and problems in achieving the objectives

- Key limiting factors, which restricts the desirable pace of management practices, are as below:
- Shortage of staff and inadequate infrastructure to implement management activities
- Inadequate and late budgetary allocations
- High anthropogenic pressure and extraction of fuelwood and other NTFP
- High pressure of unsustainable livestock on the alpine pastures and other habitats
- Inaccesibility of some areas due to proximity to the LoC
- Lack of proper exposure training of staff and field functionaries
- Weak intelligence network.

6.5 SWOT Analysis

The **S**trengths, **W**eaknesses, **O**pportunities and **T**hreats pertinent to the Protected Area have been worked out as below:

Strengths

a. Biodiversity rich area
b. Harbors a viable population of Kashmir Musk Deer in the Western Himalayas.
c. Contiguous landscape with other wildlife rich areas such as Rajouri and Poonch districts in Jammu region and Uri, Baramulla in Kashmir region.
d. Well known tourist destination

Weaknesses

a. Inadequate enforcement due to shortage of staff and lack of skills.

Over-tourism

a. Harsh climatic conditions & extended winters.
b. Security issues, proximity to LoC

Opportunities

a. Save the viable Kashmir Musk Deer population in one of its prime habitats.
b. Conserve some of the finest and large alpine meadows.
c. Present the area as a model of sustainable tourism & ecological hotspot.
d. Ensure peoples participation in conservation.

Threats

a. Huge anthropogenic pressure on the alpine meadows affecting flagship species.
b. Unsustainable and un-planned tourism related 'developmental' activities

6.6 The Management Strategies

Management actions aiming at protection of wildlife against natural and man-made ecosystem stressors such as poaching, resource exploitation, infestation of weeds, grazing, soil erosion etc. would be undertaken. Followings are the key principles of management strategies for the sanctuary.

- **Restorative strategy:** This shall include the restoration of habitat attributes lost over time, such as revival of meadows, controlling weeds to restore potential of a site, soil conservation works to restore catchment functions, restoration of water bodies etc. The techniques of restoration would be such that it is acceptable on aesthetic, economic, environmental or ecological considerations and as 'near natural' as possible (Sawarkar, 2005)
- **Compensatory strategy:** It would seek to compensate for the loss of habitat attributes due to various reasons, as in case of the sanctuary: reducing dependence of graziers on meadows, reducing dependence of locals on the sanctuary resources and reducing unsustainable tourism activities. Eco-development measures in the fringe villages, grazing regulation, providing alternate grazing lands, sustainable eco-tourism are some of the other compensatory strategies.

6.7 Zonation and Theme Plans

Since it is difficult to design a standard management practice to be implemented throughout the landscape, it would be practical to adopt zone and theme approach of management. Following three zones are proposed: Conservation zone; Eco-development Zone; and Eco-tourism Zone.

- **Conservation Zone:** The zone would cover the entire Protected Area except the tourism zone and shall constitute the buffer and the core zones.
- **Eco-development Zone:** The zone would be outside the boundary of the Protected Area within one km of the Protected Area boundary.
- **Ecotourism Zone:** Ecotourism zone would comprise the 'Gulmarg Bowl' spread over parts of Compt. 37, 39, 40, 41 and shall also include Compt. 50 and parts of Comptt. 37 and 39.

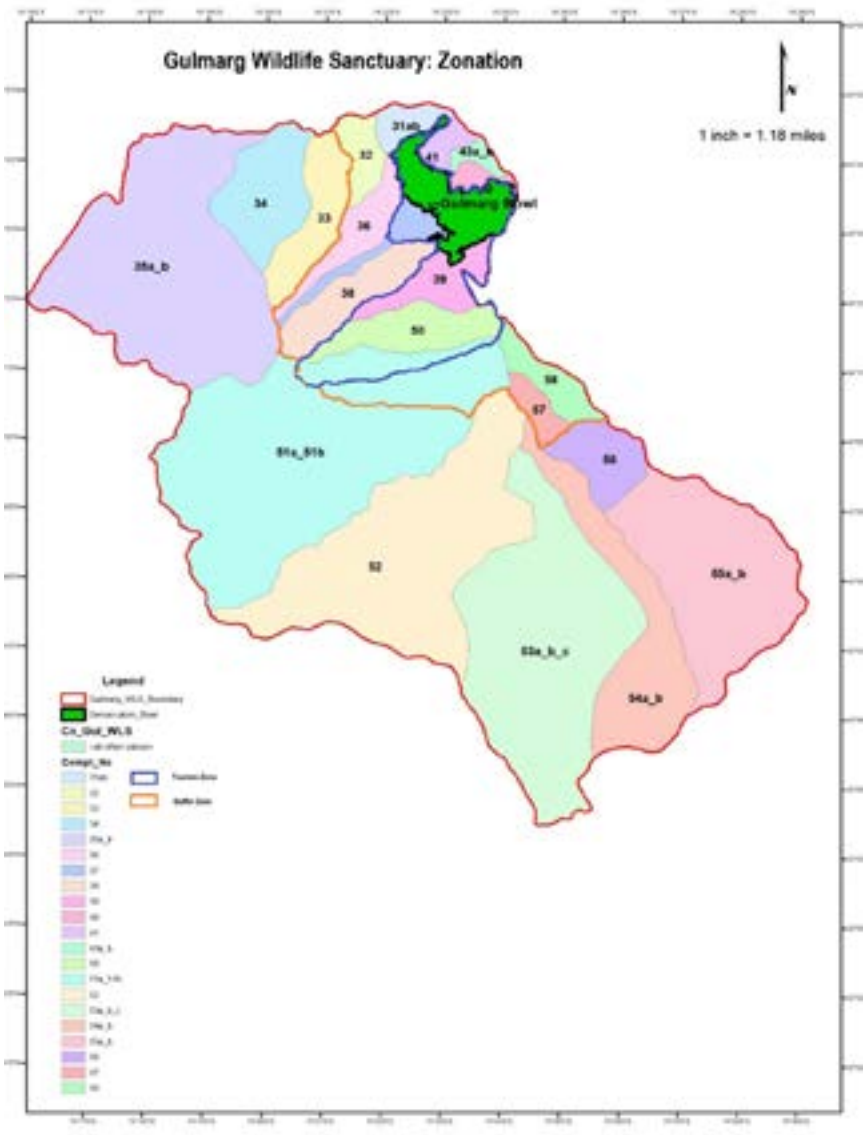


Figure 6.2: Map showing Zonation in Gulmarg Wildlife Sanctuary

The Protected Area would be managed as per separate sub-plans or Theme Plans, the critical building blocks of the present management, discussed in detail in the succeeding chapters shall be the following:

i. Habitat management
ii. Protection & Surveillance
iii. Maintenance and development of infrastructure
iv. Human resource & Capacity Building
v. Research and monitoring
vi. Wildlife Health management
vii. Eco-development
viii. Eco-tourism
ix. Management of human-wildlife interface
x. Extension and awareness

CHAPTER-7

Habitat Management

Objective

Protect, restore and manage important habitats for the threatened and endemic wildlife in the Sanctuary.

Habitat management is one of the key components to conserve the threatened species. Mapping habitats for the different species and identifying and quantifying threats to these habitats would be prerequisite to manage the habitats. For it to be handled effectively, it is essential to first identify the key habitats for the species in question and then assess the status of these patches. Threats to important animal species may also be assessed to arrive at meaningful solutions. Some of the major threats to key habitats include livestock grazing, fuel wood extraction, NTFP collection, forest fires and disturbance due to multi-departmental stakes. However, quantification and negative impacts of these threats need to be assessed in more detail. Further, the understanding and distribution of these threats would help in the effective mitigation. Recent studies have shown that heavy livestock grazing is a threat to the species like markhor, musk deer and pheasants (Bhatnagar et al 2009; Ahmad 2014 and Ahmad et al. 2016). The unregulated extraction of fuelwood from the Protected Area by the locals and herders degrade the habitats. Suitable restoration activities shall be initiated once the areas are identified and issues quantified. For this to be done effectively, causal factors must first be identified through either expert consultations or research (see section on research) and solutions sought so that targeted remedies are suggested.

Particular emphasis shall be laid on the proper management of livestock grazing practice and fuelwood extraction so that further degradation of habitats can be prevented. Other activities required for the restoration of habitats include, soil conservation, pasture developments, eradication of weeds, afforestation.

Livestock grazing, fuelwood and Morchilla extraction shall get particular management focus to prevent further habitat degradation.

Priority actions

7.1 Management of livestock

Recent studies across the Himalayas have shown that uncontrolled livestock grazing is a major threat to wild herbivores and their habitat (Mishra 2001, Mishra et al. 2004; Bagchi et al. 2012, Ahmad 2014). Huge livestock presence is one of the key management issues of the Protected area and the ungulate assemblage there (Bhatnagar et al. 2009, Ahmad 2014). It shall thus be a priority to control the livestock grazing across the important habitats especially the alpine and subalpine habitat and the critical Musk Deer habitats.

Following actions shall be taken/continued to address the issue of overgrazing by livestock:

- One of the objectives to upgrade the status of a forest area as a wildlife Protected Area has been to curtail the livestock grazing, a major threat to the threatened species like musk deer and the key habitats. Therefore, it is the first step to restore the habitats. Livestock camps have been reported from the critical Musk Deer habitats also which need to be immediately shifted to the buffer zone. Regulating the livestock by stopping non-bonafide herders and reducing the number of livestock with local shepherds has to bee in focus. The number of livestock allowed for grazing in the PA by Gujjars and Bakkarwals has to be be specified based on the actual number of livestock owned by them. The livestock grazing by the fringe villages who have grazing rights shall be regulated. Further, the critical habitats have to be identified and protected from livestock grazing whereas grazing in other areas will be regulated on rotation basis.
- In Protected Area, livestock grazing reduces plant biomass by 5 times where closures were fixed to understand the impact.
- Core area of the Protected Area shall be made livestock free in the long term by shifting the herders to other adjacent forests.

7.2 Pasture development

Restoration of degraded pastures would be important to restore the habitats for herbivore population in the Area. Following measures would be required to achieve the objective:

- Identification and mapping of the most degraded pastures would be the prerequisite to start the restoration
- Once mapped, livestock grazing has to be stopped in such pastures and scientific interventions are to be initiated.
- Heavily eroded and degraded alpine pastures shall be identified & protected on a temporary basis in order to allow recovery and facilitate regeneration of native grasses, herbs and shrubs.

The high yielding seeds of different species of native resident herbs and grasses shall be sowed in various pastures having high concentration of wild ungulate species.The alpine pastures shall be enriched with high yielding varieties of grasses and shall be protected and

monitored on a regular basis.The variety of grasses proposed are *Vigna spp., Medicago sativa, Dactylis glomerata, Festuca arundinacea, Phleum pratense, Festuca rubra, Lolium perenne, Trifolium repens, Trifolium pratense, etc.*

7.3 Removal of unwanted invasive species/weeds

Increased livestock pressure, lack of scientific management of habitats/grasslands increases infestation of unwanted weed species affecting the herbage production and rendering the habitat quality poor. Compartments 50, 51, 52, 56 & 57 are infested with weed species. Palatable species of grasses and legumes in the pastures are predominantly replaced by noxious weeds and invasive species of *Leucanthemum*, *Rumex*, *Cirsium*, *Stipa, Sambucus, Sibbaldia, Malva sylvestris* etc. Management of invasive and unwanted species would require following measures to be implemented:

- Mapping of the weed infested areas in the Protected Area: The weed infested areas shall be systematically surveyed and mapped to know the extent of infestation.
- Phenology of weed species: Phenology of the weed species shall be compiled/studied to decide the time/season for employing control measures.
- De-weeding: The unwanted species shall be manually uprooted before flowering starts. In due course of uprooting the native and palatable species shall be reduced to a minimal extent.
- Monitoring of the weed cleared sites: The abundance of weed species shall be monitored before and after the removal operations to assess the success of the de-weeding operation. Based on the results, cycles of the treatments shall be decided.
- Plantation of native species: In the weed cleared plots, regeneration of native and palatable species may take some time, hence artificially seeding of suitable plant species in cleared plots shall be undertaken.

De-weeding shall be carried out over an area of 100 ha in the present plan tenure.

Dr. Anzar A Khuroo, Professor Department of Botany, University of Kashmir has suggested the following management protocol for *Leucanthemum vulgare,* one of the most common invasive species in the Gulmarg Wildlife Sanctuary:

To mitigate the spread and dominance of *Leucanthemum vulgare* (ox-eye daisy) and facilitate native plant regeneration, a structured management protocol will be implemented across a 100 × 100 m experimental plot. The methodological steps are as follows:

1. Initial Clipping of Aboveground

During the peak flowering season, all aboveground of *L. vulgare* within the selected plot will be manually clipped. This will coincide with maximum flowering to prevent seed maturation and dispersal. To minimize propagule pressure and control gene flow, additional clipping will be extended to adjacent landscapes, especially those facing or in close proximity to the experimental plot. The clipped biomass will be carefully collected and transported to naturally occurring depressions or troughs located at a considerable distance from the managed plots. This disposal strategy is aimed at minimizing the risk of seed reintroduction via wind or animal vectors and to ensure seed containment outside the core restoration site.

2. Seedbank Monitoring

Following the initial intervention, the treated plot will be left undisturbed until autumn. During this period, regular monitoring will be carried out to assess the emergence of native seedlings from the soil seed bank.

3. Native Seed Augmentation and Uprooting of Recurrences

Any re-emergence or recurrence of *L. vulgare* individuals will be manually uprooted to suppress its reestablishment. In autumn, seeds from a diverse set of native plant species, collected from nearby uninvaded sites, will be added over the treated plot. The selected native species include: *Epilobium hirsutum, Pedicularis punctata, Anemone obtusiloba, Poa pratensis, Thymus linearis, Cerastium glomeratum, Achillea millefoliium, Alopecurus aequalis, Gallium aparine* and *Stellaria media.*

4. Application of Hay and Soil Cover

To enhance seed retention and protect against desiccation and wind erosion, the seeded plots will be covered with locally sourced hay. Subsequently, a thin layer of topsoil from nearby uninvaded areas will be spread over the hay to act as a stabilizing matrix, improve microclimatic conditions for germination, and mimic natural litter conditions.

5. Monitoring of Germination and Supplementary Planting

In the following spring, germination success will be assessed for each introduced native species. To further improve species richness and cover, naturally occurring seedlings of native plants from surrounding plots will be transplanted into the experimental area. This step is intended to maximize native species establishment and increase competitive pressure against *L. vulgare*.

6. Long-term Monitoring and Maintenance

Post-establishment, the plots will be periodically monitored for the presence and growth of both native and invasive species. Any further recurrence of *L. vulgare* will be promptly removed. Data on native plant cover, species richness, and invasive suppression will be recorded to evaluate the long-term effectiveness of the management strategy.

7.4 Soil Conservation

Bank scouring by the fast-flowing streams and rivulets is an issue to be addressed under this component. To prevent the soil erosion and to check the soil run-off, gully

plugging, dry rubble stone masonry and crate-wire binding shall be done in the erosion prone compartments of the Protected Area. Construction of crate bunds and check dams, planting of soil binding plants, in compartments 50, 51, 52, 53, 54, 55, 56, 57, 58 shall be taken on priority. The soil conservation works shall mostly be required in the nallah landscapes as enumerated in Table:1 (Chapter 2).

7.5 Plantation and promoting natural regeneration

In some areas deodar is disappearing. The planting of deodar in such areas would be necessary. There are sites such as in Compt. 50 and 52, where regeneration occurs due to less biotic interference.

The plantation of conifer, broad leaved and fruit bearing native trees shall be planted at identified locations. Plantation of following species shall be done in the areas indicated.

Some of the areas that have supported dense conifer vegetation in the past but have degraded over the years shall be taken up for compensatory afforestation. About 10000 saplings (5000 kali+5000deodar)

Combination of different fruit bearing plants so that fruits are available throughout different seasons need to be planted especially around the areas with a good population of black bear and rhesus monkey. Walnuts, cherries, plums, *Viburnum* and *Berberis* are some of the options. About 10000 saplings are proposed to be planted.

The broad-leaved species like *Aesculus* shall be planted along nallahs like Hakerpathri nallah, Soee Nalah, Hapat Khud Nala, Vehnar Nala, etc. About 100,000 saplings are proposed to be planted over a period of ten years.

7.6 Water holes

Water holes have been proposed so as to make drinking water available to the wild animals during lean periods. The animals sometimes come out of the natural boundaries to quench their thirst. The location where water holes have been proposed are those which are frequently visited by wild animals.

7.7 Salt licks

The salt and mineral licks serve as important sources of sodium, phosphorus and calcium, that are not sufficiently obtained from the wild by the ungulates. These minerals support the health, reproduction and overall well-being of the wild animals. Salt/mineral licks have been proposed at key locations within the PA which will be periodically supplemented with salt/mineral blocks to fulfil the micronutrient needs of the wild ungulates.

7.8 Demarcation & fencing

Physical demarcation of the Gulmarg Wildlife Sanctuary undertaken in collaboration with the Demarcation Division and Tangmarg Forest Division of the Forest Department is almost complete. The fixing of Boundary Pillars in respect of the Eco-Sensitive Zone is under progress. Further, zonation of core and buffer areas needs to be carried out on the basis of an assessment of animal use of these habitats. It may be important to map these zones in GIS domain so that a workable map is at the disposal of authorities for improved management.

7.9 Forest fire control

Forest fires if not controlled in time can cause heavy damages to the habitat and wild animals. It can alter habitats and cause direct mortality to animals, especially those that cannot move quickly. Fires can render habitats unusable until they recover and therefore may cause temporary displacement of species. It also can allow the weeds and fire-resistant plant species to grow. Thus, it is extremely important to reduce threats posed by fires and possess the ability to respond quickly to such emergencies. The conifer forests are prone to fires during the dry season and therefore extra emphasis has to be given during that period.

The proposal calls for establishment of a temporary fire fighting squad and fire lines in a phased manner, first in the most fire prone parts of the park and later all across. Additionally, purchase of standard fire fighting and fire line construction equipment is recommended. Firelines shall be established in Compt. 50, 51, 52, 53, 54, 55, 56 and 57.

Although some fire lines have been created in some Compartments, they need regular maintenance. Fire fighting equipment procured already needs to be replenished.

CHAPTER-8

Protection & Surveillance

Objective

To strengthen surveillance and protection measures to secure wildlife and their habitat in the Sanctuary.

Poaching, retaliatory killing of wild animals, extraction of medicinal plants, Morchilla, timber smuggling, burning of grasslands and forests, are some of the major threats to a Protected Area. Regular patrolling is the most effective tool to combat wildlife crime. However, with the shortage of staff and poor infrastructure, patrolling shall focus more in the vulnerable areas and during sensitive months. There is an option to involve primary stakeholders such as local villagers to form squads headed by the staff of Area to conduct wildlife crime prevention patrolling. The activities are thus directed mainly at creating a workforce that is trained and equipped to undertake the task of patrolling. These people shall be provided proper training in patrolling and crime detection and shall be adequately equipped to enable them to take up the challenges. Legal support in framing and following the cases related to wildlife offences is very essential. To motivate the staff more into such action, insurance, health care and incentives for the staff shall have to be ensured. All types of logistic support including motor bikes/patrolling vehicles, maintenance of patrolling vehicles shall be provided. Some steps to control this menace of wildlife crime are outlined below:

Priority actions

8.1 Patrolling

- *On-foot Patrolling:* The Range Officer (RO) will make a patrolling route map based on the sensitivity of an area with regard to wildlife crime. The R.O will prepare a patrolling roster to ensure that all areas are effectively patrolled and that the teams will keep on changing their routes on a regular basis. The RO and forester may also accompany the patrolling teams on a regular basis. In the later phase of the management plan mobile application based / GPS based patrolling shall be accomplished in the Protected Area.
- Each team will be composed of one permanent staff (forest guard) and two team members either daily wagers or permanent helpers. Ideally, at least 10 patrolling parties should be deployed to cover the entire PA area effectively.
- The patrolling teams shall maintain monitoring and patrolling register/data sheet and submit its copy to their controlling authorities.
- *Vehicle patrolling:* Vehicle patrolling shall be along the motorable areas, especially in sensitive zones. To conduct vehicle patrolling effectively at least three motor bikes and one four-wheel vehicle should be provided to the Sanctuary. The Range Officer, who will get the patrolling data from the patrolling teams on a weekly basis, will send a compiled report to the Wildlife Warden on a monthly basis. This will be important to facilitate timely and appropriate action.
- *Patrolling paths*: The existing patrolling paths shall be maintained for smooth movement of patrolling teams. New patrolling routes shall also be created in areas prone to wildlife crime.

8.2 Anti-poaching

One of the main tasks of the wildlife department is the protection of wildlife against poaching which has to be efficient and timely. Emphasis has to be there to create a workforce that is trained and equipped to undertake the task of patrolling and surveillance. Periodic training programmes on monitoring and wildlife crime and enforcement therefore become essential and are proposed to be conducted for the benefit of the front-line staff. Regular refreshers are also suggested. Due to shortage of staff, prioritizing the patrolling in more vulnerable areas and during the sensitive months is necessary. Other than the patrolling staff, some informers shall be put on the payroll so that there is a constant flow of information about poaching and other events concerning wildlife. Some of the steps proposed to control poaching effectively are as under:

- Anti-poaching camps (APC) shall be established in Protected Areas and adjoining villages. The anti-poaching camps shall be equipped with following items:
    - Logistics (sleeping bags, utensils, cooking device)
    - Solar lighting
    - Communication equipment
    - First-aid box

- Stationery and data collection formats
- Binoculars and camera

The anti-poaching camps shall be regularly monitored by Wildlife Warden and Range Officer.

- Registration of guns within 10 km of Protected Area shall be initiated. Steps shall be taken to ensure that the guns are deposited by the licencees during the sensitive periods.

8.3 Antigrazing

Heavy livestock presence inside the Protected Area is one of the major threats to the herbivores, pheasants and plants and is also a cause of huge disturbance. As summer grazing and the stay of herders in the area is the most important factor which has larger dimensions attached to it, therefore has to be essentially addressed. The migratory herders and local shepherds who traverse the habitats with large livestock numbers need to be evacuated and shifted to some alternate area and the buffer zones. Complete curtailment of the non-bonafide and non-traditional herding practices requires sustained anti-grazing activities for which adequate support in terms of manpower and logistics has been proposed.

CHAPTER-9

Infrastructure Development

Objective

To develop and maintain infrastructure for improved management, protection and communication

Natural attributes of a site are maintained and enhanced by staff who are charged with the responsibility of protecting and monitoring a protected area. However, the staff can succeed in their mission only if they are motivated, enjoy requisite amenities and have ideal infrastructure and equipment at their disposal. Therefore, this plan lays emphasis on maintaining the existing infrastructure and developing it further to suit the requirements of the PA. Enhancing the capacity of the frontline wildlife staff and to provide them with the necessary equipment to support their field activities and office work shall be a priority.

It is very important to provide the staff with the basic amenities like living quarters in the field so that the staff can be posted to these areas, patrolling camp stations that can withstand the harsh weather so that patrolling parties can make use of these night shelters for extended periods of time.

Fast and efficient communication is a prerequisite to good management. Reduction of response time to wildlife emergencies can be achieved if this problem of communication can be solved. Communications can either be logistics or tele-communication and these can be addressed by ensuring the provision of proper and effective infrastructures such as vehicles and telecommunication facilities. The terrain and weather conditions of the Sanctuary may not permit use of cutting-edge technologies used elsewhere in the plains, however, basic facilities such as vehicles for rapid movements, motorbikes and snowbikes for the mountain trails and mobile phones can be provided. Procurement and proper use of this necessary equipment shall be followed by a proper maintenance scheme as well as replacement scheme whenever required.

Priority actions

9.1 Maintenance & Development of Infrastructure

Construction of residential quarters for the front-line staff has been proposed which is extremely necessary for round the clock presence of the officials to control poaching, NTFP collection and livestock grazing and to address Man animal conflict. Therefore, there is a need to provide four staff quarters at the identified key locations. This plan also proposes construction of snow resistant patrolling camp stations in the upper reaches of the Sanctuary to be used for anti-poaching operations during the snow season. Besides, maintenance and construction of bridges is also proposed at specific locations.

Additionally, development of infrastructure necessary for undertaking effective patrolling is proposed. These include watchtowers, shelter sheds and check posts at strategic locations.

The plan also provides for upgradation of survey equipment used by the frontline staff and includes procurement of devices like camera traps, binoculars, compasses, GPS and others. Availability of the right equipment along with training on their use greatly improves the capability of undertaking good quality work. Further to cover any loss, introduction of insurance schemes for the staff and provision of proper health care facilities to the staff are also part of this plan.

The plan also seeks to upgrade the camping gear of the field staff and procure basic office equipment like computers, printers and photocopiers. It is obvious that protection measures, which depend on the maintenance of animal populations within a park, can only be successful if such amenities are provided.

Following infrastructure shall be developed and maintained during the management plan period to strengthen protection and management of the Sanctuary.

Proposed Infrastructure	Location
Staff Quarters (new)	Kangdoori, Butta Pathri (2)
Staff Quarters (maintenance)	Gulmarg Potato farm, Tangmarg Range Complex, Drung (3)
Watch towers	Alapathree, Affarwat, Botapathree, Danwas (4)
Shelter sheds/ Anti-poaching camp stations	Pehjan and Kantanag (2)
Sanctuary Gate and Check-Post	Drung, Nagin (2)
Nature Interpretation Centre with Tourist Information Centre	Gulmarg (1)

9.2 Communication

The field staff communicate through their mobile phones and at several locations of the sanctuary, mobile phones don't work. Therefore, to ensure a fool-proof, all time network-free communication system, a low-frequency wireless system is proposed to be provided to the frontline staff. Hand-held wireless devices, permissible for use (owing to security reasons) shall be procured and issued to the frontline staff for use in the field.

9.3 Mobility

Mobility is as important as communication. Presently, the PA is only having one animal rescue vehicle which is old and on high maintenance costs. This plan proposes procurement of two new vehicles for staff mobility and rescue operations. In addition, two motorbikes and one snowmobile is also proposed for effective patrolling during summer and winter months respectively.

Type of Mobility	Number	Activity proposed for
Truck/Van/ Load Carrier	01	Animal rescues/ Human-wildlife conflict mitigation
SUV	01	Staff Mobility
Motorbike	02	Staff patrolling (summer)
Snowbike	01	Staff patrolling (Winter)

9.4 Equipment

A wide range of field and office equipment is proposed to be procured during the plan period of ten years, which includes:

i) Office Machinery & Equipment for divisional & subordinate offices:
- Computer hardware (desktops & laptops)
- Computer software & accessories
- Photocopiers
- LED projector

ii) Survey Equipment for frontline staff:
- Binoculars & Night Vision devices
- Telescopes
- Range Finders
- GPS devices
- Drones

iii) Field Gear for field staff:
- Tents
- Sleeping Bags & Ruck Sacs
- Field Uniform & Shoes

iv) Photographic equipment:
- DSLR Cameras
- Lenses

CHAPTER-10

Management Units & Human Resource

Objective

To maintain viable management units & to develop a trained and capable frontline and office workforce to effectively address management challenges and achieve goals.

Priority Actions

10.1 Proposed Administrative Units

The present administrative units of the sanctuary comprising of Blocks namely Tangmarg, and Gulmarg shall be maintained as such, but with enhanced human resource. Each Block shall be headed by a designated Forester rank official. The Tangmarg Block shall further comprise three beats viz Drung, Danwas and Pehjan and the Gulmarg Block of two beats viz Gulmarg and Affarwat.

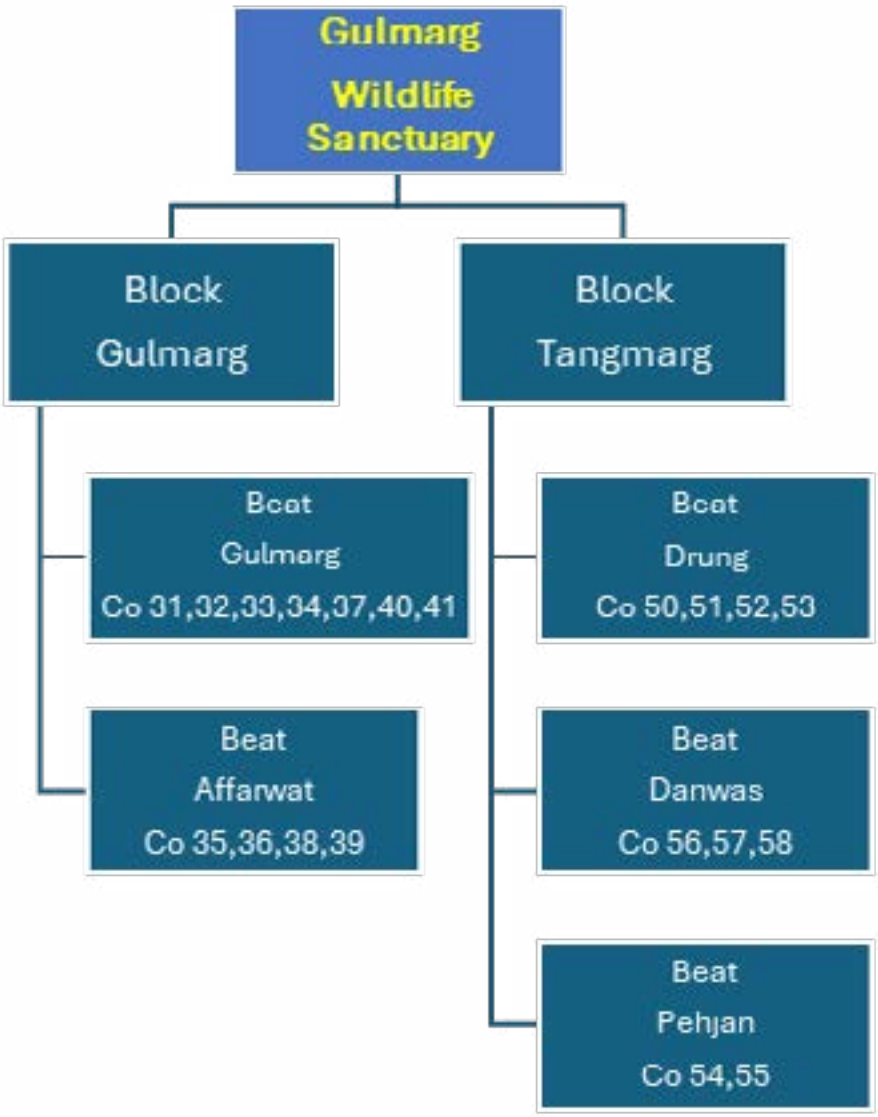


Figure 10.1: Proposed Administrative Units (Blocks & Beats) of Gulmarg WLS



Figure 10.2: Map showing Compartment & Beat Boundaries of Gulmarg WLS

10.2 Proposed Human Resource

As discussed in Chapter 4, the area is deficient in staff having insufficient manpower for protection, conservation and management interventions. Keeping in view the area, working conditions and management requirements of the sanctuary, this plan proposes an enhanced manpower for each staff level. Further, the area presently under the administrative control of the Forest (Territorial) Department is proposed to be taken over so that the wildlife specific management interventions are carried out and the area is restored as a viable wildlife habitat. For this purpose, the following actions are recommended to be taken before the area is handed over to the Wildlife Department:

- A detailed survey of the area to determine presence & absence of wild animal and bird species
- Survey to determine vegetative/tree cover, tree density and shrub cover
- Enhancement of staff
- Inventorying of forest damage
- Inventorying of encroachments
- Inventorying of assets & liabilities

Table 9: *Proposed Staff Enhancement for Gulmarg Wildlife Sanctuary*

S. No.	Designation	Sanctioned	Posted (as on 01.01.2025)	Additional Proposed (Over sanctioned)	Effective
EXECUTIVE					
1	Range Officer	01	00	00	01
2	Forester	02	02	01	03
3	Forest Guard	14	02	00	14
4	Watcher/Helper	08	02	00	08
5	Veterinary Attendant	00	00	01	01
6	Mali	01	01	00	01
MINISTERIAL					
7	Jr. Assistant	00	00	01	01
8	Computer Operator	00	00	01	01
9	Orderly	00	00	01	01

Additionally, casual and seasonal labourers shall be deployed in sufficient numbers to assist the permanent staff.

10.3 Capacity Building

Capacity building empowers individuals and organizations to perform effectively, achieve their objectives, adapt to changing circumstances and ultimately reach their full potential. This plan proposes regular capacity building of all levels of the frontline staff focusing on the following:

***1. Enhancing Skills and Knowledge*:** Improving the technical and managerial skills of the field staff to increase their effectiveness and efficiency.

2. Building Resilience: Equipping the frontline staff to better respond to challenges and changes.

3. Encouraging Innovation: Promoting creative solutions and new approaches to address existing challenges and improve performance.

To enhance the capacity of the frontline staff, apart from the mandatory departmental trainings for Guards and Foresters, the staff shall be imparted periodic but regular trainings in specific subjects of relevance like wildlife crime, wildlife legislation & case formulation, human-wildlife conflict mitigation, wildlife survey methodologies, bird identification and use of advance technology in wildlife management. A training module for each subject shall be developed in consultation with academic/research organizations and the capacity building shall be accomplished in a time-bound manner for the present staff over the plan period of ten years.

10.4 Rationalization of Boundaries

As discussed in Chapter 8, the land area officially notified as Gulmarg Wildlife Sanctuary is under the administrative control and physical possession of many government departments and allied agencies. Gulmarg Wildlife Sanctuary is divided into two parts, Compartment No. 54 to 58 is treated as the upper elevation of the sanctuary whereas Compartment No. 31 to 41 is treated as "Gulmarg Bowl". The upper elevations of Compartment No. 50-58 i.e 50-53 of Drang Nalla and 54-58 of Ferozpur Nalla have been handed over to Wildlife Department by the forest department, whereas rest of the Compartment No. 31-41 are still under the administrative control of Forest Department.

Land measuring 15494 Kanals & 13 Marlas, presently under the "Gulmarg Bowl", was transferred to the State Revenue Department from the Forest Department by virtue of a Cabinet order in the year 1971 (before the notification of the wildlife sanctuary). In 2005, by virtue of a government order, the said land was transferred to the Gulmarg Development Authority for "development of tourist infrastructure in accordance with the master plan". The said area, falling within the Compartment Numbers 37, 38, 39, 40 & 41 contains multi-departmental assets controlled by various government departments and agencies namely Jammu & Kashmir Cable Car Corporation (Gulmarg Gondola), Jammu & Kashmir Tourism Development Corporation (Huts, Gulmarg Golf Club), Jammu & Kashmir Tourism Department/Gulmarg Development Authority (Other tourism infrastructure including Children's Park). Other government and allied agencies having assets in the area include the Jammu & Kashmir Fisheries Department, Agriculture Department (Potato farm), Jal Shakti Department and Indian Army (High Altitude Warfare School and camps/posts).

Multi-departmental stakes and presence of large-scale tourism and allied infrastructure in the "Gulmarg Bowl" and parts of adjoining compartments pose immense management challenges and have rendered these areas of the sanctuary less viable ecologically. In order to address this issue, it is proposed that rationalization of the existing notified boundaries of Gulmarg Wildlife Sanctuary shall be carried out whereby, following the due procedure under law, the "Gulmarg Bowl" along with identified portions of Compartments 37, 39, 50 and 51 shall be denotified and in leiu of the said land, forest area under compartments 07b/Bla, 23b/Bla, 35ab/Bnr, 37abc/Bnr, 38ab/Bnr, 39bc/Bnr, 39a/Bnr, 40abcd/Bnr, 50ab/Bnr, 51ab/Bnr, 54/Bnr, 55/Bnr, 56Bnr, 57ab/Bnr, 58 ab/Bnr, 59/Bnr, 60/Bnr, 61/Bnr & 20/Khad (presently under the administrative jurisdiction of the Forest Divisions, Tangmarg and Jehlum Valley) shall be notified as a wildlife corridor with the status of a Conservation Reserve. This shall not only lead to the addition of ecologically more significant area to the Protected Area Network (PAN), but also create a corridor connecting the Gulmarg Wildlife Sanctuary with the Kazinag landscape (Kazinag National Park, Limber Wildlife Sanctuary, Lachipora Wildlife Sanctuary & Naganaree Conservation Reserve) in the north. In the long run it shall lead to the restoration of the erstwhile Markhor corridor in the Pir Panjal Mountain range.



Figure 10.3: Map showing area proposed for deletion

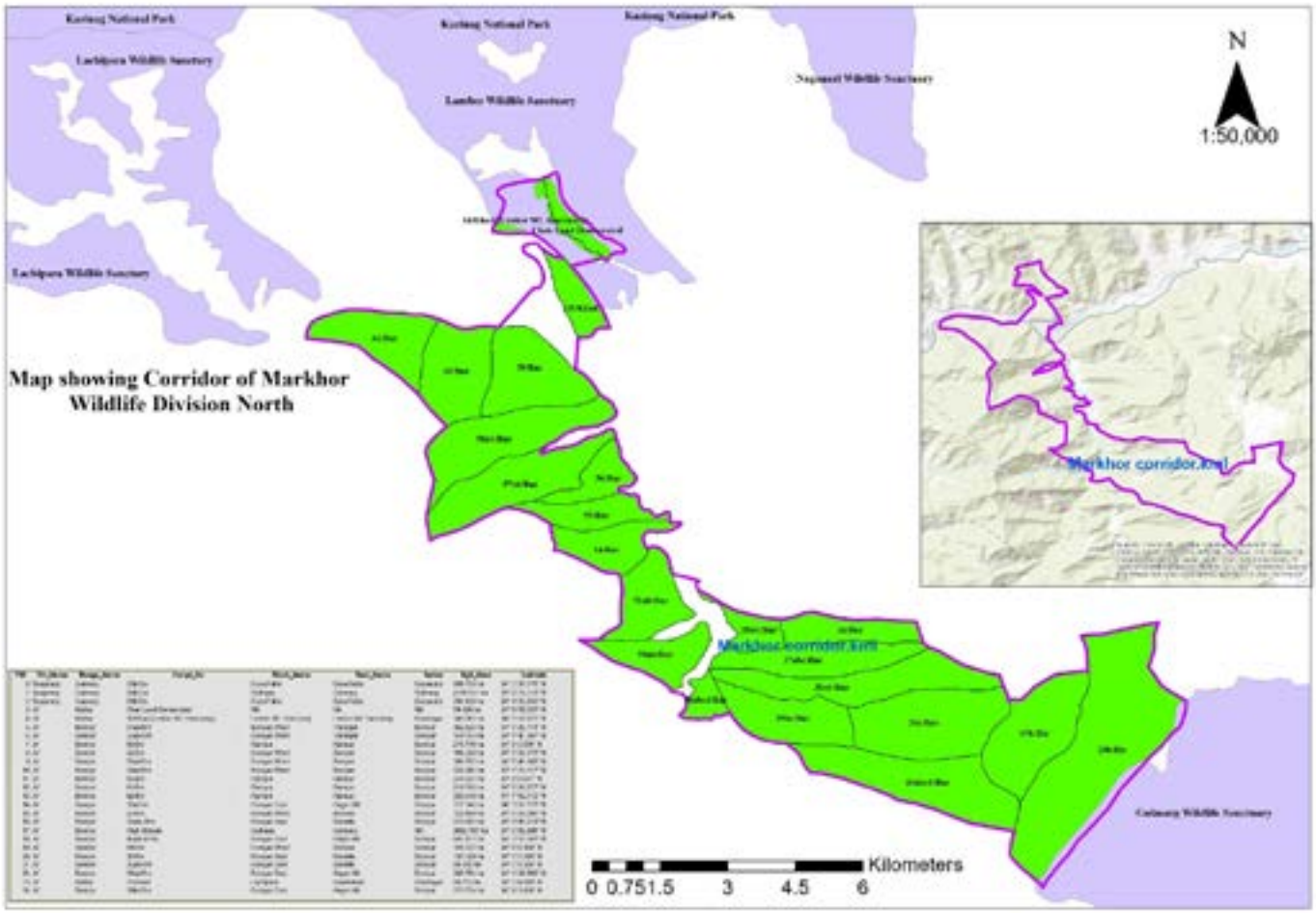


Figure 10.4: Map showing area proposed as Markhor Corrdor

CHAPTER-11

Research & Monitoring

Objective

To carry out departmental and collaborative field research for better scientific management of the Protected Area.

The Kashmir part of Himalayas has been explored to a less extent for wildlife research and conservation with some surveys mainly focusing on hangul (Schaller 1977, Holloway 1971, Kurt 1978), until recently some species ecology studies (Ahmad et al. 2009, Charoo et al. 2010) have been conducted in Dachigam and other areas but Gulmarg WLS has largely remained unexplored. Except a few preliminary surveys for Musk Deer and some studies focusing on the ungulate assemblage (Bhatnagar et al. 2009; Ahmad 2014; Ahmad et al. 2017; Dar et.al. 2021), not much has been done in the field of scientific research in the PA. More intensive studies and applied research needs to be undertaken to have scientific management and proper conservation planning for threatened species and degraded habitats.

Ideal way of conducting research is to collaborate it with the relevant institutions/universities and research organizations in a project mode, clearly identifying and laying down the deliverables with regular monitoring to make sure that they are achieved. For wildlife population and habitat monitoring exercises, it is desirable that the capacity of the frontline field staff be improved so that they may be able to undertake such activities under their guidance.

The researchers and park managers live in a symbiotic relationship. Without management-initiated action, the researchers' endeavours are sterile and good decision making must be based on good science. Without good service generated by researchers, managers will only by the best of good fortune, make the right decisions. Every successful partnership reflects a high level of trust and a joint sense of commitment. Researchers are often specialists, not generalists. This is often a barricade to communication. It should thus be seen as a joint effort on both sides so a sense of respect and mutualism should be followed by managers and researchers too (Harmon 1994).

Priority Actions

11.1 Population Monitoring of threatened species: The Gulmarg Wildlife sanctuary has a rich assemblage of flora and fauna including threatened and endemic species such as, Kashmir Musk Deer and Himalayan Grey Goral. Updated information on the status of key species is vital for their management. The population trend of a species gives an idea about the health condition of, and issues faced by the particular species which may also indicate the success/failure of management interventions. Therefore, monitoring of endangered species becomes crucial towards conservation planning. Thus, management input should reflect the effects on status of these species. To monitor the effects, it is highly desired to monitor these species on regular intervals. Annual surveys shall be systematically done to achieve the objective. Periodically however, techniques for assessing occupancy of species at a landscape level shall be carried out. Such assessments would help the manager to understand the occupancy of areas by the target species. Help and collaboration of research organizations and universities shall be necessary to conduct such research studies.

Occupancy and abundance of these species within the sanctuary needs to be determined periodically so that the managers are updated on their status and distribution which helps them to gauge the response of animal populations to the management interventions. It is time to build on the available information. It is also important for the manager to know which areas are frequented by key species so that adequate care of those areas is taken. Besides species like Himalayan Brown Bear, Asiatic Black Bear and Leopard involved in human-wildlife conflict also need to be assessed for their population status not only inside but around the sanctuary so that the findings thereof are used in mitigation of the said conflict.

11.2 Study on the impact of livestock grazing: Livestock grazing and associated disturbance seems to be one of the major threats to wild herbivore population in the alpine pastures. However, there is inadequate understanding on the impact of livestock grazing on mountain ungulates such as musk deer. It has been found that overgrazing reduces the standing biomass of herbs/grasses to a large extent. Detailed studies on interference and exploitative competition will provide more insights and can also cover the lesser studied aspects of the problem including the menace of dogs accompanying the herders. Research on some aspects of species ecology like impact of grazing on Musk Deer and associated species, collection of medicinal plants and herbs on pheasant populations etc. are also recommended. It is also important to prepare inventories of the main taxon groups found in the Sanctuary so that distribution maps may be generated for important species for their management. Such studies would be required to implement appropriate management practices to conserve the endangered species. The actual

home-range of the flagship species Musk Deer along with its seasonal ranges, once determined, shall make it easier to designate appropriate size of the PA landscape and to make it grazing-free for the better conservation of the species.

11.3 Updating information on major threats: Identifying the specific threats to different species would help to address them in time. Quantification of the existing major threats and identification of potential threats shall be taken up on priority. It will lead to prescriptions for management interventions to address the identified threats. For the assessments of threats towards survival of musk deer, brown bear, wolf and vultures, detailed studies on their food and space requirements are recommended. The prevalent threats shall be assessed and the prescriptions laid down.

11.4 Mapping resource use: Documentation and quantification of the sanctuary resource used by the fringe communities and other users for sustenance and commercial purposes shall be done on priority basis. This resource use mapping will help the managers in taking appropriate measures. The park resources are being used by both local and non-local communities in various ways. It will be useful for the management of the sanctuary to assess the socioeconomics of these people and map the resource use by them.

11.5 Research Equipment: Necessary research & survey equipment, field gears along with photo-documentation equipment shall be procured and made available to the frontline staff and researchers for use in the field. In addition to the wide range of equipment suggested in Chapter 9, procurement of trail cameras (Camera Traps) on large scale is proposed, which are an effective tool in modern scientific studies on species population monitoring.

CHAPTER-12

Wildlife Health Management

Objective

To conduct regular health monitoring of the free ranging wild populations and to ensure health care and treatment of the rescued animals

Just like humans and domestic animals, wild animals & birds are susceptible to various diseases that can cause morbidity and mortality resulting in a significant impact on the dynamics and the conservation status of their populations. Many of the causes of biodiversity loss may put wildlife at increased risk of disease spread through various stressors or from novel contact with other populations, other species or environmental pollutants.

Wildlife health management is an essential activity for monitoring the health conditions of both the free-ranging and captive wild animals. Prevention and control of diseases in wild populations has to be given emphasis in order to ensure the survival of the species. In addition, the treatment of the sick and injured wild animals, often encountered during severe weather conditions and human-wildlife conflict incidents is also an important activity in the field of wildlife health care.

At present there is no exclusive wildlife health care facility available for Gulmarg Wildlife Sanctuary. However, the centrally located facility at Dachigam National Park headed by a Veterinary Officer working under the administrative control of the Regional Wildlife Warden, Kashmir caters to the health care needs of the sanctuary. Rescued injured or sick animals needing medical care are referred to the facility and as per the nature of the case timely medical/surgical intervention is undertaken.

Priority Actions

12.1. Disease investigation: The wild animals suffer from a variety of infectious, parasitic and non-infectious diseases. Diagnosis of disease is the most crucial aspect of disease investigation in wild animals and accurate diagnosis is vital to decide specific therapeutic and appropriate control measures. The samples such as blood, serum, urine, stool and other required specimens collected from the field or from rescued inmate animals and dead carcasses are investigated for general status of health, cause of disease/death etc. In



this regard a specific protocol shall be in place wherein samples collected from the field shall be sent to the Dachigam veterinary facility for disease investigation.

Postmortem of recovered dead animals /birds is carried out routinely to ascertain the cause of death. In addition to these investigations the specimens (Visceral organs, parasites etc) obtained during postmortem are collected, processed and stored in a laboratory at Dachigam to serve as specimens for future reference.

12.2 Rescue and Rehabilitation: Wild animals in distress during harsh climatic conditions or human-wildlife conflict situations are rescued by the animal rescue teams stationed in the control rooms established for mitigation of the human-wildlife conflict. Such animals, often recovered in injured or sick conditions, require immediate treatment and veterinary care. Arrangements shall be in place to either shift these animals to the health care facility at Dachigam or to house them in a transitory rescue facility and get them treated by a qualified veterinarian. The following protocol shall be followed in such cases:

a. All rescued animals, irrespective of the capture method used, shall be chemically restrained for evaluation of health condition and suitability for release into the wild.
b. Healthy animals shall be released at or near the site of capture at the earliest. The animals with minor bruises or lacerations shall also be released immediately with a first aid treatment. Such animals shall not be transferred to the rescue centre, as it can cause further stress to the animal. Long-acting antibiotics shall be given to all rescued animals for sustained therapeutic effects even after release.
c. Animals with severe injuries, shall be kept at the rescue centre with minimum exposure to humans for a few days till their complete recovery and then released back into the wild.
d. If the animal is not fit for release and is to be placed in captivity for lifetime, it shall be housed as per standard protocol prescribed by the Central Zoo Authority of India.

Periodical supplementation of vitamins, mineral nutrients and essential amino acids is followed routinely to promote good health.

This plan also proposes setting up of a transitory rescue centre around Tangmarg for treatment of rescued animals. The centre shall be equipped with facilities like treatment/ investigating chamber, squeeze cages, surgery table, stretchers and other treatment instruments. A mobile ambulatory dispensary (Van) is also proposed for quick medical response in the cases of emergencies.

12.3 Livestock immunization: As discussed in Chapter 5, the wildl animals, particularly ungulates are susceptible to disease transmission from domestic livestock grazing in and around the protected area. To overcome this issue this plan proposes an elaborate arrangement whereby the livestock owned by the locals living in the fringe villages as well as by the nomadic herders visiting the area seasonally, shall be investigated for diseases and treated suitably. Awareness cum treatment camps for livestock owners inhabiting Drung and Tangmarg villages shall be organized. Special emphasis shall be given to the immunization of the livestock to prevent the spread of various infectious and parasitic diseases into the wild animal populations. In this regard collaboration from the Animal and Sheep Husbandry Departments shall be sought.

12.4 Practical trainings/workshops: Training programmes/workshops for capacity building of frontline staff of the department in animal restrain, veterinary first aid, nutrition management, health care and wild animal rescue are proposed to be organized in collaboration with the veterinary wing of the Sher-i-Kashmir University of Agricultural Science and Technology, Kashmir (SKUAST-K).

12.5 Research: While wildlife health is a growing concern for conservation, there is still limited scientific knowledge about the prevalence of various diseases and their potential risk factors in key species. A significant part of health assessment undertaken will include acquisition of baseline data of various physiological parameters, prevalence of infectious agents and endo/ecto parasites. The baseline data would be important especially while dealing with flagship species like Musk Deer, it will serve as a guide to the health and physiological status of the individual animal in particular and of population in general. Apart from this, early detection of disease threats will help in rapid interventions to prevent spread of a particular disease in the population.

With the introduction of exotic livestock germplasm in this part of the country, there is a high prevalence of various diseases in these animals as compared to indigenous animals which were very much resistant to diseases. There is commonality of diseases between wild ungulates and livestock species. The transmission of infectious diseases between wild and domestic animals is an important issue while dealing with conservation of endangered species. There are a number of interfaces within and on the fringes of this protected area where these species can be exposed to domestic animal diseases resulting in severe consequences on their populations. Till date there is no published data available regarding the prevalence of various infectious and parasitic diseases among the wild animal and livestock species inhabiting in and around Gulmarg Wildlife Sanctuary.

As such it is proposed:

1. To undertake comprehensive surveillance of infectious pathogens in both wild and domestic animal populations of landscape.
2. To study the prevalence of various endo/ectoparasites among wild animal populations.
3. To generate baseline data of various physiological parameters of different animal species.

CHAPTER-13

Eco-development

Objective

To promote eco-development activities in fringe areas for reducing the dependence of people on natural resources of the sanctuary.

Local communities are an integral part of a protected area landscape. Hence, conservation initiatives must be oriented in such a way which can demonstrate benefits to the locals without depleting the natural resources available. The modern trend of wildlife conservation has thus started to involve local communities; especially if they have a stake in the area that is protected. The purpose of eco-development activities is to develop the peripheral areas along eco-sensitive lines so that people living around a protected area do not pose much threat to the resources found within. Such initiatives also provide the locals some incentives to conserve the area and helps the managers to build better relationships with the locals.

Priority actions

13.1 Establishment of Eco-development Committees (EDCs): EDCs shall be constituted in the villages within 1 km from the PA boundary to ensure better participation of the communities in the conservation programme. These eco-development committees not only will help to check the pressure on the forests but also will help the department to coordinate better during crisis situations. Forester of the respective area would be the ex-officio Member Secretary of the EDC. representation of various ethnic and social groups including women shall be essential in the EDC. The committee will act as a bridge between the management and fringe communities, besides providing institutional support to implement the eco-development activities. The eco-development activities to be taken up under this plan shall be complementary to the schemes already carried out in the area by the Rural Development, Social Welfare Department and other government development schemes. Local administration, Panchayati Raj institutions, Health Department, Animal Husbandry Department shall be duly taken on board in this initiative.

13.2 Implementation of micro-plan prescriptions: Eco-development activities shall form an important component of the Annual Plan of Operation (APO) submitted to the government for funding under various schemes. The measures prescribed in the micro-plans shall be implemented during ten years of the management plan period. Moreover, resources can also be mobilized from the line departments for implementation of relevant prescriptions. Regular monitoring of implementation and impact of initiatives on the attitude of locals and their dependence along with the improvement in ecological condition of the PA shall be ensured.

13.3 *Reducing Firewood dependence of communities*: As discussed in Chapter 5, extraction of firewood is a major issue and can be a cause of habitat degradation in the sanctuary. Firewood is extracted and used to serve two main purposes – use for cooking and for space heating, during winters. Initiatives to reduce this problem should involve the provision of alternate sources of energy like LPG connections for the local communities or provision of fire efficient smokeless chulhas and also to assist the people below poverty line by providing better, less energy consumptive cooking utensils such as pressure cookers and rice cookers. These initiatives can effectively reduce the use of firewood consumption in the long run. An initiative to link the locals with the Pradhan Mantri Ujwala Yojna (PMUY) of the Government of India, successfully carried out in the fringe villages of Limber and Lachipora, with collaboration of the Wildlife Trust of India (WTI), shall be replicated in the fringe villages of Gulmarg Wildlife Sanctuary.

13.4 Livestock Vaccination: Livestock vaccination tours led by departmental veterinary wing are proposed to be conducted inside the sanctuary area as well as around the adjoining villages so that the risks of transfer of disease to the wildlife are minimized. Collaborating with the relevant departments such as the Department of Animal Husbandry and the Department of Sheep Husbandry, J&K would be required to easily meet this objective. Further, a seasonal livestock vaccination post is proposed to be established each year for the vaccination of the nomadic herds that crossover from the passes.

13.5 Livelihood Support: To reduce the dependence of fringe communities on sanctuary resources, it is imperative to alleviate their economic condition. This will also help in generating a good will and achieving local support for conservation efforts. The social and economic alleviation of the fringe and nomadic communities can be brought about by providing them some financial, but mostly technical support in small-scale or self-help entrepreneurship.

This plan proposes livelihood support to the local entrepreneurs through vocational trainings to be imparted through expert instructors and skill developers. The target population shall be the local fringe communities of Drung and adjacent villages as well as the "bonafide" migratory herder communities. Financial support to the skilled local youth, particularly women for encouraging them to set up small scale units of handicrafts and handlooms is also proposed which shall be taken up in collaboration with the Social Welfare Department. Besides, training and capacity building of local unemployed, educated youth to act as professional nature guides to the tourists is also proposed.

CHAPTER-14

Eco-tourism

Objective

To encourage sustainable and environment-friendly tourism in identified areas

Ecotourism is an enlightening, participatory travel experience, both natural and cultural, that ensures the sustainable use, at an appropriate level, of environmental resources at the same time producing viable economic opportunities for the tourism industry and host communities. Ecotourism may include cultural tourism (a cross-cultural experience), nature tourism (upholding conservation programs) and a little bit of soft adventure, all benefiting the wellbeing of local communities and indigenous people

Sustainability of the forests and forest resources has been accepted as the main principle of forestry and wildlife management for a long time. Sustainable development or sustainable resource management has become an attractive idea for resource managers and in the development of the concept of sustainable development, it has been recognized that there is a need to link conservation of resources with the development needs of the local population dependent on the resources. In other words, ecotourism is a responsible travel to natural areas that conserves the environment and improves the wellbeing of local people.

As per the guidelines for ecotourism in and around Protected Areas, issued by the Ministry of Environment, Forests & Climate Change (MoEFCC), Government of India, those who implement and participate in ecotourism activities should practice the following:

- Adopt low-impact tourism that protects ecological integrity of wilderness areas, secures wildlife values of the destination and its surrounding areas.
- Highlight the heritage value of wilderness and Protected Areas.
- Build environmental and cultural awareness and respect.
- Facilitate the sustainability of ecotourism enterprises and activities.
- Provide livelihood opportunities to local communities.
- Use indigenous, locally produced and ecologically sustainable materials for ecotourism activities.

It has been envisaged in the guidelines that the Chief Wildlife Warden must ensure that each Protected Area (PA) prepares an ecotourism plan, as part of the management plan which is to be approved by the state government.

Priority actions

14.1 Gulmarg Wildlife Sanctuary as an eco-tourism destination: Gulmarg Wildlife Sanctuary falls in the distributory range of Kashmir Musk Deer, a schedule I species & a member of the IUCN's Red Data Book. Gulmarg has a distinction of harboring a major part of the musk deer population in Kashmir. Besides, key Himalayan mammal species like the Himalayan Brown Bear, Asiatic Black Bear, Tibetan Wolf and a host of avifaunal species including the Golden Eagle, Bearded Vulture, Kashmir Nuthatch, Kashmir Nutcracker and and others make it a must visit for any nature & wildlife lover.

Gulmarg is one of the most visited tourist destinations of Kashmir and the 'Gulmarg bowl' itself a part of the Gulmarg Wildlife Sanctuary, has been experiencing conventional tourism since the inception of the sanctuary. Over-tourism in Gulmarg and Tangmarg is a potential threat to the fragile ecosystem of the sanctuary. It is high time that a concrete strategy is put in place to prevent the illeffects of conventional tourism from destroying the natural grandeur of the sanctuary landscape. One of the ways to do so is to exclusively promote only the environment-friendly, nature tourism activities in the identified eco-tourism zone and not allow the conventional tourism activities to extend beyond the areas where they are undertaken at present. Gulmarg WLS has a great potential to become a hot spot of Himalayan eco-tourism provided it possesses the necessary facilities and basic infrastructure required for an eco-tourist.

The sanctuary and the surrounding areas have a potential to offer the following eco-tourism activities to a visiting eco-tourist:

Ecotourism Activity	Immediate Potential	Future Potential
Bird Watching/Animal Viewing & Nature Photography		X
Trekking & Nature Walks		X
Mountain Biking	X	
Rock Climbing	X	
Wilderness Camping		X
Botanical Tours		X
Paragliding/Para-sailing	X	
Pony Riding/Horse Safari		X
Village Cultural Events		X

14.2 Activity Zonation and Site Selection: Based on suitability for a particular ecotourism activity, various spots have been identified in and around Gulmarg WLS and based on the location of these spots the following Ecotourism Zones (EZs) were identified and shall therefore be delineated for undertaking the said activities:

Name of the Ecotourism Zone	Activity Covered
Drung Village	Village Cultural Events, Pony Riding/Horse Safari
Butapathree	Wilderness Camping, Pony Riding/Horse Safari, Botanical Tours, Trekking & Nature Walks
Butapathree, Alipather, Affarwat	Bird Watching/Animal Viewing & Nature Photography, Botanical Tours, Trekking & Nature Walks, Wilderness Camping
Butapathree, Alipather, Affarwat	Trekking & Nature Walks, Wilderness Camping

14.3 Visitor Carrying Capacity of Gulmarg Wildlife Sanctuary: Carrying capacity of a PA refers to the maximum number of tourists the area can sustain while preserving its ecological integrity and at the same time providing a quality visitor experience. Various models aiming to determine the carrying capacity of nature reserves are available. These models typically consider various factors like physical space, ecological impact, and management constraints. A common approach is to calculate a Physical Carrying Capacity (PCC), which focuses on the area's ability to accommodate visitors, and then adjust it based on ecological and management factors to arrive at a Real Carrying Capacity (RCC).

Key Components of Ecotourism Carrying Capacity Models:

Physical Carrying Capacity (PCC):

This is the maximum number of visitors an area can physically accommodate, considering the available space and required space per visitor. A simple formula often used is:

PCC = Area (m^2) / Area per visitor (m^2/person) * Turnover Rate (visits/day).

- Ecological Carrying Capacity:

This considers the impact of tourism on the natural environment, including soil erosion, vegetation damage, and wildlife disturbance. Correction factors are applied to the PCC based on ecological sensitivity, such as slope, vegetation type, and soil erodability.

- Social and Economic Carrying Capacity:

These factors consider the impact of tourism on local communities, including social interactions, cultural preservation, and economic benefits.

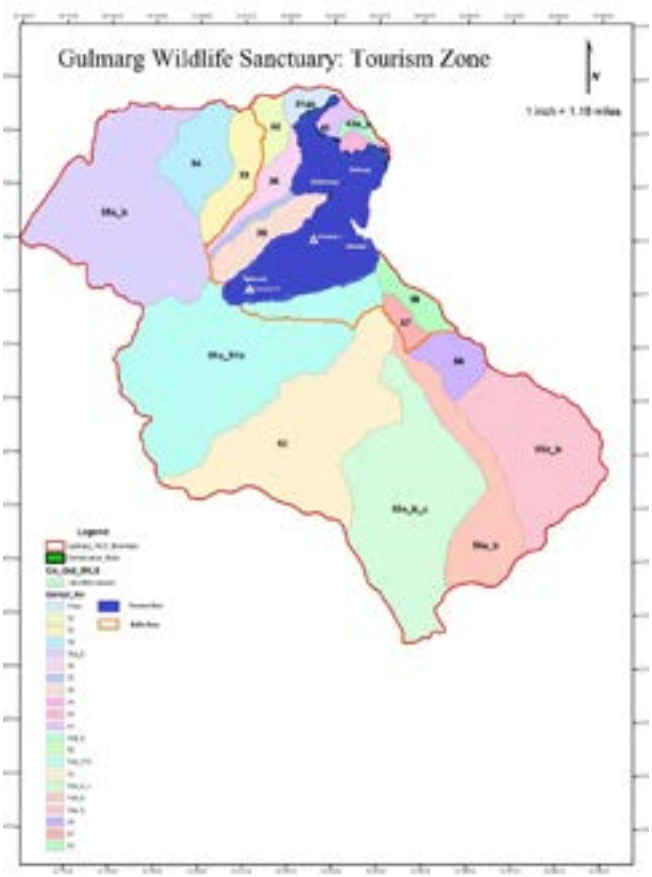


Figure 14.1: Map showing the Tourism Zone of Gulmarg WLS

- Management Capacity:

This assesses the effectiveness of management systems in regulating visitor access, monitoring environmental impacts, and enforcing regulations.

In summary, ecotourism carrying capacity models provide a framework for:

- Determining the maximum number of tourists an area can accommodate sustainably.
- Considering the physical, ecological, social, and management constraints of the area.
- Developing strategies for managing tourism to minimize negative impacts and maximize benefits.

In India, the National Tiger Conservation Authority (NTCA) utilizes a model to calculate the carrying capacity of tiger reserves, particularly for tourism, which is defined as the maximum number of vehicles allowed per day. This model considers factors like the size of the vehicle, the need for a minimum distance between vehicles (500m), and the potential impact on wildlife from vehicle crowding and calculates the maximum number of vehicles allowed per day.

Being a high-altitude Himalayan PA, the Gulmarg Wildlife Sanctuary has its specific ecological and management characteristics which are required to be factored in while choosing a model to determine its visitor carrying capacity. This plan proposes to undertake

a detailed study to determine the optimal visitor carrying capacity for Gulmarg Wildlife Sanctuary based on the site-specific requirements and taking into consideration relevant components of the various carrying capacity models including the one used by the NTCA.

14.4 Proposed Developmental Plan:

It is proposed that to begin with the ecotourism activities of immediate potential, as enumerated in the table above, will be taken up. Under the present plan the following developmental programmes aimed at creating/developing the necessary infrastructure and facilities for the said activities are proposed:

Souvenir Stall Facility: At the entrance of the sanctuary at Gulmarg, a Souvenir shop/stall is proposed to be developed where souvenirs and memorabilia related to the PA and the flora and fauna therein shall be kept available for purchase by the visiting tourists. The souvenirs shall include Logo/Image Caps, T-Shirts, Posters, Picture wall hangings, Mugs etc.

Nature Trails: Some already existing forest trails need to be repaired and developed as nature trails for the purpose of nature walks. Such trails shall be developed in Butapathree and Kongdoori ecotourism zones.

Wilderness Camp Facilities: Wilderness or nature camping facilities shall be developed at Butapathree during the current plan period. Suitable arrangements for proper sanitation and disposal of wastes shall be made at the camping sites. Further, procurement of camping gear like lodging tents, toilet tents, sleeping bags, haversacks, solar lanterns etc is also proposed for renting out to the campers. Purchase of binoculars and telescopes is also proposed for catering to the needs of the bird watchers and wildlife lovers.

Publicity/Awareness/Nature-Education: For the purpose of nature awareness and education of the visitors, print material like brochures, stickers, posters, post-cards, pamphlets, maps, tourist guide books, manuals and calendars shall be prepared and kept available at the Souvenir Stall. Further, for the sake of publicity and marketing, sign boards and hoardings shall be installed at key locations like airports, railway stations, highways and tourist reception centers. Launching of a website is also proposed for dissemination of information and marketing of the ecotourism site.

Signages and Instruction Boards: Signages and instruction boards help the tourists in interpretation, understanding and appreciation of the ecology and environment. Elaborate, catchy and pictorial sign boards and guide-line notice boards are proposed to be installed at strategic locations along the ecotourism zones. The signages will be so designed as to blend with the environs.

View Points: Viewpoints are needed for the tourists to have a better and comfortable view of the scenery and landscape. Three No. such viewpoints are proposed to be constructed during the plan period.

Home Stays: The Gujjar & Bakerwal communities shall be encouraged to develop their Kothas (seasonal dwelling log sheds) into home stays for adventure seeking nature tourists. For this some incentives like furniture, furnishing and crockery are proposed to be provided.

Capacity Building: Training and capacity building of front-line staff in fundamental aspects of hospitality, nature interpretation and eco-guiding is required to suit the requirements of an eco-tourist. Educated local youth to be engaged as eco-guides shall also be imparted such trainings. Orientation programmes shall be required to be conducted where services of experts from the fields of Hospitality, Tourism, Wildlife and Ornithology shall be sought.

14.5 Community Participation:

Community participation, directly benefiting the local populace is an essential component of any ecotourism package. Resources generated from ecotourism, apart from being used for protection and conservation, are to be utilized for local livelihood development. The following table enumerates the potential of community participation and local livelihood development in the ecotourism planning of Gulmarg WLS:

Activity	Facility/Service	Participant Beneficiaries
Bird Watching/ Animal Viewing & Nature Photography	Eco-guides	Local Educated Youth
Trekking & Nature Walks	Transportation/ Carriage	Local Porters & Pony Owners
Pony Riding/Horse Safari	Ponies/Horses	Local Pony and Horse Owners
Village Cultural Events	Cultural Shows/ Performances	Local Cultural Artists

14.6 Implementing Agency:

The ecotourism activities will be managed in a society mode to ensure flexibility and to enable raising of funds (both for infrastructure development and working capital) and ploughing back the profits into the programme. The inherent flexibility will facilitate incorporation of changes in response to local needs and experiences. The ecotourism society will be constituted under the J&K Societies Registration Act and will form the lower most site-specific component of the three-tier structure of the proposed "Jammu & Kashmir Ecotourism Development Board". The society will be subordinate to the Governing Body and the Executive Committee of the said board.

Composition of the Ecotourism Society for Gulmarg WLS:

Wildlife Warden North	Chairman
Divisional Forest Officer Tangmarg	Member
Sarpanch of concerned Gram Panchayat	Member
3-5 representatives from amongst local inhabitants	Members
Local NGO/Environmentalist representative if any	Member
One Range Officer to be nominated by DFO Tangmarg	Member
Range Officer, Gulmarg Wildlife Range	Convener

The Society will have its own by-laws formulated by the Wildlife Protection Deartment and would undertake to abide by the policy guidelines on ecotourism as formulated/modified by the Government from time to time.

14.7 Implementation:

After approval and sanctioning of the Ecotourism Plan the implementation shall be carried out in following phases:

Preparatory Phase: This phase would include making enabling provisions wherever required in policy & law and communicating the same to all the stakeholders in the intention of promoting ecotourism as an activity that is ancillary to the objective of conservation of the PA. Role clarity will be defined through MOUs and agreements which will be arrived at in a participatory manner. This will prepare the local populace, the local tour operators and the PA staff for owning up the project after reaching a clear understanding of the mutual obligations, duties and responsibilities. Detailed work plans for creation of tourist facilities as well as the standard operation procedures for use and management of these facilities and ancillary services will be clearly spelt out in documents that will be arrived at in a participatory manner.

Training Phase: In this phase training will be organized for various field level actors/participants of different stakeholder sectors. These trainings will lead to capacity building and the effectiveness of the capacity building exercise will determine the long-term sustainability of the project.

Work Execution Phase: In this phase physical infrastructure and facilities will be created. This will be the principal responsibility of the Wildlife Protection Department. However, consultations with allied agencies like Tourism Department can be done in a participatory manner so as to achieve the best results.

Operational Phase: This is the phase when the tourist flow would start coming to the PA. The group size and frequency of the tourist flow will be decided by the PA managers according to the carrying capacity of the area to be determined through systematic, scientific procedures.

14.8 Monitoring:

Monitoring of tourist response and impact of ecotourism activities on the PA habitat shall be carried out periodically. Tourist response can be judged from regular feedbacks. A predetermined set of indicators is to be developed with the help of baseline data with respect to the condition of the habitat during the preparatory phase. These indicators will be used for measuring and monitoring the impacts and success of the project.

14.9 Expected Outcomes:

The present plan if sanctioned and implemented successfully is expected to show following results:

- Tourist inflow in Gulmarg Wildlife Sanctuary shall be regulated.
- An organized, regulated and planned ecotourism project shall ensure a sustainable use of this potential with little or no impact on the environment and natural resources.
- Generation of revenue on account of gate receipts, which as per the guidelines of the MoEFCC shall be collected by the Wildlife Department (and would not go to the government exchequer), shall be utilized for the benefit of the PA and the wildlife therein.
- Significant benefits including generation of livelihood opportunities shall flow to the local communities.

14.10 Risks & Uncertainties:

- Legal and institutional changes required for affecting enabling provisions in policy & law to make the project operational may not be forthcoming. There are specific court orders and government directives which may prohibit or restrict the scope of activities of this project.
- Local communities and stakeholders including tour operators may not be convinced of the viability of the project and therefore may impede its progress.

CHAPTER-15

Management of Human-Wildlife Interface

Objective
To reduce losses due to human-wildlife conflict in and around the sanctuary by adopting a proactive approach.

Priority actions

Whereas, it is difficult to completely arrest the occurrence of human-wildlife conflict incidents, the negative impacts of such incidents can be reduced by good and timely management:

15.1 **Analyzing the human-wildlife conflict scenario**: The department has maintained a rich data-base on human-wildlife conflict for last fifteen years and all the important parameters like date, time & exact locations of the incidents, animals involved, nature of damage caused and compensation paid to the victims are well recorded. The mapping of this data shall enable identifying conflict hot spots and in turn help in understanding the reasons behind frequency of such incidents at particular spots. Sight specific mitigative measures can accordingly be planned.

15.2 Preventive measures:

Sensitization of people in high and medium conflict areas is proposed on priority, whereby the sanctuary management in partnership with other organizations will organize awareness camps to make the villagers, herders and other stakeholders aware about causes of conflict and preventive measures.

In high conflict areas a network of volunteers shall be developed and named as Primary Response Team (PRT) whose job would be to take immediate actions to avoid encounters of people with the wild animals, help providing the wild animal a safe passage and relay information to the Wildlife Protection Department for further action. Regular training of the PRTs on these aspects shall be done, and the sanctuary management shall monitor their activities.

15.3 Reactive measures:

Putting in place a Rapid Response Team (RRT) at two control rooms located at range headquarters, Tangmarg and Kreeri village. The control rooms shall have a defined jurisdiction and the conflict prone areas and hotspots shall be suitably divided between the two. In view of the dearth of regular staff (most of whom have to be given management assignments inside the sanctuary area), the RRTs shall comprise of the casual and need-based workforce supervised by at least one to two from among the regular staff and under the overall command of the Range Officer, Gulmarg.

The RRTs on receiving a call shall immediately rush to the spot along with the required equipment and act as per the situation. The response protocol recommended for a typical human-wildlife situation is as shown in figure 15.2, 15.3 & 15.4

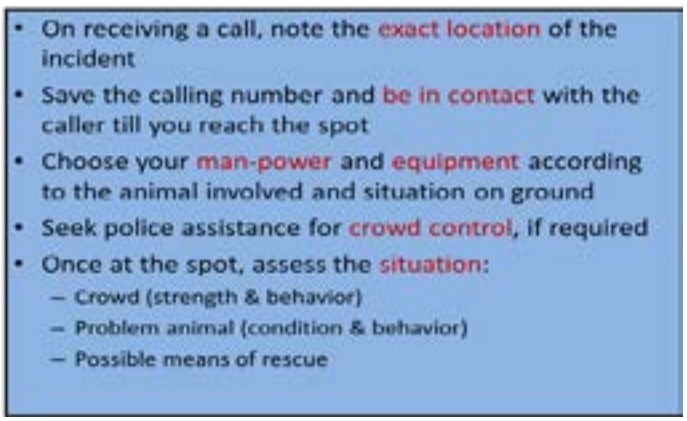


Figure 15.2: Protocol for response to a human-wildlife conflict situation (A)

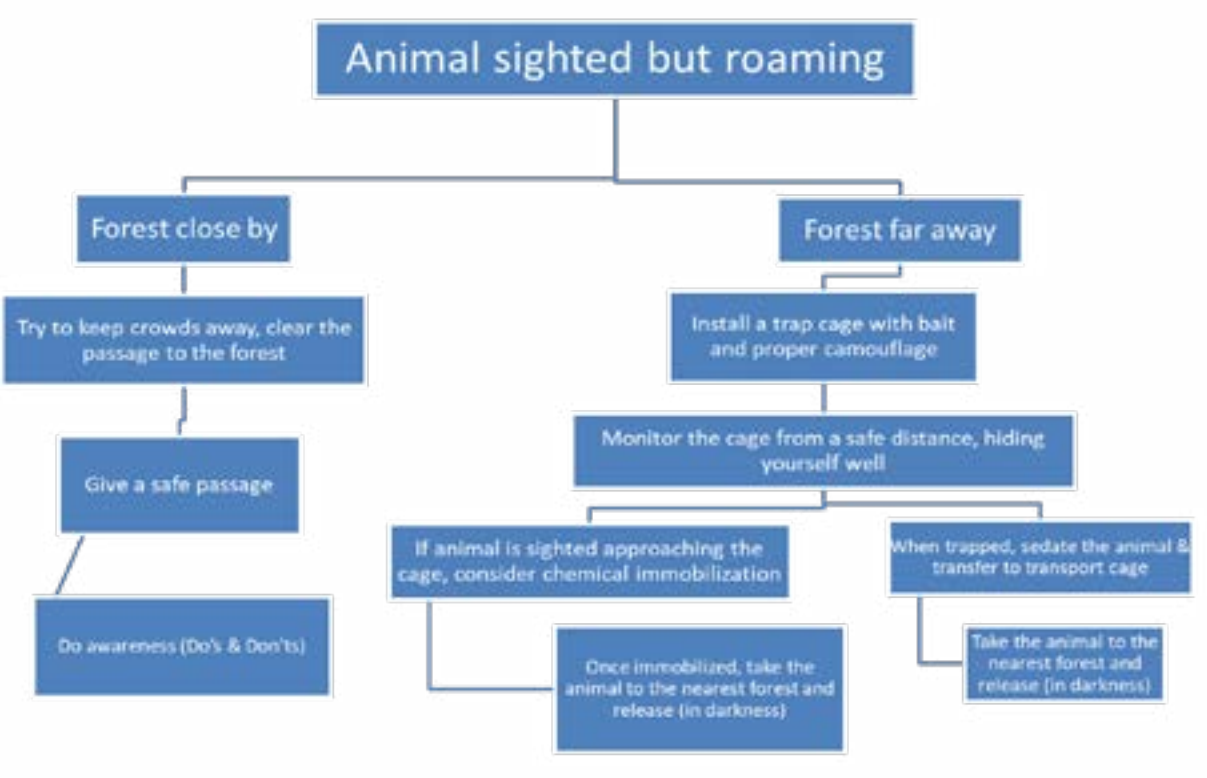


Figure 15.3: Protocol for response to a human-wildlife conflict situation (B-1)

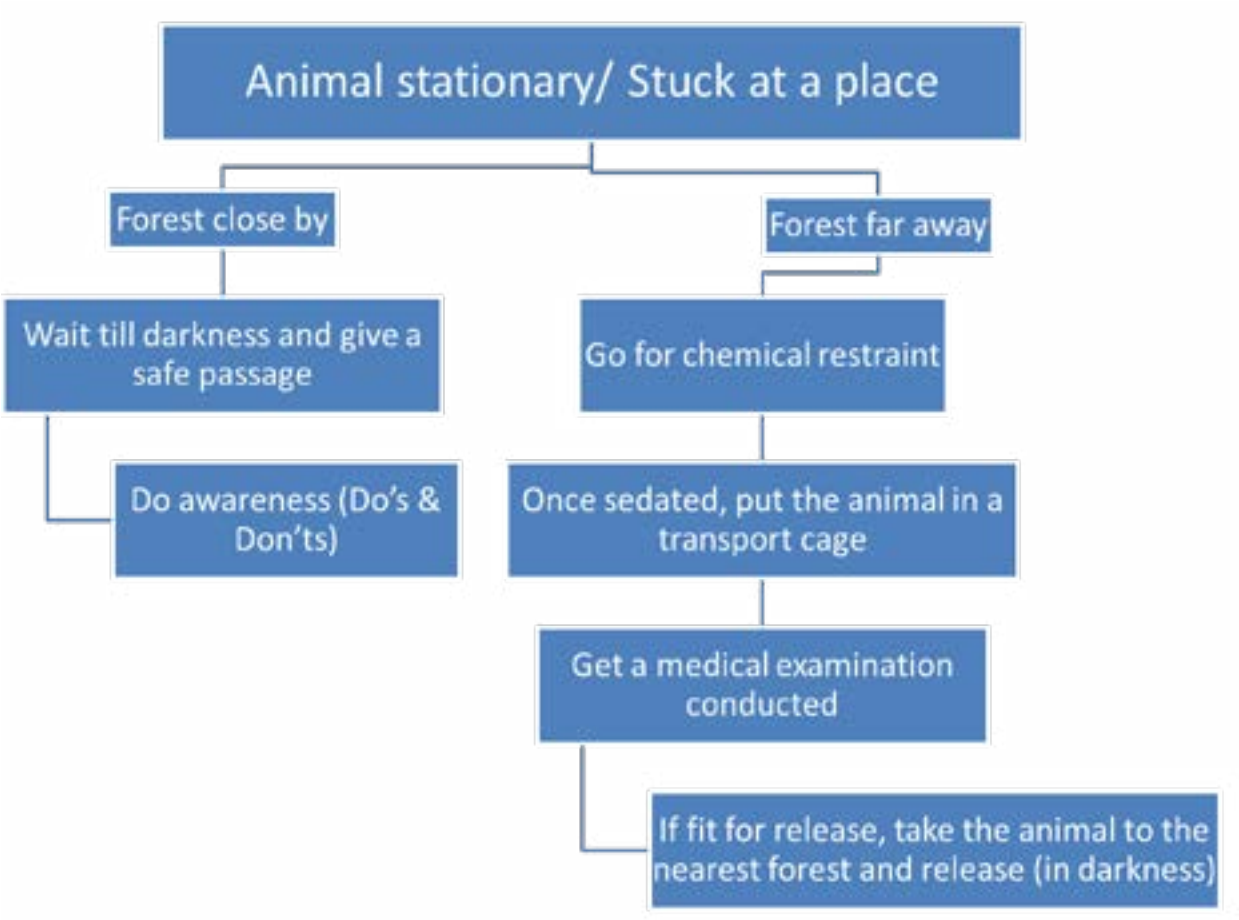


Figure 15.4: Protocol for response to a human-wildlife conflict situation (B-2)

In case of a confirmed human mortality, particularly a minor, due to a leopard attack extra caution has to be observed and the response shall have to be prompter and more methodical. The protocol recommended for such situations is enumerated in figure 15.5.



Figure 15.5: Protocol for response to a man-eater situation

15.4 Equipping the Control Rooms:

This plan proposes a regular replenishment of state-of-the-art equipment to the control room staff. This includes equipment for capturing of the problem animals by chemical immobilization as well as by physical restrain and also the rescue and personal protective gadgets:

- Tranquillizing Guns & Accessories
- Immobilizing & Recovery Drugs
- Nets & Net Guns
- Species-specific Capture Cages, Treatment Cages & Transport Cages
- Ladders, Ropes & Harnesses
- Wildlife Repellants and Crackers
- Search Lights
- Self-Protecting Armor & Baffle Boards
- Animal Rescue Vans
- Motorbikes
- Camping Gear

15.5 Relief Measures:

Presently, the ex-gratia scheme for the victims of the human-wildlife conflict is limited to the payment of compensation for human deaths and injuries only, with no provisions for crop and livestock damage. In case of a human death in human-wildlife conflict situations, ex-gratia of Rs 3.00 lacs is provided to the next of the kin of the victim and the same amount is paid if a victim suffers permanent incapacitation. In the cases of injuries due to wild animal attacks a compensation of up to Rs 1.00 lacs is given.

This plan proposes a fast-track mechanism to process the cases of ex-gratia under which the victims shall be compensated within shortest possible time. It shall be mandatory for the concerned beat guard to personally visit the family of a victim within 24 hours of the incident and advise them about the procedures involved in filing a compensation claim. In case of a death, as per norm, 33% of the principal amount of ex-gratia shall be disbursed within 48 hours.

Proposal for enhancement of the ex-gratia rates is under consideration of the authorities. It is also recommended that a proposal for ex-gratia for livestock and crop (particularly apple) damage be prepared at the divisional office level for submission to the competent authorities for consideration. Alternatively, a proposal for initiation of a scheme for livestock and crop insurance against wild animal damage is also proposed to be developed, which can be submitted to the competent authorities for consideration.

CHAPTER-16

Extension & Awareness

Objective

To create mass awareness about the wildlife in general and conservation value of the biodiversity of Gulmarg Wildlfe Sanctuary in particular.

Priority actions

The ignorance and lack of awareness about the importance of wildlife can sometimes be the cause for deterioration of wildlife. For the promotion of the conservation value of the sanctuary and to make the people aware about the socio-cultural and ecological importance of the area, a comprehensive extension and awareness strategy is proposed to be undertaken through various means which shall comprise of:

16.1 Printing of publicity material: Print material like brochures, pamphlets, pocket guides & booklets, posters, calendars and stickers in English and Urdu languages shall be developed that shall highlight the floral, faunal, cultural, scenic and historical attributes of the area and shall be kept readily available for public distribution.

16.**2 Sanctuary Website:** A site-specific website for Gulmarg Wildlife Sanctuary is proposed to be developed which shall be maintained and updated regularly. The website apart from showcasing the natural attributes of the area shall also keep updated information regarding the various activities being undertaken by the department in respect of the sanctuary.

16.3 Hoardings and Signages: Informative bill boards and hoardings depicting faunal diversity of the area and communicative sign boards designed to assist a visitor are proposed to be erected at vantage spots within the sanctuary. In addition to this large size hoardings displaying information about the PA are proposed to be installed at key locations like airport, bus stands, road-crossings and public places.

16.4 Observing important days & weeks: Gulmarg Wildlife Sanctuary came into being through a government notification dated 19th March, 1987. It is proposed that henceforth, this day shall be observed as the "foundation day" of the sanctuary and every year special events with participation of various stakeholders, particularly students and youth, are proposed to be organized. Further, on the occasion of wildlife week celebrated every year from 2nd to 8th October, various programmes and activities in collaboration with educational institutions and NGOs are also proposed to be organized annually.

16.5 Guided Nature Tours: Guided awareness tours of the sanctuary area are proposed to be conducted every year in which students from various schools, colleges and educational institutes of the district shall be invited. These tours shall be led by expert guides for in-field communication with the participants.

16.6 Equipping the NIC: The Nature Interpretation Centre proposed for the sanctuary shall be provided with state of the art informative and communicative facilities like multimedia aids, display panels, life-size faunal sculptures & scenographic exhibits.

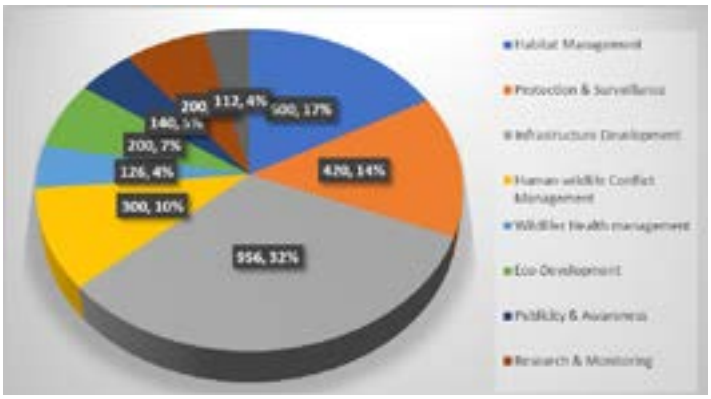
CHAPTER-17

The Budget

Funds for development of Gulmarg Wildlife Sanctuary are broadly received under the following government schemes in vogue presently:

S. No	Name of the Scheme	Sector
01	Compensatory Afforestation Fund Management and Planning Authority (CAMPA)	State /UT
02	Integrated Development of Wildlife Habitats-Centrally Sponsored Scheme (IDWH-CSS)	Central
03	State Capital Expenditure (CAPEX)	state

This management plan proposes a total budget of INR 2954.00 lacs for Gulmarg Wildlife Sanctuary for the ten-year plan period (2025-35), with a mid-term budgetary review after five years, which shall take into account possible rate escalations over the time.



The budgetary proposals recommended in this plan are based on rates mentioned in the approved schedules of rates currently in vogue in the Forest and Public Works Departments and shall be subject to amendments that may take place in the said schedules during the plan period.

S. No	Activity	Budget for 10 Year Plan Tenure (Amount in INR Lacs)													
		1st Year	2nd Year	3rd Year	4th Year	5th Year	Total 1st 5 Yrs	6th Year	7th Year	8th Year	9th Year	10th Year	Total 2nd 5 Yrs	Grand Total	% of Total
01	Habitat Management	58.00	48.00	48.00	48.00	48.00	250.00	58.00	48.00	48.00	48.00	48.00	250.00	500.00	16.92
02	Protection & Surveillance	40.00	40.00	40.00	40.00	40.00	200.00	60.00	40.00	40.00	40.00	40.00	220.00	420.00	14.22
03	Infrastructure Development	82.00	118.00	124.00	98.00	56.00	478.00	82.00	118.00	124.00	98.00	56.00	478.00	956.00	32.36
04	Human-wildlife Conflict Management	30.00	30.00	30.00	30.00	30.00	150.00	30.00	30.00	30.00	30.00	30.00	150.00	300.00	10.16
05	Wildlife Health Management	9.00	19.00	18.00	7.00	10.00	63.00	9.00	19.00	18.00	7.00	10.00	63.00	126.00	04.27
06	Eco-Development	20.00	20.00	20.00	20.00	20.00	100.00	20.00	20.00	20.00	20.00	20.00	100.00	200.00	06.77
07	Publicity & Awareness	20.00	10.00	20.00	10.00	10.00	70.00	20.00	10.00	20.00	10.00	10.00	70.00	140.00	04.74
08	Research & Monitoring	20.00	20.00	20.00	20.00	20.00	100.00	20.00	20.00	20.00	20.00	20.00	100.00	200.00	06.77
09	Eco-tourism	12.00	10.00	12.00	10.00	12.00	56.00	12.00	10.00	12.00	10.00	12.00	56.00	112.00	03.79
	Total	291.0	315.0	332.0	283.0	246	1467	311.0	315.0	332.0	283.0	246.0	1487	2954	100%

PART 3

ACTIVITY MONITORING FORMATS

I i. Restoration of Habitat: Weed Control, Initial **Operation**

	Location & name of site	Year	Extent of area(ha)	Species of weed	Operation	Total cost	Cost per ha	Remarks
1	2	3	4	5	6	7	8	9

Note: Location: By compartment, site name or land feature
Operation: Uprooting, cutting, burning, ploughing, manual or by using animals or machinery
Remarks: Measure of success and/or problem faced.

ii. Restoration of Habitat: Weed Control, Subsequent Operation

Sr. no	Location & name of site	Year	Extent of area(ha)	Complete or partial coverage	Species of weed	Operation	Total cost	Cost per ha	Remarks
1	2	3	4	5	6	7	8	9	10

Note: Location: By compartment, site name or land feature
Operation: Uprooting, cutting, burning, ploughing, manual or by using animals or machinery.
Remarks: Percent cover of weed/s before operation, problems, if any

iii. Restoration of Habitat: Soil Conservation Measures- Initial Operation
And Subsequent Maintenance

Sr. no	Location & name of site	Year	Extent of area(ha)	Area treated	Operation	Total cost	Cost per ha	Remarks
1	2	3	4	5	6	7	8	9

Note:
Location: By compartments, name of site or landmarks.
Extent of area: Total area identified for such treatment. In case of streams or gullies, the length involved.
Area Treated: If linear feature then quote length; otherwise, area.
Operation: Structures involved such as gully plugs, trench-cum-mound, terracing, spurs and bunds etc. quote quantity nos. and cums. of earthwork.
Remarks: Mention if initial work or maintenance.

iv. Restoration of Habitat: Planting, Sowing – Initial Operation

Sr. no	Location	Year	Extent of area(ha)	Species	Planting stock	Spacing	Operation	Total cost	Cost per ha	Remarks
1	2	3	4	5	6	7	8	9	10	11

Note:
Location: By compartments, or landmarks and describe the site factors e.g. vegetation cover, soil, perturbations etc.
Planting Stock: Kind and condition e.g. root shoot, naked root seedling, seedlings in polythene bags, age or average size.
Operation: Mention site preparation if any, crowbar holes, pits and pit size, trench, seed sowing (rate), tussock planting (norms), protection measures.
Remarks: Mention operational problems if any.

v. Restoration of Habitat: Response of Plantings, Sowing and Subsequent Operations

Sr. no	Location	Year	Extent of area(ha)	Species	Survival%	Casualty replacement	Operation	Total cost	Cost per ha	Remarks
1	2	3	4	5	6	7	8	9	10	I I

Note:

Location: By compartments, or landmarks.
Casualty replacement: Mention planting stock by species, number & kind (polythene bag, root shoot, rhizome etc.).
Operations: Planting, sowing technique, protection measures.
Remarks: Operational problems, protection problems, any other useful information.
Assess & mention survival percentage & growth before taking up casualty replacement.

vi. Restoration of Habitat: Area under Protection/Closure

Sr. no	Location	Year	Extent of area(ha)	Description of site	Regulations or protection measures	Response	Remarks
1	2	3	4	5	6	7	8

Note:
Location: By compartment or landmarks
Description of site: % tree, shrub, ground cover, main species, impact of factors causing perturbations.
Regulations &: Social fencing, power or other kind of fencing, enforced protection by patrolling, protection measures fire protection etc.
Response: To be recorded annually. Consider trend of regeneration, vegetation cover, change in structure and composition, wildlife use index.
Remarks: State problems or any other useful information, including alternatives if area is being used by people for specific purposes.

i. Animals: Measuring Trends in Populations (Year)

Sr. No	Species	Population estimation methodology	Adult		Sub-adults		Yearlings	Fawns	Cubs	Total	Remarks
			Male	Female	Male	Female					
1	2	3	4	5	6	7	8	9	10	11	12

Note:

Population: e.g. pugmark, line transect, scan, roadside counts etc., area covered, sampling intensity, estimation data treatment, extrapolation where involved. In case of indices of density or dung count mention those figures under the remarks' column; use details as pertinent. Describe age classes for each species.

Remarks: Operational problems, protection problems, any other useful information.indices of density or dung count details to be recorded here.

ii. Animals: New Records

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

Note:

Animals will include vertebrates and invertebrates.

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

Number, age, sex etc: As applicable to vertebrates.

Habitat description: Broad habitat description such as vegetation, and elements such as water, large old trees, den trees, snags, down log material.

Use microhabitat descriptors only if relevant.

Remarks: Any other useful information.

II. iii. Animals: Mortality other than that Attributable to an Offence

Sr. no	Species	Location	Year	Sex& age	Number	Discovered in what condition	Cause of mortality	Remarks
1	2	3	4	5	6	7	8	9

Note:
Location: By compartment, landmark etc.
Sex & age: As per parameters for age class. Sex, if possible to identify.
Discovered in what condition: Carcass, complete or partial. Skull or any other 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.

II. iv. Animals: Mortality Attributed to Poaching or an act of Vandalism

Sr. No	Species	Location	Cause of Mortality				Remarks
1	2	3	Number	Sex	Age	Class	5
			4				

Note:
Location: By compartments or landmarks.
Cause of mortality: Whether the animal was intact or remains found, article or trophy to be recorded. Cause if known e.g. animal snared, shot or poisoned etc.
Remarks: Any other useful information, especially matters of illegal trade.

II. v. Animals: Predation on Domestic Livestock by Wild Carnivores

Sr. no	Range	Month	Category of livestock killed	Location	Numbers	Ex gratia payment (Rs.)	Carnivore involved	No. of cases undecided	Remarks
1	2	3	4	5	6	7	8	9	10

Note:
Category of livestock killed: Buffalo, cow, bullock (adult, sub-adult, calf), camel, horse, donkey, sheep, goat, poultry etc.
Location: Comptt. no. or landmark where killed and the village of the owner.
Carnivore involved: Indicate species responsible for the kill if identity is confirmed.
No. of cases undecided: Either in progress or dropped.
Remarks: Record observations like - attended or unattended animal, killed in forest or waterhole or in the pen/ shed, field and whether kill was in area closed to livestock trespass.

II. vi. Animals: Killing of a Human by Wildlife or Injury caused

Sr. no	Range	Month	No. of incidents	No. of people killed sex & age	Location circumstances &species	No. of people injured sex& age	Location circumstances &species	Ex gratia payment (Rs.)
1	2	3	4	5	6	7	8	9

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

II. vii. Animals: Wildlife Damage to Private or Public Property

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

Note:
Location: By comptt. no., village survey no., name of village or landmark.
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 yardsticks for other items like partial or total destruction of huts and belongings with estimated monetary loss.
Remarks: Any relevant information or circumstances e.g. a wild elephant was provoked by people.

i. Plants: New Records

Sr. no	Family	Species	Years	Location	Habitat	Status	Remarks
1	2	3	4	5	6	7	8

Note:
Habitat: Description by vegetation associates at various levels, % canopy closure if relevant, soil/site, microhabitat elements such as higher level of moisture, woody debris or humus etc.
Status: A broad idea on its frequency, national status e.g. endangered, rare, endemic etc.
Remarks: Any specific information.

III ii. Plants: Disease and Mortality

Sr. no	Species	Location	Year	Particulars of disease morbidity and mortality	Area affected	Remarks
1	2	3	4	5	6	7

Note:
Location: By compartment or landmarks.
Particulars of disease: In case of trees, the mortality by diameter classes and number, symptoms, insect pest activity or any other external indicators if visible, none if not seen. No mortality but infestation detected, mention that as morbidity.
Area affected: In hectares.
Remarks: Any specific environmental condition or site factors you may suspect as being related to the problem or any other useful information.

III iii. Plants: Illegal and Legal Collection

Sr. no	Species	Years	Location	Details of material	Habitat	Status	Remarks
1	2	3	4	5	6	7	8

Note:
Location: By compartments or landmarks.
Details of material: To include timber, firewood, bamboo, NWPs. Plants collected could be of local significance or of trade significance on a national or international scale. Distinguish between legal and illegal activity in the remarks' column.
Quantity: In appropriation units.
Trade particulars: What is traded? Portions, partially processed or processed material and where are the major trade centers, known or suspected to be?
Remarks: Any other useful information. Legal collection applies to PA, if permitted for research; to TUZ or to the buffer zone.

Grazing Of Domestic Livestock

Sr. no	Grazing unit no.	List of villages in the unit	Village wise listed population of cattle	Capacity of the unit (cattle units) and number of cattle grazed	Total cattle units grazed		Remarks
					Legal	Illegal	
1	2	3	4	5	6	7	8

Note:

Remarks: Mention number of cattle immunized against FMD, RP, anthrax as the case might be and the number of cattle without the prophylactic cover. If grass is allowed to be cut for cattle being stall-fed, mention the village and number of such cattle.

V. i. Inter-Agency Programs: Agencies and Schemes

Sr. no	No. of agency	Central or State	Number and name of scheme operated	Physical and financial targets		Area & Location	Remarks
				Given	Achieved		
1	2	3	4	5	6	7	8

Note:

Name of the scheme: To include all activities in the Govt. sector, i.e. construction, use of resources, development processes etc. mention names of schemes, projects or normal operations. This will address all departments in the management area and those activities outside but capable of influencing the management area.

Remarks: Success, adverse impacts, incompatibility with PA management objectives or failures should be mentioned. Detailed notes too go in the PA book.

V. ii. Programs of NGOs

Sr. no	No. of agency	HQ location	Number of schemes operated	Physical and financial targets		Area& Location	Remarks
				Given	Achieved		
1	2	3	4	5	6	7	8

Note: Remarks: Success or adverse impacts, incompatibility with PA management objectives or failures should be mentioned. Detailed notes to go in the PA book. These programs 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 complementing the efforts or adversely impacting.

VI. i. Construction*/Maintenance* Of Infrastructure: Roads & Bridges

Sr. no	Category	Range	Surface	Name & Number	Length covered (km)	Cross drainage works, bridges or culverts with types	Total costs and status
1	2	3	4	5	6	7	8

Note:

Category of road: National highway, State highway, district road etc. public road, forest road or open only to managers should be stated.
Surface type: Black topped metal, earth etc. Applies to roads.
Name or number: As the case may be.
Cross drainage type: e.g. for culverts - box, hume pipe culverts etc.
Bridge type: Wooden trestle, suspension, metal multi span, masonry arch etc.
Status: Work completed or ongoing. State also the agency responsibility; state whether operational or non-operational.
*Strike out which is not applicable. Use separate forms as required; for construction & for maintenance details.

VI. ii. Construction*/Maintenance* Of Infrastructure: Buildings

Sr. no	Range	Nature of the building	Location	Type of construction	Numbers	Total cost	Status
1	2	3	4	5	6	7	8

Note:
Nature of the building: e.g. residential, office, store, chauki, watch tower, tourist facility, hide, barrier, patrolling camp (temporary or permanent) etc.
Location: By compartment or village or landmark as appropriate.
Type of construction: Masonry (brick/stone), log or wooden, metal, local material etc.
Status: Completed or ongoing.
*Strike out which is not applicable. Use separate forms as required; for construction and for maintenance details.

VI. iii. Development*/Maintenance* Of Infrastructure: Communication

Sr. no	Range	Type of facility	Location	Number	Cost	Advantage gained	Remarks
1	2	3	4	5	6	7	8

Note:
Type of facility: e.g. telephone, wireless.
Location: Staff Hq location, village, landmark etc.
Advantage gained: Area served; staff locations connected etc.
Remarks: Record status - complete, ongoing, functional, non-functional.
*Strike out that is not applicable. Use separate forms as required, for new facility and maintenance.

VI. iv. Development*/Maintenance* Of Infrastructure: Vehicles

Sr. no	Kind of vehicle	Number	HQ if any	Intended use	Cost	Remarks
1	2	3	4	5	6	7

Note:
Kind of vehicle: Jeep, trailer, tractor, truck, minibus, tanker, motorcycle, bicycle, boat (paddle or motor), launch, car, riding elephant, ponies, etc.
Intended use: Management support, patrolling/antipoaching, tourism etc.
Remarks: Any other useful information. Mention written off vehicles, retired or dead animals.
*Strike out the inapplicable. Use separate forms as required to indicate acquisition, maintenance.

VI. v. Development of Infrastructure: Manpower Recruitment*/Existing Manpower*

Sr. no	Category of post	Number	Status		Scale of pay	Intended deployment/ deployed as	Remarks
			Recruited	Vacant			
1	2	3	4	5	6	7	8

Note:
Status: Permanent, temporary, contractual.
Intended deployment: State purpose e.g. conservation education, research, antipoaching, etc as applicable.
Remarks: Any other useful information. New recruits within the year should be mentioned. This will also include officers & staff obtained on transfer/ deputation. Likewise changes due to personnel going out on transfer, deputation, retirement, removal, resignation, death should be reflected in this column.

*Strike off that which is not applicable. Accordingly, use additional forms. One for recruitment and one for the existing manpower.

VI. vi. Developing Infrastructure: Construction of Boundaries, Fences, Cpts, Epts, Exclosures, Enclosures

Sr. no	Category of construction	Range	Location	Length (meters)	Number	Specifications	Remarks
1	2	3	4	5	6	7	8

Note:
Category: Kind of boundary e.g. comptt, block, zone etc. In case of fences: power fence, others.
Location: By compartment or suitable landmark.
Numbers: In case of exclosures, enclosures, number of pillars etc. as applicable.
Specifications: As applicable to the construction: dry rubble, chain link, local material, height, area, depth, width etc.
Remarks: Any other relevant information.
*Strike out that is inapplicable. Use a form each for maintenance of existing features and for new features.

VII. i. Tourism: Visitors

Total number of visitors all categories:
Name of complex:
Total revenue earned:

Sr. no	The category of visitors by month & number					Indian			No. day visitors	No. staying overnight and revenue
	Adult			Children	Foreigner	Rural	Urban	Revenue		
	Month	Male	Female							
1	2	3	4	5	6	7	8	9	10	11

Note: Columns 2 to 5 will be written in three successive lines for the month pertinent, one below the other. First line information pertains to foreign tourists. Put a tick (₹) in col. 6. Second and third line details rural and urban tourists respectively. Put a tick (₹) in Col. 7, Column 8 as applicable.

VII. ii. Tourism: Use of Tourist Facilities – Lodging

Name of complex:
Class of accommodation:
Capacity (beds):

Sr. no	Month	Month capacity	Occupancy (beds/month)		Total occupancy during the month (beds/month)
			Foreign	Indian	
1	2	3	4	5	6

Note:
Class of accomodation: Classify accommodation as per tariff slabs and if applicable, might include different rate for accommodation structure for the same set viz. for Indians and foreign tourists. The highest class for example will be I for AC rooms, IV for tents etc. Use a fresh form for each class of accommodation.
Month Capacity: Number of days in a month x total number of beds available in that class per night halt.

VII. iii. Eco-Tourism - Partners

Sr. no	Identify of Eco tourism entrepreneur	Infrastructures	Programs	Investment	Kind and extent of benefits to local people	Benefit to PA & resources
1	2	3	4	5	6	7

iv. Eco-Tourism: Visitor Aspirations

Visitor category	Number	Interested in									
Adults Male Female Children Foreigners Male Female Children		Plants	Bird watching	Animal sighting	Photography	Sketching	Scenic place	Cultural/ Historical sites	Pilgrimage	Trekking	Others
1	2	3	4	5	6	7	8	9	10	11	12

Note:
8.4 (A) is for urban population
8.4 (B) is for rural population
Create separate forms 8.4 (A) & 8.4 (B) that are otherwise identical

Outbreak Of Fires

Sr. No	Range	Location	Extent (ha)	Dates		Reasons	Estimated loss	Remarks
				Detected	Controlled			
1	2	3	4	5		6	7	8

Note:
Location: By compartments
Reasons: Established or suspected
Estimated loss: e.g. number of trees damaged, stacked firewood/timber/bamboo destroyed/damaged by volume and cost, wild animals dead, particulars of sensitive sites affected, other property or life destroyed.
Remarks: State particularly problems encountered in detection and suppression and any other useful information. State also whether the extent of fire has been mapped.

IX. Offence Cases Detected

Sr. No	Range	Category	Numbers	Number of cases decided		Number of cases under process	Number of cases compounded	Remarks
				Successful	Failure			
1	2	3	4	5	6	7	8*	9

Note:
Category: e.g. illegal cutting of trees, illegal firewood, illegal NWP, poaching, encroachment, illegal cattle grazing etc. category should be codified by letters of alphabet.
Remarks: Any other useful information. This should also include the number of cases pending decision with the department.
*The cases under column 8 pertain to area of non PA status under management which do not involve an endangered species (Schedule-I).

X. Incentives and Rewards/Awards

Sr. No.	Range	Number of recipients: incentives/reward for detecting offences	No. of recipients' award for outstanding service	Kind of award	Number of recipients	Remarks
1	2	3	4	5	6	7

Note:
Kind of award: e.g. a medal like the Shaurya Chakra, any other such awards instituted by the State or Central Government. Includes citations, extra increments etc.
Remarks: Any other useful information. If an award carries cash, mention the amount.

XI. i. Research Projects under Implementation Through PA Manpower With Or Without Collaboration With Other Agencies

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

Note:
Completed: State date of completion and the status of the project report.
Ongoing: State since when the project is under operation and expected period of completion.
New: State the date of commencement and duration.
Status: State the progress towards achievement of objectives; or project which has been dropped or held in abeyance etc.
Remarks: Any other relevant information. If the project is in collaboration with any other agency or is a contractual arrangement, state the situation and the name of the collaborating agency. If animal/plant specimens are being collected state authority and where the collections are being housed.

XI. ii. Research Projects under Implementation by Other Agencies

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

Note:
Completed: State date of completion and the status of the project report.
Ongoing: State since when the project is under operation and expected period of completion.
New: State the date of commencement and duration.
Status: State the progress towards achievement of objectives, or project which has been dropped or held in abeyance etc.
Remarks: Any other relevant information. State the name of the agency. If animal/plant species are being collected, state authority and where the collections are being housed.

XII. Survey and Inventories

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

Note:
Completed: State date of completion of field work and the status of the report.
Ongoing: State since when is it under operation and when is it expected to be completed.
New: State the date of commencement and duration.
By PA personnel: Will include collaboration or contractual arrangement. State the case as relevant.
Another agency: State the name of the agency.
Remarks: If specimen of plants/animals are being collected, state where the collection is being housed and authority. Any other useful information.

XIII. The Monitoring Programme

Sr. No.	Title of the programme	Date of initiation	Responsible agency	Technique	Status of collaboration and analysis of data	Remarks
1	2	3	4	5	6	7

Note:
Technique: e.g. PCQ, belt transect, line transect and plots, pugmarks etc. by the title of the technique.
Status of collaboration: Write only if applicable.

XIV. i. Ecodevelopment Programme and Implementation Year

Sr. No	Nature of the programme	Sector (Central/ State) or NGO sponsored	Target set		Achievement		Village (Buffer/ enclaved)	Remarks
			Physical	Financial	Physical	Financial		
1	2	3	4	5	6	7	8	9

Note:
Nature of the programme: e.g. pasture development, fodder plantations, establishing biogas units, livestock improvement, establishment and development of sericulture, revival of local skills such as handicraft, water harvesting systems, adults education etc.
Village: Site where programme is being implemented - whether buffer or inside PA.
Remarks: State problems, state failures and reasons 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.

XV. Progress of All Strategies under the Zone and Theme Plans Year

Sr. No	Zone/Theme	Nature of strategy	Target as per schedule of operations/APO*		Achievement		Location	Remarks
			Physical	Financial	Physical	Financial		
1	2	3	4	5	6	7	8	9

Note:

Zone/Theme plan: Mention title.

Nature of strategy: e.g. demarcation of boundary, creation of artificial water source, salt lick, maintenance of water sources (desilting), cutting and burning of Fireline, prescribed burning, weed control, immunization of cattle, maintenance of nature trails, setting up wayside exhibits, recruitment of staff, number of villages translocated, settled on new sites etc.

Location: Where pertinent, mention location e.g. weed control in comptt. 105, 111, 117.

Remarks: State problems, failures and reasons thereof, shortfall and reason, deviations if any and reasons, non-implementation with reasons etc.

*APO: (Annual Plan of Operations). Under Col.4 & 5, each column will have two figures. First the figure as per the schedule of operations in the plan and next to it in the same column the figure as per APO. If they differ it amounts to a deviation.

XVI. A Summary of Allotment of Funds, Revenue and Expenditure Year

Sr. No	Plan/non-plan/any other grant	Sector Central/ State/ other	Allotment received		Expenditure Incurred		Revenue realised	Remarks
			Non-recurrent	Recurrent	Non-recurrent	Recurrent		
1	2	3	4	5	6	7	8	9

Note:

Explain under expenditure, over expenditure, savings and surrenders. State the extent of demand for the year as per the schedule of operations/APO in the remark's column.

XVII. Connecting Multi-Agency Programs In Landscape Based Planning Partners During Year:

Sr. No.	District	Sector/Central/ State/ Other (Specify)	Agency & Work area/speciality	Program coverage	Agreed input and mechanism	Financial implications /investment & source
1	2	3	4	5	6	7

Note:

Col 4: Main agency agenda e.g. livestock production, health, education, irrigation etc.

Col. 5: Indicate by either administrative unit e.g. tehsil, or number of villages i.e. target

Col. 6: what has the agency agreed on to deliver? How? through agency plan/ scheme

XVIII. Monitoring Extent and Quality Of Multi-Agency Programs Year

Sr. No.	District	Sector/ Central/ State/ Other (Specify)	Agency	Objectives & targets	Achievement & standard	Constraints	Extent of Investment	Remarks
1	2	3	4	5	6	7	8	9

Note:

Col 6. The standard of achievement to be based on (i) verification of targets (ii) perception of satisfaction of people and their own assessment

Col. 7 (i) as reported by agency (ii) as perceived by people concerned

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PART 4

APPENDIX

Appendix I

Checklist of Birds of Gulmarg Wildlife Sanctuary

SNo	Common name	Scientific name	IUCN Status
Family Ardeiate:			
1	**Grey Heron**	*Ardea cinera*	**LC**
2	**Pond Heron**	*Ardeota grayil*	**LC**
3	**Little Egret**	*Egretta garzetta*	**LC**
4	**Night Heron**	*Nycticorax nycticorax*	**LC**
Family Accipitridae:			
5	**Black Kite**	*Milvus migrans linetus*	**LC**
6	**Sparrow Hawk**	*Accipiter nisus melasichistos*	**LC**
7	**Golden Eagle**	*Aquila chrysaetus*	**LC**
8	**Lammergeier**	*Gypaetus barbatus*	**LC**
9	**Himalayan Griffon Vulture**	*Gyps himalayensis*	**LC**
10	**Marsh Harrier**	*Circus aeruginosus*	**LC**
11	**Goshawk**	*Accipiter gentilis*	**LC**
12	**Besra Sparrow Hawk**	*Accipiter virgatus*	**LC**
13	**Tawny Eagle**	*Aquila rapax*	**LC**
14	**Oriental Hobby**	*Falco severus*	**LC**
15	**Kestrel**	*Falco tinnunuculus*	**LC**
16	**Scavenger Vulture**	*Neophron percnopterus*	**EN**
Family Falconidae:			
17	**Hobby**	*Falco subbuteo*	**LC**
Family Phasianidae:			
18	**Himalayan Snow Cock**	*Tetraogallus himalyensis*	**LC**
19	**Chukar Partridge**	*Alectoris chukar*	**LC**
20	**Monal**	*Lophophorus impejanus*	**LC**
21	**Koklass**	*Pucrasia macrolopha*	**LC**
22	**Western Tragopan**	*Tragopan melanocephalus*	**VU**
23	**Cheer Pheasant**	*Catreus wallichii*	**VU**
Family Charadrhdae:			
24	**Common Sandpiper**	*Triga hypoleucos*	**LC**
Family Laridae:			
25	**Whiskered Tern**	*Childonias hybrid*	**LC**
Family Columbidae:			
26	**Snow Pigeon**	*Columba leuconota*	**LC**
27	**Hill Pigeon**	*C. rupestris*	**LC**
28	**Speckled Wood Pigeon**	*C. eversmanni*	**VU**
29	**Blue Rock Pigeon**	*C. livia*	**LC**
30	**Roufus Turtle Dove**	*Streptopelia orientalis*	**LC**
31	**Indian Ring Dove**	*S. decaocto*	**LC**
Family Psittacidae:			
32	**Slatyheaded Parakeet**	*Psittacula himalayana*	**LC**
Family Cuculidae:			
33	**Common Cuckoo**	*Cuculus canorus*	**LC**

34	**Small Cuckoo**	*Cuculus poliocephalus*	**LC**
35	**Himalayan Cuckoo**	*C. saturaius*	**LC**
Family Strigidae			
36	**Scops Owl**	*Otus brucei*	**LC**
Family Alcedinidae:			
37	**Himalyan Pied Kingfisher**	*Ceryle lugubris*	**LC**
38	**Lesser Pied Kingfisher**	*C. rudis*	**LC**
39	**Common Kingfisher**	*Alcedo atthis*	**LC**
40	**Whitebreasted Kingfisher**	*Halcyon symrnensis*	**LC**
Family Meropidae:			
41	**European Bee-Eater**	*Meropsapi aster*	**LC**
Family Corahdae:			
42	**European Roller**	*Coracias garrulous*	**NT**
Family Upupidae:			
43	**Hoopoe**	*Upupa epops*	**LC**
Family Picidae:			
44	**Wryneck**	*Jynx torquilla*	**LC**
45	**Scalybellied Green Woodpecker**	*Picus squamatus*	**LC**
46	**Blacknaped Green Woodpecker**	*Picus canus*	**LC**
47	**Himalayan Pied Woodpecker**	*Dendrocopos himalayensis*	**LC**
48	**Brownfronted Pied Woodpecker**	*Picoides auriceps*	**LC**
49	**Yellowfronted Pied Woodpecker**	*Picoides maharattensis*	**LC**
Family Alaudidae:			
50	**Eastern Skylark**	*Alauda galgula*	**LC**
Family Hirundinidae:			
51	**Barn Swallow**	*Hirundo rustica*	**LC**
52	**Wire tailed Swallow**	*Hirundo smithii*	**LC**
Family Landidae:			
53	**Rufousbacked Shrike**	*Lanius schach*	**LC**
Family Oriolidae:			
54	**Golden Oriole**	*Oriolus oriolus*	**LC**
55	**Black Headed Oriole**	*Oriolus xanthornus*	**LC**
Family Dicruricae:			
56	**Ashy Drongo**	*Dicturus leucophaeus*	**LC**
57	**Black Drongo**	*D. adsimilis*	**LC**
Family Sturnidae:			
58	**Straling**	*Sturnus vulgaris*	**LC**
59	**Common Myna**	*Acridotheres ginginianus*	**LC**
Family Corvidae:			
60	**Blackthroated Jay**	*Garrulus lanceolatus*	**LC**
61	**Yellowbilled Blue Magpie**	*Cissa flavirostris*	**LC**
62	**Nutcracker**	*Nucifraga caryocatactes*	**LC**
63	**Yellowbilled or Alpine Chough**	*Pyrrhocorax graculus*	**LC**
64	**Redbilled Cough**	*P. pyrrhocorax*	**LC**
65	**Jackdaw**	*Corvus monedula*	**LC**
66	**Jungle Crow**	*C. macrohynchos*	**LC**
67	**Raven**	*C. corax*	**LC**

Family Campephagidae:			
68	**Scarlet Minvet**	*Pericrocotus flammeus*	**LC**
69	**Longtailed Minvet**	*P. ethologus*	**LC**
Family Pycnontidae:			
70	**White cheeked Bulbul**	*Pycnonotus leucogenys*	**LC**
71	**Black Bulbul**	*Hypsipetes madagascariensis*	**LC**
Family Muscicapidae:			
72	**Variegated Laughing Thrush**	*Garrulax variegates*	**LC**
73	**Streaked Laughing Thrush**	*Garrulax lineatus*	**LC**
74	**Scooty Flycatcher**	*Muscicapa sibirica*	**LC**
75	**Rufous tailed Flycatcher**	*M. ruficauda*	**LC**
76	**Kashmir Redbreasted Flycatcher**	*Ficedula subrubra*	**VU**
77	**Little Pied Flycatcher**	*F. westermanni*	**LC**
78	**Whitebrowed Blue Flycatcher**	*Culicicapa celonensis*	**LC**
79	**Slaty-blue Flycatcher**	*Muscicapa leucomelanura*	**LC**
80	**Grey headed Canary Flycatcher**	*Culicicepa ceylonensis*	**LC**
81	**Paradise Flycatcher**	*Terpsiphone paradisi*	**LC**
82	**Indian Great Reed Warbler**	*Acrocephalus arundinaceus*	**LC**
83	**Lesser Whitethroat**	*Syliva curruca*	**LC**
84	**Plain Leaf Warbler**	*Phylloscopus neglectus*	**LC**
85	**Tytler's Leaf Warbler**	*P. tytleri*	**NT**
86	**Tickell's Leaf Warbler**	*P. affinis*	**LC**
87	**Sulphur Bellied Leaf Warbler**	*P. griseolus*	**LC**
88	**Yellow bowed Leaf Warbler**	*P. inornatus*	**LC**
89	**Grey hooded Warbler**	*Seicerus xeihthoschistos*	**LC**
90	**Gold crest**	*Regulus regulus*	**LC**
91	**Himalayan Rubythroat**	*Luscinia pectoralis*	**LC**
92	**Red-flanked Bluetail**	*Tarsiger cyanurus*	**LC**
93	**Kashmir Black Redstart**	*Phoenicurus ochruros phoenicuroides*	**LC**
94	**Guldenstadt's Redstart**	*P. erythrogaster*	**LC**
95	**Plumbeous Redstart**	*Rhyacornis fuliginosus*	**LC**
96	**Little Forktail**	*Enicurus scouleri*	**LC**
97	**Spotted Forktail**	*Enicurus maculates*	**LC**
98	**White capped Redstart**	*Chaimarrornis leucocphalus*	**LC**
99	**Blue Whistling Thrush**	*Myophonus caeruleus*	**LC**
100	**Tickell's Thrush**	*Turdus unicolor*	**LC**
101	**Mistle Thrush**	*Turdus viscivorus*	**LC**
Family Troglodytidae:			
102	**White-breasted Dipper**	*Cinclus cinclus*	**LC**
103	**Brown Dipper**	*C. pallasii*	**LC**
Family Paridae:			
104	**Great Tit**	*Parus major*	**LC**
105	**Green-backed Tit**	*P. monticolus*	**LC**
106	**Black Crested Tit**	*P. melanolophus*	**LC**
107	**Fire-capped Tit**	*Cephalopyrus flammniceps*	**LC**

Family Sittidae:			
108	**Kashmir Nuthatch**	*Sitta cashmirensis*	**LC**
Family Certhidae:			
109	**Himalayan Tree Creeper**	*Certhia himalayana*	**LC**
Family Motachillidae:			
110	**Rosy Pipit**	*Anthus roseatus*	**LC**
111	**Long billed Pipit**	*Anthus similis*	**LC**
112	**Yellow Wagtail**	*Motacilla flava*	**LC**
113	**Yellow-headed Wagtail**	*Motacilla citreola*	**LC**
114	**Grey Wagtail**	*Motacilla cinerea*	**LC**
115	**Pied or White Wagtail**	*Motacilla alba*	**LC**
Family Zoseropidae:			
116	**Oriental White Eye**	*Zosterops palpebrosa*	**LC**
Family Ploceidae:			
117	**House Sparrow**	*Passer domesticus*	**LC**
118	**Eurasian Tree Sparrow**	*Passer montanus*	**LC**
119	**Russet Sparrow**	*Passer rutilans*	**LC**
Family Fringillidae:			
120	**Black & Yellow Grosbeak**	*Mycerobas icterioides*	**LC**
121	**Eurasian Goldfinch**	*Carduelis carduelis*	**LC**
122	**Himalayan Greenfinch**	*Carduelis spinoides*	**LC**
123	**Common Rosefinch**	*Carpodacus erythrinu*	**LC**
124	**Orange Bullfinch**	*Pyrrhula aurantiaca*	**LC**
Family Emberizidae:			
125	**Rock Bunting**	*Emberiza cia*	**LC**
Family Apodidae:			
126	**Himalayan Swiftlet**	*Collocalia brevirostris*	**LC**
127	**White Rumped Spinetail**	*Zoonavena sylvatica*	**LC**
128	**Alpine Swift**	*Apus melba*	**LC**
129	**Tree Swift**	*Apus apus*	**LC**

Appendix II

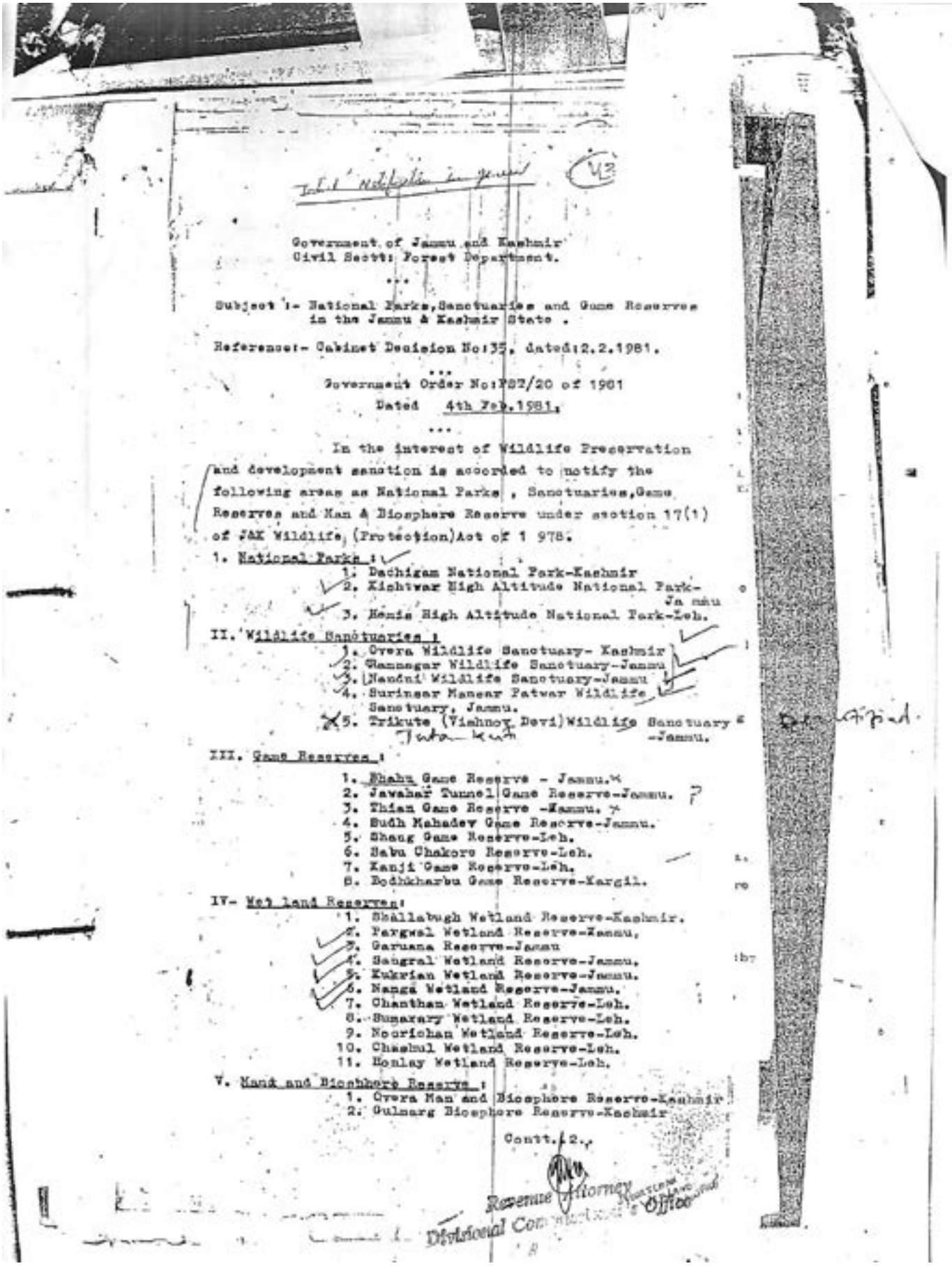
Checklist of Plants of Gulmarg Wildlife Sanctuary:

S.no	Plant Species
1	*Achillea millefolium*
2	*Aconogonum alpinum*
3	*Alium spp.*
4	*Anaphalis spp.*
5	*Anaphalistriplinervis*
6	*Androsaceprimuloides*
7	*Androsacesempervivoides*
8	*anemone spp.*
9	*Arabidopsis spp.*
10	*Arabis spp.*
11	*Arenaria bryophylla*
12	*Artemesiadubia*
13	*Artemesia spp.*
14	*Aster diplostephioides*
15	*Astralagus*
16	*Athyrium schimperi*
17	*Beeran*
18	*Berberis*
19	*Berjenia*
20	*Bistortaspp*
21	*Bupleurium spp.*
22	*Capsellbursa pastas*
23	*Caragana versicolor*
24	*Carexnivularis*
25	*Carex spp.*
26	*Cerastium spp.*
27	*Chorisiphera spp.*
28	*Cortiadepressa*
29	*Cortusa brother*
30	*Corydalis spp.*
31	*Coryspira spp.*
32	*Cyanoglossum spp.*
33	*Datua like*
34	*Dipsacusinermis*
35	*Discorea deltoidei*
36	*Dryopteris spp.*
37	*Euphorbia*
38	*Euphrasia spp.*
39	*Fragaria nubicola*
40	*Galium aparine*
41	*Ganodilus spp.*
42	*Garhadeiolus spp.*
43	*Gentiana cachemirica*
44	*Geranium wallichianum*
45	*Geumelatum*
46	*gul*
47	*Gypsophila cerastioides*
48	*Hackeliauncinatae*
49	*indigofera*
50	*iris spp.*
51	*Juncuc spp.*
52	*Juniperus squamata*
53	*Juriniadolomiaea*
54	*Lagotis cashmeriana*
55	*Leontopodium himalayanum*
56	*Leontopodium jacotianum*
57	*Leontopodium spp.*
58	*Lindelofialongiflora*
59	*Lonicera myrtillus*
60	*Lotus corniculate*
61	*Lycophis spp.*
62	*Lycopus spp.*
63	*Malva neglecta*
64	*Mentha arvensis*
65	*Myosotis spp.*
66	*Nepeta spp.*
67	*Nettle*
68	*Orchid spp.*
69	*Oxyriadigyna*
70	*Oxytropis spp.*
71	*Paraquilegiamicrophylla*
72	*Pedicularisoederi*
73	*Pedicularis spp.*
74	*Phalaris specosus*
75	*Phlomisrotata*
76	*Phlomis*
77	*Picrorhizakurroa*
78	*Plantago lanceolata*
79	*Pleurospermumcandollei*
80	*Poa spp.*
81	*Podophyllum hexandrum*

82	*polygonum affine*
83	*Polygonum amplexicaule*
84	*Polygonum spp.1*
85	*Polygonum spp.2*
86	*Polygonum spp.3*
87	*Potentilaeriocarpa*
88	*Potentilla spp.*
89	*Primula macrophylla*
90	*Pseudomertensiamoltkioides*
91	*Ranunculus minealis*
92	*Ranunculus palmatifidus*
93	*Ranunculus pulchellus*
94	*Ranunculus spp.*
95	*Reum*
96	*Rhapiridealris spp.*
97	*Rhodiolawallichiana*
98	*Ribes orientale*
99	*Roriphoria spp.*
100	*Rosa webbiana*
101	*Rumex nepalensis*
102	*salix*
103	*Salvia hians*
104	*Sambucus edulis*
105	*Saxifraga jacquemontiana*
106	*Saxifraga sibirica*
107	*Saxifraga spp.*
108	**Saxifraga stenophylla**
109	**Sedum ewersii**
110	**Sedum spp.**
111	**Selinumtenuifolium**
112	**Senecio jacquemontianus**
113	**Sibbaldia cuneata**
114	**Sibbaldia spp.**
115	**sorbus**
116	**Stellaria decumbens**
117	**Stellaria melee**
118	**Stipa sibirica**
119	**Tancetum**
120	**Taraxacum officinale**
121	**Thymus linearis**
122	**Trifolium repens**
123	**Verbascum**
124	**Veronica spp.**
125	**Vertica spp.**
126	**Viola biflora**

Appendix III

Notification of Gulmarg Biosphere Reserve



Government of Jammu and Kashmir
Civil Secttt: Forest Department.

...

Subject :- National Parks, Sanctuaries and Game Reserves in the Jammu & Kashmir State .

Reference:- Cabinet Decision No:35, dated:2.2.1981.

...

Government Order No:232/20 of 1981
Dated 4th Feb.1981.

...

In the interest of Wildlife Preservation and development sanction is accorded to notify the following areas as National Parks , Sanctuaries, Game Reserves and Man & Biosphere Reserve under section 17(1) of J&K Wildlife (Protection) Act of 1 978.

I. National Parks :
1. Dachigam National Park-Kashmir
2. Kishtwar High Altitude National Park-Jammu
3. Hemis High Altitude National Park-Leh.

II. Wildlife Sanctuaries :
1. Overa Wildlife Sanctuary- Kashmir
2. Ramnagar Wildlife Sanctuary-Jammu
3. Nandni Wildlife Sanctuary-Jammu
4. Surinsar Mansar Patwar Wildlife Sanctuary, Jammu.
5. Trikuta (Vishnov Devi) Wildlife Sanctuary -Jammu.

III. Game Reserves :
1. Bhabu Game Reserve - Jammu.
2. Jawahar Tunnel Game Reserve-Jammu.
3. Thian Game Reserve -Jammu.
4. Sudh Mahadev Game Reserve-Jammu.
5. Shang Game Reserve-Leh.
6. Saku Chakore Reserve-Leh.
7. Kanji Game Reserve-Leh.
8. Bodhkharbu Game Reserve-Kargil.

IV- Wet land Reserves:
1. Shallabugh Wetland Reserve-Kashmir.
2. Pargwal Wetland Reserve-Jammu,
3. Garuana Reserve-Jammu
4. Sangral Wetland Reserve-Jammu.
5. Kukrian Wetland Reserve-Jammu.
6. Nanga Wetland Reserve-Jammu.
7. Chantham Wetland Reserve-Leh.
8. Sumarary Wetland Reserve-Leh.
9. Noorichan Wetland Reserve-Leh.
10. Chashul Wetland Reserve-Leh.
11. Honlay Wetland Reserve-Leh.

V. Mand and Biosphere Reserve :
1. Overa Man and Biosphere Reserve-Kashmir
2. Gulmarg Biosphere Reserve-Kashmir

Contt./2.

Revenue Attorney
Divisional Co

(99) (53)

(62) (42) (7)

- 2 -

The Chief Wildlife Warden/Deputy Chief Wildlife Warden should examine the possibility of starting a zoo in Jammu.

By order of Govt.of Jammu and Kashmir.

Sd/-
(J.P. Kesar)
Secretary to Government
Forest Department

No:- FST/GP-9/90 Dated:4th Feb.1981.

Copy forwarded to the :-

1. Chief Wildlife Warden,Jammu for information and necessary action.
2. Deputy Chief Wildlife Warden,Srinagar for information and necessary action.
3. Director of Information J&K Jammu for inf.
4. Secretary to Government General Deptt (with three S.C.)
5. Secretary to Governor for information.
6. Secretary to Chief Minister for information.
7. Pvt.Secy. to Forest Minister for inf. to FM
8. P.A. to Deputy Forest Minister for inf. of Deputy FM
9. Stock file/Master file (Personal Section).

Revenue Attorney
Divisional Commissioner's Office

Appendix IV

Notification of the Gulmarg Wildlife Sanctuary

GOVERNMENT OF JAMMU AND KASHMIR
CIVIL SECTT: FOREST DEPARTMENT.

Subject :- National Parks, Sanctuaries and Game Reserves in the Jammu & Kashmir State.

Reference :- Cabinet Decision No: 35 dated 2.2.1981

Govegnment order No: FST/ 29 of 1981
Dated 4th Feb. 1981

In the interest of Wild Life Preservation and development sanction is accorded to notify the following areas as National Parks, Sanctuaries, Game Reserves and Man & Biosphere Reserve under Section 17(1) of J & K Wild Life (Protection) Act of 1978.

I-NATIONAL PARKS:

1. Dachigam National Park-Kashmir
2. Kishtwar High Altitude National Park-Jammu
3. Hemis High Altitude National Park-Leh

II-WILD LIFE SANCTUARIES:

1. Overa Wild Life Sanctuary-Kashmir
2. Ramnagar Wild Life Sanctuary-Jammu
3. Nandni Wild Life Sanctuary-Jammu
4. Surinsar Mansar Patwar Wild Life Sanctuary, Jammu
5. Trikuta (Vishnov-Devi) Wildlife Sanctuary-Jammu.

III-GAME RESERVES:

1. Bhadu Game Reserve-Jammu
2. Jawahar Tunnel Game Reserve-Jammu
3. Thian Game Reserve-Jammu
4. Sudh Mahadev Game Reserve-Jammu
5. Shang Game Reserve-Leh
6. Sabu Chakore Reserve-Leh
7. Kanji Game Reserve-Leh
8. Bodhkharbu Game Reserve-Kargil

IV- WET LAND RESERVES:

1. Shallabugh Wetland Reserve-Kashmir
2. Hokarsal Wetland Reserve-Jammu
3. Garuana Reserve Jammu
4. Sangral Wetland Reserve Jammu
5. Kukrian Wetland Reserve-Jammu

(continued on page 2)

Appendix V

Notification of the Eco Sensitive Zone of Gulmarg Wildlife Sanctuary

रजिस्ट्री सं. डी.एल.- 33004/99 REGD. No. D. L.-33004/99

भारत का राजपत्र
The Gazette of India

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EXTRAORDINARY

भाग II—खण्ड 3—उप-खण्ड (ii)
PART II—Section 3—Sub-section (ii)

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अधिसूचना

नई दिल्ली, 6 मई, 2022

का.आ. 2141(अ).—प्रारूप अधिसूचना भारत के राजपत्र, असाधारण, भारत सरकार के पर्यावरण, वन और जलवायु परिवर्तन, मंत्रालय की अधिसूचना सं. का.आ. 2182 (अ), तारीख 7 जून, 2021, द्वारा प्रकाशित की गई थी जिसमें ऐसे सभी व्यक्तियों से, जिनकी उससे प्रभावित होने की संभावना थी, उस तारीख से, जिसको उक्त अधिसूचना को अन्तर्विष्ट करने वाली राजपत्र की प्रतियां जनता को उपलब्ध करा दी गई थीं, साठ दिन की अवधि के भीतर आक्षेप और सुझाव आमंत्रित किए गए थे;

और, उक्त राजपत्र अधिसूचना की प्रतियां जनता को तारीख 8 जून, 2021 को उपलब्ध करा दी गई थी;

और, उक्त प्रारूप अधिसूचना के प्रत्युतर में व्यक्तियों और पणधारियों से प्राप्त आक्षेपों और सुझावों पर केंद्रीय सरकार द्वारा विचार किया गया था;

और, गुलमर्ग वन्यजीव अभयारण्य 180 वर्ग किलोमीटर के क्षेत्रफल में फैला हुआ है, जम्मू और कश्मीर के बारामूला जिला के दक्षिण-पश्चिम के लगभग 63 किलोमीटर में अवस्थित है और यह 74°.17' से 74°.79' उ और 34°.55' से 34°.60' पू के बीच में और समुद्र स्तर से ऊपर 2400-4300 मीटर तक उच्च श्रेणी में स्थित है;

और, गुलमर्ग वन्यजीव अभयारण्य अधिसूचना संख्या एस.आर.ओ:147 तारीख 14 मार्च, 1987 के द्वारा वन्यजीव अभयारण्य घोषित किया गया था जो उत्तर में झेलम घाटी वन संभाग (बारामूला), दक्षिण में पूंछ और पीर-पंचल के वन संभाग से घिरा हुआ है, पूर्व में तांगमार्ग वन संभाग के दरंग और बद्राकोट वनों के ग्राम और पश्चिम में बाबा रेशी ग्राम और तांगमार्ग वन संभाग से सटा हुआ है;

और, गुलमर्ग वन्यजीव अभयारण्य और इसके समीपवर्ती वन क्षेत्र को इसके स्थानिक वन्यजीव के कारण संरक्षण के लिए प्राथमिकता दी जाती है, इस क्षेत्र में लुप्तप्राय और स्थानिक हिमालय कस्तूरी मृग (*मोस्चुस क्रसोगेटर*) के अलावा अन्य जीवजंतु प्रजातियों की व्यवहार्य जनसंख्या का वास है, यह क्षेत्र प्रमुख आर्थिक, जेनेटिक और औषधीय मूल्य वाले दुर्लभ वनस्पति की संख्या और विविधता में भी समृद्ध है और यह क्षेत्र इन जंगली वनस्पति और जीवजंतु प्रजातियों के प्रजनन, संरक्षण और स्थायीकरण के लिए "जीन पूल" का प्रतिनिधित्व करता है;

और, संरक्षित क्षेत्र विविध प्रजातियों जैसे हिमालयन कस्तूरी मृग *(*मोस्चुस क्रसोगेटर*),* सामान्य तेंदुआ (*पेन्थेरा प्रड्स*), एशियाई काला भालू (*उर्सस थिबेटानस*), हिमालयन ब्राउन भालू (*उर्सस आर्कटोस*), लाल लोमड़ी (*वल्पेस वल्पेस*), हिमालयन स्नो मुर्गा (*टेट्रोगल्लस हिमालयेंसिस*), कश्मीर फ्लाइंग गिलहरी (*इओग्लायकोम्यस फिम्ब्रिएटस),* हिमालयन मार्मोट *(मार्मोटा कौउडाटा),* कश्मीर वैम्पायर (*मरगड्रेमा स्पेक्ट्रम*), हिमालयन लंगूर (*सेम्नोपिथेकस अजाक्स*), हिमालयन मोनल (*लोफोफोरस इंपेजानस*) और चकोर (*पुकरासिया मैक्रोलोफा*) आदि के साथ समृद्ध जीवजंतु और वनस्पति जैव-विविधता का वास है;

और, गुलमर्ग वन्यजीव अभयारण्य का क्षेत्र भारतीय उप-महाद्वीप के निचले समतल स्थानों के साथ जुड़ा हुआ है और कभी-कभी अभयारण्य में कुछ वन्यजीव प्रजातियों की उपस्थिति भी दिखाई देती है जैसे मुंजक (*मुंटियाकस मुंटजक*) जो सामान्यत: निचले स्थानों से प्रवास करते हैं और अफरवात, बोटापथरी, बाबारेशी, गुलर्मग बॉल आदि के क्षेत्रों में फेरोजपोरा के प्रवाही नाला क्षेत्र कस्तूरी मृग की बृहत् संख्या दिखाई देती है। इसलिए, गुलमर्ग वन्यजीव अभयारण्य को अति लुप्तप्राय कस्तूरी मृग के अस्तित्व को सुनिश्चित करने के लिए वर्ग 1987 में मैन एवं बायोस्फियर रिज़र्व से अभ्युत्थान किया गया था;

और, गुलमर्ग वन्यजीव अभयारण्य की वनस्पति में समूहों जैसे ब्लू पाइन, सिल्वर पाइन वन, बॅर्च, उप-तुंग क्षेत्र के वन, अल्पाइन वन का प्रतिनिधित्व करता है। वन्यजीव अभयारण्य में कुछ प्रसिद्ध प्रजातियां कैल (*पाइनस वाल्लिची*), *(पिसिया स्मिथिअना),* येव (*टक्सस बक्केटा*), मैपल (*अकेर केइसम*), हॉर्स चेस्ट-नट (*ऐस्कुलुस इंडिका*), जुनिपेरस कोम्मुनिस, बेतुला यूटीलिस विद्यमान है। झाड़ियों में इंडिगोफेरा हेटेरान्था, रोसा वेब्बिना, *वेबरनम ग्रांडिफ्लोरस, स्किमिया लावेरेओला, प्रिरमुला इल्लिप्टिका, पोटेंटिल्ला गेलिडा, कोरयिडालिस्कोरनुटा, गेन्टिअन वेनुस्टा, अनेमोने ओबतुसिलोबा, एक्यूइलेगिया निवालेस, पोलयगोनुम अफ्फिने, पी.अलपिनुम, रूमेक्स एकेटोसाल* शामिल हैं;

और, संरक्षित क्षेत्र का जलग्रहण क्षेत्र, कश्मीर प्रांत की प्रसिद्ध झेलम नदी के स्त्रोत के अलावा, संरक्षित क्षेत्र के समीपवर्ती क्षेत्र के अंतर्गत आने वाले दर्जनों ग्रामों के लिए पेयजल और सिंचाई के जल का स्त्रोत है। फेरोज़पोरा नाला की सहायक नदियां हाइड्रो-इलेक्ट्रिक पावर परियोजना को चलाने के लिए प्रसिद्ध झेलम नदी को जलग्रहण क्षेत्र प्रदान करती है जो कि दक्षिणी भाग पर संरक्षित क्षेत्र के साथ बहती है;

और, क्षेत्र प्रसिद्ध घास के मैदान**,** चट्टानी प्रपात, घने बिर्च वन और बर्डवॉचर के लिए वास के लिए प्रसिद्ध पर्यटक स्थानों में से एक है;

और, गुलमर्ग वन्यजीव अभयारण्य के चारों ओर के क्षेत्र को, जिसके विस्तार और सीमाओं को इस अधिसूचना उपर्युक्त पैरा में विनिर्दिष्ट किया गया हैं, को, पारिस्थितिकी, पर्यावरणीय और जैव-विविधता की दृष्टि से पारिस्थितिकी संवेदी जोन के रूप में सुरक्षित और संरक्षित करना तथा उक्त पारिस्थितिकी संवेदी जोन में उद्योगों या उद्योगों की श्रेणियों के प्रचालन तथा प्रसंस्करण को प्रतिषिद्ध करना आवश्यक है;

अत: अब, केन्द्रीय सरकार, पर्यावरण (संरक्षण) नियमावली, 1986 के नियम 5 के उपनियम (3) के साथ पठित पर्यावरण (संरक्षण) अधिनियम, 1986 (1986 का 29) (जिसे इस अधिसूचना में इसके पश्चात् पर्यावरण अधिनियम कहा गया है) की उपधारा (1), धारा 3 की उपधारा (2) के खंड (v) और खंड (xiv) एवं उपधारा (3) के द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए, जम्मू और कश्मीर संघ राज्यक्षेत्र में जिला बारामूला के गुलमर्ग वन्यजीव अभयारण्य, की सीमा के चारों ओर शून्य (0) से 4.1 किलोमीटर तक विस्तारित, क्षेत्र को पारिस्थितिकी संवेदी जोन (जिसे इसमें इसके पश्चात् पारिस्थितिकी संवेदी जोन कहा गया है) के रूप में अधिसूचित करती है, जिसका विवरण निम्नानुसार है, अर्थात् :-

1. **पारिस्थितिकी संवेदी जोन का विस्तार और सीमा.**-(1) पारिस्थितिकी संवेदी जोन का विस्तार गुलमर्ग वन्यजीव अभयारण्य की सीमा के चारों ओर 62.2 वर्ग किलोमीटर के साथ शून्य (0) से 4.1 किलोमीटर तक विस्तृत है और विभिन्न दिशाओं में पारिस्थितिकी संवेदी जोन का विस्तार निम्न रूप से है:

दिशा	विस्तार (किलोमीटर)
उत्तर	4.1
उत्तर-पूर्व	2.11
पूर्व	0.00
दक्षिण-पूर्व	2.48
दक्षिण	0.05
दक्षिण –पश्चिम	0.012
पश्चिम	0.012
उत्तर-पश्चिम	2.4

पारिस्थितिकी संवेदी जोन का 'शून्य' विस्तार पूर्वी भाग की ओर प्रस्तावित है क्योंकि यह गुलमर्ग वन्यजीव अभयारण्य से युक्त फिरोजपुरा जल-विभाजक से जुड़ा है जो भौगोलिक रूप से ऊंचे पहाड़ों, चोटियों और हिमनदों जैसी भूगर्भीय विशेषताओं से विभाजित है। पारिस्थितिकी संवेदी जोन को गुलमर्ग वन्यजीव अभयारण्य के दक्षिणी भाग की ओर 0.05किलोमीटर, दक्षिण-पश्चिमी भाग की ओर 0.012किलोमीटर और पश्चिमी भाग पर 0.012 किलोमीटर की दूरी पर रखा गया है क्योंकि यह क्षेत्र वर्ष भर बड़े पर्यटकों के आने के साथ प्रसिद्ध पर्यटन स्थल है और यहाँ इन भागों पर पारिस्थितिकी संवेदी जोन की सीमा संभव नहीं है।

(2) गुलमर्ग वन्यजीव अभयारण्य के चारों ओर पारिस्थितिकी संवेदी जोन की सीमा का विवरण **उपाबंध-I** के रूप में संलग्न है।

(3)सीमा विवरण और अक्षांश और देशांतर के साथ पारिस्थितिकी संवेदी जोन को सीमांकित करते हुए वन्यजीव अभयारण्य के मानचित्र **उपाबंध–IIक, उपाबंध-IIख** और **उपाबंध-IIग** के रूप में संलग्न है।

(4) गुलमर्ग वन्यजीव अभयारण्य और पारिस्थितिकी संवेदी जोन की सीमा के भू- निर्देशांकों की सूची **उपाबंध-III** की सारणी **क** और सारणी **ख** में दी गई है।

(5) यहां कोई ग्राम/उपनगर नहीं है जो कि गुलमर्ग वन्यजीव अभयारण्य के प्रस्तावित पारिस्थितिकी संवेदी जोन के अंतर्गत है।

2. पारिस्थितिकी संवेदी जोन के लिए आंचलिक महायोजना.–(1) संघ राज्यक्षेत्र सरकार, द्वारा पारिस्थितिकी संवेदी जोन के प्रयोजन के लिए, राजपत्र में अंतिम अधिसूचना के प्रकाशन की तारीख से दो वर्ष की अवधि के भीतर, स्थानीय व्यक्तियों के परामर्श से और इस अधिसूचना में दिए गए अनुबंधों का पालन करते हुए, संघ राज्यक्षेत्र सरकार के सक्षम प्राधिकारी के अनुमोदनार्थ एक आंचलिक महायोजना बनाई जायेगी।

(2) संघ राज्यक्षेत्र सरकार द्वारा पारिस्थितिकी संवेदी जोन के लिए आचंलिक महायोजना इस अधिसूचना में विनिर्दिष्ट रीति से तथा प्रासंगिक केंद्रीय और राज्य विधियों के अनुरूप तथा संघ राज्यक्षेत्र सरकार द्वारा जारी दिशा निर्देशों, यदि कोई हों, के अनुसार बनायी जाएगी।

(3) आंचलिक महायोजना में पारिस्थितिकी और पर्यावरण संबंधी सरोकारों को शामिल करने के लिए इसे संघ राज्यक्षेत्र सरकार के निम्नलिखित विभागों के परामर्श से बनाया जाएगा, अर्थात्:-

(i) पर्यावरण;

(ii) वन;

(iii) कृषि;

(iv) राजस्व;

(v) शहरी विकास;

(vi) पर्यटन;

(vii) ग्रामीण विकास;

(viii) सिंचाई और बाढ़ नियंत्रण;

(ix) प्रदूषण नियंत्रण बोर्ड;

(x) नगरपालिका;

(xi) पंचायती राज; और

(xii) लोक निर्माण विभाग।

(4) जब तक इस अधिसूचना में विनिर्दिष्ट न हो, आंचलिक महायोजना में वर्तमान में अनुमोदित भू-उपयोग, अवसंरचना और क्रियाकलापों पर कोई प्रतिबंध नहीं लगाया जाएगा तथा आचंलिक महायोजना में सभी अवसंरचनाओं और क्रियाकलापों में सुधार करके उन्हे अधिक दक्ष और पारिस्थितिकी-अनुकूल बनाने की व्यवस्था की जाएगी।

(5) आंचलिक महायोजना में वनरहित और अवक्रमित क्षेत्रों के सुधार, विद्यमान जल निकायों के संरक्षण, जलग्रहण क्षेत्रों के प्रबंधन, जल-संभरों के प्रबंधन, भू-जल के प्रबंधन, मृदा और नमी के संरक्षण, स्थानीय जनता की आवश्यकताओं तथा पारिस्थितिकी एवं पर्यावरण के ऐसे अन्य पहलुओं की व्यवस्था की जाएगी जिन पर ध्यान दिया जाना आवश्यक है।

(6) आंचलिक महायोजना में सभी विद्यमान पूजा स्थलों, ग्रामों एवं शहरी बस्तियों, वनों की श्रेणियों एवं किस्मों, कृषि क्षेत्रों, ऊपजाऊ भूमि, उद्यानों एवं उद्यानों की तरह के हरित क्षेत्रों, बागवानी क्षेत्रों, बगीचों, झीलों और अन्य जल निकायों की सीमा का सहायक मानचित्र के साथ निर्धारण किया जाएगा और मौजूदा और प्रस्तावित भू-उपयोग की विशेषताओं का ब्यौरा भी दिया जाएंगा।

(7) आंचलिक महायोजना में पारिस्थितिकी संवेदी जोन में होने वाले विकास का विनियमन किया जाएगा और सारणी में यथासूचीबद्ध पैरा 4 में प्रतिषिद्ध एवं विनियमित क्रियाकलापों का पालन किया जाएगा। इसमें स्थानीय जनता की आजीविका की सुरक्षा के लिए पारिस्थितिकी-अनुकूल विकास का भी सुनिश्चय एवं संवर्धन किया जाएगा।

(8) आंचलिक महायोजना, क्षेत्रीय विकास योजना की सह-कालिक होगी ।

(9) अनुमोदित आंचलिक महायोजना, निगरानी समिति के लिए एक संदर्भ दस्तावेज होगी ताकि वह इस अधिसूचना के उपबंधों के अनुसार निगरानी के अपने कर्तव्यों का निर्वहन कर सके।

(10) आंचलिक महायोजना और किसी भी नई विकासात्मक क्रियाकलापों का विचाराधीन अनुमोदन पैरा 6 के उप पैरा (3) और (4) में निर्दिष्ट प्रावधानों द्वारा नियमित होगा।

3. **संघ राज्यक्षेत्र की सरकार द्वारा किए जाने वाले उपाय.-** संघ राज्यक्षेत्र की सरकार इस अधिसूचना के उपबंधों को प्रभावी बनाने के लिए निम्नलिखित उपाय करेगी, अर्थात्:-

(1) **भू-उपयोग.–** (क) पारिस्थितिकी संवेदी जोन में वनों, बागवानी क्षेत्रों, कृषि क्षेत्रों, मनोरंजन के लिए चिन्हित उद्यानों और खुले स्थानों का वृहद वाणिज्यिक या आवासीय परिसरों या औद्योगिक क्रियाकलापों के लिए प्रयोग या संपरिवर्तन अनुमत नहीं किया जाएगा:

परंतु पारिस्थितिकी संवेदी जोन के भीतर ऊपर भाग (क), में विनिर्दिष्ट प्रयोजन से भिन्न प्रयोजन के लिए कृषि और अन्य भूमि का संपरिवर्तन, निगरानी समिति की सिफारिश पर और क्षेत्रीय नगर योजना अधिनियम यथा लागू केन्द्रीय सरकार एवं संघ राज्यक्षेत्र की सरकार के अन्य नियमों एवं विनियमों के अधीन सक्षम प्राधिकारी के पूर्व अनुमोदन से तथा इस अधिसूचना के उपबंधों के अनुसार स्थानीय निवासियों की निम्नलिखित आवासीय जरूरतों को पूरा करने के लिए अनुमत किया जाएगा जैसे:-

(i) विद्यमान सड़कों को चौड़ा करना, उन्हें सुदृढ़ करना और नई सड़कों का निर्माण करना;

(ii) बुनियादी ढांचों और नागरिक सुविधाओं का संनिर्माण और नवीकरण;

(iii) प्रदूषण उत्पन्न न करने वाले लघु उद्योग;

(iv) कुटीर उद्योग एवं ग्राम उद्योग; पारिस्थितिकी पर्यटन में सहायक सुविधा भण्डार और स्थानीय सुविधाएं तथा गृह वास; और

(v) पैरा-4 में उल्लिखित बढ़ावा दिए गए क्रियाकलापः

परंतु यह भी कि क्षेत्रीय शहरी नियोजन अधिनियम के अधीन सक्षम प्राधिकारी के पूर्व अनुमोदन के बिना तथा संघ राज्यक्षेत्र की सरकार के अन्य नियमों एवं विनियमों एवं संविधान के अनुच्छेद 244 के उपबंधों या कोई अन्य विधि फिलहाल लागू है कि तत्समय प्रवृत्त विधि, जिसके अंतर्गत अनुसूचित जनजाति और अन्य परंपरागत वन निवासी (वन अधिकारों की मान्यता) अधिनियम, 2006 (2007 का 2) भी आता है, का अनुपालन किए बिना वाणिज्यिक या औद्योगिक विकास क्रियाकलापों के लिए जनजातीय भूमि का प्रयोग अनुमत नहीं होगा:

परंतु यह भी कि पारिस्थितिकी संवेदी जोन के अंतर्गत आने वाली भूमि के अभिलेखों में हुई किसी त्रुटि को, निगरानी समिति के विचार प्राप्त करने के पश्चात्, संघ राज्यक्षेत्र की सरकार द्वारा प्रत्येक मामले में एक बार सुधारा जाएगा और उक्त त्रुटि को सुधारने की सूचना केंद्रीय सरकार के पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय को दी जाएगी:

परंतु यह भी कि उपर्युक्त त्रुटि को सुधारने में, इस उप पैरा में यथा उपबंधित के सिवाय, किसी भी दशा में भू-उपयोग का परिवर्तन शामिल नहीं होगा।

(ख) अनुप्रयुक्त या अनुत्पादक कृषि क्षेत्रों में वनीकरण तथा पर्यावासों की बहाली के कार्यकलापों से पुन: वनीकरण के प्रयास किए जाएंगे।

(2) **प्राकृतिक जल स्रोत.**- सभी प्राकृतिक जलमार्गों के जलग्रहण क्षेत्रों की पहचान की जाएगी और आंचलिक महायोजना में उनके संरक्षण और बहाली की योजना सम्मिलित की जाएगी और संघ राज्यक्षेत्र की सरकार द्वारा दिशा-निर्देश इस रीति से तैयार किए जाएंगे कि उसमें ऐसे क्षेत्रों में या उसके पास हानि पहुंचाने वाले विकास क्रियाकलापों को प्रतिषिद्ध और निर्बंधित किया गया हो।

(3) **पर्यटन या पारिस्थितिकी पर्यटन.–** (क) पारिस्थितिकी संवेदी जोन में सभी नए पारिस्थितिकी पर्यटन क्रियाकलाप या विद्यमान पर्यटन क्रियाकलापों का विस्तार पारिस्थितिकी संवेदी जोन संबंधी पर्यटन महायोजना के अनुसार अनुमत होगा।

(ख) पारिस्थितिकी पर्यटन महायोजना संघ राज्यक्षेत्र की सरकार के पर्यावरण और वन विभाग के परामर्श से पर्यटन संघ राज्यक्षेत्र विभाग द्वारा बनायी जाएगी।

(ग) पर्यटन महायोजना, आंचलिक महायोजना का घटक होगी।

(घ) पर्यटन महायोजना पारिस्थितिकी संवेदी जोन की वहन क्षमता के अध्ययन के आधार पर तैयार की जायेगी।

(ङ) पारिस्थितिकी पर्यटन संबंधी क्रियाकलाप निम्नानुसार विनियमित किए जाएंगे, अर्थात्:-

(i) संरक्षित क्षेत्र की सीमा से एक किलोमीटर के भीतर या पारिस्थितिकी संवेदी जोन की सीमा तक, इनमें जो भी अधिक निकट हो, किसी होटल या रिजॉर्ट का नया सन्निर्माण अनुमत नहीं किया जाएगा:

परंतु यह, पारिस्थितिकी पर्यटन सुविधाओं के लिए संरक्षित क्षेत्र की सीमा से एक किलोमीटर की दूरी से परे पारिस्थितिकी संवेदी जोन की सीमा तक पूर्व परिभाषित और अभीहित क्षेत्रों में पर्यटन महायोजना के अनुसार, नए होटलों और रिजॉर्ट की स्थापना अनुमत होगी;

(ii) पारिस्थितिकी संवेदी जोन के अन्दर सभी नए पर्यटन क्रियाकलापों या विद्यमान पर्यटन क्रियाकलापों का विस्तार, केन्द्रीय सरकार के पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय द्वारा जारी दिशानिर्देशों तथा पारिस्थितिकी पर्यटन, पारिस्थितिकी-विकास और पारिस्थितिकी-शिक्षा पर बल देने वाले राष्ट्रीय व्याघ्र संरक्षण प्राधिकरण द्वारा जारी पारिस्थितिकी पर्यटन संबंधी दिशानिर्देशों, समय-समय पर यथा संशोधित, के अनुसार होगा;

(iii) आंचलिक महायोजना का अनुमोदन होने तक, पर्यटन के विकास और विद्यमान पर्यटन क्रियाकलापों के विस्तार को वास्तविक स्थल-विशिष्ट संवीक्षा तथा निगरानी समिति की सिफारिश के आधार पर संबंधित विनियामक प्राधिकरणों द्वारा अनुमत किया जाएगा और पारिस्थितिकी संवेदी जोन में किसी नए होटल/रिजॉर्ट या वाणिज्यिक प्रतिष्ठान का निर्माण अनुमत नहीं होगा ।

(4) **प्राकृतिक विरासत.–** पारिस्थितिकी संवेदी जोन के अंतर्गत आने वाले बहुमूल्य प्राकृतिक विरासत के सभी स्थलों जैसे कि जीन पूल रिजर्व क्षेत्र, शैल संरचना, जल प्रपात, झरने, दर्रे, उपवन, गुफाएं, स्थल, वनपथ, रोहण मार्ग, उत्प्रपात आदि की पहचान की जाएगी और उनकी सुरक्षा एवं संरक्षण के लिए आंचलिक महायोजना के भाग के रूप में एक विरासत संरक्षण योजना बनायी जाएगी।

(5) **मानव निर्मित विरासत स्थल.-** पारिस्थितिकी संवेदी जोन में भवनों, संरचनाओं, कलाकृति-क्षेत्रों तथा ऐतिहासिक, स्थापत्य संबधी, सौंदर्यात्मक और सांस्कृतिक महत्व के क्षेत्रों की पहचान की जाएगी और उनके संरक्षण के लिए आंचलिक महायोजना के भाग के रूप में एक विरासत संरक्षण योजना बनायी जाएगी।

(6) **ध्वनि प्रदूषण.**- पर्यावरण अधिनियम के अधीन ध्वनि प्रदूषण (विनियमन और नियंत्रण) नियम, 2000 में नियत उपबंधों के अनुसार पारिस्थितिकी संवेदी जोन में ध्वनि प्रदूषण की रोकथाम और नियंत्रण किया जाएगा ।

(7) **वायु प्रदूषण.**- पारिस्थितिकी संवेदी जोन में, वायु प्रदूषण का निवारण और नियंत्रण, वायु (प्रदूषण निवारण और नियंत्रण) अधिनियम, 1981 (1981 का 14) और उसके अधीन बनाए गए नियमों के उपबंधों के अनुसार किया जाएगा ।

(8) **बहिस्राव का निस्सरण.**- पारिस्थितिकी संवेदी जोन में उपचारित बहिस्राव का निस्सरण, पर्यावरण अधिनियम और उसके अधीन बनाए गए नियमों के अधीन आने वाले पर्यावरणीय प्रदूषण के निस्सरण के लिए साधारण मानकों या संघ राज्यक्षेत्र की सरकार द्वारा नियत मानकों, जो भी अधिक कठोर हो, के उपबंधों के अनुसार होगा।

(9) **ठोस अपशिष्ट.-** ठोस अपशिष्ट का निपटान एवं प्रबन्धन निम्नानुसार किया जाएगा:-

(क) पारिस्थितिकी संवेदी जोन में ठोस अपशिष्ट का निपटान और प्रबंधन, भारत सरकार के पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय की समय-समय पर यथा संशोधित अधिसूचना सं. का.आ. 1357(अ), तारीख 8 अप्रैल, 2016 के अधीन प्रकाशित ठोस अपशिष्ट प्रबंधन नियम, 2016 के उपबंधों के अनुसार किया जाएगा; अकार्बनिक पदार्थो का निपटान पारिस्थितिकी संवेदी जोन से बाहर चिन्हित किए गए स्थानों पर पर्यावरण-अनुकूल रीति से किया जाएगा;

(ख) पारिस्थितिकी संवेदी जोन में मान्य प्रौद्योगिकियों का प्रयोग करते हुए विद्यमान नियमों और विनियमों के अनुरूप ठोस अपशिष्ट का सुरक्षित और पर्यावरण अनुकूल प्रबंधन अनुमत किया जायेगा।

(10) **जैव चिकित्सा अपशिष्ट.**- जैव चिकित्सा अपशिष्ट का प्रबंधन निम्नानुसार किया जाएगा:-

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

(ख) पारिस्थितिकी संवेदी जोन में मान्य प्रौद्योगिकियों का प्रयोग करते हुए विद्यमान नियमों और विनियमों के अनुरूप जैव चिकित्सा अपशिष्ट का सुरक्षित और पर्यावरण अनुकूल प्रबंधन अनुमत किया जायेगा।

(11) **प्लास्टिक अपशिष्ट का प्रबंधन.-** पारिस्थितिकी संवेदी जोन में प्लास्टिक अपशिष्ट का प्रबंधन, भारत सरकार के पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय की समय-समय पर यथा संशोधित अधिसूचना सं.सा.का.नि 340(अ), तारीख 18 मार्च, 2016 के अधीन प्रकाशित प्लास्टिक अपशिष्ट प्रबंधन नियम, 2016 के उपबंधो के अनुसार किया जाएगा।

(12) **निर्माण और विध्वंस अपशिष्ट का प्रबंधन.-** पारिस्थितिकी संवेदी जोन में निर्माण और विध्वंस अपशिष्ट का प्रबंधन, भारत सरकार के पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय की समय-समय पर यथा संशोधित अधिसूचना सं.सा.का.नि 317(अ), तारीख 29 मार्च, 2016 के अधीन प्रकाशित संनिर्माण और विध्वंस अपशिष्ट प्रबंधन नियम, 2016 के उपबंधों के अनुसार किया जाएगा।

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

(14) **सड़क-यातायात.-** सड़क-यातायात को पर्यावास-अनुकूल तरीके से विनियमित किया जाएगा और इस संबंध में आंचलिक महायोजना में विशेष उपबंध शामिल किए जाएंगे। आंचलिक महायोजना के तैयार होने और संघ राज्यक्षेत्र की सरकार के सक्षम प्राधिकारी से अनुमोदित होने तक, निगरानी समिति प्रासंगिक अधिनियमों और उनके अधीन बनाए गए नियमों एवं विनियमों के अनुसार सड़क-यातायात के अनुपालन की निगरानी करेगी।

(15) **वाहन जनित प्रदूषण.-** वाहन जनित प्रदूषण की रोकथाम और नियंत्रण लागू विधियों के अनुसार किया जाएगा और स्वच्छतर ईंधन के उपयोग के लिए प्रयास किए जाएंगे।

(16) **औद्योगिक ईकाइयां.-** (क) सरकारी राजपत्र में इस अधिसूचना के प्रकाशन की तारीख को या उसके बाद पारिस्थितिकी संवेदी जोन में किसी नए प्रदूषणकारी उद्योग की स्थापना की अनुमति नहीं होगी।

(ख) केन्द्रीय प्रदूषण नियंत्रण बोर्ड द्वारा फरवरी, 2016 में जारी समय-समय पर यथा संशोधित मार्गदर्शक सिद्धान्तों में उद्योगों के वर्गीकरण के अनुसार, जब तक कि अधिसूचना में इस प्रकार विनिर्दिष्ट न हो, पारिस्थितिकी संवेदी जोन के भीतर केवल गैर-प्रदूषणकारी उद्योगों को अनुज्ञात किया जाएगा और इसके अतिरिक्त, गैर प्रदूषणकारी कुटीर उद्योगों को बढ़ावा दिया जाएगा।

(17) **पहाड़ी ढलानों का संरक्षण.-** पहाड़ी ढलानों का संरक्षण निम्नानुसार किया जाएगा:-

(क) आंचलिक महायोजना में पहाड़ी ढलानों के उन क्षेत्रों को दर्शाया जाएगा जिनमें किसी भी संनिर्माण की अनुज्ञा नहीं होगी;

(ख) जिन ढलानों या विद्यमान खड़ी पहाड़ी ढलानों में अत्यधिक भू-क्षरण होता है उनमें किसी भी संनिर्माण की अनुज्ञा नहीं होगी ।

4. पारिस्थितिकी संवेदी जोन में प्रतिषिद्ध या विनियमित किए जाने वाले क्रियाकलापों की सूची- पारिस्थितिकी संवेदी जोन में सभी क्रियाकलाप, पर्यावरण अधिनियम के उपबंधों और तटीय विनियमन जोन अधिसूचना, 2011 एवं पर्यावरणीय प्रभाव आकलन अधिसूचना, 2006 सहित उसके अधीन बने नियमों और वन (संरक्षण) अधिनियम, 1980 (1980 का 69), भारतीय वन अधिनियम, 1927 (1927 का 16), वन्यजीव (संरक्षण) अधिनियम, 1972 (1972 का 53) सहित अन्य लागू नियमों और नीचे दी गई सारणी में विनिर्दिष्ट रीति से विनियमित होंगे, अर्थात्:-

सारणी

क्र. सं.	क्रियाकलाप	टिप्पणी
	क. प्रतिषिद्ध क्रियाकलाप	
1.	वाणिज्यिक खनन, पत्थर उत्खनन और अपघर्षण इकाइयां ।	(क) पारिस्थितिकी संवेदी जोन के अंतर्गत वास्तविक स्थानीय निवासियों की घरेलू आवश्यकताओं जिसमें मकानों के संनिर्माण या मरम्मत के लिए धरती को खोदना सम्मिलित है, के सिवाय सभी प्रकार के नए और विद्यमान खनन (लघु और वृहत खनिज), पत्थर उत्खनन और अपघर्षण इकाइयां तत्काल प्रभाव से प्रतिषिद्ध होंगी; (ख) खनन प्रचालन, 1995 की रिट याचिका (सिविल) सं. 202 में टी.एन. गोदावर्मन थिरुमूलपाद बनाम भारत संघ के मामले में माननीय उच्चतम न्यायालय के तारीख 4 अगस्त ,2006 के आदेश और 2012 की रिट याचिका (सिविल) सं. 435 में गोवा फाउंडेशन बनाम भारत संघ के मामले में तारीख 21 अप्रैल ,2014 के आदेश के अनुसरण में होगा ।
2.	प्रदूषण (जल, वायु, मृदा, ध्वनि, आदि) उत्पन्न करने वाले उद्योगों की स्थापना ।	पारिस्थितिकी संवेदी जोन में कोई नया उद्योग लगाने और वर्तमान प्रदूषणकारी उद्योगों का विस्तार करने की अनुमति नहीं होगीः परन्तु यह कि केन्द्रीय प्रदूषण नियंत्रण बोर्ड द्वारा फरवरी, 2016 में जारी समय-समय पर यथा संशोधित मार्गदर्शक सिद्धान्तों में उद्योगों के वर्गीकरण के अनुसार, जब तक कि इस अधिसूचना में ऐसा विनिर्दिष्ट न हों, पारिस्थितिकी संवेदी जोन के भीतर गैर-प्रदूषणकारी उद्योगों को अनुज्ञात किया जाएगा और इसके अतिरिक्त गैर-प्रदूषणकारी कुटीर उद्यागों को बढ़ावा दिया जाएगा।
3.	बड़ी जल विद्युत परियोजनाओं की स्थापना ।	प्रतिषिद्ध।
4.	किसी परिसंकटमय पदार्थ का प्रयोग या उत्पादन या प्रसंस्करण ।	प्रतिषिद्ध।
5.	प्राकृतिक जल निकायों या भूमि क्षेत्र में अनुपचारित बहिस्रावों का निस्सरण ।	प्रतिषिद्ध।

6.	नई आरा मिलों की स्थापना।	पारिस्थितिकी संवेदी जोन के भीतर नई और विद्यमान आरा मिलों का विस्तार अनुमत नहीं होगा ।
7.	ईंट भट्टों की स्थापना करना।	प्रतिषिद्ध।
8.	जलावन लकड़ी का वाणिज्यिक उपयोग ।	प्रतिषिद्ध।
9.	पर्यटन से संबंधित अन्य क्रियाकलाप जैसे गर्म वायु के गुब्बारे, हेलीकॉप्टर, ड्रोन, माइक्रोलाइटस, आदि द्वारा पारिस्थितिकी संवेदी जोन के ऊपर से उड़ना जैसे क्रियाकलाप करना।	प्रतिषिद्ध।
10.	पोलिथीन बैगों का प्रयोग ।	प्रतिषिद्ध।
	ख.विनियमित क्रियाकलाप	
11.	होटलों और रिसोर्टों की वाणिज्यिक स्थापना ।	पारिस्थितिकी पर्यटन क्रियाकलापों हेतु लघु अस्थायी संरचनाओं के निर्माण के सिवाय, संरक्षित क्षेत्र की सीमा से एक किलोमीटर के भीतर या पारिस्थितिकी संवेदी जोन की सीमा तक, इनमें जो भी अधिक निकट हो, नए वाणिज्यिक होटलों और रिर्सोटो की स्थापना अनुमत नहीं होगी: परंतु, संरक्षित क्षेत्र की सीमा से एक किलोमीटर बाहर या पारिस्थितिकी संवेदी जोन की सीमा तक, इनमें जो भी अधिक निकट हो, पर्यटन महायोजना और लागू दिशानिर्देशों के अनुसार सभी नए पर्यटन क्रियाकलाप करने या विद्यमान क्रियाकलापों का विस्तार करने की अनुज्ञा होगी ।
12.	संनिर्माण क्रियाकलाप ।	(क) संरक्षित क्षेत्र की सीमा से एक किलोमीटर के भीतर या पारिस्थितिकी संवेदी जोन के विस्तार तक जो भी निकट हो, किसी भी प्रकार का वाणिज्यिक संनिर्माण अनुमत नहीं किया जाएगा: परंतु स्थानीय लोगों को पैरा 3 के उप पैरा (1) में सूचीबद्ध क्रियाकलापों सहित उनकी भूमि में उनके उपयोग के लिए स्थानीय निवासियों की आवासीय आवश्यकताओं को पूरा करने लिए भवन उपविधियों के अनुसार संनिर्माण करने की अनुमति दी जाएगी। परन्तु ऐसे लघु उद्योगों जो प्रदूषण उत्पन्न नहीं करते हैं, से संबंधित संनिर्माण क्रियाकलाप, विनियमित किए जाएंगे और लागू नियमों और विनियमों, यदि कोई हों, के अनुसार सक्षम प्राधिकारी की पूर्व अनुमति से ही न्यूनतम किए जाएंगे । (ख) एक किलोमीटर से आगे आंचलिक महायोजना के अनुसार विनियमित होंगे ।
13.	गैर प्रदूषणकारी लघु उद्योग।	फरवरी, 2016 में केन्द्रीय प्रदूषण नियंत्रण बोर्ड द्वारा जारी, समय-समय पर यथा संशोधित उद्योगों में वर्गीकरण के अनुसार गैर-प्रदूषणकारी उद्योग और अपरिसंकटमय, लघु और सेवा उद्योग, कृषि, पुष्प कृषि, बागवानी या पारिस्थितिकी संवेदी जोन से देशी सामग्री से उत्पादों को उत्पन्न करने वाले कृषि आधारित उद्योग सक्षम प्राधिकारी द्वारा अनुज्ञात होंगे।
14.	वृक्षों की कटाई ।	(क) संघ राज्यक्षेत्र की सरकार के सक्षम प्राधिकारी की पूर्व अनुमति के बिना वन भूमि या सरकारी या राजस्व या निजी भूमि पर वृक्षों की कटाई नहीं होगी ।

		(ख) वृक्षों की कटाई संबंधित केंद्रीय या संघ राज्यक्षेत्र के अधिनियम के प्रावधानों या उसके अधीन बनाए गए नियमों के उपबंधों के अनुसार विनियमित होगी ।
15.	वन उत्पादों और गैर काष्ठ वन उत्पादों का संग्रहण ।	लागू विधियों के अधीन विनियमित होगा ।
16.	विद्युत और संचार टॉवर लगाने, तार-बिछाने तथा अन्य बुनियादी ढांचे की व्यवस्था ।	लागू विधियों के अधीन विनियमित होगा (भूमिगत केबल बिछाने को बढ़ावा दिया जाएगा)।
17.	नागरिक सुविधाओं सहित बुनियादी ढांचा।	लागू विधियों और दिशानिर्देशों के अनुसार न्यूनीकरण उपाय किए जाएंगे।
18.	विद्यमान सड़कों को चौड़ा करना, उन्हें सुदृढ बनाना और नई सड़कों का निर्माण।	लागू विधियों, नियमों और विनियमनों और उपलब्ध दिशानिर्देशों के अनुसार न्यूनीकरण उपाय किए जाएंगे।
19.	पहाड़ी ढलानों और नदी तटों का संरक्षण ।	लागू विधियों के अधीन विनियमित होगा ।
20.	रात्रि में वाहन यातायात का संचलन ।	लागू विधियों के अधीन वाणिज्यिक प्रयोजन के लिए विनियमित होगा ।
21.	स्थानीय जनता द्वारा अपनायी जा रही वर्तमान कृषि और बागवानी पद्धतियों के साथ डेयरियां, दुग्ध उत्पादन, जल कृषि और मत्स्य पालन।	स्थानीय जनता के प्रयोग के लिए लागू विधियों के अधीन अनुमत होंगे।
22.	प्राकृतिक जल निकायों या भू क्षेत्र में उपचारित अपशिष्ट जल/बहिर्स्राव का निस्सरण ।	जल निकायों में उपचारित अपशिष्ट जल अथवा बहिर्स्राव के निस्सरण से बचा जाएगा और उपचारित अपशिष्ट जल के पुनर्चक्रण और पुन:उपयोग के प्रयास किए जाएंगे। अन्यथा उपचारित अपशिष्ट जल/बहिर्स्राव का निस्सरण लागू विधियों के अनुसार विनियमित किया जाएगा।
23.	सतही और भूजल का वाणिज्यिक प्रयोग हेतु निष्कर्षण ।	लागू विधियों के अधीन विनियमित होगा ।
24.	फर्मों, कारपोरेट और कंपनियों द्वारा बड़े पैमाने पर वाणिज्यिक पशुधन संपदा और कुक्कुट फार्मों की स्थापना ।	स्थानीय आवश्यकताओं को पूरा करने के अलावा लागू विधियों के अधीन विनियमित होंगे ।
25.	कृषि और अन्य उपयोग के लिए खुले कुंआ, बोर कुंआ, आदि ।	विनयमित एवं सम्बद्ध प्राधिकारी द्वारा क्रियाकलापों की सख्ती से निगरानी की जाएगी।
26.	ठोस अपशिष्ट का प्रबंधन।	लागू विधियों के अधीन विनियमित होगा ।
27.	पारिस्थितिकी पर्यटन।	लागू विधियों के अधीन विनियमित होगा ।
28.	वाणिज्यिक संकेत बोर्ड और होर्डिंग का प्रयोग ।	लागू विधियों के अधीन विनियमित होगा ।
29.	विदेशी प्रजातियों को लाना।	लागू विधियों के अधीन विनियमित होंगे ।
ग.संवर्धित क्रियाकलाप		
30.	वर्षा जल संचय ।	सक्रिय रूप से बढ़ावा दिया जाएगा ।

31.	जैविक खेती।	सक्रिय रूप से बढ़ावा दिया जाएगा ।
32.	सभी गतिविधियों के लिए हरित प्रौद्योगिकी का अंगीकरण ।	सक्रिय रूप से बढ़ावा दिया जाएगा ।
33.	ग्रामीण कारीगरों सहित कुटीर उद्योग आदि।	सक्रिय रूप से बढ़ावा दिया जाएगा ।
34.	नवीकरणीय ऊर्जा और ईंधन का प्रयोग ।	बायोगैस, सौर प्रकाश इत्यादि को सक्रिय बढ़ावा दिया जाएगा।
35.	कृषि वानिकी ।	सक्रिय रूप से बढ़ावा दिया जाएगा ।
36.	बागान लगाना और जड़ी बूटियों का रोपण ।	सक्रिय रूप से बढ़ावा दिया जाएगा ।
37.	पारिस्थितिकी अनुकूल यातायात का प्रयोग ।	सक्रिय रूप से बढ़ावा दिया जाएगा ।
38.	कौशल विकास ।	सक्रिय रूप से बढ़ावा दिया जाएगा ।
39.	अवक्रमित भूमि/वनों/ पर्यावासों की बहाली ।	सक्रिय रूप से बढ़ावा दिया जाएगा ।
40.	पर्यावरण के प्रति जागरुकता।	सक्रिय रूप से बढ़ावा दिया जाएगा ।

5. पारिस्थितिकी-संवेदी जोन अधिसूचना की निगरानी के लिए निगरानी समिति.- पर्यावरण (संरक्षण) अधिनियम, 1986 की धारा 3 की उपधारा (3) के अधीन इस अधिसूचना के उपबंधों की प्रभावी निगरानी के लिए केन्द्रीय सरकार निम्नलिखित को शामिल करके एतद्वारा एक निगरानी समिति का गठन करती है, अर्थात्:

क्र.सं.	निगरानी समिति का गठन	पद
1.	कलेक्टर/उपायुक्त, बारामूला	अध्यक्ष;
2.	जम्मू और कश्मीर सरकार द्वारा नामित किए जाने वाले पारिस्थितिकी और पर्यावरण के क्षेत्र में एक विशेषज्ञ	सदस्य;
3.	जम्मू और कश्मीर सरकार द्वारा नामित किए जाने वाले विरासत संरक्षण सहित पर्यावरण के क्षेत्र में काम करने वाले एक गैर-सरकारी संगठन का एक प्रतिनिधि	सदस्य;
4.	जम्मू और कश्मीर जैव विविधता परिषद का एक प्रतिनिधि	सदस्य;
5.	क्षेत्रीय अधिकारी, जम्मू और कश्मीर राज्य प्रदूषण नियंत्रण बोर्ड	सदस्य;
6.	संभागीय वन अधिकारी, तंगमार्ग	सदस्य;
7.	वन्यजीव वार्डन, उत्तर संभाग	सदस्य-सचिव।

6. निर्देश निबंधन:- (1) निगरानी समिति इस अधिसूचना के उपबंधों के अनुपालन की निगरानी करेगी।

(2) निगरानी समिति का कार्यकाल अगले आदेश होने तक होगा, परंतु यह कि समिति के गैर-सरकारी सदस्यों को समय-समय पर संघ राज्यक्षेत्र की सरकार सरकार द्वारा मनोनीत किया जाएगा।

(3) भारत सरकार के तत्कालीन पर्यावरण और वन मंत्रालय की अधिसूचना सं. का.आ. 1533(अ), तारीख 14 सितंबर, 2006 की अनुसूची में सम्मिलित और पारिस्थितिकी संवेदी जोन में आने वाले क्रियाकलापों और इस अधिसूचना के पैरा 4 के अधीन सारणी में यथा विनिर्दिष्ट प्रतिषिद्ध गतिविधियों के सिवाय आने वाले ऐसे क्रियाकलापों की वास्तविक विनिर्दिष्ट स्थलीय दशाओं के आधार पर निगरानी समिति द्वारा संवीक्षा की जाएगी और उक्त अधिसूचना के उपबंधों के अधीन पूर्व पर्यावरण अनापत्ति लेने के लिए केन्द्रीय सरकार के पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय को निर्दिष्ट की जाएंगी।

(4) इस अधिसूचना के पैरा 4 के अधीन सारणी में यथा विनिर्दिष्ट प्रतिषिद्ध क्रियाकलापों के सिवाय, भारत सरकार के तत्कालीन पर्यावरण और वन मंत्रालय की अधिसूचना संख्या का.आ. 1533(अ), तारीख 14 सितंबर, 2006 की अधिसूचना की अनुसूची के अधीन ऐसे क्रियाकलापों, जिन्हें सम्मिलित नहीं किया गया है, परंतु जो पारिस्थितिकी संवेदी जोन में आते हैं, ऐसे क्रियाकलापों की वास्तविक विनिर्दिष्ट स्थलीय दशाओं के आधार पर निगरानी समिति द्वारा संवीक्षा की जाएगी और उसे संबद्ध विनियामक प्राधिकरणों को निर्दिष्ट किया जाएगा ।

(5) निगरानी समिति का सदस्य-सचिव या संबंधित उपायुक्त ऐसे व्यक्ति के विरूद्ध, जो इस अधिसूचना के किसी उपबंध का उल्लंघन करता है, पर्यावरण अधिनियम की धारा 19 के अधीन परिवाद दायर करने के लिए सक्षम होगा।

(6) निगरानी समिति संबंधित विभागों के प्रतिनिधियों या विशेषज्ञों, औद्योगिक संघों के प्रतिनिधियों या संबंधित पक्षों को, प्रत्येक मामले मे आवश्यकता के अनुसार, अपने विचार-विमर्श में सहायता के लिए आमंत्रित कर सकेगी ।

(7) निगरानी समिति प्रत्येक वर्ष 31 मार्च की स्थिति के अनुसार अपनी वार्षिक कार्रवाई रिपोर्ट राज्य के मुख्य वन्यजीव वार्डन को, **उपाबंध IV** में दिए गए प्रपत्र के अनुसार, उस वर्ष की 30 जून तक प्रस्तुत करेगी ।

(8) केन्द्रीय सरकार का पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय निगरानी समिति को उसके कार्यकलापों के प्रभावी निर्वहन के लिए ऐसे निदेश दे सकेगा जो वह उचित समझे ।

7. अतिरिक्त उपाय.- इस अधिसूचना के उपबंधों को प्रभावी बनाने के लिए केंद्रीय सरकार और संघ राज्यक्षेत्र की सरकार, अतिरिक्त उपाय, यदि कोई हों, विनिर्दिष्ट कर सकेंगी ।

8. न्यायालयों और न्यायाधिकरणों के आदेश.- इस अधिसूचना के उपबंध भारत के माननीय उच्चतम न्यायालय या उच्च न्यायालय या राष्ट्रीय हरित अधिकरण द्वारा पारित किए गए या पारित किए जाने वाले आदेश, यदि कोई हो, के अध्यधीन होंगे ।

[फा. सं. 25/22/2020-ईएसजेड]

डॉ. एस. केरकेट्टा, वैज्ञानिक 'जी'

उपाबंध - I

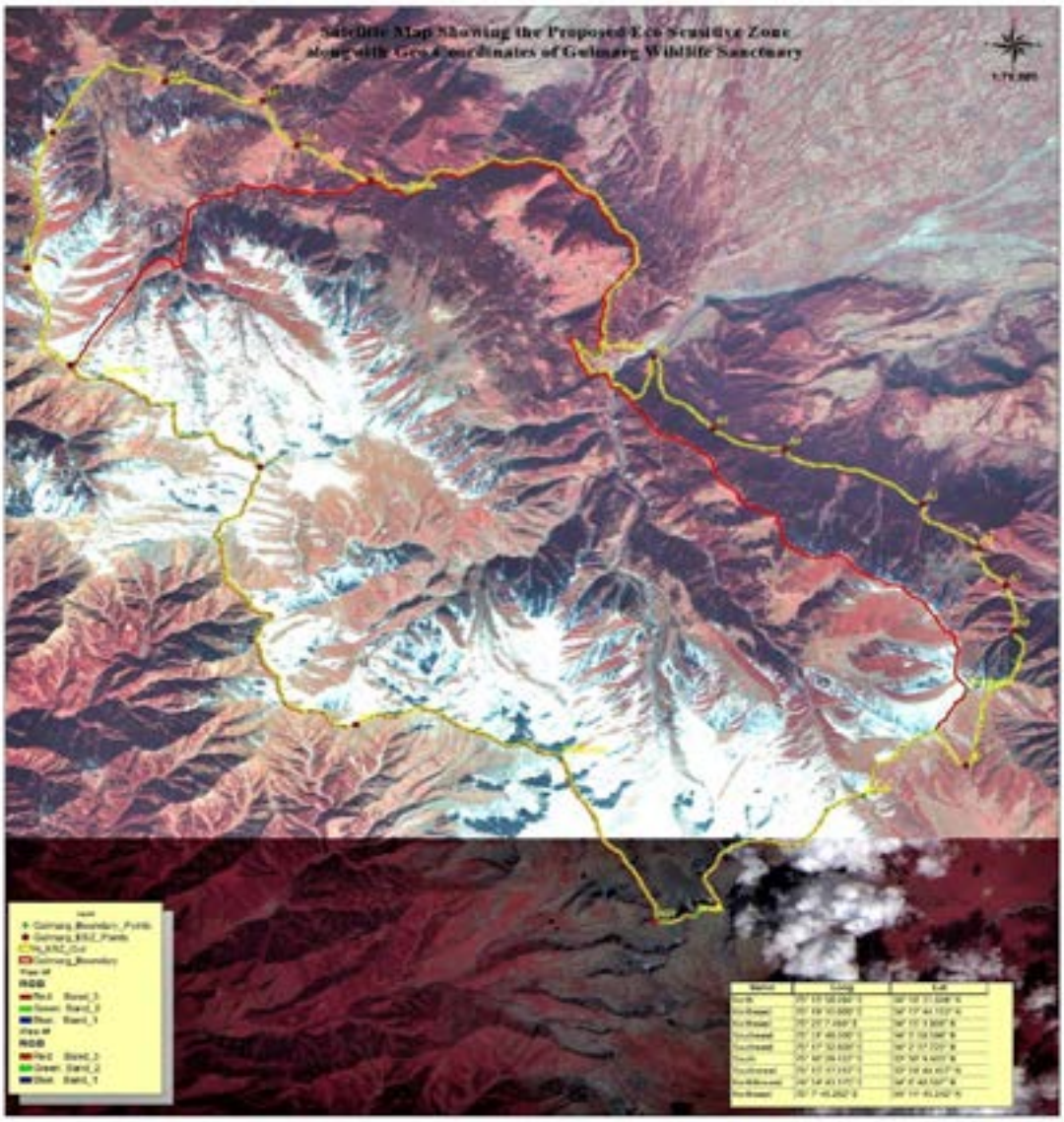
गुलमर्ग वन्यजीव अभयारण्य के चारों ओर पारिस्थितिकी संवेदी जोन का विस्तार और सीमा विवरण

नाम	अक्षांश	देशांतर	संरक्षित क्षेत्र से दूरी (मीटर)	टिप्पणी
ए15	34° 5' 13.424" उ	74° 15' 39.248" पू	3700	चारमरगी, को 8/जी
ए16	34° 5' 54.957" उ	74° 17' 17.635" पू	300	वन क्षेत्र, को 8/जी
ए18	34° 5' 3.402" उ	74° 19' 14.783" पू	1100	बंदीबाला कोल, को 22/जी
ए1	34° 4' 35.755" उ	74° 20' 19.727" पू	50	नींगली नाला
ए3	34° 1' 13.423" उ	74° 25' 24.017" पू	600	को 60
ए9	33° 56' 38.773" उ	74° 29' 9.008" पू	1200	अल्पाइन चरागाह, टोशा मैदान का ऊपरी
ए10	33° 54' 29.597" उ	74° 24' 35.135" पू	0	पीरपंजल पास
ए13	34° 2' 2.483" उ	74° 15' 56.204" पू	0	पोशपथरी पीर पंजल पास
ए14	34° 3' 21.847" उ	74° 15' 16.882" पू	2200	मोहर दर पीर पंजल पास
ए2	34° 2' 11.948" उ	74° 24' 30.717" पू	1200	गगरीबल, को 59
ए5	34° 0' 12.615" उ	74° 28' 29.770" पू	2000	वन क्षेत्र को 65, कनजल पथरी
ए6	33° 59' 37.164" उ	74° 29' 18.974" पू	1800	वन क्षेत्र, को 32/एस, कंजा कोल

ए8	33° 58' 28.858" उ	74° 29' 51.207" पू	11200	सूगन वन, को 28/एस
ए7	33° 59' 6.326" उ	74° 29' 43.533" पू	1500	खाग वन, को 28/एस
ए4	34° 0' 57.117" उ	74° 26' 28.136" पू	1500	को 64, वन क्षेत्र
ए12	34° 0' 39.692" उ	74° 18' 44.075" पू	0	पीरपंजल पास
ए17	34° 5' 40.167" उ	74° 18' 44.254" पू	2100	वन क्षेत्र, नेवा, को 9/जी
ए11	33° 57' 9.549" उ	74° 20' 10.000" पू	0	पीरपंजल पास

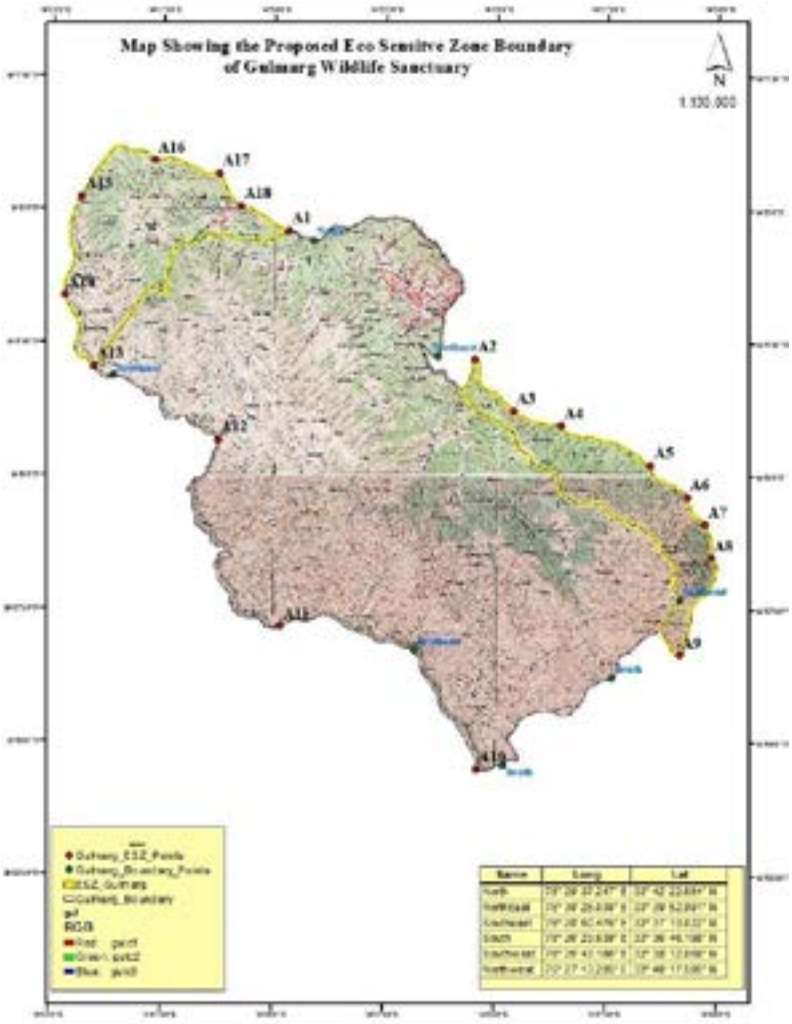
उपाबंध -IIक

मुख्य अवस्थानों के अक्षांश और देशांतर के साथ गुलमर्ग वन्यजीव अभयारण्य के चारों ओर पारिस्थितिकी संवेदी जोन का सैटेलाइट मानचित्र



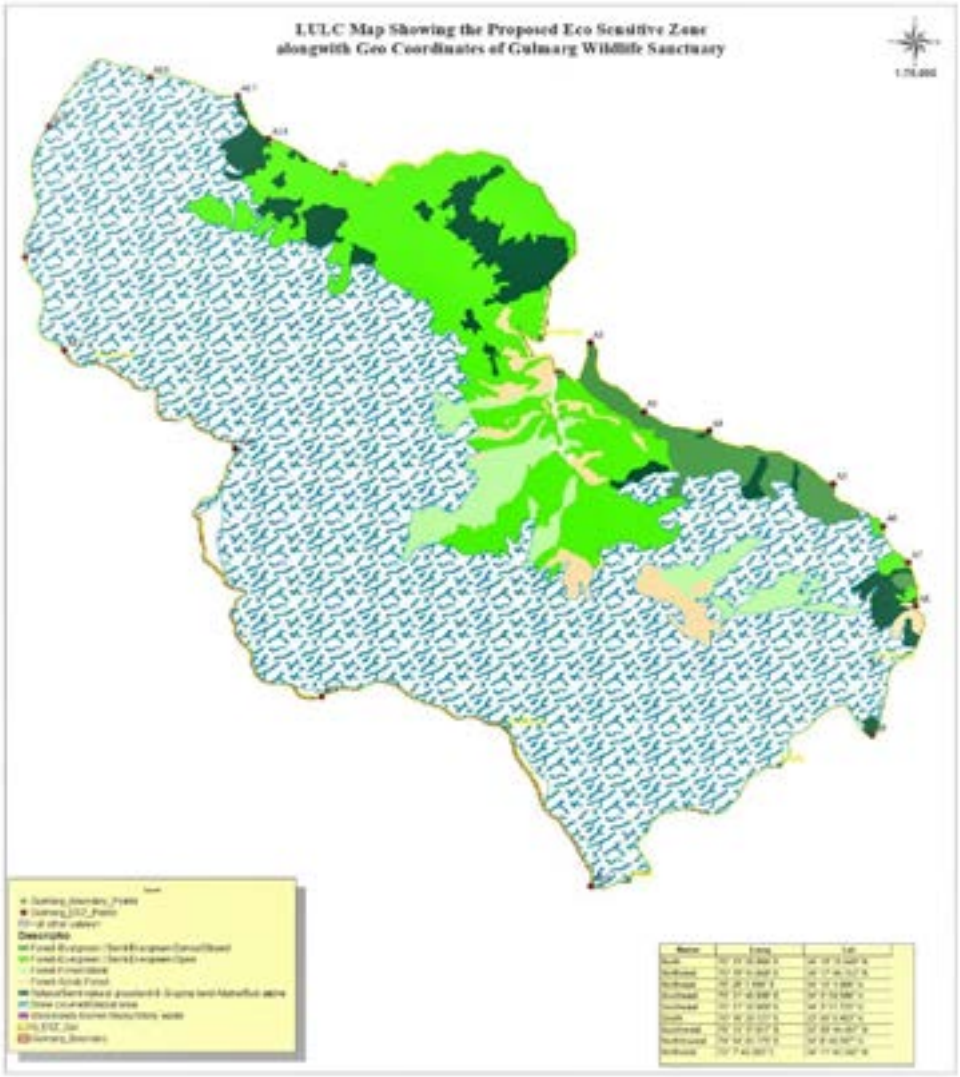
उपाबंध -IIख

मुख्य अवस्थानों के अक्षांश और देशांतर के साथ गुलमर्ग वन्यजीव अभयारण्य का मानचित्र



उपाबंध -IIग

गुलमर्ग वन्यजीव अभयारण्य और इसके पारिस्थितिकी संवेदी जोन का भूमि उपयोग भूमि कवर मानचित्र



उपाबंध -III

सारणी क: गुलमर्ग वन्यजीव अभयारण्य की सीमा के साथ मुख्य अवस्थानों के अक्षांश-देशांतर

क्र.सं.	दिशा	देशांतर	अक्षांश
1.	उत्तर	75⁰ 15’ 58.094” पू	34⁰ 18’ 31.849” उ
2.	उत्तर-पूर्व	75⁰ 19’ 15.668” पू	34⁰ 17’ 44.153” उ
3.	उत्तर-पूर्व	75⁰ 25’ 7.494” पू	34⁰ 15’ 1.906” उ
4.	दक्षिण-पूर्व	75⁰ 31’ 48.006” पू	34⁰ 5’ 59.596” उ

5.	**दक्षिण-पूर्व**	75⁰ 17’ 32.928” पू	34⁰ 2’ 57.725” उ
6.	**दक्षिण**	75⁰ 16’ 29.127” पू	33⁰ 56’ 9.483” उ
7.	**दक्षिण-पश्चिम**	75⁰ 13’ 17.017” पू	33⁰ 59’ 44.457” उ
8.	**उत्तर-पश्चिम**	74⁰ 54’ 43.175” पू	34⁰ 6’ 48.597” उ
9.	**उत्तर-पूर्व**	75⁰ 7’ 40.262” पू	34⁰ 11’ 43.242” उ

सारणी ख: गुलमर्ग वन्यजीव अभयारण्य के पारिस्थितिकी संवेदी जोन के भू-निर्देशांकों को दर्शाने वाली सारणी

क्र.सं	**दिशा**	**अक्षांश**	**देशांतर**	**संरक्षित क्षेत्र सीमा (किलोमीटर) से दूरी**
1	उत्तर	34°.4' 33.683"उ	74°.20' 17.730" पू	4.1
2	उत्तर-पूर्व	34°.4' 46.631"उ	74°.23' 8.374" पू	1.1
3	पूर्व	34°.0' 1.155"उ	74°.26' 24.124" पू	0.050
4	दक्षिण-पूर्व	33°.58'41.316"उ	74°.28' 41.559" पू	2.48
5	दक्षिण	33°.54'29.485"उ	74°.24' 35.532" पू	0.050
6	दक्षिण-पश्चिम	33°.56'43.901"उ	74°.23' 10.517" पू	0.012
7	पश्चिम	33°.59'42.931"उ	74°.18' 4.814" पू	0.012
8	उत्तर-पश्चिम	34°.2' 1.422"उ	74°.15' 58.890" पू	2.4

उपाबंध - IV

की गई कार्रवाई संबंधी रिपोर्ट का प्रपत्रः

1. बैठको की संख्या और तारीख।
2. बैठकों का कार्यवृतः (कृपया मुख्य उल्लेखनीय बिंदुओं का वर्णन करें। बैठक के कार्यवृत को एक पृथक अनुलग्नक में प्रस्सतुत करें)।
3. पर्यटन महायोजना सहित आंचलिक महायोजना की तैयारी की स्थिति।
4. भू-अभिलेखों की स्पष्ट त्रुटियों के सुधार के लिए निपटाए गए मामलों का सार (पारिस्थितिकी-संवेदी जोन वार)। विवरण उपाबंध के रूप में संलग्न करें।
5. पर्यावरण प्रभाव आकलन अधिसूचना, 2006 के अधीन आने वाली गतिविधियों से संबंधित संवीक्षा किए गए मामलों का सार । (विवरण एक पृथक उपाबंध के रुप में संलग्न करें)।
6. पर्यावरण प्रभाव आकलन अधिसूचना, 2006 के अधीन न आने वाली गतिविधियों से संबंधित संवीक्षा किए गए मामलों का सार । (विवरण एक पृथक उपाबंध के रुप में संलग्न करें)।
7. पर्यावरण (संरक्षण) अधिनियम, 1986 की धारा 19 के अधीन दर्ज की गई शिकायतों का सार ।
8. कोई अन्य महत्त्वपूर्ण मामला।

MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

NOTIFICATION

New Delhi, the 6th May, 2022

S.O. 2141(E).—WHEREAS, a draft notification was published in the Gazette of India, Extraordinary, *vide* notification of the Government of India in the Ministry of Environment, Forest and Climate Change number S.O. 2182 (E), dated the 7th June, 2021, inviting objections and suggestions from all persons likely to be affected thereby within the period of sixty days from the date on which copies of the Gazette containing the said notification were made available to the public;

AND WHEREAS, copies of the said Gazette notification were made available to the public on the 8th June, 2021;

AND WHEREAS, objections and suggestions received from persons and stakeholders in respect of the said draft notification have been considered by the Central Government;

AND WHEREAS, the Gulmarg Wildlife Sanctuary is spread over an area of 180 square kilometers, located at about 63 kilometers to the South-West of District Baramulla in Jammu and Kashmir and it is situated between 74°.17' to 74°.79' N and 34°.55' to 34°.60' E and the altitude ranges from 2400-4300 meters above mean sea level;

AND WHEREAS, the Gulmarg Wildlife Sanctuary was declared as a Wildlife Sanctuary *vide* notification number SRO: 147 dated the 14th March 1987 surrounded by Jhelum Valley Forest Division (Baramulla) in North, forest division of Poonch and Pir-Panchal in South, flanked by village of Drang and Badrakoot forests of Tangmarg forest division in East and Baba Reshi village and Tangmarg forest division in West;

AND WHEREAS, the Gulmarg Wildlife Sanctuary and its adjacent forest area are given priority for protection purposes due to its endemic wildlife, the area harbours viable population of the endangered and endemic Himalayan musk deer (*Moschus crysogater*) besides other faunal species, the area is also rich in number of rare and variety of flora with great economic, genetic and medicinal value and the area represents "gene pool" for propagation, protection and perpetuation of these wild floral and faunal species;

AND WHEREAS, the protected area is an abode of rich faunal and floral bio-diversity with varied species like endemic Himalayan musk deer *(Moschus crysogater),* common leopard (*Panthera pardus)*, Asiatic black bear (*Ursus thibetanus)*, Himalayan brown bear (*Ursus arctos)*, red fox (*Vulpes vulpes*), Himalayan snow cock (*Tetraogallus himalayensis*), Kashmir flying squirrel (*Eoglaucomys fimbriatus),* Himalayan marmot *(Marmota caudate)*, Kashmir vampire *(Mergaderma spectrum),* Himalayan langur (*Semnopithecus ajax*), Himalayan monal (*Lophophorus impejanus*) and Chakoor (*Pucrasia macrolopha*) etc;

AND WHEREAS, the area of Gulmarg Wildlife Sanctuary is connected with the lower planes of Indian sub-continent and sometimes presence of certain wildlife species like barking deer (*Muntiacus muntjak)* is also visible in the sanctuary that usually migrate from the lower planes and a large numbers of musk deer are seen in the gushing nalla of Ferozpora in areas of Afferwat, Botapathri, Babareshi, Gulmarg bowl etc. Therefore, Gulmarg Wildlife Sanctuary was upgraded from Man and Biosphere Reserve in the year 1987 to ensure survival of highly endangered musk deer;

AND WHEREAS, the flora of the Gulmarg Wildlife Sanctuary is represented by communities such as Blue Pine, Silver Fir Forest, Birch, Sub-alpine Forest, Alpine pasture. Some of the notable species present in the Wildlife Sanctuary are kail (*Pinus wallichi*), (*Picea smithiana*), yew (*Taxus baccata*), maple (*Acer caesum*), horse chest nut (*Aesculus indica*), *Juniperus communis*, *Betula utilis*. The under story shrub includes *Indigofera heterantha*, *Rosa webbina, Viburnum grandiflors*, *Skimmia lawereola*, *Primula elliptica*, *Potentilla gelida*, *Coryidalis cornuta*, *Gentian venusta*, *Anemone obtusiloba*, *Aquilegia nivales, Polygonum affine*, P.*alpinum*, *Rumex acetosal;*

AND WHEREAS, the catchments of the protected area are source of drinking and irrigation water to dozens of villages falling adjacent to the protected area, besides feeding source to the famous River Jhelum of Kashmir Province. The tributary of Ferozpora Nalla provides catchment to famous River Jhelum to run Hydro-Electric Power projects which flows along the protected area on the Southern side;

AND WHEREAS, the area is one of the renowned tourist destinations for its famous meadows, rocky cliffs, dense birch forests and a home for bird watcher;

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

NOW, THEREFORE, in exercise of the powers conferred by sub-section (1), clauses (v) and (xiv) of sub-section (2) and sub-section(3) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986) (hereafter in this notification referred to as the Environment Act), read with sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, the Central Government hereby notifies an area to an extent varying from zero (0) to 4.1 kilometers around the boundary of the Gulmarg Wildlife Sanctuary, in Baramulla District in the Union territory of Jammu and Kashmir as the Gulmarg Wildlife Sanctuary Eco-sensitive Zone (hereafter in this notification referred to as the Eco-sensitive Zone) details of which are as under, namely:

1. **Extent and boundaries of Eco-sensitive Zone.** – (1) The Eco-sensitive Zone shall be of 62.2 square kilometres with an extent of zero (0) to 4.1 kilometres around the boundary of Gulmarg Wildlife Sanctuary and the extent of Eco-sensitive Zone in different directions are as follows:

Direction	**Extent (**kilometers**)**
North	4.1
North-East	2.11
East	0.00
South-East	2.48
South	0.05
South-West	0.012
West	0.012
North-West	2.4

The 'zero' extent of Eco-sensitive Zone is proposed towards eastern side as it adjoins the Ferozpura Watershed comprising of Gulmarg Wildlife Sanctuary which is bifurcated geographically by geological features like high mountains, peaks and glaciers. The Eco-sensitive Zone is kept 0.05 kilometers towards Southern Side, 0.012 kilometers towards South-Western side and 0.012 kilometers on Western Side of the Gulmarg Wildlife Sanctuary because the area is well known tourist spot with large tourist footfalls all around the year and there is no scope of Eco-sensitive Zone extent possible on these sides.

(2) The boundary description of Eco-sensitive Zone around Gulmarg Wildlife Sanctuary is appended in **Annexure-I.**

(3) The maps of the Wildlife Sanctuary demarcating Eco-sensitive Zone along with boundary details and latitudes and longitudes are appended as **Annexure-IIA, Annexure-IIB** and **Annexure-IIC**.

(4) Lists of geo co-ordinates of the boundary of Gulmarg Wildlife Sanctuary and Eco-sensitive Zone are given in Table A and Table B of **Annexure-III.**

(5) There is no village/township which fall within the proposed Eco-sensitive Zone of Gulmarg Wildlife Sanctuary.

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

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

(3) The Zonal Master Plan shall be prepared in consultation with the following Departments of the Union territory Government, for integrating the ecological and environmental considerations into the said plan, namely:-

(i) Environment;

(ii) Forests;

(iii) Agriculture;

(iv) Revenue;

(v) Urban Development;

(vi) Tourism;

(vii) Rural Development;

(viii) Irrigation and Flood Control;

(ix) Pollution Control Board;

(x) Municipal;

(xi) Panchayti Raj; and

(xii) Public Works Department.

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

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

(6) The Zonal Master Plan shall demarcate all the existing worshipping places, villages and urban settlements, types and kinds of forests, agricultural areas, fertile lands, green area, such as, parks and it's like places, horticultural areas, orchards, lakes and other water bodies with supporting maps giving details of existing and proposed land use features.

(7) The Zonal Master Plan shall regulate development in Eco-sensitive Zone and adhere to prohibited and regulated activities listed in the Table in paragraph 4 and also ensure and promote eco-friendly development for security of local communities livelihood.

(8) The Zonal Master Plan shall be co-terminus with the Regional Development Plan.

(9) The Zonal Master Plan so approved shall be the reference document for the Monitoring Committee for carrying out its functions of monitoring in accordance with the provisions of this notification.

(10) Pending approval of the Zonal Master Plan, any new developmental activities shall be governed by provisions specified in sub-paras (3) and (4) of paragraph 6.

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

(1) Land use.– (a) Forests, horticulture areas, agricultural areas, parks and open spaces earmarked for recreational purposes in the Eco-sensitive Zone shall not be used or converted into areas for commercial or residential or industrial activities:

Provided that the conversion of agricultural and other lands, for the purposes other than that specified at part (a) above, within the Eco-sensitive Zone may be permitted on the recommendation of the Monitoring Committee, and with the prior approval of the competent authority under Regional Town Planning Act and other rules and regulations of Central Government or Union territory Government as applicable and *vide* provisions of this notification, to meet the residential needs of the local residents and for activities such as-

(i) widening and strengthening of existing roads and construction of new roads;

(ii) construction and renovation of infrastructure and civic amenities;

(iii) small scale industries not causing pollution;

(iv) cottage industries including village industries; convenience stores and local amenities supporting eco-tourism including home stay; and

(v) promoted activities given in paragraph 4:

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

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

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

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

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

(3) Tourism or eco-tourism.- (a) All new eco-tourism activities or expansion of existing tourism activities within the Eco-sensitive Zone shall be as per the Tourism Master Plan for the Eco-sensitive Zone;

(b) the Tourism Master Plan shall be prepared by the Union territory Department of Tourism in consultation with the Union Territory Departments of Environment and Forests;

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

(d) the Tourism Master Plan shall be drawn based on the study of carrying capacity of the Eco-sensitive Zone;

(e) the activities of eco-tourism shall be regulated as under, namely:-

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

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

(ii) all new tourism activities or expansion of existing tourism activities within the Eco-sensitive Zone shall be in accordance with the guidelines issued by the Central

Government in the Ministry of Environment, Forest and Climate Change and the eco-tourism guidelines issued by the National Tiger Conservation Authority, as amended from time to time, with emphasis on eco-tourism, eco-education and eco-development;

(iii) until the Zonal Master Plan is approved, development for tourism and expansion of existing tourism activities shall be permitted by the concerned regulatory authorities based on the actual site specific scrutiny and recommendation of the Monitoring Committee and no new hotel, resort or commercial establishment construction shall be permitted within Eco-sensitive Zone area.

(4) Natural heritage.- All sites of valuable natural heritage in the Eco-sensitive Zone, such as the gene pool reserve areas, rock formations, waterfalls, springs, gorges, groves, caves, points, walks, rides, cliffs, etc. shall be identified and a heritage conservation plan shall be drawn up for their preservation and conservation as a part of the Zonal Master Plan.

(5) Man-made heritage sites.- Buildings, structures, artefacts, areas and precincts of historical, architectural, aesthetic, and cultural significance shall be identified in the Eco-sensitive Zone and heritage conservation plan for their conservation shall be prepared as part of the Zonal Master Plan.

(6) Noise pollution. -Prevention and control of noise pollution in the Eco-sensitive Zone shall be carried out in accordance with the provisions of the Noise Pollution (Regulation and Control) Rules, 2000 under the Environment Act.

(7) Air pollution.- Prevention and control of air pollution in the Eco-sensitive Zone shall be carried out in accordance with the provisions of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981) and the rules made there under.

(8) Discharge of effluents.- Discharge of treated effluent in Eco-sensitive Zone shall be in accordance with the provisions of the General Standards for Discharge of Environmental Pollutants covered under the Environment Act and the rules made there under or standards stipulated by the Union territory Government, whichever is more stringent.

(9) Solid wastes.-Disposal and Management of solid wastes shall be as under:-

(a) the solid waste disposal and management in the Eco-sensitive Zone shall be carried out in accordance with the Solid Waste Management Rules, 2016, published by the Government of India in the Ministry of Environment, Forest and Climate Change *vide* notification number S.O. 1357 (E), dated the 8th April, 2016; the inorganic material may be disposed in an environmental acceptable manner at site identified outside the Eco-sensitive Zone;

(b) safe and Environmentally Sound Management of Solid wastes in conformity with the existing rules and regulations using identified technologies may be allowed within Eco-sensitive Zone.

(10) Bio-Medical Waste.– Bio-Medical Waste Management shall be as under:-

(a) the Bio-Medical Waste disposal in the Eco-sensitive Zone shall be carried out in accordance with the Bio-Medical Waste Management Rules, 2016, published by the Government of India in the Ministry of Environment, Forest and Climate Change *vide* notification number G.S.R. 343 (E), dated the 28th March, 2016.

(b) safe and Environmentally Sound Management of Bio-Medical Wastes in conformity with the existing rules and regulations using identified technologies may be allowed within the Eco-sensitive Zone.

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

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

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

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

(15) Vehicular pollution.- Prevention and control of vehicular pollution shall be incompliance with applicable laws and efforts shall be made for use of cleaner fuels.

(16) Industrial units.– (a) On or after the publication of this notification in the Official Gazette, no new polluting industries shall be permitted to be set up within the Eco-sensitive Zone.

(b) Only non-polluting industries shall be allowed within Eco-sensitive Zone as per the classification of Industries in the guidelines issued by the Central Pollution Control Board in February, 2016, as amended from time to time, unless so specified in this notification, and in addition, the non-polluting cottage industries shall be promoted.

(17) Protection of hill slopes.- The protection of hill slopes shall be as under:-

(a) the Zonal Master Plan shall indicate areas on hill slopes where no construction shall be permitted;

(b) construction on existing steep hill slopes or slopes with a high degree of erosion shall not be permitted.

4. List of activities prohibited or to be regulated within Eco-sensitive Zone.- All activities in the Eco-sensitive Zone shall be governed by the provisions of the Environment Act and the rules made there under including the Coastal Regulation Zone, 2011 and the Environmental Impact Assessment notification, 2006 and other applicable laws including the Forest (Conservation) Act, 1980 (69 of 1980), the Indian Forest Act, 1927 (16 of 1927) and the Wildlife (Protection) Act, 1972 (53 of 1972) regulated in the manner specified in the Table below, namely:-

TABLE

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

3.	Establishment of major hydroelectric project.	Prohibited.
4.	Use or production or processing of any hazardous substance.	Prohibited.
5.	Discharge of untreated effluents in natural water bodies or land area.	Prohibited.
6.	Setting up of new saw mills.	New or expansion of existing saw mills shall not be permitted within the Eco-sensitive Zone.
7.	Setting up of brick kilns.	Prohibited.
8.	Commercial use of firewood.	Prohibited.
9.	Undertaking other activities related to tourism like over flying over the Eco-sensitive Zone area by hot air balloon, helicopter, drones, Microlites, etc.	Prohibited.
10.	Use of polythene bags.	Prohibited.
	B. Regulated Activities	
11.	Commercial establishment of hotels and resorts.	No new commercial hotels and resorts shall be permitted within one kilometer of the boundary of the Protected Area or upto the extent of Eco-sensitive zone, whichever is nearer, except for small temporary structures for Eco-tourism activities: Provided that, beyond one kilometer from the boundary of the protected Area or upto the extent of Eco-sensitive Zone whichever is nearer, all new tourist activities or expansion of existing activities shall be in conformity with the Tourism Master Plan and guidelines as applicable.
12.	Construction activities.	(a) New commercial construction of any kind shall not be permitted within one kilometer from the boundary of the Protected Area or upto extent of the Eco-sensitive Zone whichever is nearer: Provided that, local people shall be permitted to undertake construction in their land for their use including the activities listed in sub-paragraph (1) of paragraph 3 as per building bye-laws to meet the residential needs of the local residents: Provided that the construction activity related to small scale industries not causing pollution shall be regulated and kept at the minimum, with the prior permission from the competent authority as per applicable rules and regulations, if any. (b) Beyond one kilometer it shall be regulated as per the Zonal Master Plan.
13.	Small scale non-polluting industries.	Non-polluting industries as per classification of industries issued by the Central Pollution Control Board in February, 2016, as amended from time to time and non-hazardous, small-scale and service industry, agriculture, floriculture, horticulture or agro-based industry producing products from indigenous materials from the Eco-sensitive Zone shall be permitted by the competent Authority.
14.	Felling of trees.	(a) There shall be no felling of trees in the forest or Government or revenue or private lands without prior permission of the competent authority in the Union territory Government. (b) The felling of trees shall be regulated in accordance with the provisions of the concerned Central or Union territory Acts for the time being in force and the rules made there under.

15.	Collection of Forest Produce or Non-Timber Forest Produce.	Regulated under applicable laws.
16.	Erection of electrical and communication towers and laying of cables and other infrastructures.	Regulated under applicable laws (underground cabling may be promoted).
17.	Infrastructure including civic amenities.	Taking measures of mitigation, as per applicable laws, and guidelines.
18.	Widening and strengthening of existing roads and construction of new roads.	Taking measures of mitigation, as per applicable laws, rules and regulation and available guidelines.
19.	Protection of Hill Slopes and river banks.	Regulated as per the applicable laws.
20.	Movement of vehicular traffic at night.	Regulated for commercial purpose under applicable laws.
21.	Ongoing agriculture and horticulture practices by local communities along with dairies, dairy farming, aquaculture and fisheries.	Permitted as per the applicable laws for use of locals.
22.	Discharge of treated waste water/effluents in natural water bodies or land area.	The discharge of treated waste water or effluents shall be avoided to enter into the water bodies and efforts shall be made for recycle and reuse of treated waste water. Otherwise the discharge of treated waste water/effluent shall be regulated as per the applicable laws.
23.	Commercial extraction of surface and ground water.	Regulated under applicable laws.
24.	Establishment of large-scale commercial livestock and poultry farms by firms, corporate and companies.	Regulated as per applicable laws except for meeting local needs.
25.	Open Well, Bore Well, etc. for agriculture or other usage.	Regulated and the activity should be strictly monitored by the appropriate authority.
26.	Solid Waste Management.	Regulated as per the applicable laws.
27.	Eco-tourism.	Regulated as per the applicable laws.
28.	Commercial Sign boards and hoardings.	Regulated as per the applicable laws.
29.	Introduction of exotic species.	Regulated as per the applicable laws.
	C. Promoted Activities	
30.	Rain water harvesting.	Shall be actively promoted.
31.	Organic farming.	Shall be actively promoted.
32.	Adoption of green technology for all activities.	Shall be actively promoted.
33.	Cottage industries including village artisans, etc.	Shall be actively promoted.
34.	Use of renewable energy and fuels.	Bio-gas, solar light etc. shall be actively promoted.
35.	Agro-Forestry.	Shall be actively promoted.
36.	Plantation of Horticulture and Herbals.	Shall be actively promoted.

37.	Use of eco-friendly transport.	Shall be actively promoted.
38.	Skill Development.	Shall be actively promoted.
39.	Restoration of Degraded Land/ Forests/ Habitat.	Shall be actively promoted.
40.	Environmental Awareness.	Shall be actively promoted.

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

S.No.	Constituent of the Monitoring Committee	Designation
1.	Collector/Deputy Commissioner, Baramulla	Chairman;
2.	An expert in the area of ecology and environment to be nominated by the Government of Jammu and Kashmir	Member;
3.	One representative of a Non-Governmental Organization working in the field of environment including heritage conservation to be nominated by the Government of Jammu and Kashmir.	Member;
4.	A Representative of Jammu and Kashmir Biodiversity Council	Member;
5.	Regional Officer, Jammu and Kashmir State Pollution Control Board	Member;
6.	Divisional Forest Officer, Tangmarg	Member;
7.	Wildlife Warden, North Division	Member-Secretary.

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

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

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

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

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

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

(7) The Monitoring Committee shall submit the annual action taken report of its activities as on the 31st March of every year by the 30th June of that year to the Chief Wildlife Warden in the Union territory as per performa appended at Annexure IV.

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

7.Additional Measures.-The Central Government and Union territory Government may specify additional measures, if any, for giving effect to provisions of this notification.

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

[F. No. 25/22/2020-ESZ]

Dr. S. KERKETTA, Scientist 'G'

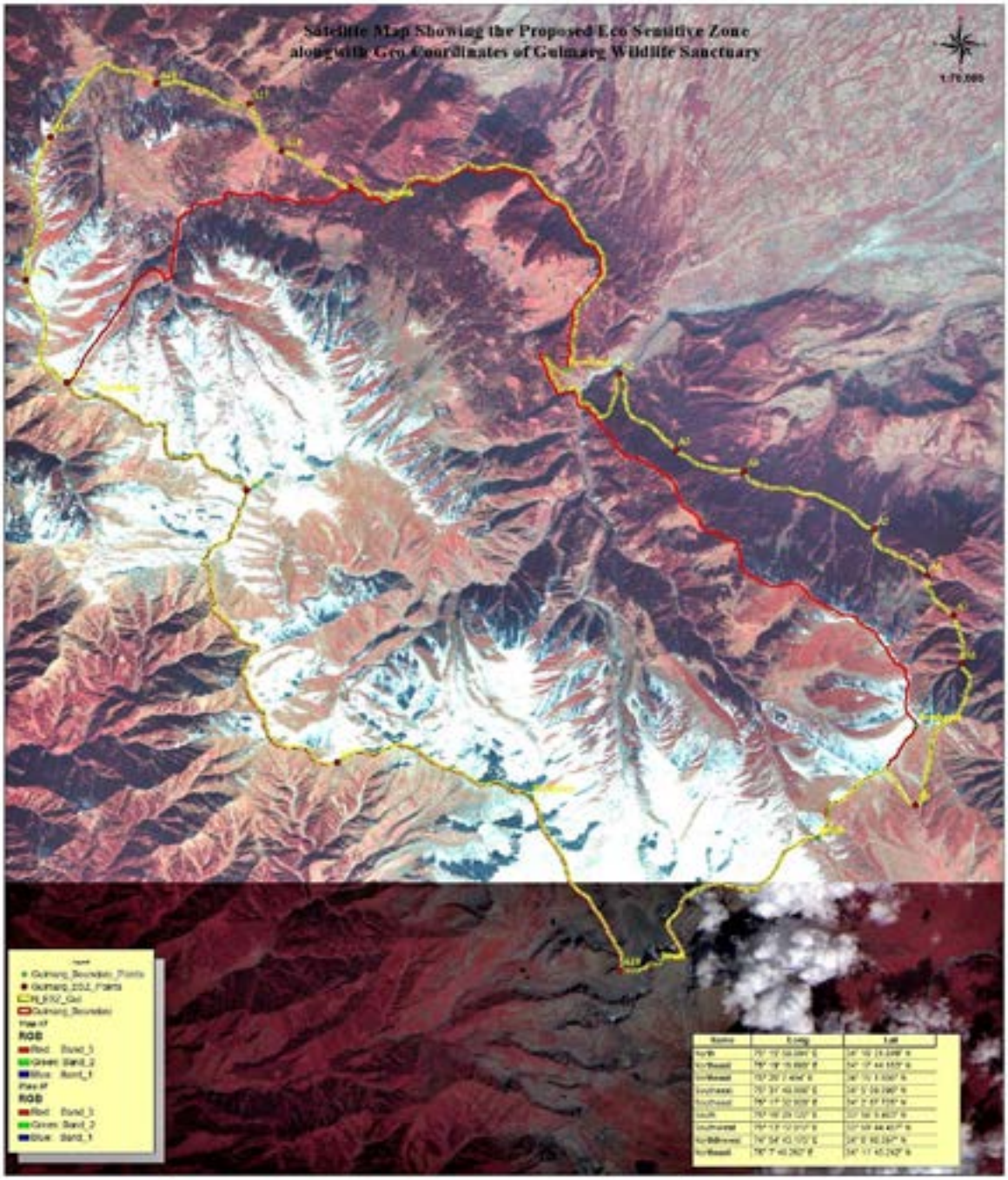
Annexure- I

THE EXTENT AND BOUNDARY DESCRIPTION OF ECO-SENSITIVE ZONE AROUND GULMARG WILDLIFE SANCTUARY

NAME	LATITUDE	LONGITUDE	DISTANCE FROM PA (meters)	REMARKS
A15	34° 5' 13.424" N	74° 15' 39.248" E	3700	Charmargi, Co 8/G
A16	34° 5' 54.957" N	74° 17' 17.635" E	300	Forest Area,Co 8/G
A18	34° 5' 3.402" N	74° 19' 14.783" E	1100	Bandibala Kol, Co 22/G
A1	34° 4' 35.755" N	74° 20' 19.727" E	50	Ningli Nalla
A3	34° 1' 13.423" N	74° 25' 24.017" E	600	co 60
A9	33° 56' 38.773" N	74° 29' 9.008" E	1200	Alpine Pasture, Top of Tosha Maiden
A10	33° 54' 29.597" N	74° 24' 35.135" E	0	Pirpanjal Pass
A13	34° 2' 2.483" N	74° 15' 56.204" E	0	Posh Pathri Pirpanjal Pass
A14	34° 3' 21.847" N	74° 15' 16.882" E	2200	Mohr Dar Pirpanjal Pass
A2	34° 2' 11.948" N	74° 24' 30.717" E	1200	Gagribal, co 59
A5	34° 0' 12.615" N	74° 28' 29.770" E	2000	Forest Area Co 65, Kanzalpathri
A6	33° 59' 37.164" N	74° 29' 18.974" E	1800	Forest area, Co 32/s, Kanza Kol
A8	33° 58' 28.858" N	74° 29' 51.207" E	11200	Sugan Forest, Co 28/s
A7	33° 59' 6.326" N	74° 29' 43.533" E	1500	Khag Forest, Co 28/s
A4	34° 0' 57.117" N	74° 26' 28.136" E	1500	co64, Forest Area
A12	34° 0' 39.692" N	74° 18' 44.075" E	0	Pirpanjal Pass
A17	34° 5' 40.167" N	74° 18' 44.254" E	2100	Forest Area, Newa, Co 9/G
A11	33° 57' 9.549" N	74° 20' 10.000" E	0	Pirpanjal Pass

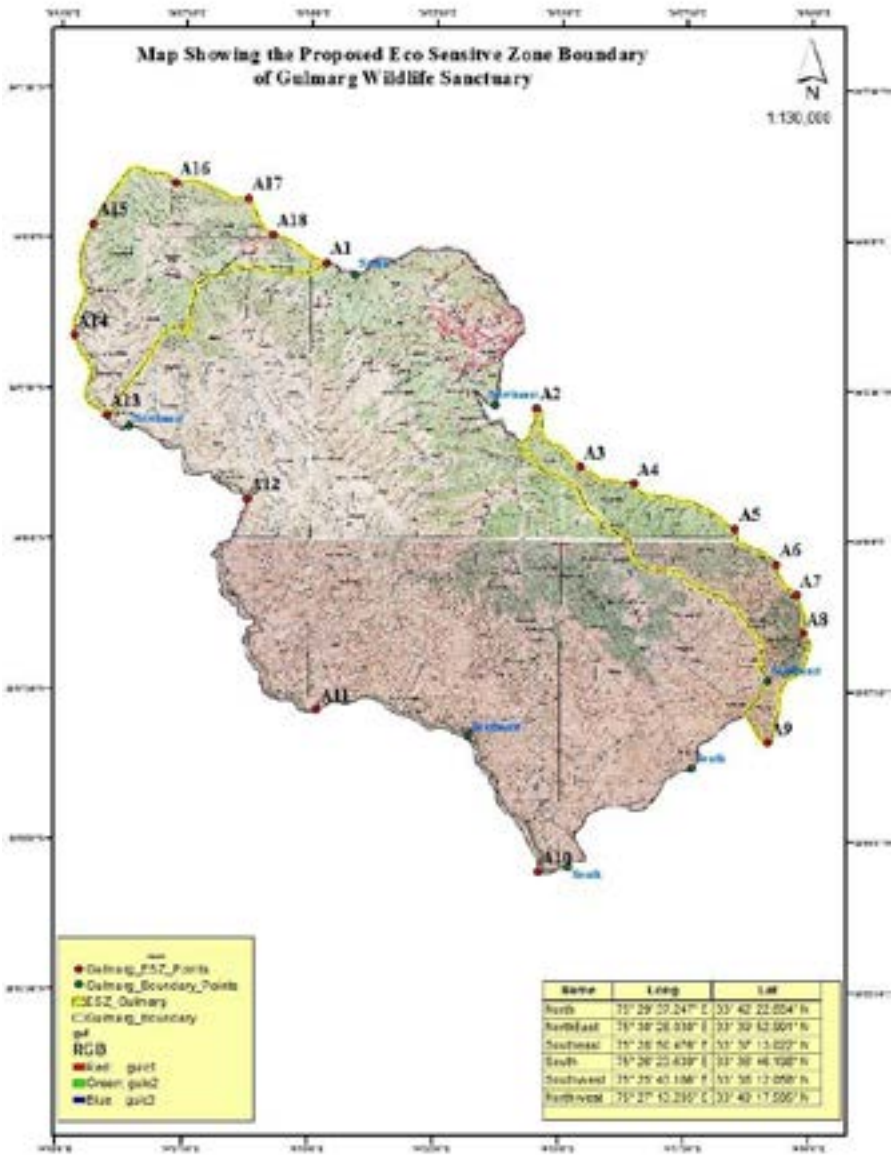
Annexure -II A

SATELLITE MAP OF ECO-SENSITIVE ZONE AROUND GULMARG WILDLIFE SANCTUARY ALONG WITH LATITUDE AND LONGITUDE OF PROMINENT LOCATIONS



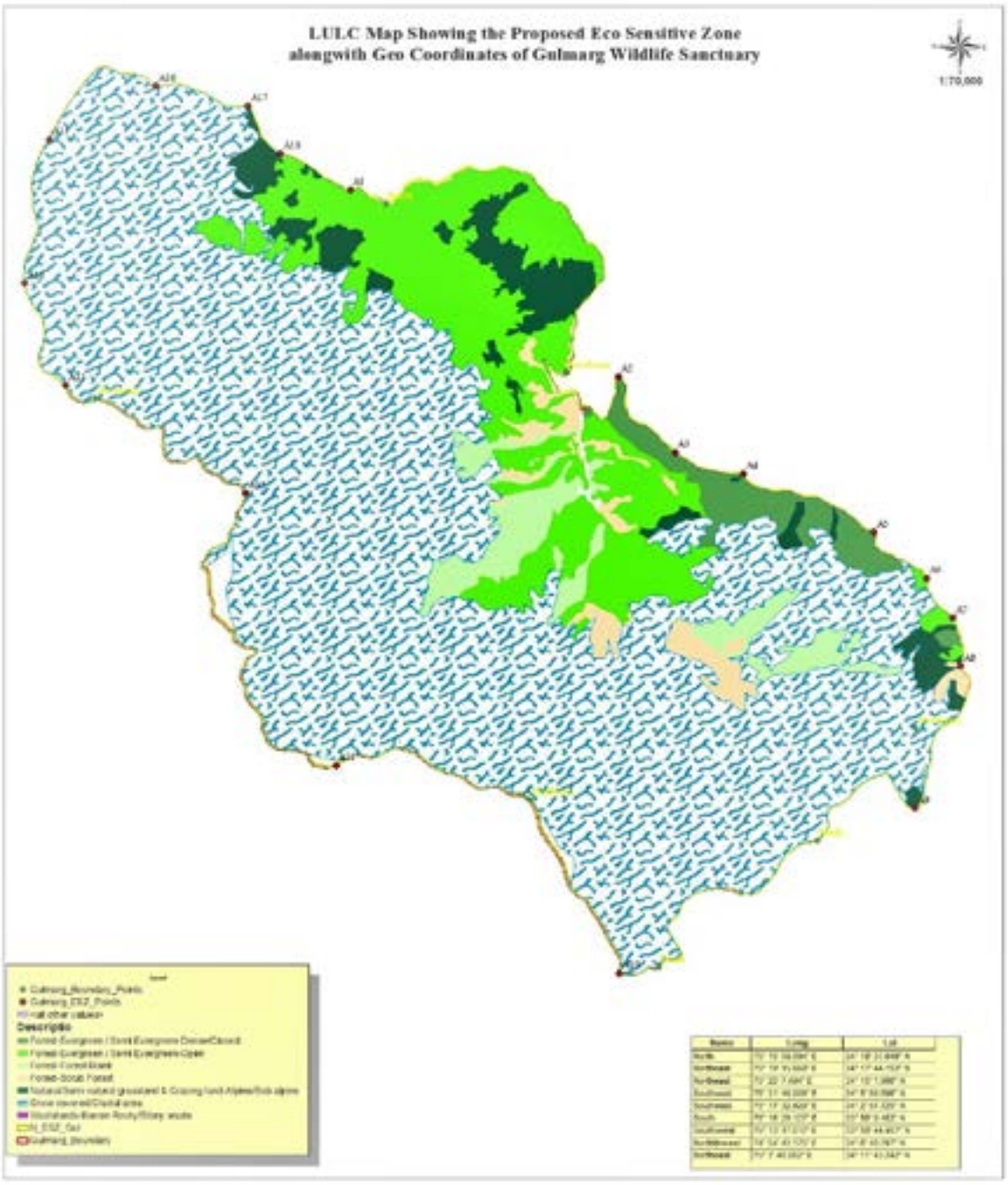
Annexure -II B

MAP OF GULMARG WILDLIFE SANCTUARY ALONG WITH LATITUDE AND LONGITUDE OF PROMINENT LOCATIONS



Annexure -II C

LAND-USE LAND-COVER MAP OF GULMARG WILDLIFE SANCTUARY AND ITS ECO-SENSITIVE ZONE



Annexure -III

TABLE A: LATITUDE-LONGITUDE OF PROMINENT LOCATIONS ALONG THE BOUNDARY OF THE GULMARG WILDLIFE SANCTUARY

S.No.	DIRECTION	LONGITUDE	LATITUDE
1.	**North**	75^0 15’ 58.094” E	34^0 18’ 31.849” N
2.	**North-East**	75^0 19’ 15.668” E	34^0 17’ 44.153” N
3.	**North-East**	75^0 25’ 7.494” E	34^0 15’ 1.906” N

4.	**South-East**	75^0 31’ 48.006” E	34^0 5’ 59.596” N
5.	**South-East**	75^0 17’ 32.928” E	34^0 2’ 57.725” N
6.	**South**	75^0 16’ 29.127” E	33^0 56’ 9.483” N
7.	**South-West**	75^0 13’ 17.017” E	33^0 59’ 44.457” N
8.	**North-West**	74^0 54’ 43.175” E	34^0 6’ 48.597” N
9.	**North-East**	75^0 7’ 40.262” E	34^0 11’ 43.242” N

TABLE B: TABLE SHOWING GEO-COORDINATES OF ECO-SENSITIVE ZONE OF GULMARG WILDLIFE SANCTUARY

S. No	Direction	Latitude	Longitude	Distance from PA Boundary (kilometers)
1	North	34°.4' 33.683"N	74°.20' 17.730" E	4.1
2	North-East	34°.4' 46.631"N	74°.23' 8.374" E	1.1
3	East	34°.0' 1.155"N	74°.26' 24.124" E	0.050
4	South-East	33°.58' 41.316"N	74°.28' 41.559" E	2.48
5	South	33°.54' 29.485"N	74°.24' 35.532" E	0.050
6	South-West	33°.56' 43.901"N	74°.23' 10.517" E	0.012
7	West	33°.59' 42.931"N	74°.18' 4.814" E	0.012
8	North-West	34°.2' 1.422"N	74°.15' 58.890" E	2.4

Annexure -IV

Proforma of Action Taken Report:

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

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Department of Wildlife Protection
Jammu & Kashmir