

PART – I

The protected area: The existing Situation

Chapter: 1

Introduction to the area

1.1 Name, Location and area :

The river Cauvery, which is the lifeline of southern Karnataka forms the boundary of major part of the sanctuary and also gives it its name. There are a number of low hills, rocky knobs and out crops of rocks along the length of the river Cauvery, also has several waterfalls along its stretch. The central and eastern parts of the sanctuary are well forested, Hogenakal falls (Smoking rock in Kannada), Mekedatu (Goats leap), Sangam (The point where the Arkavathi river joins the Cauvery) and Muthathi (The religious place where lord Anjaneya temple is situated) are of cultural, historical and tourist interest. The eastern part of the sanctuary is completely bounded by the state of Tamilnadu. After the reorganisation of the Forest department, separate wildlife division has been formed to manage the sanctuary with Deputy Conservator of Forests, being posted at Kanakapura. Four wildlife ranges have been created under this division i.e. Kanakapura, Hanur, Cowdally and MM Hills wildlife ranges.

The Cauvery Wildlife Sanctuary was constituted under Section 18 of the Wildlife Protection Act 1973 (Central Act No. 53 of 1972) vide Government Notification No. AHFF.4.FWL. 87 dated 14-01-1987 for the purpose of Protecting, Propagating or developing Wildlife and its environment. The Sanctuary also enables lovers of Nature, University and School students to go out on Botanical and Zoological Excursions and to encourage the younger generation in the preservation of Nature.

An extent of 52,695 Ha, of Reserve forests in Chamarajnagar, Ramanagar and Mandya Districts of Karnataka State was constituted as Cauvery Wildlife Sanctuary with an idea of protecting the Flora and Fauna of the area with least disturbance. There is no zonation in the Sanctuary.

The following Reserve Forests are included in the Sanctuary as per the schedule below:-

-: SCHEDULE :-

Sl. No.	R.F/ S.F	Total area in Ha.	Enclosure area in Ha.	Area include in the Sanctuary in Ha
1.	Basavanabetta S.F	3787.50	22.00	3765.50
2.	Chilandavadi S.F	1987.50	--	1987.50
3.	Muggur S.F	2044.00	--	2044.00
4.	Chikkayalur S.F	13875.00	--	13875.00
5.	Mahadeswara R.F	31755.25	732.75	31023.50
	TOTAL	53450.25	754.75	52695.50 Ha. Or 526.955 Sq Kms

Location : Districts: - Chamarajnagar, Ramanagar and Mandya.

Latitudinal range : $11^{\circ} 56' 49''$ to $12^{\circ} 21' 26''$ N (Tp.)

Longitudinal range: $77^{\circ} 15''$ to $77^{\circ} 46' 55''$ E

Nearest Railhead : Ramanagar (25 Km.)

Nearest Airports : Bangalore (56 Km.)

1.2 Approach and access

By Road

Place	From	Via	Kms
Muthathi	Bangalore	Harohalli, Kanakapura, Sathanur	90
Muthathi	Mysore	Malavalli, Halagur,	100
M.M.Hills	Bangalore	Maddur, Malavalli, Kollegal	225
M.M.hills	Mysore	Kollegal, Hanur	145

1.3 Statement of Significance:

The Cauvery Wildlife Sanctuary located on the banks of the river Cauvery running through a distance of 101 kms forms a part of Eastern Ghats. The river Cauvery acts as an interstate boundary between Karnataka and Tamilnadu states to a stretch of 73 kms bounded by the forests of Tamilnadu and Karnataka.

The major portion of the forests are of South Indian dry deciduous type, the predominant species being *Hardwickia binata* and *Albizia amara*. The sanctuary harbours a variety of faunal life classified under schedule I of Wildlife Protection Act namely Indian Elephant, Gaur, Leopard, Four horned antelope, Mouse deer etc., The Spotted deer, Sambar, Barking Deer are found in large numbers.

The river Cauvery being the important lifeline of the Sanctuary supports a diversified aquatic fauna, predominant species being Crocodiles found in Schedule I of Wildlife Protection Act, Otters and Masheer Fish. Masheer Fish which is a huge river fish found in specified stretches of the river needs to be protected with high priority.

The river Cauvery serpentine through the hills encloses many places of tourist interest and religious importance. Mekedhatu and Hogenakal Falls are noted tourist spots while Muthathi is a place of revered religious importance.

Chapter: 2

Back ground Information and attributes

2.1 Boundaries

2.1.1 External

North:-

The boundary line starts at the point where Halgur road crosses Kesarakkihalla, then line runs eastwards up to the point where the left tributary of the said halla crosses the road, then the line continues in north east direction along the said tributary up to Soligeri enclosures, then the line continues along the part of Western Boundary of said enclosure in Southern direction, the south and part of east boundary of the said enclosure up to the point where the Soligeri to Konanagundi enclosure road crosses the boundary. Then along the said road up to Konanagundi enclosure where the road touches the western boundary of the said enclosure upto where Odakattihalla line continues along the Konanakatti, Mullahalla road, joins Mullahalla. Then the line continues along the said Mullahalla up to Hosadoddi enclosures, then the line continue along the western boundary of the said enclosures, up to a point where the Marikalluhalla crosses the boundary, then the line continue along the Marikalluhalla in Southern direction up to River Cauvery. Then the line continues along Cauvery river up to Arkavathi River at Sangam, then the line continuing along Arkavathi river, then the line continue in Doddahalla up to Madivala enclosure, then the line continues along the Southern boundary of the said enclosure up to the point where a tributary of Doddahalla crosses, then along the said tributary up to in southern direction up to the line continuing along the state boundary between Karnataka and Tamilnadu states. Then the line continues along the state boundary up to River Cauvery then along Cauvery River up to Hogenakal falls, which is also the state boundary.

East:-

From the said point the line continues along river Cauvery which is also state boundary up to the point where Palar river joins Cauvery.

South and West:-

From the above point the line runs along Palar river up to the point where Kokkarehalla joins Palar river, then it continues along the said halla at the point where Tulakkambihalla joins, then along Tulakkambihalla up to the point which is the south-east corner of Indiganatha enclosure, then along the eastern boundary of the said enclosure and then northern boundary up to the point where one of the tributary upto Yelekattuhalla, crosses the boundary, then along the said tributary upto Yelekattuhalla, then the line runs along the river said halla up to the point where Gopinatham, M. Malai road crosses the river, then the line continues from the said point along Bejjalani foot path where it crosses Gukkadahalla, then along the said halla up to the point where Jenukalluhalla joins Gukkadahalla, then the line continues along Jenukahalla up to the south-east corner of Panchallani enclosure boundary, then the line continues along the eastern boundary of the said enclosure up to the south-east corner crosses said enclosure then the artificial line runs straight to the point which is the peak of Ponnachi betta, then the line continues from the said betta along one of the tributary of Mamadavuhalla and joins Mamadavuhalla upto the point where Panchalkerehalla joins, then along Panchalkerehalla and crossing the ridge in the same direction and joins Thondehalla, then along Thondehalla in south-west direction and then the artificial line crossing the Belthalgumma ridge and joins Mantudukahalla, then along the said halla with Gundihalla, then along Gundihalla upto Changadi enclosures, then the line continues in an artificial line upto one of the tributary of Naduttalhalla upto Elethhotadahalla, then Elethotadahalla upto the point where the line 'D' between M.Malai and Cowdally touches. Then the line continues along said 'D' line crossing the river Uduthorahalla and reaches the boundary of private lands.

Then the line continues along the forest boundary up to the point of Shaggyam Ganigamangala road, then along the said road up to Ganigamangala enclosure then along the eastern and northern boundary of the said enclosure up to Agasagittihalla, then along the said halla in the south west direction up to the forest boundary. Then the line continues along the effort boundary crossing. Doddahalla up to point where the Koralaseatte – kothanur road crosses the boundary, then along the road up to river Cauvery. Then the line continues crossing river Cauvery along Kesarkkihalla up to starting point.

2.1.2 Internal

The total sanctuary area is divided in to 4 ranges and inturn in to compartments and beats for administrative purposes.

2.2 Geology, rock and soil

The under lying rock belongs mainly to the metamorphic formation of which genesis, quartzite, harm bland and cyst are found all over. The igneous rocks such as black granite and Tiger black are found to appear as out crop at high level.

The soils are red sandy loam and along the riverbank here and there in patches black cotton soil is also found. Soils are shallow on hilltop and deep in valleys. The clayey soils are confined



to low lying localities in patches and sand deposits are found all along the riverbed. The condition of soil varies considerably from place to place in structure, composition, depth etc., depending on the local configuration of the ground.

2.3 Terrain

The area is highly undulating. The lowest point being the river Cauvery at Hogenakal with a altitude of 254 mts above MSL and the highest point is “Ponnachi Betta” with an altitude of 1514 mts above MSL in the middle of the Sanctuary. A few high rising ridges with deep valleys are also there. The area drains from west to east.

2.4 Climate

The division enjoys a mild equable climate throughout the year. Deforestation and degradation of forest have contributed towards gradual warming. Palar basin experiences a very hot climate and the maximum temperature during summer goes beyond 40°C.

2.4.1 Rainfall pattern and distribution

The Sanctuary receives rainfall mainly from Northeast monsoon. It also receives low rainfall from Southwest monsoon. The average rainfall varies from 750mm to 800mm. occasionally cyclonic rains are also received which has helped to a larger extent in reducing the fire incidents.

Table -1 : Annual Rain fall data of last 5 years in Northern and southern part of Cauvery Wildlife Division

Sl. No	Range	Taluk	Rain fall (in mm)					
			2001	2002	2003	2004	2005	2006
1.	Kanakapura Wildlife Range	Kanakapura	586.00	416.80	551.00	1121.70	1470.60	552.20
2.	Hanur Wildlife Range	Kollegala	496.70	555.30	650.10	744.90	402.00	--

2.4.2. Temperature

The dry and cold seasons are recognized. The cold season starts from December and lasts up to February. The hot season starts and lasts up to June and July. The average minimum and maximum being 15°C and 38°C respectively.

2.4.3 Winds:

From the later part of June to September, the lower areas of Cauvery Wildlife Sanctuary subjected to very heavy and fast moving winds resulting in some damage to the forest crop by way of snapping of the branches. The wind, which is mostly during the Southwest monsoon, also brings some light showers along with it. When showers do not follow the wind, it has a desiccating effect on the plant growth. The lop-sided development of solitary trees in the agricultural fields due to these winds is of common occurrence.

2.5 Water sources

Natural :

The Cauvery River runs through the Sanctuary from west to east i.e., from Hakkikallu to Hogenakal falls. This is the main river flowing in the Sanctuary and it is perennial. It



has got many tributaries such as river Arkavathi and river Shimsha in addition to few seasonal tributaries. The length of the Cauvery river all along the wildlife sanctuary is about 101 kms.

Drainage: Major portion of the division drains towards north and rest of the area to east in to the Cauvery river.

Artificial :

There are many tanks and checkdams created inside the sanctuary which are mostly seasonal and act as water sources for faunal population of the sanctuary. A dam built across erakyam halla near Gopinatham village is a major source of water in M.M Hills wildlife range which is almost perennial.

List of tanks and checkdams which act as water source in the sanctuary are shown in Annexure -1 and Annexure – 2

2.6 Range of wildlife, Status distribution and habitat

The river Cauvery bordering the Sanctuary has a good population of Crocodiles, Otters, (*Lutra lutra*) and many varieties of fishes along with famous “Masheer fish” (*Tor putitora*) popularly known as “Tiger in the water”.

There are plenty of Elephants (*Elephas maximus*) in the sanctuary distributed through out this division from Muthathi to Palar all along the Cauvery River.



Spotted deer (*Axis axis*) in the sanctuary are in good number. They are found usually in herds of 15 to 20.

Sambars (*Cervus unicolor*) are also in good number throughout the sanctuary.

Indian gaurs (*Bos gaurus*) are found in Cowdally and M.M.Hills range. In addition there are Barking deer, Monitor Lizards, Giant grizzled squirrels, Jungle cats, Wild boars, Peacocks, and several species of birds found in large number. Panther, Indian wild dogs, Sloth bear and Jackal are also found scattered in the Sanctuary Python and different species of snakes are also found in the Sanctuary.



2.6.1 Vegetation

The Vegetation is mainly southern tropical dry-deciduous type. But along the riverbank moist deciduous type also exists. In Ponnachibetta of M.M.Hills Wildlife Range patches of semi evergreen type of forests are found.

The Predominant tree species in the Sanctuary are *Albizzia amara* and *Hardwickia binata*. The under growth consists mostly grasses with Lantana and Eupatorium.

2.6.1.1. FOREST TYPES.

The following forest types can be distinguished:

1. South Indian Thorn Scrub type – 5B/DS1,
2. South Indian Dry Deciduous type – 5A/C3,
This is further sub-divided into:
 - a. The Hardwickia type
 - b. South Indian dry mixed deciduous type.
3. The South Indian Tropical Moist Deciduous type – 3B/C2,
4. The Bamboo type forests and
5. The Evergreen Shola type – 1A/C3.

2.6.1.1.1. South Indian Thorn Scrub type – 5B/DS1:

These forests are found in areas of relatively lower elevation in the Cauvery plateau where the soil is infertile, refractory and gravelly with stones and boulders and devoid of humus. Such types of forests occupy nearly 20 % of the total area. Due to heavy biotic



interference the growth is poor and scanty and is of less economic value.

The present wood biomass produced by this type of forest is very poor. The status of regeneration in these forests is inadequate.

The common species are:

- a. *Albizzia amara*,
- b. *Acacia leucophloea*,
- c. *Zizyphus species*,
- d. *Choroxyton swietenia*,
- e. *Azadirachta indica*,
- f. *Tamarindus indica*,
- g. *Vitex altissima*,
- h. *Emblica officinalis*,
- i. *Acacia sundre*,
- j. *Anogeissus latifolia*,
- k. *Sapindus emarginatus*,
- l. *Wrightia tinctoria*,
- m. *Terminalia chebula*,
- n. *Zizyphus oenophlia*,
- o. *Zizyphus xylopyrus*.



The undergrowth includes the following species:

- a. *Opuntia delleni*,
- b. *Diospyrus melonoxylon*,
- c. *Cassia auriculata*,
- d. *Phoenix acaulis*,
- e. *Dodonea viscosa*,
- f. *Randia species*,
- g. *Carissa caranda*,
- h. *Acacia intisia*,
- i. *Solonum pubessens* and various species of grasses.

2.6.1.1. 2. South Indian Dry Deciduous type:

Such type of forests occupy nearly 55 % of the total forest area.

a. Hardwickia type:

The most dominant species in this type of forest is *Hardwickia binata*, locally called Karachi or Kamara. This normally occurs in areas with elevation below 2500 feet. Shallow and gravelly soil devoid of humus is the characteristic habitat of this species. Nearly 15 % of the forest is under this type of vegetation. The gregarious occurrence of *Hardwickia binata* is attributed to heavy periodical seeding taking place after destruction of undergrowth by fire. These forests are mainly found in Chikkailur Reserved forests adjoining the Cauvery river and in the areas of Ponnachi valley adjacent to Changadi and Kurettihosur villages. They are also found in the Palar valley.

The main associates of *Hardwickia binata* are *Anogeissus latifolia*, *Boswellia serrata*, *Chloroxylon swietenia* and, at some places, *Dendrocalamus strictus*.

(b) South Indian Dry Mixed type:

These forests have slightly better climatic and edaphic factors than thorny scrub forests and also better availability of groundwater and humus. Nearly 40% of the south Indian dry deciduous type, comprises of such forests. Biotic interference is relatively less. In the past, these forests had good stocking of Sandalwood. Along banks of streams, which are not perennial, trees with fine bole and developed crown can still be seen at some places.

The main species found in this type of forest are:

- a. *Acacia leucophloea*,
- b. *Acacia sundra*,

- c. *Albizzia lebbeck*,
- d. *Albizzia amara*,
- e. *Albizzia odorotissima*,
- f. *Anogeissus latifolia*,
- g. *Chloroxylon swietenia*,
- h. *Elaedendron glaucum*,
- i. *Feronia elephantum*,
- j. *Lomelina arberr*,
- k. *Holoptelia integrifolia*,
- l. *Pongomia pinnata*,
- m. *Pterocarpus marsupium*,
- n. *Santalum album*,
- o. *Vitex altissima*.

The species found along the streams are:

- a. *Terminalia arjuna*,
- b. *Tamarindus indica*,
- c. *Pongamia glabra*,
- d. *Vitex altissima*,
- e. *Eugenia jamboolina* and a few species of *Ficus*.

2.6.1.1. 3. The South Indian Tropical Moist Deciduous type :

These forests are usually found above an altitude of 900 meters, in areas of M.M.Hills Wildlife Range, The most common species are

Honne (*Pterocarpus marsupium*), Teak (*Tectona grandis*), *Terminalia* species, Mango (*Mangifera indica*). *Dalbergia latifolia* and *Tectona grandis* are sparsely found in Ponnachi section and Kokkuborai area of M.M.Hills range. Natural regeneration is poor, but slightly better than that in thorny scrub forests. Nearly 10 % of the total forest area of Cauvery Wildlife Division comprises of such forests. In addition to the species mentioned above, the following species are found in these forests:

- a. *Adina cordifolia*,
- b. *Vitex altissima*,
- c. *Anogeissus latifolia* and
- d. *Bridelia retusa*.

2.6.1.1 4. The bamboo type forest:

Parts of the areas mainly in the M.M.Hills Wildlife Range and Hanur Wildlife Range constitute the bamboo type forests. The main species are *Dendrocalamus strictus* and *Bamboosa arundenacea*. *Dendrocalamus strictus* (Medar bamboo) is widely distributed throughout the division. Dowga bamboo (*Bamboosa arundenacea*) is found in Ponnachi section and south of M.M.Hills Wildlife Range.

Sporadic flowering was noticed in Dowga bamboo species in Ponnachi section. Extensive pure patches of the species can be seen in the foothills of Ponnachi boli and Santekan boli of Ponnachi section of M.M.Hills range and along the stream courses.

2.6.1.1 5. The Evergreen Shola type :

The Sholas are evergreen forests considered to be the most compact genepools of genetic biodiversity, emphasising the need of conservation

of a very broad spectrum of mega and micro flora and fauna. The Shola forests are found in the M.M.Hills reserved forests at Ponnachi boli and Santekani boli of M.M.Hills Wildlife Range.



The Shola forests are surrounded by *Lantana* and grasses and are very vulnerable to fire hazards. Nearly 3 % of the total forest area of Cauvery Wildlife Division comprises of such forests. There is urgent

need to conserve these forests from shrinkage due to fire.

The check list of trees, shrubs including weeds found in the sanctuary is enclosed in Annexure No.

2.6.1.2. Animals:

The sanctuary is endowed with Variety of faunal life. There are about 22 species of larger mammals and 10 species of reptiles (Annexure – 3) and about 41 species of birds (Annexure -4) found distributed through out the sanctuary area. Since river Cauvery runs through the entire length of the sanctuary from west to east, variety of fishes are found in the river, the major one being Mahsheer fish (*Tor putitora.*).

Chapter – 3

History of Management and present practices

Before the declaration of this Sanctuary, the Southern part of the forest area was managed by Kollegal Division, and the Northern part was managed by Bangalore rural Division and Mandya Division. In 1992, as per Government of Karnataka Notification No. AHFF. 4. FWL 87 dated 14-01-1987 this Division was declared as "Cauvery Wildlife Sanctuary".

3.1 Occurrence and control of disease

No Major Casualties among flora and fauna have been reported so far in this Sanctuary. There are a few stray cases of communicable diseases of bacterial, viral and parasitic origin which are transmitted to wildlife from domestic livestock population; Common diseases in this area are foot and mouth disease, Rinderpest, Anthrax (Bacterial disease) which are being controlled through immunization programmes, creating an immunity belt around the sanctuary to avoid the spread of diseases to wildlife. More financial support is needed to carryout the immunization program effectively.

3.2. Extraction of timber and non-wood forest produces

At present, timber extraction and minor forest produce harvesting is totally prohibited and mainly conservation oriented programmes are being implemented through Soligas (Tribals) who are living in and around the sanctuary. These people are now generally employed for fire protection as well as forestry works within the Sanctuary. For the welfare of these tribes eco development committees have been formed to carry out the forestry operations by involving them in eco-development activities etc., thus enhancing their economic status.

3.3. Leases

No rights and leases are existing in this sanctuary except a lease of 37 Kms stretch of Cauvery river for fishing for sports and eco-tourism purpose given to

Jungle Lodges and Resorts Ltd near Bheemeshwari for a period of ten years from 1998. And 6 kms stretch of Cauvery river to *M/s Bushbetta* for the same purpose for a period of 10 years from 1997, which has been renewed for a further period of 10 years up to 2017. Jungle lodges and resorts Lease period will expire on 31st July 2007. Details are shown in Annexure – 5.

3.4. Extraction of fodder

Extraction of fodder is not allowed in this sanctuary.

3.5. Mining

There are no mining activities inside the sanctuary.

3.6. Religious activity

The religious activity in the PA is more due to the presence of the famous temples at Muttathi, Madiwala and Padadare, M.M.Hills, and Nagamalai. These temples attract large number of devotees for weekly worship. People visiting these shrines exert pressure on the sanctuary in the form of disturbance to the wildlife and consumption of fire wood for cooking while camping inside the sanctuary and littering the sanctuary with plastics wastes and also cause fire hazards. Hence it is essential to declare eco tourist zones, providing tourist facilities, educating pilgrims and managing tourism, by proper propaganda and information centre.

The details of Important fairs and religious festivals which are in practice is shown in annexure No. 6

3.7. Forest protection

Forests are regularly patrolled to protect the flora and fauna of the Sanctuary. At strategic points, 11 Antipoaching camps have been established i.e., 5 at M.M.Hills Wildlife Range and 3 at Cowdalli wildlife range and 2 at Hanur wildlife Range and 1 at Kanakapura Wildlife Range so that round the clock vigil is maintained. The staffs are also provided with arms and wireless sets. Food is provided for the members of Anti poaching camps. The Anti poaching camps are of shifting type because of the undulating rugged terrain interspersed with steep hills. Jeeps at Range level are used for night patrolling purposes.

3.7.1. Poaching

The major problem in the protected area is poaching of the bull elephant for ivory, mainly in M.M.Hills range all along Cauvery River, bordering Tamilnadu State. The poaching of male elephants, for ivories is generally done by the local poachers (tribals).

The hunting of wild boars, Sambar, Deers, Hares, for meat and catching of fishes for domestic consumption by local villagers cannot be ruled out. The establishment of present number of antipoaching camps has not worked effectively to control the problem of poaching. Hence, the number of Ant poaching camps has to be increased for effective control of poaching.

3.7.2. Illegal activities

The sanctuary is facing great pressure due to illegal activities like cattle & goat grazing, illicit removal of fuel wood, timber and non-wood forest products and encroachment of forest land for cultivation, illegal fishing and hunting of wild animals for meat purpose.

3.7.3. Livestock grazing

The population of livestock is high in and around the surrounding villages of the sanctuary. The local people rear more number of cattle for economic gains. The Cauvery wildlife sanctuary faces the problem of illicit grazing in most of the sanctuary area which depletes the fodder resulting in the reduction of carrying capacity of the sanctuary in terms of herbivores and also transmit the communicable diseases to wildlife from the local cattle. The PA authorities make elaborate arrangements with the assistance of animal husbandry departments every year to vaccinate the cattle in the surrounding villages.

3.7.4. Fishing

Illegal fishing all along the Cauvery River by using dynamites and netting by local villagers is occasionally noticed. All these illegal activities are being controlled considerably by deploying antipoaching watchers, all along the Cauvery River for a distance of 101 Kms. from Bheemeshwari to Palar.

3.7.5 Encroachments

The problem of encroachment is mainly due to increase in population in and around the Sanctuary area, due to the pressure for want of agriculture land. This is specially more all along the Cauvery river from Gopinatham to Alambadi in M.M.Hills Wildlife Range and around Dantalli village in Cowdally Wildlife Range. The further encroachment has been controlled effectively by intensive patrolling and protection. The cases of encroachments have been filed before the JMFC court of Kollegal and the trial is conducted by the Hon'ble JMFC Kollegal.

Table – 3 : Details of encroachment of Forestlands

Sl. No	Name of the Range	Total area encroached		Encroachments evicted as on date:		Balance Encroachment to be evicted	
		Families	Hectares	Families	Hectares	Families	Hectares
1.	Cowdally WLR.,	615	317.60	20	20.00	595	297.60
2.	M.M.Hills WLR.,	574	265.48	300	118.82	274	146.66
	TOTAL	1,189	583.08	320	138.82	869	444.26

3.7.6. Eupatorium and Lantana

The exotic weeds like *Eupatorium odoratum* and *Lantana camara* have spread all over the sanctuary in degraded areas. These two weeds are suppressing the grass vegetation thus depriving fodder to the herbivores.

3.7.7. Fire hazard

Mostly, the ground fires occur during summer i.e. from January to May especially in Kanakapura and Hanur ranges where fire is a common phenomenon because of pilgrims who gather in this season of religious fairs cause accidental fire. Cattle grazers and illegal MFP collectors also cause intentional fire to devoid the ground of old grass and weeds with intention to get new flush of grass. The area being large, undulating rugged with high hills and the inadequate staff renders no effective checks in controlling accidental forest fires. However effective control measures to minimize the fire damage and effort to put off fire as and when noticed are being done.

3.8. Tourism

Cauvery wildlife sanctuary has got many tourists attractive spots with scenic beauty and panoramic views, with diversified flora and fauna. In this division Muthathi, Sangam, famous Makedatu and Hogenakal falls are situated. The sanctuary offers ample opportunities for nature lovers and adventurous trekkers, thus demanding the development of infrastructures to provide basic needs to the visiting tourists. In Muthathi minimum infrastructural facilities have been created to conduct nature camps to school children and also for nature lovers. The facilities like toilets, drinking water and resting places provided in tourist places of this division like Muthathi, Sangama, Makedatu of Kanakapura Wildlife Range and Gopinatham and Hogenakal Falls of M.M.Hills Wildlife Range are minimal. Hence there is a great need for creating tourists facilities in these areas to promote eco-tourism and to conduct nature camps for creating awareness among school children and general public.

3.9 Research, Monitoring and training

So far no Research and Monitoring has been done in this division neither with respect to local flora nor fauna. No any research institute or state Government organization has conducted any research in this division. Baseline survey of flora and fauna of the sanctuary is required to be conducted.

With regard to the training the officials working in the sanctuary often attend refresher courses as and when offered by wildlife institute of India from time to time.

3.10 Wildlife Conservation strategies and their Evaluation.

3.10.1 Declaration of the Sanctuary

The area of this division was declared as Cauvery wildlife sanctuary vide GO. No. AHFF 4 FWL 87 dated 14-01-1987 for the purpose of protecting, propagating wildlife and its environment. But Cauvery Wildlife Division was formed and came into existence in the year 1992 with headquarters at Kanakapura Town.

3.10.2 Census of wild animals

Census of Tigers and other wild animals was conducted in the February 2006 and Elephant census was done in May 2007 to know the population of wildlife.

3.10.3 Habitat improvement

Soil and water conservation structures like construction of check dams across nalas, creation of new tanks in strategic locations, and the desilting and deepening of existing tanks and checkdams are the major works carried out inside the sanctuary with the purpose of providing drinking water to wild animals and also to increase the water table which in turn improves the micro climate.

3.10.4 Patrolling and establishment of anti poaching camps

Patrolling on foot and in jeeps is carried out regularly, Anti poaching camps consisting of four mazdoors and one permanent staff are established in strategic locations. Since the sanctuary area is highly undulating and inaccessible the anti poaching camps are shifting in nature changing their locations regularly. Food is provided to the members of the anti poaching camps. These camps work regularly throughout the year. There is a requirement of more number of anti poaching camps for effective patrolling and protection. There should also be some permanent anti poaching camps with proper infrastructure. Jeeps are used regularly for night patrolling.

3.10.5 Fire control

Fire lines are cut and burnt well in advance before the fire season during the month of December. Fire watchers are engaged for fire patrolling in strategic points in fire prone areas. Since tall grass found in Kanakapura Wildlife Range and Hanur Wildlife Range provides dry combustible material in case of fire occurrence, it is found to be very difficult to control forest fire. Highly undulating terrain with high velocity winds is also a major obstacle in control of fire.

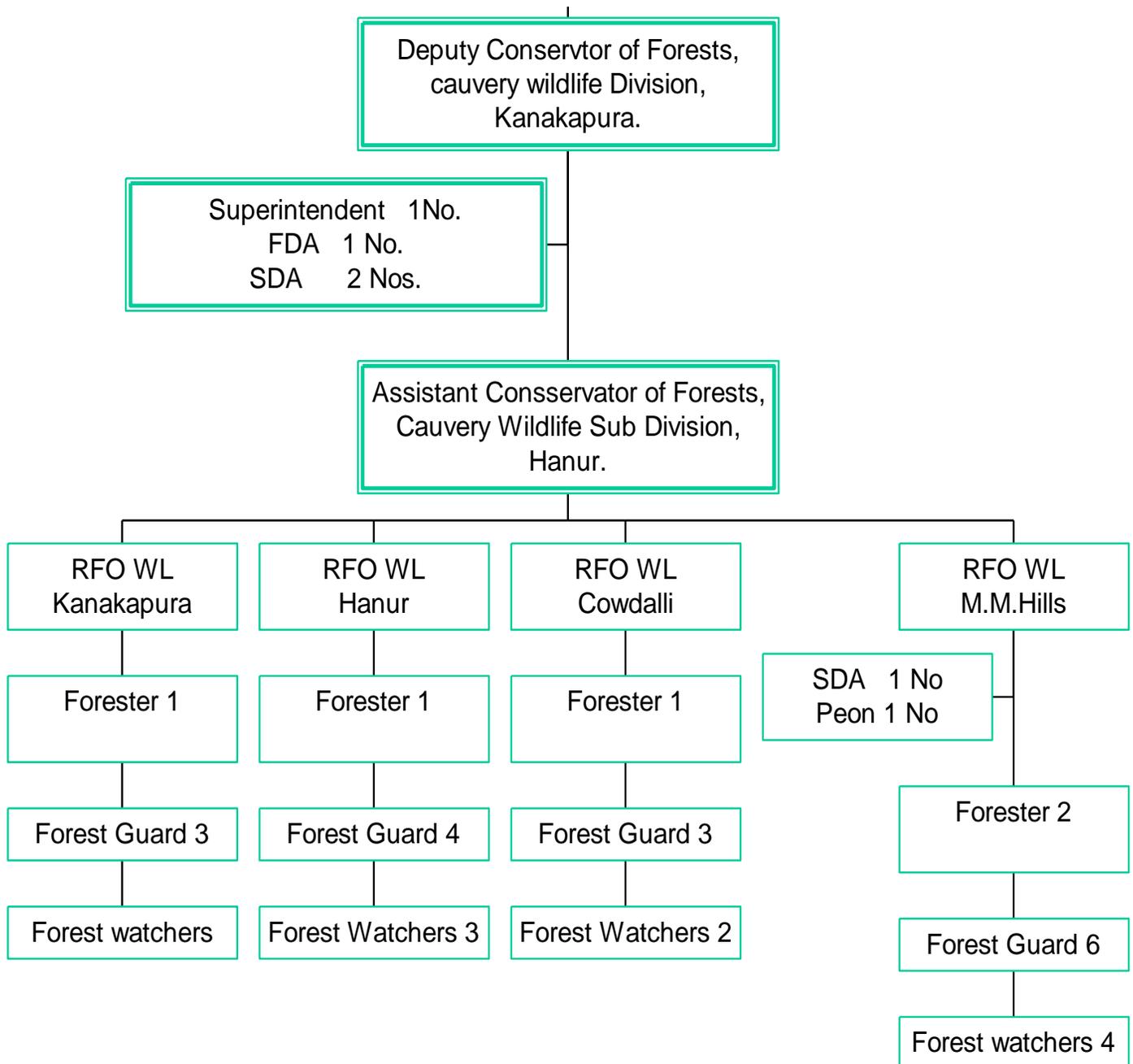
3.11. ADMINISTRATIVE SETUP

Cauvery Wildlife Sanctuary is under the administrative control of the Karnataka forest department. The Deputy Conservator of Forests is responsible for all the operations within the sanctuary. He is functioning under the administrative control of the Conservator of forests, Chamarajnagar circle and is assisted by one Assistant Conservator of Forests, 4 Range Forest Officers, 5 Foresters, 16 guards and 09 watchers. The total sanction posts of the division with vacancy position is given in the table below.

Table – 4. : Showing Administrative setup of Cauvery Wildlife Division.

Sl. No.	Name of the sanctioned posts	No. of posts Sanctioned	No. of posts filled up	Vacant as on 31-3-07
1.	Deputy Conservator of Forests	1	1	0
2.	Assistant conservator of Forests	1	1	0
3.	Range Forest officer	4	4	0
4.	Forester	5	4	1
5.	Forest Guard	16	07	09
6.	Forest watcher	09	06	03
7.	Supernumerary	09	09	0
8.	Second division surveyor	01	0	1
	Ministerial staff			
1.	Superintendent	1	1	0
2.	First Division Assistant	1	1	0
3.	Second Division Assistant	3	2	1
4.	Peon	1	1	0
	TOTAL	52	37	15

Organisation chart of Cauvery Wildlife sanctuary, Kanakapura.



3.12. Communication

The sanctuary is accessible throughout the year by road and through other communication networks of wireless, Telephone and E-mail.

3.12.1. Wireless network

In the sanctuary, there are six static stations located in Kanakapura, Muthathi, Hanur, Cowdalli, M.M.hills, and Gopinatham. Jeeps provided to Range officers are fitted with mobile sets. 23 walkie-talkies are provided to the field staff, to establish good net work of wireless system. Messages regarding the patrolling in the field are received from Anti poaching camps in every two hours during day time and wireless system is kept active throughout the night to be in readiness to face any eventuality with regard to protection problems.

3.12. 2. Telephone

There are 3 telephones installed two at the DCF's office at Kanakapura and one at Hanur ACF office, which is helpful to receive any information from the general public regarding protection and also to attend to eco-development and eco-tourism matters.

3.12.3. Roads

The total length of the forest roads inside the sanctuary is 140 kms. Most of the roads start from the external boundary and end at river Cauvery. Because of inadequate fund annual maintenance of the roads is not done regularly. Formation of new roads to some of the inaccessible areas is also required to reach the required area early and well in time. Well laid and maintained network of roads inside the sanctuary is very much essential for effective protection of wildlife.

3.12. 4. Vehicles

There are 4 jeeps provided to Range Forest Officers and two motor cycles provided to Foresters which are used in patrolling works. More number of jeeps are required for effective patrolling during day and night.

3.13 Summary of threats to wildlife

The threats to the wildlife in the sanctuary are enumerated as below:

1. Poaching of wild animals, Specially Bull Elephants.
2. Illegal Cattle grazing.
3. Fire hazard during summer months.
4. Encroachment of Forest lands.
5. Smuggling of Timber and Firewood.
6. Lack of Perennial waterholes.
7. Soil Erosion.
8. Disease and pests.
9. Man and animal conflict.
10. Unregulated tourism due to pilgrims.

Chapter – 4

The protected area and the interface land use situation

4.1 The existing situation in the zone of influence

There are eight enclosure villages inside the Sanctuary, and 30 villages are within in 5kms radius of the Sanctuary. Human population in enclosure and surrounding villages within in 5 kms of radius of the sanctuary is estimated as 35000 and cattle population as 39000. The local population is mainly dependent on agriculture for their livelihood. Therefore there is immense biotic pressure over the sanctuary because of dependence of the people for small timber and fire wood and for grazing their cattle in the sanctuary. In addition there were a few shepherd campgrounds inside the sanctuary which are discontinued now. Efforts are being made to shift the cattle camps outside the Sanctuary. Due to the presence of temporary cattle camps, the habitat is being adversely affected by illegal grazing and fires hazards during summer. But the effective measures are taken by sanctuary staff from time to time to stop cattle camps inside the sanctuary. There are sporadic incidents of man and animal conflict because of the damage caused to the crops by wild Elephants and other wild animals. The details of Human and live stock population in enclosure villages and villages within 5 kms radius of the sanctuary are given in annexure – 7 and annexure – 8.

The list of enclosure villages inside sanctuary is given in the table below.

Table – 5: Enclosure villages inside the sanctuary

Sl. No.	Name of the range	Enclosure villages
1.	Kanakapura Wildlife Range	Muthathi, Madiwala
2.	Cowdally Wildlife Range	Dantally
3.	M.M.Hills Wildlife Range	Nagamalai, Bejjalane, Panchalane, Indiganatha, Padasalanatha
Total No. of Villages inside sanctuary are – 8 Nos.		

The steps have to be taken up for the rehabilitation of people living in eight enclosures to outside the sanctuary area. The immediate need is to gain the confidence of the local people by involving them in wildlife activities and systematically educating them regarding the importance of declaring the wildlife Sanctuary. Their co-operation is very much needed for the effective protection of wildlife.

Part – II

Proposed Management

Chapter -5

Plan, objectives and problems

5.1 Objectives of management

The main objectives of Cauvery Wildlife Sanctuary are as follows:

1. To preserve for all times areas of such biological importance as a national heritage for the benefit of education of the people.
2. To protect the undisturbed forest Eco-system and conserve flora and fauna diversity.
3. To restore the degraded Eco-system by adopting suitable soil and water conservation methods, to regenerate the degraded areas encouraging natural species of the area.
4. To establish mechanisms and create opportunity for enhancing Managerial capability and knowledge in the wildlife sciences.
5. To enhance the quality of educational, recreational and wilderness experience.
6. To maintain, and where necessary, restore the demographic indicators of growth relating to populations of all rare, Endangered, vulnerable and Endemic species of animals and plants with special focus on Elephants, Otters, Giant grizzled squirrel and Mahsheer Fish.
7. Consistent with the other objectives and with the sensitivity to cultural and economic well –being of the forest dwelling communities of humans, to reduce their dependency on the forest based resources.
8. consistent with all the above objectives secure the religious interest of the pilgrims.

5.2 Problems in achieving objectives

While trying to achieve the objectives set in Chapter 5.1 there would be several impediments, hurdles and problems, which need to be kept in mind and mitigation strategies should be prepared to deal with these problems. There may be solution to some problems but not all and hence, all problems need careful attention.

These basic problem which shall act as a major deterrent in carrying out the objectives, would be the grossly inadequate funds, lack of infrastructural support and lack of awareness among the people about importance of conservation of wildlife.

Since there are 37 villages including 8 enclosure villages with in 5 kms radius of the external boundary of the sanctuary and basic livelihood of the human population is agriculture, cattle and goat rearing which puts enormous pressure on the resources of the sanctuary. Since most of the agricultural area is unirrigated, growing of crops depends on the rainfall, and in case of failure of rains the people being jobless depend on forest resources for their livelihood.

The sanctuary area being highly undulating and desiccating during summer fire plays havoc which makes it impossible to fight forest fires.

Since long time in the past the neighboring human population visit many places of worship which lie with in the jurisdiction of the sanctuary which makes the local administration helpless to have a check on their movement within the sanctuary.

Lack of adequate staff and motorable roads in the undulating area is a big hindrance with regard to protection of the wildlife.

Chapter -6

The Strategies

This chapter deals with strategies and prescriptions for the wildlife management of Cauvery wildlife Sanctuary, for the plan period of 10 years from 2006-07 to 2016-17. The strategies are based on the objectives set in chapter 5.1 and also, suggest mitigatory measures to deal with the issues and problems discussed in chapter 5.2. The strategies have been discussed in four sub-chapters, namely Boundaries, Zonation, Zone plan and Theme plan.

6.1 Boundaries :

External boundary

Cauvery wildlife Sanctuary's total extent is 526.955 Sq kms. The external boundary is clearly demarcated and most of the boundary is dug with elephant proof trench. The sanctuary is bounded by agricultural fields and forests of Kollegal division in west and southern parts and in northern part by forests of Mandya and Ramanagaram forest divisions. The eastern part adjoins the forests of Dharmapuri Forest division of Tamilnadu state.

Internal Boundary :

For administration and management purpose, internally the forest area of Cauvery wildlife division is divided in to four wildlife ranges namely Kanakapura Wildlife Range, Hanur Wildlife Range, Cowdally Wildlife Range and M.M.Hills Wildlife Range. The range area is clearly demarcated in the field which in turn divided into sections, beats and compartments. There are five sections and fifteen beats in the sanctuary. The demarcation of compartment boundaries in Kanakapura Wildlife Range is not completed whereas the compartment boundaries are fixed and demarcated in other ranges. Compartment boundaries are demarcated almost following natural features wherever possible.

6.2 Zonation :

There was no zonation in Cauvery Wildlife Sanctuary in the past. Hence, following zonations are proposed in this plan period.

1. Core zone
2. Buffer zone.
3. Tourism zone.

The proposed zonations have been shown on the map attached as annexure -

6.2.1 Core zone:

The zone would be the " *Sanctum sanctorum*" of the Cauvery wildlife sanctuary and shall serve as very significant centers of ecological reference and ecological processes so also to maintain at least a good percentage of the key habitats, elements of conservation importance such as species, communities and populations under threats and shall serve as the source population for many of the species. Since the main objective of constituting this zone is to preserve it in as near natural as possible condition protection should be provided against all forms of biotic interference.

6.2.2. Buffer zone :

The areas on the fringe of the sanctuary which have been degraded over the years due to heavy biotic pressures is included in restoration zone. These areas should be given rigid protection against all biotic pressures mainly cattle grazing and illicit felling for firewood. Soil and water conservation measures have to be taken up in large scale to enhance the ground water table. Increased water table influence the better composition of tree species. Planting programme can also be taken to restock the area with indigenous locally suitable species.

6.2.3. Tourism zone :

There are four areas coming under this zone.

They are 1. Bheemeshwari and Muthathi 2. Sangam and Mekedatu of Kanakapura Wildlife Range and 3. Gopinatham and 4. Hogenakal falls of M.M.Hills Wildlife Range.

Muthathi, being the religious place draws large number of local tourists. The river Cauvery at Muthathi and Sangama is a favorite place for picnic goers only fishing rights along few stretches of river Cauvery from Bheemeshwari to Mekedatu are given to resort operators like M/s Jungle Lodges and Resorts and M/s Bushbetta for angling of fishes, especially Mahsheer fish.

Hogenakal Falls of river Cauvery lying in the interstate boundary of Karnataka and Tamilnadu states draw tourists and picnic goers from many towns and cities of both Karnataka and Tamilnadu states. Gopinatham village which is 12 kms away from Hogenakal falls is a native village of dreaded sandalwood smuggler Veerappan which is a place of tourists attraction with picturesque towering hills and a lake in the valley.

6.3 Zone plans :

6.3.1 Zone plan for core zone

6.3.1.1. General Constitution:

Since the area of Cauvery Wildlife Sanctuary is a linear strip all along the river Cauvery and surrounded by number of villages on its periphery. The sanctuary area other than the degraded areas on the fringe within the sanctuary and the areas demarcated for tourism zone is constituted as core zone.

Objectives of Management :

The main objective of constituting core zone is to preserve the area in as natural a state as possible and as a gene pool to serve as a centre for ecological reference. In this zone natural course of ecological succession is to be promoted.

6.3.1.2 Activities permitted in this zone

- Since the forest areas of core zone is to be preserved as gene pool to serve as a centre for ecological reference, this zone shall be given maximum priority from the conservation and protection point of view. Strict protection against biotic factors like Fire, grazing and illicit felling is to be provided.
- Except for the staff and researchers no moment of other people is to be permitted. Movement of pilgrims to the temples with in the core area has to be regulated.
- Some limited scientific and research studies is to be permitted.
- Developmental activities in the interest of wildlife like maintenance of waterholes, saltlicks and some habitat management may be permitted.
- No tourism or eco development activities shall be carried out in the core zone.

6.3.2 Zone plan for Buffer zone

6.3.2.1.General Constitution:

This zone includes areas on the fringe within the sanctuary which have been subjected to heavy biotic pressure of grazing, illicit felling of firewood, bamboo and small timber thus removing the understorey cover and tree growth. These areas are usually degraded forest areas with scrub and grassland with sparse growth.

6.3.2.2 Objectives of management :

The purpose of constituting this zone is to protect the area rigidly from further biotic interference and degradation, and restocking the area by planting with indigenous species while applying soil and water conservation measures so that the area can be brought back to its original habitat.

6.3.2.3 Activities permitted in this zone

1. Protection measures against grazing, fire, poaching and illicit felling of small timber, firewood, bamboo and illegal collection of NTFP.
2. Habitat improvement by tending of existing stock supplemented by planting indigenous species.
3. Taking up soil and water conservation measures by proper planning and management to improve the growing stock.
4. Carrying out eco-development activities in the adjoining villages simultaneously so that biotic pressure is reduced.

6.3.3. Zone plan for tourism zone

6.3.3.1 General Constitution:

There are four distinct areas earmarked for tourism zone in this sanctuary they are 1. Bheemeshwari and Muthathi 2. Sangam and Mekedatu falling within the jurisdiction of Kanakapura Wildlife Range and 3. Gopinatham and 4. Hogenakal falls of M.M.Hills Wildlife Range.

The objectives and the activities permitted in this zone are elaborately dealt in Chapter – 7 of Ecotourism

6.4 Theme plan.

The following theme based strategies, which would be applicable throughout the Sanctuary area irrespective of the zones are proposed as below:

6.4.1. Protection

The protection of the Sanctuary, to save the wildlife and their habitat is the most important activity, with more emphasis on the conservation of endangered species. Most of the sanctuary area belonging to Malai Mahadeshwara hills Reserve Forest is noted to be famous for poaching of wild tuskers. The forest area with undulating high hills and valleys is inaccessible by road. Patrolling by foot is the only way of protecting the wild animals from poachers. Poaching of wild animals for meat and illegal fishing in the river Cauvery can be controlled with by adopting proper strategy.

To meet the objective of protection, the following strategies shall be adopted.

6.4.1.1. Establishment of Anti-poaching camps.

At present there are 11 antipoaching camps operating at vulnerable localities inside the sanctuary. Most of these camps are of shifting type. Camps are changed from one area to other based on requirement with regard to protection problems, since the sanctuary area is highly undulating and inaccessible by road. To strengthen the antipoaching activities more number of antipoaching camps are required. There should be at least two permanent anti poaching camps in each range which can be built in those localities easily approachable by patrolling vehicle. These permanent camps should be built with permanent infrastructure and equipped with wireless system. The members of the antipoaching camps should be provided with arms and ammunitions and walkie-talkies. The members of the anti poaching camps should be provided with daily ration of food.

6.4.1.2. Re-organization of area.

At present there are 4 wildlife ranges in this sanctuary which are divided into 5 sections and 15 beats for administrative purposes. For better administration and management of the sanctuary the reorganization of the area in to different administrative units is proposed.

Table – 6: The existing organization of area:

Sl. No.	Name of the Range	Name of the Section	Name of the Beat	Compartment No.
1.	Kanakapura Wildlife Range	Muthathi	Sangam	--
			Muthathi	--
			Bheemeshwari	--
2.	Hanur Wildlife Range	Shaggyam	Shaggyam A	21, 22, 23, 24
			Shaggyam B	25, 26, 27, 28

			Shaggyam C	17, 18, 19, 20
			Cauvery	12, 13, 14, 15, 16
3.	Cowdally Wildlife Range	Dantalli	K. Hosur	70, 71, and 72
			Changadi	73, 74, 75 and 76
			Bijjalane A	77, 79, 81 and part of 78, 80
4.	M.M.Hills Wildlife Range	Gopinatham	Gopinatham	90, 91, 92 and 55 part
			Indigantha A	93, 94
			Indiganatha B	95, 96
		Alambadi	Alambadi	87, 88, 89
			Bejjalane B	84, 85, 86 and 83 part

Table : 7 The proposed re-organisation of the area

Name of the Range	Proposed beats (re-organization)		
	Name of the section	Name of the Beat	CPT Nos.
Kanakapura Wildlife Range	Muthathi	Bheemeshwari	
		Soligeri	
		Muthathi	
		Konanagundi	
	Sangam	Kolkote	
		Hyra	
		Sangam	
	Madiwala		
Hanur Wildlife Range	Chikkayalur	Cauvery	12,13
		Rachappajinagar	14
		Balagunase	15
		Mastigowdanadoddi	16
		Ganigamangala	17
	Shaggyam	Basavanakada	18,19
		Shaggyam	20

		Rasiboli	21,22
		Berota	23,24
		Basakkanahalla	25,26
		Pushpapura	27,28
Cowdally Wildlife Range	Dantalli	Saviramatti	70
		Arabagere	71
		Kambal siddeswara	72
		Jadeswamigudi	73
		Dantalli	74
	Kaveri	Changadi	75,76
		Ugania	77,78
		Tekkananatha	79
		Kondakurinatha	80
		Tagarathala	81
		Doddabalapa	

Name of the Range	Proposed beats (re-organization)		
	Name of the section	Name of the Beat	CPT Nos.
M.M.Hills Wildlife Range	Gopinatham	Yemmeguli	55
		Mylumale	92
		Gopinatham B	90
		Gopinatham A	91
	Palar	Nagamalai	93
		Indiganatha A	94
		Indiganatha B	95
		Kokkarehalla	96
Alambadi Wildlife Range	Alambadi	Vishweshwara	82
		Bejjalane	83
		Donkabavi	84
		Panchalane	85
		Koppuru	86
		Alambadi	87
		Marikottayi	88
		Gowdikere	89

6.4.1.3. Requirement of additional Staff

The number of existing staff for protection and also for administration of the sanctuary is very meager when compared to the problems faced with regard to protection in the sanctuary like poaching of wild animals and illicit grazing and felling. Hence proposals are made to completely re-organise the area with more availability of staff.

Table No-8 : The existing staff position and requirement of additional staff

Sl. No.	Name of the sanctioned posts	No. of posts Sanctioned	No. of posts filled up	Vacant as on 31-12-07	Additional Post required
1.	Deputy Conservator of Forests	1	1	0	0
2.	Assistant conservator of Forests	1	1	0	1
3.	Range Forest officer	4	4	0	1
4.	Forester	5	5	0	4
5.	Forest Guard	16	09	07	30
6.	Forest watcher	09	06	03	74
7.	Supernumerary	09	09	0	0
8.	Second division surveyor	01	0	1	1
	Ministerial staff				
1.	Superintendent	1	1	0	1
2.	First Division Assistant	1	1	0	1
3.	Second Division Assistant	3	2	1	6
4.	Peon	1	1	0	7
5.	Diver	0	0	0	8
6.	Meti	0	0	0	3
7.	Cleaner	0	0	0	5
8.	Computer Operator	0	0	0	8
9.	Night watchman	0	0	0	8
10.	Wireless operator	0	0	0	8
	TOTAL	52	40	12	166

Table No. 9 : Reorganization chart of Cauvery Wildlife Division

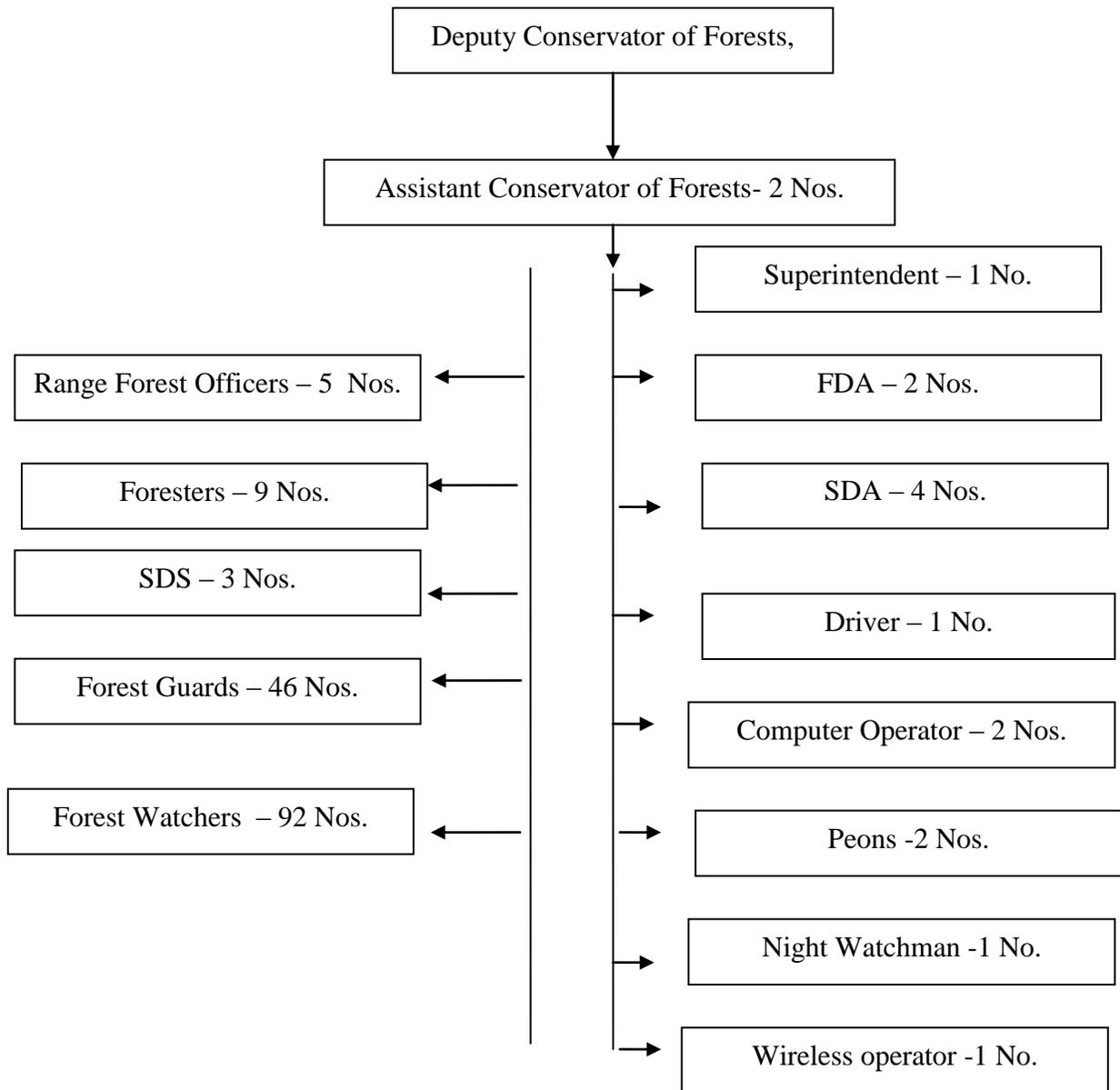


Table No. 10 : Reorganization chart of Assistant conservator of Forests,
Kanakapura wildlife sub division,

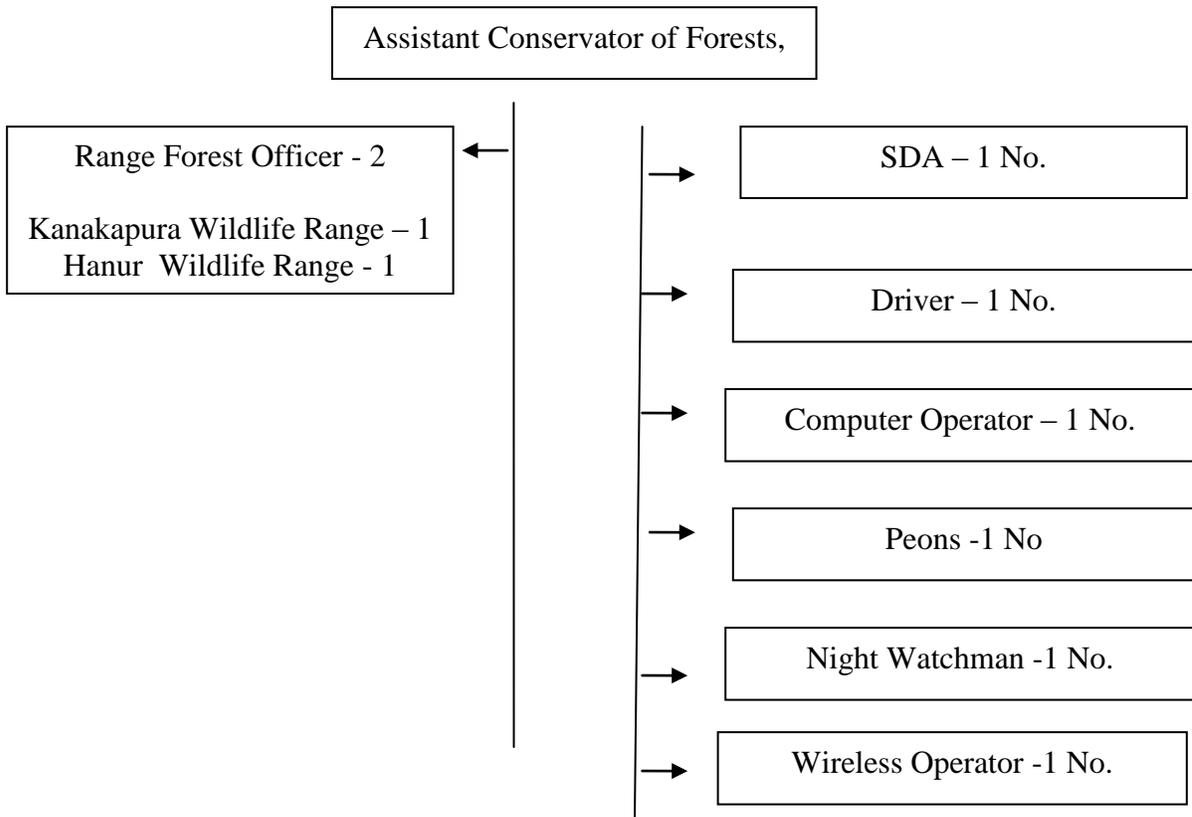


Table No. 11 : Reorganization chart of Assistant conservator of Forests, M.M.Hills wildlife sub division,

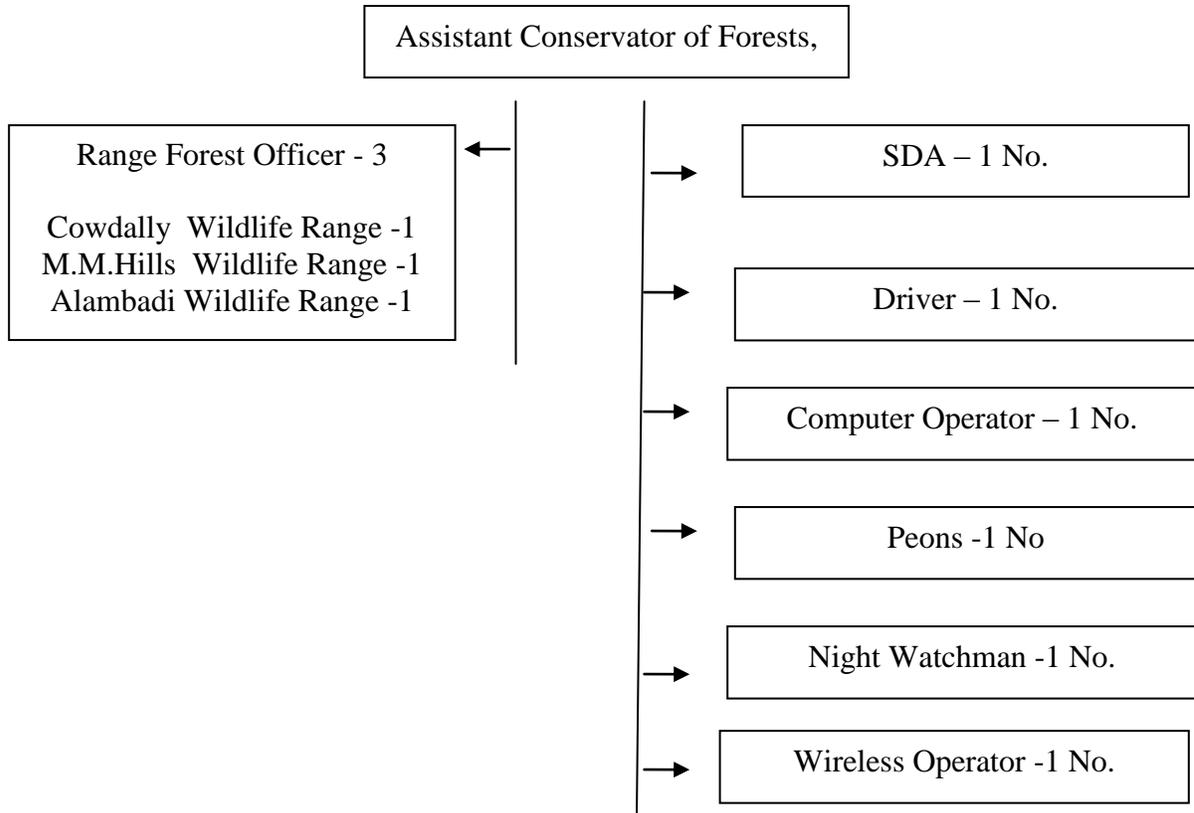


Table No. 12 : Reorganization chart of Kanakapura Wildlife Range.

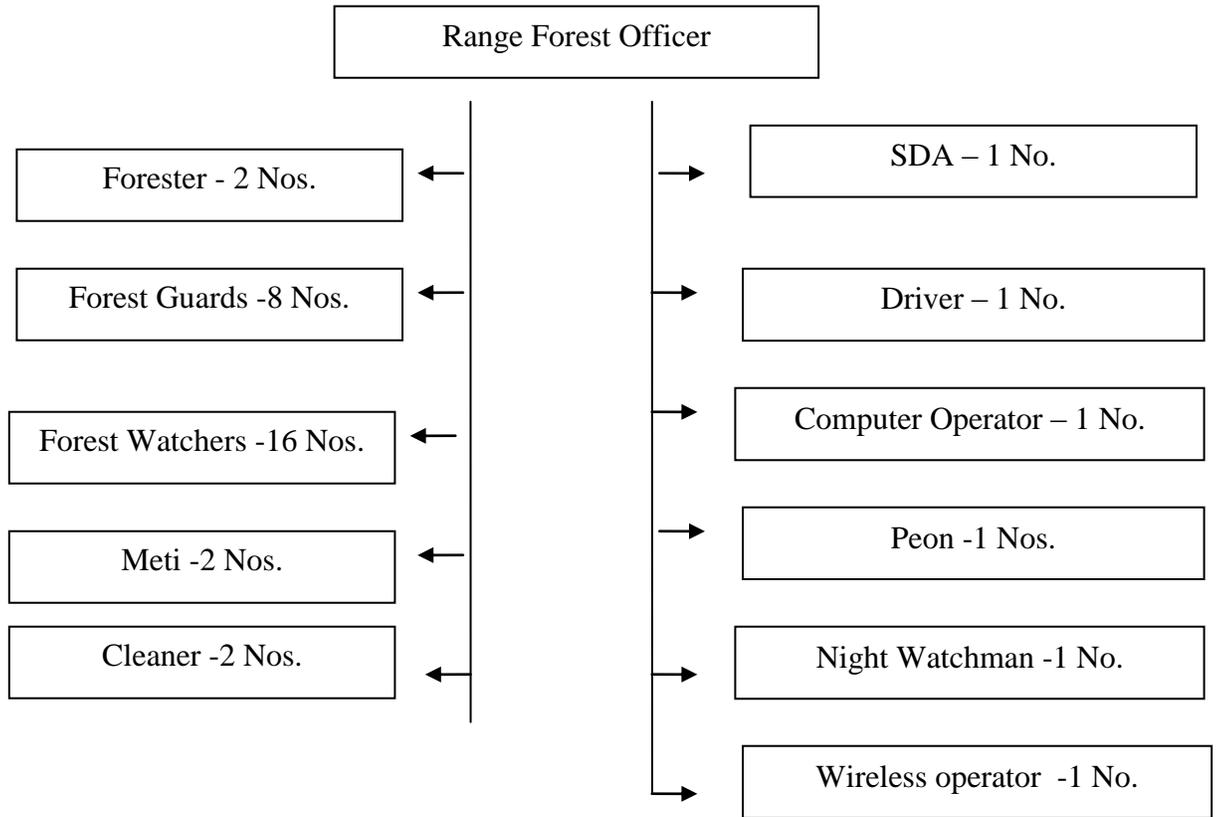


Table No. 13 : Reorganization chart of Hanur Wildlife Range .

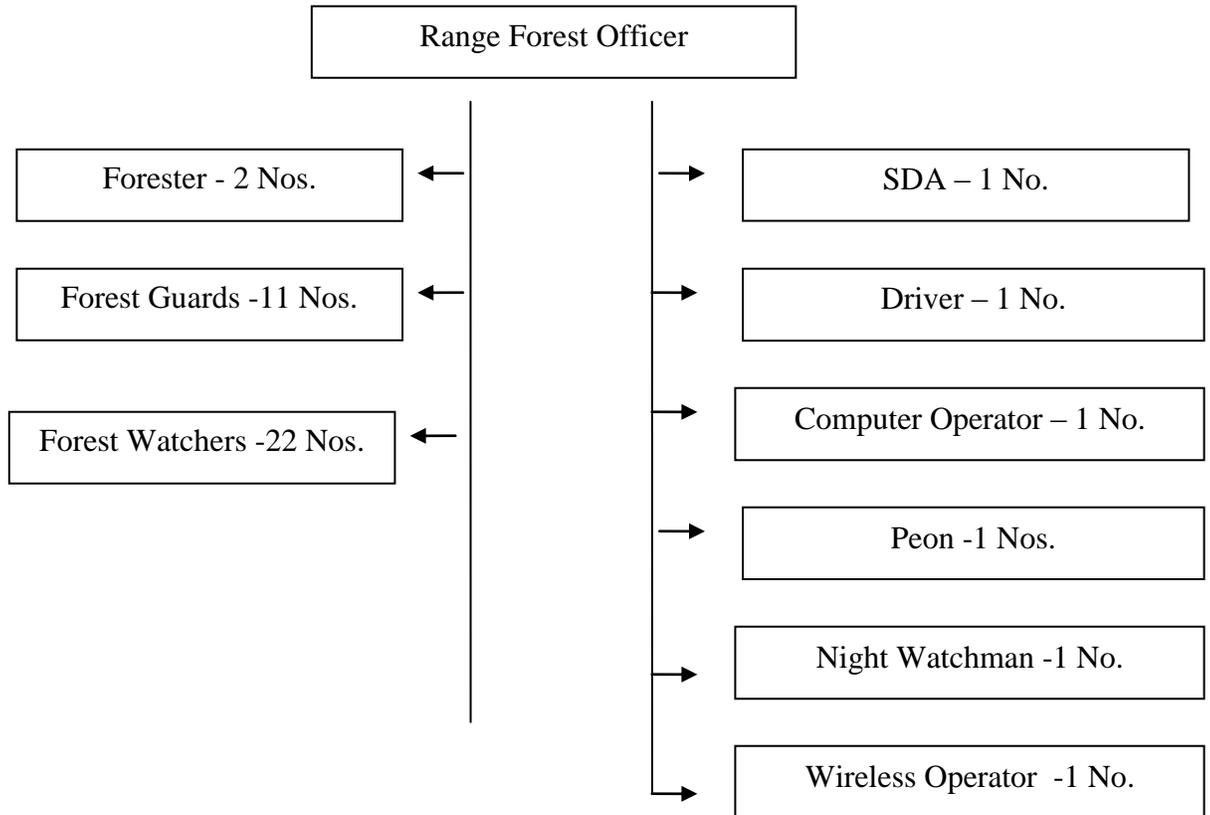


Table No. 14 : Reorganization chart of Cowdally Wildlife Range .

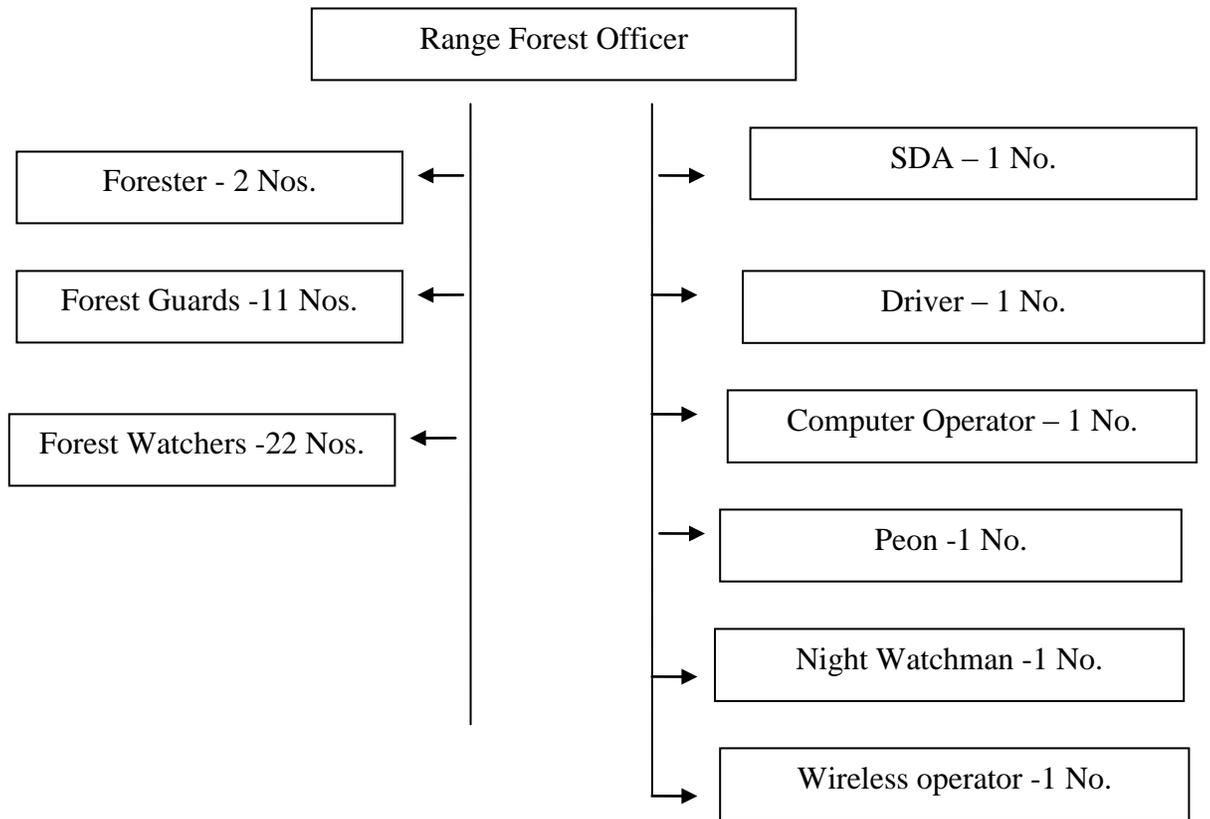


Table No. 15 : Reorganization chart of M.M.Hills Wildlife Range

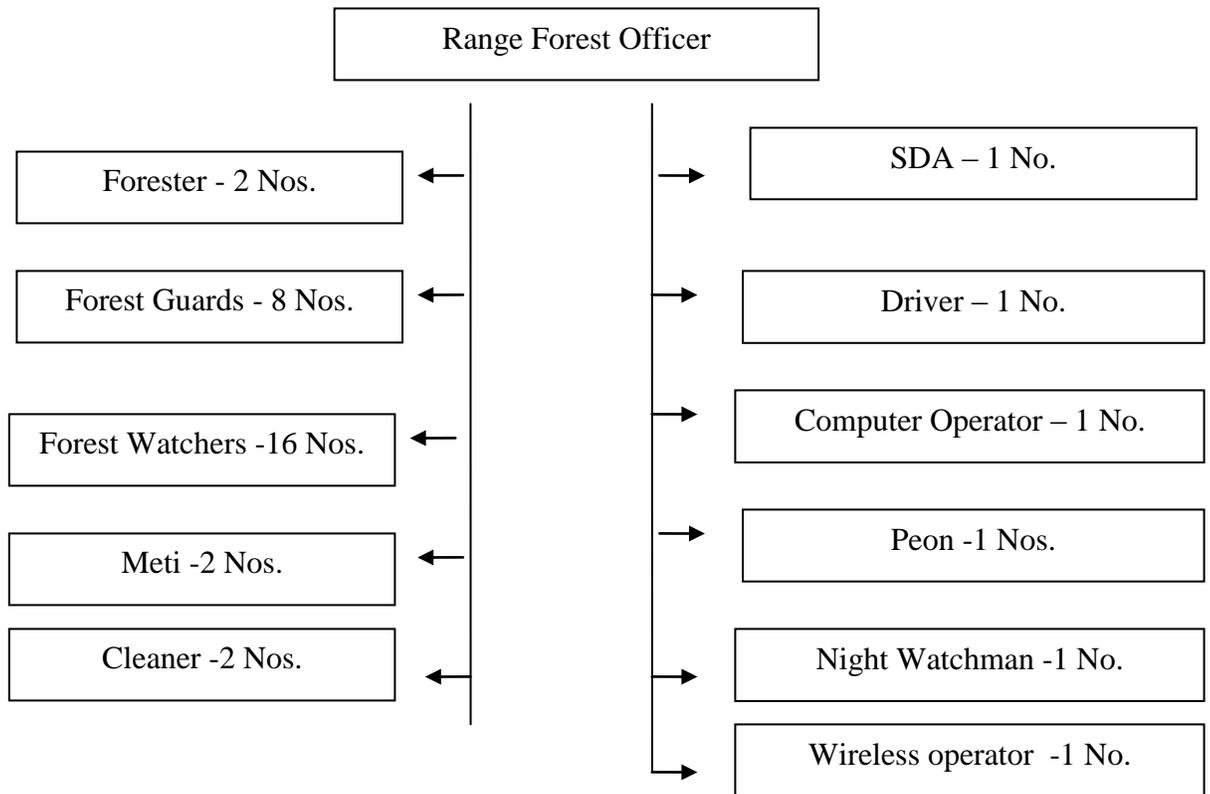
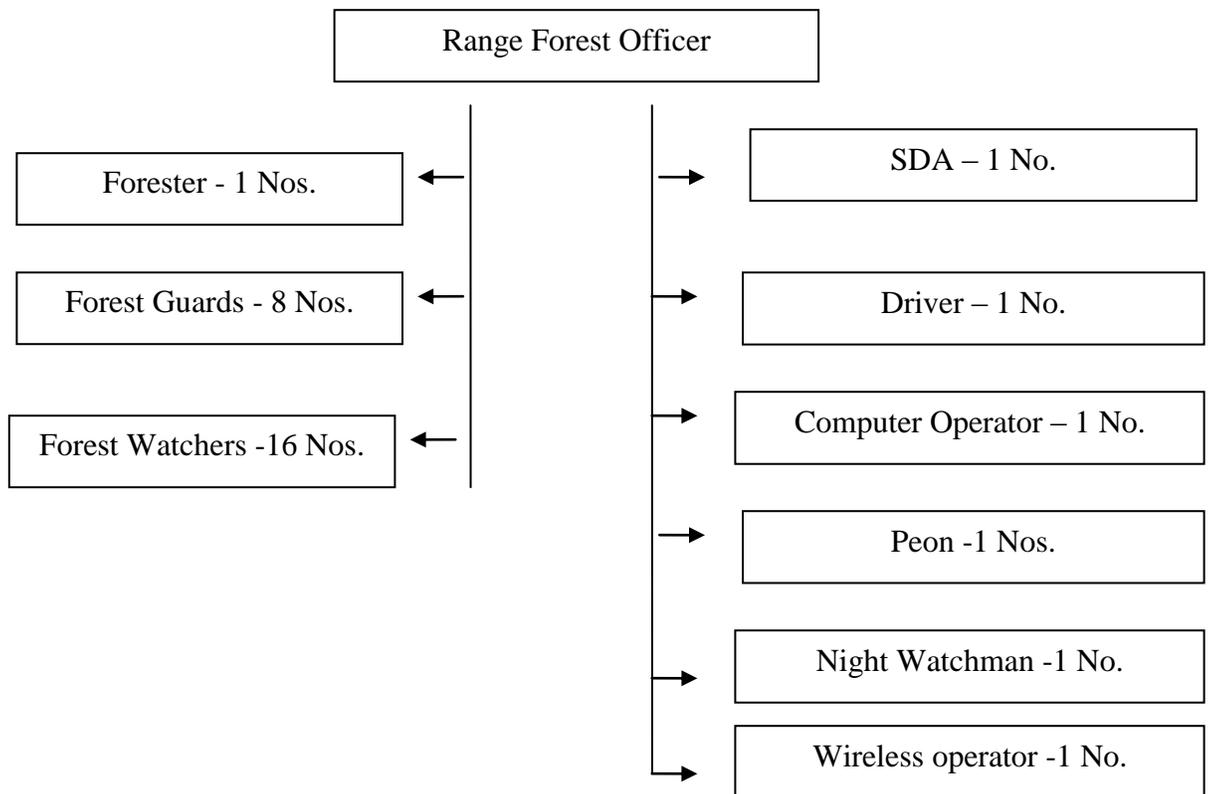


Table No. 16 : Reorganization chart of Alambadi Wildlife Range



6.4.1.4. Requirement of additional vehicles

The existing number of vehicles is minimal when compare to the vast, rugged forest area of the sanctuary. The existing old vehicles shall be replaced with new ones and also provided with additional vehicles like four wheel drive jeeps.

The jeeps are very heavily used in rough and rugged roads and as a result the longevity of the jeeps will be less and are prone to frequent repairs. Hence they have to be replaced at least once in every five years.

Table No. 17 :

Sl. No.	Designation	Existing vehicle (in Nos)	Required vehicles	
			Jeeps	Motor bikes
1.	Deputy Conservator of Forests	1	-	-
2.	Assistant conservator of Forests Kanakapura WL sub Division	-	1	-
3.	Assistant conservator of Forests M.M.Hills WL sub Division	1	-	-
4.	RFO WL Kanakapura	1	-	2
5.	RFO WL Hanur	-	1	2
6.	RFO WL Cowdally	1	-	2
7.	RFO WL M.M.Hills	1	-	2
8.	RFO WL Alambadi	-	1	1
	Total	05	03	09

6.4.1.5. PATROLLING PATHS

The sanctuary has a network of patrolling paths which are not properly maintained. The same will have to be maintained regularly on annual basis. The details of roads inside the sanctuaries are shown in annexure - 10



The non maintenance of roads is leading to frequent repairs of jeeps hence disturbing regular patrolling. In addition to the existing roads new roads are proposed to be formed joining different strategic locations.

6.4.1.6. STRENGTHENING OF WIRELESS NETWORKS

At present there are six static wireless stations connecting office of the Deputy Conservator of Forests, Kanakapura wildlife division with range headquarters. There is also a repeater station fixed at Soligeri of Kanakapura Wildlife Range which is a highest point in the sanctuary. The existing jeeps are fitted with mobile wireless systems. Though walkie-talkies are given to anti poaching camps more number of walkie-talkies with extra batteries are required. Another repeater station is proposed to be setup at Ponnachi hill of M.M.Hills Wildlife Range. Frequent inspection and maintenance of wireless system is utmost required.

6.4.1.7. FIREARMS AND AMMUNITION

Though the existing forest staff of the sanctuary are provided with weapons like 0.315 rifles, slide action guns and DBBL guns, more number of weapons are required after re-organization of the area for rigid protection works. Periodic training for the staff in use and maintenance of fire arms is required.

The details of arms and ammunitions and wireless systems in Cauvery Wildlife Sanctuary is enclosed in annexure – 11

6.4.1.8. PUBLICITY AND PUBLIC RELATION

Publicity material should be prepared from time to time and distributed among the tourist, school children and the surrounding villagers to create awareness on conservation of wildlife. Fixing of hoarding & publicity boards at various public places & at entrance of the protected areas is required to create awareness on the importance of wildlife and regarding the existing wildlife protection act and rules.

6.4.1.9. FIRE CONTROL

Forest fire is a very important factor for consideration, in the management of protected area since it has a tremendous influence on the floral and faunal components of the habitat. One obvious fact is that fire destroys the organic matter, which contributes to the humus content of the substratum, which cause deterioration of the soil and consequently the value of the site. Because of forest fire the organic compounds of fallen wood, dry leaves and the nitrogen present in the roots of the plants are completely lost. However potash and other minerals are available immediately after the fire. Animals loose considerable cover and fodder after the outbreak of fire. The high temperature generated during fire also destroys many microorganisms, which inhabit the soil, and thus stops their activities, which are essential for the decomposition process. The eggs of birds and reptiles and juvenile fauna of small species are destroyed by fire and at times animals themselves succumb to fire injuries. Fire also causes the animal population to abandon a habitat and to proceed randomly in various directions, which may disturb the spatiotemporal utilization of a habitat by animal species. Many seeds and several plant species are completely destroyed by fire and regeneration is also affected.

Despite all these effects in a controlled way, fire is used for managerial purpose. It is one of the earlier tools man has used to alter the environment. Fires favour grasslands and encourage shrubs and herbs in places of trees. This has direct effect on wildlife as control burning in selected patches, increases the relative abundance of the animals, which are adapted to grazing and browsing in an

open terrain. The rigid protection against smuggling and grazing is adding burning materials year after year since the process of humus formation is slow in these deciduous forests.

Owing to dry deciduous and thorny type of vegetation fire hazard is more often. Hence, top priority has to be given to fire protection works. The villagers should be properly educated about the fire hazards. All existing fire lines have to be maintained in each range. All the compartment boundaries, D' lines, roadsides, the sides of footpath, cart tracks and areas around the enclosures be cleared and fire traced well in advance. In addition to regular staff, sufficient number of casual local tribal labourers should be engaged as firewatchers during the fire season. Identification of areas that are prone to fire damages well in advance help in protecting the area against fire by regular patrolling.

6.4.1.10. CONTROL OF ILLEGAL REMOVAL OF FOREST PRODUCE

With a large population, all around the sanctuary there have been stray cases of attempt to removal of timber, fuel wood and NTFP. Regular perambulation of the area is only the measure to control the illegal removal to a great extent. Strict vigilance, establishment of intelligent, payment of incentives and awards and promoting awareness through nature education and publicity are proposed for controlling the illegal removal of timber, fuel wood and NTFP from the sanctuary.

6.4.1.11. TRANS BOUNDARY PROBLEMS

With a common boundary between Tamilnadu state on the east along the Cauvery River, there is scope for smugglers and poachers to operate across the interstate boundary. As such frequent meetings with officers from both the states are necessary to exchange intelligence and coordinate in taking steps to control any attempts of poaching and smuggling.

6.4.1.12. MAN AND ANIMAL CONFLICT

This problem of man and animal conflict has arisen along the boundary areas of the sanctuary where it is abutted by agricultural fields. Wild animals like elephants and wild boar usually raid the field crops thus destroying the only source of food of villagers. The villagers in retaliation to protect their crops try to chase away the raiding wild animals often injuring and killing them. This problem may be controlled to great extent by engaging elephant scaring watchers and also digging elephant proof trenches. Educating the neighboring villagers regarding the importance of wildlife and gaining their confidence will be very helpful in solving this conflict.

To reduce the conflict the following measures are proposed;

1. Maintenance of the existing elephant proof trench and formation of elephant proof trench on the remaining stretch of the sanctuary.
2. Improving source of water availability and fodder within the sanctuary.
3. Timely payment of compensation to the farmers & victim families.
4. By arranging scaring teams and providing crackers to farmers to scare away the crop raiding wild animals.
5. Propaganda and publicity regarding the importance of wildlife

The statement showing the compensation paid in cases of man and animal conflict is given in annexure No. 12

6.4.1.13. Disaster – Management Capability :

A Manager of a PA should always be prepared to fight with a situation of natural calamity like drought, flood, diseases, etc., with the help of a computerized data base, having information on all kinds of disasters in the past, suggested mitigatory measures and list of names of experts/ scientists/ person/ institutions, available at the nearest points, with their contact addresses. The manager shall be in a position to immediately act as per the need. Hence such a software shall be developed and all required information shall be fed into it, so that manager does not make any delay in the management of such disasters by using the available database. The top officials shall also be given training on how to handle situations of emergency and disasters.

6.4. 2.Habitat improvement:

Habitat is the home of wild animals and the quality of habitat differs from species to species. A habitat which is very good for Sambhar, may not be good for Barasingha. Any effort, saying that habitat is being improved, may not be true because the area becomes more suitable for Sambhar but may become detrimental for Barasingha. Without the complete knowledge of biology, ecology and behavior of all species. It is very difficult to make manipulation in the habitat as the requirement would vary from species to species. Keeping this in mind, least managerial input shall be given freedom to take its own course and full protection from outside disturbances would be provided and at the same time the monitoring of all the changes would be recorded.

This will be based on the following considerations: -

1. Protecting the area against the biotic degradation – Here alternative measures such as providing Solar energized or Gobar Gas Chullas, encouraging farm forestry or supplying the fuel and the small timber at a subsidized rate from government society or organizations

The villagers will have to be convinced to take up stall feeding which could be achieved by providing high yielding milching cows at

subsidized rates besides encouraging the farmers grow the required fodder in their fields by supplying the fast growing suitable fodder species. Interaction with animal husbandry department for treatment for the livestock against render pest and foot & mouth diseases and arranging regular check-up will have to be addressed.

2. Improving the habitat for wildlife and restricting the movement of people with in protected areas.
3. Taking up of massive sowing, dibbling and broadcasting program of indigenous species including fruit and fodder species.

6.4.2.1. PLANTING

The forest areas along the fringe of the sanctuary have been degraded due to various biotic interference like illicit grazing and illegal removal of forest produce and fire. In this area root stock of indigenous species is abundant. If rigid protection is given the indigenous tree species will establish. Wherever the rootstocks are absent or inadequate it may be supplemented by sowing of seeds and planting of fruit yielding and fodder species.

6.4.2.2 IMPROVING LANTANA INFESTED AREAS

The Lantana has invaded some parts of the sanctuary and is prominently noticed in Kanakapura, Hanur and Cowdally Ranges. Even though the Lantana has beneficial effects on wildlife as provider of shelter and fruits to the birds, its presence all over the area is not in the best interest of the wildlife. Therefore wherever Lantana is found on an extensive scale, small areas may be taken up for judiciously removing the Lantanas to create gaps for the growth of grass and other indigenous species.

6.4.2.3. MAINTENANCE OF WATERHOLES

There are Major seasonal waterholes in the sanctuary other than the perennial river Cauvery. The number of waterholes are inadequate, not well distributed to the requirement of the area and movement of the wild animals. Most of



them get silted up creating scarcity of water especially during summer. Therefore it is necessary to desilt these tanks in a phased manner from time to time before the monsoon sets in and there is a need for creating more water holes in the sanctuary.

(List of waterholes to be annexed as annexure -1)

6.4.2.4. MAINTENANCE OF SALT LICKS

Saltlicks attract wildlife and serve to replenish the salt requirement of the wildlife. At present there are number of saltlicks scattered all over the sanctuary. These have to be maintained regularly every year. Additional saltlicks are also required and same has been proposed.

6.4.2.5. REMOVAL OF LORANTHUS

The incidence of Loranthus attack is very high and large number of tree is found dead due to this infestation. Unless immediate action is taken to remove this by cutting it may result in extinction of some of the valuable fodder yielding trees serving as food for herbivores. It is prominently noticed on *Handwikia binata*. Which is the only prominent species found in the sanctuary. Therefore it is proposed to take up removal of Loranthus by cutting the affected branches.

6.4.2.6. SOIL AND MOISTURE CONSERVATION

The purpose of creation of water harvesting structures is to harvest all the water received in the form of rainfall since the average rainfall of the sanctuary is very less so that the vegetation is improved and there will be better fodder for wildlife. This has to be carried out all over the sanctuary. All seasonal rivulets are to be tackled by gully plugging and check dams have to be constructed before the onset of monsoon. For perennial rivulets which are wide and deep masonry barrages have to be built to avoid run off and to store water. This will incidentally serve as water holes for the wild animals.



Chapter – 7

Eco- tourism, interpretation and Conservation education.

7.1. Local situation

There are two areas of tourism zone in this sanctuary where river Cauvery serpending through the valley is the main attraction

1. Bheemeshwari, Muthathi and Sangama, Mekedatu of Kanakapura Wildlife Range where hundreds of picnic goers from local towns and Bangalore city throng the places in weekends and holidays. In Muthathi, in weekdays also one can find regular visitors to the Lord Anjaneya Temple which is worshiped in high reverence by local people. But the facilities provided to the tourists in these areas are highly inadequate but the M/s Jungle Lodges and Resorts operating in Bheemshwari and Galibore near Sangama only cater to the needs of affluent class of general public since the charges are expensive.

M/s BushBetta operating during the months from December to May is not found to be regular resort operator. Having a temporary thatched accommodation, only foreign tourists having interest in angling and joy fishing visit the place.

2. Hogenekal falls and Gopinatham in M.M.Hills Wildlife Range is a place of tourists attraction where visitors are found mostly during vacations. Though Tamilnadu part Hogenakal falls is well developed by tourism Department of Tamilnadu state no proper facilities in Karnataka part is provided to tourists, only ferrying facilities in the river Cauvery upto Hogenakal falls is provided by the Karnataka Forest Department.

Gopinatham, a village about 12 kms away from Hogenakal Falls is a picturesque location having a big lake in the valley portion of towering hills. Though Gopinatham is a native village of infamous forest brigand Veerappan interesting social culture of different communities like Vanniyars and Lambanees can be found. At present no tourists facilities are provided either by Forest Department or tourism department. If adequate tourist facilities are provided Gopinatham undoubtedly becomes a eco-tourism spot.

7.2. Objectives

1. To spread the message of conservation of all forms of fauna & flora in general public so that they can see & appreciate the rich wildlife heritage of the country.
2. To inculcate in the minds of children, love for all forms of wild life and need for conservation of natural resources.
3. To provide wilderness experience to genuine enthusiasts in particular & to the public in general.
4. To provide recreation & adventure sports.
5. To provide economic benefits to the local people.

7.3 Problems

1. Inadequate infrastructure facilities like accommodation, vehicles and well maintained roads.
2. Inadequate staff to regulate tourism.
3. Inadequate interpretation media like publicity materials, interpretation centers and guides etc.,
4. The different departments involved in tourism having a varying priorities.
5. Different priorities of tourists like some tourists wishing seclusion and privacy to visit sites normally not open to all tourists.

7.4 Strategies

7.4.1 Identification of a zone

There are already two existing tourism spots in this sanctuary that is 1. Bheemeshwari, Muthathi and Sangama, Mekedatu of Kanakapura Wildlife Range. and 2. Hogenakal Falls and Gopitham of M.M.Hills Wildlife Range. In these areas boundaries of tourism zone should be clearly marked on the ground so that the areas of adjoining core zone and restoration zones of sanctuary are not disturbed by tourism activities. The movement of tourists should be restricted within the tourism zone only.

7.4.2 Infrastructure development

In Bheemeshwari, eco-tourism is managed by M/s Jungle Lodges and Resorts, a Government of Karnataka undertaking. There are well designed and built infrastructures like tourists accommodation, reception and interpretation centre in this spot. Since, this is run on a commercial basis charges are expensive and only affluent class of people can afford to visit the area.

Since Bheemeshwari is about 4 kms away from Muthathi which is always flooded with picnic goers and devotees visiting lord Anjaneya temple, infrastructural facilities like accommodations, kitchen and toilet facilities can be created next to M/s Jungle Lodges and Resorts where priority can be given for conducting nature education camps to school children and also interested general public.

In Muthathi the Forest department is already having accommodations like one inspection bungalow, one loghut, two cottages and one dormitory for the benefit of visitors. But there are no separate kitchen block and toilet blocks in this spot. With large influx of visitors during weekends the available infrastructures are not adequate. There is need to construct one more dormitory and well equipped interpretation centre, and a kitchen block and toilet in addition to existing facilities. Formation of parking lot for vehicles is also required in this area.

In tourism area of Sangama and Mekedatu there is no need for having infrastructures for providing accommodation to the visitors as most of the visitors of this place are picnic goers who leave the place by night. But there are no minimal infrastructural facilities existing in this area. Hence, construction of toilets and paragolas and providing drinking water facilities is utmost important. Parking lot for the vehicles is very essential in this site. Construction of few watch towers at suitable location and steps to reach the river bed at Mekedatu can be taken up with priority.

In Hogenakal falls of M.M.Hills Wildlife Range there are no any infrastructures to provide accommodation and food to visitors. Visitors face lot of hardship while on visit to this area. There is immediate need to build some infrastructures for accommodation of at least 10 to 12 tourists along with a kitchen block, toilet block and to provide proper drinking water. There is a need to build a watch tower, paragolas, and also steps with railings to enable the visitors to reach the river side for ferrying.

In Gopinatham there is only one old IB of Forest department having two rooms for accommodation. To promote eco tourism there is urgent need to build tented accommodations, kitchen block, paragolas, and interpretation centre in this spot.

A separate proposal to develop Hogenakal falls and Gopinatham as eco tourism spots has been made in this chapter.

7.4.3 Vehicles:

In the above two tourism areas of the sanctuary there are only two jeeps provided on each to the range officer for patrolling and protection purposes. At least two more new jeeps for the purpose of eco tourism are required in this sanctuary.

7.4.4. TREKKS AND TRAILS

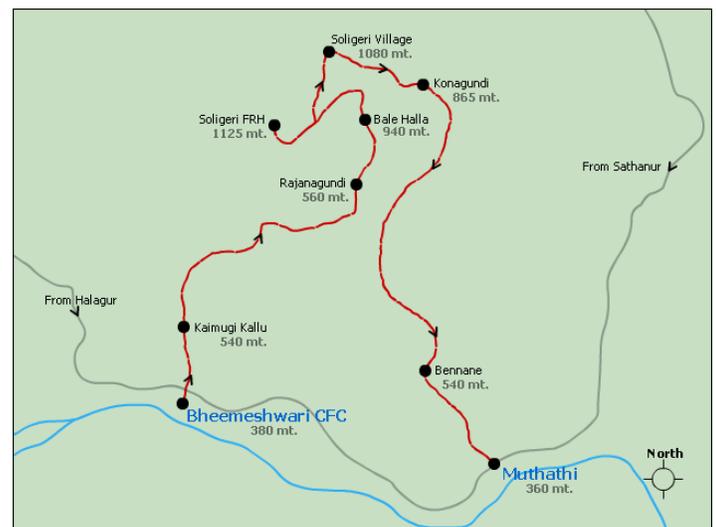
Since the area of the sanctuary as a whole is highly undulating with hills and valleys the major activity of ecotourism is trekking in the jungle. Hence, more number of trekking paths may be identified, so that the visitors will have the opportunity to see the flora and fauna typical of the sanctuary. Trails longer than four hours walk should be provided with official guide. Signs and informative boards may be erected on the trails. A *mysterytrails.com* for trekking program has been launched in the year 2005-06 to promote eco-tourism. Trekking programme by involving the members of the local Eco development committees in the activity earn their co-operation in protection of forests and wildlife. Well informed guides are required in educating the trekkers regarding the different wildlife, local forest resources and their management.

At present in the sanctuary the following trekking trails have been identified where the interested are taken for the trekking along with a guide in co-ordination with the adjacent eco-development committees.

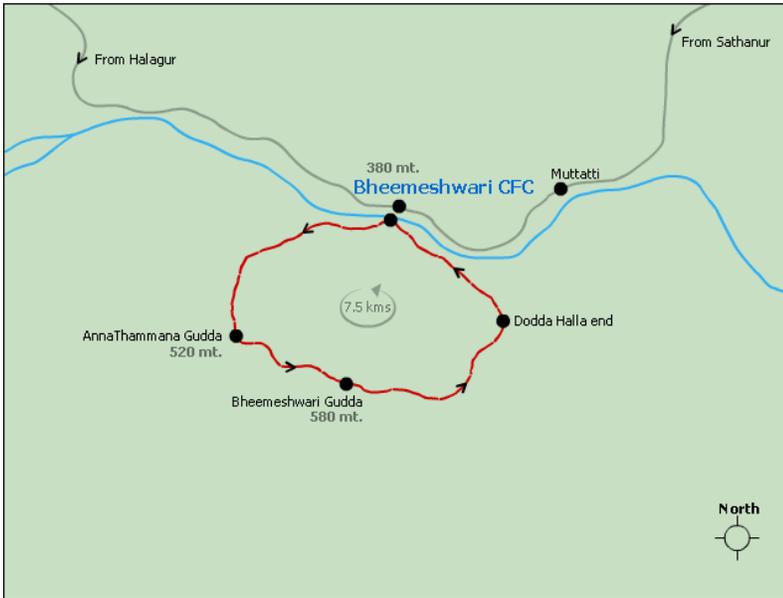
The following are the trekking routes and trails identified in this sanctuary

Sl. No	Starting and Ending point	Total kms	Name of the range
1.	Bheemeshwari to Chelluri hill	22.8 kms	Kanakapura Wildlife Range
2.	Fishing camp to Muthathi	7.5 kms	Kanakapura Wildlife Range
3.	Erekyamhalla to Gopinatham	16 kms	M.M.Hills Wildlife Range

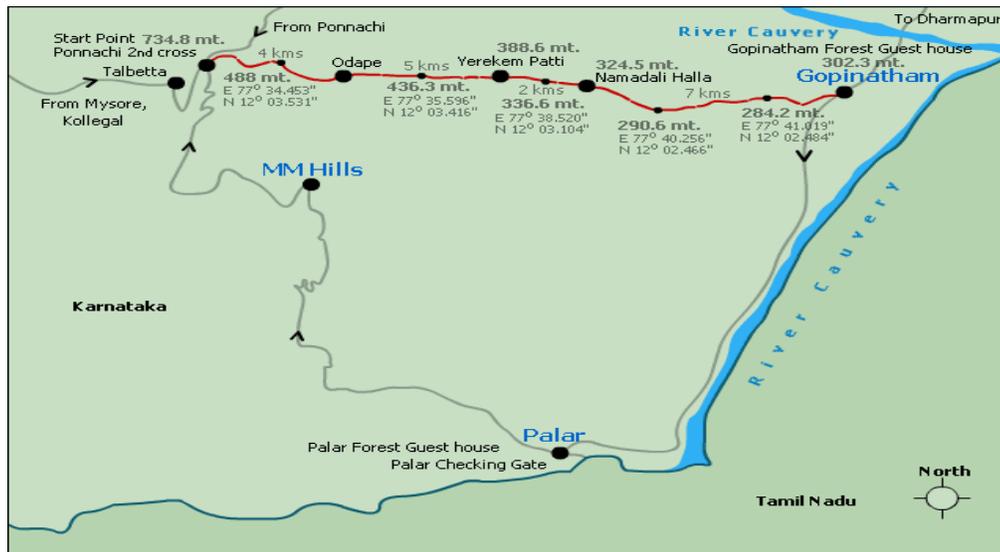
Trekking Route No.1 From Bheemeshwari to Chelluri hill



Trekking route No.2 Fishing camp to Muthathi



Route No. 3 Erekyam halla to Gopintham



These identified trekking routes have to be formed and maintained regularly so that the trekkers are not taken aback by moving wild animals. Signages showing the identification of local birds, wild animals and trees have to be erected or fixed on trees by the side of the trekking routes which give detail information regarding the wildlife endemic to the area. On the trekking routes some stone benches have to be provided for the needy trekkers to take rest. The approach roads to trekking paths have to be maintained regularly.

7.4.5 Development of Eco-tourism spots

7.4.5.1 Proposed Eco-tourism at Hogenakal Falls and Gopinatham

Hogenakal falls of the river Cauvery is located on the Northeastern part of



the Cauvery Wildlife Division and is bordering with the state of Tamilnadu.

Hogenakal falls has been famous since ages due to the presence

of most beautiful and panoramic view of the falls on the Cauvery river, due to natural rocky structures and series of falls in the course of the river. Large number of people have been visiting this place for recreation, and picnicking.

The area on Tamilnadu side has been developed well, after preparing a Master Plan. Sufficient tourists facilities have been created on Tamilnadu side and hence, more number of people are getting attracted which is contributing to the local economy and employment of local people. Because of the reign of terror by forest brigand Veerappan for decades has resulted in the non development of tourism on the Karnataka part of Hogenakal falls. Because of the status of sanctuary on Karnataka part of Hogenakal falls is also a reason for not creating lot of infrastructures on Karnataka side.

Since the area is a sanctuary with the permission from the concerned authorities facilities can be created by taking up the works departmentally i.e by Forest department in lines with Conservation objectives, as part of the Eco-tourism, aimed at Nature and Conservation Education. Keeping the demand, requirement and our objectives, it is desirable that Cauvery Wildlife Sanctuary authorities should take up basic minimum development of the area, in the interest of people (local as well as tourists) and involve the local people in the tourism activity and protection works.

In these circumstances, it is apt that a Master Plan, which merges with goal and objectives of Management and Conservation has to be actually developed involving architects, experienced people, Senior Officers and local people, and the Master Plan needs to identify the present requirements of people and tourism and then propose a plan for developing a certain part of the area, for various public facilities and Educational and Recreational facilities. But to begin with, some basic facilities like Public Toilets and baths, Canteen and Kiosk facilities, stairs facility to get down to the river or boats, etc., at appropriately selected locations may be created. Once, the Master Plan for the entire area is approved, which may include Cottages, and tent accommodations, Resting places, Landscaped gardens, Interpretation and Education centres, Watch towers, Trekking trails, Parking facilities for vehicles, few nature shops and Restaurants, boats and coracles, etc., the above activities may be taken up depending on the availability of funds, as per the Master Plan proposal and as approved by the concerned authorities.

Gopinatham is a village inside Cauvery Wildlife Sanctuary and has scenic beauty. Gopinatham is a native place of infamous Forest Brigand Late Veerappan and hence, the area was not taken up for general development for more than two



decades. After the killing of Veerappan, there is a need to bring the local population to the mainstream and provide employment opportunities to the local people to enhance the economic status. There is a huge potential for

development of Eco-tourism and community based tourism by exploring the wilderness in and around Gopinatham.

Present Situation

Location and Approach : Hogenakal falls and Gopinatham are located at the eastern boundary of Kollegal taluk in Chamarajanagar district and is separated from Tamilnadu by river Cauvery.

Gopinatham is about 280 Kms. from Bangalore by road via Kollegal, while Hogenakal falls is 292 Kms. by road via Kollegal and 120 Kms. via Bangalore-Hosur-Aunchetty.

Geology, Rainfall and Climate : The area is rocky and topography is undulating with few rocky hillocks which go upto the height of 160Mts above M.S.L. The mean rainfall in this area is about 700mm to 1000mm.

The climate is normally very hot and humid throughout the year. The mean temperature varies between 20⁰ – 38⁰ C.

Habitation: Presently at Hogenakal falls a small settlement has developed at a settlement called Marikottayi by encroaching upon the forest land over a period of time and (50) fifty families live in this settlement in their small semi-permanent huts. At Gopinatham, which is a revenue village, the population as per 2001 estimate is approximately 4500 and they live in permanent to semi-permanent dwellings.

Tourism : About 100 – 150 people visit the Hogenakal falls on the daily basis and the number goes upto 1000-1500 on the week ends. Visitors come mainly to see the famous Hogenakal falls. As far as Gopinatham is concerned tourism has not been tapped so far and is limited only to the few trekkers who come as a part of Mysterytrails trekking program and the number is less than 100 per month.

As far as the facilities for the tourists is concerned boating and coracle ride facilities has been provided by the Forest department at Hogenakal falls by tendering the rights of boating to local people. About 70 coracles and one motor boat are being run through the contractor. A small parking lot has also been created and maintained for the parking of visitors vehicles. No other facilities has been provided to meet the basic requirements of the tourists.

Proposed Development Plan

To develop the eco-tourism at Hogenakal falls and Gopinatham in the Cauvery Wildlife Sanctuary, the following infrastructure development works need to be taken up. The expected expenditure for each of the items is also mentioned against them:

A. Hogenakal Falls:

Sl. No.	Proposed item of works	Approximate expected Amount (Rs. in lakhs)
1.	Public Conveniences (Toilet and baths, Changing rooms and drinking water facilities)	20.00
2.	Development of Parking lot	05.00
3.	Development of Resting places with chairs and tables	03.00
4.	Construction of Pargolas	02.00
5.	Construction of Canteens	15.00
6.	Construction of Eco-shops	05.00
7.	Interpretation Centre	10.00
8.	Construction of Steps and Platform upto the boating jetties	10.00
9.	Setting platform for coracles and purchase of life jackets	01.00
10.	Development of garden and placement of dustbins	07.00
11.	Construction of watch tower for viewing of falls	10.00
12.	Creation of log huts / tent accommodation for stay of tourists	50.00
13.	Development of trekking trails	02.00
14.	Signage boards for information and education	03.00
15.	Training and uniforms for the nature guides	05.00
16.	Fencing of the tourism area	20.00
17.	Supply of water and overhead storage tank	30.00
18.	Supply of electricity through generator	03.00
	TOTAL	201.00

B. Gopinatham:

Sl. No.	Proposed item of works	Approximate expected Amount (Rs. in lakhs)
1.	Creation of camping facilities for the nature camp (tent accommodations)	30.00
2.	Construction of interpretation centre	10.00
3.	Construction of boating plat form	05.00
4.	Purchase of Pedal and Row boats	03.00
5.	Trainings to the local people and nature guides	05.00
6.	Development of trekking path	02.00
7.	Printing of information brochures and other publicity materials	02.00
8.	Erection of information signage boards	02.00
9.	Development of Martyr's point at Erkeyam halla	05.00
10.	Up gradation of existing forest rest house	05.00
	TOTAL	69.00
	GRAND TOTAL	270.00

7.5 PUBLICITY

To popularise ecotourism publicity and propaganda has to be carried in a systematic and well-planned manner. Publicity materials like brochures, posters and websites may be brought out. Sinages have to be erected on major roads leading to the eco tourism spots.

7.6. PEOPLE AWARENESS PROGRAMME

To achieve the object of wildlife management it is necessary to involve people in management activities. For this purpose the following programme are suggested.

- People awareness campaign.
- Nature education to school children and interested general public.
- Conducting video and film shows at villages and schools about wildlife to inculcate the knowledge of wildlife to students and youths.
- Involving members of the eco development committees in the tourism activities which help build cordial relationship with the staff and local villagers.



Eco-development

8.1 Introduction :

The programmes of eco development are aimed at reducing the effects of man and animal conflict between the people who are living in and around the sanctuary and the wild animals. The local people exert pressures on the protected area to meet the requirements such as firewood, small timber, fodder and grazing lands whereas the wild animals raid the crops of adjoining agricultural fields. Therefore, it is necessary to create alternative resources to reduce their dependency on forest resources so as to lessen the pressure on the sanctuary, so that they co-operate to the wildlife authorities in management of wildlife and eco-system. In turn the steps have to be taken up by the authorities to lessen the crop raides by the wild animals.

8.2 The objectives:

- To improve the Eco-system and their biodiversities in impacted zones.
- To create alternative resources to natural resources.
- To improve the socio-economic condition of the people and also to provide employment and increase income level of the local people.
- To create awareness on conservation of wildlife among the local people.



8.3 Activities:

- Immunization of cattle against communicable diseases like Rinderpest, Foot and mouth etc.
- Supply of fuel, timber, fruit yielding and fodder plants and seeds to farmers to grow in their land.
- Providing solar light, Gobar gas, and LPG at government cost.
- Arranging training to the villagers in agro based income generation activities.
- Providing employment opportunities by engaging local people for forestry works such as planting, soil and moisture conservation works, fire line tracing, anti poaching activity and elephant scaring etc.



During 2005 Seventeen eco-development committees have been formed in the villages surrounding the protected area.

The details of the eco development committees are as follows

Sl. No	Name of the committee	Name of the Range
1.	Hulya hosadoddi EDC	Kanakapura Wildlife Range
2.	Muthathi EDC	Kanakapura Wildlife Range
3.	Soligeri EDC	Kanakapura Wildlife Range
4.	Sangama EDC	Kanakapura Wildlife Range
5.	Sambapura EDC	Kanakapura Wildlife Range
6.	Rachappajinagar EDC	Hanur Wildlife Range
7.	Pushpapura EDC	Hanur Wildlife Range
8.	Ganigamangala EDC	Hanur Wildlife Range
9.	Kallidoddi EDC	Hanur Wildlife Range
10.	Arabagere EDC	Cowdally Wildlife Range
11.	Changadi EDC	Cowdally Wildlife Range
12.	Astur EDC	Cowdally Wildlife Range
13.	Gopinatham EDC	M.M.Hills Wildlife Range
14.	Nagamalai EDC	M.M.Hills Wildlife Range
15.	Pudur EDC	M.M.Hills Wildlife Range
16.	Padasalanatha EDC	M.M.Hills Wildlife Range
17.	Indiganatha EDC	M.M.Hills Wildlife Range

The eco-development committees are being formed to carryout afforestation



programmes in the degraded and depleted forest areas along the fringes. Suitable soil moisture and water conservation measures will be taken up in these areas in consultation with the Eco-development Committees. Several entry point programmes are also being proposed to be taken up by

these committees so as to gain the confidence of the local populace.

Chapter -9

Research Monitoring and Training

Research, Monitoring and trainings are imperative part of the management and are extremely important in achieving objective of "to establish mechanisms and create opportunity for enhancing managerial capability and knowledge in wildlife sciences".

9.1 RESEARCH, AND MONITORING :

The management shall need informations on various aspects of wildlife, like wildlife biology, their habitat, and monitoring of population trends, Eco-tourism and its impact etc., Proper investigation into all these and many more aspects, is required. Monitoring is an integral part of Management and is done for knowing the results/ impacts of management inputs. Hence, Research and Monitoring need to be given due consideration during this plan period.

9.1.1 Research activities:

A research officer exclusively appointed may take up research work on the following aspects in coordination with the administrative and field staff of the protected area. Different universities and research institutions may also be permitted to take up research work. The list of areas of research are listed as below.

1. Collection of baseline data of Flora and Fauna.
2. Study the biology and behavior of all endangered and endemic species.
3. Study and assess the quality of habitat with respect to each of the major species.
4. Study the impact of weeds on habitat and also on wildlife and measures to eradicate weeds.
5. Study the market forces leading to poaching of wild animals and also the methods to control.
6. Study socio cultural aspects of the people living in around the sanctuary.
7. Study of the causes of man animal conflicts and their solutions.
8. Study of water requirement, availability and distribution of water sources.

9. Study of the adjoining land use and agricultural practices.
10. Study on the dependency of people on forest resources and methods to reduce it.
11. Study of the positive and negative impacts of the ecotourism on the local population their socio cultural and traditional aspects.
12. Study and making inventory of bio diversity.

A well equipped research centre is required to be established in the sanctuary

9.2 MONITORING

Monitoring is necessary to analyze and evaluate the various effects of changes. Continuous monitoring and recording of data are essential. In addition to monitoring and research carried out by researchers, monitoring can also be done by field staff on a day-to-day basis on the following aspects;

1. Wildlife health and diseases.
2. Tracking of elephant herds.
3. Impact of tourism.
4. Migration pattern of animals.
5. Changes in vegetation.

9.3 . TRAINING

The wildlife management encompasses many disciplines like Ecology, wildlife management, land use, Tourism, and Public Relations. It is necessary to carry out refresher courses for all the staff at various levels to keep them addressed of the current development. In addition to training the officials are also required to

be sent on study tours to different PAs within and outside the state to make them realize how other PAs are managed. They should be trained in legal matters to enable them to book the offenses properly.

Some of the important issues on the which trainings required shall be, training on the implementation of Forest acts, Wildlife protection act, court procedures and other legal issues and enforcement issues, training on tourism management, training on people's participation and eco-development issue, training on Monitoring issue like census and population estimations. weapon's training, training on wildlife health monitoring, postmortem of dead bodies and other wildlife health case, training on wildlife behaviors, training on Biodiversity conservation issues, Training on distress/ calamity management.

Other Trainings :

To implement Eco-development programmes the training shall be focused on activities like vocational training, training on improved agricultural and horticultural practices, agro forestry and silvi-pastoral activities. trainings on bee-keeping, dairy and poultry and other issues as identified in the micro plan of the EDCs.

Chapter – 10

Organization and administration

10.1 Structure and responsibilities

10.1.1 Administrative Structure:

There shall be a change in the existing administrative structure in the interest of wildlife protection and management. The proposed structure is discussed in Chapter 6.

10.2 Staff amenities:

The field staffs live and work in the adverse and difficult conditions and hence, basic amenities must be provided to them.

10.2.1 Housing :

The field staff requires proper housing facility so that good working atmosphere is created. The existing residential buildings of the field staff should be repaired and well maintained. Construction of new buildings for the needy staff may be taken up.

The constructions of all the houses required shall be completed during this plan period and shall be given priority in the annual plan of operations.

10.2.2 Uniforms and field Equipment :

All the staff up to the level of RFO shall be provided with good quality uniforms and the accoutrements every year. This shall also be given priority in the budget allocations and shall ensure that there is no lapse.

Some essential field equipment like field note book, compass, knife, measuring tape, Small axe, water bottle, torch, umbrella/ raincoat, etc., may be provided to the lower field staff below the rank of forest guard.

Chapter – 11

THE BUDGET

11.1 The plan Budget:

Adequate budgetary support is of utmost importance for the success of this management plan. All activities are solely dependent on the availability of funds for execution of various works proposed in the plan. Hence, the plan budget prepared here would try to incorporate provisions for all the strategies of proposed management and related activities.

The proposed Budget includes following categories.

1. The general

- Pay and allowances for existing staff.
- Pay and allowances for proposed staff.
- Wages for existing staff.
- Wages for proposed staff.
- TA for existing staff.
- TA for Proposed staff.
- Office expenditure.
- Rent, rates, and Taxes
- Motor vehicles.
- Other Expenses.

2. Repair and maintenance

- Roads, Bridges, Culverts.
- Buildings and watch towers, checking gates.
- Vehicles.
- Wireless sets.
- Other equipments.
- Water holes.
- Fire lines.

3. Protection activities

- Purchase of vehicles.

- Purchase of Mobile sets.
- Demarcation of boundary of sanctuary.
- Rewards and incentives.
- Secret service fund.
- Procurement of weapons and ammunition.
- Supply of uniforms & Accoutrements.
- Supply of ration to anti poaching camps.
- Construction of buildings.
- Other expenses.

4. Habitat improvement works

- Creation of water holes.
- Weed eradication programmes.
- Augmentation of natural regeneration.
- Planting of native species in the degraded lands.
- Soil and moisture conservation.
- Other expenses.

5. Eco- Developmental Activities

- Microplan work shop, writing and documentation.
- Workshops and training.
- Compensation for crop depredation, attack on livestock and Human beings.

6. Eco-Tourism activities

- Creation of infrastructure.

- Development of Interpretation centre and orientation center.
- Development and maintenance of Signage's and wayside exhibits.
- Publications of brochures.
- Salary for nature guides.
- Other expenses.

7. Research, Monitoring and training

- Establishment of Research centre.
- Purchase of equipments.
- Census operations.
- Trainings and work shops.
- Maintenance and Development of infrastructure.
- Other miscellaneous expenditures.

The Allotment and expenditure statement of last 5 years in Cauvery Wildlife Division is enclosed in Annexure No. 13