TAMILNADU FOREST DEPARTMENT

GOVERNMENT OF TAMILNADU

MANAGEMENT PLAN FOR SATHYAMANGALAM WILDLIFE SANCTUARY (2010 TO 2020)

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I would feel more optimistic about a bright future for man

if he spent less time proving that he can outwit nature

and more time tasting her sweetness and respecting her seniority.

Elwyn Brooks White-1977

FOREWORD

The forests of Sathyamangalam evoked lot of interest among the administrators since the days of the legendary, Tippu Sultan. The rich sandalwood reserves with wide variety of animals is an ideal setting for Forest managers, and due to this uniqueness, Sathyamangalam is one of the oldest divisions established in Tamilnadu. The vast tract of forest land interspersed with enclosures was under the grip of fear, for almost two decades, due to the forest brigand Veerappan.

After his demise, the interior forest areas are explored for the presence of rare and endangered fauna and flora, resulting in fabulous findings. The elusive Four horned antelope, Tiger, Hyena, White backed Vulture and Flying squirrel are few examples to the latest findings.

Besides, this division harbours large number of Elephants, Gaur, Sloth bear, Sambhar, Spotted deer, Barking deer, Mouse deer, Blackbuck, Common Langur and wide variety of birds. Realizing its importance, the Tamilnadu Government notified the lower portion of the division with an aggregate area of 524 sq km. as a Wildlife Sanctuary on 03.11.08.With this notification, a protected area network is created within the Nilgiri Biosphere Reserve, due its connectivity with BRT Sanctuary, Bandipur Tiger Reserve, Nilgiri North division, Coimbatore division and Erode division.

This management plan is prepared with the specific objectives of protection and improvement of the habitat to resurrect viable population of Blackbuck, Elephant and other herbivores. Special emphasis is given for the protection of four species of Vultures viz.; White backed Vulture, Long billed Vulture, King Vulture, and Nephron Vulture. This is the southern most habitat and last remaining stronghold for the Vultures in the Indian sub continent. Else where, there has been a rapid decline in the wild population of this unique species due to the deadly chemical Diclofenac. Adequate ground work is required to prevent the use of this drug in the peripheral villages of the Sanctuary.

The striped Hyena, is reported only in the Thengumarahada area of the Sanctuary is another endangered species, which requires immediate attention.

A preliminary survey of Tiger distribution in the Sathyamangalam forest division was done during 2009-10. Scat samples were collected from different locations and sent for genetic studies in Center for Cellular and Molecular Biology, Hyderabad.

Out of 109 samples analyzed, 69 samples tested positive for Tigers, indicating the presence of at least 10 Tigers, which is a fabulous number for a territorial division. The Sathyamangalam Wildlife Sanctuary is an ideal buffer area for accommodating the spillovers of rapidly increasing Tiger population in Mudumalai Tiger Reserve and the adjoining Bandipur Tiger Reserve.

Necessary weightage is given to safe guard the interest of Tribals in the settlements, and people living in the fringe villages by incorporating a comprehensive eco-development plan.

The annual budget is prepared incorporating various activities keeping in mind the complexities of field level implementation. I strongly believe this management plan will not only bring out a positive change in the wildlife population but also a positive frame of mind among the fringe area people.

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EXECUTIVE SUMMARY

Tamilnadu has 17% of its total geographical area under forest cover, out which about 15% of the recorded forest area falls under PA network with 8 Wildlife sanctuaries, 12 Bird Sanctuaries, 5 National parks, 3 Tiger reserves, 3 elephant reserves and 3 Biosphere reserves.

The southern portion of the Sathyamangalam territorial division covering an area of 524.34 sq km has been declared as Sathyamangalam Wildlife Sanctuary, vide GOMS No.122 dated 3.11.08 under sec 26 A of the Wildlife (Protection) Act, 1972). Sathyamangalam Wildlife Sanctuary is located between the latitudes 11′ 29′ 15″ to 11″ 48″ 41″ and longitude 76 0 50′ to 77 0 27′ 22. The Sanctuary area known for its landscape beauty, variety of forest ecosystems and wildlife diversity is situated in Erode District of Sathyamangalam Taluk and forms a part of Erode Forest Circle. It covers the lower plains of Sathyamangalam Range, Bhavanisagar Range, Talavadi Range and T.N.Palayam Range.

This Sanctuary along with adjoining areas of BRT wildlife Sanctuary, Erode forest Division, Bandipur Tiger reserve, Nilgiri north division, and Coimbatore division forms a unique chunk of Biogeographical zone which acts as a bridge between westernghats and easternghats. The Sanctuary area falls within the Nilgiri Biosphere Reserve and provides scope for ensuring connectivity with the already existing protected areas within the Biosphere reserve.

The Sanctuary is endowed with over 40 species of larger mammals, over 225 species of birds and 30 species of reptiles, 15 species of amphibians and 10 species of fishes. There are 5 major forest types ranging from Dry thorn forests to semi-evergreen forests in moist pockets. The river Moyar which runs along the Bhavanisagar range is the lifeline for all the animals living in this region. The diverse vegetation types and topographical features is one of the reasons for the rich diversity of flora and fauna. This Sanctuary has a long list of endangered species such as Elephant, Gaur, Blackbuck, Four horned antelope, Tiger, Leopard, four species of Vultures and Hyena.

Sholagas, Irulas, Ooralis, and Kurumbas are the major tribal communities living in the forest areas in various settlements in the Sanctuary.

The forests of Sathyamangalam were managed scientifically since the days of Tippu sultan. Tippu elevated the status of Sandal as “Royal Tree” and gave importance for forest protection. In 1856, the Forest Department was organized for the first time

under the auspices of Dr. Cleghorn and Sathyamangalam, Talamalai and Bhavani were among the earliest areas to be brought under the control of the new department and were placed under the charge of Captain W.H.Morgan with the Head quarters at Ootacamund. Then Coimbatore North Division was constituted in April 1909 in which Sathyamangalam area falls part of it.

In 1980, the new Sathyamangalam Division was formed. This division area was worked for fuel coupes since pre-independence period. In early 60s it was so vigorous and State's fuel wood needs were met with the areas of this division to a larger extent. To meet the timber needs selection felling coupes were worked in Minchikuli, Talamalai areas. Bamboo coupes were also worked up to 1981. Fuel coupes were stopped in 1975 and selection felling was stopped in 1980. These felling coupes have caused degradation and the habitats were disturbed. Protection and management of rich sandalwood reserves was given more importance due to its economic value. A Sandalwood depot was established in 1919 to harvest the dead, dying and diseased wood from the forests through natural selection system.

For the erstwhile Coimbatore North Division, the first comprehensive working plan was prepared by C.R. Ranganathan in 1932. Till then, the Division was governed mostly by simple working schemes. These working schemes were more concerned about heavy exploitation of the forest produce in an unregulated and unsystematic manner. Thiru. V.S. Krishnasamy revised the C.R. Ranganathan's plan and the prescriptions were brought into force from 1942.

M. Hussain.IFS took up revision of this plan from 1954 and the revised prescriptions for Sathyamangalam, Talamalai and Bhavani (Anthiyur) Ranges came into force from 1966-67. A revised plan for Burgur Range alone, prepared by K.Shamughanathan came into force from 1957. John Joseph revised the above two plans and prepared a revised plan for the composite Coimbatore North Division as constituted in 1961. J.C. Kala.IFS took up revision of the John Joseph's plan and the prescriptions were brought into practice from 1980 onwards. Thiru.Gunasekaran., IFS prepared the working plan for the period 1992-2000. In all the earlier working plans, wildlife management circle was given adequate importance, since Sathyamangalam is an important elephant habitat.

The present management plan is written exclusively for the newly created Sathyamangalam wildlife Sanctuary with more emphasis on wildlife management and eco-development of the fringe villages.

Forests of Sathyamangalam are well known for the rich repoitre of NTFP resources. The annual revenue from these non–timber resources of the Division is in the order of about Rs.60 to 80 Lakhs. Earlier, all the NTFP units were allotted to the contractors through open auction. Later on, as per the Government guidelines, the NTFP units were allotted to Sathyamangalam Hill Tribe Co-operative Society.

Since the LAMP society incurred heavy loss and became bankrupt, the government decided to empower the tribal community by providing all the NTFP to the tribals free of cost and issued a G.O.79 E & F Dept dated 29.4.2003, in which the right to collect MFP was given exclusively to the Tribals. In each village, a village Forest Committee was formed by enrolling all the members of the village. Each committee is headed by one VFC President and an executive Committee of 7 members, out of which 50% are women. The President and members of EC are elected on democratic principles, and they are vested with powers to manage the NTFP resources. The income accrued is deposited in the VFC account held jointly by the VFC President and the territorial Range Officer, who is the ex-officio member. The VFC can utilize the money for development activities within the hamlet, after passing a resolution.

The provisions in the recently enacted Scheduled Tribes and Other Traditional Forest Dwellers (recognition of forest rights) Act, 2006, has been duly considered and the NTFP collection is included as one of the community rights to the Tribals.

The various issues regarding leases of forest land to different user agencies have also been included in the plan. The sites of religious tourism within the sanctuary limits and the need to regulate is also given due emphasis.

Forest consolidation and habitat protection have been given top priority in this management plan. Elephant poaching, though sporadically reported is still considered as a major threat to the Sanctuary management. Electrocution of elephants in the farmlands along the boundary of the forests is also a challenging task to reckon with. Anti-poaching camps are established at vulnerable locations and tribal youth are engaged as Anti-poaching watchers. Necessary infrastructure facilities like wireless, weapons and other facilities have been provided at all the camps. Capacity building and training requirements of the field staff on the nuances of jungle patrolling, intelligence gathering and professional investigation are properly understood and duly recommended in this plan. The role of various line departments in the control of electrocution, wildlife diseases and the development of the fringe villages is given due weightage and their responsibilities are clearly explained.

The critical management issues like grazing, fuel wood collection, NTFP collection, forest fire, encroachments have been studied to understand their intensity and impact on the management. The experience gained in the past in addressing these issues is used for devising a multipronged strategy to successfully manage, regulate and monitor these issues as per the ground realities. The forest fire management has been one of the serious concerns of the management as it not only engulfs the regenerating biomass of the forest but also destroys the micro habitats of many organisms. Therefore, adequate importance has been given for the proper maintenance and upkeep of fire lines, and employing modern fire fighting techniques in the sanctuary.

There are around 25,000 cattle competing with the wildlife for forage and water in this sanctuary. They also act as a carrier of endemic diseases like anthrax, foot and mouth disease and hemorrhagic septicemia. Therefore, the plan envisages periodical ring vaccination of all the cattle within 5 km from the forest boundary.

Elephant migration from Nilgiris to Eastern Ghats is an important event occurring every year in this landscape. During Northeast monsoon season, large number of elephants migrates from Nilgiris to Sathyamangalam forest through the Moyar valley and travel up to BRT Sanctuary and Kollegal forests. Therefore, protection and maintenance of elephant corridor has been given due importance in this plan. Species recovery plan for the major endangered animals like Tiger, Blackbuck, Four horned antelope, Crocodile and Vultures is given adequate importance. The protection of Vultures against the drug "Diclofenac" was also prescribed to prevent population crash of this endangered species.

Rejuvenation of denuded forest eco-system through afforestation of economically valuable NTFP species and enhancement of natural regeneration is an important prescription in the plan.

Invasive species like *Prosopis juliflora* and *Lantana camera* have smothered the native vegetation in most of the places. Removal of these two species through NREGA is recommended in this plan.

Involvement of all the stakeholders, especially the people living in the fringe villages is necessary to ameliorate the negative impact on the bio-diversity. Therefore, the 136 villages in the zone of influence are selected for the implementation of eco-development activities. Eco-development committee will be formed in each village and people will be involved right from participatory planning to execution of all the activities.

The bio-diversity conservation through people's participation has been the philosophy of eco-development. Involvement of forest dwelling community in and around this PA for the protection and conservation of the forest and wildlife has been identified as an important agenda of eco-development. The introduction of site specific package of measures for development and conservation through local people with the object of promoting sustainable use of land and other resources shall be the motive of this program. The community benefit oriented programs with the commitment of mutual reciprocation are identified and enlisted in the plan for the implementation. The overall approach through this program is to reduce the dependency on forest by the dependent community for the purpose of fodder, fuel, timber etc. It is proposed in the plan to involve all people living in and around the sanctuary in the process of conservation and development.

Wildlife research is the foundation over which conservation ethos could be built for the long term conservation goals. A separate chapter is written for identifying the key areas of wildlife research which will have direct and meaningful bearing on the management. The plan highlights the need for carrying out meaningful research which has high field utility. Immediate focus is to generate a base-line data regarding distribution and abundance of mammals, birds, reptiles etc. Once, this base line data is available then monitoring of these species can be done by using the combination of Geo-spatial data base and GPS. The distribution and abundance of various species also needs to be correlated to the corresponding vegetation / habitat. This would be one of the important inputs for habitat improvement.

Zonation is the most important activity of the management of landscapes for wildlife conservation programme. Accordingly, Sanctuary area is divided into four zones, via Core zone (Wilderness zone), Buffer zone (Restoration zone), Tourism zone and Administrative zone. All the zones have been properly delineated in the Zonation map. Each zone is a specific management area distinguishable on account of its objectives and will be managed by a set of management practices compatible with the objectives. Zones cannot be managed in isolation and must relate to the functions of other zones and they must fulfill the overall objectives of Sanctuary management.

The prescriptions in the zone plan management are one of the most important outputs of this plan. The first four zones cover the actual area under the administrative control of sanctuary while the zone of influence covers the fringe villages and tribal hamlets of the sanctuary, where eco-development activities will be implemented. Out of

524 sq.kms of total area falling under the administrative control of the sanctuary, it is proposed to maintain 278.81 sqkms as Core zone. The Buffer (Restoration) Zone would cover an area of 220.28 sq km. Total area covered under tourism zone is roughly 25.00 sq kms. While 0.25 sqkm area at 10 different places in the sanctuary, where the forest complexes (includes FRH, Office, quarters, check posts, nursery etc.) are situated has been declared as part of administration zone.

Various management strategies, as part of the zone plan management, have been elaborately discussed for core, buffer, tourism and zone of influence with definite objectives. The variety of activities permitted in each zone has been prescribed. In addition to strategies on zone plan management, strategies on habitat management including management of invasive weeds, forest fire, water holes, saltlicks, man-animal conflict, corridors etc. have also been explained in detail. Strategies to overcome protection problems with special emphasis on anti-poaching activities have also been dealt in detail in this plan.

The reappearance of tiger in various parts of the sanctuary is one of the crucial subjects analyzed and discussed in the plan. The ecology, behaviour and resilience of tiger with respect to Sathyamangalam Sanctuary area is an emerging subject. The spillover population from the Mudumalai Tiger Reserve, Bandipur Tiger Reserve and the Nilgiri north forest division can spread far and wide in the Moyar valley. The Center for cellular and molecular biology (CCMB), Hyderabad, has conducted the population estimation for tigers through scat analysis during 2009. This scientific investigation to estimate the tiger population through mitochondrial DNA has been the first experiment ever attempted in Tamilnadu. This exercise has confirmed the presence of around 10 tigers in the Sathyamangalam forest division. The WWF is also capturing the images of Tigers through camera traps kept in 35 locations in the Moyar valley. It is estimated that 6 tigers are regularly captured by the cameras in this area.

The population estimation of elephants is being regularly conducted through synchronized census for the entire Sathyamangalam division since 2002. Around 850 elephants are reported in the 2009 census. The population size, structure and dynamics including sex ratio, age classes etc. have been worked out to monitor the population. The annual mortality of elephants and other animals was also studied and recorded in the map through GPS reading. This will serve as a baseline data for all future research activities in the Sanctuary.

The National Wildlife Action Plan 2002 – 2016 envisages a low impact regulated tourism for the benefit of true nature lovers. Sathyamangalam Sanctuary is a newly created Sanctuary without any infrastructure for tourism related activities. The concept of Eco- tourism with the object of education, interpretation and recreation has been conceptualized in this plan.

Promotion of Eco-tourism involving the local tribals, under the frame work of EDC has been recommended. In order to ensure regulated Eco-tourism, it is proposed to restrict within the carrying capacity. Importance has been given to the interpretative methods of learning through guided tourism and programs like audio visual campaign, nature camps etc. It is felt that Wilderness tourism can directly benefit the cause of conservation as tourism exposes diverse categories of tourists to the process of conservation. Adequate importance has been given for maintenance of tourism area, creation of infrastructure, creation and management of earthen roads etc.

The plan stipulates for the creation of one assistant Conservator of Forests and one Wildlife Biologist to assist the District Forest Officer on wildlife matters. It also strongly recommends filling of vacant positions especially the front line staff. Moreover, wildlife postings are tough and pose numerous challenges to the staff. The staff needs to be kept motivated. In order to ensure this, necessary incentives like reward and award to the deserving staff is also suggested.

A tentative budget for the plan period has been prepared duly incorporating an exhaustive list of components with special focus on habitat management, protection, research, eco-development and infrastructure development.

It is widely accepted that nothing is constant except **"change".** Therefore the present management plan will be considered for mid-term evaluation and it is open to new ideas and suggestions for any corrections which may arise in due course.

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ACKNOWLEDGEMENT

At the outset, I would like to thank profusely, the Principal Chief Conservator of Forests and Head of Forest force, Shri.A.S.Balanathan.,IFS for reposing faith and providing me an opportunity for writing the management plan for the Sathyamangalam wildlife Sanctuary.

Our sincere thanks are in due for the Principal Chief conservator of forests and Chief Wildlife Warden, Shri.R.Sundarraju, IFS, for the constant motivation and valuable guidance for writing the management plan. The Chief Conservator of Forests (Wildlife), Shri.V.N.Singh,IFS and the Conservator of Forests, Erode Circle, Shri.P.Durairasu,IFS, have been supporting the team since its inception, and our thanks are in due for them.

The vast and varied experience of Dr.Sivaganesan was very much useful in incorporating various topics, especially, the Chapter on Wildlife research in this management plan. He has been with us all through this exercise, his wealth of knowledge on this landscape, animal behavior, ethnic tribal communities, and the experience gained in the Moyar valley project has been instrumental in writing the management plan.

I would like to register our heartfelt thanks to the planning assistant, Thiru.Joshi, for his invaluable support to the team. The data operator, Mr.Suresh, has typed several hundred pages by burning the midnight oil on many unending sessions, without which it would not have been possible to finish this assignment within the time scheduled. The Assistant draughtsman, Mr. Kesavaraj has helped in the preparation of various maps in the CAD domain. His services are thankfully acknowledged.

The beautiful photographs presented in this plan are taken by Dr.Tolstoy and Mr. Arunthavaselvan, who are dedicated wildlife photographers visiting this Sanctuary. Our sincere thanks are in due for them for liberally providing their personal collections.

The technical inputs from young scientists Dr.Ramakrishnan of WTI, Mr.Boominathan and Mr.Sivasubramanian of WWF are very much useful in providing a valuable insight into elephant corridors and their importance. We are grateful to their continuous support and wish them a great career in conservation.

The Range officers, Foresters, Forest Guards, Forest watchers and the anti-poaching watchers who worked tirelessly for the protection of this prime habitat are thankfully remembered and duly acknowledged.

Finally, I would like to place it on record, the technical inputs given by the various Research organizations, Individuals interested in wildlife conservation and friends from NGOs for their relentless support in bringing out a valuable document for managing this treasure trove in the next 10 years.

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Proceedings of the Principal Chief Conservator of Forests, and Chief Wildlife Warden, Chennai – 15.

Proceedings of the Conservator of Forests, Erode circle, Erode.

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PART – I

THE PROTECTED AREA

SATHYAMANGALAM WILDLIFE SANCTUARY

Chapter 1

INTRODUCTION

INTRODUCTION

1.1 NAME, LOCATION, CONSTITUTION AND EXTENT

Sathyamangalam Forest Division encompasses large contiguous Reserve Forests extending over 1455 sq km with diversity of vegetation types from dry thorn shrub to patches of semi-evergreen forests in the upper regions. The southern portion of the division covering an area of 524.34 sq km has been declared as Sathyamangalam Wildlife Sanctuary, vide G O MS No.122 dated 3.11.08 under sec 26 A of the Wildlife (Protection) Act, 1972). This region is rich in biodiversity with appreciable cultural and ethnic values. Sathyamangalam Wildlife Sanctuary is located between the latitudes 11′ 29′ 15″ to 11″ 48″ 41″ and longitude 76 0 50′ to 77 0 27′ 22. The Sanctuary is situated in Erode District of Sathyamangalam Taluk and parts of Erode Forest Circle. Sathyamangalam Sanctuary area covers the lower plains of Sathyamangalam Range, Bhavanisagar Range, Talavadi Range and T.N.Palyaam Range.

The Sathyamangalam Wildlife Sanctuary is the meeting place of two distinct geographical regions of bio diversity landscape; Western Ghat and Eastern Ghat. It is an important landscape for elephant conservation programme in Nilgiris and Eastern Ghats. Owing to its large contiguous forests and connectivity with adjoining reserve forest divisions, this division has wide varieties of endangered species such as Elephant, Gaur, Blackbuck, Tiger, Leopard, White backed vulture and Hyena. The diversity of habitat has got an assemblage of several species of rare plants, invertebrates, fishes, amphibians, and reptiles. This sanctuary also harbours several species of wild relatives of cultivated plants including, Wild ginger, Turmeric, *Solanum*, and Mango that act as a gene pool for the cultivated plants.

Sathyamangalam Wildlife Sanctuary has also got several species of endemic flora and fauna. List of floral and faunal assemblages are listed in the Annexure 1.

Fig. Panoramic view of Sathyamangalam Wildlife Sanctuary in the Nilgiri Biosphere Reserve

Fig . Tropical dry thorn forests in Sathyamangalam Wildlife Sanctuary

Fig. Landuse pattern in Bhavanisagar Range in Sathyamangalam Wildlife Sanctuary

1.2 APPROACH AND ACCESS

Sathyamangalam wildlife sanctuary is about **225km** from Bangalore, about **75 kms** from Coimbatore and about **65km** from Udhagamandalam (Ooty) by road. Parts of the Sanctuary is approached by Sathyamangalam-Dhibum ghat road with steep hair-pin bends The nearest railway stations to Sathyamangalam is Coimbatore, about **75km** and Erode about **67km.** The nearest airports are Coimbatore (**80 km**) and Bangalore (**225km**). The nearest town for medical facility, petrol bunks and with telephone networks is Sathyamangalam **(10km).** The nearest township from Karnataka is Chamrajnagar about **65km** from Sathyamangalam. Telephone facility is available in Sathyamangalam, Talavadi, and Talamalai.

There are about 138 villages bordering the forest areas of Sathyamangalam division. People of these villages exert lot of pressure on the forests for their livelihood. Besides this there are many enclosures within the Reserve forests which degrade the forests to a great extent. Therefore villages in 5 kms radius of the reserve forests are causing lot of damage to the vegetation.

Ecological and Biodiversity Value

a) Sathyamangalam Forest Division is the second largest division in the state having 1.45 lakh ha of forest area, out of which 524 Sq Km area of lower plains and mountain slopes have been declared as Wildlife Sanctuary.
b) Part of Nilgiri Biosphere Reserve Landscape
c) It is located in the state of Tamil Nadu
d) Part of 7th elephant reserve and facilitates annual migration between Eastern Ghats and Western Ghats.
e) Good population of black buck is confined to this area.
f) Hyena, a scavenging carnivore is well distributed in this Sanctuary.
g) White backed Vulture Colonies are found here.
h) Perennial River Moyar, runs through the Sanctuary.
i) Irulas, and Kurumbas are the major tribal communities live in the sanctuary
j) The total length of the division boundary is 425 kms with approximately150 villages abutting the forest boundary

1.3 SIGNIFICANCE OF THE AREA RELATED TO HISTORICAL, RELIGIOUS, SOCIAL VALUES

Tamil Literature dating back to Sangam age vividly describe about the forests and wildlife of Sathyamangalam forest area and its early history. This area, which falls under Kongu country, was ruled by many rulers. Tippu Sultan who was ruling Mysore in 17th century laid two Chief Routes to Kongu country through the forests of Sathyamangalam. Remnants of such tracts in the forests bear witness even today. Tippu elevated the status of Sandal as "Royal Tree" and gave importance for forest protection. In 1856, the Forest Department

organized for the first time under the auspices of Dr. Cleghorn and Sathyamangalam, Talamalai and Bhavani were among the earliest areas to be brought under the control of the new department and were placed under in charge of Captain W.H.Morgan with the Head quarters at Ootacamund. Then Coimbatore North Division was constituted in April 1909 in which Sathyamangalam area falls part of it. During 1980, the Sathyamangalam Division was formed. This division area was worked for fuel coupes since pre-independence period. In early 60s it was so vigorous and State's fuel wood needs were met with the areas of this division to a larger extent. To meet the timber needs selection felling coupes were worked in Minchikuli, Talamalai areas. Bamboo coupes were also worked up to 1981. Fuel coupes were stopped in 1975 and selection felling was stopped in 1980. These felling coupes have caused degradation and the habitats were disturbed.

The sanctuary comprises of mostly mixed dry deciduous vegetation. Sandal occurred predominantly in these forests. Sandal is a species of deciduous associate formations and it is a transitory species occurring in preclimax vegetation. Condition conducive for its growth and dissemination are found in the sanctuary areas. It is interesting to note regeneration of sandal under lantana and *Ziziphus* tree cover. Sathyamangalam Forest Division is also known for Bamboos in the past. Larger areas were found under bamboo forests and systematic felling of bamboos and silivicultural operations were carried out. Bamboo was supplied to Seshasayee Paper and Board as raw material to the industry. Between 1972-1975 gregarious flowering of bamboo appeared everywhere and all bamboo patches were totally dried out from many places. Thus, bamboo was totally wiped out from this division, except in few pockets in Moyar Valley and Hassanur Range.

Chapter 2

BACKGROUND INFORMATION AND ATTRIBUTES

2.1 BACKGROUND INFORMATION AND ATTRIBUTES

S. No.	Name of the Range	Sanctuary area in (Ha)	Beats
1.	Sathyamangalam	16700.65	1. Dimbam (Full) 2. Vadavalli (Full) 3. Chickarasampalayam (Full) 4. Kondappanaicken palayam (Full) 5. Kembanaiken palayam (Full)
2.	Bhavanisagar	14024.65	1. Thengumarahada (Full) 2. Talamalai (Part) 3. Gejalatti (Part) 4. Peerkadavu (Part) 5. Kothamangalam (Full) 6. Bannari (Part)
3.	Talavadi	8300.98	1. Palayam beat (Full 2. Belathur (Full) 3. Geddavady (Full)
4.	T.N.palayam	13408.66	1. Kadambur East (Part) 2. Vilankombai (Full) 3. Kongarpalayam (Full) 4. Kovilur (Part) 5. Bungalow pudur (Full) 6. Kananckam palayam (Full) 7. Gundri (Part)

This division shares its Eastern boundary with Erode Division, North-Western boundary with Chamrajnagar Division and Northern boundary with BiligiriRangan Hills. On the Southern side, Nilgiri North and Coimbatore Divisions are separated by the Perennial River Moyar which runs along the Moyar Gorge.

Boundaries: The legal and physical and boundary of Sathyamangalam Wildlife Sanctuary as per the Government notification are as follows.

The Sathyamangalam Wildlife Sanctuary lies in the Northern Part of Erode District, and is bounded on the North by Karnataka State, on the East and South by Erode Forest Division and in the West by Nilgiris (North Forest Division).

2.1.1 Boundary: Sathyamangalam Wildlife Sanctuary

Sathyamangalam Wildlife Sanctuary is surrounded by Chamraj Nagar Forest Division on the North and in the east by Nilgiri North Division, which is part of the NBR. Endangered species such as elephants migrate from Mudumalai Tiger Reserve to this sanctuary in different seasons in search of fodder and water and use it as a part of their home range. Elephants prefer this sanctuary for obtaining browse for their food requirement, as there is not much grass available due to large number of cattle grazing and poor rainfall in this region. The eastern part of the sanctuary falls in the rain shadow area of the Western Ghats and it receives poor rainfall so animals concentrate along Moyar, a Perennial water source. The successful elimination of Scrub cattle from the Moyar Valley through community participatory programme, conducted by the WWF, India between 2002 and 2005 made tigers' to re establish its territory in many places coupled with abundance of prey base.

2.2 GEOLOGY, ROCK AND SOIL

Although soil derived from a given type of rock varies considerably with climatic conditions, the nature of parent rock exist a considerable influence on the properties of the soil. The rock types of the Sathyamangalam Wildlife Sanctuary mainly belong to the great gneissic series of pre-Cambrian age. The common metamorphic derivatives found in the sanctuary are metamorphosed sedimentary rocks such as quartzite, hornblende, amphibolites, pyroxenites and Pyroxene. The quartzite consists of quarts with small amount of sericite and faschite nicaad feldspar. If magnesite forms an accessory, the rocks acquire reddish tinge (east of Sathyamangalam). The amphibolites and hornblende are dark coloured and occurs in the north east of sathyamangalam. Metamorphic igneous rock types such as biotic gneiss charnookites and granite gneiss have widespread occurrence. The

charnoctices were bluish with grenary look and the most widespread in the hilly forests. The biotic gneiss comprises the narrow forest lands adjacent to slopes of hills overlooking the plains. The minerals found in the sanctuary are; feldspar, quartzite, magnetite, garnet, kynite.

Soil

The Soil is a dynamic layer of surface material which is constantly changing and developing under process of adjustment to condition of climate, parent material, topography, and vegetation. Soils are made up of substances existing in solid, liquid, and gaseous states. With colloidal particles of organic and inorganic origin playing an important function in their makeup and activity. The physical properties of soils often acquire greater importance than the chemical ones. In majority of the cases the chemical fertility may be adequate but the growth of trees differs widely in accordance with the physical nature of the soil.

Soil Texture

Soil texture refers to the relative proportion of particles of various sizes. The usual classification is given below:

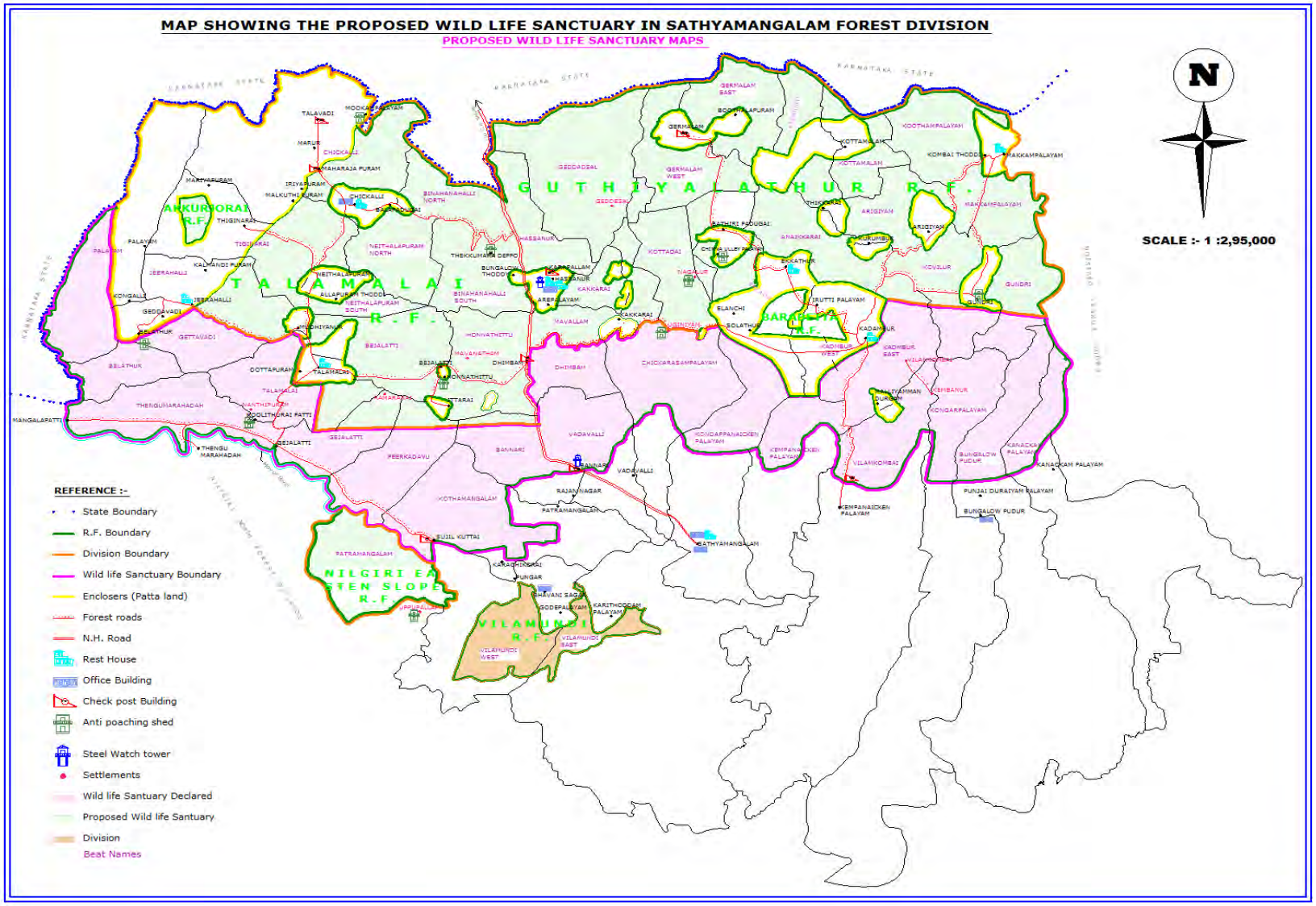
Course sand: 2- 0.2 mm diameter; Fine Sand: 0.2 – 0.02 mm; Silt: 0.02-0.002 mm; Clay: < 0.002 mm

The common soil types of the sanctuary are red soils, laterite soils, black cotton soils, and Alluvial soils.

Terrain

The terrain is gently undulated in the Moyar Valley with elevation ranges from 960m to 1266m in the Bhavanisagar, Sathyamangalam Range, Talavadi, Talamalai and Hasanur Ranges. The western part of the sanctuary is almost flat.

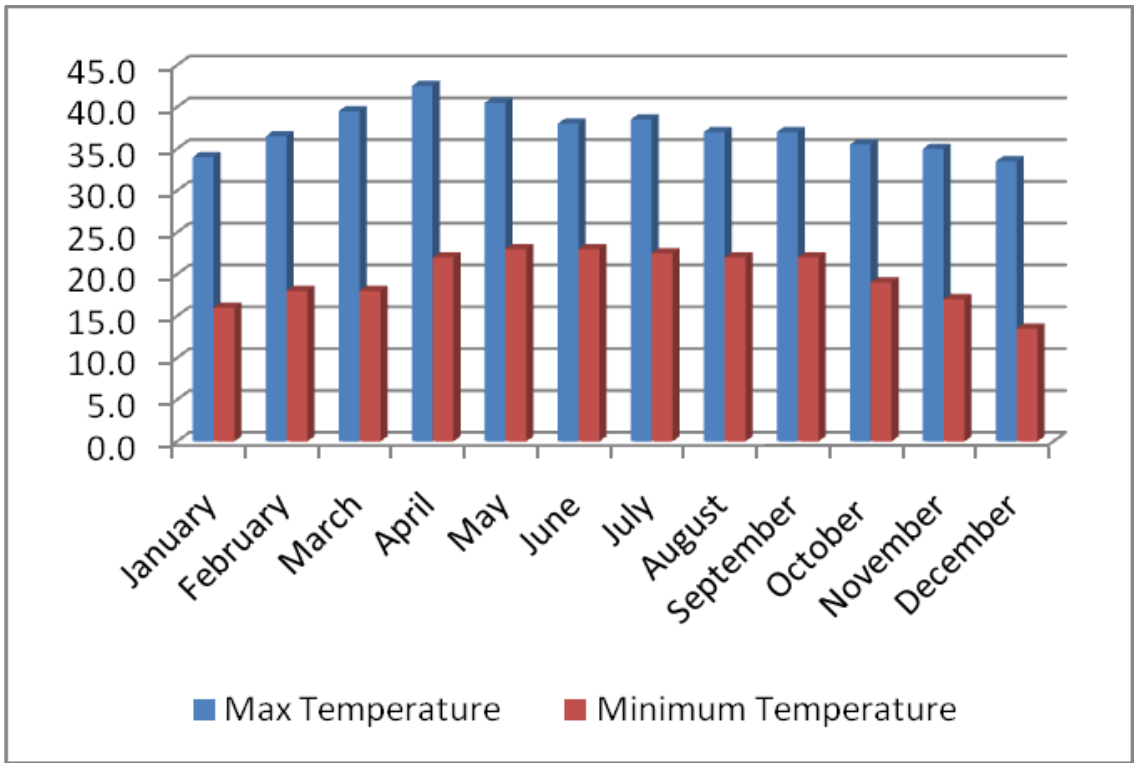
Location of Sathyamangalam Wildlife Sanctuary in the Nilgiri Eastern Ghats Landscape



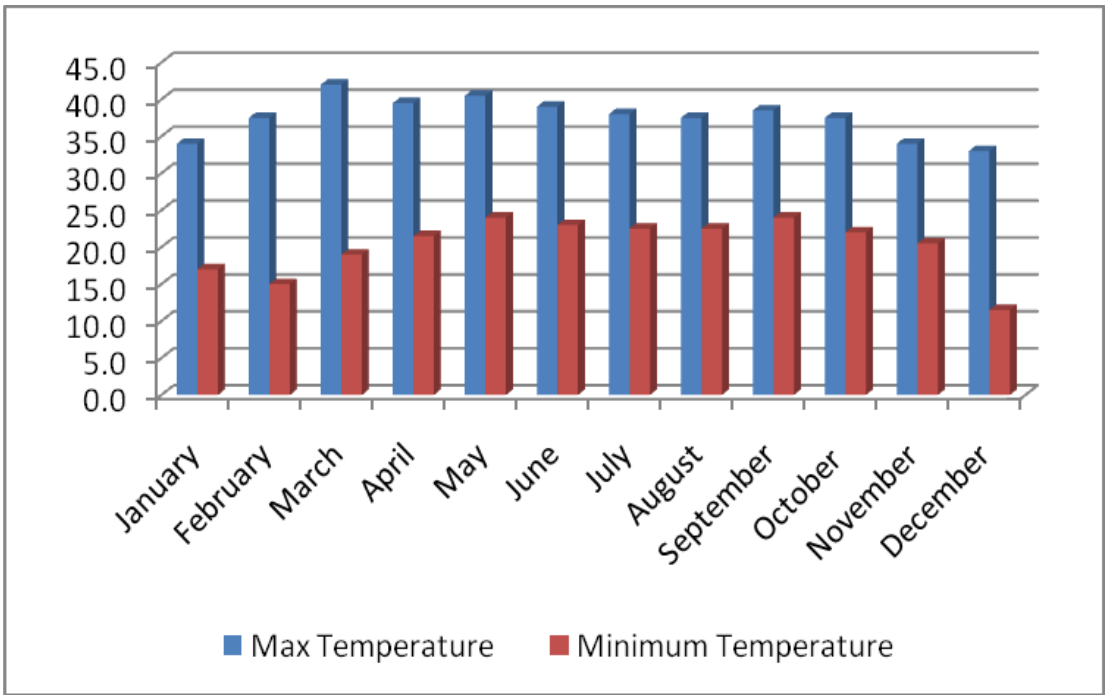
Climate

Generally, the plateau region enjoys a mild and equitable climate favourable to vegetation and in particular to sandal trees. The slopes and plains are subjected to hot and dry climate. The average minimum and maximum temperatures are; 21.54° C and 27.02° C in the plateau and the average minimum and maximum temperatures are 26.24 0 c and 32. 84°C in the plains. Thus, the climate of the Sathyamangalam Wildlife Sanctuary is moderate. There is a rainfall gradient from east to west of the sanctuary. The eastern part of the sanctuary falls on the leeward side of the Western Ghats; hence this part receives low rainfall.

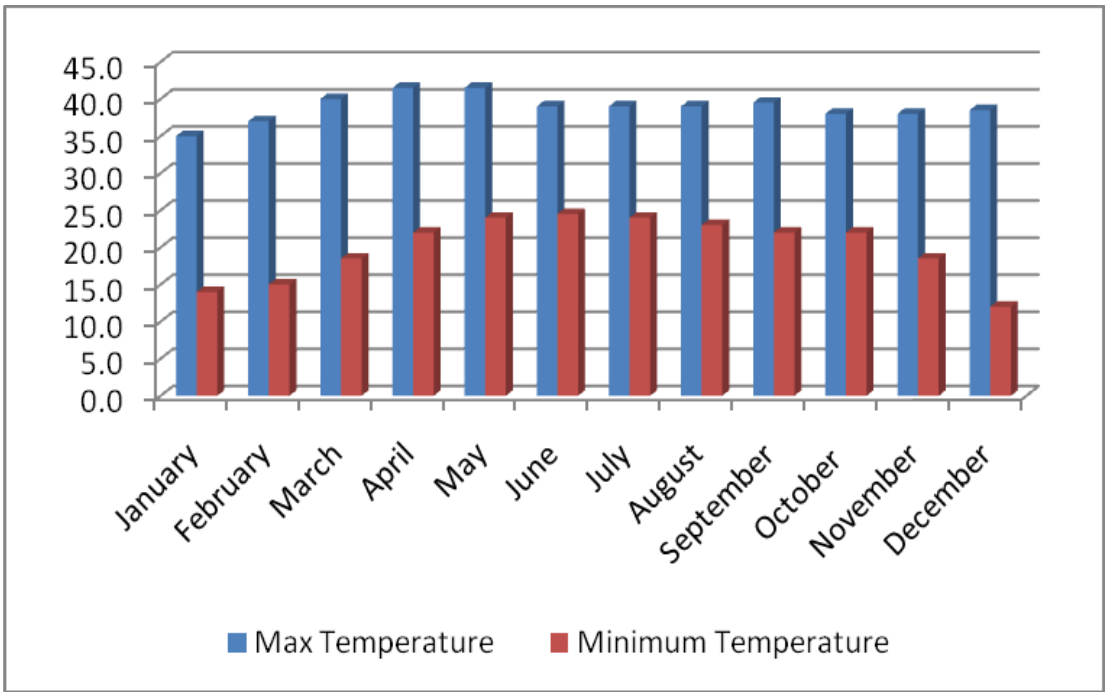
Details of Maximum, Minimum Temperature in Bhavanisagar, Bhavanisagar Range for the year 2000



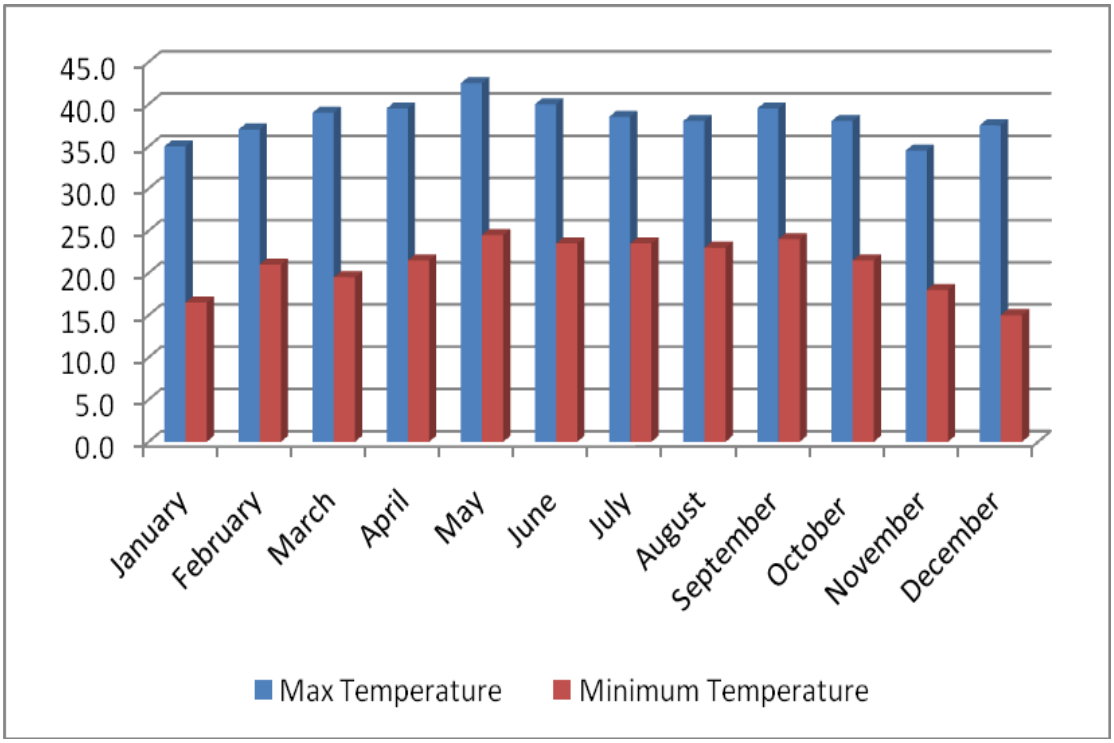
Details of Maximum, Minimum Temperature in Bhavanisagar, Bhavanisagar Range for the year 2001



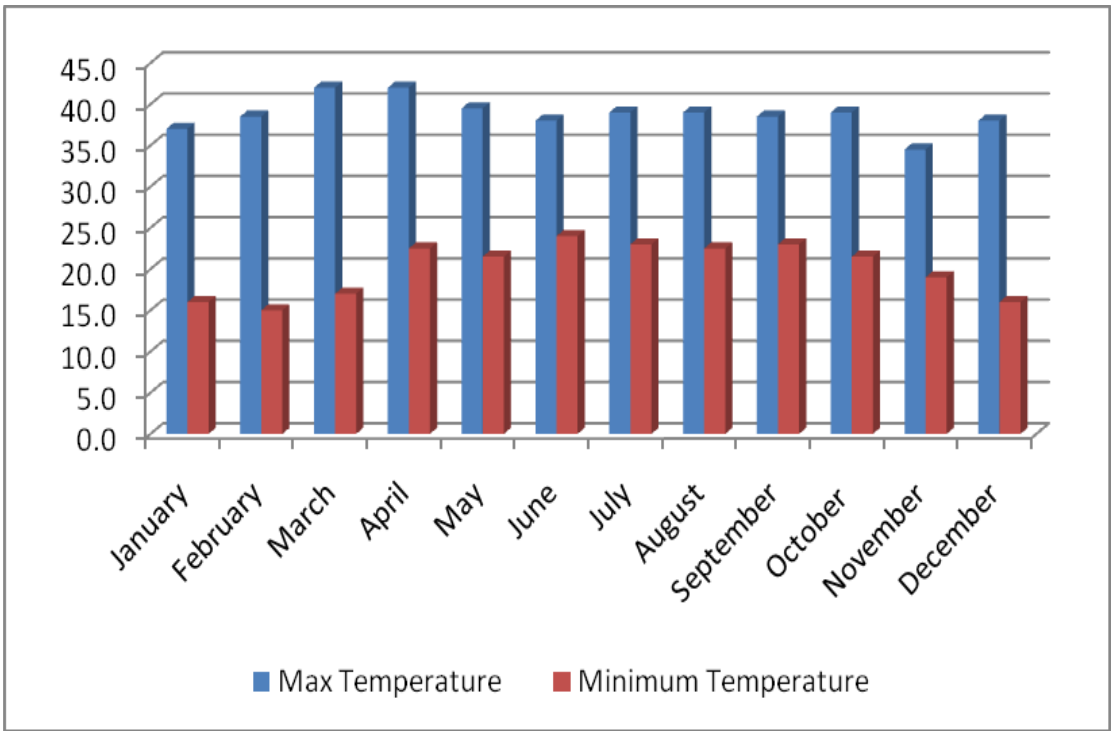
Details of Maximum, Minimum Temperature in Bhavanisagar, Bhavanisagar Range for the year 2002



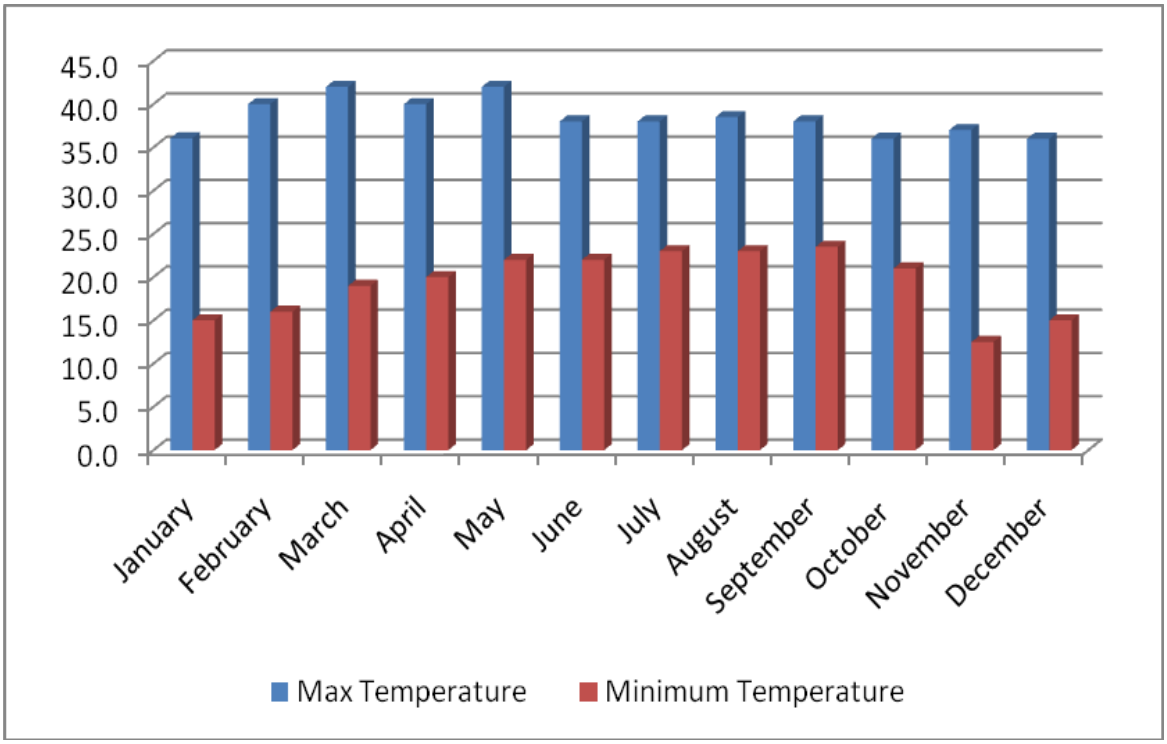
Details of Maximum, Minimum Temperature in Bhavanisagar, Bhavanisagar Range for the year 2003



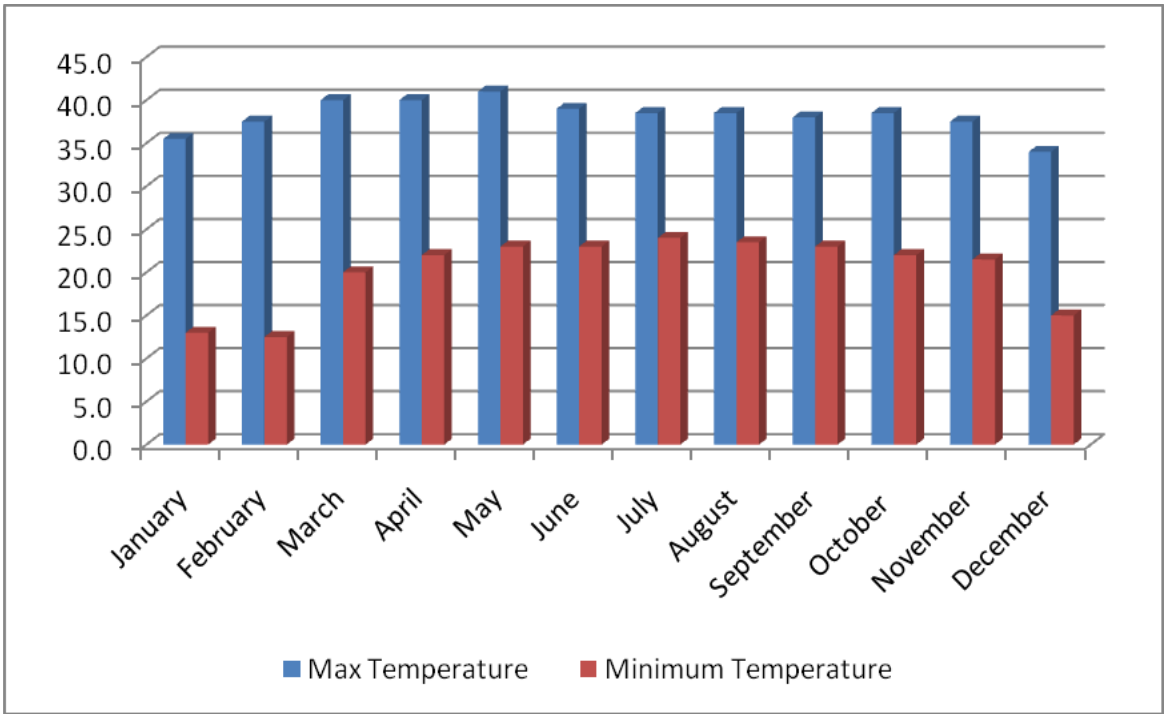
Details of Maximum, Minimum Temperature in Bhavanisagar, Bhavanisagar Range for the year 2004



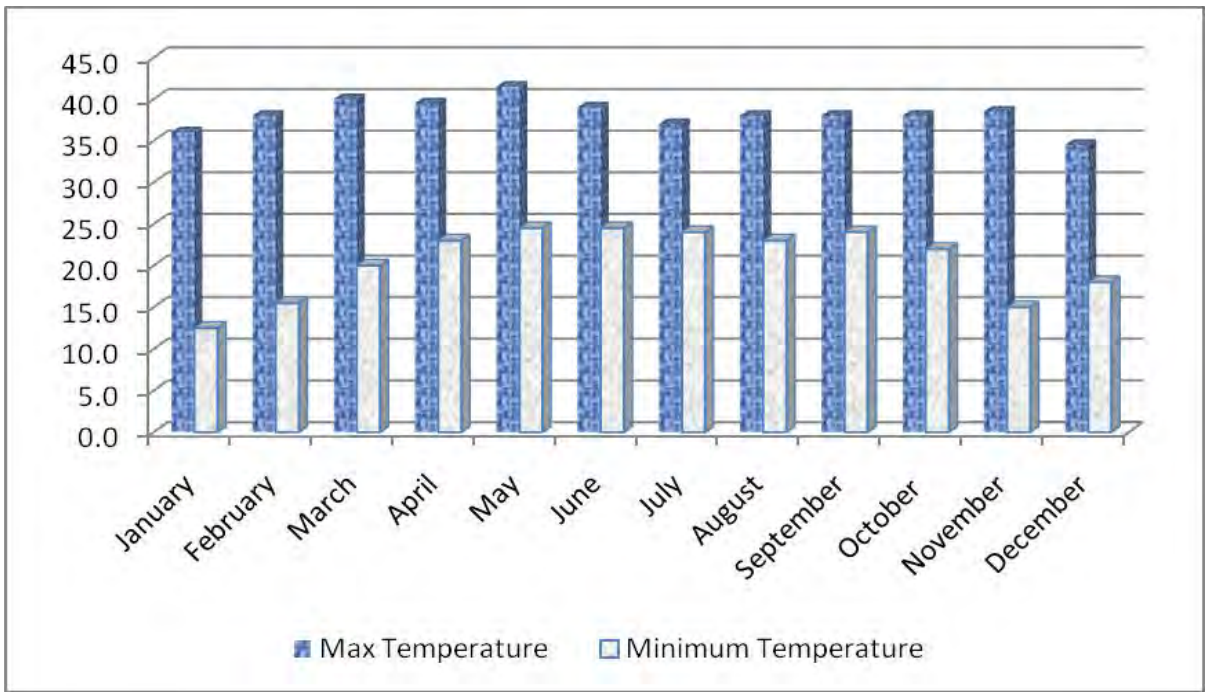
Details of Maximum, Minimum Temperature in Bhavanisagar, Bhavanisagar Range for the year 2005



Details of Maximum, Minimum Temperature in Bhavanisagar, Bhavanisagar Range for the year 2006



Details of Maximum, Minimum Temperature in Bhavanisagar, Bhavanisagar Range for the year 2007



Wind

The Plateau forests are subjected to strong and gusty winds blowing from south westerly direction, during the south west monsoon, period of June to September. As the wind is mostly dry, it only hastens the process of evaporation. In May thunder storms with the occasional cloud bursts are common in the plateau.

2.3. RAINFALL PATTERN

The average annual rainfall of the sanctuary over a ten year period is 824 mm. But considerable variation could be noticed from place to place. Though the sanctuary lies in the rain shadow region, the bulk of the rain fall is derived (70%) from the north east monsoon during September, October and November. The period from January to April is usually dry, though occasional showers may occur. From May onwards, intermittent rains occur till August. Rain increases slightly between August and September and becomes heavy during October-December and tapers off in January.

Drought

Lack of water and green fodder to wild animals are the major limiting factors with regard to severity of dryness in Sathyamangalam Wildlife Sanctuary. As mentioned earlier this sanctuary lies in the rain shadow region, and only limited water is available in all seasonal waterholes for animals. During the months of March and April water is available only in perennial streams such as Moyar and all the seasonal waterholes and streams dried up. This drought period also coincides with accumulation dry leaf litter and fire.

2.4. HYDROLOGY

There are two perennial Rivers in the Sanctuary, namely a) River Bhavani and b) River Moyar.

2.4.1. River Bhavani

It originates from western catchments of Nilgiris, running through Kerala and again enters Tamil Nadu. This river runs through Coimbatore Division and enters into Sathyamangalam Forests in Bhavanisagar Range. Till it reaches Bhavanisagar dam, it runs along the sanctuary area. This is the main source of drinking water to the wildlife, especially elephants.

2.4.2. River Moyar

It is another perennial river, which also originates from Nilgiris and runs through sanctuary area and finally flow into Bhavanisagar reservoir.

Table showing Water Sources in the Sanctuary and adjoining reserves

Dams/Perennial Streams	Major Streams	Minor Streams	Pond	Artificial wells	Bore wells
River Bhavani	Palar	Doddakombai pallam	Badagalli kuttai	Doddakombai	Bannari
River Moyar	Perumpalla	Karuvanrayan pallam	Desanthira kuttai	Chettikuttai	Ecological Farms
Bhavanisagar Dam	Swarnavathi	Kodampalli pallam	Asagan Kuttai	Karuvanrayan temple	Karidoddampalayam
Gunderipallayam	Halibidha Halla	Kadapparaipallam	Malla goundan kuttai	Bengapatti	
Perumpallam		Balapaduga hallah	Doddamudugarai kuttai	Navakinaru	
		Gunderipallam	Mavanatham kuttai	Kaduvai kinaru	
		Adalthipallam	Alamalai Kuttai	Vellimalai Kinaru	
		Sakkaraipallam	Kakkarai Kuttai		
		Thattapallam	Bengapathi Kuttai		
		Vedaparaipallam	Lakkadar Kuttai		
			Chatrakarai Kuttai		
			Alamarathu Kuttai		
			Kumbeswara Kuttai		
			Ammalakarai Kuttai		
			Joganalla Kuttai		
			Thavara Karai Kuttai		
			Bison Kuttai		
			Periya Kuttai		
			Siddeswaran Kuttai		
			Jorai Kuttai		
			Kemparai Kuttai		
			Palakaradu Kuttai		
			Kathirikombai Kuttai		
			Lakkepallam kuttai		
			Kumari maduvu		
			Guthiyalathur Kuttai		

MAJOR WATER SOURCES IN SATHYAMANGALAM WILDLIFE SANCTUARY

Natural Stream available to wildlife

Natural Pond available to animals

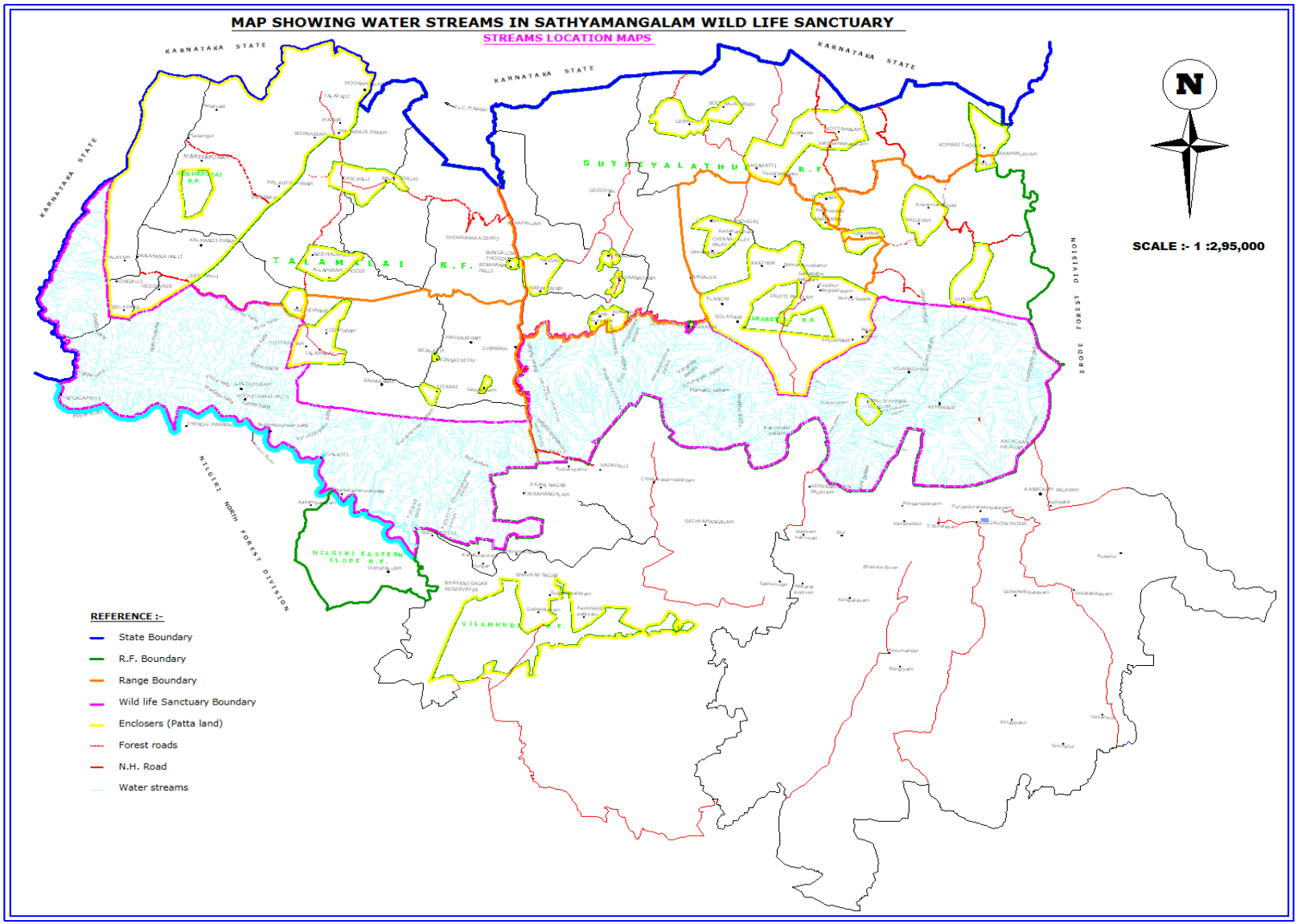
Natural pond for wildlife

Percolation pond created for wildlife

Construction of Water trough to wildlife

Construction of checkdam

Map. Location of Major Water Sources in the Sathyamangalam Wildlife Sanctuary



2.5. RANGE OF WILDLIFE, STATUS DISTRIBUTION AND HABITAT

2.5.1. Vegetation Types

A wide variety of habitats can be seen from eastern to western part of the sanctuary. There is a rainfall gradient from east to west and the change in vegetation is believed to be as result of spatio temporal pattern. The Eastern part of this sanctuary falls in the rain shadow region of Western Ghats. This region has got dry thorn forest and the vegetation type gradually changes from dry thorn forest to mixed moist forests.

2.5.1.1. The Bio-Geographic Classification

Sathyamangalam Wildlife Sanctuary has been classified as **Eastern Ghats province** as per the Bio-geographic classification, done by Wildlife Institute of India.

2.5.1.2. The Forest types, Cover and Food for Wild Animals

The vegetation types found in Sathyamangalam are classified into the following types (Champion & Seth 1968).

a) Southern tropical dry thorn forest (6 A /C1)
b) Southern tropical dry mixed deciduous forest (5A/C3)
c) Southern sub tropical hill forests (8 A/C1)
d) Southern tropical semi evergreen forest (2A/C2)
d) and Riparian Forest.

Southern Tropical dry thorn forest (6 A/C1)

Tropical dry thorn forest is occurs along the plateau and valley in the sanctuary. This region receives an average annual rainfall of 600mm. Trees are stunted in growth with following tree species predominantly distributed in this forest type. *Acacia catechu, A. chundra, A.suma, A. leucophloea, Anogeissus latifolia, Ziziphus xylopyrus, Randia spp., Ziziphus jujuba, Sapindus emarginatus, Phyllanthus emblica, Erythroxylon monogynum, Canthium parviflorum, etc*

Southern Tropical Dry Mixed Deciduous Forest (5A/C3)

This type of forest occurs in hill slopes of Bhavanisagar, and Sathyamangalam Ranges where the rainfall is between 800-850 mm. *Anogeissus latifolia and Terminalia crenulata* are commonly distributed in this forest region. *Themeda triandra, T. Cymbaria, Heteropogon* and *Digitaria* spp. are the commonly seen grasses in the under storey. Canopy is open in many places with poor regeneration of tree saplings. This area is prone to fire during dry season. The other tree species found in this habitat includes; *Grewia tilifolia, T. tomentosa, and Kydiya calycina. Sapindus emarginatus* is found in many places.

Southern sub Tropical hill Forest (8A/C1)

This type of forest is confined to hill slopes of Bhavanisagar and Sathyamangalam Ranges. Common tree species found here are; *Acacia torta, Acacia Planiferons, Albizia amara, Bauhinia racemosa*, *Hardwickia binata, Dichrostachys cinerea, Cassia fistula, Mesua ferrea, Pterocarpus marsupium, Scheleichera oleosa, Ziziphus mauritiana* and other stunted tree species. Weed cover also dominated in some places with reference to drainage and topography. *Prosopis juliflora* and *Lantana camera* are heavily invaded into the cover.

Southern Tropical Semi-Evergreen Forest (2A/C2)

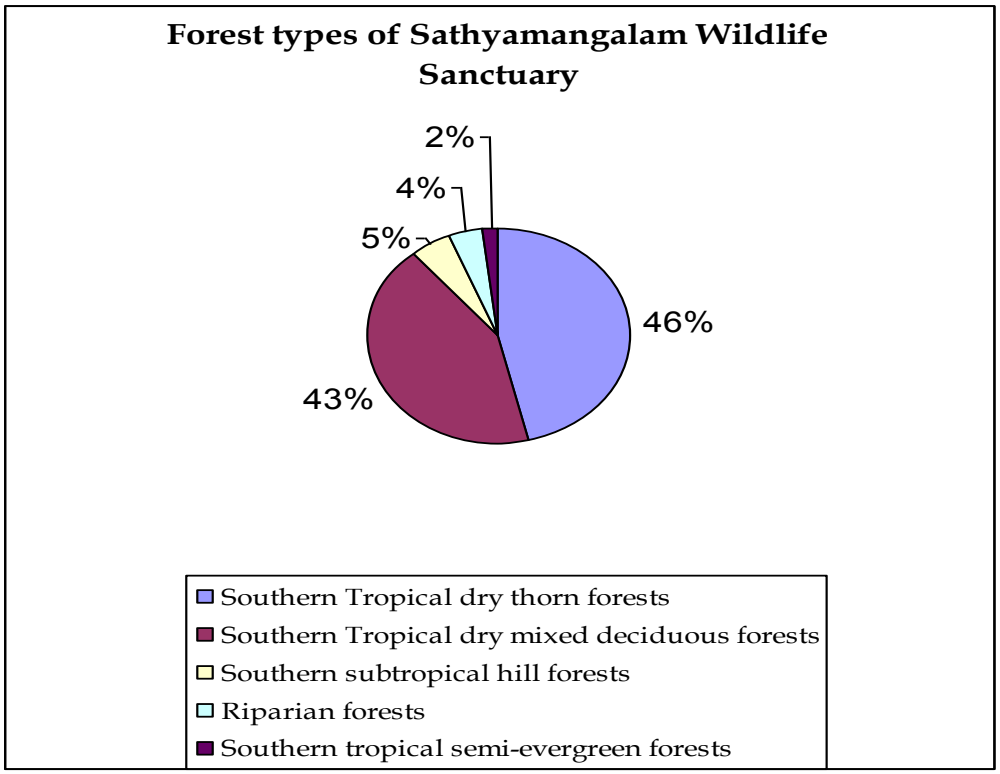
This forest type occurs in a transition zone at an elevation of 1200 m between the dry deciduous forests and sub tropical hill forests or as an edaphic sub-climax in few favourable moist pockets. This type is met within Malliamman durgam. As this type is an intermediary between tropical evergreen and moist deciduous forests, the dominance of both are usually found mixed. Soil is generally an argillaceous loam with plenty of humus. The vegetation is dense and tends to be semi ever green. Some of the important tree species found are *Anogeissus latifolia, Bischofia javanica, Celtis tetrandra, Chukrasia tabularis, Dalbergia latifolia, Machilus macrantha, Mangifera indica, Santalum album Syzigium cuminii, Terminalia chebula, Toona ciliate, Trema orientalis, Cinnamomum wightii, Ixora arborea, Kydia calycina, Litsea wightiana,Mallotus*

philippensis, Michelia champaga, Neolitsea zeylanica, Phoebe lanceolata, Plectronia didyma, Radermachera xylocarpa, Viburnum acuminatum, Vitex altissima, Wendlandia thysoidea

Riparian Forest along the Moyar River

Riparian forest is found all along the Moyar river. This type of forest can be seen in Bhavanisagar Range. The canopy is closed in this forest and the trees are tall. The common tree species includes *Terminalia arjuna, Spondias mangifera, Pongamia pinnata, Lagerstromia microcarpa, Ficus spp.*, The ground floor vegetation includes several species of herbs and shrubs. Bamboo thickets are also found amidst the riparian forests. Both species of bamboos namely, *Bambusa arundinacea* and *Dendrocalamus strictus* are found here. Elephants and Gaur eat both species of bamboo.

In all habitat types of forest if one looks from a vantage point a green strip of riparian forest could be seen along the Moyar River in Bhavanisagar Range. The plant species found in riparian forest includes; *Mangifera indica, Pongamia glabra, Terminalia arjuna, Syzygium cumini, Dalbergia latifolia, Bambusa arundinaecia, Dentrocalamus srictus.*



VARIOUS FOREST TYPES IN SATHYAMANGALAM

Scrub forests on the slopes of Sathyamangalam Wildlife Sanctuary

A typical dry mixed thorn forest for Blackbuck in Sathyamangalam Wildlife Sanctuary

Open Savannah forests in Sathyamangalam Wildlife Sanctuary

Moist deciduous forest tracts in Sathyamangalam Wildlife Sanctuary

Vegetation Changes in Plateau areas

Prosopis juliflora and *Lantana camara* have severely invaded into the ecosystem in many places. This has reduced the fodder availability to herbivores during the critical dry season. Such a phenomenon has been noticed in Bhavanisagar Range. Large herbivores such as elephants and bird communities play a major role in dispersing the seeds of those trees. It is necessary to investigate the dynamic processes of the seed dispersal by animals and also eliminate plant weeds in a slow phase to re establish native plant species for supporting high densities of herbivores.

2.5.2. FAUNA

Flag Ship Species

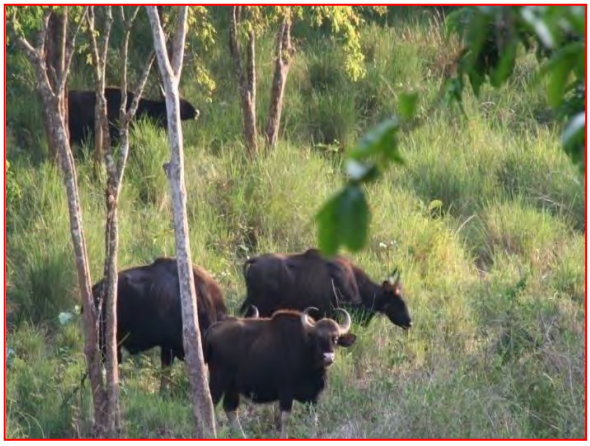
Sathyamangalam Wildlife Sanctuary has got a high diversity of fauna, similar to the adjoining Protected Areas (Mudumalai Tiger Reserve). Notable species are; Elephants, Gaur, Black Buck, Four Horned Antelope, Mugger and White Backed Vulture. The sanctuary is known for its diverse assemblages of mammalian species, birds and insect fauna. Detailed list is given in the **Appendix**.

2.5.2.1. Important Mammals - Status, Distribution and Habitat

According to estimates, there are four hundred and ten (8.86% of the World's mammals) species of mammals known to exist in India, which are spread over 186 genera, 45 families and 13 orders. This includes nearly 89 species listed as threatened in the IUCN Red List of Threatened Animals (IUCN 2006). One hundred and twenty species of mammals are known from the Western Ghats, of which fourteen species are endemic. The mammalian fauna of the Western Ghats is dominated by insectivores (11 species), bats (41 species) and rodents (27 species including the porcupine). The diversity of mammals is high in the dry thorn forests, dry deciduous forests and riparian forest. Thirteen percentage mammal species found in India are present in Sathyamangalam Wildlife Sanctuary.

IMPORTANT MAMMALIAN SPECIES

Elephants



Indian Guar

Blackbuck

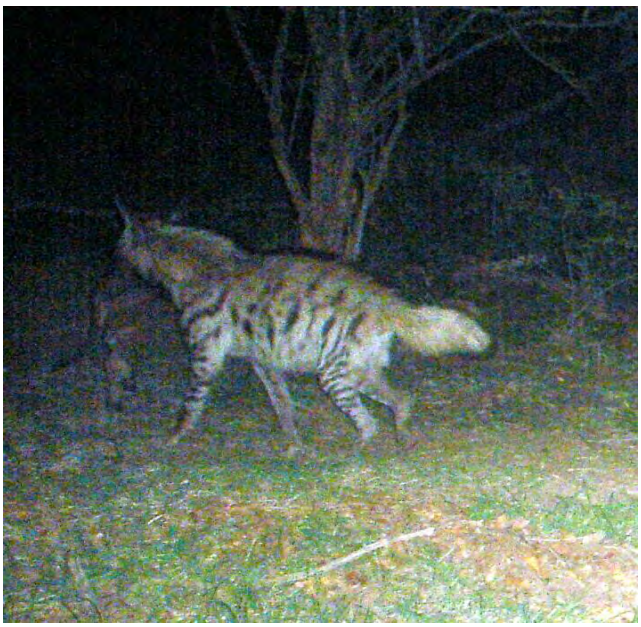
Sambar Deer

Spotted Deer

Tiger

Leopard

Wild dog



Hyena

A. PRIMATES

BONNET MACAQUE (*Macaca radiate*) Vella korungu-Tamil,

A medium-sized long tailed macaque with Total body length 35-65cm, Weight 4-9 kg. A bonnet of long dark hairs radiates in all directions from a whorl on its crown and this peculiar cap does not quite cover the forehead, where the hairs are short and nearly parted in the centre. The coat of the Bonnet Macaque is variable both among individuals and with the season. In the cold weather it is usually lustrous olive-brown; the under part whitish. With the onset of the hot weather the coat loses its luster, turns harsh and scraggy, and fades to a Buffy grey.

In Sathamangalam Wildlife Sanctuary, bonnet macaque is commonly found in the riparian and deciduous forests. They are seen feeding on various wild fruits, leaves and shoots, and of late, they congregate on the main roads due to feeding by the travelers.

THE COMON LANGUR (*Semipithecus entellus*)

Langurs are commonly seen near Dhimbam road, Hasanur plateau and Talamalai forests.

SLENDER LORIS (*Loris Iyddekerianus*)

Slender Loris is the southern grey-brown cousin of the slow loris, with total body length of 20 – 25 cm and body weight of 125-340 gms, and tail distinctly absent. The Slender Loris has the same secretive and nocturnal habits as the Slow Loris, but it is not confined to dense forest, and is found equally in open tree jungle. It is listed under Schedule I of the Wildlife (Protection) Act, endemic to hill and plains of Southern India, seen in deciduous and thorn forests of Sathyamangalam. The IUCN status for the species is Vulnerable.

Photo Plate: Various species of primates in Sathyamangalam Wildlife Sanctuary

TIGER (*Panthera tigris tigris*)

Tiger is placed in the Appendix I of the CITES and so the trade of this animal is strictly prohibited internationally in the Red Data Book. Tiger is also placed in Schedule-I of the Wildlife Protection Act 1972.The estimated population in the Sathyamangalam Wildlife Sanctuary is 8-10, according to the recent wildlife census (2009: April) conducted by the Forest Department in a Scientific Manner. This population is getting re established from areas where human induced threats have been considerably reduced with people's participation programme to reduce grazing incidences and wood collection. Therefore, it is recommended that biotic pressure has to be reduced through community participation/eco development programme for the forest settlement villages in order to back up the wild species for maintaining the forest integrity.

Photo Plate : Camera trap picture taken in Sathyamangalam Wildlife Sanctuary

LEOPARD (*Panthara pardus)*

The most adaptable big cat of Indian sub-continent, leopard is a sleek short animal with a fulvous or bright fulvous coat marked with small close set black. The sightings of blackpanther are reported in the forest tracts of Nandipuram, Thengumarada, Chikalli and Neydalapuram. The IUCN categorized leopard as Lower Risk, near threatened LR. It is also placed in the Appendix I of the CITES and so the trade of this animal is strictly prohibited internationally. It is also placed in the Schedule-I of Indian Wildlife Protection Act 1972. Sathyamangalam Wildlife Sanctuary supports a good population of leopards, (around 20) as evident from the distribution of leopard signs.

JUNGLE CAT (*Felis chaus)*

The most common wild cat in India, with its long legs and comparatively short tail the Jungle Cat has a very distinctive appearance. Of the lesser cats, this species was the most common and was seen in most habitat types in the Sathyamangalam Wildlife Sanctuary, especially mixed thorn forests areas of Bhavanisagar Range.

Photo Plate: Small carnivores in Sathyamangalam Wildlife Sanctuary

SMALL INDIAN CIVET (*Viverricula indica*)

A common ring tailed civet with total body length of 45 – 60 cm. and body weight of 2.5 – 3.5 kg. The estimates of their numbers are not available for the Sathyamangalam Wildlife Sanctuary. A detailed study is needed to investigate the ecology of the species. The IUCN status is Lower Risk and is in schedule-II of Wildlife Protection Act.

COMMON PALM CIVET (*Paradoxurus hermaphrodites*)

It is a black or blackish-brown civet with long coarse hair, having total body length of 42 – 69 cm and body weight of 2.7 -4.5 kg. It is probably the most common civet in India, distributed in deciduous and scrub forest and well wooded countryside. Habitats loss and poaching are conservation threats. The IUCN status is Lower Risk and is in schedule-II of Wildlife Protection Act. It is seen in the Riparian forests of Sathyamangalam Wildlife Sanctuary.

BROWN PALM CIVET (*Paradoxurus jerdoni*)

A civet with a limited forest distribution found in the hill ranges of south India. It's a shy animal, rarely entering houses and is distinctive in its deep brown colouring. The IUCN status for the species is vulnerable and is in schedule-II of Wildlife Protection Act.

THE COMMON MONGOOSE (*Herpestes edwardsi*)

It's commonly found in the open scrub, cultivated land, rocky patches and forest edges being the preferred habitat.

RUDDY MONGOOSE (*Herpestes smithii)*

A large forest mongoose of Peninsular India, the Ruddy Mongoose resembles the Grey Mongooses, but has a reddish-brown infusion, particularly on the head, neck and shoulder. Its legs are also reddish, especially the hind ones. The tail is short with black tip that is carried pointed upwards, a unique behavioral trait.

STRIPE-BECKED MONGOOSE (*Herpestes Vitticolis*): A stocky Southern Indian mongoose with a reddish tint to its body, this is the largest mongoose in Asia with total body length 40-55cm and weight of 2.5-3.5 kg. It is distributed in moist forests and swampy areas of Western Ghats. It is found mostly in dry mixed deciduous forests of Sathyamangalam Wildlife Sanctuary

OTTERS

There are five species are occurring in India. Two of them are known to in Sathyamangalam Wildlife Sanctuary. They are Eurasian Otter (*Lutra lutra*) and Smooth coated otter (*Lutrogale perspicillata*).

THE SLOTH BEAR (*Melursus ursins):*

Sloth bear is distributed in the forested tracts of India in deciduous jungles, scrub and grassland. Sathyamangalam Wildlife Sanctuary is famous for its sighting of sloth bear in Bhavani Sagar, and Sathyamangalam Ranges. Fruits of *Cassia fistula, Ziziphus mauritiana*, and *Cordia domestica* and insects such as ants and termites were the most dominant food items. A detailed study on the ecology of the species is warranted for its scientific management.

STRIPED HYENA (*Hyaena hyaena*)

The hyena is rare in forested districts, abundant in open country, especially where low hills and ravines offer convenient holes and caves for shelter. It plays a major role in the eco system. Sathyamangalam division, Nilgiri north and Mudumalai forests are the last remaining stronghold for this endangered species.

THE JACKAL (*Canis aures*)

The exact status and distribution of the Jackal in the Sanctuary needs a through study. This species once common is becoming rare due to intensive poaching by habitual hunters like 'Narikuravars'.

INDIAN WILD DOG (*Cuon alpinus)*

The IUCN categorized wild dog as Vulnerable (VU) species. It is placed in the Appendix of the CITES and so the trade of this animal is strictly prohibited internationally. The hunting and poaching of Wild dog is strictly prohibited and it is placed in the Schedule I of Indian Wildlife Protection 1972. Wilddogs are commonly seen in almost all areas of Sathyamangalam forests.

THE INDIAN ELEPHANT (*Elephas maximus*)

The estimated elephant population in the Sathyamangalam Wildlife Sanctuary is approximately 350 to 450. The Sanctuary connects with other protected areas namely Mudumalai Tiger Reserve and Nilgiri Eastern Slope Reserve Forests. Man-elephant conflict is high in certain areas of the Sanctuary.

GAUR (*Bos gaurus*)

A good population is found in Bhavanisagar range. Poaching, loss of habitats, grazing and diseases are conservation threats. Gaur is normally seen in the dense jungles of Sathyamangalam forests.

BLACKBUCK (Antelope cervicapra)

There are about 800 to 900 Blackbucks recorded in the Sanctuary limits. There is a good population of black-buck in Bhavanisagar Range and Thalavadi Range of Sathyamangalam forest Division.

FOUR HORNED ANTELOPE (*Tetracerus quadricornis)*

The four-horned antelope (*Tetracerus quadricornis*) is a small antelope, standing 65 cm at shoulder. It is one among the tropical Indian antelopes that lives in undulating or hilly terrain. A scientific study of this species in Sathyamangalam Wildlife Sanctuary revealed that around 100 animals are found in the savannah forests of Thalavadi and Talamalai forests.

SAMBAR (*Cervus unicolor*)

The Sambar is the largest Indian deer and carries the grandest horns; height at shoulder nearly 150 cm average about 140 cm. A good population is found in the Sanctuary areas.

SPOTTED DEER (*Axis axis*)

A well-built Spotted deer stands 90 cm at the shoulders and weights about 85 kg the record head measures 101 cm 85 cm antler would be good anywhere, 80 cm in South India. Good population is fairly common in Sathyamangalam Wildlife Sanctuary, especially Bhavanisagar and Sathyamangalam Ranges.

BARKING DEER (*Muntiacus muntjak)*

It is commonly encountered in Talamalai forest and other dense jungles. It is a very shy and cryptic deer, occurring singly or as pair.

MOUSE-DEER (*Tragulus meminna*)

Mouse deer is seen rarely in Gettavadi, Talamalai and Hasanur areas. A detailed study is required about its distribution and habitat preferences.

THE INDIAN WILD BOAR (*Sus scrofa*)

Wildboar is ubiquitous in all areas and it is a big menace to the farmers of Sathyamangalam.

INDIAN PANGOLIN (*Manis crossicaudata)*

The most distinctive character of pangolin is its armour of protecting scales. Though, terrestrial in habit, pangolins climbs well easily. They are often seen in trees probably in quest of trees ants. They climb somewhat like bears and grip a bough tightly with the forelimbs and claws, and if need be with a curl of the tail. This species is distributed in the dry parts of the sanctuary and nothing is known about its ecology.

INDIAN HARE: (*Lepus nigricollis*)

In Sathyamangalam Wildlife Sanctuary, the black-napped hares are commonly sighted in open areas. They can be best seen during night hours along the roads and are usually dazed by the beam of headlights. They are poached by the villagers in the plains by putting traps.

THE INDIAN PORCUPINE (*Hystrix indica*)

Commonly seen in many parts of the sanctuary and occasionally hunted by the local tribal's for meat.

Four honred Antelope at Talamalai

Flying Squirrel at Malliamman thuruvam

BIRDS

This sanctuary has got a wide variety of birds. This includes rare birds like Painted sand grouse, White backed Vulture, Brown fish owl and a variety of woodpeckers. Hornbills play an important role in dispersal of seeds. Malabar whistling thrush, Peacock and Jungle fowl are the other important bird species found in Sathyamangalam wildlife sanctuary. In the recent bird census, 225 birds are identified in the Sathyamangalam forests. A check-list of bird species found in this sanctuary is given in Annexure.

Photo Plate: Endangered Bird Communities (Vultures and Horn Bills) in the Sathyamangalam Wildlife Sanctuary

REPTILES

Data on reptiles is not available at present. It must be well documented for the Sanctuary areas in close collaboration with research institutions.

FISH

There are several perennial water bodies found in Sathyamangalam wildlife sanctuary. This includes the perennial river Moyar and its tributaries and other perennial waterholes. These water bodies support abundant species of fishes in this sanctuary. This sanctuary has also got rare fish like masher that weighs around 30-40 kilograms.

AMPHIBIANS

There is no specific study about the status of amphibians in Sathyamangalam Wildlife Sanctuary.

2.5.2.2. THE LIMITING FACTORS

The major limiting factors for the sanctuary are;

A) Habitat fragmentation due to anthropogenic pressure

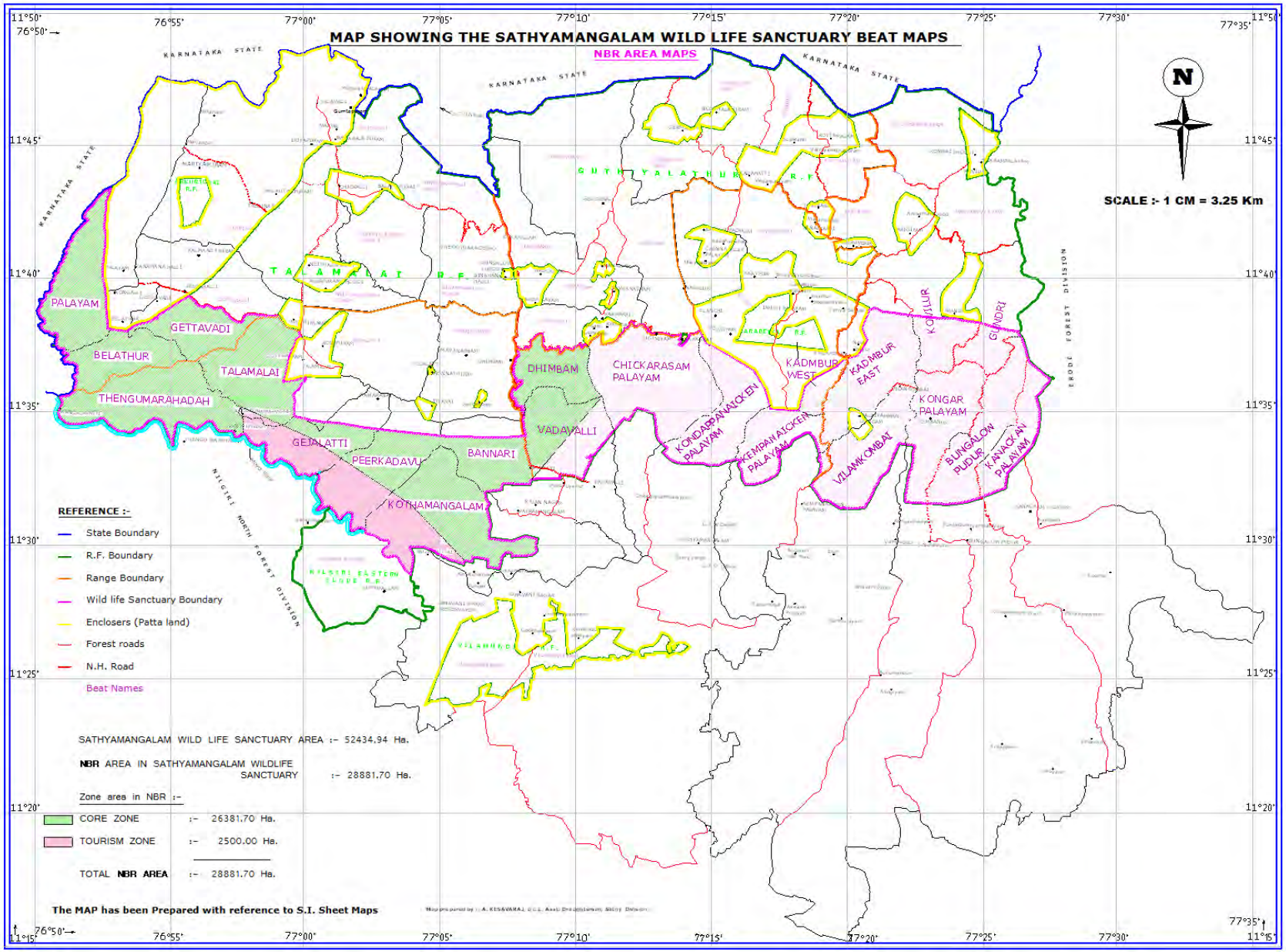
B) Loss of corridors

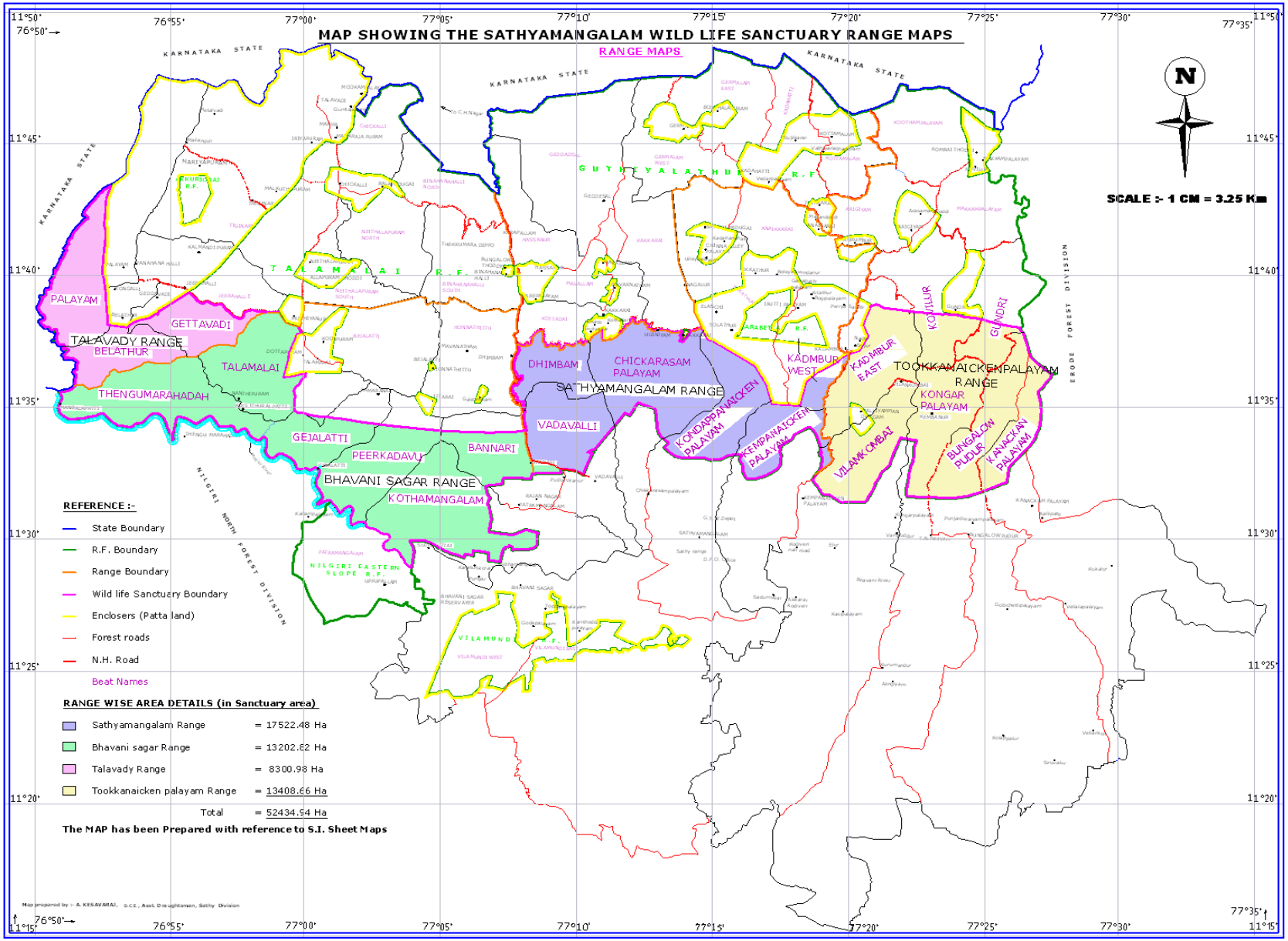
C) Severe invasion of exotic plants

D) Increasing trend of Human Animal Conflict

2.5.2.3. Important invertebrates, their status, distribution and habitat

There is no specific study available in Sathyamangalam Wildlife Sanctuary on the status and distribution of invertebrates and hence there is not much information available on the invertebrates. The word 'invertebrate means “without a backbone" and applies to over 95% of all known animals species ranging from tiny soil animals to giant squids. In addition to the known invertebrate species, there are certainly many millions yet to be discovered.


MAP SHOWING THE SATHYAMANGALAM WILD LIFE SANCTUARY BEAT MAPS
NBR AREA MAPS
KARNATAKA STATE
N
SCALE :- 1 CM = 3.25 Km
PALAYAM
GETTAVADI
BELATHUR
TALAMALAI
THENGUMARAHADAH
GEJALATTI
PEERKADAVU
BANNARI
KOTHAMANGALAM
DHIMBAM
VADAVALLI
CHICKARASAM PALAYAM
KONDAPPANAICKEN PALAYAM
KEMPANAICKEN PALAYAM
KADMBUR WEST
KADMBUR EAST
VILAMKOMBAI
KONGAR PALAYAM
BUNGALOW PUDUR
KANAKKAN PALAYAM
KOMALUR
GUNDRI
ERODE FOREST DIVISION
NILGIRI NORTH FOREST DIVISION
REFERENCE :-
State Boundary
R.F. Boundary
Range Boundary
Wild life Sanctuary Boundary
Enclosers (Patta land)
Forest roads
N.H. Road
Beat Names
SATHYAMANGALAM WILD LIFE SANCTUARY AREA :- 52434.94 Ha.
NBR AREA IN SATHYAMANGALAM WILDLIFE SANCTUARY :- 28881.70 Ha.
Zone area in NBR :-
CORE ZONE :- 26381.70 Ha.
TOURISM ZONE :- 2500.00 Ha.
TOTAL NBR AREA :- 28881.70 Ha.
The MAP has been Prepared with reference to S.I. Sheet Maps


MAP SHOWING THE SATHYAMANGALAM WILD LIFE SANCTUARY RANGE MAPS
RANGE MAPS
KARNATAKA STATE
SCALE :- 1 CM = 3.25 Km
N
TALAMALAI R.F.
GUTTIYALATHUR R.F
PALAYAM
GETTAVADI
TALAVADY RANGE
BELATHUR
TALAMALAI
THENGUMARAHADAH
GEJALATTI
PEERKADAVU
BANNARI
BHAVANI SAGAR RANGE
KOTHAMANGALAM
DHIMBAM
CHICKARASAM PALAYAM
SATHYAMANGALAM RANGE
VADAVALLI
KONDAPPANAICKEN PALAYAM
KEMPANAICKEN PALAYAM
KADMBUR WEST
KADMBUR EAST
KOMTUR
GUNDRI
TOOKKANAICKEMPALAYAM RANGE
KONGAR PALAYAM
VILAMKOMBAI
BUNGALOW PUDUR
KANAKKAN PALAYAM
NILGIRI NORTH FOREST DIVISION
ERODE FOREST DIVISION
REFERENCE :-
State Boundary
R.F. Boundary
Range Boundary
Wild life Sanctuary Boundary
Enclosers (Patta land)
Forest roads
N.H. Road
Beat Names
RANGE WISE AREA DETAILS (in Sanctuary area)
Sathyamangalam Range = 17522.48 Ha
Bhavani sagar Range = 13202.62 Ha
Talavady Range = 8300.98 Ha
Tookkanaicken palayam Range = 13408.66 Ha
Total = 52434.94 Ha
The MAP has been Prepared with reference to S.I. Sheet Maps
Map prepared by :- A. KESAVARAJ, D.C.F., Asst. Draughtsman, Sathy Division
11°50'
11°45'
11°40'
11°35'
11°30'
11°25'
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11°15'
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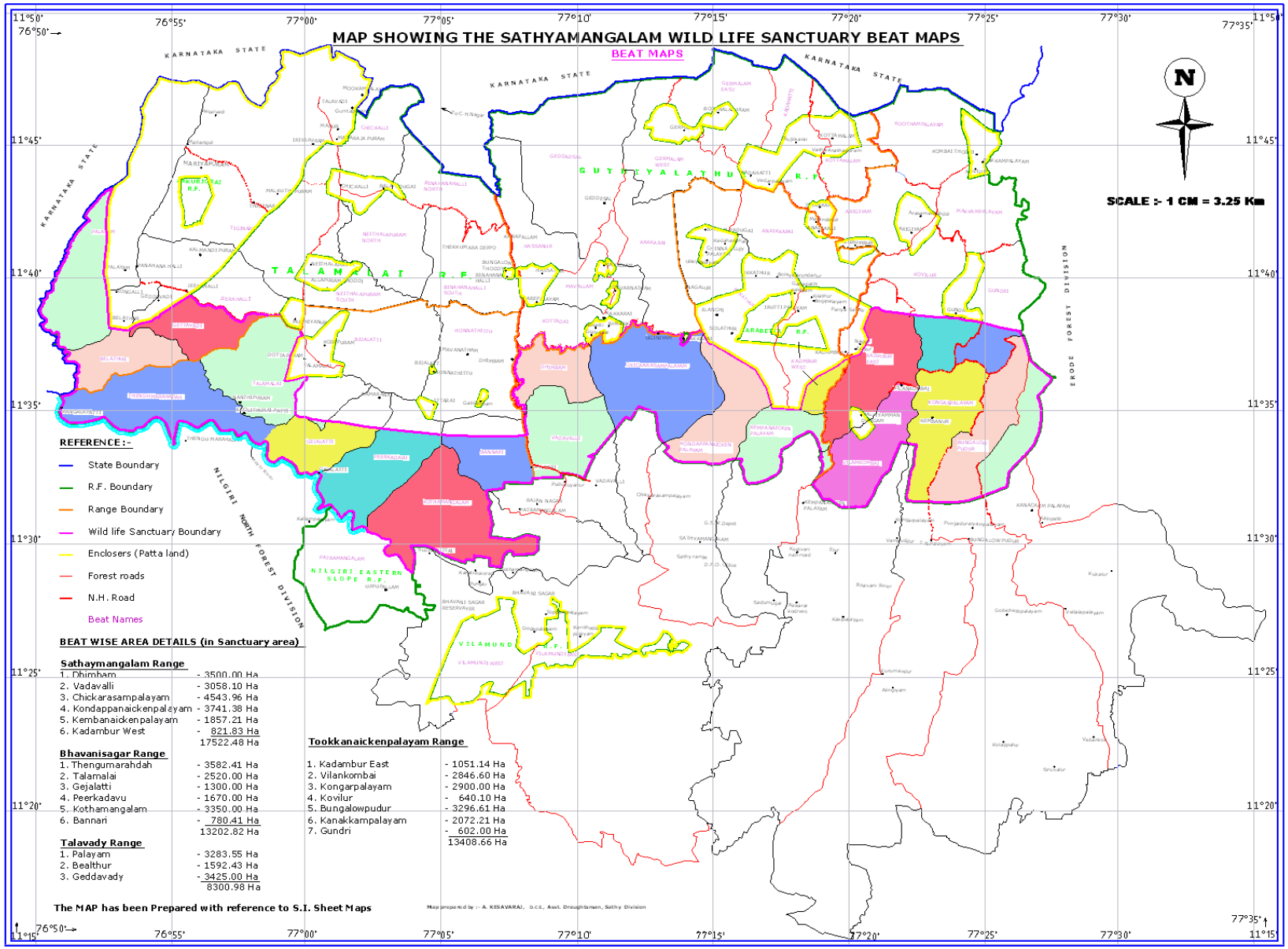
MAP SHOWING THE SATHYAMANGALAM WILD LIFE SANCTUARY BEAT MAPS
BEAT MAPS
KARNATAKA STATE
TAMIL NADU STATE
N
SCALE :- 1 CM = 3.25 Km
ERODE FOREST DIVISION
NILGIRI NORTH FOREST DIVISION
T A L A M A L A I R . F
G U T T I Y A L A T H U R . F
A R A B E E R . F
V I L A M U N D I R . F
N I L G I R I E A S T E R N S L O P E R . F
REFERENCE :-
State Boundary
R.F. Boundary
Range Boundary
Wild life Sanctuary Boundary
Enclosers (Patta land)
Forest roads
N.H. Road
Beat Names
BEAT WISE AREA DETAILS (in Sanctuary area)
Sathaymangalam Range
1. Dhimbam - 3500.00 Ha
2. Vadavalli - 3058.10 Ha
3. Chickarasampalayam - 4543.96 Ha
4. Kondappanaickenpalayam - 3741.38 Ha
5. Kembanaickenpalayam - 1857.21 Ha
6. Kadambur West - 821.83 Ha
17522.48 Ha
Bhavanisagar Range
1. Thengumarahdah - 3582.41 Ha
2. Talamalai - 2520.00 Ha
3. Gejalatti - 1300.00 Ha
4. Peerkadavu - 1670.00 Ha
5. Kothamangalam - 3350.00 Ha
6. Bannari - 780.41 Ha
13202.82 Ha
Talavady Range
1. Palayam - 3283.55 Ha
2. Bealthur - 1592.43 Ha
3. Geddavady - 3425.00 Ha
8300.98 Ha
Tookkanaickenpalayam Range
1. Kadambur East - 1051.14 Ha
2. Vilankombai - 2846.60 Ha
3. Kongarpalayam - 2900.00 Ha
4. Kovilur - 640.10 Ha
5. Bungalowpudur - 3296.61 Ha
6. Kanakkampalayam - 2072.21 Ha
7. Gundri - 602.00 Ha
13408.66 Ha
The MAP has been Prepared with reference to S.I. Sheet Maps
Map prepared by :- A. KESAVARAJ, D.C.E., Asst. Draughtsman, Sathy Division
11°50'
76°50'
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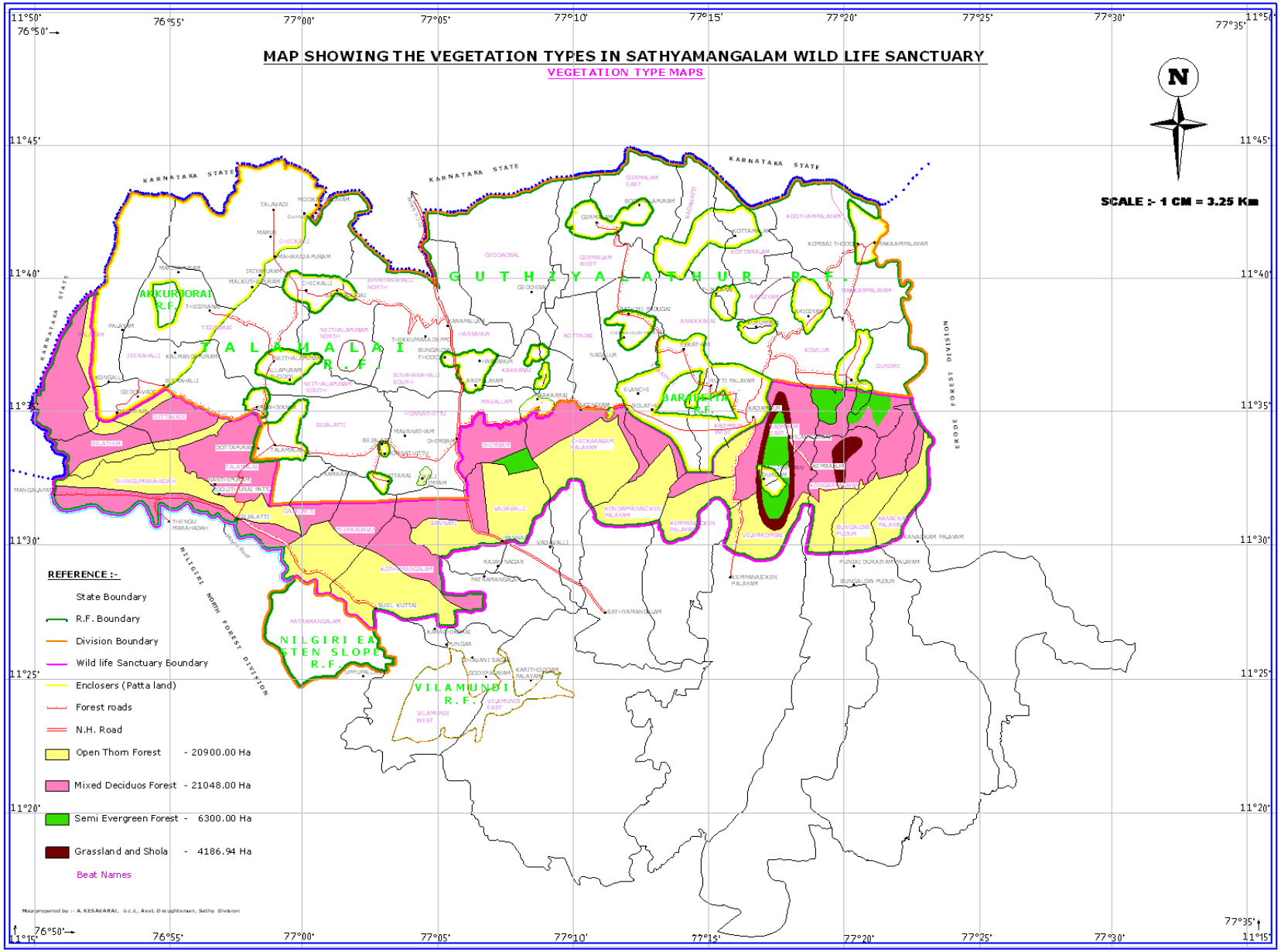
MAP SHOWING THE VEGETATION TYPES IN SATHYAMANGALAM WILD LIFE SANCTUARY
VEGETATION TYPE MAPS
N
SCALE :- 1 CM = 3.25 Km
KARNATAKA STATE
TAMIL NADU STATE
ERODE FOREST DIVISION
NILGIRI NORTH FOREST DIVISION
G U T H I Y A L A T H U R R . F .
T A L A M A L A I R . F .
B A R A T H I P U R A M R . F .
V I L A M U N D I R . F .
N I L G I R I E A S T E N S L O P E R . F .
REFERENCE :-
State Boundary
R.F. Boundary
Division Boundary
Wild life Sanctuary Boundary
Enclosers (Patta land)
Forest roads
N.H. Road
Open Thorn Forest - 20900.00 Ha
Mixed Deciduos Forest - 21048.00 Ha
Semi Evergreen Forest - 6300.00 Ha
Grassland and Shola - 4186.94 Ha
Beat Names
Map prepared by :- A. KESAVARAJ, D.C.F., Asst. Draughtsman, Sathy Division
11°50'
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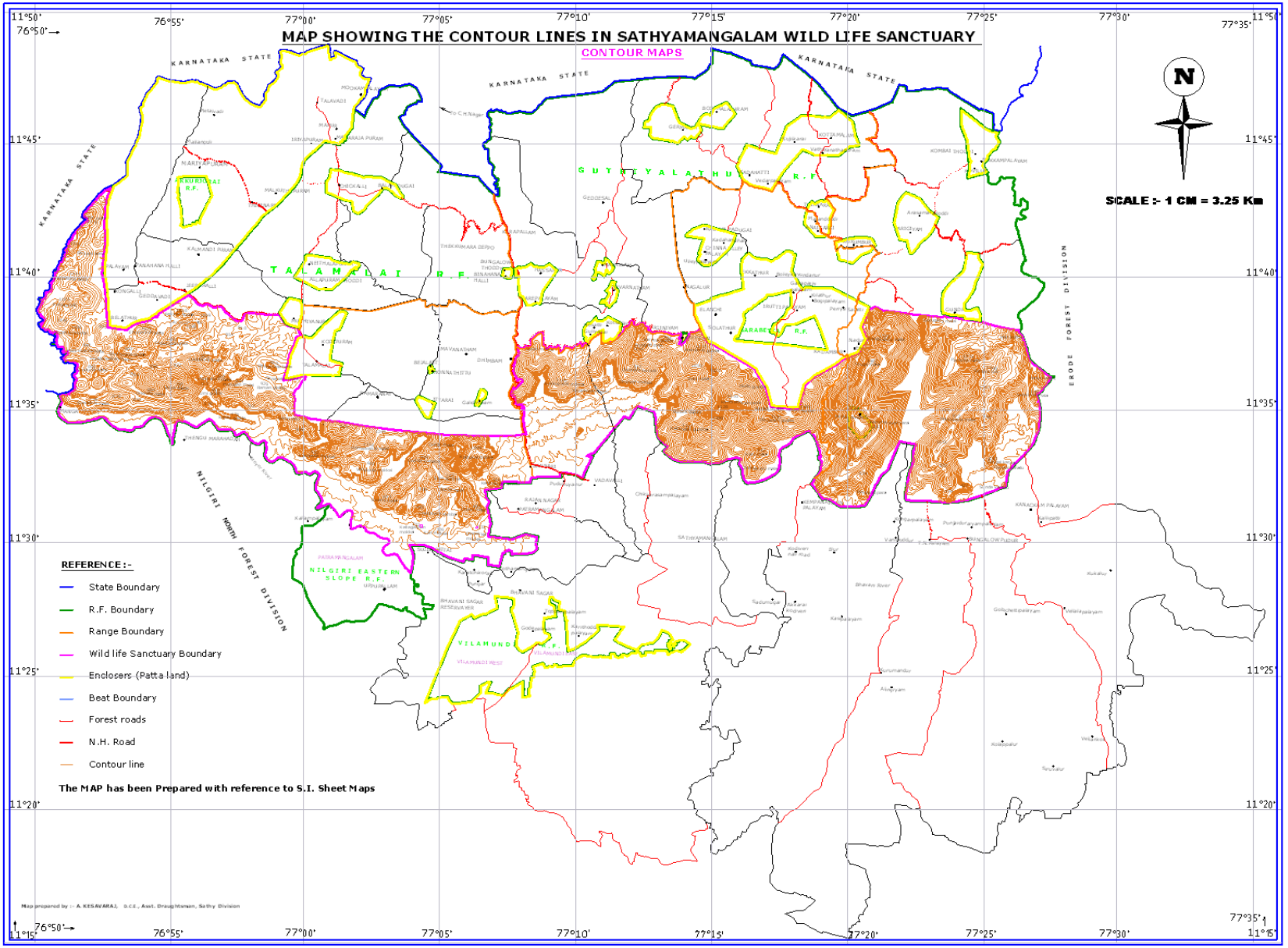
MAP SHOWING THE CONTOUR LINES IN SATHYAMANGALAM WILD LIFE SANCTUARY
CONTOUR MAPS
KARNATAKA STATE
TAMIL NADU STATE
N
SCALE :- 1 CM = 3.25 Km
GUTTIYALATHUR R.F
TALAMALAI R.F
ARABEE R.F
KURUMBAI R.F
NILGIRI EASTERN SLOPE R.F
VILAMUNDI R.F
NILGIRI NORTH FOREST DIVISION
ERODE FOREST DIVISION
REFERENCE :-
State Boundary
R.F. Boundary
Range Boundary
Wild life Sanctuary Boundary
Enclosers (Patta land)
Beat Boundary
Forest roads
N.H. Road
Contour line
The MAP has been Prepared with reference to S.I. Sheet Maps
Map prepared by :- A. KESAVARAJ, D.C.F., Asst. Draughtsman, Sathy Division
11°50'
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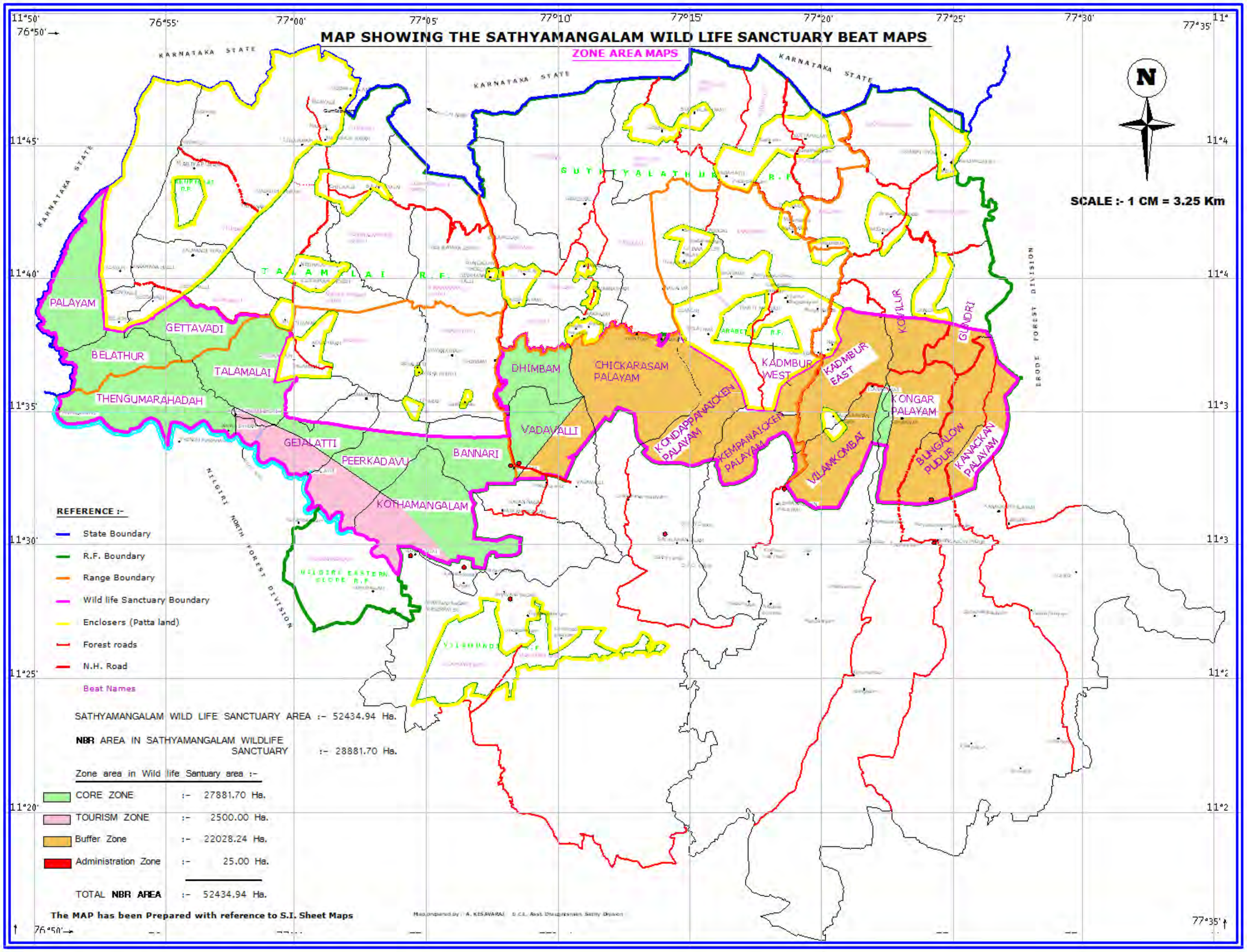

MAP SHOWING THE SATHYAMANGALAM WILD LIFE SANCTUARY BEAT MAPS
ZONE AREA MAPS
KARNATAKA STATE
N
SCALE :- 1 CM = 3.25 Km
ERODE FOREST DIVISION
NILGIRI NORTH FOREST DIVISION
PALAYAM
GETTAVADI
BELATHUR
TALAMALAI
THENGUMARAHADAH
DHIMBAM
CHICKARASAM PALAYAM
KADMBUR WEST
KADMBUR EAST
KOVILUR
GUNDRI
KONGAR PALAYAM
VADAVALLI
KONDAPPANAICKEN PALAYAM
KEMPANAICKEN PALAYAM
VILAMKOMBAI
BUNGALOW PUDUR
KANAKKAN PALAYAM
GEJALATTI
PEERKADAVU
BANNARI
KOTHAMANGALAM
REFERENCE :-
State Boundary
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Enclosers (Patta land)
Forest roads
N.H. Road
Beat Names
SATHYAMANGALAM WILD LIFE SANCTUARY AREA :- 52434.94 Ha.
NBR AREA IN SATHYAMANGALAM WILDLIFE SANCTUARY :- 28881.70 Ha.
Zone area in Wild life Santuary area :-
CORE ZONE :- 27881.70 Ha.
TOURISM ZONE :- 2500.00 Ha.
Buffer Zone :- 22028.24 Ha.
Administration Zone :- 25.00 Ha.
TOTAL NBR AREA :- 52434.94 Ha.
The MAP has been Prepared with reference to S.I. Sheet Maps

Chapter 3

HISTORY OF MANAGEMENT AND PRESENT PRACTICES IN WILDLIFE SANCTUARY

HISTORY OF MANAGEMENT AND PRESENT PRACTICES IN SATHYAMANGALAM WILDLIFE SANCTUARY

3.1 PAST HISTORY

The forest Department was constituted in 1859 with Dr. M. Cleghorn, as Conservator. The Sathyamangalam forests then formed part of the charge (Range) of the Maj. Horgan with headquarters at Ootacamund. The forests were thoroughly explored by Mr. Peat in 1884-85 in connection with selection of reserved forests. North Coimbatore was constituted a Division in 1879-80. Since Ist April 1830, the Anamalai forests which were known as the South Coimbatore and the united Division were named as Coimbatore Division.

In 1884-85, the North Coimbatore comprised of 3 ranges, namely Kollegal, Sathyamangalam and Bhavani, each in charge of a Ranger, assisted by one Forester and nine guards in the first range and one Forester and eight guards in each of the other two ranges. Prior to 1892, the present Talamalai Range formed part of Sathyamangalam Range, but in December 1898, it was made as an independent Range under a Range Officer.

In Ist April 1909, the North and South Coimbatore Divisions were further divided into four divisions namely North, South, Central Coimbatore and Kollegal. The then constituted North Coimbatore consisted of Sathyamangalam, Talamalai and Bhavani Ranges.

On 22nd August 1980, the Sathyamangalam and Talamalai Ranges were carved out of the North Coimbatore Division and constituted as Sathyamangalam Division with the headquarters at Sathyamangalam. Subsequently, Sathyamangalam Range was bifurcated into Sathyamangalam and Thookkanayakkan palayam Ranges on 07.10.1989 mainly to protect the sandal wealth and natural forests.

PAST SYSTEM OF HABITAT MANAGEMENT – Timber operations, Sandal Harvesting, Fuel Wood, Grazing and Sandal Depot

The Sathyamangalam Division produces economic goods such as sandalwood, firewood and variety of Minor Forest Produces. Social goods such as grazing of village's cattle (except goats) and free collection of dry fuel head loads for domestic consumption was allowed. The past history of these goods and services, as to the extent available is described in each working circles in the working plan.

3.2. WORKING PLAN APPROACH

For the erstwhile Coimbatore North Division the first comprehensive working plan was prepared by C.R. Ranganathan in 1932. Till then, the Division was governed mostly by simple working schemes. These working schemes were more concerned about heavy exploitation of the forest produce in an unregulated and unsystematic manner. Thiru. V.S. Krishnasamy revised the C.R. Ranganathan's plan and the prescriptions were brought into force from 1942.

M. Hussain took up revision of this plan from 1954 and the revised prescriptions for Sathyamangalam, Talamalai and Bhavani (Anthiyur) Ranges came into force from 1966-67. A revised plan for Burgur Range alone, prepared by K. Shamughanathan came into force from 1957. John Joseph revised the above two plans and prepared a revised plan for the composite Coimbatore North Division as constituted in 1961. J.C. Kala took up revision of the John Joseph's plan and the prescriptions were brought into practice from 1980 onwards.

The present plan is for the Sathyamangalam Division as constituted in 1980 and revision of the prescriptions pertaining to this new division.

3.2.1. SANDAL WORKING CIRLCE

In 1860, working of the sandal forests was started and continued till 1896, in on unsystematic and irregular manner. In 1996, P.M. Lushington introduced a provisional working scheme for 30,732 acres, which includes sandal trees both in the reserves and unreserved of Guthiyalathur. Similar scheme dividing the Talamalai Range into 10 coupes was introduced in 1896. The onset of spike disease early in the current century offset the position and the chronological order of the coupes. The work of removing spiked and deed trees was carried on whenever it was most needed, in a thoroughly disorganized way and the prescriptions became a dead letter.

A ban was imposed on the felling of living sandal trees, and an elastic provisional scheme was prepared by C.M.Hodgson in 1917-18 confining extraction to spiked and dead trees. According to this scheme the Guthiyalathur forests of Sathyamangalam Range has to be covered in four years, and Talamalai Range in six years.

Then, Ranganathan took up the preparation of the first working plan. He prescribed the formation of two working circles namely Reserve Sandal working circle for sandal in the reserves and Sandal working circle for the sandal in the unreserves and patta lands.

This working plan was revised by V.S.Krishnasamy in 1941-42. Prescriptions regarding sandal tending and artificial regeneration were given up. Also, attempts on artificial regeneration in propagation centres were discontinued.

Md. Hussain's Plan came into force from 1956-57 and more or less in line with previous plan. Only a rough forecast was estimated. John Joseph's plan expressed concern over the non-removal of dead trees owing to 6 year cycle.

Kala's plan continued the cycle at 3 years under natural selection system, of uprootal of only dead sandal trees. 10% enumeration was carried out in Hassanur series and as compared with 10% enumeration details of John Joseph's plan, the following inferences were arrived at. (a) The spike takes the major toll of the trees and greatly influences the yield.

3.2.2 VILLAGE SANDAL WORKING CIRCLE

Separate working circle was created by Ranganathan to cover sandal trees growing in Patta lands and unreserves and bring them under systematic working.

3.2.3 ARTIFICIAL REGENERATION

As early as 1870-74, attempts were made to raise pure sandal plantations by sowing seeds in lines 6' apart by Col. Morgan. But, these efforts failed mainly due to repeated fire and damage by deer, Sambar and bison. In 1912, sandal cultivation was attempted over 4 acres in Mavanatham after ploughing the lands. Sandal seeds mixed with those of other species commonly associated with were sown. The growing seedlings were browsed by deer.

Ranganathan in his working plan laid emphasis on creating sandal nuclear centres in specified beats at the rate of five in every beat. The object was to create a few healthy mothers for propagation of the species naturally.

John Joseph prescribed tackling of selected small areas (10 Ha) in Sathyamangalam and Talamalai Ranges. Container plants with hosts were proposed. No success of appreciable degree and significance was achieved by any of the above method attempted so far. Planting of sandal was discontinued from 1973-74 onwards by the orders of the Chief Conservator of Forests (dt : June 1973). However Kala prescribes repeated sowing of pre-treated viable sandal seeds in thorny bushes. The results were found to be not encouraging.

3.2.4 FUEL WOOD WORKING CIRCLE

Free removal of fuel, was allowed in the early years. When jungle conservancy department was formed, the removal was regularized by issue of free permits for bonafide purposes. Later a nominal fee was fixed for the permits. In 1908, fuel working circles were formed and until 1915, the coupes were departmentally worked. Then the system of leasing the coupes to the contractors was adopted.

Krishnaswamy's plan proposed more reserve series to meet the heavy demand for charcoal. With the demand of charcoal falling after the war, these heavily worked areas were given rest.

Md. Husain's plan proposed 17 falling series in Sathyamangalam and Talamalai Ranges. Coppices rotation was reduced from 40 years to 30 years and as per the then State Silviculturist, it culminates in the 25th year.

John Joseph proposed 10 felling series in Sathyamangalam and Talamalai Ranges. The silvicultural system was simple coppice with reservation of Sandal, Tamarind, Neem, Soapnut, Pungan and Gallnut. Rotation was fixed as 30 years.

In March 1977, Government imposed a ban on the felling of natural forests.

3.2.5. BAMBOO WORKING CIRCLE

In 1910, four Bamboo felling series in Sathyamangalam Range and one in Talamalai Range were created for sale in standing condition. Only ghat faces and accessible portions were included in the series laying boundaries along the natural forests. The felling cycle adopted was five years. Under Ranganathan's Plan a regular bamboo working circle was created comprising areas of bamboo found in workable conditions. As felling series on a three year felling cycle were formed for the erstwhile Coimbatore North.

In 1980, with the opening of the Paper Mill at Pallipalayam (Erode), bamboo resources were exploited for raw material for paper. The Mill placed heavy demand on the forests of this division. John Joseph stock mapped the entire division systematically and 2 felling series for Talamalai Range and 9 series for Sathyamangalam Range were created. Felling cycle was kept at 3 years. John's plan provided for planting of Dendrocalamus strictus and Bambusa arundinacea, with interplanting with Eucalyptus. Due to browsing, the bamboo had stunted growth, which interplanted Eucalyptus had shown good growth.

3.2.6 SMALL TIMBER WORKING CIRCLE

In 1923, based on the recommendation of the Forest Advisory Committee, an agricultural implements working circle was opened to meet the needs of the villages of Sathyamangalam Range. This working circle was closed in 1927.

Ranganathan revived this working circle on plea that the genuine demands of the people have to be met. Villagers were given option to select their timber. This resulted in misuse.

Illicit removals of started from adjoining forests. Prescriptions remained a dead letter. Hussain however revised this working circle. No definite felling cycles was prescribed. John Joseph discontinued this working circle.

3.2.7. GRAZING WORKING CIRCLE

As cattle breeding was one of the major occupations of the people in the plateau and large herds of cattle were kept by the villagers for the sake of manure. The grazing was regulated by block system in 1912. In 1921, the Forest Advisory Committee was appointed to investigate into the grievances of the graziers. As a result, grazing blocks were abolished, and range became the unit, with some elasticity for cattle movement. Penning was made free.

3.2.8. MINOR FOREST PRODUCE WORKING CIRCLE

Collection of Minor Forest Produce was carried out departmentally till the end of 1915. From 1916, the practice of leasing out the produce to the contractors was introduced. In 1980-81, the collection of gallnuts was done departmentally in Sathyamangalam and Talamalai Ranges and marketed.

Sathyamangalam Hill Tribe co-operative Society has been getting Tamarind, gallnuts, Icham leases at concessional rates.

3.2.9. TIMBER OPERATION

There have been no organized timbers felling in the division. A disastrous felling of about 30,000 cft of rosewood from Minchiguli valley and Geddesal in 1906-07 was recorded. It is said that a contractor from blabar bought the timber and employed elephants to transport.

Hussain prescribed selection felling of trees 6 feet and above in girth at the rate of 200 trees per annum in each locality. The localities mentioned were Minchiguli Valley, Thattavadi, Gundri of Sathyamangalam Range. After 5 years of working it was given up due to lack of organizational ability and enthusiasm.

In John Joseph's plan, under selection working circle, Minchiguli series was formed with 3 blocks. Kala proposed two blocks viz., Thattavadi and Pethakorai in Sathyamangalam Range comprising an area of 1684 ha. Selection-cum-improvement felling system was prescribed. Exploitable girth was fixed at 150 cm. Polling cycle was 10 years.

3.2.10. SANDAL SALE DEPOT

Sandal sale depot at Sathyamangalam is maintained in accordance with revised sandal felling rules. Separate Range officers are posted as single and double lock officers. Sandal sales are held twice a year.

Details of works carried out under various schemes in Sathyamangalam Division from 1987-88 to 1989-90

1. Formation of contour trenches in Dhimbam and Honnathittu slopes and planting miscellaneous
2. Species in the trenches.
3. Construction of check dams.
4. Construction of percolation ponds.
5. Gully plugging.
6. Construction of R.F. cairns.
7. Raising misc. plot at Akkurjorai in Talamalai Range 10 Ha.
8. Raising of Fodder Farm at Bannari in Sathyamangalam Range : 10 Ha.
9. Providing power fencing with Battery and Energizer.
10. Installation of Educative Hoardings.
11. Bamboo/Eucalyptus Restoration by doing-cultural operation.
12. Clearing R.F. Boundary lines.
13. Improvement works in Forest Ecology Farm at Bannari.

3.3. ILLEGAL ACTIVITIES

a) Hunting

The status of poaching of various animals in the forest division over the last ten years is given in the **Annexure No –**

b) Tree cutting and encroachments

The extent of illegal cutting of timber valuable species in the forest division is presented in the Annexure No. There is no encroachment is noticed in the division

3.3.1 Present Protection Measures

Protection in Sathyamangalam Wildlife Sanctuary is accorded the highest priorities and all other activities are considered complementary to protection strategy. With inherent socio-economic problems and compulsions, and the ever mounting pressures of illegal wildlife activities, forest Protection assumes greater importance for the sanctuary.

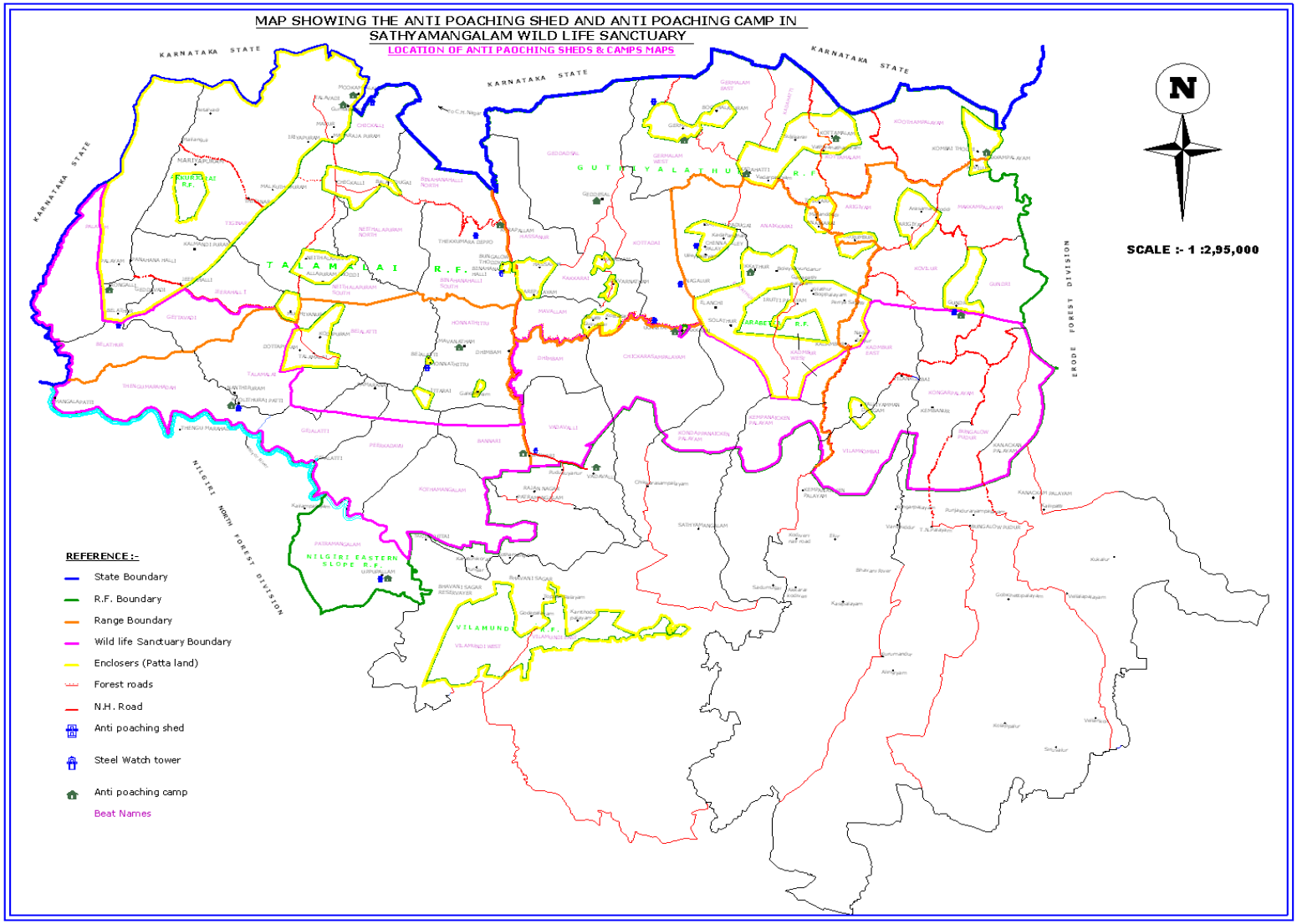
3.3.2 The Necessity for Protection Strategy

1. Location; Inter State Boundary: Western Ghats and Eastern Ghats Landscape
2. Conservation Issues: Multidimensional
3. Good Population of Tigers, Elephants and other Prey Species
4. Rich in Biodiversity

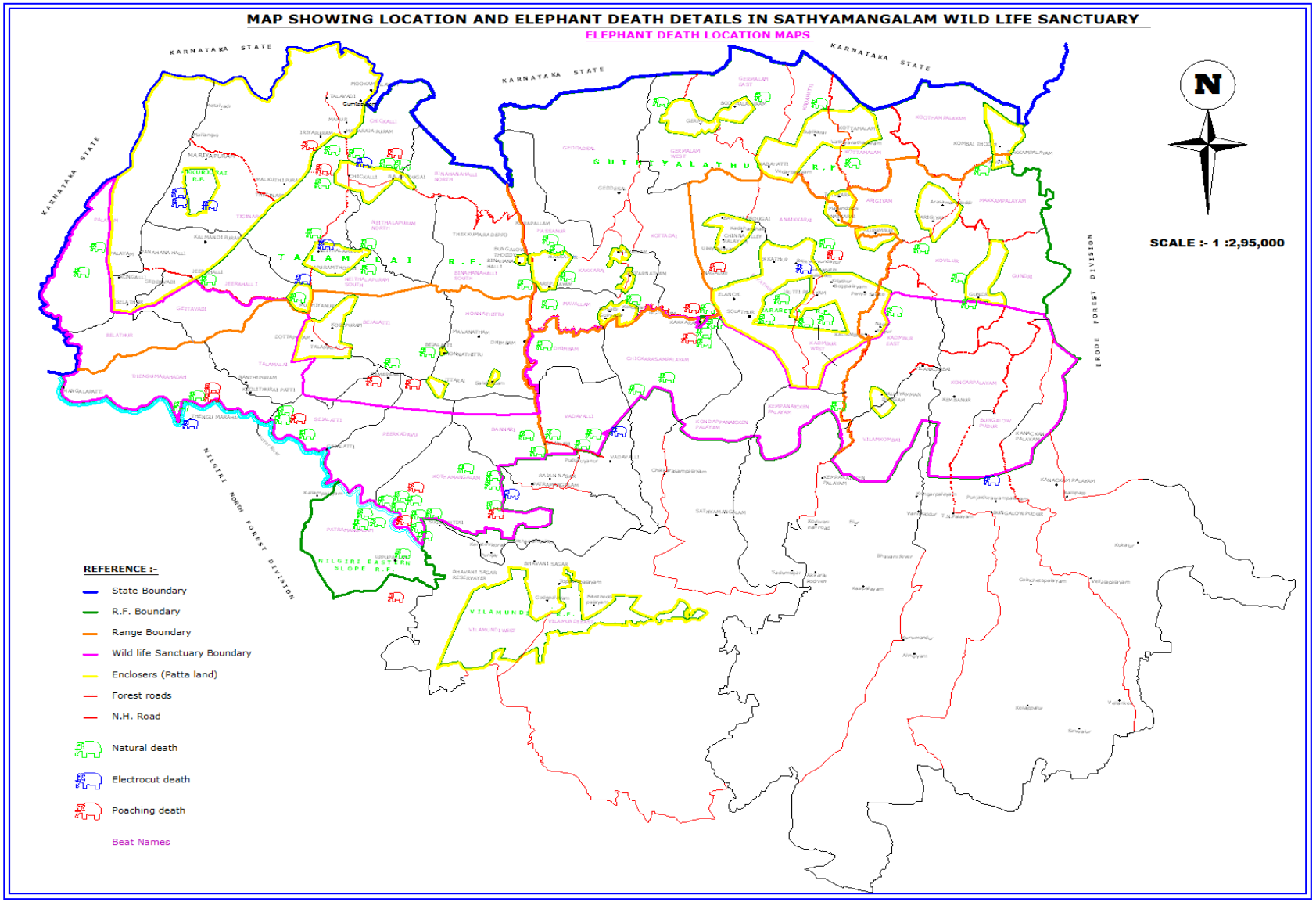
3.3.3. Enforcement Procedure

The staff of the Wildlife area needs to be ever vigilant to enforce various Acts like Tamil Nadu Forest Act 1882, the Indian Wildlife (Protection) Act, 1972 and the Forest Conservation Act, 1980, considering the ever-increasing biotic pressures on wildlife in protected areas. It is very important that the Field staffs of wildlife protected area are well-acquainted with and updated on the various provisions of the Act. It is also important to maintain a very close working relationship with the police and judiciary to put across the department's point of view more effectively.

Map. Location of anti poaching camps in the Sanctuary



Map. Location of mortality of elephants (Electrocution, Natural death and Poaching)



3.3.4. Special Task Police Force

The Special Task Force is supporting the forest department in the protection and anti-poaching measures. Periodical patrolling is being done jointly in remote areas of the Sanctuary. It is proposed to impart periodical training for the field staff of the forest department in handling of weapons, intelligence gathering and investigation of offences.

3.4 ENFORCEMENT STRATEGY

3.4.1 Monitoring of Forest offences:

A Crime Data Bank, to be maintained by the DFO office and it should monitor the following activities

a) Incidences of poaching with details of species and seizures
b) Cases registered and disposed in the courts
c) Poachers Profile (Dossier of poachers)
d) Monthly abstract of wildlife crimes
e) Functioning of APC

3.4.2 Head Quarters Mobile Force

The division has mobile striking force to prevent all sort of wild life offences including other illegal activities within the sanctuary and adjoining areas. The mobile force headed by a Range Officer and has one Forester and two Forest Guards and three Watchers

The mobile striking force shall be entrusted with the following duties.

a) Building up an effective intelligence network to monitor, prevent and pre-empt illegal activities in the sanctuary areas.
b) Intensive night patrolling throughout the sanctuary and the villages surrounding it.
c) Raid and seizure of illegal wildlife products in the market areas.
d) General surveillance on the unauthorized movements in towns and villages
e) Checking the offence profiles of the neighbouring territorial ranges of Erode and Nilgiri North
f) Checking of suspected vehicles in check posts
g) Inspecting border check posts

3.4.3 Inter- State Coordination Meeting

The Sathyamangalam Wildlife Sanctuary is part of the Nilgiri Eastern Ghats Landscape and its unique ecological location bordering with Karnataka has warranted a combined effort of all the good neighbouring divisions to ensure better protection to endangered species and their habitats. Inter-state coordination committee meeting is one such mechanism for a combined front against offenders and organized poachers. Once in three months, a meeting must be organized involving field staff in the rank of RFO to the level of Forester. The main focuses of the forum are as follows;

A joint co-operative strategy could help in controlling poaching incidences. Periodic joint operations by sharing the information might benefit in the long run. The joint operations including raids and combing operations, apart from having a surprise effect should also be made mandatory for the field staff with a periodicity of at least one such operation per month. The list of the offenders caught every month should be shared by means of a periodical meeting. At the same time, whenever an offender is apprehended any side having for any of the schedule-I animal, the intimation can be made to the wildlife Warden/DFO of the respective area so that the opportunity is given for interrogation and corroboration of the information already available. The list of NBW's pending for each area must be exchanged. The list of inter-state accused against whom the cases are pending at each state must also be shared.

The tri-partite meetings are an important mechanism to share the information, apart from giving an opportunity to the field staff of these states to familiarize with each other. The meeting is required to be held on rotation basis between Sathyamangalam, Nilgiri North, Erode, Mudumalai Tiger Reserve and Chamrajnagar once in three months.

3.4.4 Intelligence Network and Secret Service Fund

The provision of secret fund under wildlife schemes should be utilized efficiently and properly and adequate funds must be placed at the disposal of DFO. The informers should be identified and rewards paid to them for their services from this secret fund.

3.5 MANAGEMENT OF NTFP RESOURCES

These are very important resources of the sanctuary and in no way can be considered as 'Minor' in nature. The annual revenue from Non – timber resources in the Division is in the order or about Rs.60 to 80 Lakhs. The following are the main items collected from the forests.

Sl. No.	Name of Produce	Botanical Name & useful plant part	Uses
1.	Tamarind	*Tamarindus indica*- Fruits / pulp	Culinary
2.	Gallnut	*Terminalia chebula*- Fruits	Tanning
3.	Shekkay	*Acacia concinna*- Fruit	For shampooing hair
4.	Soapnut	*Sapindus emarginatus*- Fruit	Washing
5.	Lemongrass	*Cymbogon citratus*-leaf oil	Lemongrass oil
6.	Date Leaves	*Phoenix humilis*- leaves	Broom making
7.	Nelli	*Emblica officinalis*- Fruit	Pickle, Vitamin.C.
8.	Pungam Seeds	*Pongamia glabra*- seeds	Oil for dressing leather
9.	Vembu	*Azadirachta indica*- seeds	oil and oil cake
10.	Seetha fruit	*Anona squamosa*-Fruit	Flesh edible
11.	Korai grass	*Cyperus panara*-leaf	Fodder and roofing
12.	Kungilium	i) *Boswellia serrata*-Resin ii) *Shorea talura* fruits	Oleoresin
13.	Nuxvomica	*Strychnos nuxvomica*-fruit	Medicinal value
14.	Sundakkai	*Solanum torvum*-fruit	Medicinal value
15.	Vilankai	*Feronia elephantum*-fruit	Medicinal value
16.	Naga fruit	*Eugenia jambolana*-fruit	Medicinal value
17.	Kila fruit	*Carrissa caranda*-fruit	Medicinal value
18.	Thethankottai	*Strychnos potatoram*-fruit	Medicinal value

With the advent of Tribal rights Act, the indigenous communities are entitled for the collection of NTFP items for their bonafide requirements. Already, preliminary survey work is in progress. The individual and community claims have been submitted to the Gram sabha for ascertaining the veracity. Efforts are already taken to collect these items through Tribal village forest committees. The role of contractors and their exploitative ways of purchasing the NTFP items at cheaper rates is stopped by empowering the VFCS.

Many eco-development works have been initiated in the tribal villages by utilizing the funds generated through NTFP collection. Further fine tuning is required to increase the value and minimize the wastage of NTFP resources.

3.6. MANAGEMENT OF FOREST FIRE

Fire Protection

The mixed deciduous forests coupled with scrub tracts of Sathyamangalam are more prone to fire. The fire season begins after the North east monsoon from early December till about pre-monsoon showers in the month of April. Natural fire is unknown to this area and the fires are mostly accidental or intentional by the man. The ground fire has a profound effect on the wildlife and its habitat. Fire not only reverses the process of natural succession of plant communities, it also modifies the abundance and relative densities of the wildlife. Fires immediately result in the removal of dry, coarse, fibrous and unpalatable forage, and produce a new flush of nutritious and palatable green shoots of grasses based on the availability of moisture, which is liked by all herbivores, including Elephants. Fires kill or partly destroy seedlings, saplings and shrubs, giving rise to small openings, invariably without regeneration. The total length of existing fire lines is **400** kms including forest roads, high way roads, panchayat roads and plantation boundaries.

Fire Protection Measures

The Management has to adopt various fire prevention strategies and control, much before the onset of fire season between December and April every year. The protection measures include the following pre-emptive steps:

Fire Watchers

Temporary Firewatchers are employed from December to March every year. These people belong to local tribal communities from neighbouring hamlets and they are well versed with fire fighting works. This also generates an employment opportunity to the local youth and an information network in the villages on protection aspects. The firewatchers are placed strategically to do fire surveillance and fire fighting along with the staff in the event of fire outbreak.

Monitoring

Strategically located places at elevated locations are identified from where the extensive area could be watched and monitored to detect fire occurrence. These locations provide almost complete coverage of the sanctuary.

Most effective communication network over wireless has been put in the sanctuary. All the anti-poaching camps must be provided with fixed and mobile wireless units. This effective communication is the key to early detect, inform and quickly react to any fire occurrence. Thus, the communication system needs to be fully geared up during the fire season.

Fire Line works

Fire-lines are being managed depending upon the availability of funds. This type of work must be completed well before fire season. Utmost care has to be taken while burning the fire-strips to prevent jumping of fire from fire line itself. The fire line work should be done under the supervision of a Section Forester, intimating all the fire-watch stations about the work, and it should not be left to the fire-watchers alone, who at times tend to be a bit careless.

3.7. WILDLIFE HEALTH

In the late 1960s, (1967-69) the deadly disease, Rinderpest caused havoc in the adjoining Mudumalai sanctuary and decimated the Gaur population. However, at present, Gaur population is well distributed in the Sanctuary. This disease is eliminated but other equally fatal diseases such as Anthrax, FMD, Black Quarters occur in the population of scrub cattle, and they are prone to spreading of diseases to wild herbivores.

Spread of diseases such as distemper and rabies are other threats, passed on to Wild Carnivores by the mongrels kept by the villages. These dogs are trained to hunt Spotted Deer, and other species. Elimination of these dogs is a must to prevent spread of dreaded diseases and poaching without gun.

3.8 ECO TOURISM PLAN

The Eco-Tourism is an Off-shoot of Conservation as a provision for recreation experience to the tourists, at the same time ensuring an opportunity to spread the message of conservation to the masses. Over a period of time, there has been a growing interest of people in various wildlife destinations owing to awareness about these places. This is further increased by growing income levels of the people, whereby they tend to apportion a part of it on the leisure activities, travel being one of these.

3.9 RESEARCH AND MONITORING OF WILDLIFE POPULATION

The Sanctuary authorities must design a monitoring programme to study the wildlife in a scientific way in which the management can identify trends or changes and so as to gauge the effectiveness of its managerial inputs. Though it may sound an unplanned and subjective procedure, it is easy to collect useful biological data in a simple, systematic and scientific manner. The management should strive to include a number of useful monitoring activities in the routine duties of the staff, as well as annual estimation of wildlife counts, and other activities. The proposed Biologist will compile the data for scientific management of the Sanctuary.

Monitoring and evaluation are the two most important factors in the management of wildlife population and also changes in the landscape with special reference to plant dynamics and overall life style of people's customs those who are living within and adjoining protected areas. As part of monitoring animal population, annual census is conducted every year with the help of researchers and local NGOs. Long term ecological research studies are encouraged by the department to understand the eco system processes in the long run. Of late, a serious concern is being tailored into the wildlife management practices to evaluate the outcome of research findings based on monitoring and evaluation procedure. Such a mechanism is crucial to decide conservation plan for various endangered species and key flag ship species in the Sathyamangalam Wildlife Sanctuary.

3.10 ADMINISTRATIVE SET UP

The Sathyamangalam Wildlife Sanctuary is under the direct administrative control of the District Forest Officer, Sathyamangalam as of now. Part of the Sathyamangalam Forest Division has been declared as Sanctuary (Notification under section 28 A 1 (b) of Wildlife Protection Act 1972: Environment and Forests: (FR 5) Department: dated 03.11.2008; GO No (Ms) No 122: PCCF & CWW letter No WL5/17854/2004 dated 29.01.2008). The total extent of the Sanctuary 52434.94 ha,

Sanctuary Profile and Status

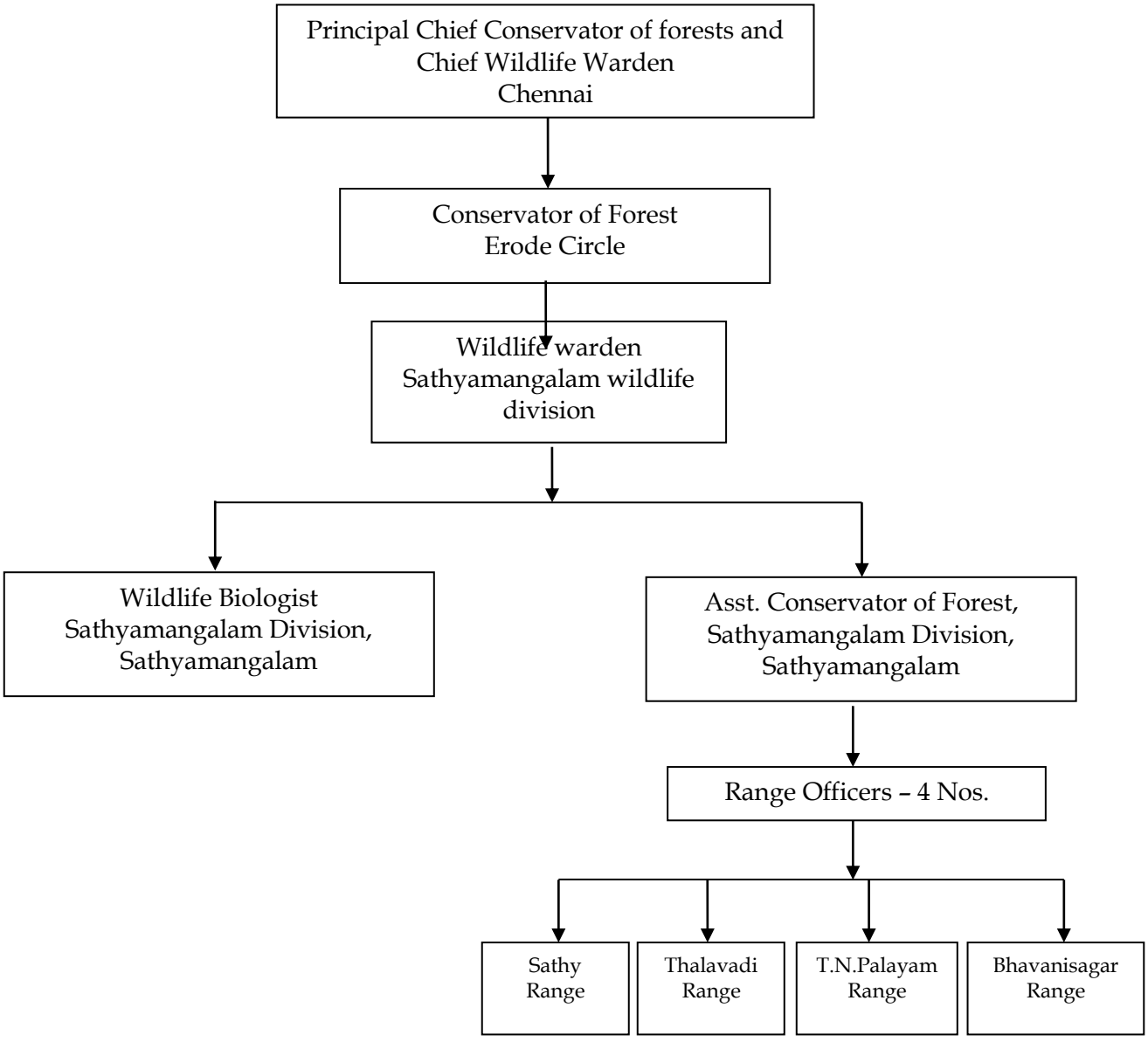
Name of the Reserve Forests	**Extent of Ha**
a) Guthiyalathur RF (Portion)	29947.00
b) Guthiyalathur Extension Reserve Forest	162.31
c) Talamalai RF (Portion)	21085.00
d) Talamalai Extension RF	1240.63
Total Area (525 Sq km)	**52434.94 Ha**

S No	Talamalai RF and Talamalai Extension RF	S.No	Guthiyalathur RF and Guthiyalathur Extension RF
Sector 1	**Thalavadi Range: Beat Name** 1.Palayam Beat (Full) – 3283.55 Ha 2. Belathur (Full) - 1892.43 Ha 3.Geddavady (Full) - 3425.00 Ha Bhavanisagar Range : Beat Name 1.Thengumarahada (Full – 3582.41 2. Talamalai (Part) - 2896.32 3. Gejalatti (Part) - 1375.51 4. Peerkadavu (Part) - 2040.00 5. Kothamangalam (Full) - 3350.00 6. Bannari (Part) - 780.41 **Total - 22325.63 HA**	**Sector 11**	**Sathyamangalam Range: Beat Name** 1.Dimbum (Full) - 3500.00 HA 2. Vadavalli (Full) - 3058.10 3. Chickara-Sampalayam (Full) - 4543.96 4. Kondappanaicken Palayam (Full) - 3741.38 5. Kembanaiken Palayam (Full) - 1857.21 **TN Palayam Range: Beat Name** 1.Kadambur East (Part) - 1051.14 2.Vilankombai (Full) - 2846.60 3. Kongarpalayam (Full) - 2900.00 4.Kovilur (Part) - 640.10 5. Bungalowpudur (Full) - 3296.61 6.Kananckam palayam (Full) – 2072.21 7.Gundri (Part) - 602.00 **Total - 30109.31 HA**

Total Sanctuary Area **52434.94 HA**

Balance Sathyamangalam Forest Division Area **93095.98 HA**

The Sathyamangalam forest division is under the administrative control of the District forest Officer, Sathyamangalam. After the formation of Sathyamangalam wildlife Sanctuary, it will be managed by a wildlife warden with the following staff strength. Since wildlife Sanctuary requires technical knowledge on wildlife issues, it is recommended to post one Wildlife Biologist to assist the Wildlife warden on technical matters. It is recommended to post an Assistant conservator of Forests to look after the administrative issues of the Sanctuary with Sathyamangalam as the head quarters.



DETAILS OF PROPOSED STAFF FOR SATHYAMANGALAM WILDLIFE DIVISION AND SATHYMANGALAM TERRITORIAL DIVISION

S. No	Name of post	No.	S. No	Name of post	No.
WILDLIFE DIVISION			TERRITORIAL DIVISION		
1.	Wildlife Warden	01	1.	District Forest Officer	01
2.	Superintendent	02	2.	Superintendent	02
3.	Forest Ranger	05	3.	Forest Ranger	08
4.	Forester	10	4.	Forester	10
5.	Junior Draughting Officer	01	5.	Junior Draughting Officer	01
6.	Asst.Draughtman	01	6.	Asst.Draughtman	01
7.	Stenographer	01	7.	Stenographer	01
8.	Typist	01	8.	Typist	01
9.	Assistant	10	9.	Assistant	10
10.	Junior Assistant	05	10.	Junior Assistant	05
11.	Driver	06	11.	Driver	07
12.	Forest Guard	27	12.	Forest Guard	53+7
13.	Forest Watcher	21	13.	Forest Watcher	41+7
14.	Record Clerk	01	14.	Record Clerk	01
15.	Office Assistant	07	15.	Office Assistant	09
16.	Office Watchman	06	16.	Office Watchman	08
17.	Wireless operator & Computer operator	1+1	17.	Wireless operator & Computer operator	1+1

Administrative Problems

The following problems are witnessed every year as part of administration

a) Delay in release of funds by the government of Tamil Nadu after receipt of GOI order
b) Delay in obtaining plan scheme work such as protection work, fire management, weed control and water hole management. Therefore, works could not be carried out properly as expected from the field staff.

3.11 COMMUNICATION

The existing roads in the proposed tourism zone are not metalled. The usage of roads by the people living in the enclaves is regulated, giving due consideration to their bonafide subsistence requirements. All the territorial ranges have been provided with the Jeeps for mobility.

A well laid wire-less communication system has been put in operation in Sathyamangalam. Base stations are located in strategic locations (Bhavanisagar, T N Palayam, Sathyamangalam and Thalavadi). All the Jeeps are connected with mobile sets. The field staffs up to the level of Forest Guards have been provided with walkie-talkies. It is the endeavour to connect all the anti-poaching camps with one base unit, one solar charging unit, and one mobile set for foot-patrolling. The mobile sets must be fitted in all the vehicles of the division.

3.12 SUMMARY OF THREATS TO WILDLIFE IN SATHYAMANGALAM WILDLIFE SANCTUARY

The major threats to the Sathyamangalam Wildlife Sanctuary are furnished below:

a) Collection of various items of non timber forest produces from the sanctuary areas
b) Heavy dependence by local communities for fuel wood for domestic and sale for livelihood.
c) Cattle grazing (10,000-15,000) as part of their livelihood. The cattle also pose an ecological threat in terms of spreading off diseases to wildlife population.
d) Forest fire has been a major issue affecting the overall bio-diversity
e) Invasion of weeds, especially *Prosopis juliflora, Lantana camara, Opuntia dillenii, Chromolaena* and *Eupatorium* in the sanctuary areas, further degrading the habitat, especially limiting the herbivore biomass
f) Poaching incidences
g) Impact of temple tourism, resulting in non-degradable wastes, detrimental to wildlife.
h) Speedy vehicles in Dhibum and Thengumarada Road, resulting in road kills of wild animals
i) **Increasing trend of Man-Animal Conflict, due to wild boar, elephants, gaur, leopard. straying into human interface and creating anti conservation among local communities**

Chapter 4

THE PROTECTED AREA AND THE INTERFACE LAND USE PATTERN

The protected area and the interface land use situation

The fringes of the Sathyamangalam WLS, comprises of several villages which exert biotic influence on the peripheral resources, especially its floral diversity and movement of animals, particularly man-animal conflict. The human induced pressure also influences the level of threats to the eco system including extent of dependency on natural resources.

4.1 THE EXISTING SITUATION IN THE ZONE OF INFLUENCE

There are about 138 villages/settlements abutting within 5 km radius surrounding the sanctuary and three enclaves are located within the sanctuary. People living within the sanctuary are Kurumbas, Sholagas, Irulas and Ooralis. Tribals depend on the forest for their sustenance. They collect honey and tubers, catch fish and at times scavenge meat from predator kills. The non-tribals collect fuel wood from the forest for their use. The people outside the sanctuary boundary exert considerably influence on the sanctuary resources. The low lying areas of Bhavanisagar water Spread areas are being seasonally occupied by the people for cultivation. As a result, the pressure of this population has directly fallen on the peripheries of the sanctuary.

4.1.1 List of TAP Villages: Range Wise

Bhavanisagar Range

Year	**Village Name**
2000-2001	Doddapuram
2006-2007	Rajan Nagar
2007-2008	Karachigorai
2008-2009	Patramangalam
T N Palayam Range	
2000-2001	Gundari (WLS) part
1998-1999	Bhagavathinagar
2003-2004	Chinnakaliyur: Kanakampalayam
2005-2006	Goundenpalayam

2007-2008	Vinobanagar
2007-2008	Vilankombai
2008-2009	Indira Nagar
Sathyamangalam Range	
1999	Sellappanthoddi
2002-2003	Vadavalli
Talavady Range	
2000-2001	Geddavadi
2003-2004	Belathur
Hassanur	
2006-2007	Nagalur
2008-2009	Uginium

FDA Villages located within the Sathyamangalam WLS

Range	**Villages**
Bhavanisagar	Pungar
	Pudupeerkadavu
	Nandipuram
Hassanur	Uginium
	Nagalur
T N Palayam	Punjai thoraipallayam
	Kanakkampallayam
Sathyamangalam	Peekiripallayam
Talavadi	Kongalli colony

Tribal VFC villages within the Sathyamangalam WLS

Range	**Villages**
Bhavanisagar	Nandipuram
Hassanur	a)Uginium b)Nagalur
T N Palayam	a)Bhagavathinagar b) Kembanur c) Vilankombai
	Kembanur
Sathyamangalam	a)Ramabaiyalur b)Osapalayam

4.1.2. Number of villages within the PA / High Value Biodiversity Area / Recovery Programme.

Villages inside and outside the Sathyamangalam WLS

a) Nanthipuram Tribal village: The Nandipuram is located in the Moyar Valley of Sathyamangalam WLS. The village is bordered on the eastern side with Gajalahatti, and Mangalapatti, Ramaranai are located on the west and Northern regions respectively. The tribal communities co-exist with the forests surrounding their habitations in an integrated manner in terms of their social customs and cultures. Their basic livelihood mostly depends on forest resources, especially NTFP collection (tamarind, neem, sapindus, solanum, phyllanthus). The land use pattern has considerably altered with the erection of solar power fence for the settlement by the WWF India. In the process, the villager's socio economic aspect has been relatively improved. A permanent anti poaching camp was also established in the settlement with the funding support from the WWF India. With the result, the forest settlement village has showed a lot of progress compared to their earlier status. Man-animal conflict was not reported any more in this village. After the significant improvement of land use pattern, there are notable changes have been also noticed among the tribal communities which has exerted a major impact on conservation of forest resources in tribal dominated settlement places. Of late, there is a transparent changes noticed among the tribal communities in their social system including living standards and life style. This has made them to expose greatly to societies' main stream and they are now more aware about the civic rules and regulations. Further the, phenomenal growth of rural population coupled with the greater dependence of forest resources by local people for various domestic needs have depleted natural resources badly and the remaining forest resources are in greater danger.

b) Uginium Forest Settlement: This tribal village also lies around 8 KM from Karaliyam. The road leading from Karaliyam have to be improved for easy movement of vehicles. They are doing agriculture cultivation in their lands, mainly of dry land cultivation. There is no irrigation facility. Hence they could not get proper income from their lands. This has made them to work as coolies in other areas. They are provided with bore well with hand pump for drinking water. They do not have proper medical facility. There is no school even up to 5th std. There are demands for improvement of

roads, water for irrigation through wells, improvement of their houses and establishment of one school.

c) Vilankombai Settlement: This settlement is located away from Gundaripallam. There is no road facility. People in this settlement are living in small huts. The Socio – economic conditions are very poor. Many of them are jobless. They are having 30 ha of forest land for cultivation. They do dry land cultivation. There are irrigation facilities. There is no school. There is no transport facility.

4.1.3. Over all Proposed activities for various programmes: for the VFCs in TAP and FDA

Following activities are proposed as part of development activities for all the above said villages falling in various schemes

1. **Irrigation facilities to agriculture lands**
2. **Commercial activities**
3. **Communication, roads and bridges**

1. Leveling and Reclamation: The lands of tribal people lies inside the reserve forests and adjoining to the sanctuary. The lands are mostly undulating undulating and sloppy and prone to erosion of top soil. They are not in a position to do land leveling due to poverty and they could not cultivate economically. Hence, it is proposed for land levelling and reclamation whenever possible in this plan. This has to be done immediately for all the required villages.

2. Irrigation: The tribal people mostly are doing dry land cultivation and hence they cultivate during rainy season only. If the irrigation facilities are improved they can get high yield from cultivation and they can cultivate one more crop. So if energized bore wells are provided they can do cultivation during non rainy season also in smaller areas according to availability of water. The diversion of water from the perennial streams through channels will also help them in irrigation of their fields. This could be tried in some villages on a priority basis to improve water harvesting system. Most of the villages are having one single phase power supply. If the conversion of single phase to three phase, then only providing energized bore well is possible.

3. Providing solar power fencing: At present wild animals are entering into agricultural crops and causing extensive damage to crops. Hence providing solar power fence along the boundary of the villages to prevent the entry of wild animals and the damage to crops may be done at the earliest. In some settlements already fences have been established. This work has brought cheers and happiness and fresh life to the villagers. The people have not raised any crops in their lands for the past several years due to damage of crops by wildlife and they become collies even though they have lands. But after this power fence all people have raised crops and earned good income.

Therefore, the concept of solar power fence has very well catched up in the minds of local people to prevent crop damage. Proposals have to be prepared every year in a phased manner for all the crop damage sensitive areas to erect solar power fence. High quality solar power fence should be erected with the concept of community maintenance fence for long term sustainability.

COMMERCIAL ACTIVITIES

A.Providing Tractor: Many people are not cultivating their lands due to non-availability of ploughing facilities. Most of them are not having bullocks for ploughing. They are also not able to hire the tractor due to their poor economic condition. If tractor is provided for needed villages they can plough the lands in time and transport their agricultural products to the needy locations without any constraints.

B.Community Hall: The tribal people conduct various social functions and ceremonious like marriage and festivals in their home itself and feels hardship due to lack of space. To conduct these functions they require a common place where people can assemble and celebrate. To conduct meeting of village institutions such as VFCs and to conduct meetings during the visit of District Collector, District Forest Officer and other District Officials and Political Representatives there is no proper places in tribal villages. Therefore, community hall with basic facilities to be provided for Tribal villages located in the Sanctuary including adjoining villages.

C. Providing Grain Storage godowns:

The tribals do not have adequate space for collected NTFP products. This has made them to suffer further in terms of their poverty. For example, collection of date leaves can be done three times in a year on a rotation basis. But no storage facility is available

to store the harvested date leaves. If storage facilities are made available they can collect the date leaves and safely store them. Also during rainy days the date leaves collected are getting spoilt by moisture and wet condition and thus incur loss to them So they are not collecting date leaves during rainy seasons. if storage facilities are available they store the date leaves for more time and convert them into value added products which will fetch more income. Hence this will keep the tribals to get continuous employment throughout the year besides providing wages continuously. Therefore, it is needless to say that proper grain storage facilities are necessary for villages involved in NTFP products. Priority should be given for tribal settlements and forest revenue villages.

D.Providing milch animals

The tribals are not having the habit of rearing high yielding cattle's and they are having only uneconomical animals. Hence, they may be persuaded by replace with more economic cattle's with few high yielding varieties. They can rear good milch animals and produce more milk and thus improve their income. It is necessary to provide an integrated dairy farms for selected tribal and forest villages to wean away the biotic interference in forest areas.

E.Housing

House is one of the basic needs of the people living in forest areas. Mostly tribals live in thatched huts made of bamboo and other tree poles covered with grass, which needs frequent replacement of roof materials for which they depend more up on the forest. Construction of group house would certainly stop the tribal from entering into the forests for their housing needs. Most of the tribal people demand group houses and it is their primary demand. Group houses have to be constructed for the tribals dwelling in forest as well as in revenue settlements.

F. Providing Agriculture Implements

Some of the tribal holding their patta lands and cultivate crops, but most of the people do not have lands. They are mainly collies. Their life style is below poverty standards. Most of them are not even having basic agriculture tools such as crowbar, pickaxes. Therefore, it is necessary to provide all the required agriculture implements to the villagers.

G. Communication Facilities

In the absence of proper communication facilities, the t tribal people suffer considerably every day for their transport and to sale agriculture product. Besides, they can't give proper and immediate medical treatment. They cannot send their children to school for acquiring basic education. They cannot transport the agriculture products to the nearby village. In order to overcome these problems, the earthen roads which lead to tribal village should be provided with metallic and black topping. Hence the roads connecting their villages with the main roads should be improved for easy movement of their goods.

4.2 THE LOCATION, EXTENT, BOUNDARIES AND NATURAL ATTRIBUTES

The villagers depend on the forest for their fuel wood and small poles for house construction and at times they hunt small herbivores like chital, black-naped hare for meat. Wild life such as elephants, wild boar and deers raid their crop and predators such as tiger, leopard and wild dog kill their cattle when they go inside the sanctuary for grazing. People also get attacked by elephants, sloth bear. The indigenous tribal communities live in the interior forest area in various settlements.

Irulas The Irulas are a jungle tribe who derive their name from the Tamil word Irul meaning darkness. This Irul may either refer the gloom of the jungle they live in or to their swarthy complexion or the hale of mystery which surrounds them. They are suspicious in their habits, distrusting the more civilized neighbours who surrounded them. The local Irulas are known as "Muddumars". They are small in stature, dark in complexion and broad nosed. They speak a language akin to Tamil. They are generally worshippers of Vishnu under the name of Ram sand. They have a headman called "Pattakaran" and a deputy styled "Kolkaran"who sports a long staff as an insignia of authority delegated to him. Their hutments are usually made of plaited bamboos plastered over with mud. They cultivate ragi, sanai, dhal and maize. The Irulas are supposed to hold some valuable secrets as to the medicinal and other properties of herbs obtainable in jungles. They are so reticent on the subject that nothing of bale can be extracted from them. Presently, these people have small pockets of land near their settlements and cultivate wide variety of crops such as millets, cereals, thinai, and plantain for their use. Many of them are nice craftsman and artisans. Some work as coolies.

Kurumbas

Kurumbas are a pastoral tribe and derive their name from the Kurumba Adu, they shepherded. Presently, they cultivate crops of different variety in their lands and also work as coolies in private farms. Primarily their livelihood depends up on spinning and weaving. They also gather food by hunting, fishing, and digging off edible tubers from the forest. They are found to speak an unchaste form of Kannada. They would like to call themselves as Pal Kurumbas. A sect of kurumbas who have still preserved their customs and habits and not changed with the winds of time is found in plateau sporadically.

The word kurumbars means 'doer of mischief' and the tribe is so named because it is believed that they practice sorcery and witchcraft It is believed that the kurumbars can invoke magic, invite wrath into the homes of the enemies, tame wild animals etc which is claimed even today also. A folklore which has the status of an epic in the kongu region is 'The Story of the Three Brothers' (Beck, 1992). This folk epic, which existed as an oral tradition amongst the rural inhabitants of the kongu nadu, provides a sequence of historical situations in the kongu area. The folklore is about three brothers who set out to fight or hunt, and in the process lost their way. They encounter the Vedars or the hill dwellers that they defeat and then trace their way back only to find that they have no family member to seek. Each of these brothers sets out to seek a wife and soon three tribes / castes evolve. A number of variants to this folklore are present, with each variant explaining the origin of a tribe (Venkatesan 2000).

Although the origin of the Jenu or Ten Kurumbars is ascribed to the same legend, they do not like to be referred to as Kurumbars but prefer to be called Shola or Jenu Naikens. They consider themselves to be the denizens of the forests and are extremely skilled in collecting honey. While the Jenu kurumbars are skilled at making and using ladders, both the kurumbars are known for their skills in using nooses, snares, nets and traps for hunting, basket-weaving and broom-making. The Betta kurumbars are proven experts in the handling of elephants.

List of villages falling within 5Km Boundary of Sathyamangalam Wildlife Sanctuary

Sl. No.	Name of the Range	Status of the village	Remarks (Development activities needed)
1	**Sathyamangalam**	Vadavalli	**TAP**
2		Chickaradampalayam	
3		Puduammapalayam	
4		Pudur	
5		Kolathupudur	
6		Pulinjur	
7		Kondappanaickenpalayam	**TAP**
8		Kumarapalayam	
9		Ottarpalayam	
10		Anganagoundanur	
11		Malaiyadipudur	
12		Chettiyampudur	
13		Karaliyam	
14		Elanji	**TAP**
15		Solathur	**TAP**
16		Kanakundur	
17		Kilathur	**NAP**
18		Bogipalayam	
19		Peeriyasalatti	
20		Akkisivandoddi	
21		Iruttipalayam	
22		Tondur	
23		Attiyurpudur	
24		Attiyur	
25		Attiyurmelur	
26		Germalam	**NAP**
27		Madeswarankoil	
28		Horapalayam	
29		Kilur	
30		Pavulakuttai	
31	**Bhavanisagar**	Talamalai	**TAP**
32		Doddapuram	**TAP**
33		Mangalapatti	
34		Thengumarada	
35		Gejalatti	**TVFC**
36		Guleithuraipatti	
37		Nuggagoundenpalayam	
38		Dimbum	
39		Bannari	
40		Kallampalayam	
41		Sujalkuttai	
42		Pungar	**NAP**
43		Karachikorai	**TAP**
44		Kothamangalam	**TAP**
45		Bhavanisagar	

46		Toppampalayam	**TAP**
47		Doddampalayam	
48		Pudur	
49		Velliyampalayam	
50		Mudukkandurai	
51		Kariyagoundanpalayam	
52		Nerripatti	
53		Doddanenjipalayam	
54		Pudupeerkadavu	
55		Patramangalam	**TAP**
56		Rajan nagar	**TAP**
57		Pudukuyyanur	
58		Batagapalayam	
59		Kalidimbum	
60		Bejalatti	**NAP**
61		Honnathittu	
62		Kodipuram	
63		Uppupallam	**TVFC**
64		Nanthipuram	**TVFC**
65		Ramarani	**TVFC**
66		Mavanatham	**TAP, NAP, TVFC**
67	**Hassanur**	Hassanur	**TAP**
68		Arepalayam	**TAP**
69		Mel Mavallam	
70		Kil Mavallam	
71		Guliyadai	**TVFC**
72		Devarnatham	
73		Hosatti	
74		Kottadai	
75		Uginium	**TAP, NAP, TVFC**
76		Nagalur	**TAP, NAP**
77	**Talavadi**	Ittarai	**TVFC**
78		Bungalow thoddi	**TAP,**
79		Binahana halli	
80		Neithalapuram	**FDA**
81		Allapuram doddi	**FDA**
82		Mudiyanur	**TAP**
83		Bolegounden doddi	
84		Erahana halli	
85		Kalmandipuram	
86		Jeerahalli	**TAP**
87		Geddavadi	**TAP**
88		Belathur	**TAP**
89		Basappan doddi	
90		Kamayanpuram	
91		Thomarpuram	
92		Madahalli	

93		Bayyana puram	
94		Chimtahalli	
95		Totanur colony	
96		Palayam	
97		Panahanahalli	
98		Singanapuram	
99		Kongali	**NAP**
100	**T.N.Palayam**	Chellipalayam	
101		Kaliyur	
102		Kullanaickennur	
103		Chattiammanpudur	
104		Kodiveri nail road	
105		Elur	
106		Nakarakkanur	
107		Vettuvampalayam	
108		Modur	
109		Rosanampalayam	
110		Vanipuddur	
111		T N Palayam	
112		Vinobanagar	**TAP**
113		Kongarpalayam	
114		Malliamman durgam	
115		Periya durgam	
116		Bungalow pudur	
117		Punjai duraiyampalayam	
118		Kallipatti	
119		Kondappanaickenpalayam	
120		Bedragoundenpalayam	
121		Kanakkampalayam	
122		Velayapalayam	
123		Periya Gundri	
124		Anil natham	
125		Kovilur	
126		Killur	
127		Chinna Gundri	
128		Gujjampalayam	
129		Maka doddi	
130		Vanimarattur	
131		Kotiyagoundenkovil	
132		Vetta doddi	
133		Chinna salatti	
134		Mela Kadambur	
135		Nadur	
136		Kila Kadambur	
137		Eriyur	**TAP**
138		Vilankombai	**TAP, TVFC**
139		Kembanur	**TVFC**

Forest land leased to other user agencies:

The following areas are lease out to user agencies for providing essential services within the Sanctuary limits.

Land leases within the Sathyamangalam Wildlife Sanctuary

I.	1.	Project Name	:	Construction of cable tower, Gauge reader, HSTA site office for measuring the run off in Moyar river.
	2.	User agency	:	Executive Engineer, Central Water Commission, Southern river division, 192, Nehru Street, Ram Nagar, Coimbatore -9.
	3.	Location	:	Thengumarahada, Talamalai R.F.
	4.	Forest area diverted	:	0.0345 Ha.
	5.	Order No.	:	1) Govt. of India approval order No.F(C) A/11/3/4/TM/2427 dt.13.11.1992. 2) State Govt. of Tamilnadu G.O. No. 24 E & F dept. dt.25.01.1993.
	6.	Lease period	:	01.04.1983 to 31.03.1993.
	7.	Lease amount Assessment and Collected	:	Rs. 25/-
	8.	Amount spent for Compensative Afforestation	:	Nil
II.	1.	Project Name	:	Erection of 110 KV single circuits
	2.	User agency	:	Superintendent Engineer, Tamilnadu Electricity Board, Erode.
	3.	Location	:	Gejalatti to Talavady, Talamalai R.F.
	4.	Forest area diverted	:	34.386 Ha.
	5.	Order No.	:	1) Govt. of India order No.8-25/93/FC dt.19.09.1996 & 25.09.1996. 2) State Govt. of Tamilnadu G.O. (MS) No. 277 E & F dept. dt.06.11.1996.
	6.	Lease period	:	Not mentioned
	7.	Lease amount Assessment and Collected	:	Rs. 20,00,000/-
	8.	Amount spent for Compensatory Afforestation	:	Rs. 4,47,839/-

III.	1.	Project Name	:	Erection of 40meter Tower for providing telephone connection
	2.	User agency	:	General Manager, Telecom BSNL, Erode.
	3.	Location	:	Gundri Hill area, Guthiyalathur R.F.
	4.	Forest area diverted	:	0.0049 Ha.
	5.	Order No.	:	1) Govt. of India approval order No. Nil. 2) State Govt. of Tamilnadu G.O. (MS) No. 103 E & F dept. dt.20.09.2006.
	6.	Lease period	:	Not mentioned.
	7.	Lease amount Assessment and Collected	:	Rs. 20,526/-
	8.	Amount spent for Compensatory Afforestation	:	Rs. 20,526/-

Special Task Force: STF is an organization created with the prime objective of nabbing the notorious forest brigand Veerappan. STF has succeeded in finishing off the culprit with a well conceived and executed "operation cocoon" in the year 2004. After that, STF has gradually transformed into a specialized training institution in Jungle operations. There is a shooting range at Pudupeerkadavu right in the middle of the Thalamalai-Guthialathur elephant corridor. The existing width is hardly 200 metres which is completely engulfed by the shooting range. Besides, continuous sound produced by the firing distracts the wildlife within a radius of 5 kms. There is another training camp with tents and other infrastructure at Mangalapatti on the banks of the river Moyar. Training is continuously imparted to all the officers of police and forest departments. This has resulted in continuous movement of vehicles and other logistic support in this otherwise pristine environment. WWF, India has kept 70 camera traps along the Mangalapatti and Gejalatti forest areas and recorded 16 different tigers in this landscape. In the interest of the Tigers and other endangered animals like Hyena, Vultures and Leopard which are frequently reported in this area, these two camps must be shifted immediately.

Religious sites within the sanctuary limits:

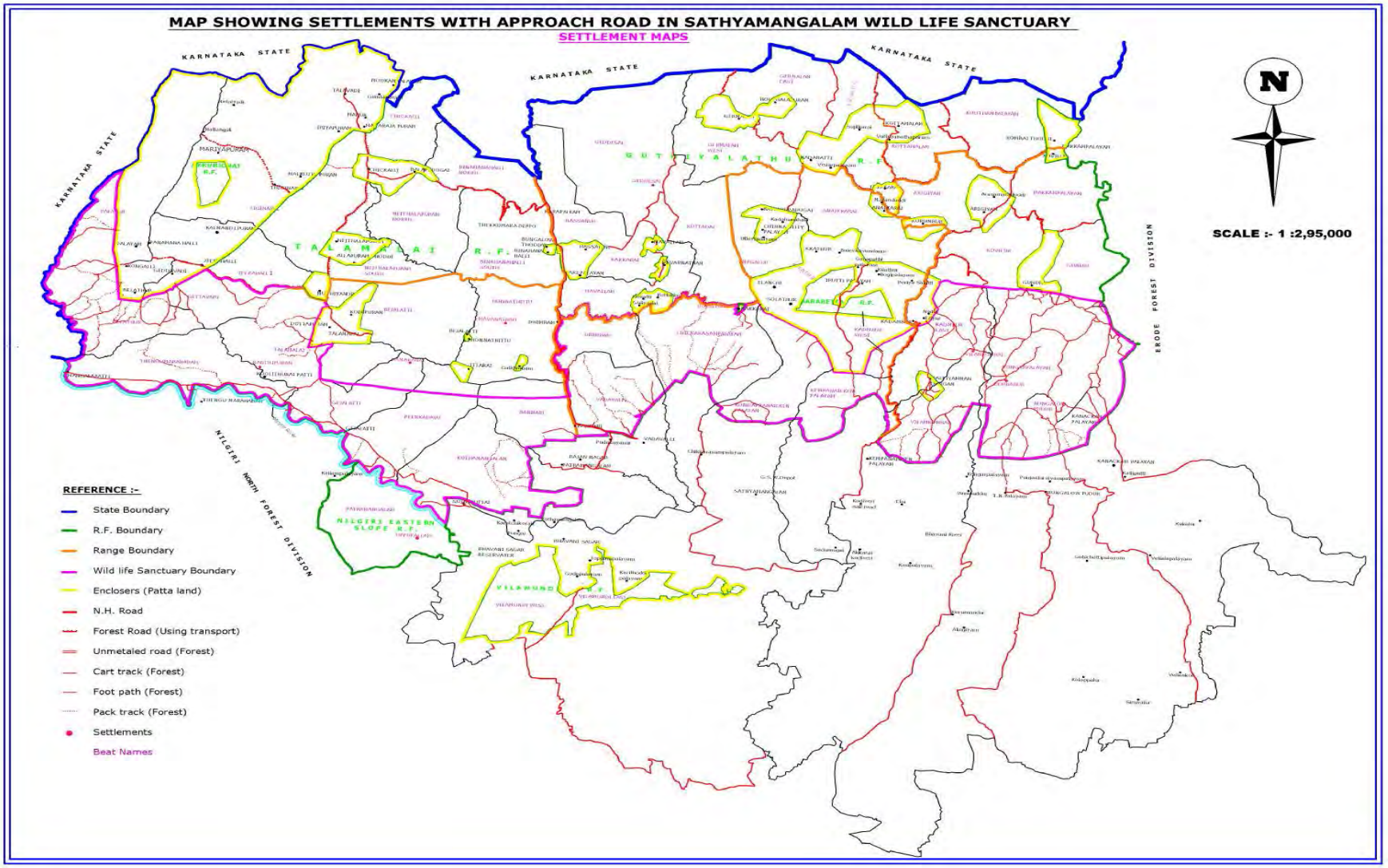
There are many religious sites located within the Sanctuary limits attracting large number of pilgrims. The entry and exit of vehicles, and number of visitors must be regulated strictly. The visitors are advised not to disturb the forest environment and throw waste and plastics inside the forests. Forest fire, littering, noise pollution and vehicular transport at odd hours are the serious threat to the wildlife. Efforts must be taken to restrict the visiting time, number of vehicles, and the number of pilgrims in these places. The support of NGOs and other enforcing agencies will play a major role in controlling these activities. The Temple authorities of Bannari Amman temple and Kongalli temple must take the responsibility of cleaning up the area immediately after the annual festival. Appropriate arrangements must be made for public conveniences and accommodation to reduce man-animal conflict in these areas. Awareness boards with information on do have and don'ts must be erected at all these places. In all the roads leading to these sites barricades must be erected to restrict the entry of vehicles.

The following temples are situated within the Sathyamangalam Wildlife Sanctuary

Sl. No.	Name of Temple	Range	Remarks
	Talamalai R.F.		
1.	Dodda Kombai Mariamman Kovil	Bhavanisagar	Mentioned in the R.F. notification
2.	Gejalatti Dharga	Bhavanisagar	--
3.	Karuvannarayar Kovil	Bhavanisagar	Mentioned in the R.F. notification
4.	Bannari Mariamman kovil	Bhavanisagar	Mentioned in the R.F. notification
5.	Vinayagar Kovil	Bhavanisagar	--
6.	Mallikarjuna temple (Kongalli kovil)	Talavadi	Mentioned in the R.F. notification
	Guthiyalathur R.F.		
7.	Nilagiri Ranga Kovil	Sathyamangalam	Mentioned in the R.F. notification

8.	Begepatimari Kovil	Sathyamangalam	--
9.	Venkapati mariyamman kovil	Sathyamangalam	--
10.	Manirasi Kovil	Sathyamangalam	--
11.	Jadayaswamy kovil	T.N.Palayam	Mentioned in the R.F. notification
12.	Kakkarai mariyamman kovil	Sathyamangalam	Mentioned in the R.F. notification
13.	Ambadi kovil	Sathyamangalam	Mentioned in the R.F. notification
14.	Perumal kovil	Sathyamangalam	Mentioned in the R.F. notification
15.	Muniyappan kovil	Sathyamangalam	Mentioned in the R.F. notification
16.	Periyaswamy kovil	T.N.Palayam	--
17.	Malliyattan kovil	T.N.Palayam	--
18.	Kilakkamalaiswamy koil	T.N.Palayam	--
19.	Malliyamman kovil	T.N.Palayam	Mentioned in the R.F. notification
20.	Tambatirayan kovil	Sathyamangalam	Mentioned in the R.F. notification
21.	Mariyamman kovil	Sathyamangalam	Mentioned in the R.F. notification
22.	Manjulrayan kovil	T.N.Palayam	--
23.	Madeswaran kovil	T.N.Palayam	Mentioned in the R.F. notification
24.	Viramathi kovil	T.N.Palayam	--
25.	Belari mariyamman kovil	T.N.Palayam	Mentioned in the R.F. notification
26.	Eggaramuniyappan kovil	T.N.Palayam	Mentioned in the R.F. notification
27.	Rangasamy kovil	Sathyamangalam	--
28.	Malichakan kovil	Sathyamangalam	--

Map. Location of various villages (Revenue) on the periphery of the Sathyamangalam Wildlife Sanctuary



4.3 VILLAGES INSIDE AND OUTSIDE THE PA. ETHNIC IDENTITIES, TRADITIONS, CUSTOMS, RELATIONSHIPS WITH FORESTS

There are three tiny hamlets inside Sathyamangalam wildlife sanctuary, which can be classified as forest settlements /tribal community who work as laborers in adjoining agriculture lands.

In Sathyamangalam WLS's context the relationship that the Kurumbars, Sholagas, and Irulas have to their landscape is unique and distinct. The Kurumbars and Irulas have a custodial relationship to the Sathyamangalam forest – and this is repeatedly asserted by them. The Kurumbars very proudly declare that their landscape divisions are sacred and thereby more valid. The Kurumbars as with any other typical forest dwellers attribute a number of values to the forests and thereby utilize a range of services that the landscape provides.

Over a period of time they have almost settled in the forested regions of the sanctuary. They do not cultivate any land and now work as labourers in the neighbouring areas apart from working in the department as Fire-watchers and Anti-Poaching Watchers. The Kurumbars are basically hunter-gatherers. A few of these tribes have come-up as uniformed watchers, Guards and Foresters in the department.

Nandipuram: Socio Economic Profile

Name of the Village	Nandipuram: Karachikurai Panchayat Range: Bhavanisagar Range: Section: Thengumarada
Size of the Village	Small
Population	Male 28: Female23
Location	Sathyamangalam Forest Division
No.Families	14
Community	Irular
Electricity	Nil
Drinking water	Moyar River: Bore well Not working
School	Nil (Available at Kallampalayam: Nilgiri District)

Post Office	Karachikorai (15 Km)
PDS	Pungar Colony (18 Km)
Livelihood	Forest Department Development Works
	Male Rs 60/day: Women RS 40 / day
Agriculture	Maize, Cerals, Chilli and Vegetables
NTFP collection	Tamarind, Neem, Phyllanthus, Solanum, Sapindus
Cattle Population	Nil
Primary Health Centre	Nil (Available at Thengumarada)
Bank	Bhavanisagar (20 km)
NGOs	WWF India
Total Extent of land	15 acres of agriculture fields
Needs	Electricity, Motor with Electricity, Bullocks, Community Hall, TV, Sheep Rearing, Road Facility, Transport Facility, Housing Facility.
Significance	a) Core Zone of the Sathyamangalam WLS
	b) Corridor Connecting the Eastern Ghats Landscape
	c) Good population of Black Buck and elephants
Accessibility	20 Km from Bhavanisagar Town
Pattern	Mostly North East Monsoon
Soil type	Red Soil mixed with clay
Status of Livelihood	

a) 15 acres of land was given to the villagers for agriculture purposes. Due to lack of irrigation facilities, these lands could not be effectively used for cultivation. Lack of funds for using oil engine for irrigating lands.

b) Villagers also earning money from sale of NTFP collected from forests

Number of SHG	One
Major Problems	Weed Invasion: Common weed plants: *Euphorbea antiquorum, Barleria* spp., *Jatropha justice, Opuntia dillinii, Prosopis juliflora*
Earlier Development Programme	WWF India AREAS Programme has provided Solar Fencing for Protecting Crops. The villagers are maintaining the fence in a good manner. Need community participation for maintenance of fence for sustainability of crop protection from wild animals. b) Moreover, the communities would prefer to receive all benefits from forest department without any share of any kind from their side. c) Contribution of any kind is necessary from villagers to develop suitable viable micro economic programme for the village, including irrigation facilities and solution for mitigating man animal conflicts. d) District Administration provided Community Houses and a Community Hall for the village as part of village development programme to improve the living standard of the villagers.
Demand for Fuel	a) Mostly depending on the jungle for collection of fuel wood to meet out domestic needs. It is a serious threat which degrades the thorn forests that support good diversity of animals.

Micro Plan: Nandipuram

The Nandipuram is located in the Moyar Valley Sathyamangalam WLS. The village is bordered on the eastern side with Gajalahatti, and Mangalapatti, Ramaranai are located on the west and Northern regions respectively. The tribal communities co-exist with the forests surrounding their habitations in an integrated manner in terms of their social customs and cultures. Their basic livelihood mostly depends on forest resources, especially NTFP collection (tamarind, neem, sapindus, solanum, phyllanthus). The land use pattern has considerably altered with the erection of solar power fence for the settlement by the WWF India. In the process, the villager's socio economic aspect has been relatively improved. A permanent anti poaching camp was also established in the settlement with the funding support from the WWF India. With the result, the forest settlement village has showed a lot of progress compared to their earlier status. Man-animal conflict was not reported any more in this village. After the significant improvement of land use pattern, there are notable changes have been also noticed among the tribal communities which has exerted a major impact on conservation of forest resources in tribal dominated settlement places. Of late, there is a transparent changes noticed among the tribal communities in their social system including living standards and life style. This has made them to expose greatly to societies' main stream and they are now more aware about the civic rules and regulations. Further the, phenomenal growth of rural population coupled with the greater dependence of forest resources by local people for various domestic needs have depleted natural resources badly and the remaining forest resources are in greater danger.

VILLAGE FOREST COUNCIL AND ITS PROFILE

Identification of VFC village

Dialogue with villagers illustrating the concept of VFC

Conducting PRA exercise by Forest Officials

Villagers prioritizing various activities in VFC

Forest Officials distributing Revolving Fund to VFC

VFC oriented towards sustainable income generation activities to wean away from depending on Forest Resources

Uginium: socio economic profile

The state of the people's economy, Vocations, land use, use of forest and non-forest based natural resources by people and seasonal patterns

Micro Plan: Uginium Forest Settlement : 2008-2009

Socio Economic Profile

Name of the Village	Uginium: Kuthiyalathur Panchayat
	Range: Hassanur Range
	Section: Hassanur (SI Map: 58 E/2)
Latitude	11 39,757': Longitude 077 14.023'
Location	Sathyamangalam-Kadambur-Basuvanapuram :10Km
Village Profile	1945: Villagers Rehabilitated
	1980: Status of Forest Settlement
	1990: Agriculture Practice started
	2000: Primary School launched
	2002: Drinking water facilities
	2005: Community Hall with TV Facilities
Higher education	Hassanur (70 Km distance)
Size of the Village	Medium
Population	280: Male 90: Female 84: Children: 106 (<8 years)
Education	5th std 45 people; 8th Std 32; 10th std 5;
	Uneducated: 198 people (71% uneducated)
Location	Sathyamangalam Forest Division: Erode Circle
No.Families	81
Temperature	Maximum 30 o and Minimum 25 0
Community	Hill Tribes - ST
Electricity	Available

Rainfall	48 days/year: Annual Rainfall: 818 MM/year
Drinking water	Bore well 1, Well 1, Water Board Water Facility not in use
School	Nil (Available at Karikiyur: Nilgiri District)
Road Facility	Nil (5 KM to reach main road)
Post Office	Nil (5 Km Karalayam)
PDS	Nil (5 Km Karalayam)
Bank	Nil (20 Km Kadambur)
Co operative society	(14 Km Erutipalayam)
Community Hall	Nil
Livelihood	Agriculture: Small farmers (less than 2 ac : 76 Families)
	Agriculture: Medium farmers (2.5 acres): Nil
	Big Farmers: Nil

Annual Income through Agriculture: Rs 5000/family

Livelihood	Agriculture Maize, Ragi, Horse gram, Tapioca, Vegetables
Livelihood	Agriculture activities only during season: Working as collies in adjoining villages: Monthly 15 days work/person: Daily wages paid @ of Rs 70/day (women) and 150/day (Men). Thus monthly income is Rs 2000/family for this village.
Forest dependence	Most of the people depend on forest resource for head load, grazing and NTFP collection. The extent of dependence rages from 25% to 100%. Eighty people exclusively depend on forest resources for various purposes.
NTFP collection	Tamarind, Neem, Phyllanthus, Solanum, Sapindus *Terminalia chebula, Melina and Date leaves,*
Cattle Population	170 cattle: Goat: 77
Primary Health Centre	Nil (Available at Basuvanapuram 8 Km)
Bank	Bhavanisagar (12 km)
Communication	Bhavanisagar 12 km

NGOs	Nil
Total Extent of land	75 ha : Agriculture land 60 Ha
Needs	Electricity, Solar Power fence for the villages, Road Facility, Transport Facility, Group Housing , Irrigation Facility, Medical Facility, Loan Facility, Training on land based activities
Pattern	Mostly North East Monsoon
Soil type	Red Soil mixed with clay
Status of Livelihood	a) Total extent of agriculture land 76 b) Land under cultivation 60 acre c) Major crops: Tapioca d) Due to lack of irrigation facilities, lands could not be effectively used for cultivation throughout the year.

Villagers also earning money from sale of NTFP collected from forests and most of the villagers depend on forest resources for various purposes

Earlier Development Programme

Demand for Fuel	Annually 110.2 tonnes of fuel wood: Required for the village which is met out from the forest resources. Kerosene is not being used effectively. No LPG is available. It is a serious threat which degrades the forests that support good diversity of animals. Green fodder for their livestock is also being obtained from the forests. 2223 kg/day is required for the same.
Population: 85	
Education Qualification:	one person studied: 10th std: and two have completed 9th std
Caste:	Hill Tribes
Number of concrete houses	Nil
Houses with tiles	2

Thatched houses	79
Group House	Nil
Commercial shops	Nil
Nearest shopping place	5 km Karalayam
Extent of Revenue land	Nil
Extent of Poramboke land	Nil
Extent of Patta land	Nil
Other departments	Nil
No of Temple	One (Mariyamman): Temple Tourism
House hold Properties	Limited utensils are available
Goal	Ensure viable alternate livelihood schemes for the villagers in order to completely wean away their dependence on forests so that the forests are protected with its flora and fauna.

People's Participation: VFC

Several meetings and dialogues were organized for the Uginium village to involve themselves in the Village Forest Council, (VFC).

The following activity was carried out through the VFC:
a) Ragi Floor Machine

Proposed Requirements for the village:

a) Ensure proper supply of kerosene and biogas scheme for the village to prevent fuel wood dependence from the forests. 1825 kg of fuel wood is being collected from the forest by each family
b) Water augmentation should be given top priority to improve drainages sources. Mini Check Dams and small tanks may be constructed for irrigating their lands
c) Provision may be made available for the villagers to grow fodder crops in close co operation with line agencies. This will prevent fodder dependency from forest areas for livestock population

d) Proper WSHG to be constituted with adequate guidance and training by NGOs
e) Various alternate livelihood schemes to be organized for the villagers in support with NGOs and line departments. The following potential livelihoods schemes identified by the villagers: Apiculture, Petty Shops, Vegetable Shop, Sale of cloths, Appeal making, broomstick with date leaves, bamboo basket making, etc.
f) Promote proper training for the villagers to involve themselves in managing forest resources through VFC and EDC. Professional NGOs should be involved in this exercise.
g) TCPL programme may be launched to grow various timber species and fruit bearing trees as part of income generation activities for the villagers.

4.4. IMPLICATIONS OF THE LAND USE AND RESOURCE DEPENDENCY FOR THE CONSERVATION OF PROTECTED AREA

BAMBOO

Bamboos, as poor man's timber is put to multifarious uses as roofing, posts, thatties, mats, baskets etc. As working of bamboo coupes has been stopped, the bamboo coupes are not being operated in this division at present. The population of bamboo has also been considerably reduced due to gregarious flowering, forest fire and illicit collection by head loaders. The requirement of local population is mostly met from private sources and from Kerala. Out of more than 100 species of bamboo that occur in Indian Forests, *Dendrocalamus stictus* and *Bambusa arundinacea* are the two species predominantly found in the sanctuary. Sathyamangalam Division is known for bamboos in the past. Larger areas were found under bamboo forests and systematic felling of bamboos and silivicultural operations were carried out. Between 1972 and 1975, gregarious flowering of bamboos appeared everywhere and by that all bamboos dried up. Bamboos wiped out from this division now. After that bamboo project artificial regeneration was done up to 1985-1986 and several hundreds of hecters were planted with bamboo. During artificial regeneration, though failed, natural regeneration of bamboos also started to establish. Bamboo project was closed during 1986-87 and after that no bamboo operation was taken place.

FODDER AND THATCH GRASS

The villages living close to forests require fodder grass for stall feeding and thatch grass for roofing the houses. The villagers pack the thatching grass like a felt to a thickness of 10 to 15 cms above a bamboo mesh. It serves as an ideal non conducting material, insulating the interior from extremes of heat and cold. The removal of thatch grass was regulated under cover of permits issued by the lessees of Non-Timber Forest Produce. The previous system of permission given for the removal of fodder by head load free of cost was completely stopped.

MANURE

The use of green manure is comparatively low and actually rare. There is demand for silt from tanks in the division. Except rich farmer who goes in for chemical fertilizer, the others depend on green manure leaves.

GRAZING: Grazing is being allowed in the Sathyamangalam division as a whole because more than 130 villages are located on the fringes of this division. However, grazing areas are restricted into some places on a rotational basis to avoid degradation of forests. Many tribal communities involve themselves as traditional graziers and work with the landlords. With various eco development approach and VFC, the number of permits obtained by the villagers has been drastically reduced in some areas. This is evidently showed in Bhavanisagar Range where considerable amount of scrub cattle were reduced with the help of research institutions. Graziers on their own find themselves in VFC and EDC as well as other forestry works to earn their sustainable income which the current policy of forest department is promoting. It is a healthy trend that tribal communities no more involve in traditional grazing activity and therefore, landlords themselves do not show interest to keep unproductive cattle in many villages. The forest department also banned the earlier concept of cattle penning in this division in order to protect the biodiversity rich areas of thorn forest eco system.

It is clear evident that number of live stock population is getting slowly reduced in the Sanctuary areas of the division. What is required now it to create awareness among the villagers to sale the rest of cattle population and advise them to go for better breed livestock including integrated farming system with the help of animal husbandry and other line agencies as part of their income generation activities. This might prevent further degradation of forests and protect various endangered species eco system.

Key Problems to the Sanctuary from Adjoining Villages

People's dependence on the reserve for fuel wood, grazing their scrub cattle, impact of illicit tourism, and development of agriculture lands closer to the reserve boundaries and this has led to severe Man Elephant Conflict in the forest fringe villages of the Sanctuary.

4.4.1 An evaluation of government and non-government agencies programs for development. Implications for PA, people and ZI

Management Programme for Conservation of wildlife sanctuary requires a thorough knowledge on habitat diversity. Anthropogenic pressures such as livestock grazing, collection of wood for commercial purposes and other development activities have severely degraded this range in this landscape. Of late, management of PA had led to a serious concern for the forest managers with the increasing phenomenal growth of people's dependence on natural resources. The current conservation scenario requires a workable conservation approach through partnership with various stakeholders to formulate an action plan for scientific management of the sanctuary in this region.

4.4.2 A summary of Problems faced by people that affect the Management of the PA

People's Contribution to the Sathyamangalam WLS

a) **Eradication of Scrub cattle population**
b) ***Minimizing collection of NTFP with viable and sustainable income generation activities**
c) **Lack of non availability of jobs in development works closer to forest areas**
d) **Low dependence of forests for fuel wood collection**
e) **Less access to water and for other resources within the PA**

To summarize, the people living in the zone of influence of the protected area have to make lots of sacrifices for the sake of conservation. These sacrifices are in the form of foregoing the fruits of development which other areas may be reaping, loss of incomes due to stoppage of NTFP collections, lack of gainful employability with the department due to ban on the forestry operations, stoppages of concessions of fuel wood collections, lack of grazing grounds due to checking of cattle grazing by the reserve, instances of crop raiding and human injury, threats posed by wildlife, especially elephants, and the usage of water resources of the protected area.

PART-II

THE PROPOSED MANAGEMENT FOR

SATHYAMANGALAM WILDLIFE SANCTUARY

Chapter 5

VISION, OBJECTIVES AND PROBLEMS

5.1 THE VISION

The vision statement for the management provides a focus for the organization on scientific management of the newly declared Sathyamangalam Wildlife Sanctuary, whereas Mission focuses on the functions of an organization. Motto unites the team to achieve shared objectives.

The vision statement of Sathyamangalam Wildlife Sanctuary is summarized as below

"**We commit to foster Sathyamangalam into a crucial conservation landscape unit, where wildlife representing entire pyramid of life can happily dwell in viable populations, without fear of man, preserving eco-systems and the processes, with people/local communities benefiting out of the interactions for the present and future generations.**"

MISSION

The mission statement of Sathyamangalam Wildlife Sanctuary is furnished below:

"Our mission is to maintain the health, integrity, and productivity of the Sathyamangalam Wildlife Sanctuary, supporting local bio-diversity values for the benefit of local communities and future generations."

The following line summarizes the motto of Sathyamangalam Wildlife Sanctuary.

"CARING FOR WILDLIFE, HABITATS, THE ECOLOGICAL PROCESSES AND THEREBY SERVING PEOPLE/LOCAL COMMUNITIES"

5.2 PRINCIPLES

The guiding principles for the management of Sathyamangalam Wildlife Sanctuary are summarized as below:

a. The survival of human race is not possible without protecting our life support system, viz, the forests.
b. The socio-cultural diversity of the people has intricate linkage with the forest resources.
c. The forests and wildlife cannot be protected without meaningful people's cooperation and therefore strive for partnership with shared objectives.
d. Participation of local people in decision making leads to better solutions and enhanced cooperation.
e. The communities abutting forests make lot of sacrifices of their development requirements, which needs to be adequately compensated.
f. The best scientific input in making decisions is to select the most appropriate technologies in the management of resources.
g. In a developing country, conflict between development and conservation is natural and we strive to deal with it professionally.

The generalized objectives of management of Sathyamangalam Wild Life Sanctuary are to;

a) Ensure long term conservation of the natural resources, especially wildlife, of Sathyamangalam consistent with the national policies and directives of GOI.
b) Eliminate the biotic influences deleterious to the eco-system and the local bio-diversity.
c) Create a sense of conservation awareness amongst a range of stakeholders.

5.3. OBJECTIVES OF MANAGEMENT

1. **Ensure the maintenance of viable Wildlife populations for Ecological, Scientific, Aesthetic and Cultural values.**
2. **Improve the degraded habitats by undertaking habitat improvement and amelioration activities.**
3. **Undertake all management activities to improve and maintain the various habitats of endangered species and their habitat diversity.**
4. **Create management capabilities specific to protected area management amongst the staff.**
5. **Encourage scientific research studies on topics, which will be management oriented and for improvement of the Wildlife in general.**
6. **Protect the habitat from external developmental threats and poaching pressures.**
7. **Take over the unutilized revenue lands and lands from private sources around the sanctuary crucial for the corridors and buffer belt around the Sanctuary.**
8. **Eliminate grazing of all sorts within the Sanctuary area.**
9. **Achieve reduction in resource dependency on forests of the Sanctuary by providing alternative livelihoods thereby leading to habitat improvement and conservation.**
10. **Provide opportunities for local people participation in Protected Area management through an institutional mechanism by establishing committed eco-development committees.**
11. **Maximize recreational experience of the people through various activities while minimizing the adverse impact of tourism on wildlife and its crucial habitat.**
12. **Undertake insitu interpretation programmes for educational, recreational and soliciting public participation to create a sense of belongingness and conservation concern for Wildlife.**

5.4. JUSTIFICATION AND PROBLEMS IN ACHIEVING OBJECTIVES

As detailed in the statement of significance, the management of the Sathyamangalam for maintaining viable Wildlife populations for ecological, scientific, aesthetic and cultural values is very much essential and gets the top most priority. It is pertinent that the survival of key flag ship species depends upon availability of good prey base (herbivores) in appropriate proportions and thereby the focus will be on entire pyramid of life. This encompasses overall habitat management. It is a known fact that certain species face more threats of poaching compared to others, and with this perception and their threat status they have been classified into different schedules of Wildlife Protection Act 1972. Further, it requires a thorough understanding of the ecology, the behaviour pattern of different flagship as well as keystone species, especially the priority ones in Sathyamangalam such as Tiger, Panther, Elephants, Striped Hyenas, Four horned antelopes, Black-bucks, Vultures etc for ensuring the maintenance of viable populations.

1. The habitat has been degraded owing to a number of biotic influences as detailed earlier. Further the spread of exotic weeds such as *Prosopis juliflora, and Lantana camara* has further deteriorated the habitat quality. For improving the already degraded and overused habitats, it is essential to undertake habitat improvement programme for various wildlife species and their habitats.

2. There are special habitat requirements for individual species. Certain species are habitat specialists. Few others require geographically separate seasonal habitats, which are migratory species. The requirement of snags, dead woods, large old trees, lianas, unique habitats like caves, dens, overhangs, cliffs, ledges and talus, large bouldery aggregates, sandy banks, salt licks etc need to be maintained apart from critical macro and micro habitats. The degradation of habitat is the only problem encountered in maintenance of such crucial habitats from wildlife point of view.

3. The presence of a large number of cattle in and around Sanctuary not only competes with the herbivores for the grazing resources, degrades the habitat by compacting and reducing regeneration but also poses a real time threat of spread of various diseases that become difficult to tackle for the wildlife. For improving the habitat and managing it for wildlife interest, grazing of domestic livestock is to be controlled.

4. The dependence of large number of people, both in and around, on the wildlife habitat need to be reduced and eventually optimized. This however is most difficult to achieve. It is also pertinent that the sacrifices of their development and livelihood needs made by local communities need to be adequately compensated.

5. Therefore a very active eco-development programme must be developed for the Sanctuary. This not only empowers the local communities by providing an Institutional mechanism, but also the platform to take care of their genuine livelihood requirements. At the same time this builds up a confidence between the department and the local people which is paramount for success of any conservation effort.

Positive Scope: **Education and spreading of conservation awareness is one of the important objectives of the Sanctuary management. When the objectives and policies of management are widely publicized and interpreted among the visiting public and the village people living around the Sanctuary, the eliciting of their support in our management efforts can be ensured. This will serve in the long term interest in conservation of the wildlife resources and achieve the national policy objective of creating massive people's movement.**

Chapter 6

THE STRATEGIES

The Strategies

6.1. BOUNDARIES

Sathyamangalam Forest Division encompasses large contiguous reserve forests extending over 1455 sqkm with diversity of vegetation types from dry thorn shrub to patches of semi evergreen forests in the upper reaches.

The lower portion of the division covering an area of 524.34 sqkm has been declared as Sathyamangalam wildlife sanctuary vide GOMS No.122 dated 3.11.08 under sec 26 A of the Wildlife(protection) Act, 1972.

This division shares its eastern boundary with Erode division, North-western boundary with Chamrajnagar division and northern boundary with Biligiri Rangan hills. On the southern side, Nilgiri north and Coimbatore divisions are separated by the river Moyar which runs along the Moyar gorge. The Moyar valley, the meeting place of two distinct geographical formations i.e., Western ghat and Eastern ghat, in this division is an important link between the elephant habitats of the Nilgiris and Eastern ghats. Owing to its large contiguous forests and connectivity with adjoining divisions, this division has wide varieties of animals like Elephant, Gaur, Blackbuck, Sambar, Spotted deer, Barking deer, Tiger, Leopard, White backed vulture, Hyena etc.

Legal Status

The total area of Sathyamangalam forest division is 1455 sq km, out of this 524.34 sq km has been notified as Sathyamangalam Wildlife Sanctuary on 3-11-08 vide G O MS No 122.

Number of villages within the PA / High Value Biodiversity Area

1. Nanthipuram Tribal village
2. Uginium Forest Settlement
3. Velamkombai

Status of settlement of rights.

Rights and concessions are already settled during the notification of Reserve forest itself.

LEGAL AND MANAGEMENT STATUS

Extent and distribution of land comprising of Elephant Reserve in terms of legal status:

Reserved forests: The total forest area of this division is 145531 ha of reserved forests. The name of the reserve forests and their extent are given below

1.	Guthialathur RF	78730.78 Ha
2.	Guthialathur extension RF	162.38 Ha
3.	Akkurjorai RF	383.64 Ha
4.	Akkurjorai extension RF	755.80 Ha
5.	Talamalai RF	53072.59Ha
6.	Talamalai extension RF	1240.62 Ha
7.	Berabetta RF	1468.52 Ha
8.	Ullepalayam	1059.62 Ha
9.	Vilamundy RF	4329.15 Ha
10.	Nilgiris Eastern Slope RF	4328.15 Ha

	Total	**145530.92 Ha**

Sathyamangalam Sanctuary Profile and Status

Name of the Reserve Forests	**Extent of Ha**
a) Guthiyalathur RF (Portion)	29947.00
b) Guthiyalathur Extension Reserve Forest	162.31
c) Talamalai RF (Portion)	21085.00
d) Talamalai Extension RF	1240.63
Total Area	**52434.94 Ha**
(524 Sq km)	

S No	**Talamalai RF and Talamalai Extension RF**	**S.No**	**Guthiyalathur RF and Guthiyalathur Extension RF**
Sector 1	**Thalavady Range: Beat Name** 1.Palayam Beat (Full) – 3283.55 Ha 2. Belathur (Full) - 1592.43 Ha 3.Geddavady (Full) - 3425.00 Ha Bhavanisagar Range : Beat Name 1.Thengumarahada (Full – 3582.41 2. Talamalai (Part) - 2896.32 3. Gejalatti (Part) - 1375.51 4. Peerkadavu (Part) - 2040.00 5.Kothamangalam (Full) - 3350.00 6. Bannari (Part) - 780.41 **Total - 22325.63 HA**	**Sector 11**	**Sathyamangalam Range: Beat Name** 1.Dimbum (Full) - 3500.00 HA 2. Vadavalli (Full) - 3058.10 3. Chickara Sampalayam (Full) - 4543.96 4. Kondappanaicken Palayam (Full) - 3741.38 5. Kembanaiken Palayam (Full) - 1857.21 **TN Palayam Range: Beat Name** 1.Kadambur East (Part) - 1051.14 2.Vilankombai (Full) - 2846.60 3. Kongarpalayam (Full) - 2900.00 4.Kovilur (Part) - 640.10 5. Bungalowpudur (Full) - 3296.61 6.Kananckam palayam (Full) – 2072.21 7.Gundri (Part) - 602.00 **Total - 30109.31 HA**

Total Sanctuary Area	**52434.94 HA**
Balance Sathyamangalam Forest Division Area	**93095.98 HA**

Revenue Enclosures within the Division

The list of revenue enclosures are

Name of the enclosure	Ha
1. Talamalai	112.69
2. Nagalur	778.29
3. Neithalapuram	660.45
4. Muthiyanur	226.33
5. Ittarai	115.01
6. Binakanalli	40.67
7. Galidhimbam	38.85
8. Bejjalahatti	7.69
9. Kottursamy temple	5.18
10. Dhimbam chatram	2.43
11. Bannari	---
12. Guthiyalathur	5972.57
13. Hassanur	518.0
14. Kottadai	264.18
15. Mavanahalla	108.78
16. Devarnatham	93.24
17. Kakkarai	23.06
18. Kadahetti	1968.41
19. Germalam	893.56
20. Arigiam	745.92
21. Gundri including Arogimatham	681.17
22. Anaikarai	354.83
23. Kurumbur	310.80
24. Malliammandurgam	227.91
25. Makkampalayam	91.09

Forest Settlements

The following forest settlements for the tribes are existing inside the division.

1. Chinnadurgam	16.19 Ha.
2. Uginium	42.09
3. Vedaparai	42.90
4. Geddesal	18.24
5. Nagalur	75.99
6. Mavanatham	6.88
7. Ramaranai	12.99
8. Nanthipuram	9.71
9. Uppupallam	25.00

These leases are allowed for tribal cultivation at free of cost for the welfare of tribes.

6.2 ZONATION

Zonation is the most important activity of the management of landscapes for wildlife conservation programme. A zone is a specific management area distinguishable on account of its objectives. Separate zones need to be created because some of the management objectives may not necessarily be compatible with each other. Zones cannot be managed in isolation and must relate to the functions of other zones and they must fulfill the overall objectives of Sanctuary management. Management zones must be large enough to achieve the objectives proposed in that zone. The management zones need not be fixed in space or in time. Management interventions commensurate with the objectives of each zone are essential.

6.3 ZONATION PLANS

The following Zonation is proposed for Sathyamangalam WLS with the following specific objectives

A. The Core Zone

B. The Buffer Zone

C. The Tourism Zone

D. Administrative Zone

Details of various areas falling under each zone:

Core Area: Talavady, Bhavanisagar, Sathyamangalam & T N palayam

Buffer Area: Part of Bhavanisagar Water Spread Area

Tourism Area: Part of Bhavanisagar & T N Palayam

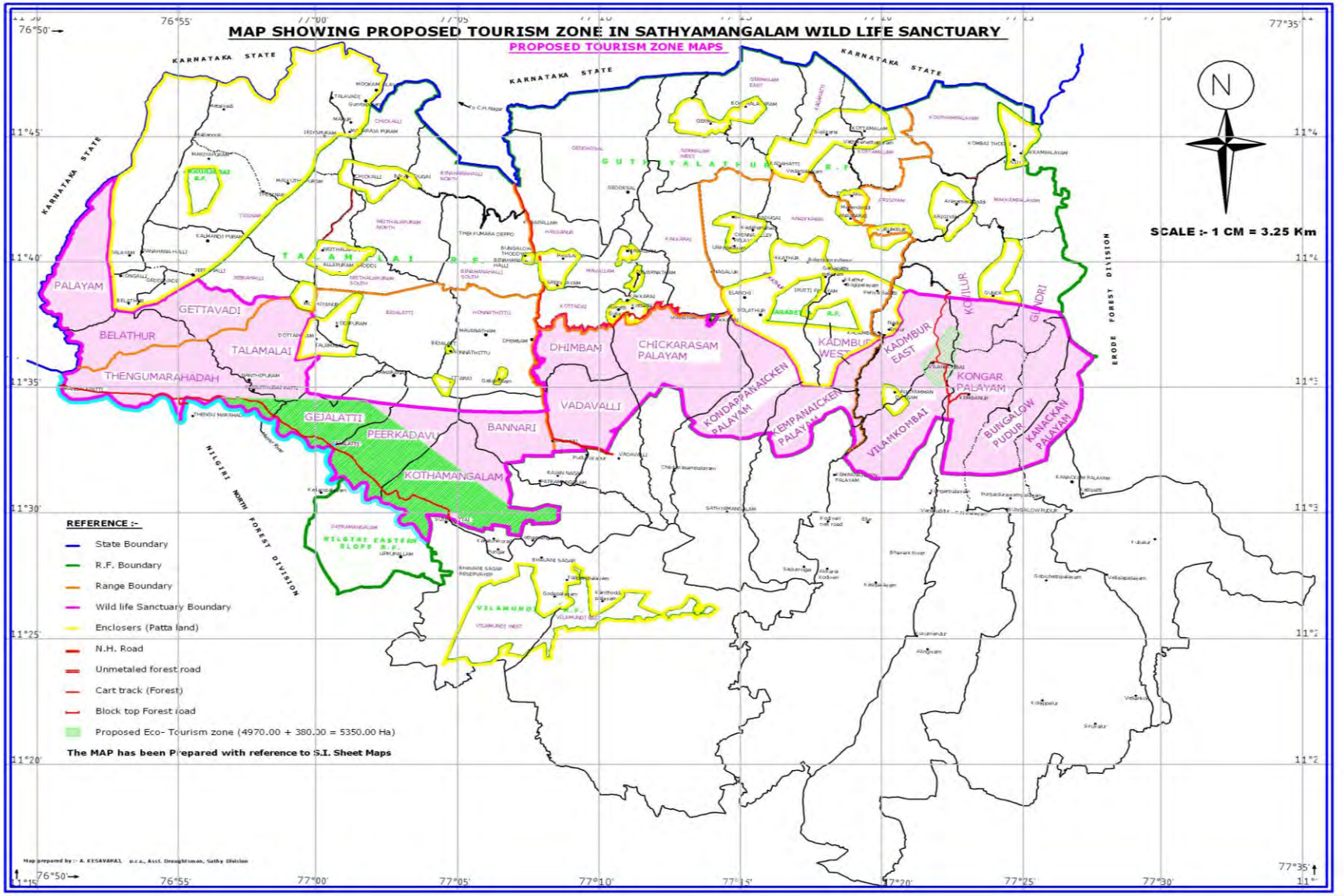
Administrative Area: Sathyamangalam & Bhavanisagar

Sl. No	Name of Zone	Beats	Extent (in Ha.)
1	**Core Zone**	Beats: Geddesal (part), Dhimbam, Vadavalli (part), Bannari (part), Kothamangalam (part), Peerkadavu (part), Gejalatti (part), Talamalai (part), Thengumarahadah (part), Geddavadi, Belathur, Palayam.	27881.70
2	**Tourism Zone**	Game roads: Bhavanisagar Range, T N Palayam Range & Sathyamangalam Beats: Kothamangalam (part), Gejalatti (part), Peerkadavu (part), Thengumarahadah (part), Talamalai (part).	2500.00
3	**Buffer zone**	Beats: Bejalatti, Honnathittu, Talamalai (part), Gejalatti (part), Peerkadavu (part), Bannari (part), Chikkarasampalayam, Kondappanaickenpalayam, K.N.Palayam, Kanakkampalayam, Vilankombai, Gundri (Part), Kovilur (Part), Bungalowpudur.	22028.24
4	**Administration Zone**	DFO office, Range Offices, Rest Houses, Staff Quarters, Nursery	25.00
5	**Zone of influence**	The list of villages within 5 kms radius from the boundary of the reserve forests. Annexure - IV enclosed	N.A

The following zone plans have been designated for planning in Sathyamangalam. Detailed zone plans have been discussed in the following Sections and Chapters. No specific zone or theme approach is considered necessary for flagship species, viz, Elephant, Black buck, Tiger, since the overall conservation initiatives will encourage good wildlife population in Sathyamangalam.

a) Management Zone plan for Core Zone
b) Management Zone plan for zone of influence.
c) Management Zone plan for Tourism/Eco Tourism

Map showing the various zonation pattern in Sathyamangalam WLS (extent of tourism, core area, administrative areas, buffer areas, if any)



6.3.1. Core Zone: Regulations

The following regulations are prescribed for the management of Core zone**.**

1. There will be no visitor use in the core Zone.

2. Protection measures will be given highest priority in the Core Zone.

3. Forestry manipulation of the habitat such as Fire Protection, Water Hole Management and Weed management are allowed as part of scientific management practices.

4. Scientific research, monitoring and evaluation of forestry works are permitted inside the core area.

6.3.2 Buffer zone: Regulations

The habitat restoration activities will be needed in the buffer zone with the objective of expanding the area of Core zone.

The following measures are prescribed for management of buffer zone.

1. The area will be protected against encroachments, since it has interface with habitations. This will be done by periodic boundary patrol as well as maintaining very conspicuous cairns.
2. The habitat of the area will be protected from grazing and by providing alternative income generation activities, through VFC/eco-development committee and other similar schemes.
3. The incidences of head loading will be minimized by focusing on the forest dependents through eco-development committee.
4. The wildlife of this zone will be protected from poaching incidences
5. Habitat improvement works and maintenance of the existing facilities will be carried out in a scientific manner.
6. Habitat restoration activities, like weed management and improvement of drainage will be permitted
7. There will be no selection felling/ or thinning of timber species.
8. Shared use of Buffer Zone will be limited only to the non-consumptive use of the resources.

9. The biotic interference in the area will be minimized by the scheme of eco-development.
10. The scientific research will be encouraged in this zone.

6.3.3 The Impact of Zone of Influence

The zone of influence (ZI) is a concept that helps in rationally identifying the extent and constitution of the buffer zone. For this purpose two aspects need to be considered.

First, it is important to identify and list the villages and communities situated outside the boundaries of the Sanctuary which are traditionally dependent on the forest based resources of the protected area. The residents of such villages may have their subsistence related activities extended to forests outside the PA boundaries as well. Once this pattern is established it will be possible to delineate an area outside the PA boundary to include such villages and forest areas over which the people's activities extend.

Secondly, it will be necessary to estimate areas outside the Protected Area boundary and the villages over which the influence of the Protected Area is experienced. This may be owing to loss of job opportunities following stoppage of forestry operations within the PA, curtailment of resource use by people, wildlife related damage problems at the PA interface such as crop-raiding, damage to property, cattle killing, injury to people or man-eating by large carnivores.

The Regulation

The following regulations are prescribed for the zone.

a. Sharing of resource use.
b. Traditional Forestry practices are allowed at permissible level.
c. The concept of Joint Forest management and wildlife management in the Zone of Influence will be created with reciprocal commitment from either side. This would be achieved through eco-development programme
d. The institutional arrangement will be provided for various stakeholders and government partners to achieve conservation attitude among people.
e. Scientific way of acquiring lands for conservation of corridors for sensitive and endangered species as part of landscape conservation programme.

f. Sensitive and key critical habitats, especially valley forests, water bodies, and riparian blocks, should receive adequate protection and management inputs.
g. Regulatory eco-tourism with commandments will be prescribed outside for the eco-tourism operators and resorts.
h. Habitat restoration activities, like weed management and water management will be encouraged and priority to be given for these schemes.
i. Livelihood options will be created for the forest dependents that reduce pressures on the existing habitat.

CONTROL

Register showing the list of produce yield and the revenue fetched shall be maintained. Abnormal reduction / increase in any of the non – timber resources should be analyzed by the District Forest Officer and observations should be reported to the Conservator of Forests for technical consideration and follow up instructions.

6.4. NTFP AS A LIVELIHOOD OPTION

From time immemorial, man has been dependent on nature for survival. This dependency has led the tribal people living in close harmony with nature to evolve a unique system of knowledge about the utilization and conservation of natural resources, especially plant genetic resources by way of trial and error. Ancient people have preserved forests as sacred groves. Their intimate knowledge on plants, especially discretion in choice of species for consumption, period of collection, processing wild foods to make it palatable, cultivation practices, manipulation of species and habitats should be observed and fully understood, in order to utilize the natural resources in a sustainable manner. This knowledge has been passed on from one generation to another. They have associated with forests and depend on forests for their livelihood and traditional practices. The Forest Department had utilized their services for all forestry activities and also extended certain possible welfare measures to them

Majority of the tribals go to forest for Non Timber Forest Products (NTFP) collections and the important collections are Nellikkai, Kadukkai, Poochakkai, Date leaves, Tamarind, Elandai and Sundai. Earlier, most of the NTFP collections were sold to the LAMP society at

Sathyamangalam. Since the LAMP society incurred heavy lose and became bankrupt, the government decided to empower the tribal community by providing all the NTFP to the tribal free of cost.

The government had issued a G.O.79 E & F Dept dated 29.4.2003, in which the right to collect MFP was given exclusively to the Tribal. In each village, a village Forest Committee is formed enrolling all the members of the village (details enclosed). Each committee is headed by one VFC President and an executive Committee of 7 members, out of which 50% are women. The President and members of EC are elected on democratic principles, and they are vested with powers

i. To make decisions in harvesting, processing and marketing of Minor Forest Produce in their respective area under Joint Forest Management.
ii. To protect forest from fire, grazing and other unnatural causes.
iii. To implement development activities for the improvement of basic infrastructure in the habitations.

The income accrued is deposited in the VFC account held jointly by the VFC President and the territorial Range Officer, who is the ex-officio member.

The VFC can utilize the money for development activities within the hamlet, after passing a resolution.

Strategy: This might also benefit the villagers to develop confidence mechanism with the sanctuary authorities to curb various illegal activities movements by unwanted forces (including naxalite) inside the sanctuary areas. Thus, the movement of tribal villagers for collection of NTFP various species throughout the year could benefit both their livelihood aspects and prevent other intruders including unwanted elements inside the sanctuary. The Tribal rights Act provides for the collection of NTFP items for the bonafide requirements of the tribals. The existing Tribal village forest committees will continue the collection and value addition activities. The revenue generated will be ploughed back for the benefit of VFC members. However, inventorization of NTFP resources and their sustainable harvest are the major challenges before the Sanctuary management. The services and expertise of

NGOs like Keystone foundation must be effectively utilized for managing the resources in a sustainable manner.

Activities proposed for NTFP utilization and Tribal development

The Village forest committee will assess the NTFP resources in each unit and devise strategies to harvest them in a non destructive manner. The harvested material will be cleaned, graded and value added to improve the quality and marketability. Efforts will be taken to obtain organic certification for the edible items to get better price.

1. Assessment of existing growing stock of NTFP items
2. Promoting non destructive and rotational harvest system with minimal wastage.
3. Cleaning, grading and value addition of harvested material.
4. Obtaining organic certification for the finished products
5. Marketing of the finished products through the VFCs.
6. Equitable sharing of benefits among the members of the VFCs
7. Utilization of revenue generated for the creation of infrastructure facilities in the tribal hamlets.

A road map will be prepared for implementing these activities in each village through participatory planning.

The village forest committee will decide the various developmental activities to be implemented in the village for the next 10 years. It will be done by participatory rural appraisal techniques with the help of local NGO. The microplan will have all the basic details about the village and the adjoining forests and the scheme of things to be implemented in the next 10 years.

NTFP- Training to women SHGs:

Training programmes are essential to inculcate non destructive harvest, proper cleaning and grading of NTFP items. Women SHGs are capable of doing variety of economic activities like broom making, Amla pickles, coir rope making, Areca leaf plate making etc. For doing these activities proper training at appropriate places will be conducted with the help of NGO's and private entrepreneurs.

Each training group consists of 20 women and period of training will be 1 week. During the training period, transport allowance, stipend, food allowance will be provided to the trainees. The resource person will be given a decent honorarium to train them properly.
Cost of each training will be Rs.20000 per SHG. All the active SHGs in each village will be trained in the above aspects to improve the handling of NTFP items.

Involvement of NGOs in NTFP

For monitoring all the development activities, the services of NGO's will be utilized for ensuring transparency and ease of execution. The NGO's will be paid a honorarium of Rs.1500- viilage/month for organizing the various development activities implemented through the VFCs. They will be responsible for issuing of loans, recovery of loans, identification of right economic activities for the SHGs, vocational training to SHGs, awareness creation etc.

Participatory planning with the Tribals

Participation of women SHGs

Training to women SHGs

Hon'ble Minister inspecting the SHGs

Albizzia leaves –Hair cleaning powder

Women SHG- Packing the powder

Ragi flour for local market

Amla pickle- Training to SHGs

Fund Flow Mechanism

The sanctioned amount will be deposited in the VFC accounts held jointly by the VFC president and the Ex-Offico president. The annual action plan will be prepared by them along with the budget. The DFO will approve for each village at the beginning of the project. After DFO's approvals the VFC president and ex-officio president can withdraw the amount from the VFC account and utilize it for the sanctioned activities as per the existing government norms.

NTFP retail outlet at Sathyamangalam

Grocery shop at Kalidhimbam village

The following works are proposed to be done during the plan period. The selection of location is left to the discretion of the District Forest Officer depending on the availability of site and financial requirement has estimated as below.

NTFP PLANTING

Plan Proposal for NTFP: APPROACH

Traditional collection of NTFP products from the forest areas by the tribal communities could not be stopped immediately with the declaration of sanctuary. The traditional local communities are entitled for NTFP collection under Tribal rights act for their genuine requirements. Efforts should be directed in mobilizing their confidence in securing the forest wealth through a mechanism of EDC/VFC with a focal concept of income generation activities for them. The schemes will be oriented with NTFP items with value addition products for their economic sustainability in the long run. The economic generation witnessed by the villagers for their livelihood through NTFP collection could be gradually replaced with land based activities. This could be achieved in a phased manner with a variety of land development activities with the participation of NGOs and Line Agencies. Direction and efforts should be targeted in this manner by the forest department to slowly wean away the NTFP collection after ensuring proper economic standards for the local communities. Ultimately, the NTFP collectors sooner or later will become progressive farmers and conservationists.

6.5. TOURISM ZONE

It is proposed to engage tribal tourist guides for explaining the local forest types and habitats of wild animals such as Tiger, Leopard, Elephant, Sambar deer , Gaur, Spotter deer, Sloth bear, Wild dog, Wild boar, Common Langur, Bonnet Macaque, black buck etc. The Hill Tribes living in tribal village have adequate knowledge about the movements of animals and their habitat. If we engage such type of people as tourist guide in the Sanctuary area, the visitors will learn more about wild animals.

6.6 ADMINISTRATIVE ZONE

The existing administrative infrastructure facilities at Sathyamangalam, and Bhavanisagar constitute this zone. Range offices, and Quarters for staff are located here. The entire administrative Zone represents area of public interface and need to be adequately landscaped with elements belonging to the Sanctuary, without using any exotic plantings.

6.7. THEME PLANS

The following theme plans have been prescribed for Sathyamangalam Sanctuary, which would be discussed in the forthcoming chapters:

a) Habitat management
b) Forest Protection and anti-poaching operations
c) Fire protection
d) NGO support to the Sanctuary management
e) Eco-Development

6.7.1. Habitat Management

The habitat management focuses at a good population of endangered species with its habitats through an exercise of peoples' participation at the grass root level. This is an important theme plan for the Sathyamangalam WLS. The major components of habitat management include weed management, water hole management and fire management. This will benefit the rich diversity of habitats that could sustain a perfect and balanced ecosystem. The basic principle is to have interspersion of various habitat types rather than a uniform habitat to foster floral and faunal bio-diversity in Sathyamangalam WLS.

6.7.1.1. Weed Management

Weed Invasion

Lantana Management Strategies

There is a strong notion amongst foresters, researchers and environmentalists to remove this exotic, from the forests. It is also to be pointed out that removal of plant weeds completely from the habitat might lead to various problems. For example, most of the forest is devoid of second and third level of plant diversity to support smaller mammals, reptiles and bird communities.

Lantana Removal and Income Generation Activities

The removed lantana stumps may be supplied to the local villagers for their cottage industries to prepare furniture as part of income generation activities. The materials may be supplied free of cost to the VFC / EDC. A proper marketing survey may be carried out with the assistance of NGOs and other partners.

Photo Plate: Lantana invasion, removal and products through VFC

6.7.2 MANAGEMENT OF WATER RESOURCES

Moyar and Bhavani River Basin

Bhavani River which originates from upper Bhavani runs all along the Reserve Forests areas and drains into the Bhavanisagar reservoir. The important tributary, River Moyar also joins in this reservoir. After the reservoir, the river Bhavani was outside the limits of reserved forests. But most of small rivers streams and rivulets that originate and drain from the RF areas of Bhavanisagar, Sathyamangalam and T N Palayam join the River Bhavani throughout its length up to Bhavani-Kooduthurai. Hence, all these areas need treatment to arrest the runoff and control the soil erosion.

Sathymangalam Range

The southern slopes from Dhimbum to Kadambur which comes under Sathyamangalam Range forms the Kodivery water shed. Dhimbam to Kadambur Reserve Forest areas are having many rills, streams, and Nallahs. Major streams are; Dhimbum, Korangupallam, kovilpallam, kenjanur pallam, Sundapali pallam, Kanuvaikombai pallam, Varapallam, Pulian kombai pallam and Perumpallam. These streams originate from the reserved forests and run to a major distance inside the forests and then join river Bhavani after running to a short distance outside the RF. Most of the streams are seasonal in nature.

A large stretch of forest land, patta lands and lands under other departments are available for the treatment on the northern side of the River. Southern side of the River Bhavani, does not require any treatment as such as it is with full of human habitation.

T. N. Palayam Range

Streams like Gunderi pallam, Adalathi pallam, Mamarathu pallam originates from T N Palayam Range forests and join with river Bhavani after running through reserve forest to a considerable distance and carrying a huge quantity of water during rainy seasons. Gunderipallam and Perumpallam are the important dams constructed across these streams and this action plan included the treatment of these catchments.

Soil and moisture conservation works may be under taken in the upstream side of these streams. Also a large stretch of forest lands and patta lands are available for treatment.

Works Proposed

1. Soil Conservation Works

a) Contour bunding

b) Gully plugging

c) Construction of contour walls

d) Terracing in patta lands/Bench terracing

e) Plantation works inside and outside the reserved forests

2. Moisture Conservation Works

a) Construction of Small check dams

b) Contour trenching

c) Staged trenching

d) Construction of percolation ponds

Water Sources in the Sanctuary and adjoining reserve

Water supply

Palar, Moyar and Bhavani run through the Division and water supply is good in the vicinity of these perennial rivers. Otherwise, in general, the water supply on the plateau is either unwholesome or inadequate. The water table on the plateau is also low. Due to indiscriminate sinking of borewells, the water table, has gone too deep.

Construction of a percolation pond in Binahanahalla stream and sinking of a borewell near Hassanur Forest Rest House provide water supply to the forest campus. Numerous small and large tanks and ponds exist both on the plateau and plains, specifically for providing water to cattle and wildlife. But most of them are dry due to poor and uncertain rainfall. There are about 35 major and 90 smaller ponds (Kuttai) spread over the entire division area. Apart from these tanks, numerous small check dams and percolation ponds were formed in this division under TAP. As the tanks were not desilted periodically, the capacity of most of the tanks has been reduced. They hold less quantity of water and hence they quickly dry up during summer.

River System

The Plateau in general has northerly aspect and drained mainly by Palar and Moyar. Most of the stream from the eastern half of the plateau drains into the river Palar while the streams from west and southwest join Moyar. Palar flows north wards along the common boundary of Sathyamangalam and Erode Divisions and joins Cauvery. During hot weather the beds of the rivers dries up bearing only few stagnant pools of water in sheltered spots, creating water stress to grazing cattle and wildlife. The Moyar River is a perennial one flowing in to Bhavani forming southwest boundary of the Division to some extent till it meets Partamangalam beat. Another perennial River is Bhavani, which enters into the Division through Bhavanisagar Range from Southwest. The central and northwest part of the plateau drains towards Mysore whereas the Southern outer slopes of the plateau are drained by numerous torrents, which flow only during raining days and falls into Bhavani.

Sathyamangalam and T.N.Palayam Ranges are drained by numerous streams joining into the big streams called Jodumathi and Haleru hallas. The Jodumathi is a tributary of Haleru Halla, which in turn falls into Palar. In the Kottadai Mavahalla plateau the middle drained by tributaries of Devarhalla, which unites with Attipattipallam originating from Onnathittu and traversing the Hassanur Valley. The Minchikuli Halla is carrying the drainage of Minchikuli valley. All these streams virtually empty themselves into Swarnawathi River, which flows northwards into Mysore.

The importance Rivers and Streams flowing in this division are

Perennial:

1. Moyar River	Bhavanisagar Range
2. Bhavani	Bhavanisagar Range
3. Swarnavathi	Hassanur Range
4. Minchiguli Halla	Hassanur Range
5. Palar	T.N.Palayam Range
6. Kangesaguripallam	T.N.Palayam Range

Semi perennial

7. Sigathi Halla
8. Keribatraigan Halla
9. Jogathi Halla
10. Halbidda Halla
11. Odurkattai Halla
12. Dasari Halla
13. Balapadugu Halla
14. Kodamballi Halla
15. Dodda Halla
16. Arekadavu Halla
17. Devar Halla
18. Thenvarai pallam
19. Jodumathi Halla
20. Sagar Halla
21. Bellanethur Halla
22. Kilathu Halla
23. Chenikadavan Halla
24. Kumututa Halla
25. Karamadai Halla
26. Thatta Halla
27. Hileru Halla
28. Kallakovai Halla
29. Minmattu Halla

Significance of the streams and rivers on elephants

Water is an important and critical resource in the forest eco-system and the scientific management of this scarce resource is imperative for the sustenance of wild life habitats. Many big and small streams and rivers are running through the corridors. The role of streams in the forest eco-system is synonymous to the blood vessels of a living being. They circulate rainwater in the habitat area to benefit the vegetation and wildlife alike. Stream courses help the establishment of the surrounding environment. Perennial streams act as wild life riparian habitat. Hence they play an important role in the conservation of elephants.

Dams/Perennial Streams	Major Streams	Minor Streams	Pond	Artificial wells	Bore wells
River Bhavani	Palar	Doddakombai pallam	Badagalli kuttai	Doddakombai	Bannari
River Moyar	Perumpalla	Karuvanrayan pallam	Desanthira kuttai	Chettikuttai	Ecological Farms
Bhavanisagar Dam	Swarnavathi	Kodampalli pallam	Asagan Kuttai	Karuvanrayan temple	Karidoddampalayam
Gunderipallayam	Halibidha Halla	Kadapparaipallam	Malla goundan kuttai	Bengapatti	
Perumpallam		Balapaduga hallah	Doddamudugarai kuttai	Navakinaru	
		Gunderipallam	Mavanatham kuttai	Kaduvai kinaru	
		Adalthipallam	Alamalai Kuttai	Vellimalai Kinaru	
		Sakkaraipallam	Kakkarai Kuttai		
		Thattapallam	Bengapathi Kuttai		
		Vedaparaipallam	Lakkadar Kuttai		
			Chatrakarai Kuttai		
			Alamarathu Kuttai		
			Kumbeswara Kuttai		
			Ammalakarai Kuttai		
			Joganalla Kuttai		
			Thavara Karai Kuttai		
			Bison Kuttai		
			Periya Kuttai		
			Siddeswaran Kuttai		
			Jorai Kuttai		
			Kemparai Kuttai		
			Palakaradu Kuttai		
			Kathirikombai Kuttai		
			Lakkepallam kuttai		
			Kumari maduvu		
			Guthiyalathur Kuttai		

Regulation

The following regulation is prescribed for water management.

i) The water holes must be de-silted on rotation basis. At the time of desilting operation, care should be taken to ensure saucer shape rather than abrupt cutting of the edges.

ii) Sathyamangalam has reasonably well distributed water holes. However, many of them on the seasonal streams have been washed out or damaged and therefore do not hold water. These water holes need to be repaired.

iii) 111. The major water holes have been considerably silted and have leakages which have reduced the water holding capacity and need desilting and repair works regularly.

iv) There is a need to construct at least a few more check dams in Sathyamangalam Range and T N Palayam

v) The water availability must be monitored on weekly basis after 15th of January and this should also be one of the factors for closure of Sanctuary.

vi) During extreme drought situation, the water must be transported in tanker and filled in the small troughs provided on the road sides within the tourism zone.

6.7.3 Forest Protection and Anti-poaching activities

Protection in Sathyamangalam WLS is accorded the highest priorities and all other activities are considered complementary to protection of wildlife. With inherent socio-economic problems and compulsions, and the ever mounting pressures of illegal wildlife trade, forest protection assumes even greater importance.

PROTECTION: The Strategic Approach

a) Strengthening of Check Post
b) Wildlife High Way Patrolling
c) Communication Net work
d) Field Patrolling and Surveillance
e) Anti Poaching Camps
f) Intelligence Gathering
g) Joint Inter State Meeting
h) Capacity Buildings for the Field Staff
i) Co-ordination with Line Agencies for Better Protection
j) Special Strike Force

The Strategy - Anti-Poaching Operations

One of the best protection strategies in the Sathyamangalam Wildlife Sanctuary has been the anti-poaching operations by involving local tribals and other communities. The anti-poaching sheds/camps have been established in the most sensitive areas of the Sanctuary and they are manned by tribal watchers, including uniformed Beat Subordinates for a period of one week continuously, when the next batch of anti-poaching watchers takes over. The anti-poaching Watchers cover 5 Sq.Km. of area by patrolling over foot and record all sort of illicit activity and also the record the sightings of wildlife in separate registers maintained in each camp. The anti-poaching camps are connected over wireless and their detailed reports are obtained on daily basis. The continued presence of anti-poaching watchers in the camps has acted as a biggest deterrence against any illegal activity in the Sanctuary limits and adjoining forest divisions.

Criteria for Selecting Anti-Poaching Camps

The following considerations are made for selecting an anti-poaching camp.

a) Location in terms of known areas of frequent animal movement
b) Location in terms of vulnerability for poaching incidences
c) Significance of location with regard to seasonal availability of crucial resources (food, water shade and breeding areas of animals)

d) Better accessibility to forest roads for patrolling and supply of rations for anti-poaching camps

e) Closer proximity to perennial streams for suitable living condition

f) Suitability of locations for establishing communication facilities

Proposal to strength the Anti Poaching Camps: Overall Strategy

It is necessary to supply the following infra structure for Anti-Poaching Camp

a) Minimum wages @ Rs 120/day

b) Daily ration @ Rs 40/day

c) Torch light, cells, operational expenses transportation, hunter shoes and two sets of uniform and maintenance of camp shed accessories to be provided.

d) Minimum 4 persons per camp (three tribal people and one uniform staff) to be ensured for a proper functioning of camp

e) Proper elephant proof trench to be done surrounding the camp site

f) Each camp to be supplied with mobile phone as part of communication strategy

g) Walkie-Talkies and communication accessories to be provided for each camp.

h) A separate register to be maintained for documenting patrolling details in a scientific manner and every day field data to be communicated to the head quarters

i) Proper training to be provided for the field staff on the use of GPS and Compass to get proper location of animals. GPS and Compass to be given for each camp

j) Adequate utensils and medical kits to be supplied periodically for each camp to strengthen their field personnel moral in protection measures

k) Proper delivery of rations to be ensured for each camp without delay.

l) Periodical meeting with the higher officials (Range Officers and DFO) to be organized for the anti poaching watchers as part of confidence building mechanism. Such a programme will fine tune the functional ability of the ground staff in an appreciable manner. A separate fund to be earmarked for such as meeting.

m) Group Insurance Scheme to be made available for all the anti poaching watchers and a separate tie- up arrangement to be organized with various line agencies and NGOs.

n) Internal sports materials to be supplied for each camp as part of improvement of their mental skills

o) Separate health camp to be organized for all the APW and tribal Fire watchers

p) Proper hygienic water supply to be ensured in each camp for their daily use

q) A separate Women Self Group to be formed for the families of anti poaching watchers in order to improve their livelihood status. Corpus fund for the same to be provided by the Forest Department. Initial assistance and support to be provided by the department.

r) LPG connection to be provided for each camp

s) Data on Mike Programme to be properly collected and passed on to the Head Quarters every fortnight. Training on data compilation to be provided for the APW by the higher officials in a periodical manner. The template needs to be simplified for an efficient data collection from the field. This aspect has to be seriously discussed by the concern bureau of the MIKE, MoEF. Data collection on MIKE has to be periodically documented and discussed with the field personnel to improve the patrolling strategy in concern beat/section/range. It is also necessary that MIKE secretariat personnel often take follow up action to implement the programme in a field oriented manner for the benefit of elephant conservation programme in the regional level after obtaining basic ground truth information from the front line staff of the department.

t) Proper field kits to be supplied for the APW

u) Training should be given on intelligence gathering and interrogation for the APW with the assistance of police and legal departments.

v) All the APW should be trained in driving and use of arms.

w) Comprehensive health camp should be organized once in three months for the APW with the involvement of Rural Health Camp Programme.

x) The APW field personnel should be made as a permanent staff. Relevant policies may be amended.

y) mechanism of cash reward may be constituted for successful detection of forest offences and this might motivate the moral capacity of the APW.

Strengthening Protection Measures: Strategy

The following activities are required to strengthen the anti-poaching operations.

1. Rotation of staff for patrolling. Each patrolling staff in the anti-poaching camp must always be done with the leadership of uniformed field staff.
2. Patrolling teams to be formed for specific areas.
3. There is a need to concentrate on border areas especially, entry and exist points of poachers and lay ambush.
4. Documentation on visible indicators, human trails.
5. Regular visit of vulnerable areas and paint markings.
6. Night patrolling on foot, and also patrolling without the use of torch lights.
7. Upgraded vigilance during Fridays and Saturdays, when the staff is otherwise expected to be holidaying.
8. Detailed log activities to be maintained by the staff in the prescribed formats.
9. Inter camp visits to be ensured by the watchers
10. Identification of vulnerable areas is a continuous process.
11. Senior staff regularly stays in the camp.
12. Codification of the camps is important and a common code must be evolved for the division.
13. Periodic contact with the interstate border anti poaching camps and joint patrolling.

Check Post and Communication Facilities

All check posts should be equipped with proper net work of communication facilities in order to strengthen the protection measures. This should be carried out on a priority basis. The WWF India has already supported the communication facilities for a few areas and similar support may be obtained from them for sensitive areas.

Present strength of Anti Poaching Camp Force in Sathyamangalam Division as a whole

Sl. No.	Name of the Range	Anti-poaching camp	Number of Anti-poaching Watchers
1	Sathyamangalam	1) Vadavalli (Camp) 2) Bannari (Camp) 3) Ekkathur (Camp) 4) Ullepalayam (Shed) **Total**	3 2 4 3 **12**
2	Bhavanisagar	1) Uppupallam (Shed &camp) 2) Honnathittu (Shed&Camp) 3) Mavanatham (Camp) 4)Nandipuram (Shed & Camp) **Total**	4 4 4 **12**
3	Hassanur	1) Uginium (Shed&Camp) 2) Germalam West (Camp) 3) Kakkarai (Shed&Camp) 4) Kadati (Camp) 5) Geddesal (Camp) 6) Kottamalam (Camp) 7) Karapallam (Camp) **Total**	 5 3 3 3 4 **18**
4	T N Palayam	1) Gundri (Shed&Camp) 2) Makkampalayam (Camp) 3) Kadambur (Camp) 4) Kunderipallam (Camp) 5) Kanakkampalayam (Camp) **Total**	1 4 3 2 2 **12**
5	Thalavadi	1) Teak wood Depot (Shed&Camp) 2) Kumdapuram (Shed&Camp) 3) Kongalli (Shed&Camp) **Total**	5 5 5 **15**

Total Anti Poaching Shed: 11

Anti Poaching Camp: 23

Number of APW engaged: 76

These positive signs of controlling the illegal activities by the anti poaching staff would send a signal to the poachers and that would prevent further potential threats to various

endangered species including elephants and tigers in the Sathyamangalam Wildlife Sanctuary.

New Anti poaching shed has to be made in sensitive areas of T N Palayam (Gunderipallam: Kalluthu area) and Sathyamangalam.

Protection Measures

Protection measures-Prevention of offences	**PROPOSED PROTECTION MEASURES** a) Conservation awareness programme for various stakeholders b) Strengthening of existing anti poaching camps by providing all infra structure facilities c) Ensure proper training on patrolling for Anti Poaching Watchers, especially intelligence gathering and use of equipments d) A separate cell attached with the DFO/WLW office to be commissioned with related line departments to prevent illegal trafficking of Tiger and Elephant products. e) Periodical workshop on strengthening protection measures to be organized with interstate officials. The minutes of the workshop to be forwarded to the policy makers for an effective implementation procedure and action. f) Sufficient annual budgetary commitment must be ensured from the state treasury for conservation of tigers with special allocation for its protection measures.

New Check Posts

New permanent and temporary check posts to be established in sensitive Sanctuary limits as part of increasing vigilance to prevent illegal activities.

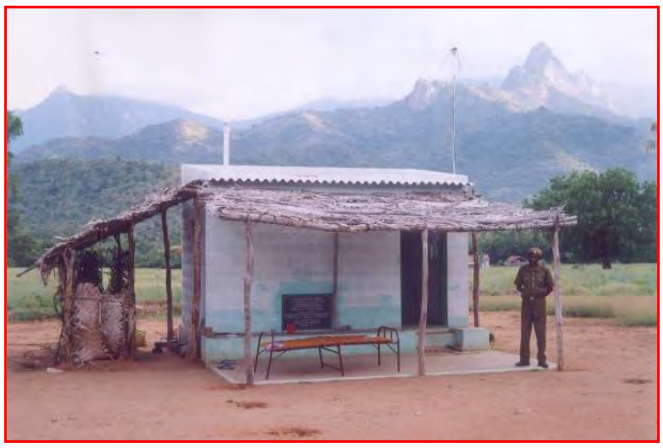
Anti-poaching Revolving Fund

The anti-poaching operations are mostly plan scheme. It is necessary to keep a rolling fund of Rs.15 lakhs with DFO, as part of wages and contingencies for anti-poaching operations. This fund can be replenished on receipt of plan scheme funds. This single factor will lead to continuity in anti-poaching operations all throughout the year without seriously compromising the protection measures.

Photo Plate: Courses attended by the field personnel as part of wildlife management

STF, Commando Force Chief, Mr.ShailendraBabu, IPS and Superintendent of Police, STF inspecting weapon training to Anti-poaching Watchers.

Photo Plate: Activities to Strengthen the protection measures



Anti-Poaching shed in Nandhipuram

Anti-Poaching shed in Mangalapatti

Newly constructed Anti-Poaching shed

STF Personnel providing training to Anti-Poaching watchers

WTI Field Officer providing kit to the Anti-poaching Watchers

WWF India provided Communication facilities for Anti-poaching camps

6.8 IMPACT OF FIRE

The mixed deciduous forests coupled with scrub tracts of Sathyamangalam are more prone to fire. The fire season begins after the North East Monsoon from early December till about pre-monsoon showers April. Natural fire is unknown to this area and the fires are mostly accidental or intentional by the man. The ground fire has a profound effect on the wildlife and its habitat. Fire not only reverses the process of natural succession of plant communities, it also modifies the abundance and relative densities of the wildlife. Fires immediately result in the removal of dry, coarse, fibrous and unpalatable forage, and produce a new flush of nutritious and palatable green shoots of grasses based on the availability of moisture, which is liked by herbivores, including Elephants. Fires kill or partly destroy seedlings, saplings and shrubs, giving rise to small openings, and lack of regeneration. Many of the plant species lack of adequate regeneration saplings in the deciduous forests. Diversity of plant species are reduced in high fire prone areas and those are evidently noticed in deciduous forests of the sanctuary. Un palatable weeds are commonly distributed in repeated fire burnt areas. Grass dynamics and species association have changed with constant fire occurrence. Such impacts have altered the use pattern of elephants in deciduous forests.

The post impact of fire incidences in deciduous forests has not been investigated seriously so far as part of management and such studies are warranted for proper conservation planning with regard to impact of fire on animal and plant ecology.

Extend of Fire Occurrence in Sathyamangalam Division From 1997 to 2008

Range	Name of Beat	Name of RF	Fire occurrence	Extent In Ha
Sathyamanagalam	Kembanaicken-palayam	Guhtiyalathur	9 Septam 1999	0.40
	″ ″	″	14 Sept 1999	1.00
	Dhimpam	″	28 July 2000	5.00
	″ ″	″	13 March 2001	2.00
	″ ″	″	11 July 2001	1.00
	Kadampur East	″	3 March 2002	1.00
	Kondappanaicken palayam	″	14 March 2002	1.00
	″ ″	″	6 March 2004	0.436
	Dhimpam	″	18 March 2004	0.436
	Chickarasam palayam	″	26 Feb 2006	0.40
	Dhimpam	″	31 March 2006	4.20
	Chickarasam palayam	″	3 April 2006	4.00
	Kondappanaicken palayam	″	26 April 2007	2.00
			2008 nil	
			Total	**22.872**
T.N. Palayam	Makkam palayam	Guhtiyala thur	26 Feb 2005	5.00
			2008 nil	
			Total	**5.00**
Talavady	Chickally	Talamalai	3 March 1997	1.00
	″ ″	″	9 March 1999	4.00
	Binaanahally	″	10 March 1999	4.00
	Neithalapuram	″	11 March 2001	1.50
	″ ″	″	26 March 2001	0.50
	Thiginarai	″	6 March 2002	0.50
	Binahanahally	″	22 March 2002	0.50
	Belathur	″	19 Feb 2006	5.00
	Chickally	″	26 March 2007	4.50
	Binahanahally	″	28 March 2007	5.10
			2008 nil	
			Total	**26.60**

Hssanur	Geddesal	Guthiyala thur	16 March 1997	1.00
	″ ″	″	9 March 1999	10.00
	″ ″	″	10 March 1999	1.50
	″ ″	″	11 March 1999	6.00
	Kottatai	″	12 March 1999	2.00
	Geddesal	″	25 March 2001	1.00
	Mavallam	″	9 March 2002	2.00
	Germalam East	″	14 March 2004	0.50
	Geddesal	″	21 March 2004	7.00
	Hassanur	″	23 March 2004	1.50
	Kottatai	″	12 July 2005	0.50
	Kakkarai	″	1 March 2007	0.60
	Mavallam	″	16 March 2007	0.50
	Germalam west	″	16 March 2007	0.80
	″ ″	″	20 March 2007	0.77
	Geddesal	″	21 March 2007	0.50
			2008 nil	
			Total	**36.17**
Bhavani Sagar	Bejalatti	Talamalai	19 March 1997	3.75
	Honnathittu	″	22 March 1997	2.50
	Bannari	″	3rd July 1997	4.00
	Bannari	″	8th July 1997	4.50
	Bannari	″	31st July 1997	4.50
	Onnathittu	″	10th June 1998	1.00
	Onnathittu	″	13th June 1998	1.50
	Bannari	″	8th July 1998	3.00
	Talamalai	″	4th March 1999	2.00
	Tengumarahada	″	14th March 1999	2.00
	Talamalai	″	5th July 1999	4.00
	Bannari	″	22nd July 1999	1.50
	Bejalatti	″	11th June 2000	2.00
	Kothamangalam	″	10th July 2000	2.00
	Bejalatti	″	15TH July 2000	1.50
	Bannari	″	21th July 2000	0.50
	Bejalatti	″	25th July 2000	2.50
	Onnathittu	″	24th Feb 2001	0.25
	Talamalai	″	27th Feb 2001	1.50
	Bannari	″	8th March 2001	2.00
	Onnathittu	″	19th March 2001	1.50
	Onnathittu	″	27th March 2001	2.50
	Bejalatti	″	28th March 2001	1.00
	Bejalatti	″	27TH April 2001	0.50
	Peerkadavu	″	15th May 2001	3.00
	Bejalatti	″	5th June 2001	3.00

Bhavani sagar	Bejalatti	″	12th Aug 2001	1.50
	Bannari	″	18th August 2001	6.00
	Bejalatti	″	11th Sep 2001	1.50
	Bejalatti	″	12th March 2002	2.50
	Bejalatti	″	6th april 2002	2.00
	Onnathittu	″	18th April 2002	1.75
	Onnathittu	″	11th August 2002	2.00
	Talamalai	″	7 May 2005	1.75
	Talamalai	″	25 Feb 2006	1.44
	Bejalatti	″	26 Feb 2006	1.08
	Bejalatti	″	13 July 2006	1.47
	Onnathittu	″	10 March 2007	1.01
	Bejalatti	″	28 March 2007	2.5
	Bannari	″	25 July 2007	1.00
			2008 nil	
			Total	**85.50**

Total Burnt area in the Sathyamangalam division = 176.14 Ha

6.8.1 PROPOSED FIRE MANAGEMENT STRATEGY

Early Burning System

Early cool burning of the grasslands and areas with heavy fuel load is an important consideration as part of wildlife management techniques. The areas to be control burnt must be inspected and approved by the District Forest Officer/Wildlife Warden and the controlled burning must be completed by early January.

Closure of Sanctuary for Visitors

During the fire season, when all the staff is engaged in firefighting operations, the Sanctuary may be closed for the visitors with the direction from the Principal Chief Conservator of Forests and Chief Wildlife Warden.

Publicity and Awareness

During the fire seasons, regular meetings must be held in the neighbouring villages and the staff must maintain constant touch to keep the intentional fires under control.

Fire Control Operations

The foremost work is to detect the movement of the wind, so as to determine the fire front. The fire beating is done by making clearance of the fuel load and beating edge of the fire. The clearance is also done on the counter at the safe distance and counter-fire is burnt. The idea is to remove the fuel load from the direction of fire advance. So that it dies out. Thus strip cutting, beating the fire edge manually and Counter firing are the important fire control operations.

Proposal for Fire control Strategy:

a) More number of Fire Watch Towers to be deployed for Sensitive Ranges in order to monitor the crucial habitats

b) Providing Proper Equipments to all the identified fire Sensitive Locations

c) Increasing more Man Power during the Fire Season in all the ranges

d) Placement of Vehicles in high Fire Prone areas with adequate Man Power

e) Using existing Fire Lines as counter fire to prevent spreading of fire

f) Beating with bushes in the periphery of the fire burning areas as a strategy

g) All the burnt fires have to be checked to completely put off the fire

h) Monitor the Mortality of Animals in the Fire Burnt areas wherever possible by the fire watchers

i) All the burnt areas have to be checked at least three to four days as part of Fire Operation System.

j) All the existing Walkie Talkies to be kept in perfect condition with the onset of fire season and those are verified by the DFO/WLW and give the sets to the staff for fireworks. Circular has to be issued to the field staff well in advance in this regard.

k) Requirement of new Walkie Talkies have to be explored and purchased accordingly on a priority basis for fire prevention works

l) All the approach roads have to be perfectly managed in order to approach fire prone areas as quickly as possible. Therefore, all the important game and forest roads to be cleared and maintained properly without any compromise in this regard.

m) All the wireless station at the APC should be maintained more effectively for communications. If necessary temporary APC should be erected during the fire season in sensitive ranges with wireless communication system. The present wireless sets available in the Sanctuary may not be sufficient to prevent fire and for protection measures.

n) Ideally all the fire fighting groups should be provided with Cell Phones (BSNL).

o) On a daily basis fire strategy mechanism to be evolved based on experiences learnt every day in terms of logistic and other facilities. Minutes to be prepared and send them to DFO office for assistance and support in controlling fire.

p) Funds for fire protection strategy to be obtained adequately from the government with a separate proposal so that lack of funds should not be a limiting factor for fire management.

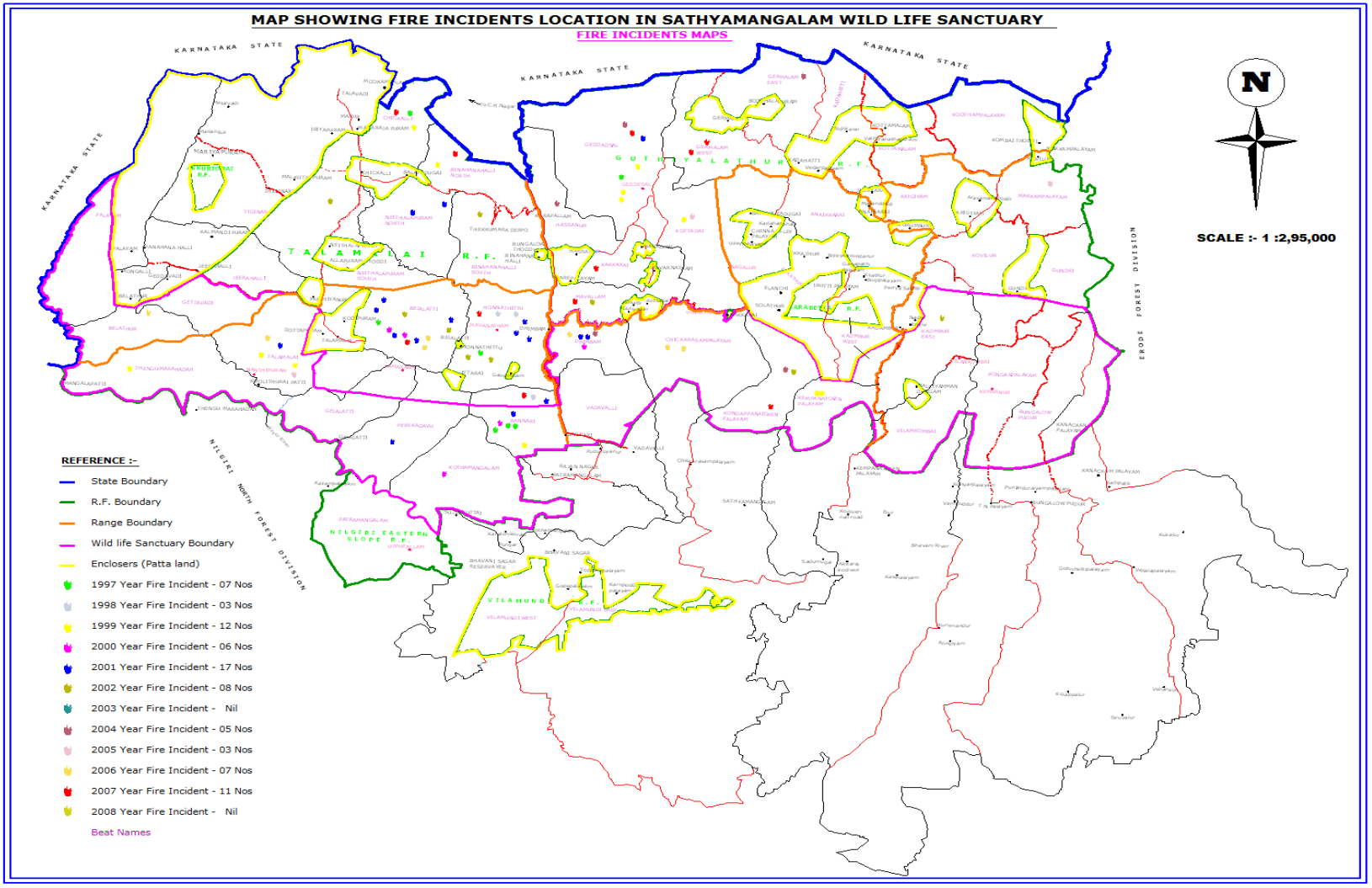
Action Strategy: Prevention Methods: Proposed

The Sanctuary may be closed every year from February to April as part of Fire Management Strategy

1. Conservation and Awareness about Fire Incidence
2. Review the Past Fire Data and develop Action plan for sensitive areas
3. Ensure Fire Fighting Equipments in all Ranges
4. Regular meeting with field staff often to deal the fire season
5. Training for the field staff in fire management
6. Creation of Fire line Works well in advance
7. Improve the communication facilities in all the ranges
8. Fire Hazard management cell to be organized in Sathyamangalam with all infrastructure facilities to deal the situation
9. Fire prone areas to be identified for each compartment based on wind velocity, tree cover, soil moisture, ambient temperature, humidity. A data base to be formed to assess the fire sensitivity of areas.

10. Establishment of Periodic Fire Lines
11. Protection to Fire Entry Points based on Past Scientific Data
12. Observation from Watch Tower
13. Conservation and Awareness Programme for villagers
14. Protection of Critical Areas: Swamps and Vayals
15. Communication Net Work: Anti Poaching Camps
16. Early Burning System on a Trail Basis
17. Ban on Grazing Permits for Selected Areas
18. Periodic Fire Patrolling by Field Fire Team
19. Closing off sanctuary during the Dry Season
20. Increasing Tribal Man Power Support for Fire Fighting Mechanism during the Dry Season
21. Keeping Dedicated Fire Fighting vehicles, Tools with Man Power to meet out the fire emergency calls from APC
22. Use the Satellite Data Base on Fire Ecology from researchers to Plan Proper Strategy for controlling Fire Incidences in the Reserve
23. In house Meeting with the researchers may be planned as part of fire operation plan
24. Research on Impact of Forest Fire to be given priority as part of Management Practice
25. Lantana Dominated areas in Game Roads to be Cleared off for at least 10 mt on either side of the road to facilitate natural vegetation to re-cloth the ground cover. This would also act as an edge forests for prey species of carnivores
26. Block Lines which are demarcating beat Boundaries to be cleared off every year as part of Fire Management Strategy.
27. Training to be Properly Organized for the Ground Staff on Fire Fighting Technique
28. Sign boards to be displayed in several places in high ways and sensitive areas as part of preventing fires from public and tourists.
29. Capacity Building Exercise to be planned for various stakeholders, especially tribal communities about impact of fire on wildlife habitats.

Map: Fire incidences over five years in Sathyamangalam Forest Division



6.9 MANAGEMENT OF MAN-ANIMAL CONFLICT

Causes for Man-Animal Conflict

a) Change in Cropping Pattern: The most important challenge is the cropping pattern adopted by the farmers in the areas adjoining to the reserve forests. Not long ago, most of these agricultural lands were under dry land crops like ragi, finger millet, and sorghum. There has been a significant influx of people from the plains of Sathyamangalam, and Gobichetipallayam towards the Talamalai, Talavadi, Hassanur and Kadabur Hills. These progressive farmers buy large chunks of land from the natives and go for high value commercial crops like sugarcane, banana, tapioca, coconut and other horticultural crops. With the rise in input costs and non availability of farm labour, the farmers of this region are constrained to go for these crops as they are less labour intensive. In addition to that the dry lands in the vicinity of forests are converted into more productive garden lands which mainly attract the wildlife.

This is one of the main reasons for the increased incidences of crop raiding, electrocution and human deaths. The farmers are trying various techniques to ward off the elephants from crop fields, but only a few could succeed. The annual crop raiding has been increasing every year alarmingly. Though crop raiding is not a recent phenomenon in the elephant reserve, there is a sustainable increase in the last ten years mainly influenced by the cropping pattern.

b) Reduced tolerance level: Due to the low profit margin in the farm sector, the farmers have become highly sensitive to loss caused by animals. In order to protect their crops farmers have to chase the animals all through the night by shouting and beating the drums. The loss of sleep in the wee hours increase the irritability and this factor provoked many farmers to resort to un-ethical methods like passing live wires drawn illegally from the main lines with 230 Volts.

c) Increase in animal population: The unstinted efforts taken by the forest department over the last two decades have resulted in the increase of wildlife especially elephants and other ungulates. It must be studied properly if the animal concentration around the forest fringes are influenced by the alluring crops in the nearby fields.

d) Grazing of domestic livestock: The official of Animal Husbandry department showed 50,000 cattle are kept in the villages of Sathyamangalam Taluk. Most of these cattle are un productive and mainly reared for cow dung. These animals not only compete with the wildlife for fodder and water but also spread epidemics to wildlife population.

e) **Obstruction of corridors**: Development activities near the reserve forests definitely affect the movement pattern of animals and in the process, the traditional corridors are blocked and animals are getting isolated in the human dominated landscape adjoining the forests. This has forced the animals to occupy the agricultural lands and damage crops "unintentionally".

f)Awareness programme: Awareness programme like street plays, folk songs, skit performed in the vulnerable villages have shown a remarkable improvement in reducing man-animal conflict. The services of committed NGOs like WWF, WTI and Awards were effectively utilized in twenty five sensitive villages. Workshops were also conducted with eminent scientists to have interaction with the stakeholders and VFC presidents. The local farmers were sensitized about the simple techniques like application of greases and chilli powder over coir rope fences and burning dried elephant dung to generate smoke as deterrent. This has produced good results and created a positive impact in the minds of the local farmers. The electricity department is also being sensitized to find out if there is any illegal connection from the farm to the fences. The field staff are monitored the fields abutting the forests regularly for any illegal electricity connection. The village forest committee members are also educated to protect their crops through safe methods. On getting information about crop raiding the field staff are sent to problematic areas to chase way elephants at any time. Specialized elephant trackers are also engaged to drive the problematic herds back to the forests. Publicity materials like posters, pamphlets, hoardings, were printed and distributed to various stakeholders to understand the need to protect their crops by adopting safe methods.

Elephant – human conflict is increasing every day. Crop raiding by the elephants in the adjoining patta lands have become a routine feature in this division. The reasons are as follows.

a) Non availability of drinking water in the water holes in the forest areas force the elephants to move out from the habitats and because of this, they enter patta lands adjoining to the RF boundary and raid the crops.

b) Changed cultivation practices and cropping pattern also have lead to this conflict. The farmers have switched over to commercial crops like sugarcane and Banana, which are liked by elephants. In the past, cultivation was not intensive and most of the lands adjoining to the forests are left without any cultivation. But now every land is cultivated up to the boundary of R.F. So naturally when the elephants move along the migratory paths or during their daily movement, they enter the patta lands. Some of the farmers have erected electric power or solar power fence along the boundary lines; sometimes they willfully electrocute the animals by tapping illicit power from the power lines directly.

c) The tribes and the people living in the villages adjoining to the forests move inside the forests for the purpose of 1.NTFP. 2,Grazing 3.Firewood collection 4.Moving from their village to the adjoining village through the forest foot paths and roads to attend festivals, functions etc

During these times the people were attacked by the elephants and in most of the cases they are killed. This also leads to man – elephant conflict. The following cases have been recorded during the past five years.

Table. Status of human animal conflict between 2000 and 2009

Year	No of deaths	No of injuries	Cattle killed	Crop damage
2000 – 01	2	4	2	10
2001-02	5	2	1	58
2002-03	7	5	2	6
2003-04	7	5	1	7
2004-05	3	5	--	41
2005-06	4	2	1	10
2006-07	8	2	--	10
2006-07(Upto 24.2.07 to 18.10.07)	12	02	--	35
2007-08 (Upto 31.1.08)	5	--	--	09
2008-09	8	3	1	47

Sensitive Areas: HEC

Range and Sensitive villages for human animal conflict

1. Bhavanisagar Range

1) Vilamundy sections and adjoining villages

2) Pudupeerkadavu

2. Sathyamangalam Range

1) Bannari

2) Chikkarasampalayam and other adjoining villages

3. Hasanur Range

1) Uginiyam

4. T. N. Palayam Range

1) K.N.Palayam

2) Kongarpalayam

3) Kanakkmpalayam

Factors responsible for the conflict

The following factors are responsible for Elephant – human conflict

1. Adequate forage is not available during summer in the forests.
2. Adequate drinking water is not available due to during of streams and water holes during summer.
3. Potential Cropping pattern and intensive cultivation is patta lands up to the forest boundary.
4. Habitat disturbance by various factors like fire and dislocation of elephants
5. Disturbance to migratory paths and loss of corridors.
6. Non-availability of effective barriers to prevent the elephants from straying out into human habitats and agricultural fields.
7. Enclosures and settlements inside the forests.
8. Isolation of wildlife habitats
9. Degradation of forests resources and invasion of weeds
10. Lack knowledge about wild animals among villagers

Past Trend

There are no enough records to study the trend in the past. However from the available current records it is seen that the conflicts are increasing.

Table Details of compensation paid for various issues of HAC

Year	No of Deaths	No of Injuries	Cattle Killed	Crop Damage	Total Compensation Paid (Rs)
1997 – 98	2	2	0	5	110000.00
1998 – 99	3	2	0	25	213000.00
1999 – 00	4	2	0	9	212500.00
2000 – 01	2	4	2	10	154500.00
2001 – 02	5	2	1	58	100000.00
2002-03	7	5	2	6	542950.00
2004-05	0	2	1	12	97500
2005-06 Upto 31.1.06	1	0	0	3	120000
2006-07	05	04	02	11	931850
2007-08	06	01	0	09	243000
2008-09	04	0	0	17	564500

Table: Nature of Conflict (elephants) and compensation paid from 1996 to March 2007

Conflict Status	Bhavanisagar Range	Talavadi Range	Sathy Range	Hassanur Range	T N Palayam	Total Cases
Man Slaughter	6	10	9	3	2	30
Human Injury	7	0	5	3	3	18
Livestock died	6	3	0	2	0	11
Crop damage	18	10	3	1	3	35
Total Compensation Paid (Rs)	72,7300	93,0500	70,5500	22,2500	25,8500	28,44300

Evaluation of existing control measures

Solar fencing is installed in 130 kms length in vulnerable locations and the crop raiding is kept to the minimum possible level. However the unprotected areas, are vulnerable to elephants, deers and wildboar. Compensation claims are processed quickly and the affected farmers are given due compensation in time. Human causalities are kept to the minimum through various campaigns and publicity materials.

There is a growing demand for elephant proof trenches along the forest boundary in the fringe villages. The elephant proof trenches are found to be more effective than the solar power fence in some areas. This has to be evaluated by elephant scientists before venturing into the EPT.

Strategy and Proposal to mitigate Man-Animal Conflict

a) Mitigating measures should be taken up based on site specific approach based on complete data on man-animal conflict (including past). This might benefit the method in the long run for its sustainability.

b) High standards of solar power fence should be recommended with annual maintenance cost besides the concept of community participation for sustainability

c) Local communities should be trained to evolve various techniques to prevent crop raiding incidences. The involvement of NGOs and research institutions is necessary in this regard and there by their activities are justified in conservation works. Priority may be given by the research institutions in this direction.

d) A strong data base has to be prepared using past history of crop damage incidences for all the sensitive crop damage villages. This template has to be made for every beat. These will be given to all the beat staff to fill the template on a daily basis during the peak cropping period. Weekly evaluation of the data sheets will be done by the DFO to find out ground solutions for various issues of different magnitude. This mechanism will win the confidence of local communities and the field personnel in dealing the man-animal conflict.

e) Relevant conservation awareness about the elephant behaviours should be organized for various line agencies and local communities to understand the problems of conservation

f) A set of protocol to be tested for each area by scientists by conducting field research on man-animal conflict mitigating issues

g) Well organized team of elephant trackers to be recruited in good numbers during the crop raiding season to deal the problematic animals in a scientific manner

The present Challenges: The elephant death for the past ten years showed that electrocution and poaching are major reasons for un natural deaths. The natural causes are mainly due to old age, congestion in the respiratory system, intestinal worms, and anthrax and suspected FMD etc.

Electrocution of animals by passing 230 volts current along the farm boundary is a crude way of crop protection. During our interrogation it was done mainly to keep away the wildboar, but elephants accidentally fell as victims. But some cases are specifically targeted against crop raiding elephants both males and females. It is quite intriguing to note that six male elephants are electrocuted in the past three years. Dr Sukumar explained in his monumental work that only male elephants have the temerity to raid the crops frequently than the females. It is also confirmed by various field studies that the same herd would visit the crop fields year after year as a routine visitor. The female tend to become a crop raider only under forced circumstances otherwise male elephants are known to be notorious crop raiders. Crops like turmeric, rosemary and vegetables are potential alternatives as they are un palatable to elephants. With the increased availability of sugarcane, coconut and banana in the border areas, the liking for sorghum and ragi is reduced in the recent years.

Mitigating measures used by farmers in Sathyamangalam

Table: Methods deployed by the villagers to keep away the elephants from their fields and properties in various forest Ranges

Name of the Forest Ranges	Solar fence (n= 12)		Battery Charged By AC (n = 73)		Convention Method (n=51)	
	Visits	Raids	Visits	Raids	Visits	Raids
Bhavanisagar	84	27	117	17	94	52
Talavadi	52	22	266	30	107	36
Hassanur	0	0	50	8	94	14
T N Palayam	25	6	60	11	92	14
Sathyamangalam	10	5	70	10	7	3

(Source: R Manivel: MSc Dissertation-2007 A V C College)

Photo Plate: Major witnesses of man-elephant conflict in Sathyamangalam WLS

Management of Encroachment - Proposed

Preventing Encroachment	a) Conservation awareness programme for settlers b) Rendering support for the villagers living in forest fringe areas with line departments to develop suitable alternate schemes c) Ensuring local community participatory mechanism to protect the forests d) d) Formation of a council with District Collector as chairman and members of Forest Officers of adjoining divisions to deal the encroachment of forest lands in revenue and Poramboke areas.

Conservation Education and Awareness Programme - Human and Animal conflict and Nature Conservation – Mitigating measures

Various programmes were conducted to address the issues of human animal conflict in the Sathyamangalamn WLS

1 Stakeholders Meeting in the field level
2 Awareness Programme for village communities
3 Awareness to educational institutions bordering forest areas
4 Capacity building for Forest field staff
5 Signature campaign to various stakeholders
6 Releasing of posters and pamphlets about nature conservation
7 Organizing various Street Dramas that reflects conservation ethics and values

Stakeholders' meeting was conducted in different places. One hundred and fifty four participants were attended from 52 villages and they are belonging to farmers, panchayet presidents, land owners and other agriculturalists. These 52 villages located in forest periphery areas as well as inside the sanctuary. These target groups have subjected to severe conflict problems. .

Highlights of Stakeholders Meeting:

1. One of the reasons for increasing HEC is lack of food and water inside the forest areas

2. Changes in the agriculture cropping pattern

3. Appeal from farmers…..

   a. Speedy compensation programme

   b. Mechanism to drive away the problematic animals

   c. Improve the design of solar fence to control all species of wildlife

   d. Procedure for the maintenance of electric fence.

   e. Installation of EPT where ever necessary

   f. Efforts to be taken to control the menace of wild boar

   g. Water sources for animals should be kept 2 km away from the village or patta lands.

Awareness programme in the villages

Based on the issues of intensity of the HEC we prioritized the villages to conduct awareness programme. Awareness programme was conducted for 22 villages. Target members such as Ward members, Panchayat presidents, forest dependent people, members of village forest council, farmers and school children and local villagers have attended the programme.

School students and teachers:

Awareness programme for school students and teachers in surrounding Sathyamangalam forest areas was conducted. The main goal was to conserve elephants, address conservation issues, human elephant conflict and mitigating measures.

Forest field staff

The same type of programme was carried out for the trainees of State Forest Service College, Coimbatore jointly by the forest officials of Sathyamangalam. These trainees were newly recruited from various states of the country and lecture was given to them on elephant conservation and issues related to solving human elephant conflicts.

a. Poster Release:

As part of studies on human elephant conflicts, a poster was released in Iggalur village and the concept was highlighted towards illegal killing of elephants through badly erected fencing (using AC power fence for protect their agricultural crop fields). This approach could help us to spread and reach out the goals of conserving Asian elephants and its habitat without indulging retaliatory killing of elephants in this landscape. This approach was implemented through community participation involving local people, agricultural farmers, and labours .

This conservation awareness poster was presented to various places such as people meeting areas, ration shops, petty shops, school, community hall, forest range offices, panchayat office, village administrative offices, and electricity board offices.

b. Street Drama

Street drama was conducted in a village bordering forest fringe where two poachers residing. We invited local panchayet councilor, panchayet presidents, ward members and local people and forest officials for the street drama. The themes of the drama were mentioned below.

1. Elephant conservation

a. Elephant population in India and Tamil Nadu
b. Status of Elephant population and demography
c. Reason for declining of elephant population
d. Role of elephants in the forest ecosystem
e. Government aid for elephant conservation
f. Elephants with human society since time memorial
g. Banning of ivory across the globe

2. Background of poaching activity

a. Stimulation by other forest offenders for poaching elephants
b. Most of the poaching was done for minimal cost
c. Low care for family profile by the poachers
d. Poaching leading to more HEC (disturbance from gun shoot and driving off elephants)
e. The poachers are affected in many ways in civic society.

3. Post scenario after poaching of elephants

- Sudden Loss of economy
- Selling off their properties for court cases
- Discontinuation of education for their children
- Loss of respect among the society
- Mental stress after the incidences
- Bad experiences in the prison

STAKEHOLDERS MEETING ON HUMAN ELEPHANT CONFLICT ISSUES

Farmers expressed their views on HEC issues

Workshop on mitigating methods

The DFO Sathyamangalam insisting how to stop the illegal killing of elephants with people's participation

The Proposed Activities for Conservation and Education Programme

1. **Power Point Presentation and Wildlife Movies on Human Animal Conflict – (HAC)** to local communities- Major themes to be focused - Role of elephants in the eco system, reasons for increasing HAC, (electrocution and poaching)

2. **Education Programme.** Periodical education programme to be organized for school and college students. This includes trekking, presentation, and training on wildlife census.

3. **Conducting Stakeholders Meeting.** Meetings to be organized in the field level for villages bordering forest fringes, forest field staff, researchers and NGOs. Discussion and mutual dialogues to be organized on conflicts issues, steps taken by local communities and Forest Department, compensation procedure, mechanism of people's participation on HAC control, fence and trench maintenance.

4. **Conducting Street Drama** to stop elephant electrocution and poaching incidences. This module consists of the following aspects.

a) Under what circumstances the poachers are motivated for poaching
b) Socio-Economical status of their family
c) Mind set up of the poachers before and after the incidence of poaching
d) The drama should focus on social custom of the poachers and their, psychology

5. **Training to Forest field staff** on the current scenario of wildlife conservation, law enforcement, conflicts mitigation, and rescue management of problematic animals.

6. **Signature campaign need to** be conducted for highly endangered species and their conservation problems in the sanctuary for village communities, schools, colleges, public and media.

7. **Releasing of posters and pamphlets** on conservation issues might send crucial messages to all types of stakeholders on wildlife conservation and conflict mitigation including biodiversity of the sanctuary.

6.10 WILDLIFE CENSUS: WILDLIFE POPULATION

This Division is blessed with lot of wildlife population including rare and endangered species like Black buck, and tiger. Also Mudumalai – Mangalapatti – Thengumarada – Karachikorai – Bannari is an important Elephant corridor which is named as "The Great Moyar Corridor" lies in this Division. The elephant population is spread over the entire area of this Division. Apart from migrating population of Elephants there is resident population also in this Division.

Under this Scheme survival of wildlife is an important factor in our ecological system and their well being is also vital for preserving ecological balance. Various measures have been undertaken by the Forest Department to improve their habitat condition in the forest. In order to know the exact number of wild animals, wildlife census is being conducted every year comprising rare, endangered and threatened animals too from the census suitable measures can be formulated to save wildlife animals.

6.11 WILDLIFE HEALTH MANAGEMENT

Wildlife health management programme in protected areas are grouped under 6 categories

Wildlife health management programme in protected areas are grouped under 6 categories

1. Preventive Measures - All possible field veterinary measures during dryspell.

2. Health Monitoring Operation - Physical condition of key endangered species

3. Disease Diagnostic Operations – Emphasis on forensic analysis

4. Disease Control Operations – Preventive, Evaluation and monitoring

5. Disease Impact Assessment – Utilizing veterinary research personal

6. Evaluation of Management Strategies–Periodical evaluation by the DFO-Wildlife Warden

The above aspects will be taken into account to deal the wildlife health management plan for the Sanctuary. Necessary facilities are to be developed to implement the above management steps.

Impact of Wildlife Disease

Diseases caused by pathogens are inherent events of the natural system, like predation by predators and grazing by herbivores. Like increasing incidents of forest fires, the role of parasites and pathogens need particular attention in the present day environment.

Vaccination Programme

As per sec. 33 A of the Wildlife Protection Act 1972, all livestock population within 5 kms belt of the Sanctuary need to be inoculated and immunized against communicable diseases.. Therefore, in co ordination with Animal husbandry and NGOs, all the cattle within the zone of influence should be vaccinated against Rinderpest, Foot and Mouth disease, Anthrax, etc.

Components of Disease Determinants

Agents, host and environment are major determinants of disease. Any changes in these and unhygienic anthropogenic intervention will produce a disease.

Vultures and Diclofenac

There are 4 species of vultures in Sathyamangalam forest division viz, White backed Vulture, Long billed Vulture, Nephron Vulture and King Vulture.It is considered as the last remaining relict population in the entire Tamilnadu state. Conservation of this bird assumes greater significance due to rapid decline in population in the past 25 years. Scientists have concluded that the residual quantities of Veterenary drug, **Diclofenac** as the main reason for this unprecedented decline in numbers. It is imperative to have a massive awareness campaign on importance of vultures in the ecological cycle. Such campaign should also have demonstration and education on safe means of disposal of carcasses. Already the Government has imposed a ban on selling Diclofenac containing drugs. Frequent raids in the medical shops to prevent the selling of Diclofenac would be very effective in controlling its usage.

Photo plate: Elephant died due to Anthrax in Sathyamangalam Wildlife Sanctuary

Suggested Actions Plans: Wildlife Health

1. A separate Veterinary Unit to be established and the unit will be responsible for conducting post –mortems of the dead wildlife in the Sanctuary and they will collect samples. These samples will be analyzed in the lab to find out the causes of death. Based on this information necessary recommendations will be forwarded for taking up next course of action in this regard. Result of this analysis will be documented for future reference. These labs will be developed further even to the level of analyzing DNA samples. If it is achieved, the DNA mapping can be done in respect of various endangered species such as elephants and tigers. This would be helpful in finding out the exact number of wildlife population in the Sanctuary.

2. The veterinary unit will also take care of vaccinating the peripheral live stock reared by the villagers in order to control any epidemic diseases.

Personnel Required

a)Forest Assistant Veterinary Surgeon b) One Live Stock Inspector c) One Compounder d) One Technical Assistant

Items a, b,c can be obtained from the Animal Husbandry Department on deputation as practiced in Mudumalai Tiger Reserve.

Other Duties of FAVS

a) Assisting the DFO in developing technical reports on wildlife matters

b) Conducting animal census, rescue and rehabilitation of animals

c) Periodical monitoring of critical species like Tiger, Vultures, etc.,

d) Involving in the activities of eco-tourism and Interpretation centre.

Logistics needed

a) One rescue van to deal problematic animals. It is to be purchased with adequate accessories

b)A mini Veterinary Dispensary Unit to be constructed in Bhavanisagar with full facilities including medicine and related equipments with furniture

6.12 FOREST / PA MANAGEMENT PRACTICES AND THEIR IMPLICATIONS FOR PEOPLE

Of late, the concept of community participatory approach is being launched and implemented for the management of natural resources in several parts of the globe. Involving people's participation in managing protected areas in a sustainable fashion is part of the National Forest Policy (1988) of the Federal Government of India. The strategy of community participatory approach was successfully implemented in some parts of India. In addition to people's participatory programme, eco-development schemes are being implemented in protected areas as part of Biodiversity Conservation Programme. This strategy of conservation is commonly referred to as community participation / people's participation / joint forest management. The new approach could also help us to protect forest cover and its biodiversity, mostly by ways of providing livelihood for local communities who regularly depend on forest resources. Such a practice is one of the key strategies for the protection of endangered species and their habitats that are being increasingly fragmented into habitat corridors of smaller conservation units.

The Development Programs and Conservation Issues

The major conservation issues before the sanctuary is maintenance of the integrity of the habitat. It's also crucial to maintain and prevent any further degradation of the corridors outside the sanctuary area that the developmental programmes threaten to wipe-out. Further the proliferation of roads on the periphery of the sanctuary is again detrimental to the long-run m*maintenance of the habitat suitability. There is however, a great scope for the lively-hood linked developmental programmes to reduce the resource dependency of the people in the fringes.

An evaluation of government and non-government agencies programs for development. Implications for PA, people and ZI

Management Programme for Conservation of wildlife sanctuary requires a vast habitat diversity. Anthropogenic pressure such as livestock grazing, collection of wood for commercial purposes and other development activities have severely degraded this range in

this landscape. Of late, management of PA had led to a serious concern for the forest managers with the increasing phenomenal growth of people's dependence on natural resources. The current conservation scenario requires a workable conservation approach through partnership with various stakeholders to formulate an action plan for scientific management of the sanctuary in this region.

In the Sathyamangalam WLS, expansion of agriculture, increasing development activities and conversion of revenue land into crop fields in closer to sanctuary have bisected several corridors and left over patches are under threats from increasing demand from local communities to meet out their daily needs. The best option to conserve the PA and their wildlife population is by scientific management approach with initiatives through organizing management strategies with various stakeholders of government partners apart from forest department. Therefore, an immediate attention is necessary through a partnership approach for a workable management steps for developing strategies, considering the multi dimensional conservation problems and those are prevailing in the Sathyamangalam WLS

The proposed approach would promote the conservation values in this region keeping the minds of different stakeholders, policy makers as well as local communities. Thus, the conservation approach would gather a strong momentum in achieving habitat management strategies by imparting workable modules of various themes related to management of PA to different stakeholders, considering their scope of administration in their respective departments. This approach would lead to a condition for scientific management of Sathyamangalam WLS, with a new vision for bringing out an action plan based on collective efforts from various co-partners and line agencies.

The approach could lead to address the different factors influencing the lack of co-ordination among the government machineries and other stakeholders concerned for bringing out a workable module for management of PA using site-specific approach.

The key conservation modules to be considered with various partners, considering their scope of administration are as follows. It would directly and indirectly benefit to various endangered species in its management strategies.

Modules for Various Stakeholders

The key conservation aspects that would be illustrated in this process are mentioned below although they are not blue print oriented.

a) Value of endangered species Conservation Programme

b) Eco-system Relationship

c) Status of wildlife

d) Minimizing Strategies for Human Animal Conflict

e) Impact of development activities

f) Strengthening of Legal Mechanism for Protection of key species

g) Impact of problems, especially Human-Induced Pressure

a) Value of Species Conservation Programme: This aspect to be discussed for getting information pertaining to direct and indirect benefits to human society such as ethnic and religious values besides optimizing the conservation values among various co-partners and stakeholders. Need for changing the existing policies for the direct benefit to wildlife habitats for their long term survival in this landscape area.

b) Eco-system Relationship: The interaction of wildlife with its landscape and subsequent benefits both direct and indirect to other species and its eco-system will be focused.

c) Demography of Wildlife Population: The trend towards changes in dynamics of population; stable, growing and declining will be focused as key aspects as part of species conservation measures.

d) Minimizing Strategies for Human Animal Conflict: Various issues related to human animal conflict such as extent of crop depredation, man slaughter, appearance of animals in new sites, poaching, loss of habitat quality besides new strategies for reducing HAC are potential issues to be focused with various line agencies and co-partners, and other government partners to illustrate the conflict reasons. Scientific solutions towards mitigating measures for conflict can be addressed by the forest managers with the involvement of other government partners. It is now being realized that the solution towards minimizing the Human Animal Conflict could be done with the co-ordination and collective efforts of various stakeholders on a single platform.

e) Impact of development activities on wildlife habitats: Local Community Participatory exercise for livelihood strategies will be promoted to create income generation to the forest dependent communities. This practice will be examined in greater detail to implement through various departments for a total success. This could minimize threats to the wildlife habitats, especially degradation of habitats. It is proposed to address this issue in a greater detail to various partners to enable them for a positive initiative in close coordination with the forest authorities to develop a strategic plan for various forest dependent communities such as graziers and non-timber forest produce collectors for their economic sustainability.

Eco-development programme for elimination of poverty among the local communities living within the sanctuary will be critically evaluated with site-specific issues. Impact of buffer zone activities for increasing incidences of human animal conflict will be discussed to define management plan. The ways and means of minimizing the impact of development activities, keeping the value of corridors to wildlife and Human Animal Conflict will be focused in a transparent manner with various stakeholders.

f) Strengthening legal mechanism: Although adequate forest laws are in force for protecting forest habitats and their wildlife, the knowledge of implementation procedures in the field should be fine-tuned with the help of various government representatives, especially with the help of legal counsel. This aspect is crucial for proper documentation of cases against illegal activities, especially poaching cases and encroachment of forests adjoining tiger reserves. The newly amended forest polices by the Indian Government for protection of wildlife and their habitats will be discussed for their execution and implementation procedures before the court of law by sharing of scientific information about endangered species.

g) Impact of Conservation Problems, especially Human-Induced Pressure: The human induced activities of fuel wood collection from the forests, collection of non-wood forest produces, and incidences of live stock grazing will be taken to mitigate habitat degradation and HAC in the long run. Total ban on the collection of non-timber forest produces and grazing permit in sensitive corridor sites are possible through a mutual dialogue with various stakeholders.

Target stakeholders and themes to be discussed

Partners

1. **Forest Department**
2. **Animal Husbandry**
3. **Private Estates**
4. **District Policy Makers (Members of Legislative Assembly and Town Panchayat**
5. **District Administration (Revenue and**
6. **District Rural Development Agency, Hill Area Development Programme, Land Reforms&)**
   Women Self Help Group
7. **Tribal Development Board**
8. **Tourism Development Board**
9. **Agriculture Department**
10. **Public Works Department ,**
11. **Village Panchayats**
12. **Education Department (Panchayat Levels)**
13. **Media**
14. **Taluk level legal Council**
15. **Industrialist, Private Companies**
16. **Research Institutions**
17. **Customs (Air & Port) Department &**
18. **Wildlife Preservation Regional Office, Chennai, Forensic Department**

The result of the outcome of the line agencies would be monitored by conducting a mechanism of feedback interviews from various stakeholders and other government partners belonging to various agencies. The success of the managerial dialogues will be measured based on the reduction of human induced pressure on various endangered species for their overall management through amending various policy measures wherever possible by different partners and stakeholders.

VARIOUS ACTIVITIES OF LINE AGENCIES IN TRIBAL SETTLEMENT VILLAGES

Periodical Health Camp by Department of Public Health

Drinking water facility provided by the District Administration Erode

Distribution of Agriculture Loan

Primary school in Tribal Settlement

Construction of Group House for Settlement villages by Tribal Development Authorities

Distribution of LPG by Bharat Gas

Policy makers evaluating Tribal Development Activities

Distribution of seeds by Agricultural Department

Promoting Yoga among the villagers by NGO's

Vaccination programme by the Animal Husbandry Department

Distribution of Colour TV to tribals by Govt. of Tamilnadu

Establishment of PDS by the District Administration

Activities proposed under various schemes for the Sathyamangalam Wildlife Sanctuary

1. Soil and Water Conservation, SWC

2. Check Dam Construction, CDC

3. Desilting of Older Percolation Pond, DPP

4. Construction of Water Trough, CWT

5. Construction of Anti Poaching Camp, APC

6. Deploying Anti Depredation Force, ADF

7. Purchase of Crackers and Battery lights, CBL

8. Engaging Anti Poaching Watchers, APW

9. Immunization of Live Stock, ILS

10. Erection of Solar Power Fence, SPF

11. High way Patrolling within the sanctuary

12. Digging off Elephant Proof Trench, EPT

13. Providing Salt Licks, PSL

14. Fire Protection Works, FPW

15. Conservation and Awareness Works, CAW

16. Capacity Building Programme, CBP

17. JFMC Assistance, JFM

18. Eco Development Committee, EDC

19. Nature Camp, and trekking NCT

20. Eco Tourism, ECT

21. Removal of Plant Weeds, RPW

22. Removal of Scrub Cattle, RSC

23. Raising tree species in TCPL land

23. Research and Monitoring, RAM

24. Purchase of Scientific Materials, PSM

25. Appointing One Biologist/Research Officer, RO

26. Acquiring Private Land as part of corridor management

27. Managing abandoned wildlife population

28. Conducting Tri Party Meetings

29. Construction of Tribal Huts (4): Eco tourism

30. Construction of watch towers (2): Eco tourism

31. Organizing Meetings and Census

32. Developing and printing publicity materials on Sathyamangalam WLS

33. Purchasing motor cycles for village surveillance

34. Signage boards

Chapter 7

ECOTOURISM, INTERPRETATION AND CONSERVATION EDUCATION

7.1 ECOTOURISM, INTERPRETATION AND CONSERVATION EDUCATION

Scope: The Eco-tourism is an off-shoot of conservation as a provision for recreation to the tourists, at the same time ensuring an opportunity for message of conservation to be spread to the masses. Over a period of time, there has been a growing interest among people about various wildlife destinations owing to widespread awareness. This is further increased by growing income levels of the people, whereby they can afford to apportion a part of it on the leisure activities, travel being one of them. A large number of people visiting these areas are however mass tourists who put a lot of strain on the resources and managing them effectively without degrading the habitat are a big challenge.

7.2 OBJECTIVES

The Sathyamangalam Wildlife Sanctuary being a rich biodiversity area has the following objectives for ecotourism:

a) Recreational experience of the people through various activities.

b) Minimize the impact of tourism on wildlife conservation and its crucial habitats.

c) Increase visitors concern for nature conservation and awareness programme.

d) Create a sense of belongingness and public support for conservation initiatives.

e) Create opportunities for the local people to compensate for their sacrifices for conservation.

f) Facilitating wildlife ecotourism involving local communities

7.3 ISSUES AND PROBLEMS

Only controlled and regulated tourism will be allowed, with an objective of creating awareness for conserving wildlife and their habitats among various stakeholders.

7.4 THE STRATEGIES

The main objective of the tourism is the Conservation of Habitat and Wildlife and tourism is a secondary off-shoot that needs to be carefully planned in order to minimize its negative impact on biodiversity of this area.

Management of Impacts from wildlife tourism

The nature and magnitude of impact of eco-tourism on wildlife is likely to be influenced by many variables, including the type of activity, the sensitivity of the ecology of the area. However it is a difficult task to know and evaluate the impact of various activates. There is, however, some acceptance that negative impacts could be minimized, if eco-tourism is properly planned. Therefore, the park management must be sensitive to the need to control the impacts arising from tourist activities.

Concepts of Carrying Capacity and acceptable limits

Carrying capacity depends very much on the impact of wildlife and its habitat, which can be tolerated, which in turn depends on the relative importance of the recreational objective. The question still arises as to how best to determine the levels at which the control of visitors is necessary. Several ideas exist for protected areas, including those of defining carrying capacity, and of acceptable limits of change and use. Hence, the idea of tourist carrying capacity assumes that there is a level of development, and a maximum number of visitors, that a protected area can tolerate without adverse effects on the environment.

The Government of India, Project Tiger Directorate guidelines will be adopted while assessing the Physical carrying capacity, Real Carrying Capacity and Effective permissible carrying capacity. The most important question here is what type of tourism the Sanctuary can sustain over a long period.

PROPSOED ECO-TOURISM PLAN

The positive intervention of management is required to achieve the eco-tourism objectives outlined above.

The tourism zone usually requires sub-zonation into a) low intensity user area b) medium intensity use limited to development areas c) high intensity use confined to development sites and d) peripheries of the Sanctuary. The use of intensity depends on the nature of activity and the number of people engaged in the activity. A system of circulation of various activities over these areas is the key to minimize the adverse impacts.

Spatio-temporal regulations

There is a definite need for regulation of movement in time and space with vegetations, the wildlife and its habitat because the area proposed for eco tourism is less proportion at the moment. The timing of visitation needs to be strictly enforced, especially during the peak season period.

The Suggested places

a) Thengumarada-Mangalapatti
b) Nandipuram forest enclosure.
c) Bhavanisagar Dam Site

Involvement of Local Communities

The local communities make lot of sacrifices of their developmental needs for the sake of conservation and their sacrifice need to be adequately compensated by involving them, creating livelihood opportunities for them and also by channelizing the resource generation in a way that it helps them in meaningful livelihoods. The Mudumalai example is a good model available in the neighborhood where erstwhile forest offenders have been rehabilitated to act as guides for eco-tourism. The direct impact of such an effort on the protection and conservation of the Sanctuary is beyond dispute.

As far as eco-tourism is concerned the local participation can be achieved by the activities of:

1) Eco-guides by skill up-gradation and proper training of local youth communities.

2) Self help group for catering and canteen services

3) Sanitation and support services

4) Maintenance of eco-tourism facilities

5) Eco-development activities by identifying specific target groups

The Following Possible Eco-Tourism Activities are proposed:

1. Wilderness Field Visits in designed safari vehicles.
2. Trekking in Pre-Defined Forest Tracts and Trails with aided tribal tracker.
3. Nature Camps and Eco-Awareness Camps.
4. Understanding Jungle Craft and wildlife in the Forests with Tribal folks
5. Bird watching in Forest ecosystem.
6. Nature Photography with Guided assistance
7. Wildlife Observation from Coracles
8. Wildlife Boat Safari in dams
9. Creation of nature library for the visitors.
10. Cultural tourism in tribal hamlets
11. Watching Nature films and documentary movies

PROPOSED ECO-TOURISM ACTIVITIES

Eco-friendly tents for visitors

Interpretation center at Hasanur

Trekking and Education Programme

Boat ride in Bhavanisagar Reservoir

Kinds of Signages to be used

The importance of an appropriately designed signage can hardly be overemphasized in any protected area. It serves an important Educative and Awareness material for various communities.

The following tourism designs must be organized for the Sanctuary:

a) Wildlife Tourism b) Eco Tourism c) Temple tourism

Seasons: a) April to June b) September - January

The following broad types of Signages are proposed to be used in Sathyamangalam WLS.

A. Wayside Exhibit Signages

B. Interpretative Signages

C. Directional Signages

D. Interpretative Signage on National Highway

E. Entry and Exit points

The following tangible benefits are likely to accrue with above proposed proposals.

1. Improved protection status
2. Continuity of anti-poaching operation
3. Increased visitor satisfaction level
4. Increased public support for conservation.
5. Maximizing visitor's enjoyment.
6. Creation of stakes of local communities in park management.
7. Direct benefit accruing out of educational programmes for various user groups.
8. Increased revenue forecasts.

Staff Strength for the Eco Tourism: Proposed

Considering the uniqueness of the Sathyamangalam Landscape and its contiguity with Mudumalai Tiger Reserve, the following man power structure facilities have to be developed on a priority basis:

a) A dedicated Range Officer and a team of forest staff for the Eco Tourism cum Interpretation Centre

b) One Biologist /Tribal Naturalist

c) Adequate number of tribal personnel to be trained as field guides on nature education programme

Proposal for Eco Tourism

a) **Use of local Guides and Field assistants from the Local Communities need to be recruited to help with Eco-Development Bureau of Sathyamangalam WLS**

b) **A Biologist/Tribal Naturalist is also required to Educate the Visitors at the Reception Centre**

1. **Promoting Eco-Guides with Relevant Training.**
2. **Formation of more Self Help Group for Logistic Services.**
3. **Sanitation and other Public Support Services.**
4. **Maintenance of Eco-Tourism Facilities.**
5. **Activity based on specific target groups.**

Anticipated Benefits and Outcome from Eco Tourism

The following Crucial Conservation Benefits would emerge out from the above Proposed Proposal.

1. **Understanding of Biodiversity Value of the sanctuary in a Holistic Manner**
2. **Increasing Knowledge on Wildlife among various Target Groups**
3. **Reduction of People's dependence on Natural Resources**
4. **Improved Protection Strategies of the sanctuary**
5. **Increased Public Support for Conservation Momentum.**
6. **Maximizing Visitor's Enjoyment.**
7. **Creation of Stakes of Local Communities in Reserve Management.**
8. **Direct Benefit Accruing out of Educational Programmes for various Target and User Groups.**

Increased Revenue Forecasts.

Direct Impact on Conservation by Converting Mass-Tourism into Eco- Tourism.

Gaining Co-Ordinate Effort with Line Agencies on Conservation of Sanctuary

Direct Benefits: Awareness + Fire Prevention + Protection + Revenue Benefit + Habitat Conservation Programme: _ Species Recovery Programme

Proposed Facilities for Tourism

1. **Construction of Eco-huts in Bhavanisagar Range.**
2. **Dormitories : Bhavanisagar**
3. **Interpretation Centre cum Auditorium: Bhavanisagar.**
4. **Reception Centre: Bhavanisagar.**
5. **Public Utility: Bhavanisagar**
6. **Purchase of Safari Vans**
7. **New Game Roads(Earthen roads): Bhavanisagar.**
8. **Appointing One Biologist/Research Officer: Permanent Basis**

Transport Regulation

Ban on the entry of Private Registration Vehicles in order to have better control, and causing least disturbance to wildlife and its habitat to be ensured in the tourism zone. There is a definite need to improve the quality of vehicles used for ride.

Infrastructure Facilities

Well designed comprehensive infrastructure facilities to be developed for the proposed wildlife tourism. A Reception Centre cum interpretation centre at Bhavanisagar may be constructed with basic amenities like public sanitation, safe drinking water, hygienic canteen facilities and resting places. The Reception as well as Interpretation Centre needs to be converted into a more welcoming and informative centre where visitors coming to Sathyamangalam Wildlife Sanctuary can hangout for at least a day. All the construction works must be eco-friendly and should merge with the natural environment.

7.5. SANCTUARY INTERPRETATION PROGRAMME

Keeping in view the objectives of eco-tourism, the education and interpretation of Sanctuary resources is a part of overall Eco-Tourism management effort. The Interpretation-Cum-Visitor Centre must be self-contained, attractive and educative and must act as an important hub of information on Sathyamangalam in particular and conservation concerns in general. Publication and Publicity material need to be carefully designed keeping in view the target groups and made available in sufficient quantities. The hoardings and way side signage has to be designed keeping in view the ecology of the area and should not be an eyesore.

Library

A proper mini library resources need to be developed at the interpretation centre for visitors use. Books and periodical must be made available at the centre. This activity could be managed by the technical person attached with the centre.

As far as Eco-Tourism is concerned the Local Participation can be achieved by the activities like:

1) Promoting Eco-Guides with Relevant Training.

2) Formation of more Self Help Group for Logistic Services.

3) Sanitation and other Public Support Services.

4) Maintenance of Eco-Tourism Facilities.

Chapter 8

ECODEVELOPMENT AND LIVELIHOODS FOR SATHYAMANGALAM WILDLIFE SANCTUARY

A STRATEGIC PLAN

ECO-DEVELOPMENT

The main cause of destruction and degradation of forests is poverty among the people who live in and around forests and are dependent on the forest lands for their basic needs. It is true that the problems in wildlife conservation are intricately related to the quality of the local people. Unless this underlying problem is solved, efforts to ensure wildlife conservation can hardly succeed. This means that the conservation efforts should be directed towards solving the problem of people living adjacent to the forests. Involving people's participation in protecting natural resources is a part of the National Forest Policy (1988) of the Government of India.

This strategy is also referred to as people's participation/community participation/joint forest management. Josef and Maid (1995) while noting the acute problems in conservation when dense rural population exist in the neighborhood of forests, opined that conservation efforts have not been effective without the active co-operation and participation of people living in and near the forest areas. Experiences in protecting the biodiversity of North-East India also revealed that unless financial income is generated and there is economic stake for the local people the biodiversity conservation goals might not be achieved to the desired level. It is possible to ensure sustainable development has to be ecologically harmonious and economically efficient and must aim at local self-reliance. Of late, the concept of people's participatory approach is in practice for management of natural resources in several parts of the globe.

The concept of Eco-Development is catching up as an alternative strategy for Forest Protection and Conservation, involving local communities in the management of the Protected Areas. The **Kalakad-Mundanthurai Tiger Reserve** has shown leadership in the field and successfully evolved and implemented eco-development strategy and brought up a model of eco-development, which is highly acclaimed. The same model must be adopted and replicated for Sathyamangalam Wildlife Sanctuary by making local level adjustments imperative for matching ground level situation and animal diversity.

Of late, the concept of community participatory approach is being launched and implemented for the management of natural resources in several parts of the globe. Involving people's participation in protecting natural resources in a sustainable fashion is part of the National Forest Policy (1988) of the Federal Government of India. The new approach could also help us to protect forest cover and its biodiversity, mostly by ways of providing livelihood for local tribal communities who regularly depend on forest resources. Such a practice is one of the key strategies for the protection of endangered species and their habitats that are being increasingly fragmented into habitat corridors of smaller conservation units.

8.1 OBJECTIVES

The Eco-development objectives of Sathyamangalam WLS have been designed in line with the general theme of eco-development philosophy of KMTR model that helps effective conservation of the forests through the economic development of the forest fringe dwellers by adopting an active strategy evolved through micro-planning. Ecological development has to be achieved by adopting a strategy where forest fringe dwellers have zero dependency and resultant impact on the bio-resources of the Sanctuary.

All the uncovered villages within a distance of 5 kms from the forest boundary must be incorporated into the eco-development programme. The existing population may be categorized into

1. Totally forest dependent
2. Partial forest dependent
3. Non- dependent on forest resources.

It is advised to develop separate eco-development package for each category. The baseline data must be compared after successful implementation of the project.
The various indicators of development like per capita income, improved health care, education status, forest dependency and empowerment of women must be studied in all the programme villages.

Biodiversity parameters like improvement in the health of forests, air quality, water quality, improvement of underground water, cropping pattern must also be studied to bring out the positive impact of the project.

Fig. Major anthropogenic threats in Sathyamangalam WLS

MAJOR THREATS

Illegal cutting of Trees

Lopping off trees as head load

over grazing by local cattle

Spreading of diseases due to cattle grazing

Forest fire - Loss of biodiversity

Invasion of weeds due to over grazing

HUMAN INDUCED THREATS TO THE INTEGRITY OF FOREST RESOURCES

Expansion of Housing closer to Forest Fringes

Expansion of cultivation closer proximity to crop fields

Massive invasion of prosopis juliflora - Major threat to Eco- System

Goat grazing - reduces availability of fodder to Herbivores

Scrub cattle grazing - A serious threat to the Eco-System

Development activities - Blocking Migratory paths to animals

Accordingly, the main Eco-development objectives of Sathyamangalam WLS are to;

1) **Establish committed Eco-development committees concerned with conservation by educating, motivating and eliciting participation in the eco-development villages.**
2) **Create awareness among the target villages about the value of the sanctuary focusing on the vision of conservation unit and need for conserving it using different media.**
3) **Achieve reduction in resource dependency on forests of the Sanctuary by providing alternative livelihoods thereby leading to habitat improvement and conservation awareness.**
4) **Provide opportunities for local people participation in Protected Area Management through an institutional mechanism.**
5) **Enhance the capacity and upgrade skills of local people for alternate non-forest dependent economic activities by way of organizing training courses, workshops and field visits o n a periodical manner.**
6) **Promote collaboration of local people in conservation by reducing adverse impacts of local people on biodiversity and also to reduce the adverse impact of Protected Areas on local people by mitigating Man-Animal conflict.**

EDC: Vision & Approach

1. **Improve the Livelihood Activities for Villagers**
2. **Enhance the Living Standards among Villagers**
3. **All Basic Amenities to be improved in Villages**
4. **Improve Education Level for both Sexes**
5. **Increase annual Income for individuals in the village.**
6. **Ensure Proper Health Care**
7. **Develop a mechanism to earn more revenue from domestic livestock by way of hi breed milch animals and integrated land based activities**
8. **Housing for Every Family in the tribal village**
9. **Proper Power Supply for the village**
10. **Water augmentation to be done for drinking and irrigation purpose**
11. **Develop a strategy to earn more money through collection of NTFP products with value added schemes**
12. **Proper harvesting techniques to be imparted for villagers to prevent destruction of forests while collecting NTFP products**
13. **Improve the number of working days for villagers to meet out their daily livelihood.**
14. **Ensure that land based activities are well conceived among the villagers as part of their sustainable livelihood programme**
15. **Facilitate a mechanism that the Government Rural Employment Schemes are assured for the tribal benefits. Role of NGOs is very important in this regard**.

8.2 SPECIFIC ISSUES

The sanctuary management does not legally allow people to depend on the forest for any resource. This includes collection of non-timber forest produce like honey, soap-nut, and collection of mulching materials from the forest.. They should be given adequate alternate employment opportunity before curtailing their rights from the forest. The employment opportunities are restricted to fires tracing works during December to March and fewer ones employed as Anti-poaching watchers. Further, the collection of NTFP items by the villagers living within the sanctuary and adjoining areas (5 Km adjoining areas) may be allowed in a pragmatic manner with a concept of sustainable harvesting for the benefit of villagers at least for a period of another five years till they acquire economic sustainability.

8.3 THREAT ANALYSIS

The threat assessment of Sathyamangalam WLS reveals the following main threats that are being faced by the management.

a) Forest Dependence of families among the fringe dwellers on the forest for firewood head-loading, grazing,
b) Head loading and heavy dependence for fuel wood for home use and sale for livelihood.
c) Thousands of low grade scrub cattle graze here and many graziers depend on forest for their livelihood. The cattle also pose a real threat of spread of diseases to Wildlife.
d) Fire has been a major issue affecting the habitat and the eco systems of the Sanctuary.
e) Poaching has generally been an issue in Sathyamangalam and incidents of poaching do take place on specific occasions.
f) The population living in the enclaves still continues to exert pressure on the forest continuously and negatively, sometimes poaching small herbivores for meat and exacting the kills.
g) Pilgrims pressure on certain festival seasons in the fringes.
h) Man-Animal conflict, elephant and wild boar and carnivore straying into human interface.

MAJOR THREATS TO WILDLIFE DIVERSITY

Electrocution of Elephants in farmlands

Snaring caused mortality of Carnivores

Mouse deer poached for meat

Poaching for meat - Sambar Deer

Capturing of Sand boa for commercial sale

Poaching for meat - Wildboar

8.4 BROAD STRATEGIES: IMPLEMENTATION MECHANISM

8.4.1 Eco-Development Committee (EDC): The constitution of eco-development committees has to be made with the following guidelines.

a) Eco-Development Committee (EDC) will be constituted for every hamlet or a cluster of hamlets or in a revenue village consisting of a maximum of 250 Households.
b) Membership will be voluntary and each household shall be entitled to have any two adult members, at least one of them a woman.
c) Membership Fee of One rupee per member per year shall be collected.
d) The eco-development committee shall be registered under Tamil Nadu Societies Registration Act, 1975.
e) Periodicity of meeting of EDC shall be once in 3 months and Quorum for meeting will be 50 percent of households represented by an adult member of each house hold.

8.4.2. Executive Committee: Organization

For every EDC an executive committee shall be selected comprising the following members.

a. Elected Members- not more than 7 members elected by the EDC.
b. At least half of the elected members should be women.
c. The concerned Forest Guard, Forest Watcher, Forester and Ranger and one representative of a voluntary agency shall be *ex officio* members.
d. Concerned Forester will be the Member Secretary.
e. Term of office for elected members will be One year; election for EC has to be held every year and members can get reelected.
f. Voting Rights will be available only for the elected members.
g. No voting rights for the *ex officio* members.
h. Periodicity of meeting shall be once in a month or whenever needed.

8.4.3 Chairman of EDC

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

8.4.4. Fund Flow

The following procedure shall be adopted for managing the fund flow to the EDC.

a. A Joint Account, Jointly operated by the Member Secretary (Forester) and the Chairman of the EDC shall be opened in a nearby bank.
b. District Forest Officer shall directly send the cheque to the EDC account;
c. Initially only 25per cent of the project contribution or Rs 50,000 whichever is higher shall be issued to each EDC, and subsequent amount depends upon the micro-plan.
d. Funds from the EDC account can be drawn only for the items of works passed in a resolution by the Village Forest Committee.
e. Village Forest Committee (Chairman) will maintain the cash book through Member Secretary;
f. Printed cash books will be supplied by the Forest Department.
g. The accounts of EDC shall be audited by the local fund audit and also by chartered accountant.
h. Guiding rules for each household enrolled as members, the amount is deposited at the rate of Rs 3000 per household; micro plan amount for each village will be calculated on the basis of number of households enrolled in the EDC and at the rate of Rs 3000 per household.

8.4.5. Roles and Responsibilities of Executive Committee

The committee will be constituted at the commencement of and at the end of every term with the Range Officer concerned acting as the Returning Officer (or Forester if so authorized by him) for filling in the quota of elected members. The executive committee will meet at least once a month, or more often if need be. The Member-Secretary shall be

responsible for convening the meetings and maintaining the record of proceedings. He shall send one copy of the proceedings to the Range Officer to keep him informed and obtain necessary guidance. The Conservator of Forests, the DFO or the Range Officer may give directions from time to time for smooth and proper functioning of the committee which will be binding on the committee.

8.4.6 EDC: Duties and Responsibilities

A general body meeting of the Village Forest Committee shall be held once in every three months to review the activities and functioning of the Executive Committee. The Member Secretary, Range Officer and the concerned Forest Guard will have the right to participate, but no right to vote.

The reciprocal commitments of the EDC are given below:

a) The members of the ED Committee, individually and

b) Collectively, will ensure protection against poaching grazing, fires and thefts of forest produce in accordance with the eco-development micro plan.

c) Make other villagers aware of the importance of forests.

d) Assist the Forest Officers in carrying out forestry development works in accordance with the approved eco-development plan.

e) Identify beneficiaries in accordance with the approved eco-development micro plan.

8.4.7. Memorandum of Understanding

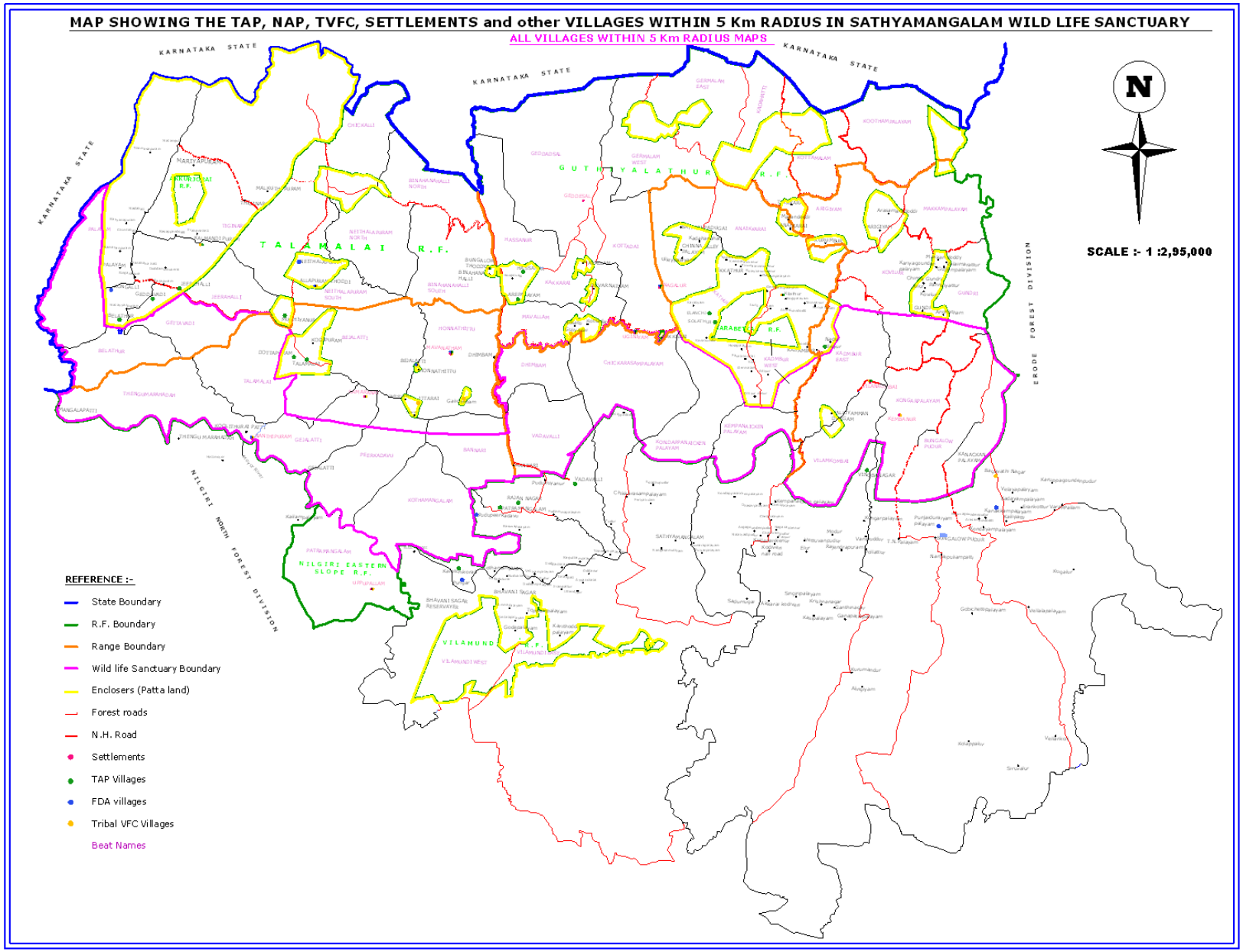
A memorandum of Understanding needs to be signed between the DFO and the Executive Committee Members. The MOU contains undertaking given by EC members in the MOU to implement the micro plan with utmost sincerity and devotion to prevent grazing inside the reserve totally or to a certain extent, to stop collection of fuel-wood, minor forest produce and small timber completely from the forests, to protect the reserve by themselves and to extend cooperation to the forest department staff in protection and conservation of the reserve.

8.4.8. Environment Education and Awareness

Awareness programme in the form of traditional folk theatre / street theatre, *Oyilattam, Kummi, Karagam* need to be planned simultaneously and for the task help of local NGO's is crucial. This is one of important means of conveying the aims and objectives and message of the project to the villagers, which would facilitate the starting of EDCs in each of the villages, flow of information on how to run the EDC's, the role of committee members, forest protection, etc.

8.4.9. Organizational Requirement

The present organizational structure is not adequate to handle the activities envisaged. The eco-development also puts pressure on the protection staff of the sanctuary, which must be kept completely exclusive for the protection requirements and exigencies. To begin with, It is, therefore, proposed to get One post of Ranger and Forester to be redeployed to from amongst the posts available in the state, with headquarters at Bhavanisagar The Ranger and Forester will exclusively attend to the work of Eco-development.


MAP SHOWING THE TAP, NAP, TVFC, SETTLEMENTS and other VILLAGES WITHIN 5 Km RADIUS IN SATHYAMANGALAM WILD LIFE SANCTUARY
ALL VILLAGES WITHIN 5 Km RADIUS MAPS
KARNATAKA STATE
KARNATAKA STATE
KARNATAKA STATE
KARNATAKA STATE
N
SCALE :- 1 :2,95,000
T A L A M A L A I R. F.
G U T T Y A L A T H U R R. F.
ARABEDU R.F.
ERODE FOREST DIVISION
NILGIRI NORTH FOREST DIVISION
NILGIRI EASTERN SLOPE R.F.
VILAMUNDI R.F.
REFERENCE :-
State Boundary
R.F. Boundary
Range Boundary
Wild life Sanctuary Boundary
Enclosers (Patta land)
Forest roads
N.H. Road
Settlements
TAP Villages
FDA villages
Tribal VFC Villages
Beat Names

TRIBAL DEVELOPMENT AND FORMATION OF EDCS IN THE FRINGE VILLAGES OF THE SANCTUARY

8.5. FORMATION OF ECO DEVELOPMENT COMMITTEES

About 138 villages are identified which are susceptible for elephant raids and sensitive in respect of elephant conservation in the sathyamangalam division as a whole. The existing village forest committees formed under Tamilnadu Afforestation project and National Afforestation project may be strengthened and sensitized through eco-development activities and awareness creation campaigns with the help of wildlife and sociological experts. Only three tribal villages are located within the sanctuary limits.

Assistance to existing VFC/EDC

Awareness programme for the village forest Committees

There are several forest committees working in the fringe villages for the protection of forests in Sathyamangalam wildlife sanctuary. These committees may be sensitized towards elephant conservation, mitigating man-animal conflict and forest fire protection. Awareness programmes at Grass roots level must be conducted in all these villages. Each programme will have street plays, drama, folk songs, folk dance depicting the importance of wildlife and its importance to human existence.

Eco development Activities

Each EDC will be provided with Rs.5 lakhs as revolving fund for Eco-development works at the village level. This amount will be utilized for village development activities after passing a resolution by the EDC. For entry point activities Rs.2 lakhs/ year is earmarked for undertaking minor infra structure works in each project village. This will facilitate alternative employment activities at the village level and reduce the forest dependency to a great extent. The revolving fund is a flexible mechanism which will gradually reduce middlemen and money lenders in the village scenario. A proper NGO tie-up is necessary for monitoring the identification of right beneficiary, loan disbursal and prompt recovery.

8.6 VILLAGE LEVEL SITE-SPECIFIC STRATEGIES

Micro planning

The micro-planning is the essential component of the eco-development and includes involving people in Social Mapping, Resource Mapping, Semi-structured Interview, Wealth Ranking, Institutional Diagram, Past System Of Management, Pair-Wise Ranking, Seasonality Analysis other techniques to understand micro-level situation of the village. The micro plan includes community asset building, individual income generation activities, alternate energy and energy conservation devices, biomass regeneration, and human resources development suitable for the area. The micro plan is prepared by Village Forest council, General body members, NGOs and Forester, Ranger and Forest guard.

The village eco-development activities drawn out of Participatory Learning & Action based Micro Planning may be of the following kinds:

a. Entry point activities to enlist the support of the people.
b. Community asset building to create facilities for the local people.
c. Micro credit programme to facilitate starting of micro enterprises for attaining sustainable alternative livelihood options focusing on forest dependent people.
d. Income generation activities, in addition to livelihood options emanating out of sanctuary management like protection, fire-protection and tracing, eco-tourism services *etc*, to upgrade the economic status of the poor.

8.7 MONITORING AND EVALUATION

The entire ecodevelopment programme should be monitored by the District Forest Officer on a regular interval the course of action on spatial and temporal grounds. The success of the programme depends upon creation of active and sensitive eco-development committees that can be ensured by proper monitoring. It may be appropriate a set of monitoring parameters that can be used for the purpose of reporting on periodical basis. NGO's could also involve in monitoring and implementing the program. Those NGO's that are involved in monitoring the eco-development program should interact with people at regular interval and discuss the problem faced by them in implementing the program. At the same time

evaluation of the programme will give chance for correction at different stages as also the real impact of the programme to achieve the desired objectives. The evaluation can better be done with the help of an internal or external system.

8.8 OUTCOMES OF THE ECO-DEVELOPMENT

The following benefits are anticipated out of the eco-development strategy.

a. Building up a trust with the local communities.
b. Development of partnership in natural resource management
c. Better protection status of the protected area.
d. Application of concept of micro-planning.
e. Compensating the sacrifices of local communities made for conservation
f. Improved economic status of the local communities.
g. Livelihood options with more eco-friendly and conservation orientation.
h. Reduced level of biotic-pressures on the park.
i. Reduced level of Forest and Wildlife offences.
j. Sustainable eco-tourism.

Livelihood Facilities provided to Communities were furnished below:

1. Training programme on tailoring, baking and driving as part of self employment
2. Various agriculture tools were supplied to improve land based activities
3. Mulch animals were given as part of income generation activities
4. LPG connections were supplied
5. Financial assistances were rendered as part of self employment programme
6. Provided visual communication facilities as part of conservation and awareness programme
7. Provisions of electrifications and provisions of street lights
8. Group insurance schemes were provided for villages
9. Assistance through LAMP Society on various schemes
10. To augment agriculture practices, facilities such as oil engine, bore wells over head tanks, and pipelines were made available in many tribal settlement areas.
11. Training on Mushroom cultivation.
12. Training on value added NTFP schemes to be provided

VARIOUS DEVELOPMENT ACTIVITIES FOR TRIBAL SETTLEMENTS BY FOREST DEPARTMENT

Participation of Tribals in Managing Community Solar Power Fence is Encouraged

Basic utensils are provided to the tribal settlements

Provided Ragi Flour machine in Uginum

Water facilities in Tribal settlements

Provided Roofing tiles for Group Houses

Community Hall provided to the Tribal Settlements

Proposed Schemes as part of Tribal Development Programme (Sathyamangalam Wildlife Sanctuary)

a. **Facilities for improving agriculture lands: Up grading the existing oil motors and digging of community wells Bench terracing and leveling the land to form a cultivable land**
b. **Promoting integrated land based activities**
c. **Supply of iron plough with bullocks**
d. **Erection of solar power fences and trenches in man animal conflict areas**
e. **Supply of modernized agriculture implements**
f. **Developing medicinal gardens**
g. **Improve communication facilities**
h. **Improve transport facilities for school children**
i. **Improvement of road facilities**
j. **Providing group houses**
k. **Electrifications to be improved: "one lamp for one hut"**
l. **Identification measures for mitigating man – animal conflicts**

SWOT Analysis:

As part of EDC/VFC implementation procedure, the outcome of dialogues with the members is used to assess the Strength, Weakness, Opportunity, and Threat (SWOT).

Strength: The knowledge acquired by the villagers about the forests and animals besides living condition for them in a pollution free clean environment is the real strength.

Weakness: Lack of proper education, health care, and employment are the major weakness for the villagers of the Sathyamangalam WLS

Opportunity: Most of the villagers prefer to work as collies is agriculture fields besides showing interest in land based activities. Training on value added NTFP products is needed for the local communities.

Threat: Annual Fire and Invasion of Plant Weeds

The Strategy for Income Generation Activities proposed for the Eco Development Villags

1. Involving local professional NGOs
2. Collecting Socio Economic profile of the target village in a scientific manner
3. Evaluating the local climatic factors including availability of water sources
4. Involving various line agencies and other government partners in obtaining technical guidance and monetary benefits
5. Examining the past history of the village development: *Pros and cons* of the Village Development
6. Better to involve more of women representatives in any specific activities
7. Integrated land based activities may be a better platform for sustainable income generation scheme
8. Contribution from the local communities as an in kind support is fore most important for better implementation of the scheme in the long run.
9. Greater accessibility to marketing to be ensured before venturing into any specific agriculture products for better economic sustainability
10. Constant interaction with the local field personnel from the field staff of the forest department might help to resolve any problems at the beginning itself
11. Villagers should select their choice of income generation schemes based on their local skills and experiences besides keeping in mind the local environmental situation
12. Implementation of income generation schemes should be carefully designed in close co operation with the forest department and implement them jointly for a successful manner and to obtain a better revenue in the long run
13. It is necessary to focus the alternate livelihood schemes for an individual drevenue and collective benefit for the village as a whole so that the overall standards of villages would maintain its social values in a better manner.
14. Make sure to minimize the extent of dependence with outside agencies for implementation of programme
15. The success of the alternate livelihood programme can be measured with the "Zero" dependence of forest resources by villagers for livelihood activities

LAND BASED ACTIVITIES - SUCCESSFUL MODULES FOR INCOME GENERATION ACTIVITIES FOR LOCAL COMMUNITIES

Jasmine cultivation by SHG

Sunflower cultivation by Local Tribals

Mulberry gardens by Local Tribal Communities

Pisciculture

Cultivation of Beans in Agricultural Fields

Distribution of Fruit bearing seedlings

COMMERCIAL SECTORS - SUCCESSFUL MODULES FOR INCOME GENERATION ACTIVITIES FOR LOCAL COMMUNITIES

Individual income generation - Petty shop

Individual income generation - Tea shop

Collective income generation - Basket Making

SHG's - Mushroom cultivation

Individual income generation - Tailoring

Individual income generation - Milch animal

ECONOMICALLY VIABLE MODULES FOR LIVELIHOOD ACTIVITIES FOR LOCAL COMMUNITIES (PROPOSED)

Vermi-compose - suitable viable scheme for some village

Bamboo basket an another potential livelihood

Local Communities involved in making furniture from Lantana stumps

Traditional weaving units and another potential alternate livelihood scheme

Poultry farming attracted by the Local Communities

Rearing of Country Chicken, an innovate scheme liked by the Local Communities

Strategy of Alternate Livelihood: Tree Cultivation in Private Lands (TCPL) in Tamil Nadu

An Approach

National Forest Policy

The National Forest Policy 1988 mandates bringing in 1/3 of the geographical area of the country under tree cover, for ecological amelioration. This implies extending tree cover outside the existing Reserved Forest areas. National Forest Policy also specifies that the wood based industries should aim at meeting their raw material requirements from tree resources cultivated outside the Reserve Forest areas.

A national level Workshop on the Tree Cultivation in Private Lands, was conducted by the Tamil Nadu Forest Department, on 24 & 25.2.07, at Chennai. The Hon'ble Minister For Environment and Forests, GOI, inaugurated the Workshop and said that for achieving the mandate of tree cover of 33%, massive tree planting has to be undertaken in private lands.

Wood Based Industries

Wood based industries should be encouraged to establish direct relationship between the factory and the individuals who can grow raw materials by supporting the individuals with financial credit, regular technical guidance, and appropriate harvesting and transport services, and assured minimum support price. Farmers, particularly small and marginal farmers should be encouraged to grow tree species required for the industries on their marginal and degraded lands. Such trees may also be grown along with fuel and fodder species on community lands with the consent of the people.

Success Models

Only the best models of Tree – Culture that can assure the farmers of good income , in their dry land have to be recommended. Tree cultivation models should be cost effective, acceptable, and adoptable with minimum gestation period of readily marketable species.

Choice Of species

The choice of species recommended for the farmers for their lands should be capable of assuring the mandated profit in the specific type of soil of the farmland concerned. Before

recommending the species, their marketability has to be ascertained. This should be a "seller market species" which implies that the species is of high demand for the "quality and quantity produced" and sought after by the wood based industries.

The following tree species are taken up for further multiplication and supply to the farmers and are as follows:

1. *Ailanthus excelsa* – Match Industry
2. Bamboo (thorn less sop) – Various use
3. *Melia Dubia* – Veneering industry
4. *Albizzia lebbek* – Pencil industry
5. *Tectona grandis* – Furniture Industry
6. *Casuarina equisetifolia*-Scaffolding
7. *Casuarina junginiana* – Paper Industry
8. *Dalbergia sissoo* – Carving Industry
9. *Kaya senegalenis* – Construction Industry
10. *Feronia elephantum* – Food industry
11. *Derris indica* – *Jatropa curcus* – Bio diesel
12. *Sapindus emarginatus* – Soap Industry
13. *Phyllanthus emblica* = Food Industry

Seeds from these superior stands will be supplied to the farmers for cultivation. Industries will be linked to the marketing aspect.

Proposed Plan: TCPL Sathyamangalam WLS: Theme: Income Generation Activities

The above concept paper and guidelines of the Tamil Nadu Government may be followed to develop a separate proposal for income generation activities for local tribal communities those are living within the sanctuary and adjoining fringe areas. Potential areas (Community lands, tribal lands (unsuitable to agriculture crops) are available for TCPL activity. This could be implemented with the coordination of NGOs with the support of the

forest department. Suitable native tree species for TCPL schemes are available in the wilderness and hence lands could be converted into a proper marketable tree cover for the benefit of the local communities. On a priority basis this attempt should be made for the fringe villages in the sanctuary.

National Rural Employment Guarantee Scheme:

NREG is not only a programme but also an Act enacted in the parliament to generate rural employment to the people below poverty line. The selected activities are based on watershed model which will have a direct bearing on the rural economy. Activities like deepening of water bodies, road works, clearing weeds, other earth work related activities are carefully chosen for implementation in the village scenario. However adequate forestry component is not incorporated which needs to be corrected. More than 80% of Forestry operations are labour intensive and have direct impact on rural economy. Besides supplementing the agricultural ecosystem, it also plays a vital role in augmentation of under ground aquifers.

Other activities like removal of invasive alien weeds like Prosopis juliflora, Lantana camera, Eupatorium etc will improve the health of the forests. Water augmenting activities like contour trenches, gully plugging, catch water pits, will play a crucial role in improvement of the existing growing stock.

Assisting natural regeneration of degraded forest is an ideal component under this programme. Tending and improving the existing valuable growing stock is the need of the hour.

Raising nurseries and free distribution of seedlings on the lines of TCPL programme will be more relevant in the present scenario. Small and marginal farmers willing to go for tree cropping may be roped in this model. The wages may be paid at the end of the growing season depending on the survival percentage. A substantial portion of seedlings may be of horticultural species which can give immediate benefits to the growers.

TCPL - AN APPROACH TOWARDS INCOME GENERATION ACTIVITIES FOR LOCAL COMMUNITIES

Identification of TCPL Village

Developing Nursery of Timber value species

Taller saplings are cultivated

Saplings are planted by Local Communities

Successful growth of Timber valuable species

TCPL approach - Winning confidence among Local Communities

Chapter 9

RESEARCH, MONITORING AND TRAINING

9.1 Research, Monitoring and Training

Monitoring and research are tools for a better understanding of nature, its functions and to enable optimum or sustainable utilisation of its resources, as well as to evaluate the conservation status of species and habitats and the extent of impact of conservation endeavours undertaken. Such understanding will also help reduce man-animal conflicts.

There is a marked deficiency in baseline biological data and on information we need to manage and monitor Protected Areas. Little is known about the impact of human activities on wildlife habitats, or about the full range of benefits that flow from biodiversity-rich old growth, natural forests and ecosystems. Not much is known about techniques, which could *inter alia* help restore the degraded habitats at minimal cost.

The National Wildlife Action Plan suggests the following actions required for this purpose:

1. Networking between WII, WWF, WTI, BNHS, SACON, BSI, ZSI, IISC, Universities and other smaller institutions/NGOs should help evolve integrated, multidisciplinary research in representative ecosystems. This will require greater financial allocations for field research and monitoring through centrally sponsored schemes (Western Ghats and Eastern Ghats Development Programme, Biodiversity Conservation Projects, NBR, Project Elephant, Project Tiger).
2. Focus research to acquire a better countrywide understanding of diversity indices, populations of indicators and endangered species and their habitats.
3. Review current management practices and translate research findings into management applications with effective monitoring and evaluation systems.
4. Study ethnic knowledge and apply it to wildlife management and work with communities to obtain IPRs to benefit both the communities and the nation.
5. Monitor and document the impact of human activities on natural habitats, including

the spread of disease, impact of fires

6. Document and assess damage done by large projects and intrusions, such as dams, mines, canal systems, roads and the use of pesticides and chemicals.
7. Review present research approval procedures to ensure research in biological conservation.
8. Identification of Wildlife Corridor between important PAs harbouring endangered and long ranging species.

9.1.1. Prioritization of Research

There are several research organizations working in the Sanctuary. Indian Institute of Science (IISc) has been monitoring the human animal conflict. IISc has also studying the ecology of larger mammals in this region since early 1980. Researchers from SACON have studied Plant – Bird interaction with special reference to seed dispersal by birds. SACON has also studied the diversity of fish in the river Moyar. Scientists from WWF have studied the Socio Economic aspects of people and implemented various conservation programmes with the focal theme of Landscape Initiatives. They have successfully eradicated scrub cattle and reduced forest dependency through community participatory programme with income generation schemes. Scientists from Bombay Natural History Society (BNHS) have studied the status of feral buffaloes and other herbivores including the status of large carnivores. Recently A study on the ecology of Black Buck was carried out by the IISc. This is an important study because it is a rare animal and there is virtually no information available on these animals' food habits or any other aspect.

Research Themes and Priorities: Sathyamangalam WLS

1. **Management perspective for removal of plant exotics and strategies for improving lantana end products.**
2. **Studies on diversity of ficus species and conservation stragies**
3. **Conservation and documentation of medicinal plants by utilizing tribal knowledge**
4. **Identification of key critical areas with special reference to corridors and its use pattern by endangered species**
5. **Implementation of community participatory project to address landscape conservation programme, especially human induced pressure such as fuel wood collection and grazing**
6. **Assessment on the socio economic status of forest villages to develop comprehensive eco development programme to minimize threats on sanctuary resources**

7. **Documentation of ethnic knowledge for the benefit of forest conservation programme**
8. **Impact of various development activities on the integrity of sanctuary resources**
9. **Conduct proper scientific EIA assessment on various development schemes**
10. **Creating a data base (beat wise) on key mammals for scientific management of the sanctuary**
11. **Protection measures for key flag ship species such as black buck, sloth bear, elephants, and hyena including medium to large sized carnivores**
12. **Identification of key mitigating measures for Man Animal Conflict which is increasingly common in this sanctuary - Monitoring and demography of elephant population.**
13. **Conservation needs and protection to tiger habitats in Sathyamangalam WLS – Species Recovery Programme**
14. **Assessment on the status of key endangered bird communities and their habitats with special reference to seed dispersal.**
15. **Survey and documentation of Vulture Communities**
16. **Survey on Pangolin population and its conservation problem**
17. **Studies on the fish communities in perennial rivers and their conservation programme**
18. **Status of small carnivores and their conservation perspectives**
19. **Conduct research on pathological issues, estimation of parasite loads, helminthes infestations and their ecology, incidences of hooknoses, threat of large cattle population in terms of infestations, to develop and standardize methodologies for disease surveillance epidemology of wildlife is much solicited.**
20. **Conservation and awareness programme for various stakeholders in protecting natural resources of the sanctuary**

The following research institutions may be contacted to take up projects on the above research theme works

1. **World Wide Fund for Nature – India**
2. **Wildlife Trust of India, New Delhi**
3. **Salim Ali Centre For Ornithology and Natural History, Coimbatore**
4. **Centre for Ecological Sciences. IISC, Bangalore**
5. **Nilgiri Wildlife Association, Udagai**
6. **Asian Nature Conservation Foundation, Bangalore**
7. **Nature Conservation Foundation, Mysore.**

8. **A V C College, Wildlife Department, Mayiladuthurai**
9. **Bombay Natural History Society, Mumbai**
10. **Wildlife Institute of India, Dehradun**
11. **Care Earth, Chennai**
12. **Local NGOs in Nilgiris, Erode, Coimbatore**
13. **Universities and Colleges-Wildlife Department**
14. **Centre for Wildlife Studies, Bangalore.**
15. **ATREE, Bangalore.**

Major Funding Sources for the biodiversity and wildlife projects are furnished below

a) **Ministry of Environment and Forests, GOI**
b) **Wildlife Wing of the Tamil Nadu Forest Department**
c) **Department of Science and Technology**
d) **Project Elephant, MoEF/Project Tiger, MoEF**
e) **Eastern Ghats Development Programme**
f) **Nilgiri Biosphere Reserve, Research Grant**
g) **UNDP – Small Grant Programme**
h) **US Fish and Wildlife Service, USA – species conservation programme**
i) **Fauna- Flora International**
j) **Critical Ecosystem Partnership Programme**
k) **Local NGOs**
l) **Universities and Colleges – wildlife department**
m) **International Elephant Foundation**
n) **Bird life International**

One Field Biologist to be appointed for the Sanctuary with the following specific responsibilities:

a) Assisting the District Forest Officer in all technical matters in writing research reports, GIS mapping, document and data analysis, etc.,
b) Timely organization of census operations, data collection and analysis and report writing.

c) Collect data from anti-poaching camp on seasonal animal movement and analyze the data regularly and suggest suitable monitoring locations.
d) Regular monitoring of animal migration, population monitoring, habitat evaluation and monitoring of tree deaths, mapping of fire areas.
e) Periodical collection of biological samples from live animals and tissue samples from dead specimens for molecular studies along with Forest Veterinarian.
f) Co-ordination of research activities with linkage institutional organizations and Universities in terms of monitoring wildlife health and other ecological studies.
g) Training Forest staff upgrading their skills in wildlife management
h) Conducting eco-awareness programs for school and college students and other interested parties
i) Awareness to the public on the fringe areas of the Reserve on man-animal conflict and mitigation measures.
j) Co-ordinations of all researchers working in the Reserve and compiling a list of management recommendations for the Administration.
k) Newly implemented work such as habitat management, fire management, mitigation measures for the man-animal conflict by the Forest Department to be monitored and recommendations on the effectiveness to be reported. *
l) To maintain signages and create public awareness of wildlife conservation.

Three Field Assistants to be appointed for supporting the wildlife research team

Field assistants should be tribal belonging to a local community and having knowledge of animal behavior and assist the Field Biologist and Veterinarian in all the field work as a guide and tracker.

Guidelines for Scientific Research in the Wildlife Protected Areas

The guidelines recently issued by Government of India for Research permissions in the Protected Areas have been summarized below.

Based on the significance of well conceived and problem oriented research in the PAs, adequate provisions for research work have been made in the Wildlife (Protection) Act, 1972. Section 28 (grant of permit) of the Act gives authority to the Chief Wildlife Warden (CWLW) to grant permission for research. Wildlife Research is defined here as research

conducted by qualified scientists, including social scientists, or by assistants/ students working under their supervision or Park Managers. Wildlife research may also be conducted by properly qualified wildlife enthusiasts and conservationists.

Duration of research

Based on the anticipated period of study specified in the proposals, wildlife research may be categorized as follows:

i. Short-term research: Surveys or short studies involving field work up to one year in duration.
ii. Medium term research: Studies requiring two to four years for completion.
iii. Long-term research: Studies exceeding four years for completion.

Processing of research proposals and grant of permission is laid as follows

1) Under existing laws the Chief Wildlife Wardens are authorized to permit research in Protected Areas. In case of research that involves capture, handling and collection of biological samples from any species listed in Schedule-I of the Wildlife (Protection) Act, the award of permission would lie with the Director (Wildlife Preservation), Government of India (Additional Director General (Wildlife) and Director, Wildlife & Preservation, MoEF). In all cases the proposal should be submitted to the Chief Wildlife Warden of the State with a copy of the same to the Additional Director General (Wildlife), MoEF, Govt. of India. In case of foreign nationals desirous of conducting research in Indian Protected Areas, permission from Ministry of External Affairs / Ministry of Home Affairs, and National Biodiversity Authority if required in Law should be obtained.

2) The proposal should contain synopsis, objectives, methodology, literature review, work plan, budget, source of funding, duration, expected outputs and terms of reference. The proposal will be evaluated by a `Technical Committee' consisting of at least *three* members constituted under the chairmanship of the Chief Wildlife Warden of the State. Other members could be representative of the State Biodiversity Board (if constituted), experts in relevant disciplines of wildlife management, ecology, social science etc. If the state has not constituted the State Biodiversity Board, suitable nomination from university / research institute or any other such

organization involved in ecological / wildlife research may be made. The Technical Committee should meet at least once in a quarter on fixed dates and consider proposals received at least 15 days prior to the date of meeting. The committee would also suggest the areas of research relevant to management decisions with respect to Protected Areas of the state. The technical committee may have additional `Subject Specialists' as a `Special Invitee'.

3) However a research project which has been approved by Dept. of Science and Technology, Ministry of Environment & Forests, Department of Biotechnology, and other scientific Dept. of the State/Central Government would not be required to be reviewed by the committee. Chief Wildlife Warden/Director, Wildlife Preservation may pass necessary orders in such cases to grant access.
4) The research questions and methodologies used shall be decided by the researchers according to their own priorities/reliable interests, in the case of independently funded wildlife research projects. In case of manipulative or interventional studies, the methods used must be in accordance with standard practice. Research questions in case of Wildlife Research projects sponsored by the State Department of Wildlife shall be arrived at in consultation with the respective Park Managers. Conclusions and recommendations should be discussed with the Park Managers to ensure the field applicability of the studies.
5) Proposal for short-term research (<6 months) shall be processed and the decision communicated by the Chief Wildlife Warden within a period of two months *if it involves one PA*.
6) If the short-term research involves several PAs and/or administrative forest divisions, the Chief Wildlife Warden *shall process and communicate decisions* within a period of three months.
7) Proposals for medium and long-term research (>6 months) shall be *processed and communicated* by the Chief Wildlife Warden within a period of three months. In case of proposals whose coverage is beyond a single Protected Area site, a maximum of four months may be taken to process and communicate the decision.
8) In case a research proposal is rejected or any modifications suggested, either by the

Chief Wildlife Warden or the Director of Wildlife Preservation, Government of India and Additional Director General (WL) and Director, Wildlife Preservation, MoEF, the reasons for such rejection/suggestions must be clearly communicated to the researcher as per (5.1) – (5.3) above from the date of receipt of proposals.

9) It is well recognized that the product of any research in terms of its scientific results and publications must be authorized by the researcher/organization. None other than the individuals responsible for framing research proposals and actually conducting research should have the authorship of scientific papers from the findings. However, the final report and other scientific publications of the project (hard and soft copy) should be submitted within three months (for short-term research) or six months (for long-term projects) to the concerned Chief Wildlife Warden. For long-term projects, half yearly progress reports should be submitted to the park authorities by the researcher. The Chief Wildlife Warden shall take appropriate action on the researcher/organization for non-submission of final reports on time as per Terms and Conditions stipulated in the letter granting permission for the project.

10) Wildlife Institute of India would act as the national nodal agency on wildlife research. It would be obligatory on the part of researcher / research organization to provide a soft and hard copy of his data / report / findings / thesis etc. to Wildlife Institute of India who in turn would make it available on their website for easy access.

11) A researcher will not be required to pay entry fee in the park. If researcher needs to use a vehicle for his research activities inside the park no entry fee for the vehicle will be charged. Other facilities when availed will be charged at the rate applicable to Government officials on duty.

12) Movements of the researcher and or his assistants in the PA shall be recorded in a log book to be maintained by him which will be submitted to the park management every month.

13) Movement at night shall be allowed only if it is part of the approved research project. A schedule for such movements shall be developed in consultation with the

local authorities and shall be permitted accordingly by park authorities.

14) In case of any violation of the conditions of permission, Chief Wildlife Warden shall have the authority to revoke the permission.

9.2. TRAINING

The challenging wildlife conservation scenario today requires committed wildlife managers who possess scientific competence and social awareness aided by communication skills. They also need sharp detection and enforcement capabilities against organised criminal elements nursed by big-money illegal trade. Accomplished wildlife biologists and social scientists are also necessary. Frontline staff equally must have similar skills at the grassroots level. The current capacity building and personnel planning and management measures need to be greatly strengthened to meet these challenges (NWAP-2002). Training programmes aimed at upgrading the skill levels of the staff to match these challenges have to be part of routine rather than exception.

Proposed Activities on Capacity Building for the staff of the Sathyamangalam WLS

a) Periodical training to the field staff on the use of field equipments

b) Training on Animal Census – Refreshing course

c) Periodical workshop on participatory approach with local communities

d) Training on conservation and awareness programme to address issues of Human Animal Conflict

e) Training on documenting animal movements for APW and field staff

f) **Training on use of arms**

It is necessary to provide training cum confidence building exercise for the field staff on the following components:

a) APW – Intelligence gathering and Patrolling methods including use of weapons

b) Field Staff: Knowledge on Wildlife and Management Issues

c) Managerial Staff: Conservation Issues and Polices with the help of line agencies

Proposal for Research and Monitoring Data Base: Sathyamangalam

A comprehensive scientific data base has to be generated for each beat of WLS for the following species on a priority basis with specific criteria.

Elephants , Gaur, Sambar ,Chital,Black buck, Hyena, Sloth bear, Leopard, Wild dogs and Tiger

Beat Details: Size (ha), Nearest Telephone Facilities, School, Panchayat Office, Police Station, Community hall, Fire Station, other line agencies , bus facility, VFC/EDC Details

1. Types of Habitat: Vegetation types: Broader Classification
2. Occurrence of Water Sources: Perennial/Semi Perennial/Seasonal/Water Holes/Check Dams/Ponds/
3. Fire Frequency details
4. Availability of Natural Salt licks
5. Crucial Micro Habitats: Valley Forests/Plantation/Block lines/Weed dominated areas/others.
6. Contour Details with GPS
7. Any Development projects: Dams, reservoirs, river channels, etc
8. Abundance of animal sightings (Herbivores)

   Direct: Low, Medium and High: Based on Frequency of Sightings

   Census Figures: Ten years data

9. Mortality Figures: Natural /Poached: Ten Years Data & Research Institutions
10. Approximate breeding season: Species Wise For Example: Chital: June to September
11. Abundance of Carnivores sightings

    Direct: Low, Medium, High: Based on frequency of sightings

    Indirect: Scat collection and Kills/Markings

    Census Figures: Ten Years Data – Forest Department & Research Institution

12. Mortality Figures: Natural /Poached: Ten Years Data & Research Institutions
13. Approximate breeding season: Species Wise For Example: Tigers : June to September
14. Sightings of Sloth Bear/Hyeana

    Direct: Low Medium High: Based On Frequency of Sightings

    Indirect: Scat collection and other markings , termite mounting attack

    Census Figure: Ten Years Data – Forest Department & Research Institution

15. Mortality Figures: Natural /Poached: Ten Years Data & Research Institutions
16. Approximate breeding season: Species Wise For Example: Mudumalai: June to September
17. Location of Corridors if any: Name and Size with details
18. Human Induced Pressures: Fuel wood collection/Grazing/NTFP Collection
    Level: Low/Medium/High
19. Number of villages/enclaves/forest settlement/tribal settlement/
20. Man-Animal Conflict: Low/Medium/High
21. Location of Antipoaching Camp and details
22. Forest operation works if any, specify

All these data sources are made into a workable and user friendly form to draw valuable inference by the managers to plan a scientific management plan in future.

Capacity Building Programme

Various ranks of field staff of forest department have been specifically empowered to take cognizance of offences relating to forest and wildlife. They must keep various documents and formats handy along with the checklist required for booking offences. The investigation and subsequent trial of the offences need much care, so that what is done in detection of offences, is not undone by poor investigation and weak prosecution.

Legal Workshops and discussions should also be organized, involving resource persons from the judiciary and the police department to guide the staff in the proper investigation of forest offences, procedural norms, and to simplify the intricacies of the laws. The staff would be benefited by such arrangements, as these close interactions point out the various practical difficulties, mistakes in the entire procedure which render the cases weak, increasing the possibility of criminals going scot-free.

Training requirement

The present set of field officers is not having any basic idea about the wildlife and its habitat. They do not understand the principles of wildlife management. Although the management wing of the Sathyamangalam Wildlife Sanctuary ecosystem itself is a learning process for the majority of the frontline staff, the Sanctuary management should ensure that

the newly inducted staff under go wildlife training conducted by various institutes in the state and outside. The experienced staff also requires brushing up their knowledge. The capacity of the staff should be increased to the level of meeting the challenges in the forthcoming years in conservation of wildlife in the wilderness. We need a set of staff that can rise up to the occasion and overcome the hurdles at present and in the future.

Monitoring and Evaluation

The National forest policy 1988, envisages that forest management should take special care of the needs of wildlife conservation and should provide for strengthening and extension of protected areas network. Accordingly, Sathyamangalam wildlife Sanctuary was created to facilitate connectivity with Bandipur Tiger reserve, BRT sanctuary, and Nilgiri north division.

The works proposed in the management plan must be executed meticulously, to improve the habitat within the time frame. There are exclusive wildlife schemes funded by the Government of India like Project elephant, Nilgiri Biosphere Reserve Scheme and Development of Sathyamangalam wildlife Sanctuary. In addition to that Part-II, 13th finance commission, TCPL, Tamilnadu Afforestation Project, National Afforestation programme, Tribal development programmes are being implemented in this Sanctuary. All these works must be carefully monitored and an analytical assessment of the impact of these programmes on the habitat is very much required for effective management.

The TAP and NAP programme have well developed internal and external monitoring through specific agencies. The Officers at every level are frequently inspecting the field for effective implementation which should be continued. The Government of India had appointed eminent wildlife specialists, to monitor the effectiveness of the schemes implemented in protected areas. The feed back obtained from them must be strictly adhered to for further improvement.

Involvement of all the stake-holders especially local communities, tribal people, NGOs, line agencies right from planning to execution is a must in all these programmes. This will not

only ensure transparency but also facilitates incorporation of valuable suggestions relevant to the local conditions. There should be a provision for mid-term evaluation and correction, as the forest ecosystem and the surrounding communities are subjected to variety of external influences, which will have a direct bearing on the management of the Sanctuary.

Chapter 10

WILDLIFE PROJECTS – A REVIEW - SATHYAMANGALAM WILDLIFE SANCTUARY

10.1 IMPLEMENTATION OF WILDLIFE PROJECTS

Various research works have been done in the Sathyamangalam by many research institutions and NGOs and some are presented below. Management projects were carried out by these organizations as part of up grading the biodiversity values of Sathyamangalam WLS. Some of the projects and their inferences were given below. These projects were mostly management oriented for the species conservation in this landscape.

Scope	**– Species Recovery Conservation**
Theme	**– Landscape Approach**
Strategy	**– Co operative Partnership Programme**
Output	**– Management Intervention**

Project Title 1

Management of elephant reserves with special reference to corridors by community participatory programme in the Nilgiri Biosphere Reserve, Southern India.

Institution - Nilgiris & Sathyamangalam Forest Divisions WWF India- AREAS - Submitted to the Division of International Conservation U.S. Fish and Wildlife Service – AECF: N Sivaganesan et al 2004

Objective: Reducing Man-elephant conflict

Findings: The greater success of mitigating measures for reducing the crop damage by elephants through involving the local communities have attracted many other forest tribal settlements in the Sathyamangalam WLS to avail the similar programme. This mechanism would help the forest department to protect the elephant reserve in close harmony with the

local villagers in the long-run. This could be an achievement in terms of reducing the man-elephant conflict in forest settlements and thereby shift the villagers' dependence on the forest resources to land based agriculture activities.

Tigers were sighted in three occasions in closer proximity to the forest settlement areas between Gulithuraipatti-Doddakombai from where cattle penning were removed with the help of the forest department. Thus, the evidences of tigers were seen in the vicinity of forest settlement areas where the disturbance levels were curtailed by removing cattle population in a dramatic manner through the community participatory approach.

The study finding showed that the tiger population is being re-established in selected parts of Sathyamangalam. The incidences of observation of tiger signs could be an indirect sign of improvement of prey base along with its rate of vegetation recovery.

Research title 2

SURVEY OF POPULATION AND DISTRIBUTION OF BLACKBUCK (Antelope cervicapra) IN SATHYAMANGALAM FOREST DIVISION AND ADJACENT AREAS

Institution - Tamil Nadu Forest Department & IISc, Bangalore

Scope - Endangered Species Conservation Programme / Black buck

Landscape Conservation – Critical Area Conservation

Findings: A total of 864 Black bucks were recorded by sampling teams in 18 unequal sample blocks of Sathyamangalam forest division. The present survey results showed that Blackbuck are distributed throughout the Moyar valley from the west Mangalapatti to east Sujalkuttai then it extended up to Kothamangalam and Bannari in Sathyamangalam part of Moyar valley, and then Belathur, Madhalli Kettavadi (Talamalai Reserve forest) of Bhavani sagar range in Sathyamangalam forest division.

Open grassland an ideal habitat for Blackbuck

Forest officials inspecting the Blackbuck habitat

All male herds Palaarapatti

Census team during census operation

Black Buck sighted near Thengumarahada

Black buck habitat in Moyar valley

Project title :3

Studies on the population status and distribution of critically endangered Gyps Vulture in Sathyamangalam Forest Division, Southern India:

Institution - A V C College Autonomous, Mayiladuthurai)

Scope – Species Conservation – Critical Habitat Conservation

Findings: 343 individuals of white rumped vulture, followed by Long billed vulture (178) were recorded during the survey period. Only a few numbers of Egyptian and King vultures were observed.

Project title: 4

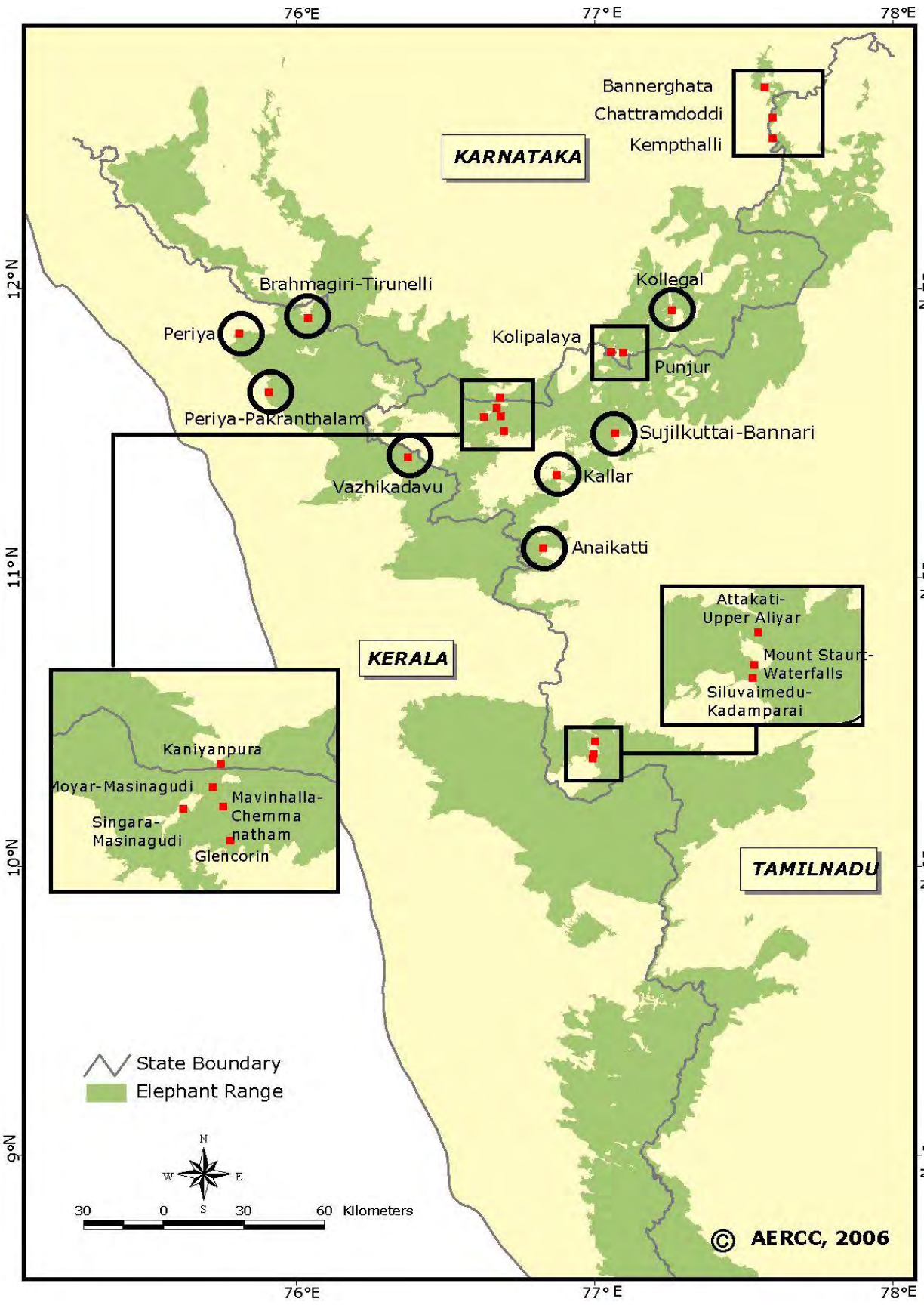
STUDIES ON WILDLIFE CORRIDORS IN THE SATHYAMANGALAM WLS

Institution - WTI and TN Forest: 2009: Interim Report:

Scope - Corridor Management

Species recovery programme – Critically Endangered Habitat Conservation

Findings: The shooting range established by the Special Task Force (STF) police in the bottleneck (Near Kannukutti Karadu) causes noise and air pollution in the corridor areas. The proposed developmental activities such as the establishment of Railway line between Mettupalayam and Chamraj Nagar and highway road between Siriyur and Bhavanisagar would definitely affect the movement of elephants. Therefore, preservation of this corridor is urgently needed.


76°E
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KERALA
TAMILNADU
Bannerghata
Chattramdoddi
Kempthalli
Brahmagiri-Tirunelli
Periya
Periya-Pakranthalam
Vazhikadavu
Kollegal
Kolipalaya
Punjur
Sujilkuttai-Bannari
Kallar
Anaikatti
Attakati-
Upper Aliyar
Mount Staun-
Waterfalls
Siluvaimedu-
Kadamparai
Kaniyanpura
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© AERCC, 2006

Project title - 5 STUDIES ON TIGER OCCUPANCY IN SATHYAMANGALAM WLS

Scope – Species Recovery Programme / Critical Area Conservation

Institution – Wildlife Institute of India & Tamil Nadu Forest Department

Findings - Out of 1455.31 Sq.km of the Sathyamangalam Forest Division, the tiger occupied about 847.87 Sq.km. Out of 48 beats studied, the tiger occupied in atleast 26 beats. This is about 58.26 % of tiger occupancy in proportion to entire forest division. This present study, though limited to 12 pugmark sets of 9 different tigers strongly suggests that the potential of using pugmark and gait variables for identifying individual tigers.

Project title - 7 ***STUDIES ON TIGER DISTRIBUTION IN SATHYAMANGALAM WLS***

Scope – Species Recovery Programme / Critical Area Conservation

Institution – Centre for Cellular and Molecular Biology (CCMB), Uppal road, Hyderabad – 500 007.

Sample No.	Latitude	Longitude	Name of the Location	Tiger specific PCR	Sample named as
1	11.52969	77.02747	Kallampalayam road	N	--
2	11.55134	76.9911	Kollithuraipatti riverbank side	N	--
3	11.57646	76.96881	Moolapatti koil road	N	--
4	11.5787	76.96883	Moolapatti koil road	P	STN1
5	11.57942	76.96664	Moolapatti koil road	P	STN2
6	11.56438	76.88971	Palamarapatti	P	STN3
7	11.53028	77.10825	Chemmalei karedu	N	--
8	11.16316	77.5547	Horakal maduvu	P	STN4
9	11.69148	77.01426	Kandhukall maduvu	P	STN5
10	11.66292	77.03388	Allapuram dhotti	N	--
11	11.67592	76.99872	Allapuram dhoti	P	STN6
12	11.59135	76.99158	Thalamalai beat	P	STN7
13	11.69347	77.1764	Gedheasal priviu	N	--
14	11.78552	77.20753	Germalam kuttai Hasanur road	P	STN8
15	11.79119	77.22646	Towards Karnataka road	P	STN9

16	11.82083	77.2238	Germalam road manjikeri road	P	STN10
17.	11.80255	77.2031	Manjikeri road	N	--
18.	11.79448	77.20298	Manjikeri road	N	--
19	11.7545	77.20742	Gedheasal road	N	--
20	11.7412	77.19716	Gedheasal road	P	STN11
21	11.72803	77.19076	Gedheasal road end	N	--
22	11.71501	77.18427	Mavallam road	P	STN12
23	11.70981	77.18477	Mavallam road end	N	--
24	11.68396	77.1838	Mavallam road	N	--
25	11.6346	77.03634	Ramar dam	P	STN13
26	11.54766	77.00762	Bejalatti area	P	STN14
27	11.56732	76.98934	Embettam pallam	P	STN15
28	11.56769	76.97121	Kalamathathu kadavu	P	STN16
29	11.59482	76.84736	Mangalapatti thoppupallam	P	STN17
30	11.5779	76.96755	Moolapatti koil	N	--
31	11.63972	76.18439	Kottata village	P	STN18
32	11.63875	77.18205	Near Kottata village	N	STN19
33	11.66793	77.18499	Kottata to Pudhukadu road	P	STN20
34	11.6739	77.18695	Pudhu kdadu	N	--
35	11.66066	77.18764	Pudhukadu to kotada road	P	STN21
36	11.80519	77.14359	Aaraikavadu pallam	P	STN22
37	11.67469	77.13369	Near by Unnur kuttai	P	STN23
38	11.74506	77.11276	Aaraikadavu pallam	P	STN24
39	11.68011	77.3558	Near by eapalur settlement	P	STN25
40	11.69414	77.431		P	STN26
41	11.66719	77.40305	on the way to Gundri road	N	--
42	11.7369	77.10545	Towards Beduglipallam road	N	--
43	11.79505	77.18411	Jodikkarai road	P	STN27
44	11.74503	77.18013	Bedugulipallam road	N	--
45	11.68847	77.13527	Onnur Mokkai kuttai	N	--

46	11.66341	77.04379	Peedamoram	P	STN28
47	11.59275	76.99344	Ramar dam	P	STN29
48	11.64119	77.30651	Uginium upper road	P	STN30
49	11.63949	77.19645	Uginium upper road	P	STN31
50	11.63349	77.18659	Kottadai to Kalkuchi road	P	STN32
51	11.62679	77.13601	Kalkuchi road	N	--
52	11.63349	77.14201	Kottada road	N	--
53	11.53279	77.13401	Pettaranyalam road	P	STN33
54	11.53199	77.11981	Pettaranyalam road	N	--
55	11.52869	77.10285	Chemmalai karadu road	N	--
56	11.54729	77.11801	Kannukutti karadu road	P	STN34
57	11.6667	77.34645	Gundri road	N	--
58	11.65175	77.37189	Gundri road	N	--
59	11.65859	77.29219	Bruttipalayam road	N	--
60	11.65266	77.26799	Basuvanapuram beat	P	STN35
61	11.63539	77.23491	Basuvanapuram beat	N	--
62	11.55211	77.9921	Koolithuraipatti beat	N	--
63	11.58699	76.85714	Mangalapatti beat	N	--
64	11.5801	76.9665	Moolapatti area	P	STN36
65	11.5633	77.0031	Karuvan rayan kovil road	P	STN37
66	11.57749	76.85699	Palamara patti	P	STN38
67	11.55921	76.86311	Thulukkam patti area	P	STN39
68	11.57931	76.96599	Towards tharamal river	P	STN40
69	11.63941	76.96118	Jeerahalli road	P	STN41
70	11.66292	77.04831	Allapuram road	N	--
71	11.62819	77.43019	Jadasamipallam	P	STN42
72	11.63549	77.44279	Pommbrayan koil road	P	STN43
73	11.55131	77.05519	Talamalai road	P	STN44
74	11.5531	77.0561	Talamalai road	P	STN45
75	11.51032	77.2471	Neergundi pudur	P	STN46
76	11.75272	77.27557	Neergundi pudur area	P	STN47
77	11.78006	77.22121	Germalam backside road	P	STN48
78	11.69912	77.31435	Anaikkarai area	P	STN49

79	11.71419	77.36655	Anaikkarai area	P	STN50
80	11.97262	76.80719		P	STN51
81	11.62331	77.12996	Dhimbam road	P	STN52
82	11.62301	77.12905	Dhimbam road	P	STN53
83	11.55318	77.13949	Dhimbam road	P	STN54
84	11.55318	77.13949	Dhimbam road	P	STN55
85	11.74031	77.02511	Kasivuneer Dhimbam	P	STN56
86	11.65649	76.9293	Near Jeerahalli camp	P	STN57
87	11.63987	76.96044	Ori angi maduvu	P	STN58
88	7.05919	76.14989	Aarakal maduvu	N	--
89	11.62682	77.13603	Kottadai Dhimbam road	P	STN59
90	11.67676	77.00135	Neithalapuram beat	P	STN60
91	11.67676	77.00135	Neithalapuram beat	P	STN61
92	11.64549	77.33436	Gundri road	P	STN62
93	11.80519	77.14357	Unnur kuttai	P	STN63
94	11.80519	77.14357	Unnur kuttai	P	STN64
95	11.55921	76.85897	Thulukkapatti road	N	--
96	11.5785	77.92897	Mangalapatti river bank	N	--
97	11.58867	76.84819	Mangalapatti river bank	P	STN65
98	11.55969	76.99716	Koolithurai patti road	P	STN66
99	11.55316	76.99403	Koolithurai patti road	P	STN67
100	11.57819	76.96301	Moolapatti road	P	STN68
101	11.57399	76.96298	Moolapatti road	P	STN69
102	11.57881	76.96911	Moolapatti kail back street	N	--
103	11.53119	77.12811	Chemmalai karadu road	N	--

Results

From the above Research works, we can conclude that out of the 103 scat samples collected, 69 are positive for tiger. The genotyping of the positive samples is in progress and the results will be communicated shortly.

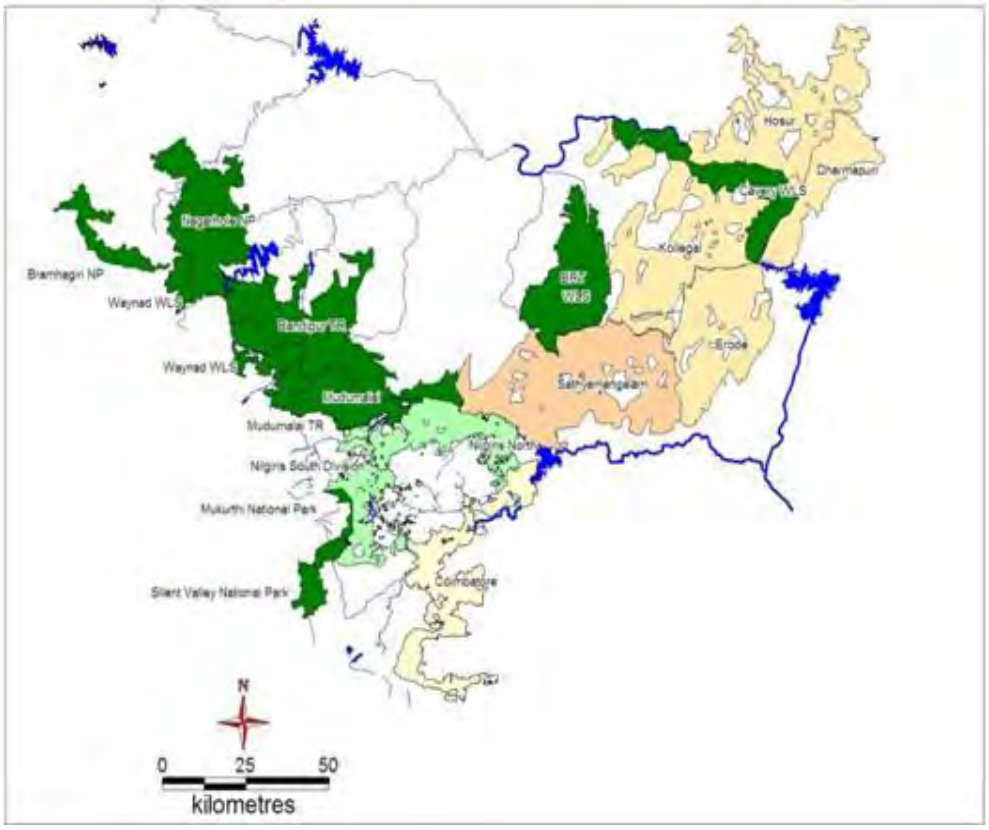
Source :

Dr. S.Shivaji, Scientist incharge, LACONES, Centre for Cellular and Molecular Biology(CCMB), Uppal road, Hyderabad – 500 007.

PROPOSAL FOR THE FORMATION OF SATHYAMANGALAM TIGER RESERVE

Due to its connectivity with Biligiri Rangasamy Temple Wildlife Sanctuary and Bandipur Tiger Reserve, Sathyamangalam wildlife sanctuary and the forests of the territorial division have the potential to accommodate the spill over populations of Tiger from these two protected areas. (Map1).

Map.1. Nilgiris and Eastern Ghats Landscape



The sanctuary and surrounding territorial forest division is endowed with over 40 species of larger mammals, over 225 species of birds and 30 species of reptiles, 15 species of amphibians and 10 species of fishes. There are five major forest types ranging from Dry thorn forests to semi-evergreen forests in moist pockets. The riverain forest patch that runs along the river Moyar of the Bhavanisagar range is a lifeline for all the animals living in this region.

The diversity of habitat has got an assemblage of several species of rare plants, invertebrates, fishes, amphibians, and reptiles. This forest area also harbours several species of wild relatives of cultivated plants including, Wild ginger, Turmeric, *Solanum*, and Mango that act as a gene pool for the cultivated plants.

Presence of tigers in Sathyamangalam forest division

In the earlier working plans, the presence of tiger was reported in Hasanur, Talamalai, Dhimbam and Thalavadi forests. But there was no systematic scientific study on Tiger distribution in the past. During the annual census operation, Tiger distribution was estimated through pug mark analysis since 2006. The estimated population during that period was 10 to 12 tigers for the division area.

Ramakrishnan & Tamilvanan (2009) found 12 individual hind pugmarks traces of Tiger in Sathyamangalam forest division. Of these, eight pugmarks were found in Bhavanisagar range followed by two in Talavadi range and one each in Hasanur and Thooka Naicken Palayam (T.N. Palayam). Out of the 12, nine were identified as belonging to different individuals.

Reason for disappearance of tigers in the past

This division area was heavily worked for fuel coupes since the pre-independence period. In early 1960's, the exploitation of the forests was vigorous and the state's fuel wood needs were met from this division to a large extent. Bamboo coupes were also worked till 1981. Fuel coupes were stopped in 1975 and selective felling was stopped in 1980. These felling coupes have caused degradation and left the tiger habitats extremely disturbed. Later, Protection and management of rich sandalwood reserves were given more importance due to their economic value. A sandalwood depot was established in 1919 to harvest the dead, dying and diseased wood from the forests through a natural selection system. This had caused disturbance in the entire forest due to the influence of human activities. Also, scrub cattle penning was very common in many forest areas in the past few decades and continued unabated till 2000. During this period many cattle kills by the carnivores were

reported in different parts of the division. This is one of the major cause for the disappearance of larger carnivores especially tigers, leopards and vultures through poisoning of carcasses by the graziers as retaliation. Finally, Sathyamangalam forest was under the grip of fear, for almost two decades, due to the activities of the forest brigand Veerappan.

Reasons for reappearance of tigers

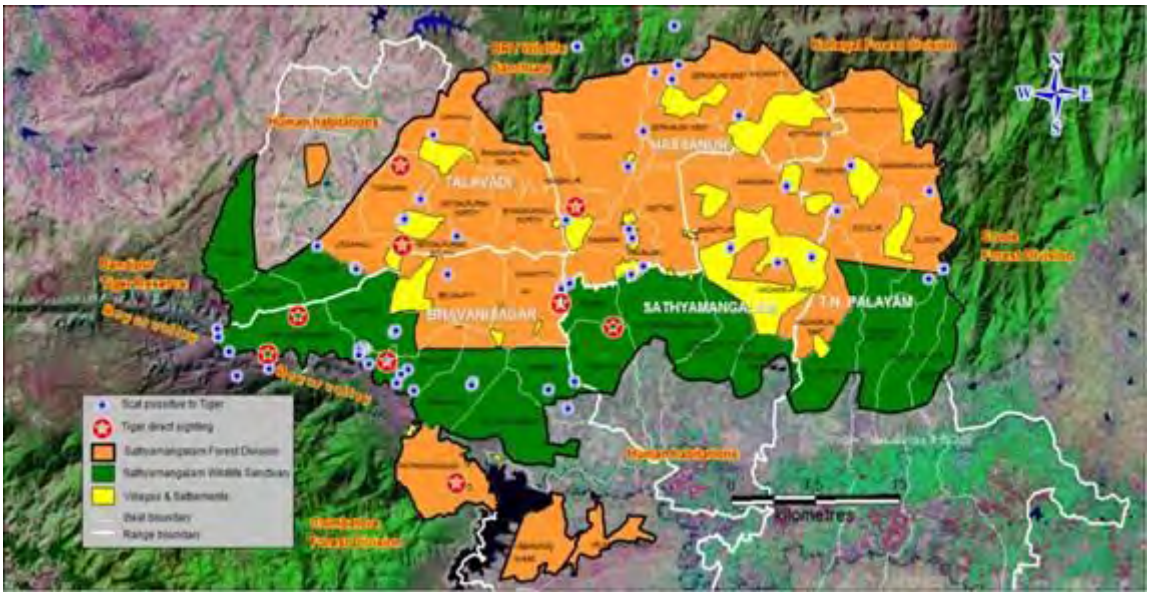
After Veerappan's demise, scrub cattle eradication programme was initiated through a people's participatory approach by Dr. Sivaganesan (about 2500 scrub cattle were sold out from the Moyar Valley during 2001-2002 & 2004-2005) and execution of State Government projects such as Tamil Nadu Afforestation Programme and National Afforestation Programme (NAP, 2000), the habitat conditions began to improve.
Since 2005, tiger evidences began to surface and in 2006, direct sightings of tigers were being commonly recorded (Census Record, Ramakrishnan, Pers. Comm.).

Anti-poaching sheds were constructed in 14 vulnerable locations and 76 anti-poaching watchers were deployed to improve the forest protection against poaching and anti-social activities. As a result, the forests are protected with utmost care and gradually prey population started to build up in potential areas. Check dams and percolation ponds were created at drier localities to improve the water availability in the potential grazing areas in the division. Another major reason for the recovery of tiger in the area was due to the cattle compensation scheme launched by a local wildlife enthusiast, Mr.Krishnakumar who disbursed compensation to the people for cattle killed by carnivores. In the past two and a half years, over 160 cases have been settled and that halted the notorious practice of poisoning of carcasses. The forest department too recorded all the cattle kills and compensation was disbursed to the affected farmers promptly. During this period, no poisoning of carnivore was reported in this division.

DNA analysis of Tiger scats

In 2010, the Center for Cellular and Molecular Biology (CCMB), Hyderabad, in collaboration with the Wildlife Trust of India; field officer have attempted preliminary population estimation of tigers through genetic analysis of scat collected by WTI. This scientific investigation to estimate the tiger population through mitochondrial DNA, is first of its kind ever attempted in Tamil Nadu. This exercise has confirmed 69 tiger positive scats out of 103 fresh scats collected all over the division. This indicated the presence of 18 different tigers in the Sathyamangalam forest division (CCMB interim report-Annexure 1). In addition, WTI's field team conducted field level data collection that revealed 1277 sq.km of the forest area which is about 87% of the forest division (Maps 2 & 3) is used by the tiger. WTI field officers also made nine direct sightings of the tiger.

Map.2. DNA positive tiger scat and direct sighting locations, Sathyamangalam Wildlife Sanctuary and Territorial Forest division



Map.3. Tiger occupancy map of Sathyamangalam Wildlife Sanctuary and Territorial forest division.

These three methods clearly indicated that a viable breeding population of tiger is present in Sathyamanglam Forest Division. The maximum number of tigers may be as high as 18

(based on the DNA studies) and a minimum number of nine (direct sightings & pugmarks analysis).

Brief Report on Camera Trap Study by WWF

The preliminary camera trapping study is being carried out in the Sathyamangalam Wildlife Sanctuary and its adjoining areas since 19th June 2010, in which preliminary carnivore occupancy survey for the tigers and other co-predators such as leopard, sloth bear, wild dog and hyena were carried out in grids and individual signs such as pugmarks, scats, scrapes, rake marks, fresh and old kills of the carnivores were recorded. Important prey species such as gaur, sambar, chital, black buck, four horned antelope, feral buffaloes and scrub cattle were also studied during the grid survey.

The camera traps were placed on the strategic locations where the tiger movement was present and also in such a way that the minimum distance between two camera traps was not less than 1.5 km and not more than 3 km. Thermo sensitive and motion detection digital cameras were placed in 2x2 km^2 grids, the session was continued till almost all the tigers were recaptured and density software was used to analyze the data.

All the cameras were deployed in an effective sampling area of 83 km^2 in Moyar valley of Bhavanisagar Range, and about 130 km^2 in Talamalai plateau of Sathyamangalam Wildlife Sanctuary and surrounding territorial division. It was found that population size of tigers in Sathyamangalam Wildlife Sanctuary with 95% confidence interval is 18 (SE ± 2.8) with the population ranging from 15 to 28 individuals and overall capture probability of tigers was 0.8031. In the Talamalai plateau six individuals were captured within seven days of camera trapping in selected areas which indicate that the possibility of the presence of tigers is more in the entire forests of Talamalai area of Bhavanisagar, Hassanur, and Thalavadi ranges in Sathyamangalam Wildlife Sanctuary and surrounding territorial division. The tiger cubs below the age of one were not counted for analysis. It was observed that 15 tigers in Moyar valley within Sathyamangalam Wildlife Sanctuary, which may be one of the forests with high density tiger populations in India.

Camera trapping data revealed that the Moyar valley has a healthy growing population of tigers with the overall male female ratio of 1:2.2 and out of 13 females captured, four breeding females were found in the Sathyamangalam Wildlife Sanctuary (Annexure 2). A female tiger with three cubs *was* captured in cameras at *Thopapallam and Belimeen area*, two different tigers with clearly noticeable mammary glands and teats were captured *in Gajalatty and Empettam pallam area* and the presence of a female with four sub adults as a group *in Mangalapatti road and Thekkathi malai* shows that the tigress was successful in bringing up all the cubs and thus showing high prey availability. The sub adult tigers seen in the group may disperse at any point of time and can move to any place in the landscape

and can establish territories away from their natal area.

	Total individuals captured	Population density estimate of tigers	Standard Error	95% confidence interval	Sampled area in km²	Effective trapping area in km²
Sathyam angalam WLS	18	22	2.8	15- 28	84	134

Co-predators

Apart from tigers, the co-predators such as leopard (17 individuals), sloth bear, hyena, wild dog were caught in the camera traps.

Prey species

The herbivore species such as Elephant, Gaur, Sambar, Chital, Black buck, Mouse deer, Porcupine, Common Langur, Bonnet macaque and Black naped hare were also captured in the camera traps. The feral buffaloes, scrub cattle, sheep and goats also formed a major component of captures, which is also a part of prey species.

Lesser mammals

The lesser mammals such as the jungle cat, common mongoose, ruddy mongoose, palm civet and small Indian civet were also captured. The animals such as Indian giant squirrel, barking deer were encountered during the transect walks.

Suggestions for future

WWF has suggested that the non tribal villages and non tribal settlers in the Moyar valley especially Thengumarahada settlement may be relocated by providing compensation packages as a component of the habitat management.

The tiger habitat and quality of prey base can be improved with regulated religious tourism.

The scrub cattle form an additional prey base for the tigers and co predators. The scrub cattle should be managed in such a way that they do not affect the wild prey population by spreading of diseases and competing with the natural prey for their resources.

The spillover tigers of Mudumalai and Bandipur tiger reserve can move into Sathyamangalam Wildlife Sanctuary and surrounding territorial division and vice-versa

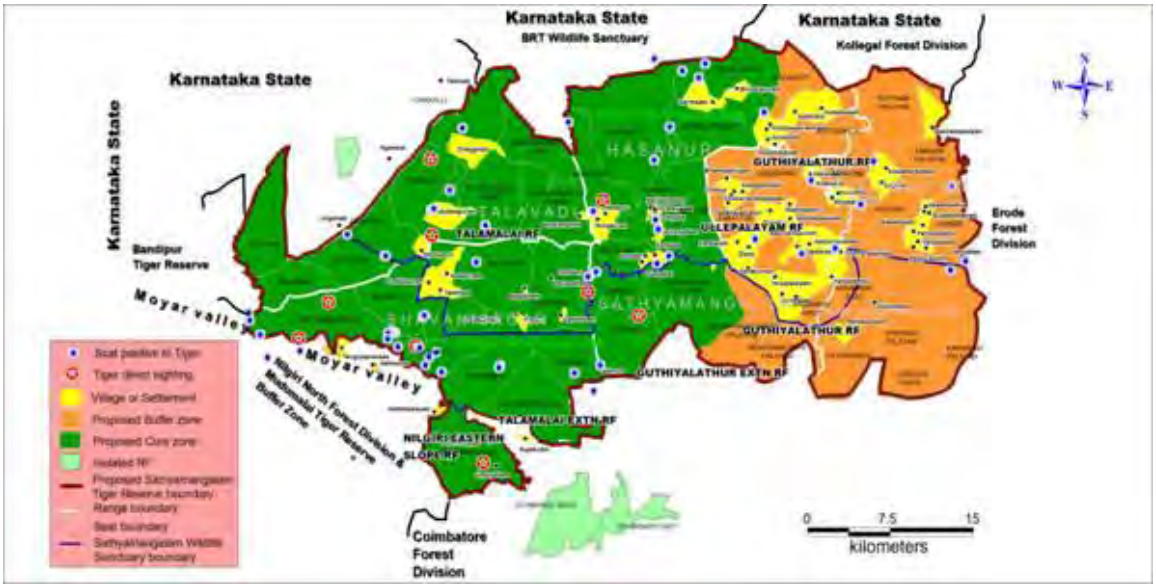
may ensure genetic variability to the existing tigers and would form a meta-population or one of the single largest populations of tiger in India.

Thus, there is an urgent need to protect tigers and manage their habitat in the study area, Sathyamangalam Wildlife Sanctuary and surrounding territorial division, which forms the vital part of Eastern Ghats.

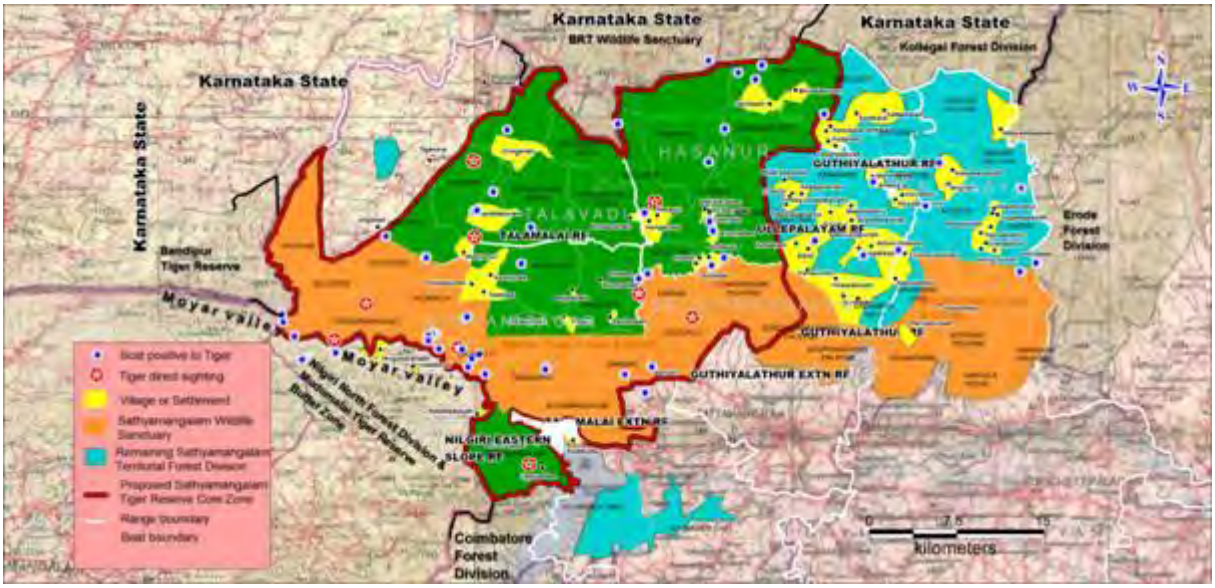
DEMARCATION OF CORE AND BUFFER ZONES

Based on the tiger occupancy results, buffer and core zones were demarcated. Bhavanisagar, Thalavady and part of Hasanur ranges were proposed as core zone. Sathyamangalam, Part of Hasanur, and T.N. Palayam ranges in Sathyamangalam Wildlife Sanctuary and some beats in territorial forest division will form the buffer zone for the proposed Sathyamangalam tiger reserve (Map 4). The extent of proposed core zone is 922.62 Sq.km and the buffer zone is 466.95 Sq.km. It is interesting to note that more number of positive tiger scats was recorded in the reserve forest areas of territorial division (68.1%) than in sanctuary (31.9%). Therefore it is suggested that the Sathyamangalam forest area including territorial division and wildlife sanctuary shall be jointly declared as a new tiger reserve for the long term conservation of Tigers in this landscape. This will have connectivity with BRT wildlife Sanctuary (now proposed as a Tiger reserve) and the Bandipur Tiger reserve. There is also a proposal to annexe the Segur, Singara and NES range of the Nilgiri north division with the Mudumalai Tiger Reserve. Then, the Bhavanisagar Range will have connectivity with the Mudumalai Tiger reserve on the southern and western sides. This will create a single largest viable population of Tigers in the entire southern peninsular India.

Map.4. Proposed Tiger Reserve with core and buffer zones in the Sathyamangalam Sanctuary and Territorial forest division.



Map. 6. Map showing the villages in the proposed Sathyamangalam Tiger Reserve.



Threats

Tiger and Elephant poaching, though sporadically reported is still considered as a major threat to this division. A few years ago a gypsy gang was arrested who had intruded into the Bhavanisagar range for tiger poaching. Strong anti-poaching mechanism, with a vigilant intelligence gathering needs to be put in place, to protect the tiger and other fauna. Electrocution of elephants in the farmlands along the boundary of the forests is also a challenging task to reckon with. Presently 16 permanent and seven temporary anti-poaching camps are established at vulnerable locations and tribal youth are being engaged as Anti-poaching watchers.

Critical management issues like grazing, fuel wood collection, NTFP collection, forest fire and the encroachments need to be studied to understand their intensity and impact on the management. There are around 25,000 cattle competing with wild animals for forage and water in Sathyamangalam forest division. They also act as carriers of endemic diseases like Anthrax, Foot and mouth disease and hemorrhagic septicemia. Therefore, declaration of tiger reserve should envisage periodical ring vaccination of all the cattle in a five km ring around the forest boundary.

Forest fire management is one of the serious concerns of the management as it not only engulfs the regenerating biomass of the forest but also destroys the micro habitats of many organisms. Therefore, adequate importance is needed for the proper maintenance and upkeep of fire lines, and employing modern fire fighting techniques in the division.

Invasive species like *Prosopis juliflora* and *Lantana camera* have smothered the native vegetation in most of the places. Removal of these two species and monitoring such removed areas as well as new areas is also been warranted.

The tiger reserve proposal should have a specific plan for prey base development to reduce livestock lifting by wild carnivores. Systematic data base needs to be prepared to monitor the prey base as well co-predators' status, movement and conflict issues.

Justification to declare as "Project Tiger Reserve"

It is clear that this area holds a significant population of tiger, and it is also contiguous to tiger reserves in the adjoining area and has a substantial and diverse prey base. Therefore it deserves to be upgraded into a tiger reserve. The reappearance of tiger in various parts of the division is one of the crucial aspects to be brought out clearly by demarcating core area and buffer area along with present prey base status, status of enclosures and threats. This forest division is highly critical to accommodate the spillover population from Biligiri Rangasamy Temple Wildlife Sanctuary (now proposed as a Tiger reserve) is on the northern side of the proposed core area. A length of 43 kms is shared by the core area of the BRT Sanctuary and the proposed core area. The core area shares the boundary with the Bandipur Tiger reserve for a distance of 14 kms on the western side. On the southern side, the core area shares its boundary with Nilgiri north division (Buffer area of Mudumalai Tiger

reserve) for a distance of 40 kms. The buffer area shares its boundary with the Erode and Kollegal forest divisions on the eastern and northern side for a distance of 32 kms and 21 kms respectively. This division is acting as a bridge between two major landscapes i.e. Western Ghats and Eastern Ghats which ensures a vast area for tigers for their long term conservation and for exchanging genes between populations.

The proposed core area is 922.62 Sq.km after deducting tribal forest settlement (1.91 Sq.km). Similarly the proposed buffer area is 466.95 Sq.km after deducting 0.46 Sq.km area occupied by the tribal forest settlements. 337 Sq.km of the proposed core area and 190 sq.km of the proposed buffer area had already been brought under Sathyamangalam Wildlife Sanctuary, which is totally free from revenue settlements.

In view of the above facts, we strongly recommend that Sathyamangalam forest division may be declared as a Tiger reserve.

Abstract of total Core, Buffer and Excluded Area of the Proposed Tiger Reserve

Description	Total area in Ha.	Forest Tribal settlements in Ha.	Net Area	Excluded Area (Ha.)
Core zone	92452.44	190.90	**92261.54**	
Buffer zone	46741.39	45.80	**46695.59**	
Area not considered for Proposed PTR				6337.1
Total	**139193.83**	**236.70**	**138957.13**	**6337.1**

Chapter 11

THE BUDGET

The Sathyamangalam wildlife sanctuary receives funds both from Government of India and Government of Tamilnadu under both Plan and Non-Plan Budget heads.

11.1 Following are the schemes under which Sanctuary receives funds from Government of India:

1. Intensification of forest management.
2. Project Elephant (PE)
3. Niligiri Biosphere Reserve (NBR)
4. Forest Development Agency (FDA)
5. Development of Sathyamangalam Wildlife Sanctuary.

11.2 Following are the schemes under which Sanctuary receives funds from Government of Tamilnadu :

1. Nature conservation (NC)
2. Part-I scheme
3. Part-II scheme
4. Non plan-schemes
5. Twelfth Finance Commission
6. Tree Cultivation under Private Lands.
7. Raising NTFP plantation.
8. Tribal welfare scheme.

The following activities which may be taken up in the sanctuary are listed below.

Sl. No.	Works proposed
I.	**PROTECTION AND ANTI POACHING STRATEGY**
1.	1)Wages to Anti-poaching watchers @125/day @10 Anti-poaching watchers for each Range
	2) Daily Ration @ Rs 40/day per person
	3) Hunter shoes, rain coat and uniform for each camp (per year)
	4) Purchase of Utensils for each camp
	5) Purchase of First Aid Kits for each camp (per year)
	6) Purchase of Binocular, GPS and Torch lights (per year)
	7)Purchase of Digital Camera for each Anti-poaching camp
	8)Purchase of solar lights LED lights for each camp
	9)Purchase of Camera Traps – 4 nos. for each Range
	10)Group Insurance for Anti-poaching watchers
2.	1) Purchase of Walkie-Talkies and Communication equipments for each camp.
	2)Purchase of additional Batteries for existing walkie talkies
3.	1) Construction of new anti poaching shed, at vulnerable places
	2) Maintenance works for the existing camps/sheds
4.	Elephant Proof Trench around the anti-poaching camp site
5.	Digging Bore Wells with Sintex water tank for each Anti-poaching camp
6.	Maintenance of Approach Roads to each Anti-poaching camp site
7.	Formation of new check post to prevent illegal activities – Makkampalayam and Etthikatti
8.	Purchase of arms and ammunition for each range
9.	Training & Capacity building to Anti Poaching Watchers
10.	Cash Reward for performing Anti-poaching watchers
11.	Conducting workshops to other government departments (EB/Highways /police/PWD/Panchayat/ Animal husbandry/ Revenue and Customs) to prevent wildlife trade and poaching.
12.	Construction of ACF Quarters
II.	**HABITAT MANAGEMENT**
1.	Construction of new water trough
2.	Maintenance of existing water troughs
3.	Awareness hoarding boards in water trough areas
4.	Formation of mini check dams inside the forest near Human Animal conflict areas
5.	Construction of new Large Check Dams across the streams
6.	Maintenance cost for Repairing Existing older Check Dams

7.	Creation of New Percolation Ponds at suitable places
8.	Desilting maintenance of existing percolation ponds
9.	Providing Salt licks to animals near water hole areas @ Rs.20/kg
10.	Providing de-worming pellets near water hole sites
11.	Maintenance of existing watch towers Hassanur, Bannari, Talamalai
III.	**MANAGEMENT OF HUMAN ANIMAL CONFLICT**
1.	Erecting solar power fence at vulnerable places
2.	Maintenance of existing solar power fence
3.	Formation of Elephant Proof Trench in site specific vulnerable areas
4.	Maintenance of Elephant Proof Trench in each range
5.	Innovative new methods to prevent conflict issues
6.	Training and Educating the local communities on issues related to electrocution of elephants and human animal conflicts
7.	Anti depredation squad to drive away the problematic elephants from crop fields - 5 Nos. per squad
8.	Erection of Signage boards in high conflict areas
9.	Compensation for crop damage and properties including human casualities
10.	Capacity building to user groups of solar fencing
11.	Short term research studies on identifying solution for man-animal conflict
12.	Purchase of powerful search lights to chase away the elephants
13.	Expenses related to veterinary care while dealing diseased, injured and problematic elephants.
14.	Preparing cages to shift animals from problematic areas
15.	Expenditure related to postmortem of wild animals
IV.	**FIRE MANAGEMENT STRATEGY**
1.	Creation of Fire Lines
2.	Purchase of Modern Fire fighting Equipments
3.	Engaging Fire Watchers for fire season for four months: Rs 200/day - each Range - 10 Nos.
4.	Construction of Watch Towers in sensitive areas in each Range to detect fire incidences
5.	Controlled early burning system as part of management in suitable areas
6.	Training to Village Forest Council to prevent forest fire
7.	Purchase of Van for transporting fire fighting areas
8.	Printing Publicity materials about fire menace in wildlife areas
9.	Fire fighting Training to the field staff to control fire
10.	Incidental expenses during fire fighting
11.	Purchase of water tanks- 2 Nos. to extinguish the fire

V.	**CORRIDOR MANAGEMENT STRATEGY**
1.	Acquiring corridors from private owners in sensitive elephant migration areas
2.	Signage boards and other publicity materials for animal crossing areas
3.	Planting fodder species and bamboos in elephant habitats
VI.	**HABITAT MANAGEMENT PRACTICES**
1.	Removal of *Lantana camara* and *Prosopis juliflora* from wildlife habitat
2.	Maintenance of fair weather road with proper drainage
3.	Construction of cairns along the reserve forest boundary within the Sanctuary
4.	Training and Capacity building to the field staff and office staff in sanctuary management
5.	Provision for weather stations at suitable locations
6.	Removal of older Eucalyptus trees from the sanctuary plantation limits
VII.	**ECO TOURISM ACTIVITIES**
1.	Construction of Reception Centre at Bhavanisagar.
2.	Establishment of mini Library and Nature Interpretation Centre
3.	Purchase of wildlife books and periodicals
4.	Formation of game roads in Bhavanisagar range
5.	Purchase of two safari vans for Eco-tourism including maintenance
6.	Purchase of two boats for eco-tourism
7.	Hiring of tribals as guides for nature trekking
8.	Establishing nature trekking routes in each range
9.	Grant for VFC to run an eco-canteen for tourist at Bhavanisagar Range
10.	Construction of trekking sheds (tents) in each range
11.	Construction of an auditorium for screening, wildlife films for students and other communities
12.	Purchase of furniture sets for auditorium, reception centre and library
13.	Printing Publicity materials for the Sanctuary
14.	Purchase of computers, printers, LCD panels, gen set, TV for awareness campaigning in schools and villages
15.	Hiring of computer operators cum receptionist for the reception centre
16.	Construction of vehicle shed (vans and jeeps)
17.	Hiring drivers for safari vans @ Rs.200
18.	Construction of staff buildings for drivers and biologist
19.	Construction of dormitories for students and visitors (20 beds)
20.	Maintenance of existing Rest Houses
21.	Provision for tent accommodation in selected areas

VIII.	**CONSERVATION EDUCATION AND AWARENESS PROGRAMME**
1.	Publicity materials to villagers on wildlife conservation
2.	Periodical Training to local communities and other stakeholders on conservation and awareness
3.	Cultural awareness programme about wildlife conservation in the fringe villages
4.	Nature camps for schools and colleges
IX.	**ECO DEVELOPMENT ACTIVITIES**
1.	Construction of group house to tribals
2.	Drinking water facilities for tribal settlement
3.	Conducting periodical health camp for the tribal communities
4.	Supply of agriculture implements to the tribal communities
5.	Supply of fruit bearing tree saplings to tribal communities
6.	Provision for solar lamps to the settlement villages
7.	Revolving funds for the VFC for development of alternative livelihood options
8	Entry Point Activities
9.	Formation of eco development committee in fringe villages for eco-development activities
10.	Training programme and capacity building for the EDC in reducing forest dependence
11.	Development of fodder farm in tribal settlement areas
X.	**Research and monitoring**
1.	Appointment of a wildlife biologist to document biodiversity of the sanctuary
2.	Appointment of sociologist for preparing socio-economic survey reports
3.	Research documentation on species recovery programme: tigers/ four horned antelope/vultures by research institutions/NGOs
4.	Conservation of vulture in Sathyamangalam Wildlife Sanctuary
	1) Awareness creation
	2) Training programme to Forester, Veterinary Assistant and Field Staff
	3) Employing Tribal youth as Vulture trackers @ R.2,000/10 Nos. x 12 months and binocular Rs.3,000/ per No.
	4) Construction of watch towers for monitoring the Vulture colonies
	5) Safe disposal of Diclofenac contaminated carcasses 10 cases per year @ Rs.5,000/carcass
XI	**VETERINARY CARE AND MANAGEMENT**
1.	Periodical Vaccination in the fringe villages
2.	Cost of analyzing various post mortem samples from research institutions
3.	Rescue and translocation of problematic animals
4.	Training and capacity building for the veterinary staff on wildlife management
XII	**HUMAN RESOURCE DEVELOPMENT**

1.	Appointment of One Assistant Conservator of Forests
2.	Engaging wireless operator for the DFO office
3.	Periodical training for the sanctuary staff in human resource management

A tentative budgeting for the plan period has been appended. The unit cost and number of units mentioned in the budget proposal is approximate. However depending on fund availability and actual prevailing rates at the time of implementation, it may be modified.

The tentative budget for the plan period i.e. 2010-11 to 2019-20 is appended.

Chapter 12

MISCELLANEOUS REGULATIONS

12.1 RECORD OF DEVIATIONS

A book called the "Sathyamangalam wildlife Sanctuary Book" may be maintained to record the deviation proposals made and approved. This may include deviation of strategies indicated in the Plan and adoption of new strategies would have to be recorded. This would be helpful at the time of revision of the Plan.

12.2 CONTROL FORMS

Control Forms are standardised in the Forest Manual, Accounts Code and Forest Code. Standardised forms are also provided in the Annual Administrative Reports. While those already in use are recommended to be continued and number of additional forms may be maintained, depending on the requirement for keeping track of the annual progress of the strategies, and for evaluating the prescriptions, impacts and problems.

12.3 GEO-SPATIAL DATA BASE

A GIS data base of the Sanctuary must be developed which would include details like different vegetation types, administrative boundaries, other features like location of Anti-Poaching Camps, Check posts etc. This would be used for generation of beat level maps. All the field staff down to the level of anti-poaching watcher must be trained to use GPS on a daily basis. Any important event in the Sanctuary must be recorded with GPS data which could be used to update the data base whenever required and for adding other

important layers in the GIS platform.

The GIS data base coupled with GPS facility may be utilized for monitoring the movement of major animals like Tiger and Elephant. Presently, the Sanctuary does not have maps of any kind and therefore maps like administration, vegetation, watershed maps, etc., need to be developed using GIS data base.

12.4 BEAT BOOK

The system of maintaining beat book in all the beats of this sanctuary may be continued with clear instructions to maintain the same and update periodically to monitor the sustained flow and continuity of information about the area. Even if the Forest Guard is transferred due to administrative reasons, the maintenance of these registers needs to be scrupulously followed by the successors as there should not be knowledge gap. The continuation of information from one level to other not only update the information in the management system but crucial in working out periodical strategies for the best management of beats as the micro level management units.

PART – III

THE APPENDICES

APPENDIX - 1

1. NOTIFICATION OF SANCTUARY

2. SCHEDULE

S. No.	Name of the Range	Sanctuary area in (Ha)	Beats
1.	Sathyamangalam	16700.65	1. Dimbam (Full) 2. Vadavalli (Full) 3. Chickarasampalayam (Full) 4. Kondappanaicken palayam (Full) 5. Kembanaiken palayam (Full) 6. Kadambur West (Part)
2.	Bhavanisagar	14024.65	7. Thengumarahada (Full) 8. Talamalai (Part) 9. Gejalatti (Part) 10. Peerkadavu (Part) 11. Kothamangalam (Full) 12. Bannari (Part)
3.	Talavadi	8300.98	13. Palayam beat (Full 14. Belathur (Full) 15. Geddavady (Full)
4.	T.N.palayam	13408.66	16. Kadambur East (Part) 17. Vilankombai (Full) 18. Kongarpalayam (Full) 19.Kovilur (Part) 20.Bungalow pudur (Full) 21.Kananckam palayam (Full) 22.Gundri (Part)
	TOTAL	**52434.94**	

PROPOSED ZONATION BY THIS MANAGEMENT PLAN FOR THE PERIOD FROM 2010-2020

Sl. No	Name of Zone	Beats	Extent (in Ha.)
1	**Core Zone**	Beats: Geddesal (part), Dhimbam, Vadavalli (part), Bannari (part), Kothamangalam (part), Peerkadavu (part), Gejalatti (part), Talamalai (part), Thengumarahadah (part), Geddavadi, Belathur, Palayam.	27881.70
2	**Tourism Zone**	Game roads: Bhavanisagar Range, T N Palayam Range & Sathyamangalam Beats: Kothamangalam (part), Gejalatti (part), Peerkadavu (part), Thengumarahadah (part), Talamalai (part).	2500.00
3	**Buffer zone**	Beats: Bejalatti, Honnathittu, Talamalai (part), Gejalatti (part), Peerkadavu (part), Bannari (part), Chikkarasampalayam, Kondappanaickenpalayam, K.N.Palayam, Kanakkampalayam, Vilankombai, Gundri (Part), Kovilur (Part), Bungalowpudur.	22028.24
4	**Administration Zone**	DFO office, Range Offices, Rest Houses, Staff Quarters, Nursery	25.00
5	**Zone of influence**	The list of villages within 5 kms radius from the boundary of the reserve forests. Annexure - IV enclosed	N.A

APPENDIX - 2

WATER SOURCES IN THE SANCTUARY AND ADJOINING RESERVE

Dams/Perennial Streams	Major Streams	Minor Streams	Pond	Artificial wells	Bore wells
River Bhavani	Palar	Doddakombai pallam	Badagalli kuttai	Doddakombai	Bannari
River Moyar	Perumpalla	Karuvanrayan pallam	Desanthira kuttai	Chettikuttai	Ecological Farms
Bhavanisagar Dam	Swarnavathi	Kodampalli pallam	Asagan Kuttai	Karuvanrayan temple	Karidoddam palayam
Gunderipallayam	Halibidha Halla	Kadapparaipallam	Malla goundan kuttai	Bengapatti	
Perumpallam		Balapaduga hallah	Doddamudugarai kuttai	Navakinaru	
		Gunderipallam	Mavanatham kuttai	Kaduvai kinaru	
		Adalthipallam	Alamalai Kuttai	Vellimalai Kinaru	
		Sakkaraipallam	Kakkarai Kuttai		
		Thattapallam	Bengapathi Kuttai		
		Vedaparaipallam	Lakkadar Kuttai		
			Chatrakarai Kuttai		
			Alamarathu Kuttai		
			Kumbeswara Kuttai		
			Ammalakarai Kuttai		
			Joganalla Kuttai		
			Thavara Karai Kuttai		
			Bison Kuttai		
			Periya Kuttai		
			Siddeswaran Kuttai		
			Jorai Kuttai		
			Kemparai Kuttai		
			Palakaradu Kuttai		
			Kathirikombai Kuttai		
			Lakkepallam kuttai		
			Kumari maduvu		
			Guthiyalathur Kuttai		

APPENDIX - 3

LIST OF COMMON MAMMALS FOUND IN SATHYAMANGALAM WILDLIFE SANCTUARY

Sl. No.	Common Name	Scientific
1.	Bonnet macaque	*Macaca radiate*
2.	Common or Hanuman langur	*Semnopithecus entellus*
3.	Slender Loris	*Loris tardigradus*
4.	Tiger	*Panthera tigris*
5.	Leopard or panther	*Panthera pardus*
6.	Leopard cat	*Felis bengalensis*
7.	Fishing cat	*Felis viverrina*
8.	Jungle cat	*Felis chaus*
9.	Small Indian Civet	*Viverrricula india*
10.	Common palm civet or toddy cat	*Paradoxurus hermaphroditus*
11.	Common mongoose	*Herpestes edwardsi*
12.	Stripe necked mongoose	*Herpestes vitticollis*
13.	Smooth coated otter	*Lutra perspicillata*
14.	Striped hyena	*Hyaena hyaena*
15.	Jackal	*Canis aureus*
16.	wild dog or dhole	*Cuon alpinus dukhunensis*
17.	Sloth bear	*Melursus ursinus*
18.	Malabar Giant squirrel	*Ratufa indica*
19.	Three striped Palm squirrel	*Funambulus palmarum*
20.	Field mouse	*Mus boduga*
21.	Indian bush rat	*Golunda elliotti*

22.	Common house rat	*Rattus rattus*
23.	Bandicoot rat	*Bandicota indica*
24.	House mouse	*Mus musculus*
25.	Indian porcupine	*Hysteris indica*
26.	Black naped hare	*Lepus nigricollis nigricollis*
27.	Asian elephant	*Elephus maximus*
28.	Gaur	*Bos gaurus*
29.	Four horned antelope or Chowsingha	*Tetracerus quadricornis*
30.	Blackbuck	*Antilope cervicapra*
31.	Sambar	*Cervus unicolor*
32.	Chital or spotted deer	*Axis axis*
33.	Muntjak or barking deer	*Muntiacus muntjak*
34.	Indian chevrotain or mouse-deer	*Tragulus meminna*
35.	Wild boar	*Sus scrofa*
36.	Indian pangolin	*Manis crassicaudata*

APPENDIX - 4

CHECKLIST OF AVIFAUNA

Sl. No.	Common Name
1.	Little Grebe
2.	Spot Billed Pelican
3.	Little Cormorant
4.	Indian Shag
5.	Great Cormorant
6.	Darter
7.	Little Egret
8.	Grey Heron
9.	Purple Heron
10	Large Egret
11.	Median Egret
12.	Cattle Egret
13.	Indian Pond Heron
14.	Black-Crowned Night Heron
15.	Painted Stork
16.	Asian Open Billed Stork
17.	Glossy Ibis
18.	Oriental white Ibis
19.	Lesser Whistilling Duck
20.	Spot Bill Duck
21.	Northern Pintall
22.	Garganey Teal
23.	Oriental Honey Buzzard
24.	Black Shouldered Kite
25.	Black Kite
26.	Brahminy Kite
27.	Lesser Grey Headed fish Eagle
28.	Indian White Backed Vulture
29.	Indian Long billed Vulture
30.	Short Toed snake eagle
31.	Crecent Serpent Eagle
32.	Shikra
33.	White Eyed Buzzard
34.	Long Legged Buzzard
35.	Black Eagle

36.	Lesser Spotted Eagle
37.	Bonnelli's Eagle
38.	Booted Eagle
39.	Changeable Hawk Eagle
40.	Pale Harrier
41.	Lesser Kestrel
42.	Common Kestrel
43.	Amur Falcon
44.	Grey Francolin
45.	Jungle Bush Quail
46.	Red spurflowl
47.	Grey Jungle fowl
48.	Indian Pea fowl
49.	Yellow Legged Button Quail
50.	Blue Breasted rail
51.	White Breasted water Hen
52.	Purple Moorhen
53.	Kentish Plover
54.	Yellow weatled Lapwing
55.	Red waetled Lapwing
56.	Green Sandpiper
57.	Marsh Sandpiper
58.	Green Shank
59.	Wood Sandpiper
60.	Common Sand piper
61.	River Tern
62.	Painted Sandgrouse
63.	Blue rock pigeon
64.	Little Brown Dove
65.	Spotted Dove
66.	Eurasinan Collared Dove
67.	Emerald Dove
68.	Pompadour Green Pigeon
69.	Yellow Legged Green Pigeon
70.	Pied imperial pigeon
71.	Green Imperial Pigeon
72.	Hanging Indian parrot
73.	Rose ringed parakeet
74.	Plum Headed Parakeet
75.	Blue winged parakeet

76.	Pied Crested Cuckoo
77.	Brain Fever Bird
78.	Indian Plaintive Cuckoo
79.	Drongo Cuckoo
80.	Asian Koel
81.	Small green billed malkoha
82.	Sirkeer malkoha
83.	Greater Coucal
84.	Brown fish owl
85.	Asian barred owlet
86.	Spotted Owlet
87.	Indian Jungle nightjar
88.	Common Indian nightjar
89.	White rumped needle tail swift
90.	Asian plam swift
91.	House swift
92.	Crested tree swift
93.	Small Blue Kingfisher
94.	Stork billed kingfisher
95.	White Breasted Kingfisher
96.	Lesser pied Kingfisher
97.	Blue Bearded Beeeater
98.	Small bee-eater
99.	Blue tailed bee eater
100.	Chestnut headed bee eater
101.	Indian roller
102.	Common hoopoe
103.	Indian grey Horn bill
104.	Brown Headed Barbet
105.	White checked barbet
106.	Crimson throated barbet
107.	Coppersmith Barbet
108.	Small yellow naped woodpecker
109.	Lesser Golden backed woodpecker
110.	Great Golden backed woodpecker
111.	Yellow Fronted pied woodpecker
112.	Rufuous Woodpecker
113.	Heart spotted woodspecker
114.	Indian pitta
115.	Singing Bushlark

116.	Red winged Bushlark
117.	Ashy crowned sparrowlark
118.	Dusky crag martin
119.	Common swallow
120.	Red Rumped swallow
121.	Forest wagtail
122.	White wagtail
123.	Large pied wagtail
124.	Grey wagtail
125.	Paddy field pipit
126.	Large Cuckoo shrike
127.	Black Headed Cuckoo Shrike
128.	Small minivet
129.	Scarlet minivet
130.	Pied Flycatcher shrike
131.	Red whiskered Bulbul
132.	Red Vented Bulbul
133.	White browed Bulbul
134.	Yellow Browned Bulbul
135.	Black bulbul
136.	Common lora
137.	Gold Fronted Chioropsis
138.	Common Wood Shrike
139.	Brown Shrike
140.	Bayback Shrike
141.	Rufous Back Shrike
142.	Southern Grey Shrike
143.	Malabar whistilling thrush
144.	Orange headed Thrush
145.	Eurasian Blackbird
146.	Oriental Magpie Robin
147.	White Rumped Shama
148.	Indian robin
149.	Pied Bushchat
150.	Spotted Babbler
151.	Indian scimitar babbler
152.	Large Grey Babbler
153.	Jungle Babbler
154.	White Headed Babbler
155.	Jungle prinia

156.	Ashy prinia
157.	Plain Prinia
158.	Great reed Warbler
159.	Paddy field warbler
160.	Blyth's reed warbler
161.	BootedWarbler
162.	Common Tailor Bird
163.	Greenish Leaf Warbler
164.	Large billed leaf Warbler
165.	Common Lesser whitethroat
166.	Orphiean Warbler
167.	Asian Brown Flycatcher
168.	Brown Breasted Flycatcher
169.	Verditer Blue Flycatcher
170.	Tickell's Blue Flycatcher
171.	Asian paradise Flycatcher
172.	Black Naped monarch Flycatcher
173.	White browned fantail flycatcher
174.	White Throated fantail flycatcher
175.	Great tit
176.	Chestnut bellied Nuthatch
177.	Velvet Fronted Nuthatch
178.	Thick billed flower pecker
179.	Tickell's Flowerpecker
180.	Plain Flowerpecker
181.	Purple Rumped Sunbird
182.	Purple Sunbird
183.	Loten's Sunbird
184.	Small Sunbird
185.	Littel Spiderhunter
186.	Oriental white eye
187.	Common rosefinch
188.	White Throated Munnia
189.	Spotted Munnia
190.	Black Headed Munnia
191.	House Sparrow
192.	Yellow Throated sparrow
193.	Brahminy starling
194.	Rosy starling
195.	Common Myna

196.	Jungle Myna
197.	Eurasian Golden Oriole
198.	Black Headed oriole
199.	Black Drongo
200.	Ashy Drongo
201.	White Bellied Drongo
202.	Bronzed Drongo
203.	Lesser racket tailed Drongo
204.	Ashy wood Swallow
205.	Indian Tree Pie
206.	House Crow
207.	Jungle Crow

APPENDIX - 5

BUTTERFLIES RECORDED IN THE SATHYAMANGALAM WIDLIFE SANCTUARY

Sl. No.	Common Name	Zoological name	Family
1.	Tawny Coster	*Acraea violae*	Nymphalidae
2.	Dark Blue Tiger	*Tirumala septentrionis*	Nymphalidae
3.	Plain Tiger	*Danaus chrysippus*	Nymphalidae
4.	Common Crow*	*Euploea core*	Nymphalidae
5.	Glassy Blue tiger	*Parantica aglea*	Nymphalidae
6.	Striped Tiger	*Danaus genutia*	Nymphalidae
7.	Common Fourring	*Ypthima heubneri*	Nymphalidae
8.	Nilgiri Fourring	*Ypthima chenui*	Nymphalidae
9.	Rustic	*Cupha erymanthis*	Nymphalidae
10.	Chocolate Pancy*	*Precis iphita*	Nymphalidae
11.	Danaid Eggfly	*Hypolimnas misippus*	Nymphalidae
12.	Lemon Pansy	*Junonia lemonias*	Nymphalidae
13.	Common Sailer	*Neptis hylas*	Nymphalidae
14.	Common leopard*	*Phalanta phalantha*	Nymphalidae
15.	Blue Pansy	*Junonia orithiya*	Nymphalidae
16.	Yellow Pansy	*Junonia hierta*	Nymphalidae
17.	Common Lascar	*Pantoporia hordonia*	Nymphalidae
18.	Common Caster	*Ariadne ariadne*	Nymphalidae
19.	Angled Caster	*Ariadne ariadne*	Nymphalidae
20.	Common Evening Brown	*Melanites leda*	Nymphalidae
21.	Common Nawab	*Polyura athamas*	Nymphalidae
22.	Common Tree brown	*lethe rohria*	Nymphalidae
23.	Red-Disc Bush brown	*Mycalesis oculus*	Nymphalidae
24.	Nigger	*Orsotrioena medus*	Nymphalidae
25.	Common Fourring	*Ypthima huebneri*	Nymphalidae
26.	Common Sergeant	*Athyma perius*	Nymphalidae
27.	Common Baron	*Euthalia aconthea*	Nymphalidae
28.	Joker	*Byblia ilithyia*	Nymphalidae

29.	Grey Pansy	*Junonia atlites*	Nymphalidae
30.	Peacock Pansy	*Junonia almana*	Nymphalidae
31.	Great Eggfly	*Hypolimnas bolina*	Nymphalidae
32.	Common Bushbrown	*Mycalesis perseus*	Nymphalidae
33.	Common Five-ring	*Ypthima baldus*	Nymphalidae
34.	White Four-ring	*Ypthima ceylonica*	Nymphalidae
35.	Club Beak*	*Libythea myrrha*	Nymphalidae
36.	Transparent 6-Lineblue	*Nacaduba kurava*	Lycaenidae
37.	Lime Blue	*Chilades lajus*	Lycaenidae
38.	Pea Blue	*Lampides boeticus*	Lycaenidae
39.	Common Cerulean	*Jamides celeno*	Lycaenidae
40.	Banded Blue Pierrot*	*Discolampa ethion*	Lycaenidae
41.	Common Silverline	*Spindasis vlucanus*	Lycaenidae
42.	Slate Flash	*Rapala manea*	Lycaenidae
43.	Indian Red Flash	*Rapala iarbus*	Lycaenidae
44.	Plum Judy	*Abisara echerius*	Lycaenidae
45.	Monkey Puzzle	*Rathinda amor*	Lycaenidae
46.	Yam Fly	*Loxura atymnus*	Lycaenidae
47.	Common Pierrot	*Castalius rosimon*	Lycaenidae
48.	Red Pierrot	*Talicada nyseus*	Lycaenidae
49.	Silverstreak Blue	*Iraota timoleon*	Lycaenidae
50.	Common Blue Bottle*	*Graphium sarpedon*	Papilionidae
51.	Common Banded Peacok	*Papilio buddha*	Papilionidae
52.	Common rose	*Pachliopta hector*	Papilionidae
53.	Tailed Jay	*Graphium Agamemnon*	Papilionidae
54.	Crimson Rose	*Pachliopta hector*	Papilionidae
55.	Common Mormon*	*Papilio polytes*	Papilionidae
56.	Red Helen*	*Papilio helenus*	Papilionidae
57.	Blue Mormon*	*Papilio polymnestor*	Papilionidae
58.	Lime Butterfly*	*Papilio demoleus*	Papilionidae

59.	Southern Birdwing	*Troides minos*	Papilionidae
60.	Small orange Tip	*Colotis etrida*	Pieridae
61.	Common Gull	*Cepora nerissa*	Pieridae
62.	Large Salmon Arab	*Colotis fausta*	Pieridae
63.	Small Salmon Arab	*Colotis amata*	Pieridae
64.	Common Wandere	*Peroronia valeria*	Pieridae
65.	White Orange Tip	*Ixias marianne*	Pieridae
66.	Common Jezebel	*Delias eucharis*	Pieridae
67.	Common Grass Yellow	*Eurema hecabe*	Pieridae
68.	Three Spot Grass Yellow*	*Eurema blanda*	Pieridae
69.	Crimson Tip	*Colotis danae*	Pieridae
70.	Pioneer*	*Anaphaeis aurota*	Pieridae
71.	Yellow Orange Tip	*Ixias pyrene*	Pieridae
72.	Lemon Emigrant	*Catopsilia crocale*	Pieridae
73.	Great Orange Tip*	*Hebomia glaucippe*	Pieridae
74.	Common Emigrant*	*Catopsillia pomona*	Pieridae
75.	Golden Angle	*Caprona ransonnetti*	*Hesperiidae*
76.	Chestnut Bob	*Iambrix salsala*	*Hesperiidae*
77.	Paintbrush Swift	*Baoris farri*	*Hesperiidae*
78.	Brown Awl	*Badamia exclamationis*	*Hesperiidae*
79.	Malabar Spotted Flat	*Calaenorrhinus ambareesa*	*Hesperiidae*
80.	Common Banded Awl	*Hasora chromus*	*Hesperiidae*
81.	Indian Skipper	*Spialia galba*	*Hesperiidae*
82.	Common Dartlet	*Oriens goloides*	*Hesperiidae*
83.	Tamil Grass Dart	*Taractrocera ceramas*	*Hesperiidae*
84.	Small Banded Swift	*Pelopidas mathias*	*Hesperiidae*
85.	Rice Swift	*Borbo chinnara*	*Hesperiidae*
86.	Unidentified	-	

APPENDIX - 6

TREE SPECIES FOUND IN THE SANCTUARY

Sl. No.	Name of the species	Family
1.	*Acacia auriculiformits*	Mimosaceae
2.	*Acacia chundra*	Mimosaceae
3.	*Acacia ferruginea*	Mimosaceae
4.	*Acacia intsia*	Mimosaceae
5.	*Acacia leucophloea*	Mimosaceae
6.	*Acacia polyantha*	Mimosaceae
7.	*Acacia sundra*	Mimosaceae
8.	*Actinodaphne angustifolia**	Lauraceae
9.	*Aglaia elaeagnoidea*	Meliaceae
10.	*Ailanthus excels*	Simaroubaceae
11.	*Albizia amara*	Mimosaceae
12.	*Albizia lebbeck*	Mimosaceae
13.	*Albizia odoratissima*	Mimosaceae
14.	*Allophylus serratus**	Sapindaceae
15.	*Alstonia scholaris*	Apocynaceae
16.	*Anacardium occidentale*	Anacardiaceae
17.	*Anogeissus latifolia*	Combretaceae
18.	*Anthocephalus chinensis*	Rubiaceae
19.	*Antidesma acidum*	Euphorbiaceae
20.	*Antidesma diandrum*	Euphorbiaceae
21.	*Antidesma menasu*	Euphorbiaceae
22.	*Antidesma Montana*	Euphorbiaceae
23.	*Aphanamixis polystachya*	Meliaceae
24.	*Ardisia solanacea*	Myrsinaceae
25.	*Artocarpus gomezianus*	Moraceae
26.	*Artocarpus heterophyllus*	Moraceae
27.	*Atlantia monophylla*	Rutaceae
28.	*Atlantia racemosa*	Rutaceae
29.	*Azadirachta indica*	Meliaceae
30.	*Bauhinia malabarica*	Fabaceae
31.	*Bauhinia racemosa*	Fabaceae
32.	*Bischofia javanica*	Euphorbiaceae

33.	*Bombax malabaricum*	Bombacaceae
34.	*Boswellia serrata*	Burseraceae
35.	*Bridelia retusa**	Euphorbiaceae
36.	*Buchanania lanzan*	Anacardiaceae
37.	*Butea monosperma*	Fabaceae
38.	*Callicarpa tomentosa*	Verbenaceae
39.	*Canthium dicoccum*	Rubiaceae
40.	*Careya arborea*	Lecythidaceae
41.	*Casearia esculenta*	Flacourtiaceae
42.	*Cassia fistula*	Fabaceae
43.	*Cassia siamea*	Fabaceae
44.	*Cassine glauca*	Celastraceae
45.	*Cassine paniculata*	Celastraceae
46.	*Casuarina equisetifolia*	Casuarinaceae
47.	*Casuarina litorea*	Casuarinaceae
48.	*Catunaregam candolleana*	Rubiaceae
49.	*Catunaregam spinosa*	Rubiaceae
50.	*Ceiba pentandra*	Bombacaceae
51.	*Celtis tetrandra*	Ulmaceae
52.	*Celtis timorensis*	Ulmaceae
53.	*Chinonanthus mala-elengi**	Oleaceae
54.	*Chloroxylon swietenia*	Rutaceae
55.	*Chonemorpha fragrans*	Apocynaceae
56.	*Chukrasia tabularis*	Meliaceae
57.	*Cinnamomum malabatrum*	Lauraceae
58.	*Clausena indica*	Rutaceae
59.	*Commiphora berryi*	Burseraceae
60.	*Commiphora caudate*	Burseraceae
61.	*Cordia oblique*	Boraginaceae
62.	*Cordia wallichii*	Boraginaceae
63.	*Croton oblongifolius*	Euphorbiaceae
64.	*Dalbergia lanceolaria*	Fabaceae
65.	*Dalbergia latifolia*	Fabaceae
66.	*Dalbergia laxiflorum*	Fabaceae
67.	*Dalbergia paniculata*	Fabaceae
68.	*Delonix regia*	Fabaceae

69.	*Dichrostachys cinerea*	Mimosaceae
70.	*Diospyros assimilis*	Ebenaceae
71.	*Diospyros ebenum*	Ebenaceae
72.	*Diospyros malabarica**	Ebenaceae
73.	*Diospyros Montana*	Ebenaceae
74.	*Diospyros peregrine*	Ebenaceae
75.	*Dolichandrone falcate*	Bignoniaceae
76.	*Drypetes roxburghii*	Euphorbiaceae
77.	*Elaeocarpus tuberculatus*	Elaeocarpaceae
78.	*Eriolaena quinquelocularis*	Sterculaceae
79.	*Erythrina indica*	Fabaceae
80.	*Erythrina suberosa*	Fabaceae
81.	*Erythrina variegate*	Fabaceae
82.	*Erythroxylum monogynum*	Erythroxylaceae
83.	*Eucalyptus globules*	Myrtaceae
84.	*Euphorbia nivulia*	Euphorbiaceae
85.	*Euodia lunu-ankenda*	Rutacaeae
86.	*Feronia elephantum*	Rutacaeae
87.	*Ficus benghalensis*	Moraceae
88.	*Ficus drupacea*	Moraceae
89.	*Ficus hispida*	Moraceae
90.	*Ficus microcarpa*	Moraceae
91.	*Ficus mollis*	Moraceae
92.	*Ficus racemosa*	Moraceae
93.	*Ficus religiosa*	Moraceae
94.	*Ficus tsjakela*	Moraceae
95.	*Ficus virens*	Moraceae
96.	*Filicium decipiens*	Sapindaceae
97.	*Flacourtia indica*	Flacourtiaceae
98.	*Garcinia gummi-gutta*	Clusiaceae
99.	*Gardenia gummifera*	Rubiaceae
100.	*Garuga pinnata*	Burseraceae
101.	*Givotia rottleriformis*	Euphorbiaceae
102.	*Glochidion velutinum**	Euphorbiaceae
103.	*Glochidion zeylanicum*	Euphorbiaceae
104.	*Gmelina arborea*	Verbenaceae

105.	*Grevillea robusta*	Proteaceae
106.	*Grewia orbiculata*	Tiliaceae
107.	*Grewia tiliifolia*	Tiliaceae
108.	*Gyrocarpus americanus*	Hernandiaceae
109.	*Hedyotis corymbosa*	Rubiaceae
110.	*Holoptelea integrifolia*	Ulmaceae
111.	*Hymenodictyon orixense**	Rubiaceae
112.	*Ilex malabarica**	Aquifoliaceae
113.	*Ixora arborea*	Rubiaceae
114.	*Jacaranda mimosifolia*	Bignoniaceae
115.	*Kydia calycina*	Malvaceae
116.	*Lagerstroemia microcarpa*	Lythraceae
117.	*Lagerstroemia parviflora*	Lythraceae
118.	*Launea coromandelica*	Anacardiaceae
119.	*Ligustrum perrottetii**	Oleaceae
120.	*Litsea deccanensis*	Lauraceae
121.	*Litseamysorensis*	Lauraceae
122.	*Madhuca longifolia*	Sapotaceae
123.	*Mallotus intermedius**	Euphorbiaceae
124.	*Mallotus philippensis*	Euphorbiaceae
125.	*Mallotus tetracoccus*	Euphorbiaceae
126.	*Mangifera indica*	Anacardiaceae
127.	*Manilkara roxburghiana*	Sapotaceae
128.	*Marsdenia brunoniana**	Asclepiadaceae
129.	*Maytenus heyneana*	Celastraceae
130.	*Melia dubia*	Meliaceae
131.	*Meliosma simplicifolia*	Sabiaceae
132.	*Memecylon umbellatum*	Melastomataceae
133.	*Mimusops elengi*	Sapotaceae
134.	*Mitragyna parvifolia*	Rubiaceae
135.	*Morinda coreia*	Rubiaceae
136.	*Moringa concanensis*	Moringaceae
137.	*Moringa oleifera*	Moringaceae
138.	*Naringi crenulatta*	Rutacaeae
139.	*Nerium indicum*	Apocynaceae
140.	*Olea dioica*	Oleaceae

141.	*Olea glandulifera*	Oleaceae
142.	*Ougeinia oojeinensis*	Fabaceae
143.	*Persea macrantha*	Lauraceae
144.	*Phyllanthus emblica*	Euphorbiaceae
145.	*Pittosporum floribundum*	Pittosporaceae
146.	*Pleurostylia opposita**	Celastraceae
147.	*Plumeria alba*	Apocynaceae
148.	*Plumeria rubra*	Apocynaceae
149.	*Pongamia pinnata*	Fabaceae
150.	*Premna tomentosa*	Verbenaceae
151.	*Psidium guajava*	Myrtaceae
152.	*Pterocarpus marsupium*	Fabaceae
153.	*Radermachera xylocarpa*	Bignoniaceae
154.	*Randia malabarica*	Rubiaceae
155.	*Ricinus communis*	Euphorbiaceae
156.	*Salix tetrasperma*	Salicaceae
157.	*Santalum album*	Santalaceae
158.	*Sapindus emarginatus*	Sapindaceae
159.	*Sapindus laurifolius*	Sapindaceae
160.	*Schleichera oleosa*	Sapindaceae
161.	*Schrebera swietenioides*	Oleaceae
162.	*Scolopia crenata*	Flacourtiaceae
163.	*Shorea roxburghii**	Dipterocarpaceae
164.	*Soymida febrifuga*	Meliaceae
165.	*Spathodea campanulata*	Bignoniaceae
166.	*Sterculia urens*	Sterculiaceae
167.	*Sterculia villosa*	Sterculiaceae
168.	*Stereospermum angustifolium*	Bignoniaceae
169.	*Stereospermum colais*	Bignoniaceae
170.	*Strychnos potatorum*	Longaniaceae
171.	*Syzygium cumini*	Myrtaceae
172.	*Tamarindus indica*	Fabaceae
173.	*Tecoma stans*	Bignoniaceae
174.	*Tectona grandis*	Verbenaceae
175.	*Terminalia arjuna*	Combretaceae
176.	*Terminalia bellirica*	Combretaceae

177.	*Terminalia chebula*	Combretaceae
178.	*Terminalia crenualata*	Combretaceae
179.	*Thevetia peruviana*	Apocynaceae
180.	*Toona cliate*	Meliaceae
181.	*Trema oreientalis*	Ulmaceae
182.	*Trewia nudiflora*	Euphorbiaceae
183.	*Viburnum punctatum*	Caprifoliaceae
184.	*Vitex altissima*	Verbenaceae
185.	*Vitex leucoxylon*	Verbenaceae
186.	*Vitex peduncularis*	Verbenaceae
187.	*Wrightia tinctoria*	Apocynaceae
188.	*Ziziphus mauritiana*	Rhamnaceae
189.	*Ziziphus xylopyrus*	Rhamnaceae
*Endemic to the study area		

APPENDIX - 7

SHRUB SPECIES FOUND IN THE SANCTUARY

Sl. No.	Name of the species	Family
1.	*Abutilon crispum*	Malvaceae
2.	*Acacia pennata*	Mimosaceae
3.	*Acalypha fruticosa*	Euphorbiaceae
4.	*Acalypha indica*	Euphorbiaceae
5.	*Acalypha paniculata*	Euphorbiaceae
6.	*Allophylus cobbe**	Sapindaceae
7.	*Ampelocissus araneosa**	Vitaceae
8.	*Anisomeles indica*	Lamiaceae
9.	*Argyreia cuneata*	Convolvulaceae
10.	*Argyreia elliptica*	Convolvulaceae
11.	*Arygyreia pomacea*	Convolvulaceae
12.	*Arygyreia strigosa*	Convolvulaceae
13.	*Artanema longifolia*	Scrophulariaceae
14.	*Artemisia vulgaris*	Asteraceae
15.	*Asparagus racemosus*	Liliaceae
16.	*Asystasia chelonoides var. quinquangularis*	Acanthaceae
17.	*Barleria buxifolia*	Acanthaceae
18.	*Barleria infundibuliformis*	Acanthaceae
19.	*Barleria mysorensis**	Acanthaceae
20.	*Barliera prionitis*	Acanthaceae
21.	*Caesalpinia mimosoides*	Fabaceae
22.	*Cansjera rheedii*	Opiliaceae
23.	*Canthium parviflorum*	Rubiaceae
24.	*Capparis grandiflora**	Capparaceae
25.	*Capparis sepiaria*	Capparaceae
26.	*Capparis zeylanica*	Capparaceae
27.	*Carissa carandas*	Apocynaceae
28.	*Celastrus paniculatus*	Celastraceae
29.	*Chromolaena odorata*	Asteraceae
30.	*Cipadessa baccifera*	Meliaceae
31.	*Cissus discolour*	Vitaceae
32.	*Cissus gigantean*	Vitaceae
33.	*Cissus glauca*	Vitaceae
34.	*Cissus pallid*	Vitaceae
35.	*Cissus quadrangularis*	Vitaceae

36.	*Clerodendrum serratum*	Verbenaceae
37.	*Clerodendrum viscosum*	Verbenaceae
38.	*Coccinia grandis*	Cucurbitaceae
39.	*Combretum albidum*	Combretaceae
40.	*Costus speciosus*	Costaceae
41.	*Crossandra infundibuliformis*	Acanthaceae
42.	*Crotalaria verrucosa*	Fabaceae
43.	*Crotalaria walker**	Fabaceae
44.	*Crotalaria willdenowiana*	Fabaceae
45.	*Croton bonplandianum*	Euphorbiaceae
46.	*Cryptolepis buchananii*	Periplocaceae
47.	*Datura metel*	Solanaceae
48.	*Datura stramonium*	Solanaceae
49.	*Decaschistia crotonifolia**	Malvaceae
50.	*Dendrophthoe falcate*	Loranthaceae
51.	*Dendrophthoe trigona*	Loranthaceae
52.	*Desmodium ferrugineum*	Fabaceae
53.	*Desmodium heterocarpon*	Fabaceae
54.	*Desmodium laxiflorum*	Fabaceae
55.	*Desmodium pulchellum*	Fabaceae
56.	*Desmodium triangulare*	Fabaceae
57.	*Desmodium velutinum*	Fabaceae
58.	*Dioscorea bulbifera*	Dioscoreaceae
59.	*Dioscorea oppositifolia*	Dioscoreaceae
60.	*Dioscorea pentaphylla*	Dioscoreaceae
61.	*Dioscorea tomentosa*	Dioscoreaceae
62.	*Dracaena terniflora*	Liliaceae
63.	*Ehretia ovalifolia*	Boraginaceae
64.	*Embelia tsjeriam-cottam*	Myrsinaceae
65.	*Flemingia macrophylla*	Fabaceae
66.	*Flemingia strobilifera*	Fabaceae
67.	*Fluggea leucopyrus*	Euphorbiaceae

68.	*Furcracea foetida*	Agavaceae
69.	*Gardenia resinifera*	Rubiaceae
70.	*Gliricidia sepium*	Fabaceae
71.	*Gloriosa superba*	Liliaceae
72.	*Gmelina asiatica*	Verbenaceae
73.	*Gomphostemma heyneanum*	Lamiaceae
74.	*Grewia abutilifolia*	Tiliaceae
75.	*Grewia hirsute*	Tiliaceae
76.	*Grewia rhamnifolia*	Tiliaceae
77.	*Grewia villosa*	Tiliaceae
78.	*Gymnema sylvestre*	Asclepiadaceae
79.	*Gynura nitida**	Asteraceae
80.	*Helicteres isora*	Sterculiaceae
81.	*Hemidesmus indicus*	Periplocaceae
82.	*Hibiscus lobatus*	Malvaceae
83.	*Hiptage benghalensis*	Malpighiaceae
84.	*Holostemma ada-kodien*	Asclepiadaceae
85.	*Homonia riparia*	Euphorbiaceae
86.	*Indigofera cassiodes*	Fabaceae
87.	*Indigofera mysorensis*	Fabaceae
88.	*Indigofera parviflora*	Fabaceae
89.	*Indigofera trita*	Fabaceae
90.	*Ipomoea alba*	Convolvulaceae
91.	*Ipomoea hederifolia*	Convolvulaceae
92.	*Ipomoea sepiaria*	Convolvulaceae
93.	*Ipomoea staphylina*	Convolvulaceae
94.	*Ipomoea staphylina*	Convolvulaceae
95.	*Ipomoea turbinate*	Convolvulaceae
96.	*Ixora nigricans**	Rubiaceae
97.	*Jasminum auriculatum*	Oleaceae
98.	*Jasminum cuspidatum*	Oleaceae
99.	*Jasminum malabaricum**	Oleaceae
100.	*Jasminum ritchiei*	Oleaceae
101.	*Jatropha heynei*	Euphorbiaceae
102.	*Justicia betonica*	Acanthaceae

103.	*Kirganelia reticulate*	Euphorbiaceae
104.	*Kyllinga melanosperma*	Cyperaceae
105.	*Lantana camara*	Verbenaceae
106.	*Lantana indica*	Verbenaceae
107.	*Lantana wightiana*	Verbenaceae
108.	*Leea asiatica*	Leeaceae
109.	*Leucas aspera*	Lamiaceae
110.	*Leucas hirta*	Lamiaceae
111.	*Leucas martinicensis*	Lamiaceae
112.	*Lobelia nicotianifolia*	Lobeliaceae
113.	*Ludwigia hyssopifolia*	Onagraceae
114.	*Ludwigia peruviana*	Onagraceae
115.	*Macrosolen capitellatus*	Loranthaceae
116.	*Macrosolen parasiticus*	Loranthaceae
117.	*Malvastrum coromandelianum*	Malvaceae
118.	*Maytenus emarginatus*	Celastraceae
119.	*Memecylon gracile**	Melastomataceae
120.	*Naravelia zeylanica*	Ranunculaceae
121.	*Nerium oleander*	Apocynaceae
122.	*Nilgirianthus heyneanus**	Acanthaceae
123.	*Nilgirianthus perrottetianus**	Acanthaceae
124.	*Ocimum gratissimum*	Lamiaceae
125.	*Olax scandens*	Olacaceae
126.	*Ophiorrhiza mungos*	Rubiaceae
127.	*Opilia amentacea*	Opiliaceae
128.	*Opuntia dillenii*	Cactaceae
129.	*Orthosiphon thymiflorus*	Lamiaceae
130.	*Orthosiphon wynaadensis**	Melastomataceae
131.	*Parthenium hysterophorus*	Asteraceae
132.	*Passiflora subpeltata*	Passifloraceae
133.	*Pavetta indica*	Rubiaceae
134.	*Pavonia zeylanica*	Malvaceae
135.	*Pergularia daemia*	Asclepiadaceae
136.	*Phyllanthus pinnatus*	Euphorbiaceae
137.	*Plumbago zeylanica*	Plumbaginaceae
138.	*Pogostemon paniculatus*	Lamiaceae
139.	*Polygonum chinense*	Polygonaceae
140.	*Pouzolzia auriculata*	Urticaceae

141.	*Pterolobium hexapetalum*	Fabaceae
142.	*Pupalia lappacea*	Amaranthaceae
143.	*Rauvolfia serpentine*	Apocynaceae
144.	*Rhus mysorensis*	Anacardiaceae
145.	*Rhynchosia hirta*	Fabaceae
146.	*Rivea hypocrateriformis*	Convolvulaceae
147.	*Rubia cordifolia*	Rubiaceae
148.	*Rungia plicata*	Acanthaceae
149.	*Salvia coccinea*	Lamiaceae
150.	*Sarcostemma brunonianum**	Asclepiadaceae
151.	*Scirpus sp.*	Cyperaceae
152.	*Scurrula cordifolia*	Loranthaceae
153.	*Scurrula parasitica*	Loranthaceae
154.	*Scutia myrtina*	Rhamnaceae
155.	*Secamone emetica*	Asclepiadaceae
156.	*Senecio zeylanicus*	Asteraceae
157.	*Senna auriculata*	Caesalpiniaceae
158.	*Sida acuta*	Malvaceae
159.	*Sida cordifolia*	Malvaceae
160.	*Sida glutinosa*	Malvaceae
161.	*Sida rhombifolia*	Malvaceae
162.	*Smilax perfoliata*	Smilacaceae
163.	*Solanum erianthum*	Solanaceae
164.	*Solanum giganteum*	Solanaceae
165.	*Solanum indicum*	Solanaceae
166.	*Solanum melongena*	Solanaceae
167.	*Solanum torvum*	Solanaceae
168.	*Solanum viarum*	Solanaceae
169.	*Solanum violaceum*	Solanaceae
170.	*Sophora glauca*	Fabaceae
171.	*Tarenna asiatica*	Rubiaceae
172.	*Taxillus cuneatus**	Loranthaceae
173.	*Taxillus tomentosus*	Loranthaceae
174.	*Tephrosia purpurea*	Fabaceae
175.	*Tephrosia tinctoria*	Fabaceae
176.	*Thespesia lampas*	Malvaceae
177.	*Thunbergia alata*	Acanthaceae
178.	*Thunbergia fragrans*	Acanthaceae

179.	*Tinospora cordifolia*	Menispermaceae
180.	*Toddalia asiatica*	Rutacaeae
181.	*Tragia involucrate*	Euphorbiaceae
182.	*Trichosanthes tricuspidata*	Cucurbitaceae
183.	*Triumfetta rhomboidea*	Tiliaceae
184.	*Tylophora indica*	Asclepiadaceae
185.	*Tylophora pauciflora**	Asclepiadaceae
186.	*Uraria rufescens*	Fabaceae
187.	*Urena lobata*	Malvaceae
188.	*Vernonia cinerea*	Asteraceae
189.	*Vernonia divergens*	Asteraceae
190.	*Viscum angulatum*	Viscaceae
191.	*Viscum articulatum*	Viscaceae
192.	*Viscum capitellatum*	Viscaceae
193.	*Viscum trilobatum*	Viscaceae
194.	*Waltheria indica*	Sterculiaceae
195.	*Wattakaka volubilis*	Asclepiadaceae
196.	*Ziziphus oenoplia*	Rhamnaceae
197.	*Ziziphus rugosa*	Rhamnaceae
* Endemic to the study area		

APPENDIX - 8
HERBS FOUND IN THE SANCTUARY

Sl. No.	Name of the plant species	Family
1.	*Abelmoschus angulosus*	Malvaceae
2.	*Abutilon indicum*	Malvaceae
3.	*Acalypha malabarica**	Euphorbiaceae
4.	*Acalypha racemosa*	Euphorbiaceae
5.	*Acanthospermum hispidium*	Asteraceae
6.	*Achyranthes aspera*	Amaranthaceae
7.	*Achyranthes bidentata*	Amaranthaceae
8.	*Acrocephalus hispidus*	Lamiaceae
9.	*Aerva lanata*	Amaranthaceae
10.	*Ageratum conyzoides*	Asteraceae
11.	*Allmania nodiflora*	Amaranthaceae
12.	*Alternanthera sessilis*	Amaranthaceae
13.	*amaranthus viridis*	Amaranthaceae
14.	*Alysicarpus bupleurifolius*	Fabaceae
15.	*Alysicarpus monilifer*	Fabaceae
16.	*Anaphalis aristata**	Asteraceae
17.	*Andrographis serpyllifolia**	Acanthaceae
18.	*Argemone Mexicana*	Papaveraceae
19.	*Arisaema tortuosum*	Araceae
20.	*Asclepias curassavica*	Asclepiadaceae
21.	*Barleria cirstata*	Acanthaceae
22.	*Bidens biternata*	Asteraceae
23.	*Bidens pilosa*	Asteraceae
24.	*Biophytum sensitivum*	Oxalidaceae
25.	*Blainvillea acmella*	Asteraceae
26.	*Blepharis boerhavifolia*	Acanthaceae
27.	*Blepharispermum subsessile*	Asteraceae
28.	*Blumea lacera*	Asteraceae
29.	*Blumea mollis*	Asteraceae
30.	*Blumea rhomboidea*	Asteraceae
31.	*Bumea virens*	Asteraceae
32.	*Boerhavia diffusa*	Nyctaginaceae
33.	*Boerhavia verticellata*	Nyctaginaceae
34.	*Borreria articularis*	Rubiaceae
35.	*Borreria ocymoides*	Rubiaceae
36.	*Borreria pusilla*	Rubiaceae
37.	*Byttneria herbacea*	Sterculiaceae
38.	*Calotropis gigantean*	Asclepiadaceae
39.	*Cantscora diffusa*	Gentianaceae

40.	*Caralluma adscendens*	Asclepiadaceae
41.	*Caralluma umbellate*	Asclepiadaceae
42.	*Cardiospermum canescens*	Sapindaceae
43.	*Cardiospermum halicacabum*	Sapindaceae
44.	*Cassia mimosoides*	Fabaceae
45.	*Cassia tora*	Fabaceae
46.	*Centella asiatica*	Apiaceae
47.	*Centratherum anthelminticum*	Asteraceae
48.	*Ceropegia hirsute**	Asclepiadaceae
49.	*Chlorophytum tuberosum*	Liliaceae
50.	*Cissampelos pareira*	Menispermaceae
51.	*Cleome feline*	Cappraridaceae
52.	*Cleome monophylla*	Cappraridaceae
53.	*Coldenia procumbens*	Boraginaceae
54.	*Colocasia esculenta*	Araceae
55.	*Commelina benghalensis*	Commelinaceae
56.	*Commelina ensifolia*	Commelinaceae
57.	*Conyza leucantha*	Asteraceae
58.	*Corchorus aestuans*	Tiliaceae
59.	*Cosmos sulphurous*	Fabaceae
60.	*Crotalaria calycina*	Fabaceae
61.	*Crotalaria dubia*	Fabaceae
62.	*Crotalaria evolvuloides*	Fabaceae
63.	*Crotalaria juncea*	Fabaceae
64.	*Crotalaria medicaginea*	Fabaceae
65.	*Crotalaria mysorensis*	Fabaceae
66.	*Crotalaria pallida*	Fabaceae
67.	*Crotalaria prostate*	Fabaceae
68.	*Crotalaria retusa*	Fabaceae
69.	*Crotalaria spectabilis**	Fabaceae
70.	*Cucumis melo*	Cucurbitaceae
71.	*Curculigo orchioides*	Hypoxidaceae
72.	*Curcuma longa*	Zingiberaceae
73.	*Cyanotis cristata*	Commelinaceae
74.	*Cyanotis fasciculate*	Commelinaceae
75.	*Cyathula prostrate*	Amaranthaceae
76.	*Cyclea peltata*	Menispermaceae
77.	*Cynoglossum zeylanicum*	Boraginaceae
78.	*Cyperus distans*	Cyperaceae
79.	*Cyperus iria*	Cyperaceae
80.	*Desmodium alysicarpoides*	Fabaceae
81.	*Desmodium motorium*	Fabaceae
82.	*Desmodium triflorum*	Fabaceae

83.	*Desmodium triquetrum*	Fabaceae
84.	*Dichrocephala integrifolia*	Asteraceae
85.	*Dicliptera cuneata**	Acanthaceae
86.	*Dioscorea hispida*	Dioscoreaceae
87.	*Diplocyclos palmatus*	Cucurbitaceae
88.	*Dunbaria ferruginea**	Fabaceae
89.	*Echinops echinatus*	Asteraceae
90.	*Echinops canarensis*	Boraginaceae
91.	*Elephantopus scaber*	Asteraceae
92.	*Emilia scabra*	Asteraceae
93.	*Emilia sonchifolia*	Asteraceae
94.	*Erigeron karvinskianus*	Asteraceae
95.	*Eriocaulon quinquangulare*	Eriocaulaceae
96.	*Eupatorium repandum*	Asteraceae
97.	*Euphorbia cristata*	Euphorbiaceae
98.	*Euphorbia geniculata*	Euphorbiaceae
99.	*Euphorbia hirta*	Euphorbiaceae
100.	*Euphorbia indica*	Euphorbiaceae
101.	*Evolvulus alsinoides*	Convolvulaceae
102.	*Exacum tetragonum**	Gentianaceae
103.	*Fimbristylis dichotoma*	Cyperaceae
104.	*Fimbristylis woodrowii**	Cyperaceae
105.	*Floscopa scadens*	Commelinaceae
106.	*Glysine wightii*	Fabaceae
107.	*Gnaphalium sp.*	Asteraceae
108.	*Habenaria planteginea*	Orchidaceae
109.	*Habenaria viridiflora**	Orchidaceae
110.	*Hedychium coronarium*	Zingiberaceae
111.	*Hedyotis affinis*	Rubiaceae
112.	*Hedyotis auricularia*	Rubiaceae
113.	*Hedyotis nitida*	Rubiaceae
114.	*Hedyotis puberula*	Rubiaceae
115.	*Hedyotis pumila*	Rubiaceae
116.	*Hibiscus lunariifolius*	Malvaceae
117.	*Hibiscus ovalifolius*	Malvaceae
118.	*Hibiscus solandra*	Malvaceae
119.	*Hybanthus enneaspermus*	Violaceae
120.	*Hydrocotyle javanica*	Apiaceae
121.	*Hygrophila salicifolia*	Acanthaceae
122.	*Hyptis suaveolens*	Lamiaceae
123.	*Impatiens chinensis*	Balasaminaceae
124.	*Indigofera cordifolia*	Fabaceae
125.	*Indigofera linnaei*	Fabaceae

126.	*Indigofera spicata*	Fabaceae
127.	*Indocourtoisia cyperoides*	Cyperaceae
128.	*Justicia simplex*	Acanthaceae
129.	*Knoxia sumatrensis*	Rubiaceae
130.	*Lagascea mollis*	Asteraceae
131.	*Laggera alata*	Asteraceae
132.	*Laportea interrupta*	Urticaceae
133.	*Lepidagathis incurve*	Acanthaceae
134.	*Leucas lavandulaefolia**	Lamiaceae
135.	*Leucas marrubioides*	Lamiaceae
136.	*Leucas nutans*	Lamiaceae
137.	*Leucas vestita**	Lamiaceae
138.	*Lindernia antipoda*	Scrophulariaceae
139.	*Liparis prazeri**	Orchidaceae
140.	*Lipocarpha sphacelata*	Cyperaceae
141.	*Lobelia hyeneana*	Lobeliaceae
142.	*Ludwigia perennis*	Onagraceae
143.	*Melhania cannabina*	Tiliaceae
144.	*Merremia hastate*	Convolvulaceae
145.	*Mimosa pudica*	Mimosaceae
146.	*Mollugo pentaphylla*	Molluginaceae
147.	*Monochoria vaginalis*	Pontederiaceae
148.	*Murdannia japonica*	Commelinaceae
149.	*Murdannia spirata*	Commelinaceae
150.	*Murdannia zeylanica*	Commelinaceae
151.	*Neanotis indica**	Rubiaceae
152.	*Neanotis wightii**	Rubiaceae
153.	*Notonia grandiflora*	Asteraceae
154.	*Ocimum americanum*	Lamiaceae
155.	*Orthosiphon rubicundus*	Lamiaceae
156.	*Orthosiphon viscosus*	Lamiaceae
157.	*Oxalis corniculata*	Oxalidaceae
158.	*Peperomia dindigulensis**	Piperaceae
159.	*Peristrophe bicalyculata*	Acanthaceae
160.	*Peristylus goodyeroides**	Orchidaceae
161.	*Phyllanthus amarus*	Euphorbiaceae
162.	*Phyllanthus maderaspatensis*	Euphorbiaceae
163.	*Phyllanthus rheedii*	Euphorbiaceae
164.	*Phyllanthus virgatus*	Euphorbiaceae
165.	*Pimpinella heyneana**	Apiaceae
166.	*Pimpinella wallichiana**	Apiaceae
167.	*Piper longum*	Piperaceae
168.	*Plectranthus barbatus*	Lamiaceae

169.	*Plectranthus mollis*	Lamiaceae
170.	*Plectranthus wightii**	Lamiaceae
171.	*Pogostemon auricularius*	Lamiaceae
172.	*Polycarpaea corymbosa*	Caryophyllaceae
173.	*Polygala elongate*	Polygalaceae
174.	*Polygonum barbatum*	Polygalaceae
175.	*Polygonum glabrum*	Polygalaceae
176.	*Polygonum hydropiper*	Polygalaceae
177.	*Polystachya flavescens**	Orchidaceae
178.	*Priva cordifolia*	Verbenaceae
179.	*Rhinacanthus nasutus*	Acanthaceae
180.	*Rhynchosia minima*	Fabaceae
181.	*Rhynchosia rufescens*	Fabaceae
182.	*Rostellularia diffusa*	Acanthaceae
183.	*Rotala indica*	Lythraceae
184.	*Rothia indica*	Fabaceae
185.	*Scilla hyacinthine*	Liliaceae
186.	*Scleria levis*	Cyperaceae
187.	*Scoparia dulcis*	Scrophulariaceae
188.	*Semecarpus anacardium*	Anacardiaceae
189.	*Senna hirsute*	Fabaceae
190.	*Sida cordata*	Malvaceae
191.	*Sigesbeckia orientalis*	Asteraceae
192.	*Smithia conferta**	Fabaceae
193.	*Solanum nigrum*	Solanaceae
194.	*Sonerila tenera**	Melastomataceae
195.	*Sophubia delphinifolia*	Scrophulariaceae
196.	*Spatholobus parviflorus*	Fabaceae
197.	*Spermacoce hispida*	Rubiaceae
198.	*Spilanthus acmella*	Asteraceae
199.	*Spilanthus paniculata*	Asteraceae
200.	*Stachytarpheta indica*	Verbenaceae
201.	*Striga angustifolia*	Scrophulariaceae
202.	*S. asiatica*	Scrophulariaceae
203.	*Strobilanthes consanguineus**	Acanthaceae
204.	*Swertia angustifolia**	Gentianaceae
205.	*Synedrella nodiflora*	Asteraceae
206.	*Tephrosia pumila*	Fabaceae
207.	*Thesium wightianum**	Santalaceae
208.	*Tribulus terrestris*	Zygophyllaceae
209.	*Trichodesma indicum*	Boraginaceae
210.	*Trichodesma sedgwickianum*	Boraginaceae
211.	*Tridax procumbens*	Asteraceae

212.	*Triumfetta pilosa*	Tiliaceae
213.	*Uraria lagopodioides*	Fabaceae
214.	*Vanda testacea*	Orchidaceae
215.	*Vernonia albicans*	Asteraceae
216.	*Vigna adenantha*	Fabaceae
217.	*Vigna radiate*	Fabaceae
218.	*Vigna trifoliate*	Fabaceae
219.	*Vigna trilobata*	Fabaceae
220.	*Xanthium strumarium*	Asteraceae
221.	*Zingiber officinale*	Zingiberaceae
222.	*Zornia diphylla*	Fabaceae
223.	*Zornia diphylla*	Fabaceae
* Endemic to the study area		

APPENDIX - 9

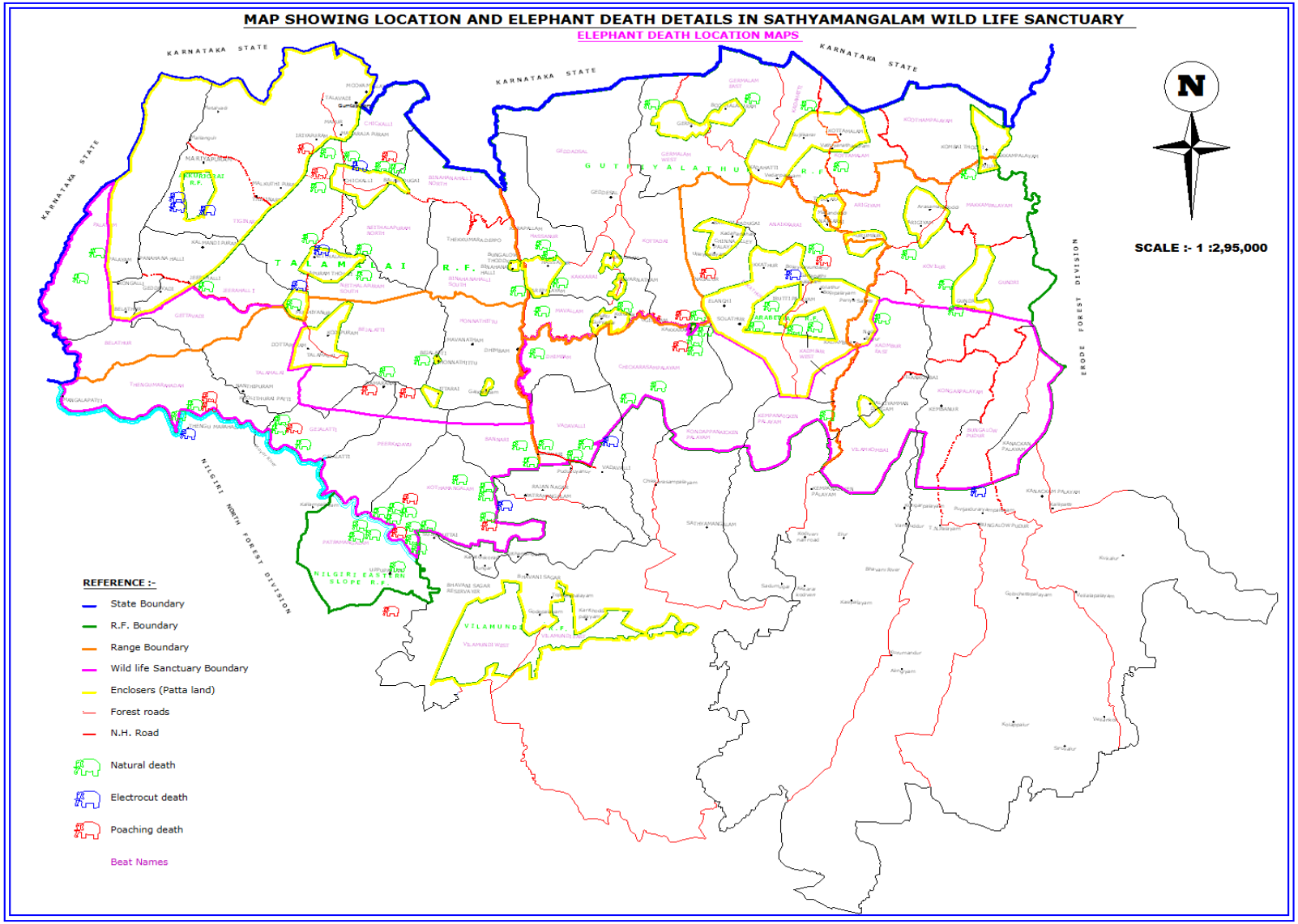
GRASSES FOUND IN THE SANCTUARY

Sl. No.	Name of the species	Family
1.	*Alloteropsis cimicina*	Poaceae
2.	*Apluda mutica*	Poaceae
3.	*Aristida adscensionis*	Poaceae
4.	*Aristida setacea*	Poaceae
5.	*Arthraxon depressus**	Poaceae
6.	*Arundinella purpurea**	Poaceae
7.	*Axonopus compressus*	Poaceae
8.	*Bambusa arundinacea*	Poaceae
9.	*Bothriochloa pertusa*	Poaceae
10.	*Brachiaria distachya*	Poaceae
11.	*Brachiaria eruciformis*	Poaceae
12.	*Brachiaria ramose*	Poaceae
13.	*Brachiaria semiundulata**	Poaceae
14.	*Cenchrus biflorus*	Poaceae
15.	*Centotheca lappacea*	Poaceae
16.	*Chloris barbata*	Poaceae
17.	*Chloris dolichostachya*	Poaceae
18.	*Chrysopogon aciculatus*	Poaceae
19.	*Chrysopogon fulvus*	Poaceae
20.	*Cymbopogon coloratus*	Poaceae
21.	*Cymbopogon flexuosus*	Poaceae
22.	*Cymbopogon nardus*	Poaceae
23.	*Cynodon dactylon*	Poaceae
24.	*Cyrtococcum oxyphyllum*	Poaceae
25.	*Dactyloctenium aegyptium*	Poaceae
26.	*Digitaria abludens*	Poaceae
27.	*Digitaria bicornis*	Poaceae
28.	*Digitaria ciliaris*	Poaceae

29.	*Eleusine indica*	Poaceae
30.	*Eragrostis artrovirens*	Poaceae
31.	*Eragrostis bifaria*	Poaceae
32.	*Eragrostis ciliaris*	Poaceae
33.	*Eragrostis minor*	Poaceae
34.	*Eragrostis tenuifolia*	Poaceae
35.	*Eragrostis unioloides*	Poaceae
36.	*Hackelochloa granularis*	Poaceae
37.	*Heteropogon contortus*	Poaceae
38.	*Imperata cylindrical*	Poaceae
39.	*Isachne globosa*	Poaceae
40.	*Isachne lisboa**	Poaceae
41.	*Ischaemum indicum*	Poaceae
42.	*Oplismenus composites*	Poaceae
43.	*Panicum notatum*	Poaceae
44.	*Paspalidium flavidum*	Poaceae
45.	*Paspalum canarae**	Poaceae
46.	*Paspalum scrobiculatum*	Poaceae
47.	*Pennisetum hohenackeri*	Poaceae
48.	*Pennisetum polystachyon*	Poaceae
49.	*Perotis indica*	Poaceae
50.	*Pogonatherum paniceum*	Poaceae
51.	*Pseudanthistiria hispida*	Poaceae
52.	*Rottboellia cochinchinensis*	Poaceae
53.	*Sacciolepis indica*	Poaceae
54.	*Setaria intermedia*	Poaceae
55.	*Setaria italica*	Poaceae
56.	*Setaria palmifolia*	Poaceae
57.	*Setaria pumila*	Poaceae
58.	*Setaria verticillata*	Poaceae
59.	*Sorghum halepense*	Poaceae

60.	*Sporbolus indicus*	Poaceae
61.	*Sporbolus wallichii*	Poaceae
62.	*Themeda cymbaria*	Poaceae
63.	*Themeda quadrivalvis**	Poaceae
64.	*Themeda tremula*	Poaceae
65.	*Themeda triandra*	Poaceae
66.	*Triopogon bromoides**	Poaceae
67.	*Urochloa panicoides*	Poaceae
* Endemic to the study area		

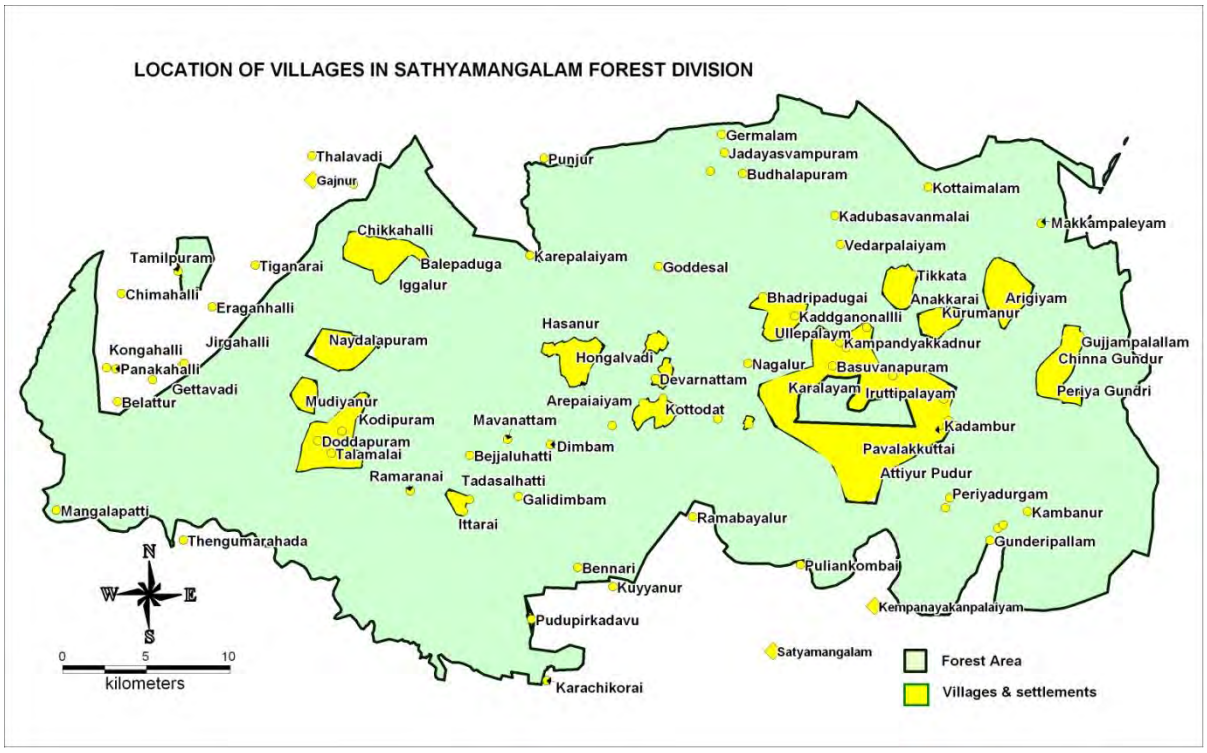
Map: Location of various degrees of Poaching incidences in Sathyamangalam Wildlife Sanctuary



APPENDIX - 10

Table: Population estimation of important animals during 2007-2009 census carried out for the whole Division (Source: Sathyamangalam Forest Department Census)

S.No.	Name of the Animal	Scientific name	Estimated population		
			2007	2008	2009
1.	Elephant	*Elephas Maximus*	815	837	866
2.	Gaur	*Bos gurus*	630	667	672
3.	Sambar Deer	*Cervus unicolor kerr*	321	255	304
4.	Spotted deer	*Axis axis*	1917	2079	2348
5.	Barking deer	*Munitiacus muntjak*	265	57	77
6.	Sloth bear	*Melursus ursinus*	44	36	43
7.	Wild dog	*Cuon alpinus*	62	103	137
8.	Wild boar	*Sus scrofa Linnaeus*	2402	373	843
9.	Common Langur	*Presbytis entellus*	151	109	125
10.	Bonnet Macaque	*Macaca radiate*	175	185	220
11.	Tiger	*Phanthera tigris*	8	7	10
12.	Leopard	*Phanthera pardus*	19	24	27
13.	Black buck	*Antilope cervicapra*	856	925	1063
14.	Striped Hyena	*Hyena Hyena*	5	12	15
15	Indian Pangolin		4	16	21


LOCATION OF VILLAGES IN SATHYAMANGALAM FOREST DIVISION
Germalam
Jadayasvampuram
Budhalapuram
Punjur
Thalavadi
Gajnur
Kottaimalam
Kadubasavanmalai
Makkampaleyam
Vedarpalaiyam
Chikkahalli
Tamilpuram
Tiganarai
Balepaduga
Iggalur
Karepalaiyam
Goddesal
Tikkata
Chimahalli
Eraganhalli
Bhadripadugai
Anakkarai
Arigiyam
Kaddganonalli
Kurumanur
Hasanur
Ullepalaym
Kampandyakkadnur
Gujjampalallam
Chinna Gundur
Kongahalli
Jirgahalli
Naydalapuram
Hongalvadi
Nagalur
Basuvanapuram
Panakahalli
Devarnattam
Karalayam
Iruttipalayam
Periya Gundri
Gettavadi
Belattur
Mudiyanur
Arepaiaiyam
Kottodat
Kodipuram
Mavanattam
Kadambur
Doddapuram
Talamalai
Dimbam
Pavalakkuttai
Bejjaluhatti
Attiyur Pudur
Ramaranai
Tadasalhatti
Periyadurgam
Galidimbam
Kambanur
Mangalapatti
Ittarai
Ramabayalur
Thengumarahada
Gunderipallam
Bennari
Puliankombai
Kuyyanur
Kempanayakanpalaiyam
Pudupirkadavu
Satyamangalam
Karachikorai
N
W
E
S
0
5
10
kilometers
Forest Area
Villages & settlements

APPENDIX - 11

Table List of villages falling within 5 Km Boundary of Sathyamangalam Wildlife Sanctuary

Name of Forest Division	No.	Tribal villages/Revenue Villages
Sathyamangalam Range	1	Vadavalli
	2	Chickaradampalayam
	3	Puduammapalayam
	4	Pudur
	5	Kolathupudur
	6	Pulinjur
	7	Kondappanaickenpalayam
	8	Kumarapalayam
	9	Ottarpalayam
	10	Anganagoundanur
	11	Malaiyadipudur
	12	Chettiyampudur
	13	Karaliyam
	14	Elanji
	15	Solathur
	16	Kanakundur
	17	Kilathur
	18	Bogipalayam
	19	Peeriyasalatti
	20	Akkisivandoddi
	21	Iruttipalayam
	22	Tondur
	23	Attiyurpudur
	24	Attiyur
	25	Attiyurmelur
	26	Germalam
	27	Madeswarankoil
	28	Horapalayam
	29	Kilur
	30	Pavulakuttai

	31	Talamalai
	32	Doddapuram
	33	Mangalapatti
	34	Thengumarada
	35	Gejalatti
	36	Guleithuraipatti
	37	Nuggagoundenpalayam
	38	Dimbum
	39	Bannari
	40	Kallampalayam
	41	Sujalkuttai
	42	Pungar
	43	Karachigorai
	44	Kothamangalam
	45	Bhavanisagar
Bhavanisagar Range	46	Toppampalayam
	47	Doddampalayam
	48	Pudur
	49	Velliyampalayam
	50	Mudukkandurai
	51	Kariyagoundanpalayam
	52	Nerripatti
	53	Doddanenjipalayam
	54	Pudupeerkadavu
	55	Patramangalam
	56	Rajan nagar
	57	Pudukuyyanur
	58	Batagapalayam
	59	Kalidimbum
	60	Bejalatti
	61	Honnathittu
	62	Kodipuram
	63	Uppupallam
	64	Ramarani
	65	Mavanatham

Hasssanur Range	66	Hassanur
	67	Arepalayam
	68	Mel Mavallam
	69	Kil Mavallam
	70	Gilyadai
	71	Devarnatham
	72	Hosatti
	73	Kottadai
	74	Uginium
	75	Nagalur
Talavadi Range	76	Ittarai
	77	Bungalow thoddi
	78	Binahana halli
	79	Neithalapuram
	80	Allapuram doddi
	81	Mudiyanur
	82	Bolegounden doddi
	83	Erahana halli
	84	Kalmandipuram
	85	Jeerahalli
	86	Geddavadi
	87	Belathur
	88	Basappan doddi
	89	Kamayanpuram
	90	Thomarpuram
	91	Madahalli
	92	Bayyana puram
	93	Chimtahalli
	94	Totanur colony
	95	Palayam
	96	Panahanahalli
	97	Singanapuram
	98	Kongali

T N Palayam	99	Chellipalayam
	100	Kaliyur
	101	Kullanaickennur
	102	Chattiammanpudur
	103	Kodiveri nail road
	104	Elur
	105	Nakarakkanur
	106	Vettuvampalayam
	107	Modur
	108	Rosanampalayam
	109	Vanipuddur
	110	T N Palayam
	111	Vinobanagar
	112	Kongarpalayam
	113	Malliamman durgam
	114	Periya durgam
	115	Bungalow pudur
	116	Punjai duraiyampalayam
	117	Kallipatti
	118	Kondappanaickenpalayam
	119	Bedragoundenpalayam
	120	Kanakkampalayam
	121	Velayapalayam
	122	Periya Gundri
	123	Anil natham
	124	Kovilur
	125	Killur
	126	Chinna Gundri
	127	Gujjampalayam
	128	Maka doddi
	129	Vanimarattur
	130	Kotiyagoundenkovil
	131	Vetta doddi
	132	Chinna salatti
	133	Mela Kadambur
	134	Nadur
	135	Kila Kadambur
	136	Eriyur
	137	Vilankombai
	138	Kembanur

APPENDIX - 12

Compensation given for human casualities & damage to properties between 2004 to 2008

Sl. No.	Date and Place	Range	Nature of Compensation	Compensation amount paid	Sanction authority No.	File No. of Office
1.	03.04.06	Bhavanisagar	Crop damage	15,000/-	12474/07	3050/06
2.		Bhavanisagar	Crop damage	15,000/-	11003/07	236/07
3.	19.02.07	Bhavanisagar	Crop damage	7,000/-	1784/08	1669/07
4.	27.11.07	Bhavanisagar	Crop damage	7,000/-	13287/08	2471/07
5.		Talavady	Crop damage	10,000/-	1914/08	4261/07
6.	07.07.07	Talavady	Crop damage	10,000/-	6048/08	5427/07
7.	04.01.07	Talavady	Crop damage	15,000/-	1101/08	237/07
8.	10.03.08	Talavady	Crop damage	10,000/-	6713/08	3371/08
9.	25.01.07	Talavady	Crop damage	10,000/-	1914/08	4261/08
10.	19.12.08	T.N.Palayam	Killed by elephant	1,00,000/-	68290/08	9049/08
11.	16.07.08	Sathyamangalam	Killed by elephant	Order awaiting from the Conservator of Forests, Erode		5306/08
12.	08.11.08	T.N.Palayam	Killed by elephant			7796/08
13.	18.04.04	Bhavanisagar	Crop damage		3072/07-3	4038/08
14.	13.05.07	Talavady	Crop damage		11148/08	4125/07
15.	25.07.07	Talavady	Crop damage		11375/08	6031/08
16.	27.07.08	Talavady	Crop damage		10937/08	6637/08
17.	23.08.08	Talavady	Crop damage		11376/08	7428/08
18.	07.01.06	Bhavanisagar	Crop damage		8302/08	315/06
19.	19.09.08	Talavady	Crop damage		12605/08	8026/08
20.	19.09.08	Talavady	Crop damage		12604/08	8025/08
21.	04.12.08, 05.12.08	Talavady	Crop damage			9345/08
22.	20.08.08	Talavady	Crop damage			6920/08
23.	27.06.07	Bhavanisagar	Crop damage			5139/07
24.	26.02.08	Talavady	Crop damage			2081/08
25.	24.02.08	Talavady	Crop damage			2079/08
26.	12.12.07	Bhavanisagar	Crop damage			575/08
27.	24.01.08	Bhavanisagar	Crop damage			1401/03
28.	16.04.07	Bhavanisagar	Crop damage			3498/07
29.	07.11.03	Bhavanisagar	Crop damage			10850/03
30.	19.01.07	Bhavanisagar	Crop damage			1128/07
31.	27.06.07	Bhavanisagar	Crop damage			5130/07

APPENDIX - 13

NO. OF OFFENCE CASES RELATING TO ILLEGAL TRADE IN WILD ANIMALS AND ANIMAL PRODUCTS SPECIES WISE FOR A PERIOD OF LAST FIVE YEARS

Date	Name of animals	Location	Method used
13.07.05	Elephant	Sathyamangalam Range, Chickarasampalayam Beat, Jadaisamypallam.	Tusks stolen from male elephant
28.05.06	Elephant	Bhavanisagar Range, Bannari Beat, Pudupeerkadavu village	Electrocution
07.08.06	Elephant	Bhavanisagar Range, Honnathittu Section, Bejalatti Beat, Kodipuram village	Electrocution
09.08.06	Elephant	Forest Protection Squad, Bungalowputhur beat, Othukaradu saragam	Trying to sell tusk.
18.08.06	Elephant	T.N.Palayam Range, Bunglow pudur section, Punjaithuraiyam palayam village.	Electrocution
29.08.06	Elephant	Forest Protection Squad, Bungalowputhur beat, Othukaradu saragam	Trying to sell tusk.
16.09.06	Leopard	T.N.Palayam Range, Guthiyalathur R.F. Arigium beat,	Leopard killed by poisioning
13.10.06	Deer	Forest Protection Squad, Sathy to Athani Road, Kanakkampalayam Privu	Illegal possession of deer meat
02.05.07	Elephant	Forest Protection Squad, Gejalatti Beat, Koolithuraipatti	Illegal possession of tusks
29.06.07	Leopard	Forest Protection Squad, Kadambur East Beat, Chinnasalatti	Illegal possession of leopard skin

02.08.07	Peacock	T.N.Palayam Range, Kanakkampalayam Beat, Mandalutthu Saragam	Shooting - by using country gun
04.08.07	Bison	Bhavanisagar Range, Kothamangalam Section, Bannari Beat. Vinayagar Kovil Saragam	Killed due to accident
18.09.07	Deer	Bhavanisagar Range, Kothamangalam Section, Patramangalam Beat	Illegal possession of deer horns
18.10.07	Elephant	Sathyamangalam Range, Guthiyalathur R.F. Vadavalli Beat, Near Semman kuttai Saragam.	Electrocution
21.05.09	Elephant	Thalavady Range, Panahanahalli section, Palayam beat, Mallankuzhi village.	Electrocution
2.06.09	Leopard	Forest Protection squad sathy,	Illegal possession of leopard skin
18.08.09	Tiger	Forest Protection squad sathy, Punjaipulliyampatti to Annur Road, near sellappampalayam Bhavani Higher secondary school	Illegal possession of Tiger skin
16.09.09	Elephant	T.N.Palayam Range, Bungalowpudur Section, Gundri beat, Anilnatham pallam	Illegal possession of Elephant tusks
29.10.09	leopard	Sathyamangalam Range, Sathy Section, Vadavalli beat, Pillimokkai saragam	Lepard killed by Trapping (kanni)

APPENDIX - 14

LIST OF MANNED AND UNMANNED BARRIERS WITH LOCATIONS

1. List of Manned Barrier (Checkpost)

Sl. No.	Name of Barrier	Location
1.	Bannari Forest Check Post	Bannari
2.	Dhimbam Forest Check Post	Dhimbam
3.	Karappallam Forest Check Post	Hassanur
4.	Maharajapuram Forest Check Post	Maharajapuram
5.	Thalavady Forest Check Post	Thalavady
6.	Germalam Forest Check Post	Germalam
7.	Kempanaickenpalayam Forest Check Post	Kempanaickenpalayam
8.	Sujjalkuttai Forest Check Post	Sujjalkuttai

APPENDIX - 15

LIST OF FOREST ROADS - RANGEWISE

Sl. No.	Name of Road	Year of formation	Type	Width in km	Length in km
1.	K.N.Palayam to Germalam Road (upto Kadambur)	1902-03	Mettalled	3.0 m	15.00
2.	Dhimbam to Kadambur Road	1902-07	B.T	3.0 m	50.50
3.	Jeep Road from Belathur to Jeerahalli (Sanctuary boundary)	1969-70	-do-	3.0 m	8.13
4.	Sujjalkuttai to Thengumarahada	Not known	-do-	3.0 m	25.00
5.	Road in Forest Ecological farm at Bannari	1987-88	Mattaled	3.0 m	2.557
6.	Thengumarahada to Mangalpatti	Not known	Un mattaled	3.0 m	8.00
7.	Talamalai to Gejelatti	Not known	-do-	3.0 m	8.00
8.	Vilankombai to Kembanur	2006-07	B.T	3.0 m	4.00

APPENDIX - 16

STATEMENT SHOWNG THE NAME OF SECTIONS, AND BEAT IN THE SATHYAMANGALAM WILDLIFE SANCTUARY

Sl. No.	Name of the Division and head quarters	Name of the Range	Name of section in each range/Head quarters		Name of the beats in each section / head quarters		Beat area in Ha.
			Section	Head Quarters	Beat	Head Quarters	
1	Sathymangalam WLS HQ Sathymangalam	Sathyaman galam	Sathy	Bannari	Chikkarasampalayam Beat	Chikkarasampalayam	4543.96
2					Vadavalli Beat	Vadavalli	3058.10
3					Dhimbam Beat	Dhimbam (Beat)	3500.00
4			Weigh Bridge	Sathy	Kondappanaiken-palayam Beat	Kondappanaiken-palayam	3741.38
5					Kempanaicken-palayam beat	Kempanaicken-palayam	1857.21
6					Kadambur West	Kadambur	821.83
						TOTAL	17522.48
7	Sathymangalam WLS HQ Sathymangalam	Bhavanisagar	Thengumara-hada	Thengumara-hada	Thengumarahada	Thengumarahada	3582.41
8			Honnathittu	Honnathittu	Talamalai	Talamalai	2520.00
9			Thengumara-hada	Thengumara-hada	Gejalatti	Gejalatti	1300.00
10					Peerkadavu	Kothamangalam	1670.00
11					Kothamangalam	Kothamangalam	3350.00
12					Bannari	Bannri	780.00
						TOTAL	13202.82

Sl. No.	Name of the Division and head quarters	Name of the Range	Name of section in each range/Head quarters		Name of the beats in each section / head quarters		Beat area in Ha.
			Section	Head Quarters	Beat	Head Quarters	
13	Sathymangalam WLS HQ Sathymangalam	Talavady			Palayam	Palayam	3283.55
14					Belathur		1592.43
15					Gettavadi		3425.00
						TOTAL	8300.98
16	Sathymangalam WLS HQ Sathymangalam	T.N.Palayam			Kadambur East	Kadambur	1051.14
17					Vilankombai	T.N.Palayam	2846.60
18					Kongerpalayam		2900.00
19					Kovilur		640.10
20					Bunglowpudur	Bunglowpudur	3296.61
22					Kanakkampalayam		2072.21
23					Gundri	Gundri	602.00
						TOTAL	13408.66

APPENDIX - 17

LIST OF BUILDINGS IN SATHYAMANGALAM WILDLIFE SANTUARY

Sl. No.	Name of the Building	Location	Year of construction
	SATHYAMANGALAM RANGE RESIDENTIAL BUILDINGS		
1	Forest Guard quarters	K.N.Palayam	1970-71
2	Forest Watchers quarters	--do--	1970-71
3	Forest quarters	Dhimbam	1965-66
4	Junior assistant quarters	Sathyamangalam	1966-67
5	Combined watchers quarters (G.S.W.D)	--do--	1971-72
6	Rangers quarters for Talamalai Range (R.H.)	--do--	1965-67
7	Combined Office Assistant quarters No. I	--do--	1964-66
8	Combined office Assistant quarters No. II	--do--	1965-66
9	Rangers quarters No. I	Sathyamangalam	1964-65
10	Rangers quarters No. II	--do--	1964-65
11	Rangers quarters No. III	Sathyamangalam	1965-67
12	Rangers quarters (Sathy Range)	--do--	1894
13	Single Foresters quarters No. I	Ariyappam palayam	1986-87
14	Single Forester quarters No. II	Ariyappam palayam	1986-87
15	Single forest Guard quarters	Ariyappam palayam	1986-87
16	Combined Office Assistant and Office Watcher Quarters	Ariyappampalayam	1983-87
17	Combined Forest Guard quarters	Sathyamangalam	1990-91
18	District Forest Officer's quarters	Sathyamangalam.	1990-91
19	Combined Forest Guard quarters	Chikkarasampalayam	1991-92
20	Watcher's shed at Govt. Sandalwood Depot	Sathyamangalam	1985-86
21	Combined Forest Guard quarters	Ariyappampalayam	1982-87
22	Sub-line	Bannari	1920
23	FW Quarters	Vadavalli beat	2006-07
24	FG and FW quarters	Dhimbam	2007-08
	II. TALAVADYRANGE –RESIDENTIAL BUILDINGS		
1	Forest Guard quarters	Palayam	1970-73
2	Reserve Watchers quarters	-do-	1972-73
3	Forester quarters	Palayam	2007-08
4	FG quarters for Geddavady beat	Kongally	2008 - 09
5	FW quarters for Geddavady beat	Kongally	2008 - 09
6	FG quarters for Belathur beat	Kongally	2008 - 09
7	FW quarters for Belathur beat	Kongally	2008 - 09
	III. T.N.PALAYAM RANGE RESIDENTIAL BUILDINGS		
1	Forest Guard quarters	Kanakkampalayam	1970-71
2	Forest Watcher quarters	--do--	1971-72
3	Combined Forest Guard quarters	Bungalowpudur	1973-74
4	FG and FW Quarters	Kongerpalayam	2005-06

5	FG and FW Quarters	Arigium	2005-06
6	FG and FW Quarters	Makkampalayam	2006-07
7	FG and FW Quarters	Kongarpalayam	2006-07
8	Forester quarters for Makkampalayam section 500 Lit Syntex water tank	Makkampalayam	2007-08 2008-09
9	Forester quarters for Bungalow pudur section 1000 lit Syntex water tank	Bungalow pudur	2008 – 09 2008-09
	IV. BHAVANISAGAR RANGE RESIDENTIAL BUILDINGS		
1	Combined Foresters quarters	Talamalai	1964-67
2	Combined Forest Guard quarters	Talamalai	1964-67
3	Combined Tractor Driver and Cleaner quarters No. I	--do--	1970-72
4	Combined Tractor Driver and Cleaner quarters No. II	--do--	--do--
5	Combined Forest Guard quarters No. I	--do--	--do--
6	Combined Forest Guard quarters No. II	--do--	--do--
7	Foresters quarters No. A	Talamalai	1970-72
8	Foresters quarters No. A	--do--	--do--
9	Combined Forest Guard	Karachikorai	1984
10	--do--	--do--	--do--
11	Forest Rangers quarters	Bhavanisagar	1965-67
12	Foresters quarters	--do--	1971-73
13	Junior Assistant quarters	--do--	1969-71
14	Office assistant quarters	--do--	1971-73
15	Combined Forest Guard and Watcher quarters	Bhavani sagar	1991-92
16	Combined forest Guard and Watcher quarters	Bannari	1984
17	FG and FW Quarters	Gejalatti	2006-07
18	FG Quarters	Sujjalkuttai	2006-07
19	FG quarters for Thengumarahadah beat Septic tank	Karachikorai	2008 – 09 2008-09
20	FW quarters for Thengumarahadah beat	Karachikorai	2008 - 09
21	FG quarters for Patramangalam beat	Karachikorai	2008 - 09
23	FW quarters for Patramangalam beat Septic tank	Karachikorai	2008 – 09 2008-09
24	FG quarters for Sujilkuttai check post	Karachikorai	2008 - 09
	V. SATHYAMANGALAM RANGE NON-RESIDENTIAL BUILDINGS		
1.	Tanah shed (Check Post buildings)	Bannari	1958-59
2.	Tanah shed (buildings)	Sathyamangalam.	1913
3.	Combined Range Office for Sathy and Talamalai	Sathyamangalam.	1933-34
4.	Lorry and Jeep shed	Sathyamangalam.	1964-65
5.	Lorry shed	Sathyamangalam.	1966-67
6.	Store shed (opp. Of G.S.W.D.)	Sathyamangalam.	1968-69

7.	Combined office building for Bamboo ACF	Sathyamangalam.	1965-67
8.	Compound Wall around the Ranger's quarters	Sathyamangalam.	1894
9.	Kitchen building attached to Rangers quarters	Sathyamangalam.	1894
10.	Stable at Ranger's quarters	Sathyamangalam.	1984
11.	Compound Wall around Sathy Range Office	Sathyamangalam.	1983
12.	Weigh bridge	Ariyappam--palayam	1979-80
13.	Compound Wall to Combined Forest Guard and Watcher quarters	Sathyamangalam	1983
14.	Bath and Toilet to GSWD	Sathyamangalam	1995-96
16.	Tanah shed (check Post building)	K.N.Palayam	1983
17.	District forest office building	Sathyamangalam	2003
18.	Check post building	Bannari	2004-05
19.	Check post building	K.N.Palayam	2005-06
21.	Antipoaching shed	Sathara kombai	2008 - 09
	VI. TALAVADI RANGE NON-RESIDENTIAL BUILDINGS		
1.	Anti poaching shed	Belathur	2006-07
2.	Anti poaching shed	Thekkumaradepot	2007-08
3.	Anti poaching shed	Mookkampalayam	2007-08
	VII. T.N.PALAYAM RANGE NON-RESIDENTIAL BUILDINGS		
1.	Construction of Ranger office and Range quarters 1000 lit Syntex water tank	Bungalowpudur	2004-05 2008 -09
2.	Anti poaching shed	Gundri	2006-07
3.	Anti poaching shed	Near Kavundachi kuttai	2008 - 09
	VIII. BHAVANISAGAR RANGE NON-RESIDENTIAL BUILDINGS		
1.	Rest house	Talamalai	1959-61
2.	Outhouse	--do--	1896
3.	Range Office	Bhavanisagar	1975-76
4.	Store shed	Talamalai	1968-69
5.	Anti poaching shed	Koolithurai patti	2008 - 09
	IX.GOVERMENT SANDALWOOD DEPOT RANGE NON-RESIDENTIAL BUILDINGS		
1.	New Double Lock Godown	Sathyamangalam.	1970-71
2.	Sandalwood Godown-Chipping shed	Sathyamangalam.	1931-32
3.	Compound Wall	Sathyamangalam.	1983
4.	Sandal wood Store Shed	Sathyamangalam.	1983
5.	MFP Godown (Sale hall)	Sathyamangalam.	1919
6.	Rest House (GSWD)	Sathyamangalam.	2006-07

APPENDIX - 18

SITES OF PILGIRIMAGES IN PROTECTED AREA

Sl. No.	Name of the Site	Location
	Sathyamangalam Range	
1.	Belari Temple	Bannari to Dhimbam road - 4 km distance from NH road - Guthiyalathur RF
	Bhavanisagar Range	
2.	Karuvanrayan Temple	12 km from Sujjalkuttai checkpost
3.	Gejalatti Dharga	Sujjalkuttai to Thengumarahada road
4.	Bannari amman Temple	Bannari
	Talavady	
5.	Kongalli Temple	Kongalli
	T.N.Palayam Range	
6.	Malliamman Kovil	K.N.Palayam to Kadambur

APPENDIX - 19

LIST OF ANTIPOACHING CAMPS

Sl. No.	Name of Range	Name of Place
1.	Sathyamangalam	Bannari
2.		Vadavalli
3.	Bhavanisagar	Koolithuraipatti
4.	Hassanur	Uginium
5.	T.N.Palayam	Gunderipallam
6.		Kanakkampalayam
7.		Kavundachikuttai
8.	Talavadi	Kongalli

APPENDIX - 20

LIST OF WIRELESS STATIONS BY NAME, LOCATION AND STATUS

1	Base station	07 Nos
2	Mobile set	06 Nos
3	Walkie-Talkies	15 Nos

APPENDIX - 21

LIST OF VEHICLES – STAFF AND PROTECTION

Sl. No.	Name of vehicle	Nos
1.	Mahindra Bolero	05 Nos.
2.	Mahindra MM 540	01 Nos.
3.	Motor Bike (Thengumarahada)	01 Nos.

APPENDIX - 22

Protection Strategy

Mortality of Elephants from 2000 to 2009 in Sathyamangalam Forest Division

S.No	Year	Range	Sex	Causes of Death	Remarks
1	2000	Sathyamangalam	Male	Natural Death	
2	2000	Bhavanisagar	Female	Natural Death	
3	2000	--do--	Female	Electrocution	
4	2000	--do--	Male	Natural Death	
5	2000	---do--	Male	Poached	Tusk Missing
6	2000	---do--	Female	Natural Death	
7	2000	Thalavadi	Male	Natural Death	
8	2000	---do---	Male	Electrocution	
9	2000	---do---	Female	Electrocution	
10	2000	----do---	Male	Poached	Tusk Recovered
11	2000	----do---	Female	Natural Death	
12	2000	Hassanur	Male	Poached	Tusk Recovered
13	2000	Hassanur	Female	Natural Death	
14	2001	Sathyamangalam	Male	Natural Death	
15	2001	--do--	Male	Natural Death	
16	2001	---do---	Female	Natural Death	
17	2001	Hassanur	Female	Natural Death	
18	2001	T N Palayam	Male	Natural Death	
19	2001	--do--	Female	Natural Death	
20	2001	--do---	Male	Electrocution	
21	2001	---do--	Female	Natural Death	
22	2001	Thalavadi	Female	Natural Death	
23	2001	--do--	Male	Natural Death	
24	2001	-do--	Male	Poached	Tusk Missing
25	2001	Bhavanisagar	Male	Natural Death	
26	2001	---do---	Male	Natural Death	
27	2001	---do---	Male	Poached	Tusk Missing
	2002				
28	2002	Sathyamangalam	Female	Natural Death	
29	2002	----do---	Female	Natural Death	
30	2002	----do---	Male	Electrocution	
31.	2002	---d0---	Female	Natural Death	
32	2002	Bhavanisagar	Female	Natural Death	
33	2002	---do---	Male	Natural Death	
34	2002	---do---	Female	Natural Death	

35	2002	---do---	Male	Natural Death	
36	2002	---do--	Male	Natural Death	
37	2002	---do---	Female	Natural Death	
38	2002	T N Palayam	Male	Natural Death	
	2003				
39	2003	Thalavadi	Female	Natural Death	
40	2003	---do---	Male	Electrocution	
41	2003	---do---	Female	Natural Death	
42	2003	---do---	Female	Natural Death	
43	2003	Sathyamangalam	Female	Natural Death	
44	2003	---do---	Female	Natural Death	
45	2003	---do--	Female	Natural Death	
46	2003	Bhavanisagar	Female	Natural Death	
47	2003	---do----	Female	Natural Death	
48	2003	Hassanur	Female	Natural Death	
49	2003	---do---	Female	Natural Death	
50	2003	---do---	Female	Natural Death	
51	2003	---do---	Female	Natural death	
52	2003	T N Palayam-	Female	Natural death	
	2004				
53	2004	Bhavanisagar	Male	Natural Death	
54	2004	---do--	Female	Natural Death	
55	2004	---do---	Male	Electrocution	
56	2005	Sathyamangalam	Female	Natural Death	
57	2005	---do---	Female	Natural Death	
58	2005	Hassanur	Female	Natural Death	
	2005				
59	2005	Hassanur	Male	Natural Death	
60	2005	---do---	Male	Natural Death	
61	2005	T N Palayam	Female	Natural Death	
62	2005	Thalavadi	Male	Natural Death	
63	2005	--do--	Female	Natural Death	
64.	2005	---do---	Male	Natural Death	
65	2005	---do---	Male	Electrocution	
66	2005	Bhavanisagar	Female	Natural Death	
67	2005	---do---	Male	Natural Death	

	2006				
68	2006	Sathyamangalam	Male	Natural Death	
69	2006	---do---	Male	Natural Death	
70	2006	Thalavadi	Male	Electrocution	
71	2006	---do---	Female	Natural Death	
72	2006	---do---	Female	Natural Death	
73	2006	Bhavanisagar	Female	Natural Death	
74	2006	---do---	Female	Natural Death	
75	2006	--do---	Female	Electrocution	
76	2006	---do---	Male	Electrocution	
77	2006	--do---	Male	Natural Death	
78	2006	Hassanur	Female	Natural Death	
79	2006	T N Palayam	Male	Electrocution	
	2007				
80	2007	Bhavanisagar	Female	Natural Death	
81	2007	---do---	Female	Natural Death	
82	2007	---do---	Female	Natural Death	
83	2007	---do---	Female	Natural Death	
84	2007	T N Palayam	Male	Natural Death	
85	2007	---do---	Male	Natural Death	
86	2007	Thalavadi	Male	Electrocution	
87	2007	---do---	Female	Natural Death	
88	2007	Sathyamangalam	Female	Natural Death	FMD
89	2007	---do---	Male	Natural Death	
90	2007	---do---	Male	Poached	
91	2007	---do---	Male	Electrocution	
	2008				
92	2008	Bhavanisagar	Female	Natural Death	
93	2008	---do---	Male	Poached	
94	2008	---do---	Male	Natural Death	
95	2008	---do--	Female	Natural Death	
96	2008	---do--	Female	Natural Death	
97	2008	---do--	Female	Natural Death	
98	2008	---do---	Female	Natural Death	
99	2008	---do---	Female	Natural Death	
100	2008	Thalavadi	Male	Poached	
101	2008	---do--	Female	Natural Death	
102	2008	T N Palayam	Female	Natural Death	
103	2008	---do---	Male	Natural Death	
104	2008	Sathyamangalam	Female	Natural Death	
105	2008	---do---	Male	Natural Death	
106	2008	----do--	Female	Natural Death	
107	2008	---do--	Female	Natural Death	

108	2008	----do--	Male	Natural death	
109	2008	---do---	Female	Natural Death	
110	2008	---do--	Female	Natural wounds	
111	2008	--do---	Female	Natural Death	
112	2008	---do---	Male	Natural Death	
113	2008	---do---	Female	Natural Death	
114	2008	Hassanur	Male	Natural death	
115	2008	--do--	Female	Natural Death	
	2009				
116	2009	Sathyamangalam	Female	Natural Death	
117	2009	---do---	Male	Natural Death	
118	2009	---do---	Female	Natural Death	
119	2009	---do---	Male	Natural death	
120	2009	---do---	Male	Natural Death	
121	2009	---do---	Male	Natural Death	
122	2009	Bhavanisagar	Female	Natural Death	
123	2009	---do--	Female	Natural Death	
124	2009	---do--	Female	Natural Death	
125	2009	---do--	Male	Natural Death	
126	2009	---do---	Female	Natural Death	
127	2009	---do---	Female	Natural Death	
128	2009	---do--	Female	Natural Death	
129	2009	T.N.Palayam	Female	Natural Death	
130	2009	---do---	Male	Natural Death	
131	2009	---do---	Male	Poached	
132	2009	Hassanur	Female	Natural Death	
133	2009	---do---	Female	Natural Death	
134	2009	---do---	Male	Natural Death	
135	2009	---do---	Female	Electrocution	
136	2009	Talavadi	Female	Electrocution	
	2010				
137	2010	Sathyamangalam	Male	Natural Death	
138	2010	---do---	Male	Natural Death	
139	2010	---do---	Male	Natural Death	
140	2010	Bhavanisagar	Male	Natural Death	
141	2010	---do---	Female	Natural Death	
142	2010	---do---	Female	Natural Death	
143	2010	----do---	Male	Natural Death	
144	2010	T.N.Palayam	Female	Natural Death	
145	2010	---do---	Male	Natural Death	
146	2010	Talavadi	Female	Natural Death	
147	2010	---do---	Female	Natural Death	
148	2010	---do---	Male	Natural Death	

APPENDIX - 23

Table : ELEPHANT MORTALITY:

DEATHS FROM 2000 TO 2008 IN SATHYAMANGALAM DIVISION

Sl. No.	Year	Number of deaths	Male	Female	Poaching	Electrocution	Natural causes
1	2000	13	7	6	3	3	7
2	2001	14	9	5	2	1	11
3	2002	11	5	6	-	1	10
4	2003	14	1	13	-	1	13
5	2004	6	2	4	-	1	5
6	2005	10	7	3	-	1	9
7	2006	12	6	6	-	4	8
8	2007	12	7	5	1	2	9
9	2008	15	6	9	1	-	14

Total number of individuals between 2000 and 2009: 126

Male 56

Female 70

Mortality per year: 12.6/year

APPENDIX - 24

Table The number of elephant poaching and electrocution cases detected over the last 15 years.

(Since 1987) is given below.

Year	No of cases booked	No. of accused arrested	No of cases disposed of by court	Penalties	Remarks
87 – 88	0	0	0	0	0
88 – 89	0	0	0	0	0
89 – 00	0	0	0	0	0
90 – 91	0	0	0	0	0
91 – 92	1	5	0	0	Pending in the court
92- 93	1	1	0	0	Pending in the court
93 - 94	2	17	0	0	Pending in the court
94 – 95	1	1	0	0	Pending in the court
95 – 96	0	0	0	0	0
96 – 97	5	0	0	0	Accused not traced in these cases
97 – 98	0	0	0	0	0
98 – 99	1	0	0	0	Accused not traced in this case
99 – 00	3	11	0	0	Pending in the court
2000–01	3	9	0	0	Pending in the court
2001–02	3	11	0	0	Pending in the court
2002–03	1	1	0	0	0
2003-04	0	0	0	0	0
2004-05	1	1	0	0	(Electrocution pending in the Court)
2005-06	1	1	0	0	Electrocution pending in the Court
2006-07	4	7	0	0	Electrocution pending in the Court
2007-08	4	13	6	0	Electrocution and poaching cases pending in the Court.
2008-09	0	0	0	0	0

Table: Number of cases booked and details

Sl. No.	Year	No. of offence cases	No. of accused
1.	1999	1	4
2.	2000	3	17
3.	2001	6	19
4.	2002	4	6
5.	2003	4	7
6.	2004	5	8
7.	2005	5	25
8.	2006	12	27
9.	2007	11	34
10.	2008	5	16
	Total	**56**	**163**

Death of other wild animals in Sathyamangalam Forest Division

between 2000 to 2010

S No	Year	Range and Beat	Date	Species	Cause of death
1	2000	T.N Palayam Range Kadambur Section> Kadambur East Beat;	24.1.2000	Male Gaur	"Due to severe intestinal colic"
2	2000	Hasanur Range;	01.02.2000	Male Gaur	"Due to severe intestinal colic"
3	2000	Bhavani Sagar Range, Kothamangalam beat, Sujjilkuttai saragam.	16.02.2000	Female Bear	"Shock"
4	2000	Sathyamangalam Range, Vadavalli Beat, Vanasulial pannai, Western side	15.5.2000	Male Gaur	"Intestinal colic"
5	2000	Hasanur Range	17.05.2000	Famale Gaur	"Intestinal colic"
6	2001	Bhavani Sagar Range , Peerkadavu Beat, Boothikuppai Saragam;.	12.3.2001	Spotted Deer Male 1 Female 3	Consumption of Urea.
7	2001	T.N Palayam Range Bangalapudur Beat	15.4.2001	Female Spotted Deer	Accidental fall into deep Valley
8	2001	T.N Palayam Range	19.8.2001	Male Spotted Deer	Chased by Wild Dogs
9	2001	Thalavadi Range, Binakkanalli South Beat	19.10.2001	Female Spotted Deer	Bitten by Wild Dog
10	2001	Hasanur Range	23.10.2001	Male Spotted Deer	Bitten by Wild Dog
11	2001	Sathyamangalam Range, Ekkatur Beat> Pasuvanapuram;.	30.11.01	Female gaur	Electrocution
12	2002	T.N Palayam Range Bangalapudur Beat, Edalmokkai Saragam	6.1.2002	Female Leopard	(Broncho Phorea) Natural causes
13	2002	T.N Palayam Range;	10.2.2002	Male Spotted Deer	Bitten by Wild Dog
14	2002	Bhavani Sagar Range, Bannari Beat, Badrakaliamman Koil Saragam	27.4.2002	Deer	Road Accident
15	2002	Sathyamangalam Range, Vadavalli Beat, Bannari	27..4.02	Female Spotted Deer Calf	Hit by vehicle
16	2002	Sathyamangalam Range, Vadavalli Beat, Bannari	10.5.02	Male Deers; 2 Nos.	Hit by vehicle

S No	Year	Range and Beat	Date	Species	Cause of death
17	2002	Sathyamangalam Range, Chikarasampalayam Beat;	28.6.02	Male Deer	Hunted by Wild Dog
18	2002	Hasanur Range	31.7.02	Female Gaur	Acute Tympany
19	2002	Bhavani Sagar Range	21.9.02	Male Spotted Deer	Trauma, shock and death
20	2002	Sathyamangalam Range, Chikarasampalayam Beat (Field of R. Duraisamy S/o Ramasamy;)	27.9.02	Male Sambar	Cerebral haemorrage.
21	2002	T.N Palayam Range Bangalapudur Section , Ethikaradu Saragam	2.10.02	Female Spotted Deer	Asphyxiation and shock
22	2002	T.N Palayam Range Bangalapudur Section, Kovilur Beat.	3.10.02	Male Bear	Death may be due to debroliz
23	2002	Bhavani Sagar Range> Kothamangam Beat.	20.10.02	Male Spotted Deer;	Bitten by Wild Dog
24	2002	Bhavani Sagar Range, Vilamundi East Beat	29.10.02	Male Spotted Deer;	Accidentalfall into well
25	2002	T.N Palayam Range, Kanakkampalayam beat	6.11.02	Male Spotted Deer	Bitten by Wild Dog
26	2002	T.N Palayam Range	3.12.02	Male Gaur	Electrocution
27	2003	Sathyamangalam Range, Chikarasampalayam Beat , Sathy to Bannari National Highway	3.3.03	Female Spotted Deer	Hit by Motor Vehicle
28	2003	T.N Palayam Range Vilankombai beat, Vannaanthurai pallam Saragam.	14.3.03	Male Gaur	Natural death
29	2003	T.N Palayam Range>	26.3.03	Female Sambar	Accidental fall into well
30	2003	T.N Palayam Range Vilankombai beat;	12.4.03	Female Gaur	Natural death (Infection of Intestine)
31	2003	T.N Palayam Range, Kanakkampalayam beat	24.4.03	Male Spotted Deer	Bitten by Wild Dog
32	2003	Thalavadi Range, Binakkanalli South Beat ,Bangalathoddi Saragam	27.4.03	Female Leopard cub	Natural death
33	2003	Sathyamangalam Range,	5.5.03	Female Barking Deer	Bitten by dogs

S No	Year	Range and Beat	Date	Species	Cause of death
34	2003	T.N Palayam Range, Kanakkampalayam beat	15.5.03	Female Spotted Deer	Bitten by Wild Dog
35	2003	Sathyamangalam Range,	20.5.03	Female Gaur Calf	Fall from elevated place
36	2003	T.N Palayam Range	26.5.03	Male Spotted Deer	Bitten by Wild Dog
37	2003	Bhavani Sagar Range , near Puliampatti Sandai pettai ;>	10.7.03	Male Spotted Deer	Accidental fall into well
38	2003	T.N Palayam Range;	14.7.03	Male Gaur	Fight with another Gaur
39	2003	Sathyamangalam Range, Kadambur west Beat	16.9.03	Female Sambhar	Drowned into water after chased by dogs
40	2003	Sathyamangalam Range, Kadambur main road, Perumpallam.	16.9.03	Female Sambhar	Attacked by Wild Dogs
41	2003	Sathyamangalam Range , Senbagapudur, Near Paper mill	16.9.03	Female Spotted Deer;	Chased by Dogs
42	2003	T.N Palayam Range	23.9.03	Female Gaur	Natural Death
43	2003	Sathyamangalam Range , K.N.Palyam Beat, Valamaduvu Saragam	12.11.03	Female Gaur	Lung abscess
44	2004	T.N Palayam Range, Kuttampalayam Beat, Orathipallam Saragam	30.1.04	Male Gaur	Liver cirrhosis
45	2004	Bhavani Sagar Range, Onnathittu Beat, Erumai thoddi Saragam..	11.2.04	Female Gaur	Intestine disease
46	2004	Hasanur Range	4.3.04	Female Gaur	Impaction of intestine and dehydration
47	2004	Bhavani Sagar Range, Vilamundi East Beat, Senbagapudur Village	11.3.04	Male Spotted Deer	Accidental fall into well
48	2004	Bhavani Sagar Range, Vilamundi East Beat	13.3.04	Male Spotted Deer	Bitten by Dogs
49	2004	Sathyamangalam Range, K. N.Palayam Beat, Near M.G.R Nagar	15.3.04	Male Spotted Deer;	Bitten by Dogs
50	2004	Bhavani Sagar Range, Onnathittu Section> Bannari National Highway	4.5.04	Female Spotted Deer	Hit by Vehicle
51	2004	Bhavani Sagar Range,Kothamangalam Beat, Pudupeerkadavu Village.	4.6.04	Male Spotted Deer	DBW severe haemorrhage, shock & death

S No	Year	Range and Beat	Date	Species	Cause of death
52	2004	Bhavani Sagar Range, Vilamundi East Beat, Chitanaikanpalayam	17.7.04	Male Spotted Deer	Head injury and shock
53	2004	T.N Palayam Range	4.8.04	Female Gaur	Impaction of stomach and intestines
54	2004	Sathyamangalam Range, Anaikarai Beat, Thoddimaduvu Saragam>	9.8.04	Male Gaur	Babinosis
55	2004	Sathyamangalam Range, K. N.Palayam Beat, Kamaraj Nagar, Kuttai .	16.8.04	Wild Boars 3 Nos. Male -1 Female- 2	Shock due to fall in well
56	2004	Sathyamangalam Range> Chikkarasampalayam Near Narasan kuttai	16.8.04	Female Gaur	Lung abscess
57	2004	Bhavani Sagar Range, Kothamangalam Beat> Karachikorai village.	20.8.04	Male Spotted Deer	Accidental fall into well
58	2004	T.N Palayam Range	30.8.04	Female Gaur	Impaction of stomach and intestines
59	2004	Sathyamangalam Range> Ekkattur Beat, Palakarai kodikal Saragam	16.9.04	Male Gaur	Acute Tymphany
60	2005	Sathyamangalam Range> Sathy – Atthani Road, near Pannari Amman sugars	27.1.05	Female Spotted Deer	Bitten by dogs
61	2005	Sathyamangalam Range> Near Puliampatti, Periyar Nagar (Field of Ramasamy s/o Maranaikar)	01.5.10	Female Spotted Deer	Accidental fall into well
62	2005	Bhavani Sagar Range, Bannari Beat, Near Bannarikoil	02.5.05	Female Spotted Deer	Old age and Dysentry
63	2005	Sathyamangalam Range> Near Puliampatti, Olapalayam village	17.6.05	Male Gaur	Accidental fall into well
64	2005	T.N Palayam Range>Kanakkampalayam Section, Neelipalikaradu Saragam.	24.8.05	Female Spotted Deer 3 Nos.	Accidental fall into well
65	2005	Sathyamangalam Range> Irutipalayam village,(Field of Nanjappa)	7.10.05	Male Gaur	Internal haemorrhage.

S No	Year	Range and Beat	Date	Species	Cause of death
66	2006	Sathyamangalam Range	24.1.06	Female Spotted Deer	Accidental fall into well
67	2006	T.N Palayam Range, Kundri Beat, Polarankuttai Saragam.	06.2.06	Male Gaur	Strangulation, shock & death
68	2006	Thalvadi Range	18.2.06	Female Spotted Deer calf	Asphyxiation anoxia & shock (Bitten by Wild Dog)
69	2006	T.N Palayam Range	05.3.06	Male Gaur	Internal haemorrhage.
70	2006	Sathyamangalam Range	24.3.06	Female Spotted Deer	Hit by Vehicle
71	2006	Sathyamangalam Range	26.4.06	Female Spotted Deer	Accidental fall into well
72	2006	Sathyamangalam Range	06.5.06	Female Gaur	Accidental fall into well
73	2006	Sathyamangalam Range, Vadavalli Beat, PIllaiyarkoil Saragam	21.6.06	Male Gaur	Natural Death
74	2006	Sathyamangalam Range	6.7.06	Male Gaur	Natural Death
75	2006	Sathyamangalam Range	10.7.06	Male Gaur	Natural Death
76	2006	Sathyamangalam Range	26.7.06	Female Spotted Deer	Hunted by wild animals
77	2006	Bhavani Sagar Range	30.7.06	Female Spotted Deer	Natural Death
78	2006	Thalavadi Range, Hasanur- Mysore National Highway	21.8.06	Male Gaur	Accident
79	2006	T.N Palayam Range>Kanakkampalayam Beat, Near Elephant water trough.	30.8.06	Male Gaur	Accident
80	2006	Thalavadi Range	3.9.06	Male Gaur	Natural Death
81	2006	T.N Palayam Range, Arigium Beat, Rangasamy malai Saragam..	23.9.06	Male Gaur	Natural Death
82	2006	Sathyamangalam Range	27.9.06	Male Gaur	Natural Death
83	2006	T.N Palayam Range	3.10.06	Female Spotted Deer	Shock
84	2006	Sathyamangalam Range	4.10.06	Female Gaur	Natural Death
85	2006	T.N Palayam Range, Arigium Beat, Near Kanakkampalayam Madha koil	17.10.06	Female Gaur	Natural Death
86	2006	T.N Palayam Range, Kongampalayam Beat	1.11.06	Female Gaur	Natural Death

S No	Year	Range and Beat	Date	Species	Cause of death
87	2006	Thalavadi Range	4.11.06	Male Gaur	Natural Death
88	2006	Sathyamangalam Range	12.11.06	Female Gaur	Natural Death
89	2006	Sathyamangalam Range	17.11.06	Female Mouse Deer	Shock
90	2006	Sathyamangalam Range	20.11.06	Male Spotted Deer	Shock
91	2006	Sathyamangalam Range	9.12.06	Female Gaur	Natural Death
92	2007	T.N Palayam Range, Alukuli village	14.2.07	Male Spotted Deer	
93	2007	Hasanur Range	19.4.07	Male Gaur	Acute Tympany
94	2007	Bhavani Sagar Range, Bnnari Beat, Erudukatti Saragam.	2.5.07	Female Gaur	Natural Death
95	2007	Thalavadi Range, Dignari Beat	3.5.07	Female Spotted Deer	Electrocution
96	2007	T.N Palayam Range> Gopi- Modachur, Anbu Nagar, 2nd street	8.5.07	Male Peacock	Electrocution
97	2007	T.N Palayam Range, Bangalapudur Beat.	29.5.07	Female Spotted Deer calf	Suspected foot and mouth disease
98	2007	Bhavani Sagar Range, Bejaletti beat, Karachikorai.	14.6.07	Female Leopard cub	Natural death
99	2007	Sathyamangalam Range	19..6.07	Female Spotted Deer calf	Natural death
100	2007	Sathyamangalam Range, Chikkarasampalayam Beat , Puliamaratu kodikal Saragam	16.6.07	Male Sambar	Natural death
101	2007	Sathyamangalam Range, K.N. Palayam Beat, Thuri muniappan Koil Saragam	9.7.07	Female Bear	Fear and injury
102	2007	Bhavani Sagar Range, Kothamangalam Beat> Dhimbam- Bannari Road	4.8.07	Female Gaur	Motor Vehicle Accident
103	2007	T.N Palayam Range> Makkampalayam Beat, Tattapallam Saragam	12.9.07	Male Gaur	Natural death
104	2007	T.N Palayam Range, Nambiyur Village (Field of S.S.Mani S/o Sellappan);	26.9.07	Male Spotted Deer	Injured in Barbed wire
105	2007	T.N Palayam Range	26.12.07	Male Gaur	Natural death

S No	Year	Range and Beat	Date	Species	Cause of death
106	2008	Sathyamangalam Range, Dhimbam Beat, Engineering Road Saragam	24.5.08	Male Gaur	Accident
107	2008	Bhavani Sagar Range, Bnnari Beat, THoranapallam Saragam.	12.10.08	Male Gaur	Natural death
108	2008	Sathyamangalam Range, Vadavalli Beat, Vanasulialpannai	15.10.08	Female Gaur	Natural death
109	2008	Bhavani Sagar Range, Thengumarahada Beat, Parisalthurai Saragam	09.12.08	Male Leopard	Natural death
110	2009	Sathyamangalam Range, Chikkarasampalayam Beat	11.1.09	Female Sambar	Bitten by Wild Dogs
111	2009	T.N Palayam Range, Bangalapudur Beat.	11.1.09	Male Peacock	Due to severe impaction of crop with undigested grain
112	2009	T.N Palayam Range, Koothampalayam Beat, Icharampatti Saragam.	05.4.09	Male Gaur-1 Female Gaur-1	Bronchopneumonia , Tympomates
113	2009	T.N Palayam Range, Gopi, Velumani Ngar	24.4.09	Male Peacock	Internal rupture of crop leads to gangrene of pectoral muscles
114	2009	Sathyamangalam Range, Anaikarai Beat, Ottia Iruttipalayam	29.4.09	Male Gaur	Hepatitis
115	2009	T.N Palayam Range, Kolinjikal Sragam	06.8.09	Male Spotted Deer	Shock
116	2009	T.N Palayam Range, Kadambur Beat, Ponparai Saragam	7.10.09	Female Gaur	Fracture and starvation
117	2009	Sathyamangalam Range, Vdavalli Beat, Billimokkai Saragam	29.10.09	Female Leopard	Strangulation and shock
118	2009	T.N Palayam Range, Kolapalur-Akkaraipalayam village	31.10.09	Female Spotted Deer	Shock
119	2009	Hasanur Range, Hasanur Beat, Karapallam Saragam	17.11.09	Male Leopard	Natural causes
120	2010	Bhavani Sagar Range, Bejaletti Beat	21.1.2010	Male Leopard	Carcass highly decomposed.
121	2010	T.N Palayam Range, Bangalapudur Beat	22.1.2010	Male Gaur	Predator attack
122	2010	T.N Palayam Range, Kovilur Beat	14.2.2010	Female Gaur	Hepatitis
123	2010	Sathyamangalam Range, Vadavalli Beat	7.3.2010	Male Bear	Due to age and Lung abscess
124	2010	T.N Palayam Range, Savarikattupalayam	11.3.2010	Male Spotted Deer	Natural causes
125	2010	T.N Palayam Range, Gopi, Banglapudur Road, Periavaikkalpalam;	24.3.2010	Male Spotted Deer	Natural causes

APPENDIX - 25

NTFP Guideliness

Sl. No.	Nomenclature	Relevant Orders
1.	Reserve Fund	1) G.O. Ms. 351, Environment & Forests Dept. dt. 21.10.1993 for interface Forestry Programme. 2) G.O. Ms. No. 216, Environment & Forests Dept. dt. 30.08.1994 for Interface Forestry Programme.
2.	Village Forest Development Fund	1) G.O.Ms. N. 342, Environment & Forests dept. dt. 08.08.1997 for TAP Project. 2) G.O. Ms. No. 45, Environment & Forests Dept. dt. 11.11.2002 for TAP Project. 3) PCCF's Ref. No. TAP8/36724/2005, dt. 22.11.2006.
3.	Village Development Fund	1) Government of India 2000 guidelines on JFM. 2) Government of India NAP guidelines issued by National Afforestation and Eco – Development Board Ministry of Environment & Forests in Ref. No. 35:36:1.002/B-II

Reserve Fund: Guidelines issued as per G.O. Ms. No. 351, Environment & Forests, dated 21.10.1993 gives the following details for constitution of Reserve Fund from the profits that accrue out of benefit sharing of NTFP. Part of the profit from Forest leases or selling produce not exceeding 10% of the profit to be credited to Reserve Fund The relevant extract from the above mentioned G.O. is reproduced below.

G.O. Ms. 351/21.10.93 – Appendix

Reserve Fund – Maintenance of Accounts and Maintenance of Reserve Fund

The post office account / Bank account will be jointly operated by the President and Secretary to the **Executive Committee:** The Executive Committee is authorized to retain a part of the profit that accrues to the Village Forest Committee / Executive Committee by operating forest leases or selling produce etc. as Reserve Fund which will be set apart for meeting any contingencies, Eg, Fertilizer application, repair work to soil and moisture conservation structure, Regeneration operations, Transport and marketing of Minor Forest Produce etc. the Reserve Fund shall not exceed 10% of the profits. The upper limit of the Reserve Fund at any time shall not exceed Rs.10,000/- in the event of the Reserve Fund is likely to exceed Rs.10,000/- the amount in excess should be shared equitably among the members of the Village Forest Council. The Forester who is the Secretary of the Executive Committee will be responsible for keeping the

accounts of the Executive Committee. Accounts will be presented by him in the Village Forest Council at the annual meeting. The Forest Ranger, who is in charge of Interface Forestry Range will examine the accounts bi-annually (twice annually). He will arrange to reconcile any discrepancies to set right the defects notices. The ex-officio Secretary of the Executive Committee (Forester) will be held responsible for any false of funds, operated by the Executive Committee.

In the same Government order in the category 'A' of Minor Forest Produce 10% profit from MFP allotment to be credited to the Reserve Fund. The relevant extract of the order is furnished below:

Benefit sharing – NTFP: There will be two categories of NTFP. That is Category 'A' and Category 'B'.

Category 'A: Category 'A' will include like (1) Usil leaves, (2) Sundaikkai, (3) Medicinal herbs, (4) Curry leaves, (5) Agave etc. These items can be collected free of cost. The beneficiaries will be identified by the Executive Committee and permits will be issued for collection by households in such a way that it does not exceed optimum harvestable quantity. Tamarind and Nelli will also be allotted free of cost to the Executive Committee after assessing the yield. The profit will be shared equitably among all the members of Village Forest Council after keeping 10% for Reserve Fund.

In the same Government Order in the case of category B Minor Forest Produce like Gallnut and stone and tree mosses 10% profit from sale to be credited to Reserve Fund. The relevant extract of the G.O. is reproduced below:

Category 'B : This category will include items like (1) Gallnut (2) Stone and tree mosses hitherto, these Minor Forest Produce items were being auctioned and collection was done by the contractors. They will now be allotted to the Executive Committee annually, at 25% of the fair price fixed. Fair price will be fixed annually by the Divisional Forest Officer and approved by the Conservator of Forests. The Committee shall ensure that the sale is conducted efficiently and the proceeds are passed on to all the members of the Village Forest Council equitably. A savings bank account will be opened in the name of each Village Forest Council member and the respective share will be deposited. EG.

a) If fair price of Minor Forest Produce is fixed at Rs.100/-
b) Allotment of Executive Committee @ 25% is = Rs.25/-

Auctioned by the Executive Committee at Rs.100/- the proceeds will be distributed as follows:

a) Profit accrued to Executive Committee
b) Sale Price – allotment price Rs.100 – Rs.25 = Rs.75/-
c) Amount credited to Reserve Fund at 10% of profit = Rs.7.50
d) Balance amount (ie., 90% of the profit) will be shared equitably among the members of village Forest Council.

In the case of amendment effected as per G.O. Ms. No. 216, dated 30.8.94 to the above given G.O., it has been reiterated that the Reserve Fund should not exceed 10% of the profit. The relevant extract is furnished below:

G.O. Ms. 216/30.8.94 : The para 6.4.3 of G.O. Ms. No. 351 that is reproduced below has been modified as given in the next para:

(G.O. Ms. No. 351) Category 'A' will include like (1) Usil leaves, (2) Sundaikkai, (3) Medicinal herbs, (4) Curry leaves, (5) Agave etc. These items can be collected free of cost. The beneficiaries will be identified by the Executive Committee and permits will be issued for collection by households in such a way that it does not exceed optimum harvestable quantity. Tamarind and Nelli will also be allotted free of cost to the Executive Committee after assessing the yield. The Profit will be shared equitably among all the members of Village Forest Council after keeping 10% for Reserve Fund.

Modified in G.O. Ms. No.216, dt.30.8.1994 : Benefit sharing – MFP Category 'A' will include items like (1) Usil leaves, (2) Neem fruit, (3) Sundaikkai, (4) Medicinal herbs, (5) Agave etc. Those items can be collected free of cost. The beneficiaries' members of poor households, who have been traditional collecting these items, will be identified by the Village Forest Council and permits will be issued for optimum harvest. Tamarind and Nelli will also be allowed free of cost to the Village Forest Council after assessing the yield. The profits will be shared by Village Forest Council after keeping 10% Reserve Fund.

Govt. Lr. No. 18377/FR VI/95-3/14.9.95 – Amended Guidelines

1993	1995
Reserve Fund : The Executive Committee is authorized to retain a part of the profit that accrues to Village Forest Council / Executive Committee by operating Forest leases or selling produce as Reserve Fund will be set apart for meeting any contingencies. The Reserve Fund shall not exceed 10% of the profits, the upper limit not to exceed Rs.10,000/- should be shared equitably among the member of VFC. The Forester who is the Secretary of the Executive Committee will be held responsible in keeping the accounts of the Executive Committee.	The Executive Committee is authorized to retain a part of the profit that accrues to Village Forest Council / Executive Committee by operating forest lease or selling produce. The resultant accrued Reserve Fund will be set apart for meeting any contingencies by the Executive Committee. The Reserve Fund shall not exceed 10% of the profits, the upper limit not to exceed Rs.10,000/- should be shared equally among the members of VFC. The Forester who is the Secretary of the Executive Committee is responsible for the maintenance of accounts, which can be verified by any member of the Village Forest Council or Executive Committee.

Village Forest Development Fund (VFDF)

VFDF has been constituted as per G.O.Ms. No. 342, Environment & Forests dept. dt. 8.8.97. In accordance with this G.O. fines from forest offences like illicit removal of fire wood and grazing to be credited to VFDF. In addition, 25% of the sale proceeds from selling surplus quantity of MFP to be credited to VFDF. Membership money, initial expenditure provided from the Forest department, grants and loans obtained for JFM activities from authorized sources as per the MOU and money levied as fines and penalties should also be credited to VFDF. The relevant extract from the above said G.O. is reproduced below:

G.O. Ms. 342/8.8.97 :

The EC can also impose fines against erring individuals / hamlets for illicit removal of firewood or illicit grazing of cattle. The fine amount collected will be credited to the Village Forest Department Fund (VFDF) to be created for the Village Forest Council. If persuasive efforts fail, it may request District / Divisional Forest Officer concerned to invoke the provisions of Forest Act for protecting the management unit.

All non – wood Minor Forest Produce (MFP) for domestic consumption will be given free of cost to the members of VFC subject to availability. Any surplus quantity will be sold by EC. Sustainable NWFP available will be decided by District / Divisional Forest Officer. Any other sustainable yield from the management unit as decided by District / Divisional Forest Officer will be sold by EC. The sale proceeds so received will be distributed equitably among the members of VFC by the EC after remitting 25% (twenty five percent) to Village Forest Development Fund. Surplus benefits likely to be available from the management unit can be extended to others by the District / Divisional Forest Officer is consultation with VFC. The Village Forest Development Fund shall be maintained as a separate account head into which will be credited. 25% (Twenty five percent) of sale proceeds realized in accordance with para 5.2.4. Membership money Initial expenditure provided from the Forest Department.

Grants and loans obtained for JFM activities from authorized sources as per MOU

Money levied as fines and penalties.

The Village Forest Development Fund created for the VFC will be utilized for any contingent or ancillary expenditure by the EC. Accounts of the Village Forest Development Fund will be maintained by Ms which will be audited by the District / Divisional Forest Officer annually.

90% of the revenue from sale of forest produces like timber, poles, bamboo etc. other than non – timber forest produce should be credited to VFDF. The relevant extract of G.O. Ms. No. 45, Environment & Forests department dt.11.11.02 is reproduced below:

G.O. Ms. 45/11.11.02: Revenue from forest produce other than non – timber forest produce (NTFP) like timber, poles, bamboo etc. will be shared between the Forest Department and the Village Forest Council (VFC) 90% of such revenue shall be credited into the accounts of the Village Forest Development Fund (VFDF) and the remaining 10% shall be remitted to the Forest department. The harvesting and extraction of timber, poles, bamboo etc. shall be done by the District Forest Officer concerned as per the existing procedures and rules of the Forest department with the participation of Executive Committee (EC) members.

Amendment – III

The Village Forest Development Fund (VFDF) created for the Village Forest Council (VFC) will be utilized in the following manner.

i. For maintenance, Production and improvement of the forest are managed by them
ii. For extending assistance to Forest dependents and poor for alternate employment and poverty alleviation.
iii. For community asset creation
iv. For meeting any contingent and ancillary expenditure by the Executive committee.

The accounts of the Village Forest Development Fund will be maintained by the Member Secretary, which will be audited by the District / Divisional Forest Officials annually.

APPENDIX - 26

Details of NTFP removed by Tribal VFC & Revenue Generated - A Glance

Table: The extent of grazing allowed on a rotation basis in Sathyamangalam Division

Years	*Open Area allowed for grazing*	*Buffaloes*	*Cows*	*Sheep*	*Amount (RS)*
1998-91	11,83,799.82	1189	7218	13,986	63,878
1991-2000	11,37,99. 87	468	6580	13,122	55,372
2000-01	11,21,44.72	398	5162	0	23,036
2001-02	11,17,14.83	377	4519	0	20,338
2002-03	11,1070.82	589	8899	0	39,130
2003-04	11,0420.82	938	15,692	0	68,356
2004-05	10,9592.82	541	11,411	0	48,890
2005-06	98,688.32	660	11,177	0	48,668
2006-07	98,188.32	664	7407	0	33,612
2007-08	96,709.32	204	4562	0	19,472

APPENDIX - 27

Table: Details of NTFP removed by Tribal VFC & Revenue Generated - A Glance

Name of the Range	Name of VFC	Name of NTFP	2003-04			2004-05			2005-06			2006-07			2007-08		
			Yield estimate Tonnes	Qty removed in Tonne	Net Revenue Rs.	Yield estimate Tonnes	Qty removed in Tonne	Net Revenue Rs.	Yield estimate Tonnes	Qty removed in Tonne	Net Revenue Rs.	Yield estimate Tonnes	Qty removed in Tonne	Net Revenue Rs.	Yield estimate Tonnes	Qty removed in Tonne	Net Revenue Rs.
Bhavanisagar	1. Bejalatti Tribal VFC	Date leaves	92.000	30.090	74325	45.000	55.170	295156	45000	45.538	111555	55.000	6670	37852	65000		
		Nellikkai	29.000	86.682	211503	93.000	19390	56231	60000	1.950	177360	60.000	--	--	7500	12520	12520
		Gallnut	0.900	0.375	750	0.500	0.500	700	0.500	--	1115	1.000	--	--	200	--	--
		Mango (vadu)	0.250	1.662	6648				--	--	--	--	--	--	--	--	--
		Tamarind	385	--	--	0.100	0.100	495	--		--	0.150	--	--	--	--	--
					293226			**352582**			**290030**	**--**	--	--	**--**	**--**	-
Bhavanisagar	2.Mavana-tham	Date leaves	80.000	43.060	108510	95.000	35510	189394	60.000	30.580	113136	50.000	32940	289703	43000	26040	221780
		Nellikkai	47.000	76.173	186609	80.000	5.705	16554	50.000	0.750	2288	40.000	6120	18665	4200	16030	16030
		Poochaikkai	--	--	--	--	--	--	--	--	--	--	--	--	600	300	1200
		Gallnut	0.500	0.200	400	0.500	0.500	700	0.500	--	--	0.500	--	--	--	--	--
		Tamarind	0.120	--	--	0.300	0.030	149	--	--	--	0.050	--	--	--	--	--
					295519			**206797**			**115424**		--	**--**	**--**	--	--
	3.Kali-dhimbam Tribal VFC	Date leaves	40.000	26.620	69387	30.000	19.500	97305	30.000	25.270	94766	40.000	66140	630551	36000	--	--
		Nellikkai	14.000	34.020	51201	37.000	12102	35095	20.000	1.050	2025	25.000	8760	26717	7500	--	--
		Gallnut	0.200	0.150	300	0.250	0.250	0.350	--	--	--	0.500	--	--	200	--	--
		Neem	0.200	--	--	--	--	--	--	--	--	--	--	--		--	--
		Tamarind	0.210	--	--	0.630	0.630	3119	--		--	0.650	--	--		--	--
		TOTAL			**120888**			**135869**			**96791**	**--**	--	--		--	--
	4. Ittarai	Date leaves	25.000	25.780	60816	35.000	45.190	239511	40.000	18.410	50.000	--	--	--	44000	--	--
		Nellikkai	6.000	26.487	64893	37.000	5.765	16718	25.000	0.200	73900	30.000	--	--	2000	--	--
		Gallnut	0.300	0.200	400	0.250	0.250	350	0.250	--	557	1.000	--	--	200	--	--
		Mango	0.250	0.255	1020	--	--	--	--	--	--	--	--	--		--	--
		Tamarind	--	--	--	0.040	0.040	198	--	--	--	0.050	--	--		--	--
		TOTAL			**127129**			**256777**			**173617**		--	--		--	--

me of the Range	Name of VFC	Name of NTFP	2003-04			2004-05			2005-06			2006-07			2007-08		
			Yield estimate Tonnes	Qty removed in Tonne	Net Revenue Rs.	Yield estimate Tonnes	Qty removed in Tonne	Net Revenue Rs.	Yield estimate Tonnes	Qty removed in Tonne	Net Revenue Rs.	Yield estimate Tonnes	Qty removed in Tonne	Net Revenue Rs.	Yield estimate Tonnes	Qty removed in Tonne	Net Revenue Rs.
Bhavanisagar	5. Rama-ranai	Date leaves	5.000	3.390	6611	10.000	6.020	30039	6.000	9.090	34088	7.500	17930	169389	20000	6920	6920
		Nellikkai	1.000	2.701	6986	3.000	3.870	11223	3.000	1.600	4232	3.000	4460	13602	3300	200	800
		Gallnut	0.500	0.075	150	0.250	0.250	350	0.250	0.090	225	0.500			150		
		Tamarind	0.330	0.350	1943	0.150	0.150	743	0.600	0.600	3378	0.600					
		TOTAL			**15690**			**42355**			**41923**						
	6. Uppu-pallam	Date leaves	5.000	1.300	2600	5.000	3.470	15440	5.000	3.850	14053	5.000	9950	87320	15000	5000	5000
		Poochai-kkai	9.500	--	--	1.000	0.580	2494	1.000	0.780	2652	1.000	--	--	450	--	--
		Neem	--	--	--	1.000	--	--	0.200	--	--	0.200	--	--		--	--
		Pungan	0.140	--	--	0.100	--	--	0.100	--	--	0.100	--	--		--	--
		Tamarind	0.715	0.301	1671	0.250	--	--	--		--	0.300	--	--		--	--
		TOTAL			**4271**			**17934**			**16705**	**--**	**--**	--		--	--
	7. Nandhi puram	Poochai-kkai	2.500	--	--	1.000	0.490	2107	1.000	--	--	1.000	1050	--	500	--	--
		Neem	1.230	--	--	1.000	0.100	160	--	--	--	0.600	600	--	500	--	--
		Pungan	0.360	--	--	0.200	0.100	350	0.200	--	--	0.200	200	6356	100	--	--
		Tamarind	2.420	--	--	0.800	--	**--**	**--**	**--**	**-**	**1.000**		--		--	--
		TOTAL							**2617**					--		--	--
Hassanur	8. Centre Doddy	Date leaves	40.000	18.070	56351	29.000	19.990	86356	20.000	14.440	115909	20.000	14600	--	19000	6970	61760
		Nellikkai	25.000	30.905	77263	33.000	2.850	8180	20.000	9.220	33502	20.000	25075	81493	14000	--	--
		Poochai-kkai	0.060	--	--	0.060	0.025	84	0.060	--	--	0.050	--	--	100	--	--
		Gallnut	0.760	--	--	0.300	0.250	565	0.300	--	--	0.150	--	--		--	--
		Mango	0.500	0.320	1261	--	--	--	--	--	--	--	--	--		--	--
		Seekai-kkai	0.026	0.020	128	0.015	0.015	114	0.015	--	--	0.020	--	--		--	--
		Tamarind	1.636	1.630	4841	1.330	--	--	0.900	0.695	3962	0.700	--	--		--	--
		TOTAL			**139844**			**95299**			**153373**		--	--		--	--

Name of the Range	Name of VFC	Name of NTFP	2003-04			2004-05			2005-06			2006-07			2007-08		
			Yield estimate Tonnes	Qty removed in Tonne	Net Revenue Rs.	Yield estimate Tonnes	Qty removed in Tonne	Net Revenue Rs.	Yield estimate Tonnes	Qty removed in Tonne	Net Revenue Rs.	Yield estimate Tonnes	Qty removed in Tonne	Net Revenue Rs.	Yield estimate Tonnes	Qty removed in Tonne	Net Revenue Rs.
--Hassanur	9. Kuliyada	Date leaves	35.000	19.150	66801	12.000	12.850	55512	17.000	7.942	85376	17.000	16980	151798	13000	--	--
		Nellikkai	20.000	21.148	52236	15.000	2.650	7606	14.000	2.160	7773	15.000	3350	10117	2700	--	--
		Poochai-kkai	0.080	--	--	0.030	0.035	117	0.080	--	--	0.050	--	--	100	--	--
		Gallnut	1.440	--	--	0.100	0.150	339	0.810	--	--	0.050	--	--	--	--	--
		Neem	--	--	--	--	--	--	0.200	--	--	--	--	--	--	--	--
		Seekai-kkai	0.142	0.070	448	0.020	0.020	152	0.020	--	--	0.020	--	--	--	--	--
		Tamarind	0.654	0.300	891	0.370	--	--	0.300	0.130	741	0.275	--	--	--	--	--
		TOTAL			**120376**			**63726**			**93890**	--	--	--	--	--	---
	10. Gedde-sal	Date leaves	40.000	23.290	76251	35.000	27.420	122017	30.000	29.734	179890	30.000	54580	467978	36000	21130	--
		Nellikkai	35.000	72.333	177216	73.000	9.120	25874	40.000	22.540	69874	40.000	21870	66047	18000	66710	--
		Poochai-kkai	0.100	--	--	0.100	0.045	150	0.100	0.250	850	0.100	190	697	200	--	--
		Gallnut	0.670	-	-	0.67`0	0.510	1153	0.670	0.960	2304	0.500	510	1122	500	--	--
		Mango	3.000	0.205	807	--	--	--	--	--	--	--	--	--	400	--	--
		Seekai-kkai	0.500	0.345	2208	0.300	0.200	1524	0.300	0.505	4091	0.350	--	--	--	--	--
		TOTAL			**256752**			**150718**			**257009**		--	--	--	--	
	11.Kana-karai	Date leaves	18.000	1.550	3906	10.000	8.790	20655	10.000	9.690	51841	10.000	4400	36740	10000		
		Nellikkai	9.000	15.007	36767	16.000	3.500	10039	5.000	7.260	26862	10.000	1020	3080	3600	3743	**8743**
		Poochai-kkai	0.050	--	--	0.050	0.025	84	0.050	0.150	495	0.050	210	771	150	--	--
		Gallnut	0.720	--	--	0.500	0.150	339	--	--	--	0.050	--	--	100	--	--
		Seekai-kkai	0.015	0.010	64	--	--	--	--	--	--	--	--	--	--	--	--
		Tamarind	0.327	0.300	891	0.250	--	--	0.200	0.320	1824	0.175	--	--	--	--	--
		TOTAL			**41628**			**31117**			**81022**		--	--	--	--	--

Name of the Range	Name of VFC	Name of NTFP	2003-04			2004-05			2005-06			2006-07			2007-08		
			Yield estimate Tonnes	Qty removed in Tonne	Net Revenue Rs.	Yield estimate Tonnes	Qty removed in Tonne	Net Revenue Rs.	Yield estimate Tonnes	Qty removed in Tonne	Net Revenue Rs.	Yield estimate Tonnes	Qty removed in Tonne	Net Revenue Rs.	Yield estimate Tonnes	Qty removed in Tonne	Net Revenue Rs.
Hassanur	12. Orathi	Date leaves	15.000	1.200	3144	5.000	1.300	3055	4.000	1.190	6366	3.000	1840	5557	1000	1000	8000
		Nellikkai	9.000	7.420	18.625	8.000	0.200	574	3.000	3.371	12472	5.000	--	--	1800	--	--
		Poochai-kkai	0.050	--	--	0.050	0.025	84	0.080	--	--	0.050	--	--	100	--	--
		Gallnut	--	--	--	0.020	0.010	23	--	--	--	0.020	--	--	--	--	--
		Tamarind	0.655	0.150	446	0.050	--	--	0.300	0.250	1425	0.375	--	--	--	--	--
		TOTAL			**22215**			**3736**			**20263**	--	--	--	--	--	--
Hassanur	13. Hosur	Date leaves	15.000	1.100	2585	5.000	1.410	3314	3.000	1.220	6527	3.000	--	--	--	--	--
		Nellikkai	4.000	4.500	11025	5.000	--	--	2.000	1.350	5063	2.000	2000	6040	1000	1000	8000
		Poochaikkai	0.060	--	--	0.060	0.025	84	0.060	--	--	0.020	--	--	1200	--	--
		Gallnut	8.000	--	--	1.000	0.500	1130	0.500	--	--	0.200	--	--	250	--	--
		Seekaikkai	0.20	0.010	64	--	--	--	--	--	--	0.020	--	--	--	--	--
		Tamarind	0.327	0.510	1515	--	--	--	0.300	0.350	1995	--	--	--	--	--	--
		TOTAL			**15189**			**4528**			**13585**		--	--	--	--	--
Hassanur	14) Vaithi-yanatha-puram	Date leaves	15.000	4.370	8740	8.000	1.150	2702	3.000	2.420	12947	3.000	--	--	--	--	--
		Nellikkai	3.000	3.350	8375	4.000	--	--	2.000	1.720	6450	2.000	2480	7490	1200	1010	8080
		Poochaikkai	0.110	--	--	0.110	0.030	100	0.110	--	--	0.050	--	--	1400	--	--
		Gallnut	5.330	--	--	5.330	0.850	1921	1.330	0.880	2288	0.300	--	--	700	--	--
		Seekaikkai	0.013	0.010	64	0.100	0.025	191	0.100	--	--	0.050	--	--	--	--	--
		Tamarind	1.091	0.510	1515	--	--	--	0.600	0.250	1425	0.700	--	--	--	--	--
		TOTAL			**18694**			**4914**			**23110**		--	--	--	--	--

Name of the Range	Name of VFC	Name of NTFP	2003-04			2004-05			2005-06			2006-07			2007-08		
			Yield estimate Tonnes	Qty removed in Tonne	Net Revenue Rs.	Yield estimate Tonnes	Qty removed in Tonne	Net Revenue Rs.	Yield estimate Tonnes	Qty removed in Tonne	Net Revenue Rs.	Yield estimate Tonnes	Qty removed in Tonne	Net Revenue Rs.	Yield estimate Tonnes	Qty removed in Tonne	Net Revenue Rs.
Hassanur	15. Uginium	Date leaves	16.000	5.450	12916	12.000	2.050	7319	6.000	4.380	23433	5.000			2100	--	--
		Nellikkai	10.000	9.980	24651	10.000	0.200	574	5.000	4.540	16707	5.000	1950	5889	2000	--	--
		Poochaikkai	0.045	--	--	0.045	0.075	251	0.045	--	--	0.025	--	--	50	--	--
		Gallnut	1.395	--	--	0.250	0.200	452	0.200	--	--	0.100	--	--	--	--	--
		Seekaikkai	0.017	0.015	96	--	--	--	--	--	--	--	--	--	--	--	--
		Tamarind	0.273	0.300	1338	--	--	--	0.200	0.140	798	0.200	--	--	--	--	--
		TOTAL			**39001**			**8596**			**40938**	--	--	--	-	--	--
Hassanur	16. Nagalur	Date leaves	16.000	4.690	11162	12.000	2.250	8033	6.000	--	--	5.000	--	--	2000	--	--
		Nellikkai	10.000	7.404	18288	10.000	--	--	5.000	3.440	12659	5.000	--	--	1700	--	--
		Poochai-kkai	0.045	--	--	0.045	0.075	251	0.045	--	--	0.025	--	--	50	--	--
		Gallnut	1.335	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		Seekaikkai	0.017	0.015	96	--	--	--	--	--	--	--	--	--	--	--	--
		Tamarind	0.273	0.300	1188	--	--	--	0.200	0.660	3762	**0.200**	--	--	--	--	--
		TOTAL			**30734**			**8284**			**16421**		--	--	--	--	--
Talavadi	17. Bungalow - thoddi	Date leaves	28.000	2.550	6502	12.000	18.120	67950	20.000	15.260	148785	14.000	24430	196216	20000	3720	**32372**
		Nellikkai	12.600	28.830	66310	26.000	1.944	5499	18.000	7.971	27899	15.000	12930	39416	10000	5105	5105
		Gallnut	0.750	0.750	1988	1.100	--	--	0.100	0.400	1000	0.200	--	--	200	--	--
		Mango	1.000	1.691	6764	--	--	--	--	--	--	--	--	--	--	--	--
		Tamarind	0.400	--	--	0.400	0.725	3588	0.400	0.400	2292	0.400	--	--	--	--	--
		TOTAL			**82881**			**77037**			**179976**		--	--	--	--	--

Name of the Range	Name of VFC	Name of NTFP	2003-04			2004-05			2005-06			2006-07			20007-08		
			Yield estimate Tonnes	Qty removed in Tonne	Net Revenue Rs.	Yield estimate Tonnes	Qty removed in Tonne	Net Revenue Rs.	Yield estimate Tonnes	Qty removed in Tonne	Net Revenue Rs.	Yield estimate Tonnes	Qty removed in Tonne	Net Revenue Rs.	Yield estimate Tonnes	Qty removed in Tonne	Net Revenue Rs.
Talavadi	18. Alla-puram thoddi	Date leaves	38.000	3.550	7722	18.500	12.280	45862	15.000	14.300	113689	15.000	19630	18583	16000	17830	136122
		Nellikkai	24.200	30.256	68076	30.000	2.745	7905	15.000	3.425	10960	12.000	--	--	3000	3570	3570
		Gallnut	1.000	0.089	231	0.100	0.100	227	0.100	0.160	400	0.100	--	--	100	--	--
		Pungan Vilampazam	0.800	0.300	1620	--	--	--	--	--	--	--	--	--	--	--	--
		Mango	1.000	1.140	4560	--	--	--	--	--	--	--	--	--	--	--	--
		Tamarind	0.400	--	--	0.300	0.310	1535	0.300	0.300	1891	0.300	--	--	--	--	--
		TOTAL			**82209**				**55529**		**126940**	--	--	--	--	--	--
Talavadi	19. Kal-mandi puram	Nellikkai	25.200	24.710	56833	24.000	2.730	7862	10.000	0.680	2040	10.000	400	1220	2000	--	--
		Gallnut	0.500	--	--	1.000	0.400	908	0.100	--	--	0.200	--	--	200	--	--
		Pungan	0.500	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		Tamarind	1.300	--	--	1.100	0.400	1980	0.700	--	--	0.700	--	--	--	--	--
		TOTAL			**56833**			**10750**			**2040**		--	--	--	--	--
Talavadi	20.Bala-padugai	Date leaves	44.000	3.500	7350	19.500	3.815	14306	5.000	7.146	66100	5.500	6050	80616	6000	1830	1830
		Nellikkai	38.600	35.349	79536	40.500	3.695	10551	16.000	3.380	10140	16.000	16000	4880	10000	--	--
		Gallnut	2.000	--	--	0.600	0.250	568	0.100	--	--	0.100	--	--	200	--	--
		Tamarind	1.400	--	--	1.760	0.450	228	0.600	--	--	0.600	--	--		--	--
		TOTAL			**86886**			**20716**			**76240**		--	--		--	--
Sathyamangalam	21. Kilathur	Nellikkai	10.000	3.360	13609	3.500	0.500	1450	2.000	4.505	13750	3.000	--	--	2000	--	--
		Gallnut	0.200	0.200	360	0.050	0.050	115	0.100	0.100	230	0.100	290	1450	50	--	--
		Pungan	0.050	0.050	168	0.050	0.050	175	--	--	--	0.100	--	--	200	--	--
		Vilampazam	0.050	0.050	67	--	--	--	--	--	--	--	--	--	--	--	--
		Tamarind	0.187	0.205	1137	0.150	0.100	495	0.500	0.500	2865	0.500	--	--	--	--	--
		TOTAL			**15341**			**2235**			**17010**		--	--	--	--	--

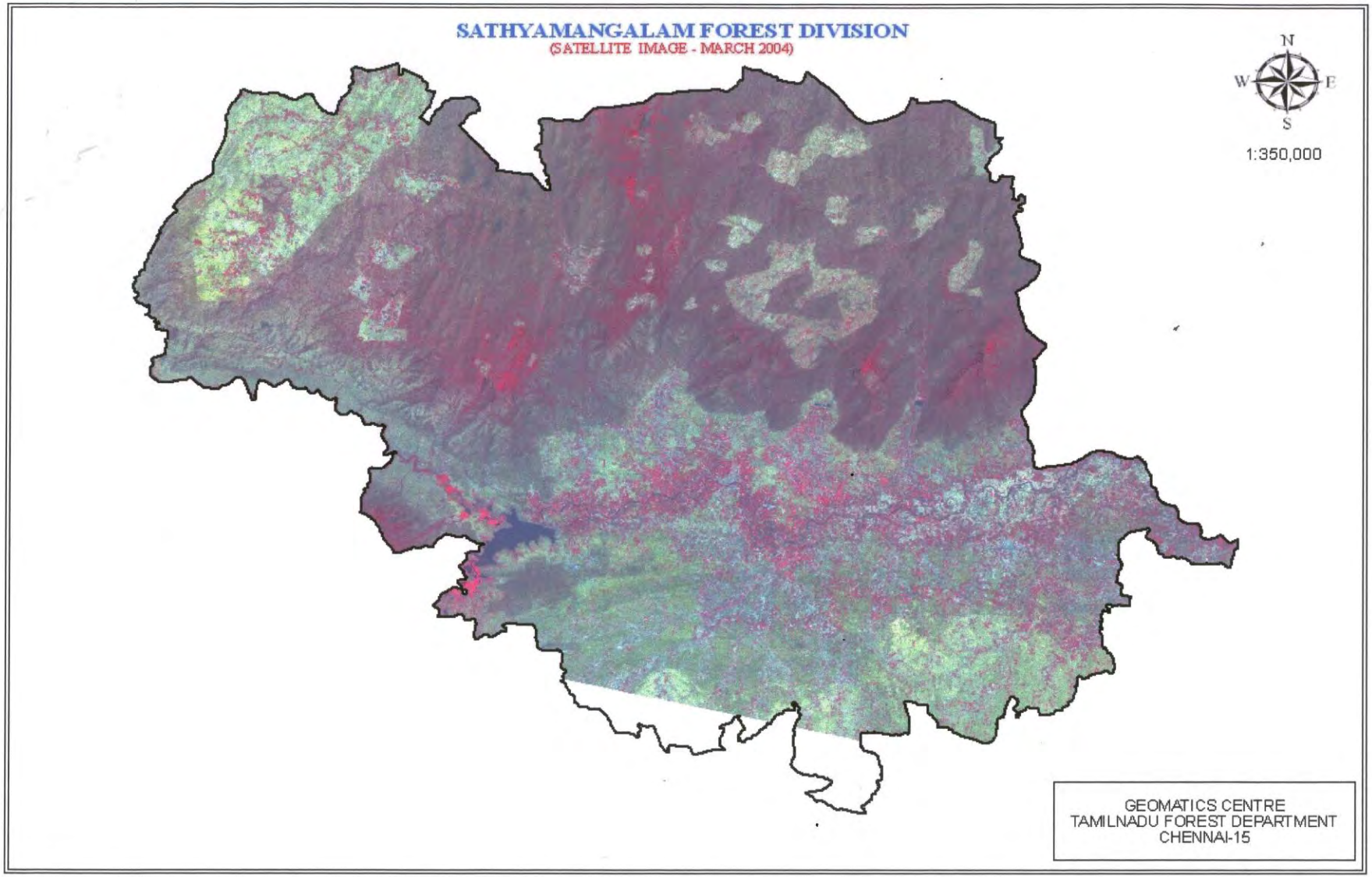
Name of the Range	Name of VFC	Name of NTFP	2003-04			2004-05			2005-06			2006-07			2007-08		
			Yield estimate Tonnes	Qty removed in Tonne	Net Revenue Rs.	Yield estimate Tonnes	Qty removed in Tonne	Net Revenue Rs.	Yield estimate Tonnes	Qty removed in Tonne	Net Revenue Rs.	Yield estimate Tonnes	Qty removed in Tonne	Net Revenue Rs.	Yield estimate Tonnes	Qty removed in Tonne	Net Revenue Rs.
Sathyamangalam	22. Bathiri - padugai	Date leaves	1.900	2.000	8820	2.500	2.500	21675	2.500	2.500	10125	2.000	150	1133	2600	--	--
		Nellikkai	15.000	4.756	24257	5.000	2.800	8120	2.500	4.861	14826	4.500	850	2537	3000	--	--
		Gallnut	0.200	0.100	300	0.100	0.100	230	0.050	0.050	115	0.100			100	--	--
		Pungan	0.100	0.55	200	0.100	0.100	350	0.100	0.100	320	0.100	200	1000	150	--	--
		Vilampazam	0.050	0.050	300	--	--	--	--	--	--	--	--	--		--	--
		Tamarind	--	--	--	0.750	0.150	743	1.000	1.000	5730	1.000	--	--		--	--
		TOTAL			**33769**			**31118**			**31116**		--	--		--	--
Sathyamangalam	23. Rama-bailur	Date leaves	20.600	4.290	18918	7.500	2.000	14700	3.000	3.000	7949	3.000	2540	13013	2500	--	--
		Nellikkai	7.000	2.980	12378	6.000	--	--	2.000	2.000	6100	1.500	1810	5520	1300	--	--
		Gallnut	0.400	--	--	0.200	0.150	345	0.100	0.100	230	0.100	--	--	150	--	--
		Neem	1.200	--	--	1.200	0.600	960	0.700	0.700	1050	0.200	--	--	100	--	--
		Pungan	0.200	--	--	0.200	0.150	525	0.050	0.050	150	0.100	--	--	500	--	--
		Sundaikkai	0.200	1.090	5468	--	--	--	--	--	--	--	--	--	100	--	--
		Tamarind	3.000			3.040	0.200	990	1.900	1.900	10887	1.900	2160	7040		--	--
		TOTAL			**36764**			**18210**			**27016**					--	--
Sathyamangalam	24. Osa-palayam	Date leaves	2.500	2.730	12040	3.000	1.300	15275	2.500	2.550	6757	2.500	4120	29934	8800	6780	32900
		Nellikkai	8.000	8.100	38450	14.000	5.930	17197	6.000	6.020	18092	6.500	--	--	4000	--	--
		Poocaikkai	0.600	--	--	0.300	0.150	518	0.100	0.100	325	--	--	--	100	--	--
		Gallnut	0.200	0.200	350	0.600	0.400	920	0.300	690	0.200	--	--	--	250	--	--
		Neem	0.100	--	--	0.100	0.100	160	0.050	0.050	75	0.100	--	--	50	--	--
		Pungan	0.050	--	--	0.050	0.050	175	0.050	0.050	150	--	--	--	500	--	--
		Tamarind	1.063	0.525	2913	0.960	0.260	1287	1.600	--	9168	1.600				--	--
		TOTAL			**59753**			**35532**			**35257**					--	---

Name of the Range	Name of VFC	Name of NTFP	2003-04			2004-05			2005-06			2006-07			2007-08		
			Yield estimate Tonnes	Qty removed in Tonne	Net Revenue Rs.	Yield estimate Tonnes	Qty removed in Tonne	Net Revenue Rs.	Yield estimate Tonnes	Qty removed in Tonne	Net Revenue Rs.	Yield estimate Tonnes	Qty removed in Tonne	Net Revenue Rs.	Yield estimate Tonnes	Qty removed in Tonne	Net Revenue Rs.
T.N.Palayam	25. Bhaga-vathi Nagar	Date leaves	4.000	4.030	10025	4.000	2.030	15733	3.000	2.140	7169	3.000	5420	48446	2000	--	--
		Nellikkai	3.000	3.000	8415	4.000	1.030	3347	2.500	--	--	2.500	--	--	700	--	--
		Poocaikkai	0.250	--	--	0.100	--	--	--	--	--	--	--	--	200	--	--
		Gallnut	0.500	--	--	0.500	0.300	900	0.150	--	--	--	--	--	--	--	--
		Neem	1.000	0.200	300	0.200	--	--	0.100	--	--	--	--	--	--	--	--
		Sundaikkai	0.750	0.125	325	0.200	0.150	487	0.200	--	--	0.200	--	--	--	--	--
		Tamarind	2.250	0.200	810	1.950	0.390	303	1.950	0.390	1560	0.755	555	2000	--	--	--
		TOTAL			**20425**			**19870**			**8729**	--	--	--	--	--	--
T.N.Palayam	26. Vilan – kombai	Date leaves	2.500	13.070	39210	11.500	4.880	48068	8.000	5.180	17355	6.500	5570	54654	6000	--	--
		Nellikkai	3.000	4.572	11730	5.250	1.080	3510	3.000	--	--	3.000	670	2144	1250	--	--
		Poocaikkai	0.750	--	--	0.400	--	--	0.300	--	--	0.150	--	--	100	--	--
		Gallnut	2.000	--	--	0.700	0.310	930	0.500	--	--	0.250	--	--	200	--	--
		Neem	0.500	0.250	375	0.560	--	--	0.200	--	--	0.075	--	--	150	--	--
		Punan	0.500			0.250	0.270	853	0.100	--	--	0.050	--	--	100	--	--
		Tamarind	5.249	3980	16444	4.200	0.650	1625	3.700	2.580	10320	2.075	7905	14022		12134	--
		TOTAL			**67759**			**54986**			**27675**						

Name of the Range	Name of VFC	Name of NTFP	2003-04			2004-05			2005-06			2006-07					
			Yield estimate Tonnes	Qty removed in Tonne	Net Revenue Rs.	Yield estimate Tonnes	Qty removed in Tonne	Net Revenue Rs.	Yield estimate Tonnes	Qty removed in Tonne	Net Revenue Rs.	Yield estimate Tonnes	Qty removed in Tonne	Net Revenue Rs.	Yield estimate Tonnes	Qty removed in Tonne	Net Revenue Rs.
T.N.Palayam	27. Kem-bananur	Date leaves	8.000	7.605	22815	10.000	8.530	67118	8.00	1.070	3586	6.000	6170	61674	4000	--	--
		Nellikkai	5.500	8.715	22310	9.500	0.780	2535	4.000	--	--	3.500	--	--	800	--	--
		Poocaikkai	0.700	--	--	0.400	--	--	0.300	--	--	0.150	--	--	100	--	--
		Gallnut	1.500	--	--	0.700	0.240	720	1.100	--	--	0.550	--	--	0	--	--
		Neem	0.500	0.250	375	0.250	--	--	0.100	--	--	0.050	--	--	50	--	--
		Pungan	0.750	--	--	0.200	--	--	0.550	--	--	0.250	--	--	100	--	--
		Seekaikkai	0.100	0.050	150	--	--	--	--	--	--	--	--	--	--	--	--
		Tamarind	3.964+	3.630	14926	3.200	0.730	1825	3.700	1.200	4800	1.850	11805	7825	--	385	962
		TOTAL			**60576**			**72198**			**8386**				**--**	--	**--**
T.N.Palayam	28. Kombai thoddl	Date leaves	5.500	5.500	13750	12.500	1.030	6313	4.500	0.500	2125	3.000	3500	30702	2000	--	--
		Nellikkai	8.500	9.221	23974	11.000	0.930	3022	2.000	--	--	2.000	--	--	750	--	--
		Poocaikkai	0.300	--	--	0.250	--	--	0.450	--	--	0.225	--	--	150	--	--
		Gallnut	3.500	--	--	1.500	--	--	1.350	--	--	0.675	--	--	250	--	--
		Neem	1.000	0.300	450	0.400	--	--	0.700	--	--	0.350	--	--	150	--	--
		Pungan	1.000	0.178	250	0.300	--	--	0.450	--	--	0.175	--	--	100	--	--
		Tamarind	3.537	0.700	3335	2.650	0.800	2000	2.650	1.840	7360	1.300	1110	4000	-	--	--
		TOTAL			**41759**			**11335**			**9485**						

APPENDIX – 28

Sathyamangalam Division Maps


SATHYAMANGALAM FOREST DIVISION
(SATELLITE IMAGE - MARCH 2004)
N
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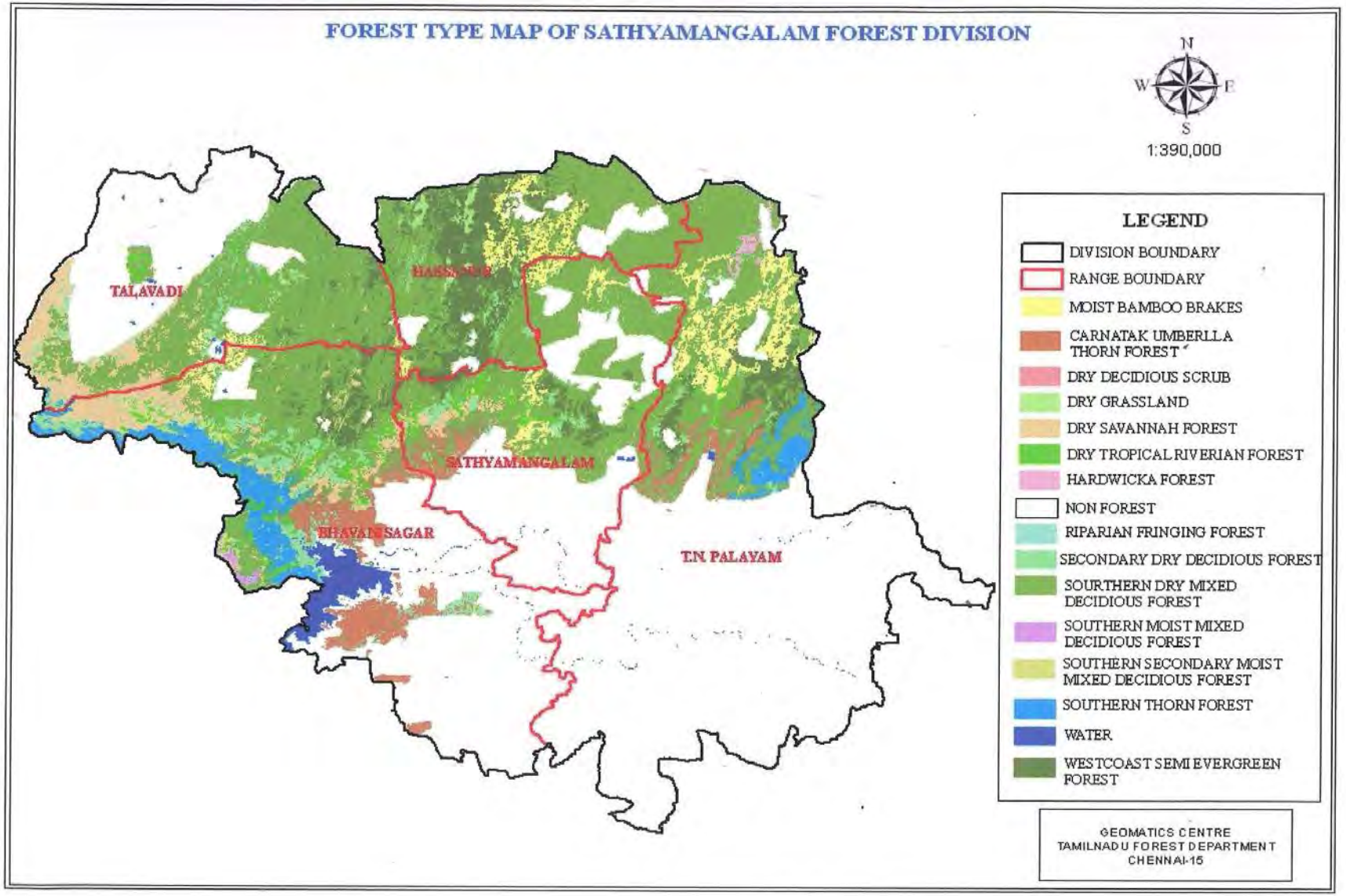
1:350,000
GEOMATICS CENTRE
TAMILNADU FOREST DEPARTMENT
CHENNAI-15


FOREST TYPE MAP OF SATHYAMANGALAM FOREST DIVISION
N
W
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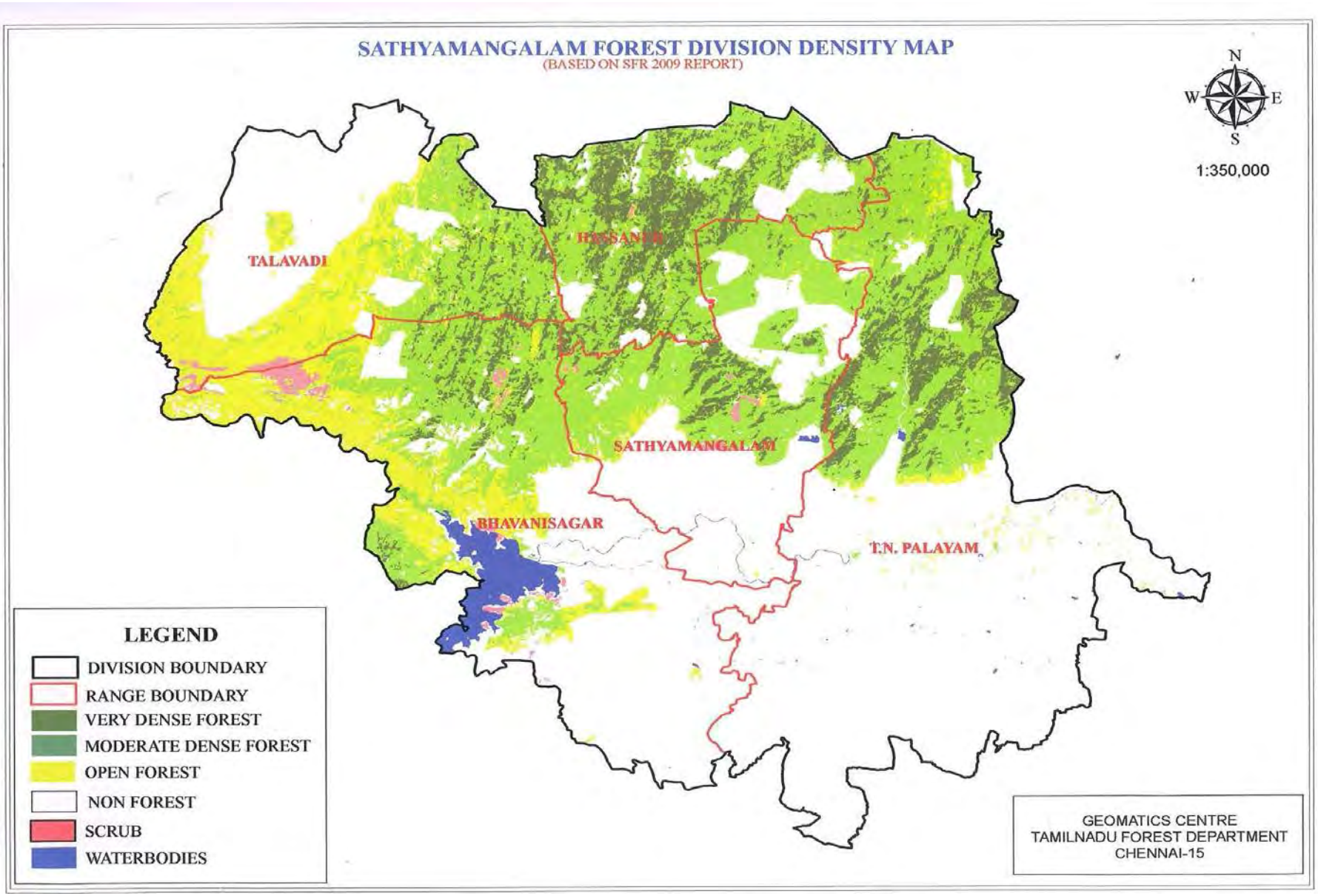
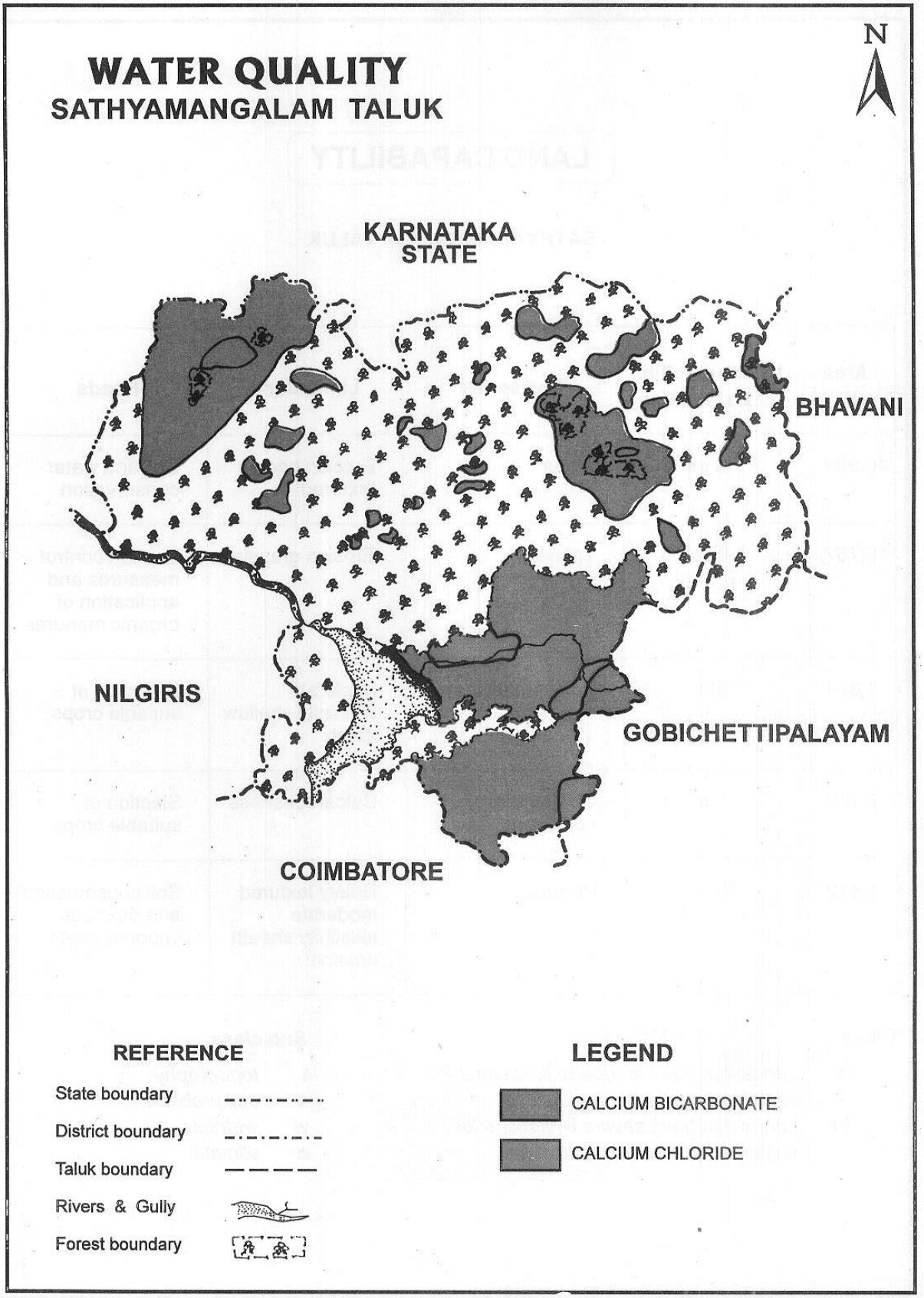
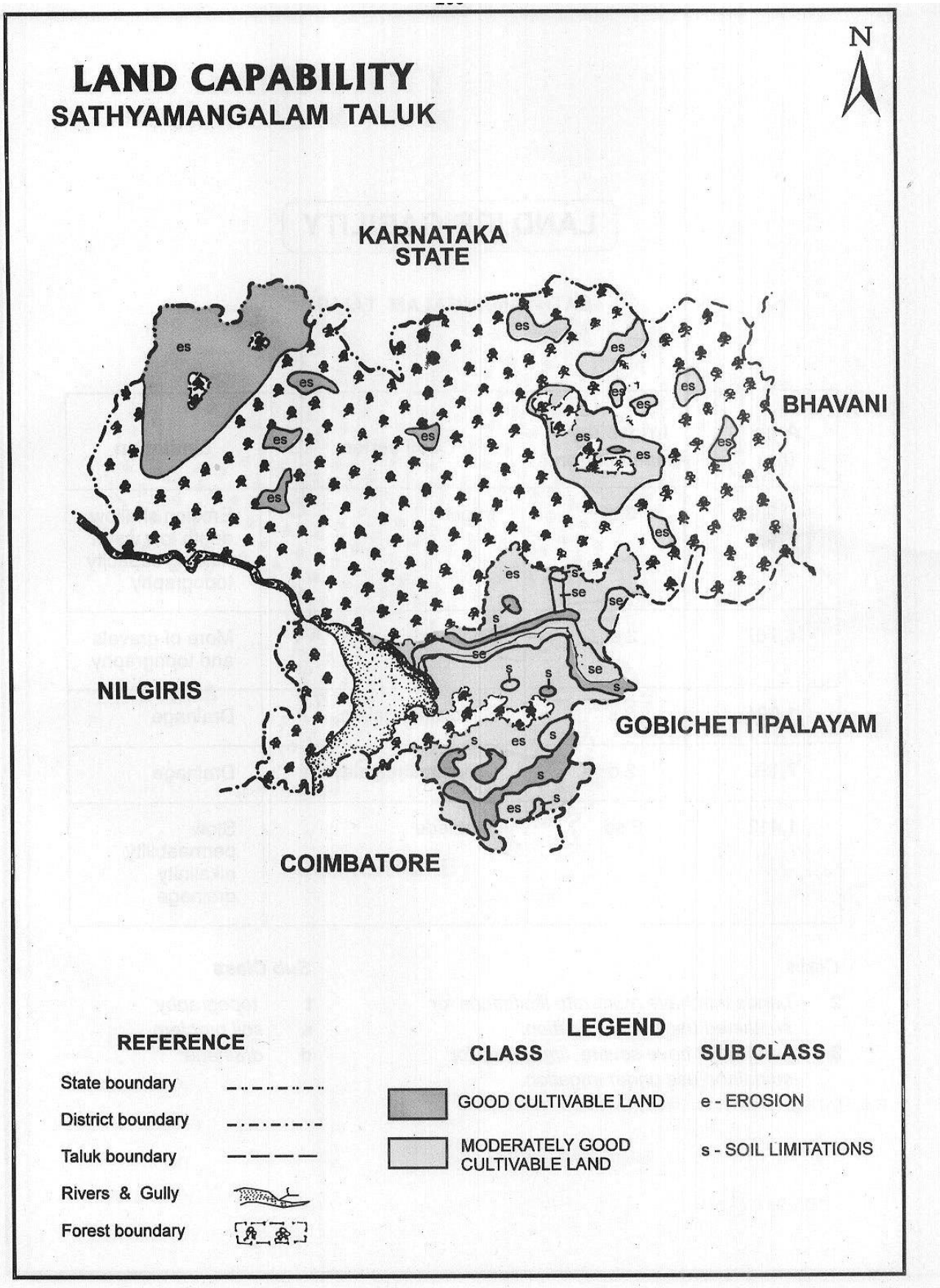
1:390,000
TALAVADI
SATHYAMANGALAM
BHAVANISAGAR
T.N.PALAYAM
LEGEND
DIVISION BOUNDARY
RANGE BOUNDARY
MOIST BAMBOO BRAKES
CARNATAK UMBERLLA THORN FOREST
DRY DECIDIOUS SCRUB
DRY GRASSLAND
DRY SAVANNAH FOREST
DRY TROPICAL RIVERIAN FOREST
HARDWICKA FOREST
NON FOREST
RIPARIAN FRINGING FOREST
SECONDARY DRY DECIDIOUS FOREST
SOURTHERN DRY MIXED DECIDIOUS FOREST
SOUTHERN MOIST MIXED DECIDIOUS FOREST
SOUTHERN SECONDARY MOIST MIXED DECIDIOUS FOREST
SOUTHERN THORN FOREST
WATER
WESTCOAST SEMI EVERGREEN FOREST
GEOMATICS CENTRE
TAMILNADU FOREST DEPARTMENT
CHENNAI-15

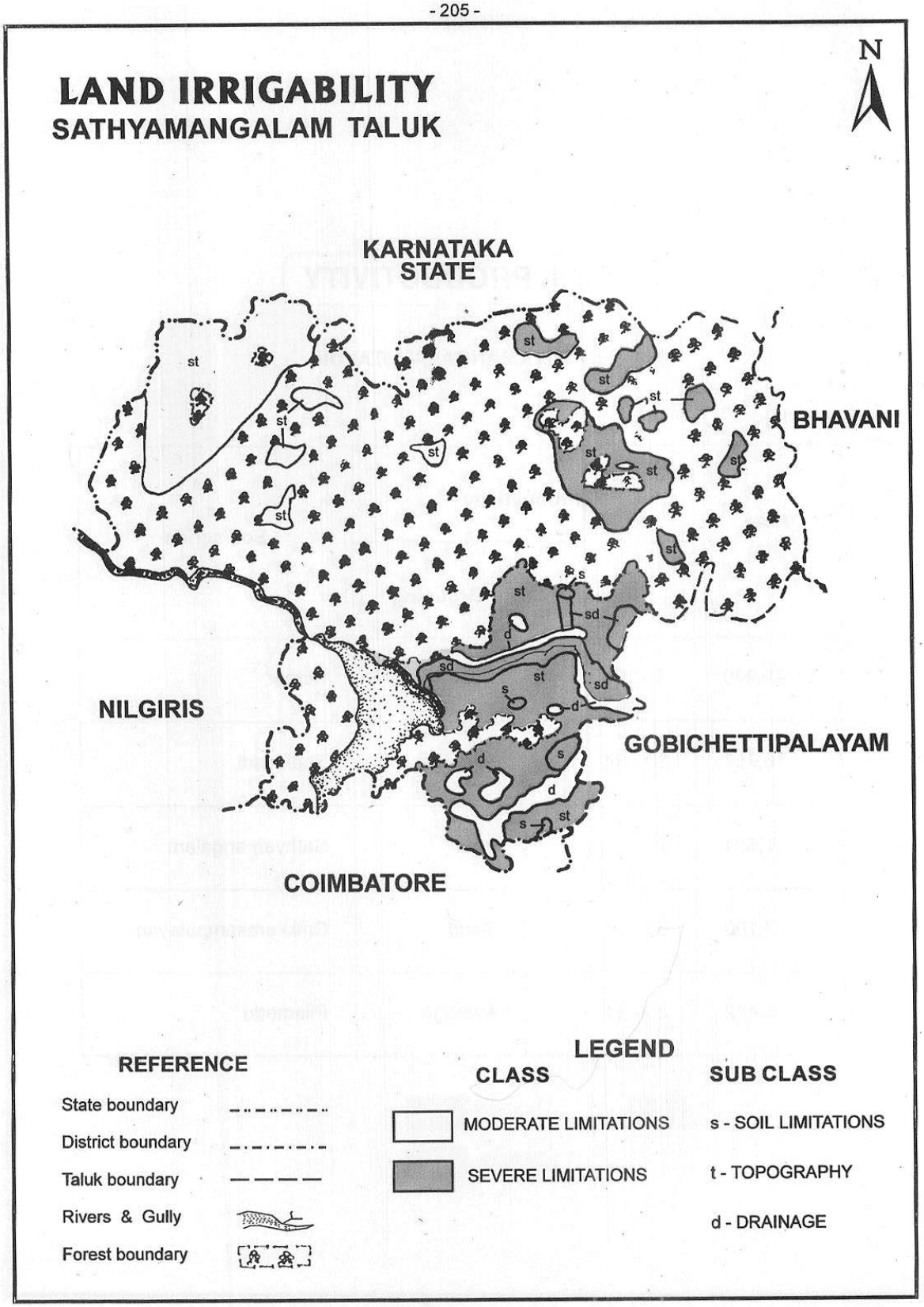

SATHYAMANGALAM FOREST DIVISION DENSITY MAP
(BASED ON SFR 2009 REPORT)
N
W
E
S
1:350,000
TALAVADI
HASSANUR
SATHYAMANGALAM
BHAVANISAGAR
T.N. PALAYAM
LEGEND
DIVISION BOUNDARY
RANGE BOUNDARY
VERY DENSE FOREST
MODERATE DENSE FOREST
OPEN FOREST
NON FOREST
SCRUB
WATERBODIES
GEOMATICS CENTRE
TAMILNADU FOREST DEPARTMENT
CHENNAI-15


SATHYAMANGALAM DIVISION
ADMINISTRATIVE BEAT MAP
N
1:350,000
CHIKKALLI
TALAVADI
BINAKANAHALLI SOUTH
HASSANUR
GEDDASAL
GERMALAM EAST
GERMALAM WEST
KADAHATTI
KOOTHAMPALAYAM
KOTTAIMALAI
ARIGIYAM
MAKKAMPALAYAM
TIGANARAI
NEYDALPURAM NORTH
KAKKARAY
KOTTADI
ANAKKARAI
PALAYAM
JIRGAHALLI
NEYDALPURAM SOUTH
BINAKANAHALLI NORTH
EKKATTUR
KOVILUR
GUNDRI
GETTAVADI
MAVALLAM
KADAMBUR WEST
BELATHUR
BEJJALATTI
ONNAITITTU
DIMBAM
SATHYAMANGALAM
KADAMBUR EAST
TALAMALAI
CHIKKARASAM PALAYAM
THENGUMARADA(E)
VADAVALLI
KEMPANAICKKAN PALAYAM
GAJALATTI
PIRKADAVU
BANNARI
KONDAPPA NAYAKKANPALAYAM
KOTHAMANGALAM
T.N. PALAYAM
KANAKKAMPALAYAM
PATRAMANGALAM
BHAVANISAGAR
VELAMUNDY WEST
VILANKOMBAI
VELAMUNDY EAST
KONGARAPALAYAM
BANGALAPUDUR
Legend
DIVISION BOUNDARY
RANGE BOUNDARY
BEAT BOUNDARY
GEOMATICS CENTRE
TAMILNADU FOREST DEPARTMENT
CHENNAI-15

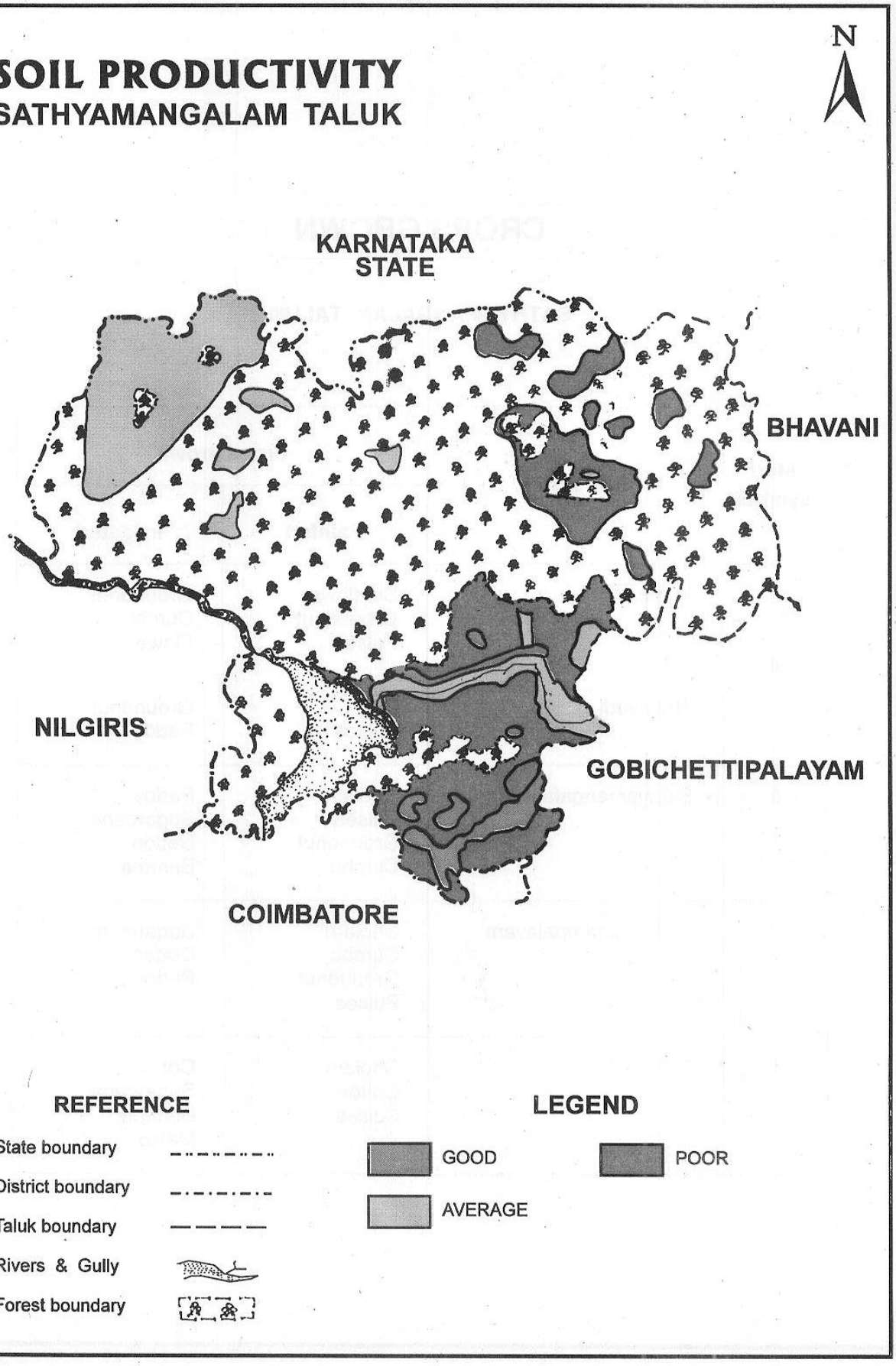
WATER QUALITY
SATHYAMANGALAM TALUK



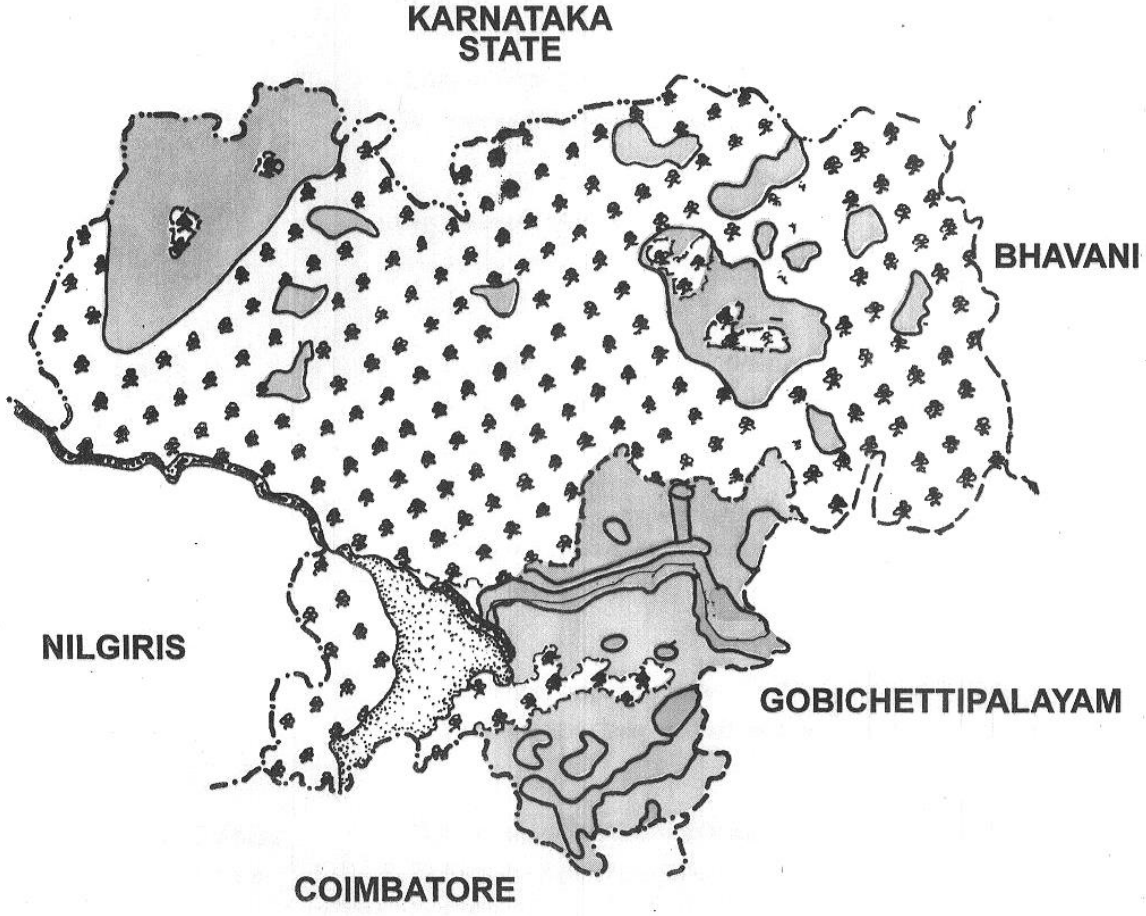

LAND CAPABILITY
SATHYAMANGALAM TALUK
N
KARNATAKA STATE
BHAVANI
NILGIRIS
GOBICHETTIPALAYAM
COIMBATORE
es
se
s
REFERENCE
State boundary
District boundary
Taluk boundary
Rivers & Gully
Forest boundary
LEGEND
CLASS
SUB CLASS
GOOD CULTIVABLE LAND
MODERATELY GOOD CULTIVABLE LAND
e - EROSION
s - SOIL LIMITATIONS


LAND IRRIGABILITY
SATHYAMANGALAM TALUK
N
KARNATAKA STATE
BHAVANI
NILGIRIS
GOBICHETTIPALAYAM
COIMBATORE
LEGEND
REFERENCE
State boundary
District boundary
Taluk boundary
Rivers & Gully
Forest boundary
CLASS
MODERATE LIMITATIONS
SEVERE LIMITATIONS
SUB CLASS
s - SOIL LIMITATIONS
t - TOPOGRAPHY
d - DRAINAGE

SOIL PRODUCTIVITY
SATHYAMANGALAM TALUK



CROPS GROWN
SATHYAMANGALAM TALUK



REFERENCE

State boundary

District boundary

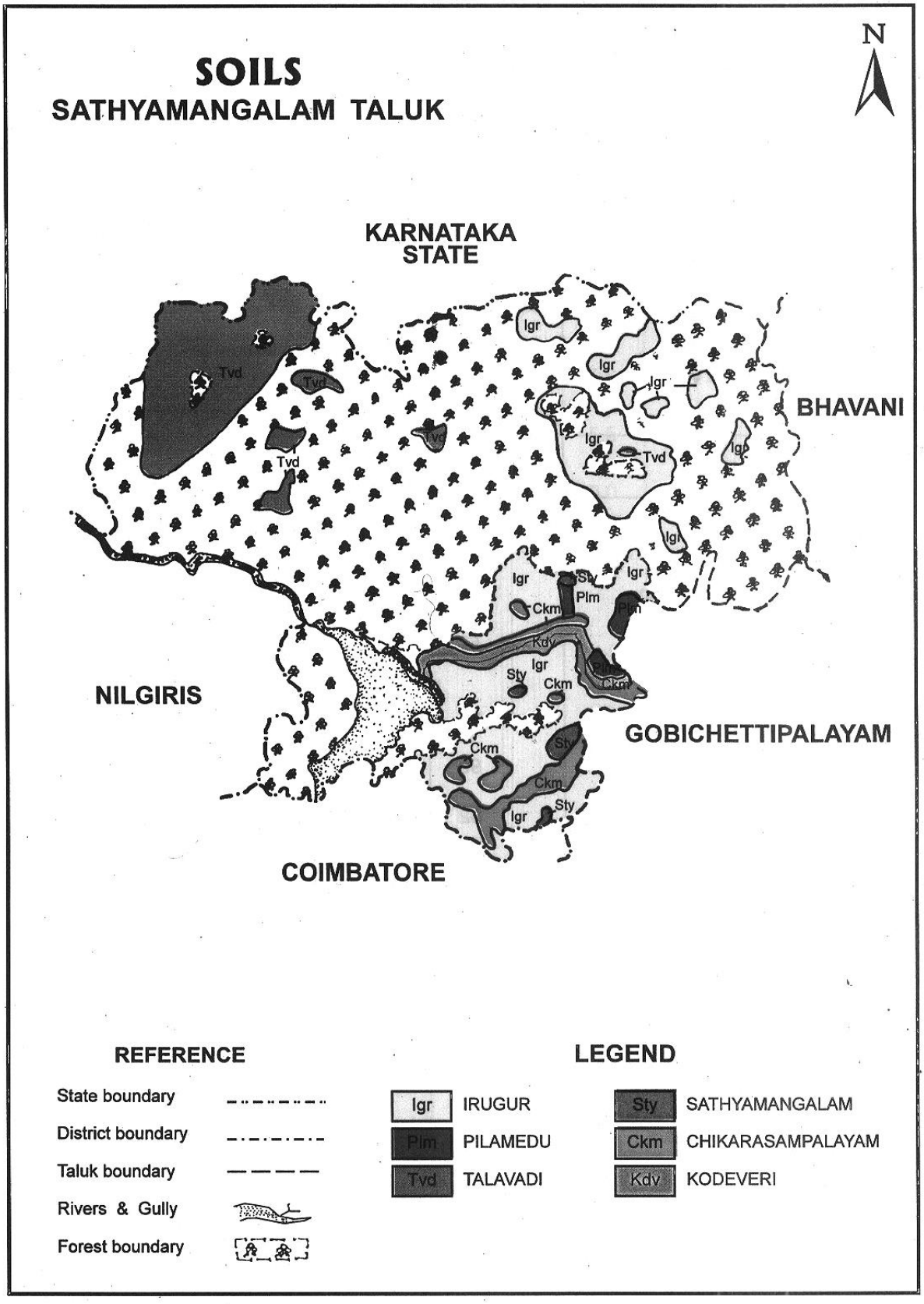
Taluk boundary

Rivers & Gully

Forest boundary

LEGEND

- 1
- 2
- 4
- 5


SOILS
SATHYAMANGALAM TALUK
N
KARNATAKA STATE
BHAVANI
NILGIRIS
GOBICHETTIPALAYAM
COIMBATORE
Tvd
Igr
Plm
Ckm
Kdv
Sty
REFERENCE
State boundary
District boundary
Taluk boundary
Rivers & Gully
Forest boundary
LEGEND
Igr IRUGUR
Plm PILAMEDU
Tvd TALAVADI
Sty SATHYAMANGALAM
Ckm CHIKARASAMPALAYAM
Kdv KODEVERI

APPENDIX - 29

CONTROL FORM NO. 1

Creation of new artificial waterholes

Sl. No.	Category	Year	Location with GPS co-ordinates	Cost	Performance
1	2	3	4	7	8

Note: Category : Checkdam, earthen bund, borewell and pump, reservoir, guzzler, permanent or temporary
Location : By beat or Saragam and name given if any with GPS co-ordinates
Performance : Successful, partially successful, failure (give reasons for the latter two)

CONTROL FORM NO. 1.1

Maintenance of waterbodies : Natural

Sl. No.	Category	Perennial / Seasonal	Location with GPS co-ordinates	Year	Nature of Work	Cost	Performance
1	2	3	4	5	6	7	8

Note: Category : Spring, seep, natural depression, a flowing stretch, reservoir.
Location : By beat or Saragam and name given if any with GPS co-ordinates
Nature of work : Desilting, provision of apron, any other category.
Performance : Successful, partially successful, failure (reasons for the last two).

CONTROL FORM NO. 1.2

Maintenance of waterbodies : Artificial

Sl. No.	Category	Perennial / Seasonal	Location with GPS co-ordinates	Year	Nature of Work	Cost	Performance
1	2	3	4	5	6	7	8

Note: Category : Masonry checkdam, earthen bund, etc.
Location : By beat name or by a named feature and name given if any.
Year : Year of maintenance, with year of establishment in parenthesis.
Nature of work : Desilting, grouting, repairing leaks, repair to mechanical parts, any other work.
Performance : Successful, partially successful, failure (reasons for the last two).

CONTROL FORM NO. 2

Restoration of habitat : Weed control, initial operation

Sl. No.	Location & Name of site	Year	Extent of area (ha)	Species of weed	Operation	Total Cost	Cost per ha	Remarks
1	2	3	4	5	6	7	8	9

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

CONTROL FORM NO. 2.1

Restoration of habitat : Weed control, initial operation

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

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

.

CONTROL FORM NO. 2.3

Restoration of habitat : controlled burning

Sl. No.	Location & Name of site	Year	Extent of area (ha)	Species controlled	Operation	Total Cost	Cost per ha	Remarks
1	2	3	4	5	6	7	8	9

Note: Location : By beat and saragam name of site.
Period : Date of starting operation and completion.
Remarks : Mention resultant vegetation e.g. natural regeneration, % burnt, % intact.

CONTROL FORM NO. 2.4

Restoration of habitat : Soil conservation measures – initial operations and subsequent maintenance

Sl. No.	Location & Name of site	Year	Catchment area (ha)	Type of structure	Total Cost	Qty of water harvested	Remarks
1	2	3	4	5	7	8	9

Note: Location : By Beat name of site or landmarks.
Extent of area : Catchment area identified for such treatment.
Area treated : If linear feature then quote length; otherwise area.
Operation : Structures involved such as gully plugs, trench-cum-mound, terracing, spurs and bunds etc. quote quantity nos. and cmt. of earthwork.

CONTROL FORM NO. 2.5

Restoration of habitat : Planting, sowing – initial operation

Sl. No.	Location & Name of site	Year	Extent of area (ha)	Species	Planting stock	Spacing	Operations	Total cost	Cost per ha	Remarks
1	2	3	4	5	6	7	8	9	10	11

Note: Location : By beat and saragam and describe the site factors e.g. vegetation cover, soil, topography etc.
Planting Stock : Type of material, e.g. root shoot, naked root seedling, seedlings in polythene bags, age or average size.
Operation : Mention site preparation if any, crowbar holes, pits and pit size, trench, seed sowing (rate), protection measures.
Remarks : Mention operational problems if any.

CONTROL FORM NO. 2.6

Restoration of habitat : Response of plantings, sowings and subsequent operations

Sl. No.	Location & Name of site	Year	Extent of area (ha)	Species	Survival %	Casualty replacement	Operations	Total cost	Cost per ha	Remarks
1	2	3	4	5	6	7	8	9	10	11

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

CONTROL FORM NO.2.7

Restoration of habitat : Area under protection / closure in core zone

Sl.No.	Location	Year	Extent of area (ha)	Description of site	Regulations or protection measures	Response	Remarks
1	2	3	4	5	6	7	9

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

CONTROL FORM NO. 3

Animals : Measuring trends in populations

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

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

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

CONTROL FORM NO.3.1

Restoration of habitat : New records

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

Note: Animals will include vertebrates and invertebrates.

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

Number, age sex etc : As applicable to vertebrates.

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

Remarks : Any other useful information.

CONTROL FORM NO.3.2

Animals : Mortality other than that attributable to an offence

Sl. No.	Species	Location with GPS co-ordinates	Year	Sex & age	Number	How discovered	Cause of mortality	Remarks
1	2	3	4	5	6	7	8	9

Note: Location : By compartments, landmark etc.
Sex & Age : As per parameters for age class. Sex, if possible to identify
How discovered : Carcass, complete or partial. Skull or any other recognisable remains collected where only some remains an animal are found
Cause of mortality : If known e.g. territorial fight, accident, possible disease (following postmortem results), old age, cause difficult to determine, predation etc.
Remarks : Any other useful information.

CONTROL FORM NO.3.3

Animals : Mortality attributed to poaching or an act of vandalism

Sl.No.	Species	Location with GPS co-ordinates	Cause of mortality. Number, Sex, age class	Remarks
1	2	3	8	9

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

CONTROL FORM NO.3.4

Animals : Predation on domestic livestock by wild carnivores

Sl. No.	Range	Month	Category of livestock killed	Location	Numbers	Compensation paid (Rs.)	Carnivore involved	No. of cases undecided	Remarks
1	2	3	4	5	6	7	8	9	10

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

CONTROL FORM NO.3.5

Animals : human killed by wildlife or injury caused

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

Note: Location, circumstances and species : Location by beat, the village to which the person belongs and a description of the site and activity such as – open grassy patch, cutting fuelwood, date grass; or collecting NTFP etc. Mention species on proof.

CONTROL FORM NO.3.6

Animals : Wildlife damage to private or public property

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

Note: Location : By betaNo., village survey No., name of village or landmark.
Category of property : eg. agriculture field-wheat, huts in a village, any kind of vehicle.
Extent of damage : Crop damage by area, estimated loss of produce and monetary loss. Similar yardsticks for other items like partial or total destruction of huts and belongings with estimated monetary loss.
Remarks : Any relevant information or circumstances eg. a wild elephant was provoked by people.

CONTROL FORM NO.4

Endangered Plants : New records

Sl. No.	Family	Species	Year	Location	Habitat	Status	Remarks
1	2	3	4	5	6	7	8

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

CONTROL FORM NO. 4.1

Plants : Disease and mortality

Sl. No.	Species	Location	Year	Particulars of disease, morbidity & mortality	Area affected	Remarks
1	2	3	4	5	6	9

Note: Location : By beat or saragam

Particulars of disease : In case of trees, the mortality by diameter classes and number, symptoms, insect pest activity or any other external indicators if visible, none if not seen. No mortality but infestation detected, mention that as morbidity.

Area affected : In hectares.

Remarks : Any specific environmental condition, or site factors you may suspect as being related to the problem or any other useful information.

CONTROL FORM NO.4.2

Plants : Illegal and legal collection

Sl. No.	Year	Species	Location	Details of material	Quantity	Trade particulars	Remarks
1	2	3	4	5	6	7	8

Note: Location : By beat or Saragam.

Details of material : To include timer, firewood, bamboo, NTFPs. Plants collected could be of local significance or trade significance on a national or international scale. Distinguish between legal and illegal activity in the remarks' column.

Quantity : In appropriation units.

Trade particulars : What is traded? Portions, partially processed or processed material and where are the major trade centres, known.

Remarks : Any other useful information.

Legal collection applies to collections by tribals and also for research.

CONTROL FORM NO.4.3

Timber out-turn and revenue

Year

Sl. No.	Range	Timber species	Volume extracted cmt. In grade	Volume auctioned cmt. In grade	Amount (Rs.)	Price / cmt/ (Rs.) grade	unauctioned volume cmt. in grade
1	2	3	4	5	6	7	8

Note: Range : Provide depot-wise information. This applies to the buffer zone.

CONTROL FORM NO.4.4

Firewood out-turn and revenue

Year

Sl. No.	Range	Firewood species	Volume extracted cmt.	Volume auctioned cmt.	Amount (Rs.)	Price / cmt (Rs)	Disposal pattern of firewood in cmt.	
							Local	Other areas
1	2	3	4	5	6	7	8	9

Note: Range : Provide depot-wise information. If sold in situ mention as such. Applies to buffer zone.

Disposal Pattern : 'Local' connotes the share of villages identified as those inhabited by forest dependent communities, in ZI.

CONTROL FORM NO.4.5

Out-turn of charcoal and revenue

Year

Sl. No.	Range	Species used	Volume cmt	Converted charcoal quantity tones	Conversion factor	Quantity sold	Total amount per tonne (Rs.)	Disposal pattern in tonnes	
								Local	Other areas
1	2	3	4	5	6	7	8	9	

Note: Range : Give depot-wise details. If sold in site mention as such. Applies to buffer zone.
Disposal pattern : As per note under form WM 4.4

CONTROL FORM NO.4.6

Extraction of bamboo and disposal

Year

Sl. No.	Range	Species	Quantity extracted by category		Disposal, non-commercial by quantity		Revenue realized (Rs.)		Undisposed quality	
			Commercial	Non-commercial	Locally	Other areas	Commercial	Non-Commercial	Commercial	Non-Commercial
1	2	3	4	5	6	7	8	9	10	11

Note: : Quantity extracted, in tonnes or numbers as applicable.
Disposal : Local & other areas – the connotation is as mentioned under form WM 4.4.

CONTROL FORM NO.4.7

Distribution of forest produce under benefit sharing mechanism in TAP villages

Sl. No.	Range	Produce category	Species	Quantity	Village	No. of families	Revenue (Rs.)	Free of charge Qty.
1	2	3	4	5	6	7	8	9

Note: Produce category : Small timber, poles, bamboo, firewood, charcoal, etc.
Species : If applicable
Quantity : Use appropriate units.

CONTROL FORM NO.4.8

NTFP collection : allotted to tribals

Year

Sl. No.	Range	Kind of produce	Name of VFC	Quantity	Revenue realised (Rs.)	Free of charge quantity	Gross revenue	
							Collection charges	Net revenue
1	2	3	4	5	6	7	8	

Note: Kind of produce : Mention list of items
Species : If applicable
Quantity : Use the appropriate unit.
Local people : Applies to people within settlements

CONTROL FORM NO. 5

Grazing of domestic livestock

Year

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

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

CONTROL FORM NO. 6

Inter-agency programmes : agencies and schemes (Government)

Year

Sl. No.	Name of agency	Central or State	Number and name of scheme operated	Physical and financial targets		Area and location	Remarks
				Given	Achieved		
1	2	3	4	5	6	7	8

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

Remarks : Success, adverse impacts, compatibility with PA management objectives or failures should be mentioned. Detailed notes to be written in the divisional note book.

CONTROL FORM NO. 6.1

Programmes of NGOs

Year

Sl. No.	Name of agency	HQ location	Nature of the scheme operated	Physical / financial targets		Area and location	Remarks
				Given	Achieved		
1	2	3	4	5	6	7	8

Note: Remarks : Success or adverse impacts, compatibility with PA management objectives or failures should be mentioned. Detailed notes to be written in the divisional note book. These programmes and activities could be within the management area or those that are outside the management area but area capable of influencing the state of the management area- either complementing the efforts or adversely impacting.

CONTROL FORM NO. 7

Construction */maintenance * of infrastructure : roads & bridges (*existing/ new)

Year

Sl. No.	Category	Range	Surface	Name or number	Length covered (km)	Cross drainage works, bridges with types	Remarks

Note:
Category of road : National highway, State highway, district road etc. Public road or open only to managers should be started.
Surface type : Black topped, metal, earth etc. Applies to roads.
Name or number : As the case may be.
Cross drainage type : eg. for culverts – box, hume pipe culverts etc.
Bridge type : Cause ways, masonry culvert etc.
Status : Work completed or ongoing. State also the agency responsibility; state whether operational or non-operational.
* : Strike out which is not applicable. Use separate forms as required; for construction & for maintenance details.

CONTROL FORM NO. 7.1

Construction */maintenance * of infrastructure : buildings (*existing/ new)

Year

Sl. No.	Range	Nature of the building	Location	Type of construction	Numbers	Total cost	Status

Note: Nature of the building : eg. Residential (guard), office, checkpost, watch tower, tourist facility, barrier, patrolling camp (temporary or permanent) etc.

Location : By beat or village or landmark as appropriate.

Type of construction : Masonry (brick/stone), log or wooden, metal, local material etc.

Status : Completed or ongoing.

* : Strike out which is not applicable. Use separate forms as required ; for construction and for maintenance details.

CONTROL FORM NO. 7.2

Construction */maintenance * of infrastructure : Communication (*existing/ new)

Year

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

Note: Type of facility : e.g. telephone, wireless.

Location : Staff Hq location, village, landmark etc.

Advantage gained : Area served, staff locations connected etc.

Remarks : Record status – complete, ongoing, functional, non-functional.

* : Strike out that is not applicable. Use separate forms as required, for new facility and maintenance.

CONTROL FORM NO. 7.3

Development*/Maintenance* of infrastructure : vehicles (*existing / new)

Year

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

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

CONTROL FORM NO. 7.4

Development of infrastructure : manpower recruitment* / existing manpower*

Year

Sl. No.	Category of post	Number	Status		Scale of pay	Intended Deployment / deployed as	Remarks
			Recruited	Vacant			
1	2	3	4	5	6	7	8

Note: Status : Permanent, temporary, contractual
Intended deployment : State purpose eg. conservation education, research, antipoaching, etc as applicable.
Remarks : Any other useful information. New recruits within the year should be mentioned. This will also include officers and staff obtained on transfer / deputation. Likewise changes due to personnel going out on transfer, deputation, retirement, removal, resignation, death should be reflected in this column.
* : Strike off that which is not applicable. Accordingly use additional forms. One for recruitment and one for the existing manpower.

CONTROL FORM NO. 7.5

Development of infrastructure : Construction of Cairns, fences, EPTs, exclosures, (*existing/new)

Year

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

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

CONTROL FORM NO. 7.6

Development infrastructure : firelines (*existing / new)

Year

Sr. No.	Range	Fireline category or width	Name of points connected	Length (meters)	Cost	Remarks
1	2	3	4	5	6	7

Note: Category : Main or subsidiary etc. Record width.

CONTROL FORM NO. 8

Tourism

Total number of visitors all categories : Year Name of rest house :

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

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

CONTROL FORM NO. 8.1

Tourism : Use of tourist facilities – Occupancy

Year

Name of rest house : Capacity (beds):

Class of accommodation :

Sr. No.	Month	Month capacity (beds / month)	Occupancy (beds / month)		Total occupancy during the month (beds / month)
			Foreign	Indian	

Note: Class of Accommodation : Classify accommodation as per tariff slabs and if applicable, might include different rate structure for the same set viz., for Indians and foreign tourists. The highest class for example will be for AC rooms, IV for tents etc. Use a fresh form for each class of accommodation.

Month Capacity : Number of days in a month x total number of beds available in that class per night halt.

CONTROL FORM NO. 8.2

Tourism : use of tourist facilities – field trips

Name of complex Year

Sr. No.	Month	Van safari	Utilization	Revenue (Rs.)	Use of month trip quantum	Guides utilization	Revenue (Rs.)

Note:

Van month trip capacity : eg. one van, 2 trips / day, 20 seater = 1 x 2 x 20 x 30 = 1200.

Guide-month trip quantuum : 1 guide, 4 trips / day = 1 x 4 x 30 = 120 trip quantium / guide

CONTROL FORM NO. 9

Outbreak of fires

Year

Sr. No.	Range	Location	Extent (ha)	Dates			Estimated loss	Remarks
				Detected	Controlled	Reasons		

Note: Location : By beat or saragam

Reasons : Anthropogenic/natural

Estimated loss : eg. number of trees damaged, stacked friewood / timber / bamboo destroyed / damaged by volume and cost, wild animals dead, particulars of sensitive sites affected, other property or life destroyed.

Remarks : State particularly problems encountered in detection and suppression and any other useful information. State also whether the extent of fire has been mapped.

CONTROL FORM NO. 10

Offence cases detected

Year

Sr. No.	Range	Category	Numbers	Number of cases detected		Number of cases under process	Number of cases compounded	Remarks
				Successful	Failure			

Note: Category : eg. illegal cutting of trees, illegal firewood, illegal NTFP, poaching, encroachment, illegal cattle grazing etc. category be codified by letters of alphabet.

Remarks : Any other useful information. This should also include the number of cases pending decision with the department.

CONTROL FORM NO. 11

Incentives and awards

Year

Sr. No.	Range	Number of recipients of incentives for detecting offences	Amount paid (Rs.)	Kind of award	Number of recipients	Remarks

Note: Kind of award : eg. a medal like the Anna award, any other such awards instituted by the State or Central Government. Includes citations, extra increments etc.

Remarks : Any other useful information. If an award carries cash, mention the amount.

CONTROL FORM NO. 12

Research projects under implementation through PA manpower with or without collaboration with other agencies

Year

Sr. No.	Title	Completed	Ongoing	New	Status	Financial outlay (Rs.)	Expenditure incurred (Rs.)	Remarks

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

CONTROL FORM NO. 12.1

Research projects under implementation by other agencies

Year

Sr. No.	Title	Complete	Ongoing	New	Status	Financial outlay (Rs.)	Expenditure incurred (Rs.)	Remarks

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

CONTROL FORM NO. 13

Survey and inventories

Year

Sr. No.	Title of survey, inventory activity	Completed	Ongoing	New	By PA	By other agency	Remarks

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

CONTROL FORM NO. 14

The monitoring programme

Year

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

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

CONTROL FORM NO. 15

Ecodevelopment programme : targets and implementation

Year

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

Note: Nature of the programme : eg, Development of alternative employment, livestock improvement, establishment and development of horticulture, revival of local skills such as handicraft, water harvesting systems, adult education etc.

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

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

CONTROL FORM NO. 16

Progress of all strategies under the Zone and Theme plans

Year

Sr. No.	Zone / Theme Plan	Nature of strategy	Target as per the schedule of operations / APO*		Achievements		Location	Remarks
			Physical	Financial	Physical	Financial		

Note: Zone / Theme plan : Mention title.

Nature of strategy : eg. demarcation of boundary, creation of artificial water source, salt lick, maintenance of water sources (desilting), cutting and burning of fireline, prescribed burning, weed control, immunization of cattle, maintenance of nature trials, setting up wayside exhibits, recruitment of staff,etc.

Location : Where pertinent, mention location eg. weed control in compt. 105, 111, 117.

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

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

CONTROL FORM NO. 17

Progress of legal settlements under the wildlife (Protection) Act 1972 in context of attainment of the status of a WLS / NP

Year

Sr. No.	Nature of settlement / enquiry and section under the Act	Progress achieved till the commencement of the year under report	Progress achieved during the year	Remarks

Note: Remarks : State the problems encountered and any other useful information such as reasons for inadequate / lack of progress.

CONTROL FORM NO. 18

A summary of allotment of funds, revenue and expenditure

Year

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

Note: Explain under expenditure, over expenditure, savings and surrenders. State the extent of demand for the year as per the schedule of operations

BUDGETARY REQUIREMENT FOR THE SATHYAMANGALAM WILDLIFE SANCTUARY (2010-2020)
(BUDGETARY PROJECTION IS BASED ON COST ESCALATION OF 10% EVERY YEAR)
BUDGET FOR THE PLAN PERIOD (Rupees in Lakhs)

Sl. No.	Work proposed	Unit Rate	2010-11		2011-12		2012-13		2013-14		2014-15		2015-16		2016-17		2017-18		2018-19		2019-20		Total	
			Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)
I.	**PROTECTION AND ANTI POACHING STRATEGY**																							
1	Wages to Anti-poaching watchers @125/day @10 Anti-poaching watchers for each Range	125-maz/day	50Nos/ 12 months	18.75	50Nos/ 12 months	18.75	50Nos/ 12 months	18.75	50Nos/ 12 months	18.75	50Nos/ 12 months	18.75	50Nos/ 12 months	18.75	50Nos/ 12 months	18.75	50Nos/ 12 months	18.75	50Nos/ 12 months	18.75	50Nos/ 12 months	18.75	**50 Nos. / 10 years**	**187.50**
	2) Daily Ration @ Rs 40/day per person	40 maz/day	50Nos/ 12 months	6.00	50Nos/ 12 months	6.00	50Nos/ 12 months	6.00	50Nos/ 12 months	6.00	50Nos/ 12 months	6.00	50Nos/ 12 months	6.00	50Nos/ 12 months	6.00	50Nos/ 12 months	6.00	50Nos/ 12 months	6.00	50Nos/ 12 months	6.00	"	**60.00**
	3) Hunter shoes, rain coat and uniform for each camp (per year)	1400 set	50 Nos	0.70	50 Nos	0.70	50 Nos	0.70	50 Nos	0.70	50 Nos	0.70	50 Nos	0.70	50 Nos	0.70	50 Nos	0.70	50 Nos	0.70	50 Nos	0.70	"	**7.00**
	4) Purchase of Utensils for each camp	10,000	10 camps	1.00	--	--	--	--	--	--	--	--	10 camps	1.00	--	--	--	--	--	--	--	--	**10 camps/**	**2.00**
	5) Purchase of First Aid Kits for each camp (per year)	1,000	10 camps	0.10	10 camps	0.10	10 camps	0.10	10 camps	0.10	10 camps	0.10	10 camps	0.10	10 camps	0.10	10 camps	0.10	10 camps	0.10	10 camps	0.10	**10 camp/ 10 years**	**1.00**
	6) Purchase of Binocular, GPS and Torch lights (per year)	20500 set	10 Nos	2.05	10 Nos	2.05	10 Nos	2.05	10 Nos	2.05	10 Nos	2.05	--	--	--	---	--	--	--	--	--	--	**--**	**10.25**
	7) Purchase of Digital Camera for each Anti-poaching camp	8000	10Camps	0.80	--	--	--	--	--	--	--	--	--	--	--	--	---	--	--	--	--	--	**10 Nos.**	**0.80**
	8) Purchase of solar lights LED lights for each camp	25000	10 camps	2.50	--	--	--	--	10 camps	0.50	--	--	--	--	10 camps	0.50	--	--	--	--	10 camps	0.50	**--**	**4.00**
	9) Purchase of Camera Traps – 4 nos. for each Range	15,000	20 Nos.	3.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**--**	**3.00**
	10) Group Insurance for Anti-poaching watchers	300	50 Nos.	0.15	50 Nos.	0.15	50 Nos.	0.15	50 Nos.	0.15	50 Nos.	0.15	50 Nos.	0.15	50 Nos.	0.15	50 Nos.	0.15	50 Nos.	0.15	50 Nos.	0.15	**--**	**1.50**
2	Purchase of Walkie-Talkies and Communication equipments for each camp.	12,000	20 Nos.	2.40	20 Nos.	2.40	10 Nos.	1.20	--	--	--	--	---	--	--	--	--	--	--	--	--	--	**--**	**6.00**
	2)Purchase of additional Batteries for existing walkie talkies	LS	LS	0.10	LS	0.10	LS	0.10	LS	0.10	LS	0.10	LS	0.10	LS	0.10	LS	0.10	LS	0.10	LS	0.10	**--**	**1.00**
3	Construction of new anti poaching shed, at vulnerable places	4,00,000	2Shed	8.00	2Shed	8.00	1Shed	4.00	---	---	---	---	--	--	--	--	---	--	---	--	--	--	**5 Nos.**	**20.00**
	2) Maintenance works for the existing camps/sheds	10,000	10camps	1.00	10camps	1.00	10camps	1.00	10camps	1.00	10camps	1.00	10camps	1.00	10camps	1.00	10camps	1.00	10camps	1.00	10camps	1.00	**--**	**10.00**
4	Elephant Proof Trench around the anti-poaching camp site	300 / m	40 mts 5shed	0.60	40 mts 5shed	0.60	--	--	--	--	--	--	---	--	--	--	--	--	--	--	--	--	**--**	**1.20**
5	Digging Bore Wells with Sintex water tank for each Anti-poaching camp	1	4	4.00	4	4.00	2	2.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**10 Nos.**	**10.00**
6	Maintenance of Approach Roads to each Anti-poaching camp site	10,000/km	5 Range	0.50	5 Range	0.50	5 Range	0.50	5 Range	0.50	5 Range	0.50	5 Range	0.50	5 Range	0.50	5 Range	0.50	5 Range	0.50	5 Range	0.50	**--**	**5.00**

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)
7	Formation of new check post to prevent illegal activities – Makkampalayam and Etthikatti	7,50,000	2 Nos.	15.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**2 Nos.**	**15.00**
8	Purchase of arms and ammunition for each range	LS	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	**LS**	**5.00**
9	Training & Capacity building to Anti Poaching Watchers	10,000/1no	5 Range	0.50	5 Range	0.50	5 Range	0.50	5 Range	0.50	5 Range	0.50	5 Range	0.50	5 Range	0.50	5 Range	0.50	5 Range	0.50	5 Range	0.50	**LS**	**5.00**
10	Cash Reward for performing Anti-poaching watchers	LS	5 Range	0.50	5 Range	0.50	5 Range	0.50	5 Range	0.50	5 Range	0.50	5 Range	0.50	5 Range	0.50	5 Range	0.50	5 Range	0.50	5 Range	0.50	**LS**	**5.00**
11	Conducting workshops to other government departments (EB/Highways /police/PWD/Panchayat/ Animal husbandry/ Revenue and Customs) to prevent wildlife trade and poaching.	10,000	1No	0.10	1No	0.10	1No	0.10	1No	0.10	1No	0.10	1No	0.10	1No	0.10	1No	0.10	1No	0.10	1No	0.10	**10 Nos.**	**1.00**
12	Construction of ACF Quarters	10,00,000	1 No.	10.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**--**	**10.00**
II.	**HABITAT MANAGEMENT**																							
1	Construction of new water trough	1,00,000	5 Nos.	5.00	5 Nos.	5.00	5 Nos.	5.00	5 Nos.	5.00	5 Nos.	5.00	5 Nos.	5.00	5 Nos.	5.00	5 Nos.	5.00	5 Nos.	5.00	5 Nos.	5.00	**50 Nos.**	**50.00**
2	Maintenance of existing water troughs	10,000	10 Nos.	1.00	10 Nos.	1.00	10 Nos.	1.00	10 Nos.	1.00	10 Nos.	1.00	10 Nos.	1.00	10 Nos.	1.00	10 Nos.	1.00	10 Nos.	1.00	10 Nos.	1.00	**--**	**10.00**
3	Awareness hoarding boards in water trough areas	10,000	5 Nos.	0.50	5 Nos.	0.50	5 Nos.	0.50	5 Nos.	0.50	5 Nos.	0.50	5 Nos.	0.50	5 Nos.	0.50	5 Nos.	0.50	5 Nos.	0.50	5 Nos.	0.50	**50 Nos.**	**50.00**
4	Formation of mini check dams inside the forest near Human Animal conflict areas	50,000	10 Nos.	5.00	10 Nos.	5.00	10 Nos.	5.00	10 Nos.	5.00	10 Nos.	5.00	10 Nos.	5.00	10 Nos.	5.00	10 Nos.	5.00	10 Nos.	5.00	10 Nos.	5.00	**100 Nos.**	**50.00**
5	Construction of new Large Check Dams across the streams	3,00,000	5 Nos.	15.00	5 Nos.	15.00	5 Nos.	15.00	5 Nos.	15.00	5 Nos.	15.00	5 Nos.	15.00	5 Nos.	15.00	5 Nos.	15.00	5 Nos.	15.00	5 Nos.	15.00	**50 Nos.**	**150.00**
6	Maintenance cost for Repairing Existing older Check Dams	25,000	10 Nos.	2.50	10 Nos.	2.50	10 Nos.	2.50	10 Nos.	2.50	10 Nos.	2.50	10 Nos.	2.50	10 Nos.	2.50	10 Nos.	2.50	10 Nos.	2.50	10 Nos.	2.50	**--**	**25.00**
7	Creation of New Percolation Ponds at suitable places	5,00,000	5 Nos.	25.00	5 Nos.	25.00	5 Nos.	25.00	5 Nos.	25.00	5 Nos.	25.00	5 Nos.	25.00	5 Nos.	25.00	5 Nos.	25.00	5 Nos.	25.00	5 Nos.	25.00	**50 Nos.**	**250.00**
8	Desilting maintenance of existing percolation ponds	50,000	10 Nos.	5.00	10 Nos.	5.00	10 Nos.	5.00	10 Nos.	5.00	10 Nos.	5.00	10 Nos.	5.00	10 Nos.	5.00	10 Nos.	5.00	10 Nos.	5.00	10 Nos.	5.00	**100 Nos.**	**50.00**
9	Providing Salt licks to animals near water hole areas @ Rs.20/kg	100/5 kg	500 kg	0.50	500 kg	0.50	500 kg	0.50	500 kg	0.50	500 kg	0.50	500 kg	0.50	500 kg	0.50	500 kg	0.50	500 kg	0.50	500 kg	0.50	**LS**	**5.00**
10	Providing de-worming pellets near water hole sites	110/kg	500 kg	0.55	500 kg	0.55	500 kg	0.55	500 kg	0.55	500 kg	0.55	500 kg	0.55	500 kg	0.55	500 kg	0.55	500 kg	0.55	500 kg	0.55	**LS**	**5.50**
11	Maintenance of existing watch towers Hassanur, Bannari, Talamalai	50,000	3 Nos.	1.50	3 Nos.	0.45	3 Nos.	0.45	3 Nos.	0.45	3 Nos.	0.45	3 Nos.	0.45	3 Nos.	0.45	3 Nos.	0.45	3 Nos.	0.45	3 Nos.	0.45	**LS**	**5.55**

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)
III.	**MANAGEMENT OF HUMAN ANIMAL CONFLICT**																							
1	Erecting solar power fence at vulnerable places	2,00,000	5 km	10.00	5 km	10.00	5 km	10.00	5 km	10.00	5 km	10.00	5 km	10.00	5 km	10.00	5 km	10.00	5 km	10.00	5 km	10.00	**50 KM**	**100.00**
2	Maintenance of existing solar power fence	10,000	150 km	2.50	150 km	2.50	150 km	2.50	150 km	2.50	150 km	2.50	150 km	2.50	150 km	2.50	150 km	2.50	150 km	2.50	150 km	2.50	--	**25.00**
3	Formation of Elephant Proof Trench in site specific vulnerable areas	3,00,000	10 km	30.00	10 km	30.00	10 km	30.00	10 km	30.00	10 km	30.00	10 km	30.00	10 km	30.00	10 km	30.00	10 km	30.00	10 km	30.00	**100 KM**	**100.00**
4	Maintenance of Elephant Proof Trench in each range	10,000	10 km	1.00	10 km	1.00	10 km	1.00	10 km	1.00	10 km	1.00	10 km	1.00	10 km	1.00	10 km	1.00	10 km	1.00	10 km	1.00	--	**10.00**
5	Innovative new methods to prevent conflict issues	5,000	20 Nos.	1.00	20 Nos.	1.00	20 Nos.	1.00	20 Nos.	1.00	20 Nos.	1.00	20 Nos.	1.00	20 Nos.	1.00	20 Nos.	1.00	20 Nos.	1.00	20 Nos.	1.00	--	**10.00**
6	Training and Educating the local communities on issues related to electrocution of	10,000	5 Range	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	--	**5.00**
7	Anti depredation squad to drive away the problematic elephants from crop fields - 5 Nos. per squad	Rs.3125/ 1 No.	5 squad/12 months	9.38	5 squad/12 months	9.38	5 squad/12 months	9.38	5 squad/12 months	9.38	5 squad/12 months	9.38	5 squad/12 months	9.38	5 squad/12 months	9.38	5 squad/12 months	9.38	5 squad/12 months	9.38	5 squad/12 months	9.38	--	**93.75**
8	Erection of Signage boards in high conflict areas	10,000	5 Nos.	0.50	5 Nos.	0.50	5 Nos.	0.50	5 Nos.	0.50	5 Nos.	0.50	5 Nos.	0.50	5 Nos.	0.50	5 Nos.	0.50	5 Nos.	0.50	5 Nos.	0.50	--	**5.00**
9	Compensation for crop damage and properties including human casualities	LS	LS	5.00	LS	5.00	LS	5.00	LS	5.00	LS	5.00	LS	5.00	LS	5.00	LS	5.00	LS	5.00	LS	5.00	--	**50.00**
10	Capacity building to user groups of solar fencing	10,000	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50		**5.00**
11	Short term research studies on identifying solution for man-animal conflict	LS	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	--	**5.00**
12	Purchase of powerful search lights to chase away the elephants	5,000	20 Nos.	1.00	20 Nos.	1.00	20 Nos.	1.00	20 Nos.	1.00	20 Nos.	1.00	20 Nos.	1.00	20 Nos.	1.00	20 Nos.	1.00	20 Nos.	1.00	20 Nos.	1.00	--	**10.00**
13	Expenses related to veterinary care while dealing diseased, injured and problematic elephants.	LS	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	--	**10.00**
14	Preparing cages to shift animals from problematic areas	0.1	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	--	**5.00**
15	Expenditure related to postmortem of wild animals	0.1	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	--	**5.00**
IV.	**FIRE MANAGEMENT STRATEGY**																							
1	Creation of Fire Lines	250	250 km	5.00	250 km	5.00	250 km	5.00	250 km	5.00	250 km	5.00	250 km	5.00	250 km	5.00	250 km	5.00	250 km	5.00	250 km	5.00	--	**50.00**
2	Purchase of Modern Fire fighting Equipments	LS	LS	10.00	LS	10.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**20.00**
3	Engaging Fire Watchers for fire season for four months: Rs 200/day - each Range 10 Nos.	200	50 Nos.	10.00	50 Nos.	10.00	50 Nos.	10.00	50 Nos.	10.00	50 Nos.	10.00	50 Nos.	10.00	50 Nos.	10.00	50 Nos.	10.00	50 Nos.	10.00	50 Nos.	10.00	--	**100.00**
4	Construction of Watch Towers in sensitive areas in each Range to detect fire incidences	4	2 Nos.	8.00	2 Nos.	8.00	2 Nos.	8.00	2 Nos.	8.00	2 Nos.	8.00	2 Nos.	8.00	2 Nos.	8.00	2 Nos.	8.00	2 Nos.	8.00	2 Nos.	8.00	20 Nos.	**80.00**

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)
5	Controlled early burning system as part of management in suitable areas	10,000	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	--	**5.00**
6	Training to Village Forest Council to prevent forest fire	10,000	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	--	**5.00**
7	Purchase of Van for transporting fire fighting areas	LS	LS	10.00	LS	10.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**20.00**
8	Printing Publicity materials about fire menace in wildlife areas	LS	LS	0.25	LS	0.25	LS	0.25	LS	0.25	LS	0.25	LS	0.25	LS	0.25	LS	0.25	LS	0.25	LS	0.25	--	**2.50**
9	Fire fighting Training to the field staff to control fire	10,000	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	--	**5.00**
10	Incidental expenses during fire fighting	10,000	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	--	**5.00**
11	Purchase of water tanks- 2 Nos. to extinguish the fire	5000	10 Nos.	0.50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**0.50**
V.	**CORRIDOR MANAGEMENT STRATEGY**																							
1	Acquiring corridors from private owners in sensitive elephant migration areas	LS	LS	10.00	LS	10.00	LS	10.00	LS	10.00	LS	10.00	LS	10.00	--	--	--	--	--	--	--	--	--	**60.00**
2	Signage boards and other publicity materials for animal crossing areas	LS	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	--	**10.00**
3	Planting fodder species and bamboos in elephant habitats	20,000	10 Ha.	2.00	10 Ha.	2.00	10 Ha.	2.00	10 Ha.	2.00	10 Ha.	2.00	10 Ha.	2.00	10 Ha.	2.00	10 Ha.	2.00	10 Ha.	2.00	10 Ha.	2.00	--	**20.00**
VI.	**HABITAT MANAGEMENT PRACTICES**																							
1	Removal of *Lantana camara* and *Prosopis juliflora* from wildlife habitat	15,000	50 Ha	7.50	50 Ha	7.50	50 Ha	7.50	50 Ha	7.50	50 Ha	7.50	50 Ha	7.50	50 Ha	7.50	50 Ha	7.50	50 Ha	7.50	50 Ha	7.50	--	**75.00**
2	Maintenance of fair weather road with proper drainage	15,000	40 km	6.00	40 km	6.00	40 km	6.00	40 km	6.00	40 km	6.00	40 km	6.00	40 km	6.00	40 km	6.00	40 km	6.00	40 km	6.00	--	**60.00**
3	Construction of cairns along the reserve forest boundary within the Sanctuary	1,500	150	2.25	150	2.25	150	2.25	150	2.25	150	2.25	150	2.25	150	2.25	150	2.25	150	2.25	150	2.25	--	**22.50**
4	Training and Capacity building to the field staff and office staff in sanctuary management	LS	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	--	**5.00**
5	Provision for weather stations at suitable locations	LS	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	--	--	--	--	--	--	--	--	--	--	--	**5.00**
6	Removal of older Eucalyptus trees from the sanctuary plantation limits	15,000	10 Ha.	1.50	10 Ha.	1.50	10 Ha.	1.50	10 Ha.	1.50	10 Ha.	1.50	--	--	--	--	--	--	--	--	--	--	--	**7.50**

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)
VII.	**ECO TOURISM ACTIVITIES**																							
1	**Construction of Reception Centre at Bhavanisagar**	15,00,000	1 No.	15.00	1 No.	15.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**30.00**
2	Establishment of mini Library and Nature Interpretation Centre	15,00,000	1 Nos.	15.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**15.00**
3	Purchase of wildlife books and periodicals	LS	LS	1.00	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50		**5.50**
4	Formation of game roads in Bhavanisagar Range	10,000	25 km	2.50	25 km	2.50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**5.00**
5	Purchase of two safari vans for Eco-tourism including maintenance	15,00,000	1 no	15.00	1 no	15.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**30.00**
6	Purchase of two boats for eco-tourism	4,00,000	1 No.	4.00	1 No.	4.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**8.00**
7	Hiring of tribals as guides for nature trekking	Rs. 150	5 nos/ 20 days	1.80	5 nos/ 20 days	1.80	5 nos/ 20 days	1.80	5 nos/ 20 days	1.80	5 nos/ 20 days	1.80	5 nos/ 20 days	1.80	5 nos/ 20 days	1.80	5 nos/ 20 days	1.80	5 nos/ 20 days	1.80	5 nos/ 20 days	1.80	--	**18.00**
8	Establishing nature trekking routes in each range	LS	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	--	**5.00**
9	Grant for VFC to run an eco-canteen for tourist at Bhavanisagar Range	3,00,000	1 No.	3.00	1 No.	3.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**6.00**
10	Construction of trekking sheds (tents) in each range	2,00,000	1	2.00	1	2.00	1	2.00	1	2.00	1	2.00	--	--	--	--	--	--	--	--	--	--	--	**10.00**
11	Construction of an auditorium for screening, wildlife films for students and other communities	15,00,000	1 No.	15.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**15.00**
12	Purchase of furniture sets for auditorium, reception centre and library	LS	LS	2.00	LS	2.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**4.00**
13	Printing Publicity materials for the Sanctuary	0.2	5 Ranges	1.00	5 Ranges	1.00	5 Ranges	1.00	5 Ranges	1.00	5 Ranges	1.00	5 Ranges	1.00	5 Ranges	1.00	5 Ranges	1.00	5 Ranges	1.00	5 Ranges	1.00	--	**10.00**
14	Purchase of computers, printers, LCD panels, gen set, TV for awareness campaigning in schools and villages	LS	LS	2.00	LS	2.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**4.00**
15	Hiring of computer operators cum receptionist for the reception centre	6,000	1 No. / 12 months	0.72	1 No. / 12 months	0.72	1 No. / 12 months	0.72	1 No. / 12 months	0.72	1 No. / 12 months	0.72	1 No. / 12 months	0.72	1 No. / 12 months	0.72	1 No. / 12 months	0.72	1 No. / 12 months	0.72	1 No. / 12 months	0.72	--	**7.20**
16	Construction of vehicle shed (vans and jeeps)	LS	LS	1.00	LS	1.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**2.00**
17	Hiring drivers for safari vans @ Rs.200	200 per day	25 day	0.60	25 day	0.60	25 day	0.60	25 day	0.60	25 day	0.60	25 day	0.60	25 day	0.60	25 day	0.60	25 day	0.60	25 day	0.60	--	**6.00**
18	Construction of staff buildings for drivers and biologist	3,00,000	2 Nos.	6.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**6.00**
19	Construction of dormitories for students and visitors (20 beds)	LS	LS	25.00	LS	25.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**50.00**

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)
20	Maintenance of existing Rest Houses	50,000	8 Nos.	4.00	8 Nos.	4.00	8 Nos.	4.00	8 Nos.	4.00	8 Nos.	4.00	8 Nos.	4.00	8 Nos.	4.00	8 Nos.	4.00	8 Nos.	4.00	8 Nos.	4.00	--	**40.00**
21	Provision for tent accommodation in selected areas	50,000	2 Nos.	1.00	2 Nos.	1.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**2.00**
VIII.	**CONSERVATION EDUCATION AND AWARENESS PROGRAMME**																							
1	Publicity materials to villagers on wildlife conservation	LS	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	--	**10.00**
2	Periodical Training to local communities and other stakeholders on conservation and awareness	0.1	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	5 Ranges	0.50	--	**5.00**
3	Cultural awareness programme about wildlife conservation in the fringe villages	LS	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	--	**5.00**
4	Nature camps for schools and colleges	0.1 camp	10camps	1.00	10camps	1.00	10camps	1.00	10camps	1.00	10camps	1.00	10camps	1.00	10camps	1.00	10camps	1.00	10camps	1.00	10camps	1.00	100 camp	**10.00**
IX.	**ECO DEVELOPMENT ACTIVITIES**																							
1	Construction of group house to tribals	75,000	5 Nos.	3.75	5 Nos.	3.75	5 Nos.	3.75	5 Nos.	3.75	5 Nos.	3.75	5 Nos.	3.75	5 Nos.	3.75	5 Nos.	3.75	5 Nos.	3.75	5 Nos.	3.75	--	**37.50**
2	Drinking water facilities for tribal settlement	1,50,000	2 Nos.	3.00	2 Nos.	3.00	2 Nos.	3.00	2 Nos.	3.00	2 Nos.	3.00												**15.00**
3	Conducting periodical health camp for the tribal communities	5000	10 camp	0.50	10 camp	0.50	10 camp	0.50	10 camp	0.50	10 camp	0.50	10 camp	0.50	10 camp	0.50	10 camp	0.50	10 camp	0.50	10 camp	0.50		**5.00**
4	Supply of agriculture implements to the tribal communities	5000	100 families	5.00	100 families	5.00	100 families	5.00	100 families	5.00	100 families	5.00	100 families	5.00	100 families	5.00	100 families	5.00	100 families	5.00	100 families	5.00		**50.00**
5	Supply of fruit bearing tree saplings to tribal communities	30	10,000 nos.	3.00	10,000 nos.	3.00	10,000 nos.	3.00	10,000 nos.	3.00	10,000 nos.	3.00	10,000 nos.	3.00	10,000 nos.	3.00	10,000 nos.	3.00	10,000 nos.	3.00	10,000 nos.	3.00		**30.00**
6	Provision for solar lamps to the settlement villages	4000	20 families	0.80	20 families	0.80	20 families	0.80	20 families	0.80	20 families	0.80												**4.00**
7	Revolving funds for the VFC for development of alternative livelihood options	5,00,000	15 villages	75.00	15 villages	75.00	15 villages	75.00	15 villages	75.00	15 villages	75.00	15 villages	75.00	15 villages	75.00	15 villages	75.00	15 villages	75.00	3villages	15.00	138	**690.00**
8	Entry Point Activities	2,00,000	15 Villages	30.00	15 Villages	30.00	15 Villages	30.00	15 Villages	30.00	15 Villages	30.00	15 Villages	30.00	15 Villages	30.00	15 Villages	30.00	15 Villages	30.00	3 Villages	6.00	138	**276.00**
9	Formation of eco development committee in fringe villages for eco-development activities	5,000	15 villages	0.75	15 villages	0.75	15 villages	0.75	15 villages	0.75	15 villages	0.75	15 villages	0.75	15 villages	0.75	15 villages	0.75	15 villages	0.75	3 villages	0.15	138	**6.90**
10	Training programme and capacity building for the EDC in reducing forest dependence	5,000	10 progra-mme	0.50	10 progra-mme	0.50	10 progra-mme	0.50	10 progra-mme	0.50	10 progra-mme	0.50	10 progra-mme	0.50	10 progra-mme	0.50	10 progra-mme	0.50	10 progra-mme	0.50	10 progra-mme	0.50		**5.00**
11	Development of fodder farm in tribal settlement areas	LS	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00		**10.00**

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)
X.	**RESEARCH AND MONITORING**																							
1	Appointment of a wildlife biologist to document biodiversity of the sanctuary	15,000	1 No. / 12 months	1.80	1 No. / 12 months	1.80	1 No. / 12 months	1.80	1 No. / 12 months	1.80	1 No. / 12 months	1.80	1 No. / 12 months	1.80	1 No. / 12 months	1.80	1 No. / 12 months	1.80	1 No. / 12 months	1.80	1 No. / 12 months	1.80		**18.00**
2	Appointment of sociologist for preparing socio-economic survey reports	15,000	1 No. / 12 months	1.80	1 No. / 12 months	1.80	1 No. / 12 months	1.80	1 No. / 12 months	1.80	1 No. / 12 months	1.80	1 No. / 12 months	1.80	1 No. / 12 months	1.80	1 No. / 12 months	1.80	1 No. / 12 months	1.80	1 No. / 12 months	1.80		**18.00**
3	Research documentation on species recovery programme: tigers/ four horned antelope/vultures by research institutions/NGOs	LS	LS	3.00	LS	3.00	LS	3.00	LS	3.00	LS	3.00	LS	3.00	LS	3.00	LS	3.00	LS	3.00	LS	3.00	--	**30.00**
4	Conservation of vulture in Sathyamangalam Wildlife Sanctuary																							
	1) Awareness creation	0.1	5 Programme	0.50	5 Programme	0.50	5 Programme	0.50	5 Programme	0.50	5 Programme	0.50	5 Programme	0.50	5 Programme	0.50	5 Programme	0.50	5 Programme	0.50	5 Programme	0.50	--	**5.00**
	2) Training programme to Forester, Veterinary Assistant and Field Staff	0.1	5 Programme	0.50	5 Programme	0.50	5 Programme	0.50	5 Programme	0.50	5 Programme	0.50	5 Programme	0.50	5 Programme	0.50	5 Programme	0.50	5 Programme	0.50	5 Programme	0.50	--	**5.00**
	3) Employing Tribal youth as Vulture trackers @ R.2,000/10 Nos. x 12 months and binocular Rs.3,000/ per No.	5,000	10 Nos. tribal youth/12 months and binocular - 10 Nos.	2.70	10 Nos. tribal youth/12 months	2.40	10 Nos. tribal youth/12 months	2.40	10 Nos. tribal youth/12 months	2.40	10 Nos. tribal youth/12 months	2.40	10 Nos. tribal youth/12 months	2.40	10 Nos. tribal youth/12 months	2.40	10 Nos. tribal youth/12 months	2.40	10 Nos. tribal youth/12 months	2.40	10 Nos. tribal youth/12 months	2.40	10 Nos. tribal youth/12 months	2.40	--	**24.30**
	4) Construction of watch towers for monitoring the Vulture colonies	4,00,000	1 No.	4.00	1 No.	4.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2 Nos.	**8.00**
	5) Safe disposal of Diclofenac contaminated carcasses 10 cases per year @ Rs.5,000/carcass	0.05	10 case / year	0.50	10 case / year	0.50	10 case / year	0.50	10 case / year	0.50	10 case / year	0.50	10 case / year	0.50	10 case / year	0.50	10 case / year	0.50	10 case / year	0.50	10 case / year	0.50	--	**5.00**
XI	**VETERINARY CARE AND MANAGEMENT**																							
1	Periodical Vaccination in the fringe villages	LS	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50		**5.00**
2	Cost of analyzing various post mortem samples from research institutions	LS	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50		**5.00**
3	Rescue and translocation of problematic animals	LS	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50		**5.00**
4	Training and capacity building for the veterinary staff on wildlife management	LS	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50		**5.00**
XII	**HUMAN RESOURCE DEVELOPMENT**																							
1	Appointment of One Assistant Conservator of Forests	31,000	12 months	3.72	12 months	3.72	12 months	3.72	12 months	3.72	12 months	3.72	12 months	3.72	12 months	3.72	12 months	3.72	12 months	3.72	12 months	3.72		**37.20**
2	Engaging wireless operator for the DFO office	11,000	12 months	1.32	12 months	1.32	12 months	1.32	12 months	1.32	12 months	1.32	12 months	1.32	12 months	1.32	12 months	1.32	12 months	1.32	12 months	1.32		**13.20**
3	Periodical training for the sanctuary staff in human resource management	LS	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	--	**10.00**
	TOTAL			**548.44**		**477.785**		**375.485**		**368.785**		**368.285**		**358.935**		**348.44**		**347.935**		**347.935**		**263.835**		**3815.85**