

INSTITUTION OF FORESTERS KERALA

**COMPREHENSIVE STUDY
ON
SACRED GROVES
IN
KERALA**

Report No: 8 Idukki District

Sponsored By

KERALA FORESTS & WILDLIFE DEPARTMENT

April 2020

PART - I

PART - II

PREFACE

Institution of Foresters Kerala (IFK) is a society registered in the year 1987 under the Travancore Literary, Scientific and Charitable Societies Act 1955 with its Central office at Thiruvananthapuram. Later it has established two Regional Chapters one at Thrissur and another at Kozhikode. One of the objectives of IFK is to undertake studies on topics useful in Forest Management. Accordingly a Project-“A comprehensive study on the socio-economic and cultural aspects of sacred groves in Kerala” was prepared and submitted to Kerala Forest Department in June 2012. This project was examined and discussed by the Kerala Forest Development Fund Research Committee in its meeting held on 18th August 2012 and was approved for implementation. The project envisages a detailed study of Sacred Groves (SGs) in all the districts of Kerala one by one.

To start with Thiruvananthapuram District was allotted and IFK completed the study and submitted the report in November 2013. It was followed by similar study in another five districts by 2018. By this time we have covered more than 60 % of the sacred groves in Kerala. As the remaining districts have comparatively lesser number of SGs, on our request KFD was pleased to give a blanket sanction for carrying out the work in the remaining eight districts continuously without waiting for specific sanctions for the districts one by one. This approach has enabled us to go fast in the project work for which we record our appreciation and gratitude to Sri Rajan Sehgal the then Additional Principal Chief Conservator of Forests who was the Chairman of KFDF Committee. After executing the agreement with KFD on 26-02-18, study was commenced in four districts such as Kottayam, Palakkad, Malappuram and Kasaragod. The unprecedented floods of 2018 which was followed by the floods of 2019 adversely affected the progress of our work also. However before end of 2019 we could submit the report on Kottayam District. And now we are submitting the report on Idukki though the earlier taken up three districts are only nearing completion. The reason is that Idukki has only 32 SGs.

One field team headed by retired Section Forest Officer with one local helper carried out the work in Idukki and randomly checked by senior team from IFK Headquarters..

IFK record its immense gratitude to Kerala Forest Department in entrusting this glorious task with it. We also thank Sri. S. Gopalakrishnan IFS, Addl. PCCF and Chairman KFDF for his guidance and also that of Mr. Devendra Kumar Verma Principal Chief Conservator of Forests (Planning and Development) for his

promptness in removal of impediments in the most appropriate manner to complete the study in the best possible way. Our thanks are due to the experts who co-opted with us and members of the KFDF Research Committee for their positive attitude in IFK's activities. Finally we express our thanks in no small measure to other officers and staff at Forest Headquarters, in extending fair approach to IFK to make this activity hassle free.

This study report may serve as the valid document on the status and distribution of Sacred Groves in the district. It is our modest expectation that it forms the basis for future planning on the conservation of this precious eco system

It will be our pleasure to clarify any of the details included in this report to all those concerned. It may please be noted that ownership details and similar matters are recorded based on information supplied by the custodian or his representative and not by perusing legal documents which is not practicable always .Though the report was ready by beginning of February 2020, we are able to submit this only now after the National Lockdown period is over.

31-03-2020

M.S.Nair
(President)
Institution of Foresters
Kerala

ACKNOWLEDGEMENT FOR SERVICES RENDERED

This project report is the result of the sincere and hard work contributed by a number of members of IFK and a few others from outside and on behalf of IFK, I take immense pleasure in extending deep gratitude to them. The nature of work contributed by them is acknowledged as below:-

Field Enumeration & Data Collection	Sri.C.R. Jagajeevan Section Forest Officer (Rtd) Sri. Vinod (Skilled worker)
Flora identification	Dr. Jomy Augustine
Field checking	Sri. M.S.Nair Sri. Patric Gomez
Data entry	M/s. Vignesh Graphics
Verification of data entry & Compilation	Sri. M.S.Nair, Sri. Patric Gomez,
REPORT PREPARATION	
Review of literature	Sri. M.S.Nair Sri. C.K.Karunakaran
Ecological status	Sri. M.S.Nair
Plant Frequency	Dr. N.Sasidharan
Socio-Cultural aspects	Sri. Patric Gomez
All other Chapters	Sri. M.S.Nair
Photographs contributed	Sri. M.S.Nair
Editing & Finalization of the Report	Sri. M.S. Nair (Principal Investigator of the project) Sri. Patric Gomez (Chief Coordinator of the project)

Also, I take this opportunity to sincerely acknowledge the cooperation, contributions and valuable suggestions given by the Executive Committee members of IFK from time to time to carry out this task constraint free.

31-03-2020

M.S.Nair
(President)

Institution of Foresters Kerala

EXECUTIVE SUMMARY

Name of Project : **A Comprehensive Study On The Socio-Economic & Cultural Aspects of Sacred Groves In Kerala**

Report No.8 - ***IDUKKI District***

General

Sanctioning Authority	- Addl.Principal Chief Conservator (Development) and Chairman, KFDF Research Committee.
Implementing Agency	- Institution of Foresters Kerala
Principal Investigator	- M. S. NAIR
Date of Agreement	- 22.06-2018
Area of Study	- Idukki District.
Geographical extent of the District	- 4358 sq.km
No. of Taluks	- 5

PART I

Chapter . I

INTRODUCTION

Objectives

- Arrive at an exhaustive list of Sacred Groves in the District.
- Detailed study of flora and fauna
- Documentation of geographical and legal details.
- Study on Socio-economic and cultural aspects
- Conduct study on ecological status

Uniqueness

- Exhaustive inventory of Sacred groves.
- Creation of a databank on geographical and legal status of sacred groves.
- Detailed study on flora.
- Documentation of Socio-economic and Cultural aspects.
- Mapping SGs with Id numbers.

Methodology

Described under data collection and documentation.

Chapter II : Review of Literature

Definition, global scenario, attitude of different religions in the world towards sacred groves, Indian scenario, number of SGs, flora and fauna documented earlier etc.

Chapter III : Results of Study

Total number of SGs district wise, Taluk wise, distribution under different size categories.management details.

IDUKKI DISTRICT

Sl. No.	Name of Taluk	No. of Sacred Groves	Extent (Cents)
1	Thodupuzha	10	193
2	Peermade	10	137
3	Idukki	1	5
4	Devikulam	11	408
	TOTAL	32	743 (3.00 ha)

Management

Three main categories identified-

i. Devaswam	5 Nos.
ii. Public	11 "
iii. Private- (Kudumbakavu & Kudumba Trust,) 16 "	
. Total---	32

Id Numbers to Sacred Groves.

Id numbers have been provided taluk wise-

Thodupuzha-	IDK/Tdpa	1 to 10
Peermade-	IDK/Prmd	11 to 20
Idukki-	IDK/ Idki	21
Deviculam-	IDK/ Dvkm	22- to 32

All the SGs have been given serial numbers coming in each taluk. details up to North and East co-ordinates.

A Statement gives all other information including management category has been attached .

Mapping-Separate map for each taluk has been prepared giving the location and Id numbers of SGs.

Chapter IV : Composition of Vegetation.

- i- Rare Species seen in the SGs have been listed out-
- ii. Species found to be important or rare have been listed noting conservation status

Detailed Study of Selected Sacred Groves.

In all 9 SGs falling in the two regions -middle land and high land- have been inspected and prepared by an expert on Botany and Taxonomy and the important species identified are tabulated SG wise .

Chapter V: Ecological Status

Vegetation- Plant diversity with rare Invasive species, Keystone species, Natural regeneration, nature of occurrence of species region wise,

Soil condition- result of soil tests and analysis, soil and water conservation discussed.

Faunal significance- Useful and harmful role of bats, termites,peafowl indigenous fish etc.as could be collected with their habits.

Chapter VI : Social Dimensions of Sacred Groves.

Sacred Groves falling in different regions totaling 8 numbers were selected and the social conditions in relation to the Sacred Groves have been studied. Mainly five stake holders have been identified such as, i-Local people, ii. Custodians, iii, Priest hood, iv. Shop keepers and v. younger generation. Representatives belonging to all the above categories have been contacted with suitable questionnaire and analyzed their views.

Study revealed that there is a strong network of social system centered around sacred groves built on faith on God, customs, harmony and flow of income. It is estimated that the following is the minimum effect on socio-economic condition annually.

Employment - persons 6224 Expenses-Rs.17 lakhs

Total amount generated under various sources-Rs. 69 lakhs.

Other shop vendors depending on SGs for their livelihood –

Chapter VII : Socio-Cultural Aspects of Sacred Groves

This study has covered the belief entertained by devotees on various deities, the rituals performed during worship, and different cultural programmes being organized in festivals.The importance of star trees and their mythological relation with different deities being worshiped in SGs is also an informative part of this study.

The study completes with the conclusion that interference with the sacred groves have been restricted culturally also resulting in added protection to this ecosystem.

Chapter VIII : Myths & Legends.

Prepared based on information narrated by custodians and related people.

Chapter X : Threats and Recommendations

Regarding threats, intention showed by a few to reduce extent by shifting deity, encroachment, disputes on ownership, dumping waste etc. are discussed with examples.

Main recommendations

- i. Awareness programmes including suggestions to prevent dumping solid waste
- ii. Arrangement for fair distribution of grant to deserving custodians,
- iii. Production of quality seedlings of selected species,
- iv. Non – interference by government to the extent that may dissuade the faith and right of custodians ,
- v. Appropriate recognition to custodians for their contribution in sequestration of carbon.

Pictures on various sites activities and plants- plates.

PART II

Maps of SGs with Id numbers taluk wise.

Detailed statements on SGs taluk wise.

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CHAPTER I

INTRODUCTION

The existence of sacred groves in India dates back to ancient pre-agrarian hunter gathering era and their presence has been documented since early 1800's. Believing that trees are the abode of deities and ancestral spirits, many communities set aside sanctified areas of forest and established rules and customs to ensure their protection prohibiting felling trees, killing animals etc. The prevailing belief among devotees is that the presiding deities administer punishment to individuals or entire community in the form of diseases or crop failure if in case they violate the established customs. As a result of such restrictions and strict adherence to the accepted customs by the devotees several endemic and endangered plant and animal species have survived in the sacred groves for so many years since. Sacred groves attain religious and holy significance all over.

The Earth Summit of 1992 emphasized the immediate need for protection and conservation of biodiversity. Following that, the approach to biodiversity conservation gained revamping image all over the world. Protection with veneration provided to these patches of forest as Sacred Groves from generations to generations all over the world is significant in the sense that the principles of bio-diversity conservation had been inbuilt in their management. In India the Biological Diversity Act enacted in 2002, stressed the need for implementing various measures for bio-diversity conservation.. In the mean while, the Kerala Forestry Project (1998-2003) stressed the need for biodiversity conservation and constituted a Biodiversity Cell in Forest Department. The Kerala Forestry Project (1998) proposed the need for long term conservation of sacred groves by taking up ecological survey and inventory of sacred groves. In addition the project provided for lump sum allocation of grants to local communities and religious groups to improve awareness, demarcation, protection and enhancement of local practices in Sacred Groves. But even after 17 years on completion of the project implementation a clear picture as to the spread of area under vegetation and the related inventory about the sacred groves has been lacking.

The year 2010-11 was declared as International Year of Biodiversity and various programmes were launched as part of its observance. Protection and Conservation of Sacred Groves is one among the schemes and KFD is providing financial grant to various selected sacred groves under this scheme. For implementing such a scheme a database covering inventory with all relevant details relating to the

state as a whole is very essential. Though studies have been undertaken and reports published on sacred groves of Kerala by various individuals and organizations, such reports do not cover all the relevant details and they cover only part of some aspects, that too in incomplete form. It is in this context this project gets warm acceptance at all levels concerned.

This study is aimed at building a data base on the existence of sacred groves in Kerala. The work in Thiruvananthapuram District has been completed and report submitted in 2013. Against earlier anticipated 100 numbers of sacred groves (SG) it finally turned out to be 452. This was followed by six reports , namely Kollam, Thrissur, Alappuzha, Kozhikode, Kannur and Kottayam districts. The report on Idukki district is now submitted. Besides taking an inventory on the number of SGS available, information on the extent of vegetation, ownership, legal status, geographical location including GPS data, assigning Id number and such other important information find a place in this report. The impact of such information on these patches of vegetation which have been surviving since long and its socio-ecological scenario would amply help policy makers establish guidelines and launch schemes for conservation without interfering with the freedom of the custodians.. The absence of such information in the earlier available data based by KFD over the state qualifies this study a unique venture.

This report is presented in two parts. Part 1 contains inventory details, study on vegetation, ecological aspects and Socio-cultural studies. along with photographs of important sacred groves and plants. Part II comprises various statements on location, geographical information, management details and Id numbers computed for each sacred grove taluk wise. Maps showing the location of all the SGs taluk wise are also included

As already explained, this report is unique in its approach and delivery as below :-

A comprehensive inventory of sacred groves in Kollam District with location

- List of flora and fauna,
- Identification of important and rare plant species in detail by an expert with regard to selected sacred groves.
- Suggesting ID numbers to all the SGs.
- Preparation of a data base on folklore aspects
- Impact of the sacred groves in socio-economic scenario.
- Providing photographs of all, important species existing in the SGs
- Mapping SGs taluk wise showing the location of SGs based on GPS readings.

- The threats to be confronted in conservation of sacred groves.

METHODOLOGY

Area of Study

The project proposal envisages to take up the study in all the 14 districts of Kerala. This report covers Idukki as the 8th district. The district stretches along the eastern border of kerala between Pathanamthitta and Palakkad districts covering a total area of 4358 sqkm and population of 11.08 lakhs..This is the second largest district in Kerala.(Palakkad, being the first.)_There are five taluks viz. Thodupuzha, Peermade, Udumbanchola,, Devikulam, and Idukki. Annual rainfall is 270cms. Mean and max. temperatue is 24.4 degree and 36. degree respectively. As regards soil is concerned , sandy loam in parts and in the rest of the area mild laterite and forest soil with rocky outcrops are met with.

Objectives:

1. Arrive at an exhaustive list of manageable size of the sacred groves and their extent.
2. Conduct a study of the vegetation and fauna including the prospects for conservation
3. Collect data on the legal status of these groves and socio-economic conditions
4. Documentation of present religious practices like festivals, folklore and folk art prevailing in these sacred groves.
5. Assess the ecological status based on observations made in the field.
6. Mapping the SG locations taluk wise.
7. Evolve suggestions for future conservation and management of these sacred groves

Collection of available data

Before taking up field study a complete list of sacred groves had to be obtained. The list of Sacred Groves (SGs) available shows a very small number of 15. In spite of all efforts made through various persons concerned and making a reconnaissance by the enumerator, nearly 25 numbers could be located. This low number is attributed to the fact that most of the land area in this district fall under

Cardamom Hill Reserve and estates of commercial crop such as Tea, Coffee, Cardamom etc. It is after that the field work was started with the intention of resorting to local enquiry during the course of field work.

During the course of field work the field team received information locally about nearby sacred groves for which no application had been received. Such SGs have also been visited and documented. Finally, from available data with Social Forestry, publicity in the press and through word of month, the number of sacred groves totaled 32 in number.

Constitution of Field Team

One retired Section Forest Officer (IFK Member) and one supporting hand recruited locally formed the field team. They were provided with necessary format for recording details and G.P.S equipment for recording latitudes and longitudes. Their field work was supervised and checked by the senior members of the Executive Committee at random.

Format for recording data

A format was designed for the collection of data while visiting a sacred grove which proposed to collect information on name of SG, location, name and address of custodian, extent, sy. no, village, existence of compound wall, ponds, fauna locally seen or reported etc. Further, details on inspection would carry the vegetation, legal status, information of presiding deity, temples attached, a brief note on the route to reach the SG from a known place and similar essential facts in respect of sacred grove. Legal status was recorded as was conveyed by the person in charge of the grove and not scrutiny of documents.

Another format was prepared for collection of data on socio-economic aspect such as employment of staff ,expenditure and income with respect to typical representative sacred groves under different categories as orally conveyed by the custodian or his nominee. This is utilized for rough estimation of the monetary circulation on this social set up.

Supervision of data collection and expenditure

The IFK Executive Committee, meeting from time to time, took appropriate decisions on expenditure and undertook checking the data collected according to the format by making field inspections at random.

Extent of sacred groves

The extent of sacred groves is recorded based on the actual area under vegetative cover. The documents if any produced by custodian may include the extent of temples or other ancillary areas. In such cases the actual area under vegetation is taken based on the experience of forest staff. They have also made it mandatory to record it in a very conservative manner in order to avoid any distorted figure on the higher side.

Legal status

Legal status was looked into to classify the sacred groves into the following categories as could be verified from reliable records or information. (i) Managed by Devaswam Board (ii) Under public Trust, or Under Local Committee (iii) Private persons (includes family trust or kudumba ownership). More details about these will appear in the chapter on Sociological Dimensions.

Documentation of Flora .

Generally, the field team is conversant with most of the identification of the main plant species. But they we have also taken the help of experts the identification of uncommon shrubs and herbs including medicinal plants in selected groves. He has done total inventory in as much as nine selected SGs distributed over all the four taluks and the lists are included in the report. In Udumbanchola taluk no SG could be located.

Mapping-

Location of all the SGs has been marked in maps talukwise based on GPS readings. The serial numbers have been allotted as one set for the whole district since the total number is so small.. These serial numbers have been adopted as Id numbers of the sacred groves marked in the maps of the four taluks. There is no SG in Udumanchola taluk.

CHAPTER II

REVIEW OF LITERATURE

There are plenty of literature authored by various scholars such as Gaikward, Oliver Kind, Dr. Raviprasad Rao, Muhamed Jafer Pilot & Radhakrishnan, Mohan C.N & Ganga Prasad, Unnikrishnan ,U. M.Unnikrishna and others on the character and status of sacred groves in general which constitute the basis of this chapter partly. In addition, there are various articles on SGs in other countries available by surfing internet. Part of those are also included in this.

The sacred Groves came into existence thousands of years ago and in general they were being dedicated by local communities to their ancestral spirits or deities or according to their faith in spiritual powers or even environment. They have been defined by many authors like those above and all the definitions carry more or less the same meaning. The following are the views that emerge out of their contributions.

According to them Sacred Groves (SG) are patches of vegetation or group of trees protected by the local people through religious and cultural practices evolved to minimize destruction. Sacred groves are the community based repositories of biological diversity are segments of landscapes typically covering a patch of vegetation with perennial water resources. They are patches of wilderness conserved owing to their perceived importance attached to a village deity. Sacred grove is an age-old tradition where a patch of forest is dedicated to local deities and none is allowed to cut plants or to harm animals or do harm to any form of life. Sacred groves are community based monuments of biological diversity.

Global Scenario

Sacred Groves (SG) are distributed across the globe and diverse cultures recognise them in different ways encoding various rules for their protection. Sacred groves associated with religious beliefs were there in many countries from time immemorial. Sacred groves have been reported from many countries like Mexico, Ghana, Nigeria, China, Syria, Europe and America.

In America-The Bohemian Grove located in California is a privately owned sacred grove and in mid-July each year they perform symbolic rituals such as Cremation of Care. (*See Plate-I*)

The Greek and Roman landscapes were dotted with many sacred places which contain groves of trees and water springs. Groves were in existence in Greece and Rome long back. The most famous sacred grove in Greece was Oak Grove at **Dodona**. Outside the walls od Athens the site of the Academy was a sacred grove of olive trees.

Resources from the groves were used for religious purposes. Animals like goats and deer were captured and offered to appease the deity. Trees in the groves could be used for building temple. Wood from sacred trees was believed to have magical powers when fashioned into statues of gods. This kind of multiple use relaxing strict measures on conservation caused decline of SGs in some parts of Europe.

In Tuna a southern province in **China**, the inhabitants did not dare to touch the native mountain forest because of their fear on wrath of God.

In Africa, among the Kikuyu ,groves of *Migumu* tree are considered as sacred and those trees were not to be cut. In these sacred groves, sheeps and goats were sacrificed and prayers offered for getting rain or fine weather or for curing diseases . In Kenya , *Kaya* a sacred forest considered to be an intrinsic source of ritual power and origin of cultural identity . It is also a place of prayer for members of a particular ethnic group-Mijikenda people. The flora was used solely for collection of medicinal plants. Cutting and clearing trees were not permitted. In **Nigeria the Osum-Osobgo sacred grove** containing dense forests is dedicated to fertility god in Yoruba mythology and is dotted with shrines and sculptures . This grove was designated as a **UNESCO World Heritage Site** in 2005.(see picture- PLATE-I)

In Europe sacred groves survived in the Baltic states longer than in other parts .The sacred grove island Estonia is the one. (See picture Plate-I)

One great **Druidic groves in south Gaul (Rome)**was cleared by Ceaser's troops in an attempt to remove spiritual powers inherent in the grove. There was a grove in front of the **church in Weissenbach an der Triesting**.(picturePLATE II)

In the **Caucasus Mountains** (Russia) each community had its own sacred grove. They worshipped these as sanctuaries built among age old trees which were never to be cut (see picture—PLATE-- II).

In **Japan** the Seifa-Utaki contains a sacred grove, with rare indigenous trees like *Kubanoki* (*a kind of Palm*) and *Yubunikkei* (*Cinnamomum japonicum*) This is UNESCO World Heritage Site of 2003.

A grove near **Leona** all the way down a mountain side up to sea was dedicated to the goddess Artemis at the instance of Alexander the Great. Artemis was considered to be the protector of animals and plants.

Attitude by different Religions in the world

Due to the rise in dogmatic religions like Christianity and Islam, which advocated faith in one God the tradition of maintaining sacred groves and sacred trees did not get an unconditional flow of support though sacred groves exist in many countries in some form or other among those religions. We can still get lot of instances to show that this attachment to trees coupled with spiritual beliefs exist among different religions also other than Hinduism.

In the kingdom of Shower in Arabia, tree worship was prevalent in 1860 for getting rain. Muslim Persians invoke the spirits supposed to dwell in certain trees by hanging on the branches, pieces from garments during some ceremonial occasions.

In Indonesia *Ficus benghalensis* is considered sacred. They believed the existence of holy spirits in the tree which would ensure availability of clean water.

There is a Parish Church of Weissenbach Treisting in Lower Austria, Europe, a grove exists in front of the church. In Syria there is a grove sacred dedicated to Adonis at Afqa.

Buddha himself gained realization and enlightenment under a pipal tree. Buddha is reported to have been born in a sacred grove-Lumbinivana-full of Sal trees.(Gadgil 1985)

Indian scenario

Of course in India the major religion that holds and protects sacred groves is Hinduism, having several living and non-living elements of nature as objects of worship.

The general belief that sacred groves are maintained by Hindu community only is not fully correct. Other communities also have shown faith in the sacred trees. A little Sal forest in Gorahpur is maintained by a Muslim saint “Miam Sahib” . Nothing was allowed to be cut except for lighting sacred fire.

In Kolhapur district there exists a small sacred grove on the land of a Muslim peasant. This land was purchased by him from a Brahmin priest in 1962. The Muslim peasant observes “agrosaat” and “diwalsaat” (pre-sowing and post sowing ceremonies) at this sacred grove along with adjoining Hindu peasants.

In Murshidabad district (Raghnathgunj town in West Bengal), in a mazaar-a pir- is located amidst a grove . On the top of the grave three trees –neem, mahakal, and bel are there which are worshiped by Hindus.

In the heart of Midnapur city, a sacred grove is dedicated to a pir called Hazrat Balak Shahid Rehmatullah Elachi, who died a few centuries back. There is a sacred well inside known as “Sheikh Kua”. People irrespective of cast or religion fetch water from this well as it is believed to have powers to cure diseases.

In Midnapur itself there is another big sacred grove dedicated to a pir called Baro Huzur and the SG is known as “Tapovan”. This is located at Istreegunj on the western fringe extending over three acres Entry is restricted here. Wearing shoes is not allowed. Here also there is a sacred pond from where water is considered to have power to cure diseases.

If we take the case of Sabarimala Poonkavanam a typical and extensive sacred grove of Lord Ayyappa, holds the legendary association of “Vaver Swamy” a muslim, at Erumely which is still in vogue. The facts given stands to reason that sacred grove is not alien to communities other than Hindu..

Number of Sacred Groves

The total number of sacred groves in any state or region estimated and reported is not based on any authentic sturdy. All the reports on the number of SGs go by rough estimation as can be seen below. The rough estimate of the number of sacred groves in India is around 14000 with an extent of about 55000 hectares (Nalinakshan P.K – 2004). Another statement is that there are more than 50,000 sacred groves in India conserving the indigenous flora and fauna for the present and future generations. (Induchoodan N.C. Dr:) . It has been estimated that total number of sacred groves in the country lie between 100,000 and 150,000 (Malhotra,: 1998)- {Kannan C.S. Warrier, Kunhikannan. C & Gunasekharan. T – 2004}. However the overall picture in respect of India as a whole is not a matter of study in this report. But this calls for a comprehensive sturdy over the whole country.

In the beginning of the 19th Century, there were more than 30,000 groves in Kerala. A recent survey revealed that only less than 1000 sacred groves exist and

most of them are less than 10 m² in extent. (Mohanan C.N. & Ganga Prasad.A). . It may be mentioned that Ward and Conner (1927) reported about 15,000 sacred groves in Travancore and Cochin regions, of Kerala. On the other hand, it is estimated recently that only 2000 well preserved sacred groves are present in the whole state (Rajendra Prasad, 1995) {Chandrasekhara U.M -2004}. Kerala State is having only 556 sacred groves preserved with maximum numbers in Kozhikode (148) followed by Kasargod (112) and Kannur (67) in the North and Thiruvananthapuram (49) and Kollam (48) districts in the South- (Unni P N & Anupama C). The ENVIS Centre on Conservation of Ecological Heritage and sacred Sites of India gives a list of 299 SGs in Kerala .As for Idukki District the estimation is 2 by Dr. Induchoodan and none by ENVIS Centre. The Web Site of Kerala Forests and Wildlife Department adopted the figure -1500 for the state (2009). It is evident that there is no reliability in the reports by various authors on the projected number of sacred groves and they are all far from actual position as can be seen in this study.

Flora

The vegetation in sacred groves is generally immensely rich in diversity of species depending on the conditions of habitat prevailing in various regions.. Studies made so far made till 2004 listed out 805 species of flowering and non-flowering plants belonging to 121 families, comprising 673 dycotyledons belonging to 95 families and 126 monocotyledons belonging to 20families (Unni P.N. & Anupama - 2004).

Majority of the species belong to families such as Annonaceae, Menispermaceae, Capparidaceae, Malvaceae, Rutaceae, Meliaceae, Vitaceae, Myristicaceae, Fabaceae, Anacardiaceae,Rubiaceae etc.

Unni. P.N and Anupama have also provided a table listing the above 805 species in their paper ‘Conservation of sacred groves of Kerala: Need and strategies’ presented at the National Workshop on Sacred Groves held in September 2004 at Kozhikode. According to Gadgil and Vivek (1976) , sacred groves are the treasure of rare and endemic species. Many workers supported this view. For example, analysis of phytogeographical elements of sacred groves of Kerala indicates that 721 species (including Gnetum ula) recorded from the sacred groves 154 are endemic to western Ghats and 33% of them are trees (Induchoodam 1998)-{ Chandrasekhara u.m.2004} .

Fauna

Similarly, fauna in the sacred groves have been listed out .which contain Amphibians-3, reptiles 10, and birds 164. This include 25 species of birds that breed

in sacred groves. The Sacred groves are the last shelter of the common fauna including a variety of insects, reptiles, mammals, birds and micro-organisms. Among the animals, a few are enlisted as threatened in India such as the fresh water and terrestrial tortoises, python, monitor lizard, mongoose, palm civet, Nilgiri Languor, Slender Loris, several amphibians, reptiles, aves and insects. The Malabar large spotted civet presumed to be extinct is reported last from some of the groves in Malabar. Birds, including a few migratory ones, select groves for nesting and breeding. A phenomenon known as over wintering (staying without going back) among winter visitors of birds is also noticed in some of these groves of Kerala. (Mohanan C.N. to Ganga Prasad A-2004).

The major fauna of the groves comprise of snakes (cobra, viper and rat snake) water hen, toddy cat and mongoose. The pond contains various fishes, tortoise, frog and waters snake. (Kannan C.S. Warrier, Kunhi Kannan C and Gunasekaran T-2004).

The birds and bats find their natural nesting places in the sacred groves. They, in addition to their scavenger role check the insect and pest population. The bird droppings rich in phosphorous replenish the phosphorus deficient soil of the region. Snake and mongoose find their home in sacred groves. The snake controls the rodent population, which if left unchecked will destroy the crops of the locality. The snake population is kept under check by the mongoose. Insect fauna, particularly the bees make their hives in sacred groves and facilitate the cross pollination of many plants species of the locality. (U.M.Chandrashekara-2004)

Ecological functions.

According to Rajendraprasad (1995), sacred groves show high porosity and low bulk density compared to the soils of nearby areas. He also observed the thick litter covers and channels created by soil micro-fauna together enhanced the water retention, root system development, gaseous exchange and heat conductance. The role of sacred groves as micro-watershed in local area has been recognized by many workers. (Chandrashekara U.M.- 2004)

As an ecosystem, they help in soil, water and nutrient conservation and the ponds and streams adjacent to these groves are perennial water sources, which adequately explain their hydrological significance, though not evidenced through results of scientific investigation. (Unni P.N.& Anupama C-2004)

CHAPTER III

RESULTS OF INVENTORY

General

The study revealed that there are only 32 sacred groves covering an extent of around 3 Ha. of vegetative cover. Most of them are having 0.3 in Marayur area to 0.7 in Thodpuzha as canopy density. The size of Sacred Groves (SG) vary from 3 cents to 100 cents (1 Acs.) Most of them are between three cents and ten cents. The largest one is Amaram kavu in Thodupuzha village of Thodupuzha Taluk having 1 Acs in extent.

In Devikulam taluk there is high concentration of small SGs ranging from three cents to ten cents. Except five all the remaining 27 SGs are more than five cents in extent. The SGs in Marayur are very open having rocky outcrops and scattered trees. In the Kannakshi Amma Nagamma Kavu in Keezhanthur village only one Ficus tree is there which covers 15 cents of this kavu with its canopy.

As regards the ownership, total number of SGs attached to temples are 5.. Those managed by Public Trusts and Local Committees are 11 only. There are some like this in all the four taluks. The manner of working of the SGs belonging to Trusts and Local committees is the same and hence they are put under the same category. It is noticed that the remaining 16 SGs in this district are under private category such as individual families or family trusts.

**AREA WISE DISTRIBUTION OF SACRED GROVES
IN IDUKKI DISTRICT**

Sl. No.	Area class	No. of Sacred Groves	Extent (Cents)
1	Area with less than 5 Cents	5	15.00
2	5 Cents to 10 Cents	14	108.00
3	11 Cents to 25 Cents	5	110.00
4	26 Cents to 50 Cents	5	210.00
5	51 Cents to 100 Cents	3	300.00
	Total	32 Nos.	743.00 Cents (3.00 Ha.)

TALUK WISE DISTRIBUTION

THODUPUZHA TALUK

Sl. No.	Area class	No. of Sacred Groves	Extent (Cents)
1	Less than 5 Cents	--	--
2	5 Cents to 10 Cents	7 Nos	53.00
3	11 Cents to 25 Cents	2 Nos	40.00
4	26 Cents to 50 Cents	--	--
5	51 Cents to 100 Cents	1 No.	100.00
	Total	10 Nos	193 Cents (0.78 Ha)

PEERMADE TALUK

Sl. No.	Area class	No. of Sacred Groves	Extent (Cents)
1	Less than 5 Cents	4 Nos	12.00
2	5 to 10 Cents	2 Nos	15.00
3	11 to 25 Cents	2 Nos	50.00
4	26 to 50 Cents	2 Nos	60.00
	Total	10 Nos	137 Cents (0.55 Ha)

IDUKKI TALUK

Sl. No.	Area class	No. of Sacred Groves	Extent (Cents)
1	Up to 5 Cents	1	5.00
	Total	1 No.	5 Cents

DEVICULAM TALUK

Sl. No.	Area class	No. of Sacred Groves	Extent (Cents)
1	Less than 5 Cents	1 No	3.00 Cents
2	5 to 10 Cents	4 „	35.00 „
3	11 to 25 Cents	1 „	20.00 „
4	26 to 50 Cents	3 „	150.00 „
5	51 to 100 Cents	2 „	200.00 „
	Total	11 Nos	408 Cents (1.65Ha)

ABSTRACT SHOWING
CUSTODIAN/OWNERSHIP/MANAGEMENT OF SACRED
GROVES

IDUKKI DISTRICT

Sl. No.	Ownership/Custodian	No. of Sacred Groves	Area
1	Sacred Grove Owned by Government	--	
2	Sacred Groves Managed by Devaswam Board/Malabar Devaswam/ Local Temple Devaswams	5	88 Cents
3	Sacred Groves Managed by Public Trust/ Public Committees/Janakeeya Committees	11	241 Cents
4	Sacred Groves Managed by Individuals/ Family/Family Trust	16	414 Cents
	Total	32 Nos	743 Cents

TALUK WISE DISTRIBUTION

THODUPUZHA TALUK

Sl. No.	Ownership/Custodian	No. of Sacred Groves	Area
1	Sacred Grove Owned by Government	--	
2	Sacred Groves Managed by Devaswam Board/Malabar Devaswam/ Local Temple Devaswams	1	20 Cents
3	Sacred Groves Managed by Public Trust/ Public Committees/Janakeeya Committees	3	115 Cents
4	Sacred Groves Managed by Individuals/ Family/Family Trust	6	58 Cents
	Total	10 Nos	193 Cents

PEERMADE TALUK

Sl. No.	Ownership/Custodian	No. of Sacred Groves	Area
1	Sacred Grove Owned by Government	--	
2	Sacred Groves Managed by Devaswam Board/Malabar Devaswam/ Local Temple Devaswams	4	68 Cents
3	Sacred Groves Managed by Public Trust/ Public Committees/Janakeeya Committees	2	33 Cents
4	Sacred Groves Managed by Individuals/ Family/Family Trust	4	36 Cents
	Total	10 Nos	137 Cents

IDUKKI TALUK

Sl. No.	Ownership/Custodian	No. of Sacred Groves	Area
1	Sacred Grove Owned by Government	--	--
2	Sacred Groves Managed by Devaswam Board/Malabar Devaswam/ Local Temple Devaswams	--	--
3	Sacred Groves Managed by Public Trust/ Public Committees/Janakeeya Committees	1	5 Cents
4	Sacred Groves Managed by Individuals/ Family/Family Trust	--	--
	Total	1 No	5 Cents

DEVICULAM TALUK

Sl. No.	Ownership/Custodian	No. of Sacred Groves	Area
1	Sacred Grove Owned by Government	--	--
2	Sacred Groves Managed by Devaswam Board/Malabar Devaswam/ Local Temple Devaswams	--	--
3	Sacred Groves Managed by Public Trust/ Public Committees/Janakeeya Committees	5	88 Cents
4	Sacred Groves Managed by Individuals/ Family/Family Trust	6	320
	Total	11 No	408 Cents

Management

Three main categories identified as holding possession and responsibility in the maintenance of sacred groves.-

- i. Private : a) Kudumbakavu & Kudumba Trust,

All such SGs amount to 16. Numbers.

- ii. Local Committee- & Public Trust – 11 Numbers

iii. Devaswam Board- 5 Numbers.

More details on this are appearing in the chapter on Social Dynamics.

CHAPTER IV

COMPOSITION OF VEGETATION.

The vegetation in these sacred groves has been identified species wise by the field team and recorded as such in the field format. In addition selected nine SGs distributed over all the taluks have been inspected by an Expert on Flora who has listed out the complete species coming under trees, shrubs, climbers, herbs etc .. The study reveals that most of these SGs contain as much as 10 to 33 tree species , 2 to 24 shrubs and 5 to 28 climbers. Rare and threatened have been listed out. The families such as Euphorbiaceae, Lauraceae, Fabaceae,Rubiaceae and Apocynaceae are very well represented.

In general diversity in pants and richness in their number are comparatively low. Amarankau in Thodupuzha village, Paloor kavu in Mundakayam and Vazhuvelil kavu in peruvanthanam do support thick vegetation with good diversity. In the rest the canopy is more or less open or infested with too many climbers. In Marayur area extent of land contained in each SG is more than 10 cents ,but the vegetative cover is very low. More over only very few species of Mangifera Azadarichta, Ficus,are seen here and there. Other plants belong to exotics and those received from Social Forestry wing which are of young age. In Kovilkadavu SG at Kanthalloor village support a huge Mango tree of about 800 cm girth. *Diospyros pergrina* is seen in only in Vazhuvalil Durga Bhagavathy tenpme kavu of Peermade Taluk. *Diospyros candolleana* is seen in Valliamkavu, Mundakayam.

The important plant species growing as a whole in the SGs of this district are-

Trees-Holigarna arnottiana,	<i>Diospyros malabarica</i> (Perigrina)
Alstonia scholaris,	<i>Diospyros candolleana</i>
Strychnus nuz-vomica,	<i>Antiaris toxicaria</i> ,
Lophopetalum wightianum,	<i>Strombosia ceylanica</i> and
Pajanelia longifolia	<i>Xanthophyllum arnottianum</i> .

Shrubs	Climber-	Herbs
Strobilanthes ciliates,	Hemidesmis indica,	Borreria latifolia
Gomphandra polimorpha,	Spatholobus purpureus	Vernonia cinerea
Meiogyne pannosa	Ipomoea panicuata	Digitaria ciliaris

The tree *Chionanthus mal-elanji* seen in the small sacred grove at Peruvanthanam in Peermade taluk is a rare one which is considered as one in folk medicine.

The ground flora generally is very thin except in SGs of Thodupuzha. Some of the common species like *Aegle marmelos*, *Antidesma acidium*, *Holeptelia integrifolia*, *Azadiracta indica*, *Ficus benghalensis*, *Gloriosa superba* are conspicuously very low. But *Olea dioica*, *Alstonia scholaris*, *Taberneamontana heyneana* etc are common. The *Ipomea paniculate* climber which was seen in Amaramkavu has its stem as that of a small tree and it seen protected by the custodian as a proud heritage.

In Marayur area as already explained, the vegetation is very open and scrub jungle species like *Tylophora indica*, *Solanum indicum* are seen. Trees such as *Anogeissus latifolia*, *Atlantia malabarica* are seen only in Marayur.

As regards regeneration of these species was not prominent probably because of the dry period during which the visits were made. An overall view is that these sacred groves are maintained by virtue of the belief and legends people have been entertaining.

Concentration of medicinal plants-

In Peermade and Thodupuzha taluks there is good collection of trees, herbs and orchids possessing medicinal value. The trees *Callicarpa lantana* (cheru thekku) of Dharmasastha temple kavu and *Chionanthus mala-elanji* of Niravam kavu in Peermade taluk have medicinal value. In Paloor kavu the bark of tree

Knema attenuata (wild nutmeg) (Myrsyicaceae) has anti-inflammatory value. The herb *Asystasia violacea* seen in Amaranthu kavu yield plenty of nectar and pollen which attract bees. *Biophytum rewardtii* (Oxalidaceae),seen in Amaramkavu-an epiphyte is a medicinal and its crushed leaves are used in traditional medicine as diuric , and wound healer. *Dendrobium macrostachym* , the orchid of the same kavu has very uses in treating asthma, hypertension, snake bite etc.

In the normal course by virtue of the dry climate and openness of the landscape there ought have been a set of medicinal plants . But they remain obliterated or lost sight of due to untimely visit to the area.

CHAPTER V

DETAILED STUDY IN SELECTED GROVES

1 Flora of Amaramkavu, Devikshethram Tdpa-1

Botanical Name	Local name	Family	Distribution
Trees			
<i>Adenanthera pavonina</i>	Manchadi	Leguminosae	Indigenous
<i>Ailanthes triphysa</i>	Pongaliyam	Simaroubaceae	Indigenous
<i>Aglaia lawii</i>	Akil	Meliaceae	Endemic
<i>Alstonia scholaris</i>	Ezhilampaala	Apocynaceae	Indigenous
<i>Antiaris toxicaria</i>	Maravuri	Moraceae	Indigenous
<i>Antidesma montanum</i>	Putharaval	Euphorbiaceae	Indigenous
<i>Aporusa lindleyana</i>	Vetti	Euphorbiaceae	Indigenous
<i>Areca catechu</i>	Kavungu	Arecaceae	Exotic
<i>Bombax ceiba</i>	Ilavu	Bombacaceae	Indigenous
<i>Chionanthus malaelengi</i>	Kallidala	Oleaceae	Endemic
<i>Careya arborea</i>	Pezhu	Lecythidaceae	Indigenous
<i>Caryota urens</i>	Choondappana	Arecaceae	Indigenous
<i>Cinnamomum malabatram</i>	Idana, vazhana	Lauraceae	Indigenous
<i>Cycas circinalis</i>	Eenthalu	Cycadaceae	Indigenous
<i>Ficus racemosa</i>	Atthi	Moraceae	Indigenous
<i>Ficus callosa</i>		Moraceae	Indigenous
<i>Ficus exasperata</i>	Therakam	Moraceae	Indigenous
<i>Ficus hispida</i>	Parakam	Moraceae	Indigenous
<i>Ficus nervosa</i>	Aal	Moraceae	Indigenous
<i>Holigarna arnottiana</i>	Chaaru	Anacardiaceae	Endemic
<i>Holoptelea integrifolia</i>	Aaval	Ulmaceae	Indigenous
<i>Homalium zeylanicum</i>	Manthalamukhi	Flacourtiaceae	Indigenous
<i>Hopea parviflora</i>	Kambakam	Dipterocarpaceae	Endemic
<i>Hydnocarpus pentandrus</i>	Marotti	Flacourtiaceae	Indigenous
<i>Lannaea coromandelica</i>	Udhi, Karash	Anacardiaceae	Indigenous
<i>Lophopetalum wightianum</i>	Venkotta	Celastraceae	Endemic
<i>Macaranga indica</i>	Vatta	Euphorbiaceae	Indigenous
<i>Mallotus philippensis</i>	Sindoori	Euphorbiaceae	Indigenous
<i>Meiogyne ramarowii</i>		Annonaceae	Endemic
<i>Mimusops elengi</i>	Ilanji	Sapotaceae	Indigenous
<i>Nothopegia racemosa</i>	Cholacheru	Anacardiaceae	Endemic
<i>Olea dioica</i>	Karivetti	Oleaceae	Indigenous
<i>Palaquium ellipticum</i>	Paali	Sapotaceae	Endemic

<i>Persea macrantha</i>	Kulamaav	Lauraceae	Endemic
<i>Poeciloneuron indicum</i>	Poothamkolli	Clusiaceae	Endemic
<i>Sterculia balanghas</i>	Thondi	Sterculiaceae	Indigenous
<i>Sterculia guttata</i>	Kaavalam	Sterculiaceae	Indigenous
<i>Strombosia ceylanica</i>	<u>Kalmaanikkam</u>	Olaceae	Endemic
<i>Strychnos nux-vomica</i>	Kanjiram	Loganiaceae	Indigenous
<i>Tabernaemontana heyneana</i>	Koonampaala	Apocynaceae	Indigenous
<i>Tectona grandis</i>	Thekku	Verbenaceae	Indigenous
<i>Tetrameles nudiflora</i>	Cheenimaram	Datiscaceae	Indigenous
<i>Trema orientalis</i>	Pottaama	Ulmaceae	Exotic
<i>Xanthophyllum arnottianum</i>	Madakka	Xanthophyllaceae	Indigenous
Shrubs			
<i>Antidesma acidum</i>	Ariaporan	Euphorbiaceae	Indigenous
<i>Canthium coromandelicum</i>	Kaaramullu	Rubiaceae	Indigenous
<i>Canthium angustifolium</i>	Cherukaara	Rubiaceae	Indigenous
<i>Chassalia curviflora</i> var. <i>ophioxylloides</i>	Kaattukaappi	Rubiaceae	Indigenous
<i>Clerodendrum infortunatum</i>	Perikilum	Verbenaceae	Exotic
<i>Coffea arabica</i>	Kaappi	Rubiaceae	Exotic
<i>Chromolaena odorata</i> (<i>Eupatorium odoratum</i>)	Kammunistpacha	Asteraceae	Exotic
<i>Gomphandra polymorpha</i>		Icacinaceae	Endemic
<i>Helicteres isora</i>	Idampiri-valampiri	Sterculiaceae	Indigenous
<i>Ixora malabarica</i>	Chethi	Rubiaceae	Endemic
<i>Ixora arborea</i>	Vella Chethi	Rubiaceae	Endemic
<i>Lantana camara</i>	Kongini	Verbenaceae	Exotic
<i>Leea indica</i>	Chroanthaali	Leeaceae	Indigenous
<i>Meiogyne pannosa</i>	Panthalmaram	Annonaceae	Endemic
<i>Memecylon edule</i>	Kayaampoo	Melastomataceae	Endemic
<i>Mussaenda frondosa</i>	Vellila	Rubiaceae	Endemic
<i>Sauropus androgynus</i>	Velicheera	Euphorbiaceae	Indigenous
<i>Solanum torvum</i>	Chunda	Solanaceae	Indigenous
<i>Strobilanthes ciliatus</i>	Karimkurinji	Acanthaceae	Endemic
<i>Strobilanthes heyneanus</i>	Kurinji	Acanthaceae	Endemic
<i>Thottea siliquosa</i>	Alpam	Aristolochiaceae	Indigenous
<i>Urena lobata</i> subsp. <i>lobata</i>	Oorppam	Malvaceae	Indigenous
<i>Hibiscus hispidissimus</i>	Panacchan	Malvaceae	Indigenous
Climbers			
<i>Abrus pulchellus</i>	Kaattumuthira	Leguminosae	Indigenous
<i>Acacia pennata</i>	Pei-Incha	Leguminosae	Indigenous

<i>Ampelocissus indica</i>	Vallimaanga	Vitaceae	Indigenous
<i>Anodendron paniculatum</i>		Apocynaceae	Indigenous
<i>Artobotrys zeylanicus</i>	Manoranjini	Annonaceae	Indigenous
<i>Centrosema molle</i>	Kaattupayar	Leguminosae	Exotic
<i>Cerassiocarpum bennettii</i>		Cucurbitaceae	Indigenous
<i>Cissus repens</i>	Chunnambuvalli	Cucurbitaceae	Indigenous
<i>Chonemorpha macrophylla</i>	Appuppanthaadi	Apocynaceae	Indigenous
<i>Combretum albidum</i>	Vellakkodi	Combretaceae	Indigenous
<i>Cyclea peltata</i>	Paadatthaali	Menispermaceae	Indigenous
<i>Diploclisia glaucescens</i>		Menispermaceae	Indigenous
<i>Ericybe paniculata</i>	Erumatthaali	Convolvulaceae	Indigenous
<i>Gnetum edule</i>	Ondalkodi	Gnetaceae	Indigenous
<i>Ichnocarpus frutescens</i>	Paaravalli	Apocynaceae	Indigenous
<i>Jasminum rotterianum</i>	Kaattumulla	Oleaceae	Endemic
<i>Merremia umbellata</i>	Koravalli	Convolvulaceae	Indigenous
<i>Miquelia dentata</i>		Icacinaceae	Endemic
<i>Myxopyrum smilacifolium</i>	Chathuramulla	Oleaceae	Indigenous
<i>Piper nigrum</i>	Kaatukodi	Piperaceae	Indigenous
<i>Pothos scandens</i>	Paruvakodi	Araceae	Indigenous
<i>Quisqualis indica</i>	Thookkuchetthi	Combretaceae	Indigenous
<i>Raphidophora pertusa</i>	Aanatthippali, Elatthadi	Araceae	Indigenous
<i>Salacia macrosperma</i>		Hippocrateaceae	Endemic
<i>Sarcostigma klenii</i>	Odal	Icacinaceae	Indigenous
<i>Smilax zeylanica</i>	Kareelanchi	Smilacaceae	Indigenous
<i>Strychnos minor</i>	Vallikanjiram	Loganiaceae	Indigenous
<i>Tetracera akara</i>	Pattuvalli	Dilleniaceae	Indigenous
Herbs			
<i>Asystasia violacea</i>		Acanthaceae	Indigenous
<i>Elephantopus scaber</i>	Aanachuvadi	Asteraceae	indigenous
<i>Biophytum reinwardtii</i>	Mukkutti	Oxalidaceae	Indigenous
<i>Borreria latifolia</i>	Vellathrithavu	Rubiaceae	Indigenous
<i>Cyathula prostrata</i>	Cherukadaladi	Amaranthaceae	Indigenous
<i>Dendrobium macrostachyum</i>		Orchidaceae	Indigenous
<i>Dracaena terniflora</i>	Manjakkantha	Liliaceae	Indigenous
<i>Geophilus repens</i>	Karimutthil	Rubiaceae	Indigenous
<i>Hyptis suaveolens</i>	Naattapoochedi	Lamiaceae	Exotic
<i>Leucas aspera</i>	Thumba	Lamiaceae	Indigenous
<i>Mimosa pudica</i>	Thottavaadi	Leguminosae	Indigenous
<i>Pogostemon purpurascens</i>		Lamiaceae	Indigenous
<i>Remusatia vivipara</i>	Marachembu	Araceae	Indigenous
<i>Rhopalephora scaberrima</i>		Commelinaceae	Indigenous

<i>Scoparia dulcis</i>	Meenankani	Scrophulariaceae	Exotic
<i>Sida alnifolia</i>	Kurunthotti	Malvaceae	Indigenous
<i>Stachytarpheta jamaicensis</i>	Narivaalan	Verbenaceae	Exotic
<i>Synedrella nodiflora</i>	Mudiyapachcha	Asteraceae	Exotic
<i>Triumfetta rhomboidea</i>	Manjayooram	Tiliaceae	Indigenous
<i>Vernonia cinerea</i>	Poovankurunnila	Asteraceae	Indigenous

2 Flora of Kottakkakamkavu, Thodupuzha Tdpa--2

Botanical Name	Local name	Family	Distribution
Trees			
<i>Ailanthes triphysa</i>	Pongaliyam	Simaroubaceae	Indigenous
<i>Annona reticulata</i>	Aattha	Annonaceae	Exotic
<i>Azadirachta indica</i>	Veppu	Meliaceae	Indigenous
<i>Artocarpus heterophyllus</i>	Plavu	Moraceae	Indigenous
<i>Artocarpus hirsutus</i>	Aanjili	Moraceae	Endemic
<i>Bridelia retusa</i>	Mulluvenga	Euphorbiaceae	Indigenous
<i>Couroupita guianensis</i>	Nagalingamaram	Lecythidaceae	Exotic
<i>Caryota urens</i>	Choondappana	Arecaceae	Indigenous
<i>Cassia fistula</i>	Kanikkonna	Leguminosae	Indigenous
<i>Cocos nucifera</i>	Thengu	Arecaceae	Indigenous
<i>Ficus auriculata</i>	Atthimaram	Moraceae	Exotic
<i>Ficus racemosa</i>	Atthi	Moraceae	Indigenous
<i>Ficus religiosa</i>	Arayaal	Moraceae	Indigenous
<i>Hydnocarpus pentandrus</i>	Marotti	Flacourtiaceae	Indigenous
<i>Lagerstroemia speciosa</i>	Poomaruthu	Lythraceae	Indigenous
<i>Leucaena leucocephala</i>	Subabul	Leguminosae	Exotic
<i>Macaranga indica</i>	Vatta	Euphorbiaceae	Indigenous
<i>Mimusops elengi</i>	Ilanji	Sapotaceae	Indigenous
<i>Pongamia pinnata</i>	Ungu	Leguminosae	Indigenous
<i>Spathodea campanulata</i>	Thannimaram	Bignoniaceae	Exotic
<i>Tectona grandis</i>	Thekku	Verbenaceae	Indigenous
<i>Terminalia arjuna</i>	Neermaruthu	Combretaceae	Indigenous
<i>Trema orientalis</i>	Pottaama	Ulmaceae	Exotic
Shrubs			
<i>Bambusa vulgaris</i>	Manjayilli	Poaceae	Exotic
<i>Eupatorium odoratum</i>	Communistpacha	Asteraceae	Exotic
<i>Hibiscus rosa-sinensis</i>	Chemparatthi	Malvaceae	Exotic
<i>Lantana camara</i>	Kongini	Verbenaceae	Exotic
<i>Murraya koenigii</i>	Kariveppu	Rutaceae	Exotic
<i>Tabernaemontana coronaria</i>	Nanthyaarvattam	Apocynaceae	Exotic
Climber			
<i>Centrosema molle</i>	Kaattupayar	Leguminosae	Exotic
Herbs			
<i>Biophytum reinwardtii</i>	Mukkutti	Oxalidaceae	Indigenous

<i>Borreria latifolia</i>	Vellathrithavu	Rubiaceae	Indigenous
<i>Borreria ocyoides</i>		Rubiaceae	Exotic
<i>Digitaria ciliaris</i>		Poaceae	Indigenous
<i>Leucas aspera</i>	Thumba	Lamiaceae	Indigenous
<i>Mimosa pudica</i>	Thottavaadi	Leguminosae	Indigenous
<i>Mollugo pentaphylla</i>		Aizoaceae	Exotic
<i>Oldenlandia corymbosa</i>	Parpidakapullu	Rubiaceae	Indigenous
<i>Oplismenus compositus</i>		Poaceae	Indigenous
<i>Peperomia pellucida</i>	Mashithandu	Piperaceae	Exotic
<i>Scoparia dulcis</i>		Scrophulariaceae	Exotic
<i>Stemodia verticillata</i>		Scrophulariaceae	Indigenous
<i>Synedrella nodiflora</i>	Venappacha	Asteraceae	Exotic

3 Flora of Paloorkavu Umamaheswari, Mundakkayam Id-11

Botanical Name	Local name	Family	Distribution
Trees			
<i>Aporusa lindleyana</i>	Vetti	Euphorbiaceae	Indigenous
<i>Artocarpus hirsutus</i>	Aanjili	Moraceae	Endemic
<i>Carica papaya</i>	Kappalam	Caricaceae	Exotic
<i>Caryota urens</i>	Choondappana	Arecaceae	Indigenous
<i>Couroupita guianensis</i>	Nagalingamram	Lecythidaceae	Exotic
<i>Bombax ceiba</i>	Ilavi	Bombacaceae	Indigenous
<i>Cocos nucifera</i>	Thengu	Arecaceae	Indigenous
<i>Ficus arnottiana</i>	Aal	Moraceae	Indigenous
<i>Ficus exasperata</i>	Therakam	Moraceae	Indigenous
<i>Ficus hispida</i>	Parakam	Moraceae	Indigenous
<i>Ficus religiosa</i>	Arayaal	Moraceae	Indigenous
<i>Hydnocarpus pentandrus</i>	Marotti	Flacourtiaceae	Indigenous
<i>Knema attenuata</i>	Chorappine	Myristicaceae	
<i>Mallotus philippensis</i>	Sindoori	Euphorbiaceae	Indigenous
<i>Mangifera indica</i>	Mavu	Anacardiaceae	Indigenous
<i>Mimusops elengi</i>	Ilanji	Sapotaceae	Indigenous
<i>Macaranga peltata</i>	Vatta	Euphorbiaceae	Planted
<i>Polyalthia coffeoides</i>	Nedunaar	Annonaceae	Endemic
<i>Pongamia pinnata</i>	Ungu	Leguminosae	Indigenous
<i>Psidium guajava</i>	Pera	Myrtaceae	Exotic
<i>Sterculia guttata</i>	Kaavalam	Sterculiaceae	Indigenous
<i>Tabernaemontana heyneana</i>	Koonampala	Apocynaceae	Indigenous
<i>Tectona grandis</i>	Thekku	Verbenaceae	Indigenous
<i>Terminalia bellirica</i>	Thaanni	Combrertaceae	Indigenous
<i>Tetrameles nudiflora</i>	Cheenimaram	Dtiscaceae	Indigenous
Shrubs			
<i>Boehmeria glomerulifera</i>	Thannikkuringi	Urticaceae	Indigenous
<i>Chassalia curviflora var. ophioxyloides</i>	Kaattukaappi	Rubiaceae	Indigenous

<i>Clerodendrum infortunatum</i>	Perikilam	Verbenaceae	Exotic
<i>Glycosmis pentaphylla</i>	Paanal	Rutaceae	Indigenous
<i>Leea indica</i>	Chorianthaali	Leeaceae	Indigenous
<i>Pavetta indica</i>	Pavatta	Rubiaceae	Indigenous
<i>Sauvagesia androgynus</i>	Velicheera	Euphorbiaceae	Indigenous
Climbers			
<i>Abrus pulchellus</i>	Kaattumuthira	Leguminosae	Endemic
<i>Acacia pennata</i>	Pei-Incha	Leguminosae	Indigenous
<i>Argyreia hirsuta</i>	Veenda	Convolvulaceae	Indigenous
<i>Centrosema molle</i>	Kattupayar	Leguminosae	Exotic
<i>Combretum latifolium</i>		Combretaceae	Indigenous
<i>Cyclea peltata</i>	Padathaali	Menispermaceae	Indigenous
<i>Pothos scandens</i>	Paruvakodi	Araceae	Indigenous
<i>Sarcostigma kleinii</i>	Odal	Icacinaceae	Indigenous
<i>Ziziphus rugosa</i>	Thudali	Rhamnaceae	Indigenous
Herbs			
<i>Hyptis suaveolens</i>	Naattapoochedi	Lamiaceae	Exotic
<i>Pogostemon purpurascens</i>	Poothachida	Lamiaceae	Indigenous
<i>Synedrella nodiflora</i>	Mudiyannpachha	Asteraceae	Exotic
<i>Vernonia cinerea</i>	Poovamkurunnila	Asteraceae	Indigenous

4 Sri Dharmasastha Kshethram, Peruvanthanam Prmd-5

Botanical Name	Local name	Family	Distribution
Trees			
<i>Adenanthera pavonina</i>	Manchaadi,	Leguminosae	Indigenous
<i>Artocarpus hirsutus</i>	Anjili	Moraceae	Endemic
<i>Caryota urens</i>	Choondappana	Arecaceae	Indigenous
<i>Callicarpa tomentosa</i>	Cheruthekku	Verbenaceae	Indigenous
<i>Diospyros candolleana</i>	Karimaram	Ebenaceae	Endemic
<i>Evodia lunu-ankenda</i>	Naasakam	Rutaceae	Indigenous
<i>Pajanelia longifolia</i>	Payyani	Bignoniaceae	Indigenous
<i>Polyalthia longifolia</i>	Aranamaram	Annonaceae	Indigenous
<i>Tectona grandis</i>	Thekku	Verbenaceae	Indigenous
<i>Spathodea campanulata</i>	Spathodea	Bignoniaceae	Exotic
Shrubs			
<i>Schumannianthus virgatus</i>	Kookkila	Marantaceae	Indigenous
Climbers			
<i>Acacia pennata</i>	Pei-Incha	Leguminosae	Indigenous
<i>Alangium salvifolium</i> subsp. <i>hexapetalum</i>	Valli Ankoolam	Alangiaceae	Endemic
<i>Anamirta cocculus</i>	Pechumarunnu	Menispermacee	Indigenous
<i>Combretum latifolium</i>		Combretaceae	Indigenous
<i>Quisqualis indica</i>	Thookuchethi	Combretaceae	Indigenous
<i>Sarcostigma kleinii</i>	Odal	Icacinaceae	Indigenous

**5 Flora of Kottayil Bhadradevi Kshethram, Udumbannur,
Idpa-9**

Botanical Name	Local name	Family	Distribution
Trees			
<i>Alstonia scholaris</i>	Ezhilampala	Apocynaceae	Indigenous
<i>Antidesma montanum</i>	Putharaval	Euphorbiaceae	Indigenous
<i>Aporusa lindleyana</i>	Vetti	Euphorbiaceae	Indigenous
<i>Artocarpus hirsutus</i>	Aanjili	Moraceae	Endemic
<i>Caryota urens</i>	Choondappana	Arecaceae	Indigenous
<i>Cinnamomum malabatram</i>	Idana, vazhana	Lauraceae	Indigenous
<i>Corypha umbraculifera</i>	Kudappana	Arecaceae	Indigenous
<i>Mallotus philippensis</i>	Sindoori	Euphorbiaceae	Indigenous
<i>Olea dioica</i>	Karivetti	Oleaceae	Indigenous
<i>Sterculia guttata</i>	Kaavalam	Sterculiaceae	Indigenous
<i>Xanthophyllum arnottianum</i>	Madakka	Xanthophyllaceae	Indigenous
Shrubs			
<i>Canthium coromandelicum</i>	Kaaramullu	Rubiaceae	Indigenous
<i>Chassalia curviflora</i> var. <i>ophioxylonoides</i>	Kaattukaappi	Rubiaceae	Indigenous
<i>Leea indica</i>	Chroanthaali	Leeaceae	Indigenous
<i>Meiogyne pannosa</i>	Panthalmaram	Annonaceae	Endemic
<i>Pavetta indica</i>	Pavatta	Rubiaceae	Indigenous
Climbers			
<i>Anodendron paniculatum</i>		Apocynaceae	Indigenous
<i>Cissus repens</i>	Chunnambuvalli	Vitaceae	Indigenous
<i>Piper nigrum</i>	Kurumulaku	Piperaceae	Indigenous
<i>Pothos scandens</i>	Paruvakodi	Araceae	Indigenous
<i>Smilax zeylanica</i>	Kareelanchi	Smilacaceae	Indigenous
<i>Tinospora cordifolia</i>	Amruthu	Menispermaceae	Indigenous

6 Niravathu Devi Kshethram, Peruvanthanam Prmd-4

Botanical Name	Local name	Family	Distribution
Trees			
<i>Averrhoa bilimbi</i>	Ilumpi	Oxalidaceae	Planted
<i>Bridelia retusa</i>	Mulluvenga	Euphorbiaceae	Indigenous
<i>Caryota urens</i>	Choondappana	Arecaceae	Indigenous
<i>Chionanthus mala-elenji</i>	Kallidala	Oleaceae	Endemic
<i>Corypha umbraculifera</i>	Kudappana	Arecaceae	Indigenous
<i>Dimocarpus longan</i>	Chempoopam	Sapindaceae	Endemic
<i>Diospyros candolleana</i>	Karimaram	Ebenaceae	Endemic
<i>Ficus religiosa</i>	Arayaal	Moraceae	Indigenous

<u>Holigarna grahamii</u>	Vellaccheru	Anacardiaceae	Endemic
<u>Hydnocarpus pentandrus</u>	Marotti	Flacourtiaceae	Indigenous
<u>Olea dioica</u>	Karivetti	Oleaceae	Indigenous
<u>Sterculia guttata</u>	Kaavalam	Sterculiaceae	Indigenous
<u>Terminalia bellirica</u>	Thaanni	Combretaceae	Indigenous
Climbers			
<u>Alangium salvifolium</u> subsp. <u>hexapetalum</u>	Valli Ankolam	Alangiaceae	Endemic
<u>Combretum latifolium</u>		Combretaceae	Indigenous
<u>Sarcostigma kleinii</u>	Odal	Icacinaceae	Indigenous

7 Flora of Thrikkayil Mahavishnuukshethram, Tdpa-10

Botanical Name	Local name	Family	Distribution
Trees			
<u>Alstonia scholaris</u>	Ezhilampala	Apocynaceae	Indigenous
<u>Artocarpus heterophyllus</u>	Plavu	Moraceae	Indigenous
<u>Eleocarpus sphaericus</u>	Rudraksham	Eleocarpaceae	Exotic
<u>Ficus hispida</u>	Parakam	Moraceae	Indigenous
<u>Ficus religiosa</u>	Arayaal	Moraceae	Indigenous
<u>Macaranga peltata</u>	Vatta	Euphorbiaceae	Indigenous
<u>Mimusops elengi</u>	Ilanji	Sapotaceae	Indigenous
<u>Mangifera indica</u>	Mavu	Anacardiaceae	Indigenous
<u>Plumeria rubra</u>	Chempakam	Apocynaceae	Exotic
<u>Saraca asoca</u>	Ashokam	Leguminosae	Indigenous
<u>Syzygium cumini</u>	Njaaval	Myrtaceae	Indigenous
Climbers			
<u>Cyclea peltata</u>	Paadatthali	Menispermaceae	Indigenous
<u>Quisqualis indica</u>	Thookkuchetthi	Combretaceae	Indigenous
<u>Clitoria ternatea</u>	Shankupushpam	Leguminosae	Indigenous

8 Flora of Valliyam Kavu, Mundakkayam Prmd--2

Botanical Name	Local name	Family	Distribution
Trees			
<u>Aegle marmelos</u>	Koovalam	Rutaceae	Indigenous
<u>Alstonia scholaris</u>	Ezhilamapala	Apocynaceae	Indigenous
<u>Aporusa lindleyana</u>	Vetti	Euphorbiaceae	Indigenous
<u>Artocarpus heterophyllus</u>	Plavu	Moraceae	Indigenous
<u>Artocarpus hirsutus</u>	Anjili	Moraceae	Endemic
<u>Caryota urens</u>	Choondappana	Arecaceae	Indigenous
<u>Bombax ceiba</u>	Ilavu	Bombacaceae	Indigenous
<u>Cycas circinalis</u>	Eenthu	Cycadaceae,	Indigenous
<u>Derris eualata</u>	Nanchuvalli	Leguminosae	Indigenous
<u>Diospyros candolleana</u>	Karimaram	Ebenaceae	Endemic

<u>Ficus arnottiana</u>	Aal	Moraceae	Indigenous
<u>Ficus benghalensis</u>	Peraal	Moraceae	Planted
<u>Ficus callosa</u>		Moraceae	Indigenous
<u>Ficus exasperata</u>	Therakam	Moraceae	Indigenous
<u>Ficus hispida</u>	Parakam	Moraceae	Indigenous
<u>Ficus religiosa</u>	Arayaal	Moraceae	Indigenous
<u>Gliricidia sepium</u>	Seemakonna	Leguminosae	Exotic
<u>Lagerstroemia microcarpa</u>	Venthekkku	Lythraceae	Indigenous
<u>Mallotus philippensis</u>	Sindoori	Euphorbiaceae	Indigenous
<u>Mangifera indica</u>	Mavu	Anacardiaceae	Indigenous
<u>Mimusops elengi</u>	Ilanji	Sapotaceae	Indigenous
<u>Macaranga indica</u>	Vatta	Euphorbiaceae	Indigenous
<u>Mitragyna parvifolia</u>	Poochakkadambu	Rubiaceae	Endemic
<u>Olea dioica</u>	Karivetti	Oleaceae	Indigenous
<u>Pajanelia longifolia</u>	Payyani	Bignoniaceae	Indigenous
<u>Schleichera oleosa</u>	Poovam	Sapindaceae	Indigenous
<u>Strychnos nux-vomica</u>	Kanjiram	Loganiaceae	Indigenous
<u>Tabernaemontana heyneana</u>	Koonampala	Apocynaceae	Indigenous
<u>Terminalia paniculata</u>	Maruthu	Combretaceae	Indigenous
Shrubs			
<u>Chassalia curviflora var. ophioxylloides</u>	Kaattukaappi	Rubiaceae	Indigenous
<u>Clerodendrum infortunatum</u>	Perikilam	Verbenaceae	Exotic
<u>Chromolaena odorata (Eupatorium odoratum)</u>	Communist pachha	Asteraceae	Exotic
<u>Glycosmis pentaphylla</u>	Paanal	Rutaceae	Indigenous
<u>Helicteres isora</u>	Idampiri-valampiri	Sterculiaceae	Indigenous
<u>Hibiscus hispidissimus</u>	Panachan	Malvaceae	Indigenous
<u>Sauvagesia androgynus</u>	Velicheera	Euphorbiaceae	Indigenous
<u>Solanum torvum</u>	Chunda	Solanaceae	Indigenous
Climbers			
<u>Asparagus racemosus</u>	Sathavari	Liliaceae	Indigenous
<u>Centrosema molle</u>	Kattupayar	Leguminosae	Exotic
<u>Cyclea peltata</u>	Padathaali	Menispermacea e	Indigenous
<u>Pothos scandens</u>	Paruvakodi	Araceae	Indigenous
<u>Spatholobus purpureus</u>	Adambuvalli	Leguminosae	
<u>Tinospora cordifolia</u>	Amruthu	Menispermacea e	Indigenous

This sacred grove is famous for the big liana, *Spatholobus purpureus*, the Adambvalli.

9 Flora of Vazhavelil Sri Durgabhagavathi Kshethram, Peruvanthanam Prmd-6

Botanical Name	Local name	Family	Distribution
Trees			
<u>Ailanthes triphysa</u>	Pongaliyam	Simaroubaceae	Indigenous
<u>Alstonia scholaris</u>	Ezhilampala	Apocynaceae	Indigenous
<u>Antiaris toxicaria</u>	Maravuri	Moraceae	Indigenous

<i>Aporusa lindleyana</i>	Vetti	Euphorbiaceae	Indigenous
<i>Artocarpus heterophyllus</i>	Plavu	Moraceae	Indigenous
<i>Artocarpus hirsutus</i>	Aanjili	Moraceae	Endemic
<i>Artocarpus communis</i>	Kadaplavu	Moraceae	Exotic
<i>Averrhoa bilimbi</i>	Ilumpi	Oxalidaceae	Planted
<i>Caryota urens</i>	Choondappana	Arecaceae	Indigenous
<i>Cassia fistula</i>	Kanikkonna	Leguminosae	Indigenous
<i>Chionanthus mala-elenji</i>	Kallidala	Oleaceae	Endemic
<i>Chrysophyllum cainito</i>	Swarnapathri	Sapotaceae	Exotic
<i>Croton caudatus</i>		Euphorbiaceae	Indigenous
<i>Diospyros malabarica</i>	Panachimaram	Ebenaceae	Endemic
<i>Diospyros candolleana</i>	Karimaram	Ebenaceae	Endemic
<i>Ficus religiosa</i>	Arayaal	Moraceae	Indigenous
<i>Elaeocarpus oblongus</i>	Kaaramaram	Elaeocarpaceae	Indigenous
<i>Evodia lunu-ankenda</i>	Naasakam	Rutaceae	Indigenous
<i>Garcinia gummi-gutta</i>	Kudampuli	Clusiaceae	Indigenous
<i>Harpullia arborea</i>		Sapindaceae	Endemic
<i>Hydnocarpus pentandrus</i>	Marotti	Flacourtiaceae	Indigenous
<i>Litsea laevigata</i>	Mulakunaari	Lauraceae	Indigenous
<i>Mangifera indica</i>	Maavu	Anacardiaceae	Indigenous
<i>Olea dioica</i>	Karivetti	Oleaceae	Indigenous
<i>Schleichera oleosa</i>	Poovam	Sapindaceae	Indigenous
<i>Spondias indica</i>	Ambazham	Anacardiaceae	Indigenous
<i>Sterculia guttata</i>	Kaavalam	Sterculiaceae	Indigenous
<i>Tabernaemontana</i> <i>heyneana</i>	<u>Koonampala</u>	<u>Apocynaceae</u>	Indigenous
<i>Swietenia mahagoni</i>	Mahagani	Meliaceae	Exotic
<i>Tamarindus indica</i>	Vaalanpuli	Leguminosae	Planted
<i>Terminalia bellirica</i>	Thaanni	Combretaceae	Indigenous
<i>Tectona grandis</i>	Thekku	Verbenaceae	Indigenous
<i>Xanthophyllum arnottianum</i>	Madukka	Xanthophyllaceae	Indigenous
Shrubs			
<i>Canthium parviflorum</i>	Kaaramullu	Rubiaceae	Indigenous
<i>Chassalia curviflora</i> var. <i>ophioxyloides</i>	Kaattukaappi	Rubiaceae	Indigenous
<i>Clerodendrum infortunatum</i>	Perikilam	Verbenaceae	Exotic
<i>Clidemia hirta</i>		Melastomataceae	Exotic
<i>Glycosmis pentaphylla</i>	Paanal	Rutaceae	Indigenous
<i>Helicteres isora</i>	Idampiri-valampiri	Sterculiaceae	Indigenous
<i>Hibiscus hispidissimus</i>	Panachan	Malvaceae	Indigenous
<i>Hibiscus rosa-sinensis</i>	Chemparathi	Malvaceae	Exotic
<i>Ixora malabarica</i>	Chetthi	Rubiaceae	Endemic
<i>Leea indica</i>	Chorianthaali	Leeaceae	Indigenous
<i>Sauvagesia androgynus</i>	Velicheera	Euphorbiaceae	Indigenous
<i>Stachytarpheta jamaicensis</i>	Narivaalan	Verbenaceae	Exotic
Climbers			
<i>Abrus pulchellus</i>	Kaattumuthira	Leguminosae	Indigenous
<i>Acacia pennata</i>	Pei-Incha	Leguminosae	Indigenous

<u>Alangium salvifolium</u> <u>subsp. hexapetalum</u>	<u>Valliankolam</u>	Alangiaceae	
Anamirta cocculus	Pechumarunnu	Menispermacee	Indigenous
Centrosema molle	Kaattupayar	Leguminosae	Exotic
Chonemorpha macrophylla	Appuppanthadi	Apocynaceae	Indigenous
Combretum latifolium		Combretaceae	Indigenous
Cyclea peltata	Padathaali	Menispermaceae	Indigenous
Gloriosa superba	Menthoonni	Liliaceae	Indigenous
Ichnocarpus frutescens	Paarvalli	Apocynaceae	Indigenous
Jasminum coarctatum (<i>Jasminumrottlerianum</i>)	Kaattumulla	Oleaceae	Endemic
Piper nigrum	Kurumulaku	Piperaceae	Indigenous
Pothos scandens	Paruvakodi	Araceae	Indigenous
Raphidophora pertusa	Aanatthippali, Elatthadi	Araceae	Indigenous
Sarcostigma kleinii	Odal	Icacinaceae	Indigenous
Tinospora cordifolia	Amruthu	Menispermacee	Indigenous
Herbs			
Aerva lanata	Cherula	Amaranthaceae	Indigenous
Ageratum conyzoides	Appa	Asteraceae	Exotic
<u>Asystasia violacea</u>		Acanthaceae	Indigenous
Biophytum reinwardtii	Mukkuti	Oxalidaceae	Indigenous
Borreria latifolia	Vellathrithavu	Rubiaceae	Indigenous
Cyathula prostrata	Cherukadalaadi	Amaranthaceae	Indigenous
Cyrtococcum oxyphyllum	Pullu	Poaceae	Indigenous
Desmodium gangeticum	Orila	Leguminosae	Indigenous
Digitaria ciliaris	Ettumuttanpullu	Poaceae	Indigenous
Eleutheranthera ruderalis		Asteraceae	Exotic
Hyptis suaveolens	Naattupoochedi	Lamiaceae	Exotic
Leucas aspera	Thumba	Lamiaceae	Indigenous
Melothria scabrella		Cucurbitaceae	Indigenous
Phaulopsis imbricata (<i>Micranthus oppositifolius</i>)		Acanthaceae	Indigenous
Mitracarpus villosus		Rubiaceae	Exotic
Phyllanthus amarus	Keezhukaanelli	Euphorbiaceae	Indigenous
Oldenlandia auricularia		Rubiaceae	Indigenous
Triumfetta rhomboidea	Manjayooram	Tiliaceae	Indigenous
Urena lobata subsp. sinuata	Oorpam	Malvaceae	Indigenous
Urena lobata subsp. lobata	Oorpam	Malvaceae	Indigenous
Vernonia cinerea	Poovankurunnila	Asteraceae	Indigenous

CHAPTER VI

FREQUENCY DISTRIBUTION OF PLANTS

Species distribution in the sacred groves.

Among the *sacred groves (SGs) of the district, one time enumeration was carried out in 9 SGs based on the extant of area, vegetation type and location in the two taluks viz. Thodupuzha and Peerumedu. Among the 210 species enumerated, 99 are trees, 38 climbers, 34 shrubs and 39 herbs. With regards to the frequency of occurrence, *Caryota urens* was found in 8 SGs studied. As many as 116 species are occurring in one SG; 47 species in two SGs; 20 species in three SGs and 12 species in four SGs. The frequency of occurrence of species in different sacred groves is provided in tables 1-9 and figure 1.

*the total number of sacred groves in Idukki

Analysis of species distribution shows that as many as 48 species enumerated from Amaramkavu have not been recorded from other SGs. Vazavelil Sridurga Bhagavathi Kshetram has 26 species unique to it; Kottakkakamkavu has 16; Kottayil Bhadradevi Kshetram have no species unique to it.

Table 1. Species occurring in 1 sacred grove

SPECIES	KAVU
Aegle marmelos	VK
Aervalanata	VS
Ageratum conyzoides	VS
Aglaia lawii	AK
Ampelocissus indica	AK
Annona reticulata	KK
Antidesma acidum	AK
Areca catechu	AK
Argyreia hirsuta	PK
Artobotrys zeylanicus	AK
Artocarpus communis	VS
Asparagus racemosus	VK
Azadirachta indica	KK
Bambusa vulgaris	KK
Boehmeria glomerulifera	PK
Borreria ocyoides	KK

<i>Callicarpa tomentosa</i>	DS
<i>Canthium angustifolium</i>	AK
<i>Canthium parviflorum</i>	VS
<i>Careya arborea</i>	AK
<i>Carica papaya</i>	PK
<i>Cerassiocarpum bennettii</i>	VS
<i>Chrysophyllum cainito</i>	AK
<i>Clidemia hirta</i>	VS
<i>Clitoria ternatea</i>	TM
<i>Coffea arabica</i>	AK
<i>Combretum albidum</i>	AK
<i>Croton caudatus</i>	VS
<i>Cyrtococcum oxyphyllum</i>	VS
<i>Dendrobium macrostachyum</i>	AK
<i>Derris eualata</i>	VK
<i>Desmodium gangeticum</i>	VS
<i>Dimocarpus longan</i>	ND
<i>Diospyros malabarica</i>	VS
<i>Diplocisia glaucescens</i>	AK
<i>Dracaena terniflora</i>	AK
<i>Elaeocarpus oblongus</i>	VS
<i>Eleocharis sphaericus</i>	TM
<i>Elephantopus scaber</i>	AK
<i>Eleutheranthera ruderalis</i>	VS
<i>Ericybe paniculata</i>	AK
<i>Eupatorium odoratum</i>	KK
<i>Ficus auriculata</i>	KK
<i>Ficus benghalensis</i>	VK
<i>Ficus nervosa</i>	AK
<i>Garcinia gummi-gutta</i>	VS
<i>Geophila repens</i>	AK
<i>Gliricidia sepium</i>	VK
<i>Gloriosa superba</i>	VS
<i>Gnetum edule</i>	AK
<i>Gomphandra polymorpha</i>	AK
<i>Harpullia arborea</i>	VS
<i>Holigarna arnottiana</i>	AK
<i>Holigarna grahamii</i>	ND
<i>Holoptelea integrifolia</i>	AK
<i>Homalium zeylanicum</i>	AK
<i>Hopea parviflora</i>	AK
<i>Ixora arborea</i>	AK
<i>Knema attenuata</i>	PK

<i>Lagerstroemia speciosa</i>	KK
<i>Lagerstroemia microcarpa</i>	VK
<i>Lannaea coromandelica</i>	AK
<i>Leucena leucocephala</i>	KK
<i>Litsea laevigata</i>	VS
<i>Lophopetalum wightianum</i>	AK
<i>Meiogyne ramarowii</i>	AK
<i>Melothria scabrella</i>	VS
<i>Memecylon edule</i>	AK
<i>Merremia umbellata</i>	AK
<i>Miquelia dentata</i>	AK
<i>Mitracarpus villosus</i>	VS
<i>Mitragyna parvifolia</i>	VK
<i>Mollugo pentaphylla</i>	KK
<i>Murraya koenigii</i>	KK
<i>Mussaenda frondosa</i>	AK
<i>Myxopyrum smilacifolium</i>	AK
<i>Nothopegia racemosa</i>	AK
<i>Oldenlandia auricularia</i>	VS
<i>Oldenlandia corymbosa</i>	KK
<i>Oplismenus compositus</i>	KK
<i>Palaquium ellipticum</i>	AK
<i>Peperomia pellucida</i>	KK
<i>Persea macrantha</i>	AK
<i>Phaulopsis imbricata</i>	VS
<i>Phyllanthus amarus</i>	VS
<i>Plumeria rubra</i>	TM
<i>Poeciloneuron indicum</i>	AK
<i>Polyalthia coffeoides</i>	PK
<i>Polyalthia longifolia</i>	DS
<i>Psidium guajava</i>	PK
<i>Remusatia vivipara</i>	AK
<i>Rhopalephora scaberrima</i>	AK
<i>Salacia macrosperma</i>	AK
<i>Saraca asoca</i>	TM
<i>Schumannianthus virgatus</i>	DS
<i>Sida alnifolia</i>	AK
<i>Spatholobus purpureus</i>	VK
<i>Spondias indica</i>	VS
<i>Stemodia verticillata</i>	KK
<i>Sterculia balanghas</i>	AK
<i>Strobilanthes ciliatus</i>	AK
<i>Strobilanthes heyneanus</i>	AK

<i>Strombosia ceylanica</i>	AK
<i>Strychnos minor</i>	AK
<i>Swietenia mahagoni</i>	VS
<i>Syzygium cumini</i>	TM
<i>Tabernaemontana coronaria</i>	KK
<i>Tamarindus indica</i>	VS
<i>Terminalia arjuna</i>	KK
<i>Terminalia paniculata</i>	VK
<i>Tetracera akara</i>	AK
<i>Thottea siliquosa</i>	AK
<i>Urena lobata</i>	AK
<i>Urenalobata subsp. lobata</i>	VS
<i>Urenalobata subsp. sinuata</i>	VS
<i>Ziziphus rugosa</i>	PK

Table 2. Species occurring in 2 sacred grove

SPECIES	KAVU
<i>Adenanthera pavonina</i>	AK,DS
<i>Anamirta cocculus</i>	DS,VS
<i>Anodendron paniculatum</i>	AK,KB
<i>Antiaris toxicaria</i>	AK,VS
<i>Antidesma montanum</i>	AK,KB
<i>Asystasia violacea</i>	AK,VS
<i>Averrhoa bilimbi</i>	ND,VS
<i>Bridelia retusa</i>	KK,ND
<i>Canthium coromandelicum</i>	AK,KB
<i>Cassia fistula</i>	KK,VS
<i>Chonemorpha macrophylla</i>	AK,VS
<i>Chromolaena odorata</i>	AK,VK
<i>Cinnamomum malabatram</i>	AK,KB
<i>Cissus repens</i>	AK,KB
<i>Cocos nucifera</i>	KK,ND
<i>Corypha umbraculifera</i>	KB,ND
<i>Couroupita guianensis</i>	KK,PK
<i>Cyathula prostrata</i>	AK,VS
<i>Cycas circinalis</i>	AK,VK
<i>Digitaria ciliaris</i>	KK,VS
<i>Evodia lunu-ankenda</i>	DS,VS
<i>Ficus arnottiana</i>	PK,VK
<i>Ficus callosa</i>	AK,VK

Ficus racemosa	AK,KK
Hibiscus rosa-sinensis	KK,VS
Ichnocarpus frutescens	AK,VS
Ixora malabarica	AK,VS
Jasminum coarctatum	AK,VS
Lantana camara	AK,KK
Macaranga peltata	PK,TM
Meiogyne pannosa	AK,KB
Mimosa pudica	AK,KK
Pajanelia longifolia	DS,VK
Pavetta indica	KB,PK
Pogostemon purpurascens	AK,PK
Pongamia pinnata	KK,PK
Raphidophora pertusa	AK,VS
Schleichera oleosa	VK,VS
Scoparia dulcis	AK,KK
Smilax zeylanica	AK,KB
Solanum torvum	AK,VK
Spathodea campanulata	DS,KK
Stachytarpheta jamaicensis	AK,VS
Strychnos nux-vomica	AK,VK
Tetrameles nudiflora	AK,PK
Trema orientalis	AK,KK
Triumfetta rhomboidea	AK,VS

Table 3. Species occurring in 3 sacred grove

SPECIES	KAVU
Abrus pulchellus	AK,PK,VS
Ailanthus triphysa	AK,KK,VS
Alangium salvifolium subsp. hexapetalum	DS,ND,VS
Biophytum reinwardtii	AK,KK,VS
Bombax ceiba	AK,PK,ND
Borreria latifolia	AK,KK,VS
Chionanthus mala-elengi	AK,ND,VS
Ficus exasperata	AK,PK,VK
Glycosmis pentaphylla	PK,VK,VS
Helicteres isora	AK,VK,VS
Hibiscus hispidissimus	AK,PK,VK
Hyptis suaveolens	AK,KK,VS
Leucas aspera	AK,KB,VS

Piper nigrum	AK,DS,TM
Quisqualis indica	AK,KK,PK
Synedrella nodiflora	ND,PK,VS
Terminalia bellirica	KB,VK,VS
Tinospora cordifolia	AK,PK,VS
Vernonia cinerea	KB,VK,VS
Xanthophyllum arnottianum	AK,KB,VS

Table 4. Species occurring in 4 sacred grove

SPECIES	KAVU
Acacia pennata	AK,DS,PK,VS
Artocarpus heterophyllus	KK,TM,VK,VS
Clerodendrum infortunatum	AK,PK,VK,VS
Combretum latifolium	DS,ND,PK,VS
Diospyros candolleana	DS,ND,VK,VS
Ficus hispida	AK,PK,TM,VK
Leea indica	AK,KB,PK,VS
Macaranga indica	AK,KK,ND,VK
Mallotus philippensis	AK,KB,PK,VK
Mangifera indica	PK,TM,VK,VS
Sauvagea androgynus	AK,PK,VK,VS
Tabernaemontana heyneana	AK,PK,VK,VS

Table 5. Species occurring in 5 sacred grove

SPECIES	KAVU
Alstonia scholaris	AK,KB,TM,VK,VS
Aporusa lindleyana	AK,KB,PK,VK,VS
Centrosema molle	AK,KK,PK,VK,VS
Chassalia curviflora var. ophioxyloides	AK,KB,PK,VK,VS
Cyclea peltata	AK,PK,TM,VK,VS
Hydnocarpus pentandrus	AK,KK,ND,PK,VS
Mimusops elengi	AK,KK,PK,TM,VK
Olea dioica	AK,KB,ND,VK,VS
Pothos scandens	AK,KB,PK,VK,VS
Sarcostigma kleinii	AK,DS,ND,PK,TM
Sterculia guttata	AK,KB,ND,PK,VK
Tectona grandis	AK,DS,KK,PK,VS

Table 6. Species occurring in 6 sacred grove

SPECIES	KAVU
Artocarpus hirsutus	Except AK, ND, TM
Ficus religiosa	Except AK, DS, KB

Table 7. Species occurring in 8 sacred grove

Caryota urens	Except TM
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Abbreviations: Amaramkavu (AK), Sri Dharmasastha Kshethram (DS), Kottakkakamkavu (KK), Kottayil BhadradeviKshethram (KB) , Niravathu Devi Kshethram (ND), Paloorkavu Umamaheswari (PK), Thrikkayil MahavishnuKshethram (TM), Valliyam Kavu (VK), Vazhavelil Sri Durgabhagavathi Kshethram (VS)

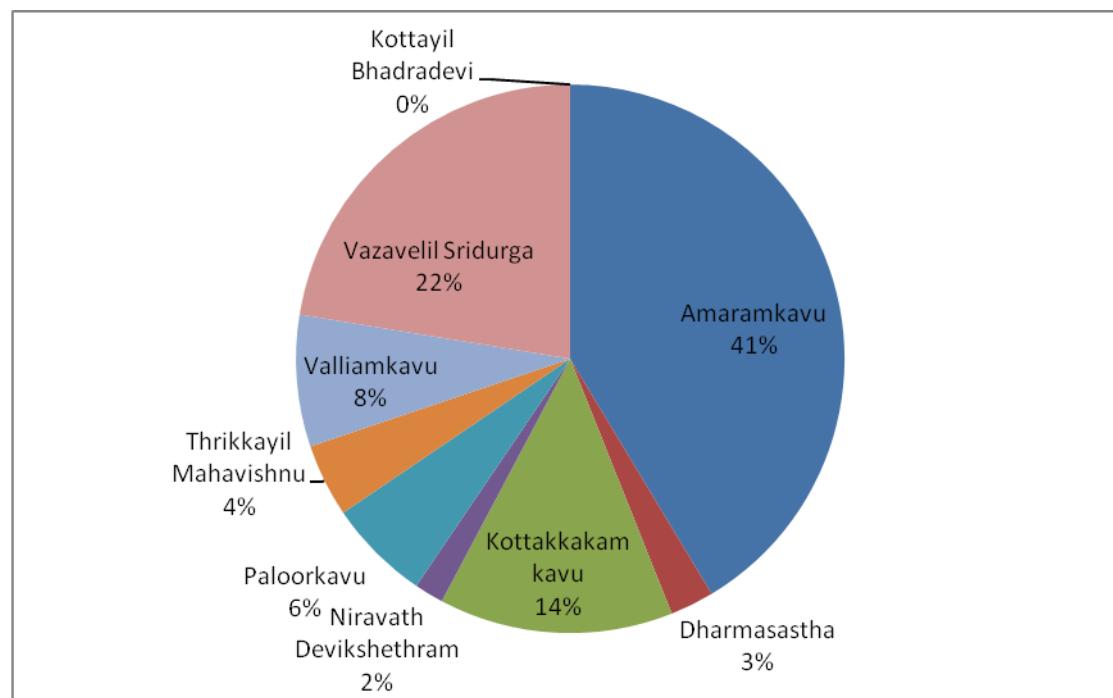


Figure 1. Number of species unique to the sacred grove

The number of trees, shrubs and climbers in the 9 sacred groves is provided in table 8 and Taluk wise occurrence of trees, shrubs and climbers in table 9.

Table 8. The number of species of trees, shrubs and climbers in the 9 sacred groves

Sl. no	Name of Sacred grove	Trees	Shrubs	Climbers	Herbs	Total
1.	AK	44	23	28	20	115
2.	DS	10	1	6	0	17
3.	KK	23	6	1	13	43
4.	KB	11	5	6	0	22
5.	ND	13	0	3	0	16
6.	PK	26	7	9	4	46
7.	TM	11	0	3	0	14
8.	VK	29	8	6	0	43
9.	VS	32	11	16	22	81

Among the sacred groves, diversity is high in Amaramkavu followed by Vazhavelil Sri DurgabaghagavathiKshethram and PaloorkavuUmamaheswari.

Table 9.Taluk-wise occurrence of species of trees, shrubs and climbers

Taluk	Trees	Shrubs	Climbers	Herb	Total
Thodupuzha	66	29	30	27	152
Peerumedu	68	16	21	24	129

Analysis with respect to distribution shows that out of the 210 species studied 33 are endemic, 37 exotic and 140 indigenous.

CHAPTER VII

ECOLOGICAL STATUS.

Sacred groves which are rich in biodiversity are of immense ecological significance. The vegetation as well as the biological setup in a sacred grove is normally fully protected from human interference through customary taboos and sanctions with cultural and ecological implications. In such a typical condition there can be immense activity among and between all living organisms providing plenty of resources for research on some of the aspects not seen studied hitherto. In this chapter with the limited scope to undertake a study on this vast subject, the observations made with the basic principles relating to ecological status have been presented. This is confined to vegetation, soil conditions, faunal significance and water conservation. Though observation of fauna has to be done under different seasons it is not feasible in this case.

Vegetation.

Tree crop- The vegetation has certain distinctive ecological characteristics such as clear tiers of trees, shrubs herbs, besides the climbers, epiphytes parasites etc. Other than the common ones, the other trees enumerated are *Diospyros perigrina* (Panachi), *Lophopetalum wightianum* (Venkotta), *Antiaris toxicaria* (Maravuri), , *Aporusa lindleyana* (Vetti), and a few species of *Ficus* etc.

Rare and threatened species such as *Diospyros perigrina*, *Chryophyllum caimito* and *D. condolleana* in peermade tauk ,*Strombosia ceylanica* in Amaramkavu of Thodupuzha , *Anogeissus latifolia*, *Atlantia* in Marayur tract.In Marayur itself scrub jungle species of *Tylophora* and *Solanum* were also enumerated from the Sacred Groves.

Keystone species

Apart from direct benefits of biodiversity conservation, indigenous societies have always sensed the indirect benefit which flow from sacred groves through ecosystem functions. There are some species, though present in small numbers, play very important role by their unique abilities such as nitrogen fixation and attracting

many birds etc and help maintaining life forms in plenty. They are known as keystone species. These species have disproportionate large effect on other species in a community. Law (2002) tried to identify keystone species in two SGs based on following parameters.

- i. Importance of value index , ii - Position of the canopy, iii - Position of growth form, iv. Association with other species (epiphytic growth), mobile links (pollinators, dispersers) v. Capacity to supply food resources for faunal diversity, vi. Succession status-light demanding/shade tolerant, vii- Biomass and nutrient allocation pattern to shoot and root,viii. Shoot / root ratio of seedlings.'ix. Nutrient input to the system.

Once such species are removed from an ecosystem it may create dramatic changes in the rest of the community. Much studies have not been made on this aspect in respect of the SGs in Kerala. In Tamil Nadu Ficus religiosa and F. benghalensis - known as strangler figs, are considered to be Keystone species. These species have aggressive growth habit ensuring their regeneration and survival. They bear pulpy small fruits during dry summer when most of the other species do not. Hence they attract frugivorous birds, a few mammals and reptiles and several species of insects. Many pollinators and seed dispersers are attracted to promote regeneration in the plant community. In many of the SGs Ficus species are present. Another attraction is that the different species of Ficus bear fruits in different seasons also. The strong winding roots of ficus prevent soil erosion. It is because of these influences on other community these species are called keystone species. There can be more such species if studies are taken up in this direction.

Taking into consideration of the essential qualities of keystone species the following species seen in these SGs are suggested for consideration.

- i. *Caryota urens* (Palmae)-This is almost very common in the SGs. It's regeneration status ie excellent. Most of the time it is in flowers or fruits. It is attracted by many birds and mammals. Bats always finish it in course of time. It provides toddy.
- ii. *Mimusops elengi*-(Sapotaceae)-This is a graceful tree with dense crown. Flower profusely during December to February.
- iii. *Holigarna arnotiana*-(Anacardiaceae) This is shade tolerant. Flowering during Jan-Feb. Its fruit is liked by porcupine. This also is a common tree in SGs.

- iv. Schleichera oliosa-(Sapindaceae) Flowering during February. Produces plenty of seeds. The tree is draught hardy and shade tolerant. It regenerates well both from seeds and root suckers. It also coppices and pollards in natural conditions.

Regeneration

The species composition of trees in sacred groves consists of light demanders, shade bearers and shade tolerants. Seedlings of species, for which securing light condition is less pronounced, may come up or compete with the seedlings of top canopy species. As the top canopy trees of varying growth requirements survive well, their regeneration under less favourable conditions particularly when the light condition is restricted, is a matter of study. Regeneration of shade bearing and shade tolerant species do come up but it persists for long periods in whippy form till favourable light conditions set in. These seedlings survive if soil conditions are favourable and root competition is less provided they could build up reasonable level of root stock. It is by keeping these basic principles in mind the flora of the sacred groves have been examined.

Natural regeneration in humid tropical forest is highly complex and least understood. In a closed canopy, it depends on gaps created by natural agencies like wind, old age of trees and so on. Stool shots generally arise from short lived adventitious buds formed between the wood and bark of the stump.

Natural regeneration depends on the following-

Seed production, age of the tree ,predation of seeds, failure of ovule development, interval of seed production., dispersal and germination-In the case of orthodox seeds -viability is long. As regards recalcitrant seeds, they are killed if moisture content is below a certain value ..As the general standard of vegetation is poor and canopy is mostly open plenty of invasive climbers profusely come up in many SGs..

Soil Conditions in Sacred Groves.

Periodicity of litter fall varies according to seasons. It starts by winter and goes on till March. Fine root production starts in Feb-March and reaches its peak during rains .Studies indicate that litter is the main store house of Nitrogen than fine

roots and microbial biomass. Litter decay starts by first few showers and reaches its peak in the rainy season. It releases nutrient fast during rainy season when the up take by plants is very high. Litter and fine roots normally add phosphorus to soil, but relatively less. The input of N is very much higher than that of other nutrients. Mineralization (by which humus is converted into inorganic nutrients) during wet weather and immobilization during the dry season is common as regards N is concerned. Release of nitrogen from decomposing litter is double than from fine roots.

SOIL TEST

Soil condition has been assessed by applying the App introduced by Soil-conservation Dept.(MAM) . In Thodupuzha taluk all the ingredients such as Organic carbon, Phosphorus, Potassium, Manganese etc are high except Boron. pH is around 4 which indicate high acidity. In Peermade taluk the above high ingredients are seen low or medium. Soil is again acidic. In Marayur tract falling in Kanthallur village, some SGs have high acidity as evidenced by the existence of species of Ficus and Solanum. In another stretch away , the presence of Anogeissus latifolia and Atlantia malabarica indicate alkaline soil.

Organic carbon is most important constituent of soil which influence the plant growth as a source of energy and a trigger for nutrient availability through mineralization. An increase in organic carbon leads to greater biological diversity both in flora and soil organisms. **Phosphorus** is the main supplier of microbes and not the litter or fine roots. It also helps growth of roots. When acidity is high phosphorous is less active. **Potassium** is more in clayey soil but it is not in the form for absorption by plants. It is helpful in protein synthesis, opening and closing of stomata and in photosynthesis. Potassium deficiency is common in sandy soils. When the level of potassium and phosphorus is deficient to match the available nitrogen besides general growth, fruiting and flowering of plants retard. These are the basic concepts based on which the effect of soil test result on the vegetation of sacred groves is examined.

Soil conservation

Rapid litter decomposition and the root mat development with plenty of fine roots on the surface layer of the soil support large above ground biomass. Many micro organisms, invertebrates, fungi etc flourish. Root mat prevents the nutrients from leaching out. This is visible only in a few SGs.

Water conservation.

Almost all sacred groves are associated with ponds in other districts. But in Idukki there are only three ponds in the SGs out of which one is natural. Considering the existence of rocky outcrops and hilly region the possibility of ponds existing is reduced by sloppy nature of terrain and lack of interest among custodians.. The water from the pond is used for temples rituals and poojas, but here wells are dug to serve the purpose

Faunal significance

The sacred grooves harbour numerous birds, butter flies and bats apart from primates and small mammals. As the SGs are very small in number and located in isolated areas many fruit bearing species are visited by birds. Presence of bats, peacock are not reported. In general faunal significance is very low. Termite mounts are rarely noticed even though they are present inside dead wood and below soil.

CHAPTER VIII

SOCIO CULTURAL ASPECTS

General

Idukki is one of the 14 districts of Kerala, formed on 26th January 1972 by dividing the district of Kottayam into two. Initially, the district headquarters was Kottayam. In June 1976, it was moved to Painavu. The land area of Idukki district lies in the Western Ghats. It is the second-largest district in the State but has the lowest population density. Idukki has a vast forest area; more than half of the district is covered by forests. The urban areas are populated densely and the villages sparsely. Idukki is also known as the spice garden of Kerala. .The Dutch East India Company was attracted by the enormous growth of pepper and other spices in high ranges. According to the formal treaty signed on June 16, 1664, Dutch East India Company had trade contracts with Thekkumkur Rajas on spices, cinnamon, opium, etc. There are 5 taluks in the district, namely, Peermade, Thodupuzha, Idukki, Devikulam and Udumbanchola.

Socio Cultural background of the district

The District is characterized by large migration of people from Kerala's main land as also laborers from neighboring State of Tamil Nadu. The earliest human habitation of the district, (other than the natives in portions of Thodupuzha taluk and Vandiperiyar, Peruvanthanam of Peermade taluks) which migrated from Tamil Nadu in the last decades of 19th century and first two decades of the 20th century can be gauged from the story that while Maharaja Sree Moolam Thirunal was personally supervising the construction of the Dam across Mullaperiyar river he felt thirsty and a shepherd called Ankur Rauther gave him milk from Udder of the sheep. The delighted Maharaja gave him title over extensive forest lands which his descendants sold to land owners in Tamil Nadu and with the help of cheap labour these were converted into Cardamom or Tea plantations. During 1890-1920 on account of plantations, people came to this place to work in the plantations, while during 1920-30 the migration was on account of the poverty, due to the after effect of World Wars. 1933-47 saw migration on a

smaller extent for the reason of Pallivasal Hydro-electric Project. The first Hydro-electric Project of the State was initially constructed by the Tea Companies for their industrial use. In 1938, government allotted 950 acres of land for paddy cultivation in Kalthotty, Chakkupallam and Anakkara areas. In 1940 'Kutthakappaatta Vilambaram' was issued for encouraging paddy cultivation in the forests. In 1942, wet land, dry land, grass land and even the forest land were assigned to the associations and co-operative societies for cultivation. 24000 acres of grass land which lies at an elevation of 2000 ft above MSL were assigned to farmers. In 1949, with the order GO. LR4 8727/49/2RD dtd 28-12-1949, government started the 'Grow More Food' (GMF) scheme, to trigger the paddy production. In this Scheme 3000 acres of land was given to the farmers. During 1946, Government allotted forest land for 2000 persons while in 1950 Colonies were established for Ex-servicemen. Again in 1951 under 'grow more food' Scheme 1500 acres of land was allotted to 1000 persons, which made more and more people migrate to High ranges. During 1960 and 70's migration attained its momentum on account of the construction of the Historic Arch Dam at Idukki.

From 1901 to 1971 the population of the district has increased about 16 times and is on a higher scale compared to the rate of growth of population of the State. Between 1971-1981, the population of the district showed an increase of about 27 percent as against an increase of 19 percent for the state as a whole. Since most part of the district is covered with dense forests and plantations there is lesser area for habitation. This has resulted in the increase in population in the hilly taluks of the district, especially in Udumbanchola and eastern parts of Thodupuzha taluk.

Presence of a large number of tribal populations is peculiar to Idukki District. It is a fact that this district supports the second largest population of tribal families- with 245 tribal settlements. Muthuvan, Mannan, Malaraya, Oorali, Ullada, Paliya and Malapulaya are the seven tribal communities present in the district.

Thus the history of the population, other than the tribals, of the district, is a history of colonization braving inclement weather, wild animals and epidemics. It is also a history of the exploitation of labour and labour struggles.. The area around Munnar was developed from time to time when British made it their summer resort. As the immediate accessible population was from Tamil Nadu, Munnar became a Tamil pocket in Kerala. In addition to Munnar, places like Peermade, Vandiperiyar and many parts of Devikulam taluk where large extent of Tea Plantations was raised,

majority of the labour population was from Tamil Nadu. Similarly areas like Kanthallur, Vattavada, Marayoor etc in Deveiculam taluk, which lies on the other side of the Western Ghats, Tamil population and Tamil culture predominates.

Historically, keeping behind the history of formation of Tea plantations, Cardamom estates and other land assignments it can also be said that Idukki is a district which came in to existence as a result of massive encroachment of forest land for agricultural purposes. Townships like Mannankandam (Adimaly), Vellathooval, Pallivasal, Nagarampara, Kattappana, Ayyappancovul etc were the results of encroachment or land assignments. The present townships at Kattappana, Painav, Adimay etc came into existence within a period of 60-80 years. It is with this background the presence and status of Sacred Groves in the district has to be analyzed.

The Concept of Sacred Groves

Sacred Groves, from time immemorial, were in existence attached to temples or *Taravads*. Traditional and indigenous communities in India are of the religious belief that medicinal groves and plants are sacred in nature. Sacred groves (SGs) are patches of trees on forest land that are protected communally with religious zeal and connotations. These forest areas have been protected since ages by traditional societies and indigenous communities with their socio-cultural and religious practices. Sacred groves as a rule are treated piously. Sacred trees are prohibited from cutting and not axed except when wood is needed for the religious purposes like construction and repair of temple buildings or in cases like worshiping, death ceremonies and temple rituals. Thus, SGs carry direct and everlasting pious status and assist in maintaining social fabric of the society. Sometimes, they are also known as natural museums of giant trees, treasure houses of threatened species, dispensaries of medicinal plants, regulators of water sheds, recreation centers for urban life, veritable gardens for botanists, gene banks of economic species as well as rare and endangered species, paradise for nature-lovers and so on.

In India, different religions are having different traditions, beliefs, and rituals that are associated with conservation of biodiversity and forests. In Hindu religion, it is a traditional belief that nature shows a reverence for five basic elements i.e., Earth (Prithvi), Fire (Agni), Water (Jal), Air (Wayo) and Space (Akash). All the five elements are treated as a body of God and are worshipped. These five elements are protected for religious, cultural and spiritual reasons. There are many studies entitled

to further quantify this ethics, which leads to biodiversity conservation and sustainable ecosystem (Pal and Mukhopadhyay [2011]).

Cultural impact on Sacred Groves in the District

As mentioned earlier, more than 50% of the land area of the district is either forest areas consisting of Reserve Forests, Cardamom Hill Reserves, Sandal forests or Tea Estates. Of the balance 50%, a good portion of the habited area was formed recently, during the early decades of the 20th century, by clearing forests as encroachment or by way of land assignments. 2011 Census results show that 51% of population is Hindus and 42% Christians, 7% Muslims, and balance Sikh, Zroastrians, Ateists etc. It is also worth mentioning that majority of the recent invaders to the district are from Christian community belonging to the adjacent Kothamangalam, Palai, Muvattupuzha and Kottayam areas.

Factors explained above substantiate the reason for the low number of SGs in the district. The total number of Sacred Groves in the district is only 32(There is some other so called SGs in the district, but cannot be accounted in this survey due to the absence of any vegetation). The total land area under SGs is only 7.3 acres in the district. Thodupuzha taluk which has the oldest human inhabited area supports the maximum number of SGs, which have all the components of typical SGs. SGs in Deviculam taluk, especially Marayoor and Kanthalloor areas which have influence of Tamil culture, supports only very little number of large trees. They are unlike as seen in other parts of Kerala. As per *Temples of Idukki district* by Jayasankar, the number of major temples is very few in Deviculam taluk and Udumbanchola taluk.

Worship

At various stages of evolution, people adopted different modes of worship like nature-worship, spirit- worship, image-worship etc. In the district, ownership of the Kavus vests with Nampoothiry (Brahmin), Nair and Ezhava communities. A few Kavus belong to scheduled castes. Peringasseri Nagaraja Kshethra kavu- belong to Malayara community, it is in a tribal settlement area, Worship pattern in Marayoor, Kanthalloor areas, where Tamil culture predominates, is different from other parts of the district.

Though the ownership is as mentioned above, poojas are mainly brahmaṇa pooja. Abrahmina poojas are performed by pulluvas or other members belonging to the

Scheduled casts. In Chappalli amman kovil kavu, the worship is performed by members of Hill pulaya community.

Since majority of SGs belong to families, worship patterns, rituals and festivals vary from place to place. Unlike in the case of SGs attached to major temples, expenses on festivals would be very restricted because they themselves have to find out the resources for the festivals. In the family SGs, daily poojas are not taking place, instead lighting lamp in the SGs by members of the family is uninterruptedly carried out. It represents unity and collective action of the family members.

Deities

Generally, the Deities in the Temples include a wide spectrum based on different *sankalpas* (splendid conceptions). But in the case of Sacred Groves, the Deities are a sort of Spirit cult. Worship of these semi divine sprits is primitive. Though these are classified in many categories, those most common in this district are *serpent* deities.

All classes of Hindus consider *Naga*- worship as divine.



Naga Thara in Amaran kavu - Thodupuzha

Nagaraja, Nagakanyaka, Nagayakshi, Naga kali, Naga Bhagavathi and other attendant *Nagas*, all facing the east.

Among the idols, the idol of *Nagaraja* is slightly bigger. The devotees treat *naga* idol with great veneration and some sort of fear. The general belief is that if a person shows disrespect or kills a serpent he will meet with punishment. Generally



Naga Thara of Kotakkam kavu

the *deities or prathishtas* in the SGs in the district are:-, *Vana Durga, Bhadra,*

Ananthan, Paranagangal, Nagaraja, Nagayakshi, Kuttian moorthi, kurupu swami, Kannakshi amma, , Pattalamman, Akhila sarpamm, Kughi nagam, Kari nagam, Naga unni , etc. In areas where Tamil culture predominates, the deities are given Tamil names such as *Indan pettari, Sanghammal, Kathinachi, Mulathachi, Malla, Kookattu nachi* (Mala deivam) , *Karppannan, Chappali amman* etc. The *sila* idols of *Sree Anti Mahakalan, Sree Ayila Yakshi, and Lord Sastha* are of semi circular in shape,

Offerings

There is a wide range of offerings in every temple and every SG. Another name of offering is *vazhipad*. Offering or *vazhipat* is for the favor and blessings from the deity and therefore it has an in built element of personal sacrifice. Each *vazhipat* is performed for specific intentions. In *Amaran kavu* the main offering is



Offering of cock at Valliyan Kavu

valiyapayasam. It is booked for years to come. *Sathru samhara kuruthi* and *Sathru samhara pushpanjali* are the main offerings in Kotakakam sarpa kav. *Palpayasam* is the important offering in Thrikayil

kavu. *Sarpa bali, Noorum palum, Dhara, Nagaroot* etc are some of offerings performed in many other SGs. In Valliyan kavu in Peruvanthanam village, the offering is liquor. Offerings for deities in temples are different from that in the SGs. At Valliyan Kavu Devotees release cock in the air in temple premises to make it fly and donate it to temple. Later it is auctioned. This is done in place of animal sacrifice.

Folklore and Folk Arts

As explained earlier, Idukki district supports the second largest population of tribal communities. Their culture, Social practices, worship pattern etc are entirely different from that of the general population. Kovilmala is the headquarters of Mannan community who preserves certain customs, traditions and form of governance, making them a unique tribal unit. The system of governance here is a democratic monarchy in which a king is elected by the people to rule. The dynastic succession is

through the matrilineal system of inheritance by which the properties are inherited by the nephew. The administration of Mannan community inhabited here is held by Raja Mannan (King of Mannans), the title given to the elected king. He holds the responsibility to take care of the other 42 Kudis (settlements) spread over the various parts of Idukki district.

The 'Muthuvan' people were loyal subjects of the dynasty of Madurai, according to tribal legend. When the dynasty was deposed, the surviving royal members migrated to Travancore. Muthuvan are the ancient tribes of this land. The Muthuvans are very independent and reluctant to interact with the outside world. They are known for their Ethno-botanical practices.

The art, culture and customs of the people of Idukki district are mostly the same as



A masked *Padayani* dancer

those of the people in the neighboring districts of central Kerala. A large number of art forms including folk dances, dramas, folk-songs, etc. have gone into oblivion. Kalamezhuthu, pattu, Pulluvan pattu, Thullal, Pambum thullal or Sarpam thullal, Velakkali, Padayani, Gandharvan pattu, etc are some of the folk art forms performed during the festivals in the SGs. In major temples, Ganamela, Bale, Drama, etc are performed during temple festivals.

Padayani, also called Padeni (from the Malayalam word for military formations), is a traditional folk dance and a ritual art from the central Travancore area of Kerala. A ceremonial dance involving masks, it is an ancient ritual performed in Bhagavati temples. The dance is performed in honor of Bhadrakaali.

Kalamezhuthu pattu:

The ritual of Kalamezhuthu pattu develops through three stages – Kalamezhuthu, drawing of the picture, Kalam. There are 28 types of Naga kalams - Pattu, which involves the rendering of the myth related to the

deity to the accompaniment of some traditional instruments and Kalam Thullal, the final stage in which the myth is performed in a stylized form



Kalamezhuthu



Kalam Thullal

following which the Kalam is erased. This art form is multi-dimensional in that it bears religious, aesthetic and social aspects.

In Idukki district, indigenous art forms are not as popular as other major art forms. Tourist areas like Munnar and Thekkady welcome visitors by hosting popular art forms like Kathakali and other classical dances.

CHAPTER IX

SOCIO-ECONOMIC DIMENSIONS

A. Custodians of Sacred Groves.

The custodians of sacred groves fall under different categories depending on the social customs and legal status of land. Mainly three categories are identified namely Private management, Public management and management by Devaswam Board. Even among them there are various sub-types according to the ownership.

A statement of SGs under the above categories is given below. It can be seen that majority of the SGs are under private management.

Name of Taluk	Private	Publicaly owned	Devaswam Board	Total
Thodupuzha	6	3	1	10
Peermade	4	2	4	10
Idukki	-	1	-	1
Devikulam	6	5	-	11
TOTAL	16	11	5	32

I. Private Management

The basic factor here is that the full propriety of the land supporting sacred grove belongs to one family or group of families. There are in all 16 such SGs coming under private category .The sub-groups are two such as -i. Kudumbakavu, Udayaperumal kavu in Kanthalliu village of Devikulam Taluk are examples. Details of those SGs are as below.

Niravath kavu-This just one km away from Peruvanthanam junction. This is a typical private SG of 5 cents only, where annual pooja alone is performed. Naga is the presiding deity. It is located in the premises of the house of owner. They don't even light lamps every day. But once in a while some devotees come and light lamp on their own and worship.

Udayaperumal Kavu. ---This SG extends over an acre in Kanthallur village. The presiding deity is Udayaperumal and other Gods and Goddesses are represented by simple stones. Here also pooja is conducted once in year. But though it is once a year, the ritual is so elaborate with sacrificing goat also. But the information on animal sacrifice is only hearsay.

Community owned SGs-

There were instances in which large patches of land supporting vegetation were handed over to certain communities in the past by then ruling Maharajas or rich Brahmin or Nair families (Tharawad) as a matter of compensation for service rendered. Most of these communities are Parayar, Mala Arayans and Pulayar. Here also the legal status of land remains private and the ownership rest with a community. They have certain understanding among them as to the selection of leaders for management. . The peculiarity in this case is that no idol is kept but presiding deity is designed as an imaginative deity and a platform is constructed showing the place of deity. In most such cases the rituals are conducted by the community members only. Out of the 16 coming under private category, six are managed by local community like SC group, Vellalas, etc. These SGs are located mostly in tribal settlements. Here the group of people manage everything by themselves including pooja and sometimes offering liquor .There are six such SGs such as i famous Sree Rama Guha temple kavu owned by Vellalars, ii, Chamapally Ammancoil kavu owned by Hill Pulayas, iii-Kannakshi Amma kavu of one acre owned by Vellala group, iv, Pattalamman kavu by local people v, Anchinad Vellalar owned kavu and vi, Kudukkalam petty in tribal settlement owned by tribal community.

Sree Rama Guha Temple kavu- This is the famous *Guha Temple* situated 16 km away from Marayur. The extent is 50 cents coming within a 7 acre property. This owned by Vellala (Chettiar) community. There is a cave within the SG where there are two foot prints considered to be that of Lord Sri Rama. People worship these foot

prints and carryout all rituals around this. The cave is kept closed and only on Tuesdays the cave is opened for performing pooja. Pooja is performed by a member among the owners who knows priest hood duties and not by Brahmins. More details appear in the Chapter on Myths and Legends.

II. Public Management.

In this case the ownership goes to a public body which governs the management according to generally approved legal formula. It can be registered as public committee or function as a public committee with oral understanding. In either of the cases many or all of the members are from the public having faith in Sacred Groves- There are 11 such cases.

Nature of management is more or less the same as those under Devaswam Board. The various rituals and festivals ae not that elaborate as in the case of Devaswams. But the daily pooja is performed and at least one festival will be organized in an year.

Ayyappankoil Sree Dharmashetra Kavu-

This is now under a Public Trust and situated at Thoppipala in Idukki Taluk. Originally this was in the reserve forest within a tribal settlement and was being managed by tribal community. Many devotees had extreme faith in the power of lord ,while their access to the grove was causing many impediments. Though further details are not forthcoming, this issue received attention of court, and it was ordered t shift the grove to a place called Thoppipala nearby and also to bring it under the control of a trust. It was in 1975 or so that Govt. ordered this shift . The extent of wooded area is only 5 cents, the Trust is managing it in a very profound manner. Pooja is performed thrice daily by a Brahmin priest. In every month during Ayilyam (star) special pooja is common. Presiding deity in the temple is Sree Sastha and in Kavu, Nagarja. Here the number of employees is five every day and their remuneration in a month runs to around Rs. 35,000, and pooja expenses around Rs. 50,000. per month. There are onlythree such groves in Idukki having this much money circulation ,the other two being Amarathu kavu in Thodpuzha and Guha temple kavu in Marayur region.

In brief the average socioeconomic status of these sacred groves can be taken approximately as below.

Employment per year-1500 man days.

Remuneration- do Rs.3.5 lakhs.

Total expenses- do Rs. 6 lakhs.

Total income- do - Rs. 7 lakhs.

Kovilkadavu Sree Thenkasinathan Kavu-

This again is an SG managed by a public Committee. This ten cent kavu is within a demarcated area of one acre. There are many stories connected to it which is given in the chapter on legends. Earlier this was under Thrikkariyur Devswam. Now it is managed by a local committee.

III. SGs under Devaswam Board.

There are five SGs attached to Temples under the management of Devaswam Board. Though more attention is given in the affairs of temple, equal importance is given to the rituals in the SG also, thereby providing sufficient security. Among them Valliamkavu Sree Bhagavathy temple, Sree Dharma Sastha temple Peruvanthanam ,and Paloor Uma Maheswary Temple are very popular.

Valliamkavu Mundakayam- This is situated 16 km south-east of Mundakkayam surrounded by Rubber and Tea estates. The whole premises covers more than two acres on a sloping terrain . But the wooded area behind the temple is only 25 cents. The main temple have in it two shrines (Sree Bhagavathy and Sree Bhuvaneswary) and enclosed with a wall around. Outside this enclosure there are two trees standing closely which are connected by a woody climber originating from the wooded area of the sacred grove. Under these trees the deity Sree Karimkuttian Moorthy was consecrated by Malayarayan community . More details about this will appear in the chapter on Myths and Legends.

In this temple there are so many offerings in vogue (oblations) such as *Ndakurisi* for warding off evils affecting family, *Kozhiparappikkal* (make cocks fly) in place of old custom of sacrificing cocks etc. The favourite oblation (*vazhipad*) in respect of Sree

Karimkuttian Moorthy is offering liquor-toddy or so. The priest hood is Brahmin in the main temple and in the case of Sree Moorthy it is the Malayarayan priest called (*velichappad*) to perform the pooja-(*Adharva pooja*).

Sree Dharmasastha Temple , Peruvanthanam.—This temple is situated in an 1.5 Acre plot. On the northwest portion is the sacred grove in which the deity is Nagaraja besides Nagayakshy. In the temple pooja is performed thrice daily. To that extent, pooja in the Kavu is done at least once a day with lighting in the evening. The temple was originally owned by Vanjipuzha Thampuran. The peculiarity here is that the lord Dharmasastha in the sitting pose is keeping a bowl with medicine in the right hand. The imagination is that this idol is Vana Sastha.

Paloorkavu---This is attached to Sree Uma Maheswari Temple under Devaswam Board. This is being managed in a very simple manner with daily pooja in the sacred grove also. The deity such as Nagaraja, Nagayakshi and Chutrakoodam are there. Only annual festival is organized and the cost is met by local devotees At present some renovation work is going on like improving compound wall at the cost of Devaswam Board.

B. Socio-economic Condition.

The socio-economic condition prevailing among the people around the sacred groves is very important as it influence the stability of these virgin patches of vegetation. The main stake holders are the custodians, the people employed and engaged in the management of SGs, the devotees and the shopkeepers etc. An attempt has been made to gather data on the rituals, the expenses in managing the affairs of SGs, the income and employment generated. Out of the 564 sacred groves the custodians fall under various categories as described above. Most of them are private owners which we call Kudumbam as well as community. The socio-economic condition depends on the activities, rather the rituals, which generate flow of funds for expenses and income. Custodians will have to spend money for payment of honorarium or salary to priests, supporting staff and other accompaniments. Income is received from devotees for various rituals they place oder as offering and fixed rate are decided by the custodians.

An attempt has been made to gather data on this aspect by contacting the stakeholders mainly the custodians or their representatives. As many as eight of them coming under different categories have been contacted. The data reveal that much variation is not there as regards those under Public Trust, Devaswam Board and Public Committee. But marked variation exists among the privately owned SGs both in the type, frequency and time of rituals and payment to employees. Taking these aspects into consideration the estimation of level of employment, expenditure and income has been made on a very conservative method which would project only the minimum

Minimum Annual Circulation

Category	Employment / yr	Expenses	Income	Remarks
Attached to Devaswam	365 mandays	45,000	80,000	Only 20 % of the total is set off to SG.
Public trust	365	1,00,000	3,00,000	
Private	24 mandays	24,000	2,00,000	
	TOTAL PICTURE			
Attached to devaswam-5	1825	2.25 lakhs	4.00 lakhs	
Trust-11 no.s	4015	11.00 lakhs	33.00 lakhs	
Private-16	384	3.84 lakhs	32.00 lakhs	
Grand total	6224	17.00	69	

CHAPTER X

MYTHS AND LEGENDS

A myth is a story, based on traditional knowledge passed on to generations, which people are inclined to believe depending on their attitude to the subject matter. Although some myths can be accounts of factual events, they have become transformed by symbolic meanings. Myths or stories about sacred groves would be fascinating or even frightening.

A legend is a semi true story, which has been passed on from person to person and has important meaning or symbolism for the culture in which it originates. A legend usually includes an element of truth, or is based on historical facts, but with mythical qualities. In Kottayam and Idukki districts many legends are attributed to Pandavas of The Great Epic Mahabharata.

Sree Rama Temple Perumala.(GUHA TEMPLE)

This area was considered to be the resting place of Pandavas during their period of exile. It is said that Sree Rama wished to meet Pandavas and bless them. Sree Lakshmana and Sree Hanuman came to this place Perumala through an underground tunnel originating from Rameswaram. The opening of the tunnel is seen even now within the sacred grove. It is believed that there are flight of steps but access is not very easy. It is opened only on Tuesdays when pooja is also conducted. Two foot prints seen in the cave are considered to be that of Sree Rama which devotees worship.

Thenkasinathan Kavu-

There are a large number of Muniyaras (Dolmen) believed to have been used by Pandavas. Being close to Tamilnadu this temple had Buddhist influence as evidenced by the existence of an idol of Sree Buddha. In the sanctum sanctorum there is a cave with four outlets. It is believed that these outlets lead to Madurai, Vadakasi, Thenkasi and western Kerala. But all these outlets are now blocked and in disuse.

During monsoon the Pambar river flowing nearby get flooded by inundating this temple complex completely. But when the water level subsides no damage was noted in respect of this complex.

As per historical records this temple was administered by Poonjar Royal Family- an ancient off-shoot of Pandya Dynasty. Poonjar Royal family had helped Travancore Royal Family. Fore this timely help, Travancore Raja permitted Poonjar Raja to administer Anjanad valley which included Marayur tract also. Later fearing the conquest by Hyder and Tippu, the Nampoodiri families settled there left the place. Gradually this management of the temple complex came into the hands of local Vellala community.

Valliamkavu Sree Bhagavathy.

The description about this temple has been already stated in Chapter VIII. The **moolastanam** (origin) of this temple was at Panchalimedu which can be now seen on the east of present temple. (picture below)-The legend says that Pandavas were staying on this hill and idols of Bhuvaneswari, Yakshi and sivalinga like idols were worshipped by Pandavas. This place was visited by a rouge elephant which disturbed the peaceful life of Panchali. She cursed the elephant and made it into a rock. After the departure of Pandavas the Malayaraya community living there worshipped the idol of Goddess Durga left over by Panchali in their own way by offering honey, fruits etc and sacrificed cock, goat and even human beings. After that the Goddess became a fierce Goddess Bhadrakali . Along with that the Malayarayans shifted to the down hill (the present one) which offered congenial surrounding for their living. Followed by that the Goddess also came down to the same hill by swinging along a woody climber connecting Panchali medu and the present hill below. The remnant of the woody climber is believed to be what is seen today. (See picture)- It is identified as Adambu vally- (*Spathalobus pupureus*).

This woody climber is seen winding around two big trees (Mango tree) and below this we find the idol of Sree Karimkutty Moorthy is consecrated and placed by the Malayarayans and it is believed that this Moorthy was the main Guard of security for the Goddess. They ventured to conduct pooja by themselves to Moorthy in their own way including offering of liquor.

For a long time this temple was under Vannipuzha Thampuran of Chengannur. But when the Thampuran transferred all temples under him to Devaswam Board, this temple was excluded due to opposition from local public, particularly the Malayarayans. Subsequently the matter reached the consideration of Hon. High Court of Kerala which directed the temple and other properties to vest with Travancore Devaswam Board. Accordingly the Board took over the temple etc. on 8th November 1993.Later a **Devaprasna** was held which revealed displeasure of Gddess Durga and prescribed Sree Durga and Sree Bhadrakali and also Satvic Pooja for Goddess Durga

and Sakteya pooja for Goddess Bhadrakali avoiding human/animal sacrifices. It was also revealed that the idol Sree Karinkuttian to be installed outside the compound wall of the twin shrines and the right of performing pooja to be vested with the Velichapatt belonging to Malayarayans community . For this pooja offering liquor is also permitted. These prescriptions of Deva-prasna were meticulously adopted and punah – prathshtha was performed on 8th July 2001 by Brahmashree Kantaru Maheswararu of Thazhamon Illam Chengannur.

(Source-Courtesy-Volume of Books on Temples Idukki by Sri S. Jayasankar, Dy. Director(Retd) Census Dept.)

CHAPTER XI

THREATS & RECOMMENDATIONS

There are various factors that pose a threat to the survival of the SGs in general. They fall under the following categories.

1. Intention to reduce the extent for self motives.
2. Encroachment by outsiders.
3. Legal disputes on ownership.
4. Dumping solid waste in the SGs.
5. Damage by invasive species.

It is a unique fact to find that the above instances are not seen anywhere . This can be attributed to lesser number of SGs, ardent faith in religious belief and extensive land area spreading over the tract.

Recommendations

1. Separate project for Central Assistance to Sacred Groves.

Financial grant for maintenance of sacred groves received from Government of India is being distributed to the custodians of sacred groves. The present allotment is naturally very low when compared to the actual number of SGs in Kerala. According to the recorded information with Government (refer. website on sacred groves) the total number is 1500.By now with the results coming out of IFK's study ,it is evident that the number is much more. More over forest department had no authentic data on the total extent of vegetation under SGs in the state except those recorded in these eight districts by IFK.. It is high time that KFD has to come out with detailed proposals for central grant to the custodians who have been protecting these natural patches rendering valuable and intangible contribution to bio-diversity.

2. Awareness Campaign.

Social Forestry wing or Bio-diversity wing of KFD should consider planning awareness programmes in conservation of sacred groves for the benefit of the public & Custodians of sacred groves particularly regarding hygiene of the grove

and premises. Present status and importance of sacred groves should be one in the agenda for extension activities targeted on students.

3. Production of quality seedlings of plants.

Social forestry wing may also consider producing quality seedlings of species which are essential trees and other plants as would be emerged from this report in respect of districts concerned.

4. Dealing with invasive species.

This is posing a major threat to the existence of sacred groves. Removal and preventing further growth of invasive species is very essential. But the methods to bring about this task without affecting the general structure and ritual concepts have to be designed by a team of forest officials and scientists conversant with this issue may be ideal. Of course this is not an issue for Idukki District

6. Ensure fair distribution of grant-

When grants are distributed to SGs, it has to ensure that the process is made as fair as possible by verification by a superior. Details if any required can be gathered from IFK in districts where field study has been completed. Poorly maintained SGs if any may be considered only if improvement is ensured. SGs earning high income does not need financial grant and only delivery of suitable planting stock.

7. Publicity for data collected.

In order to bring the ID numbers of the sacred groves to the notice of all custodians concerned, department may take action for publicity in the press and social media.

8. Research studies.

The following studies by a research wing may be considered.

- i. Natural regeneration of various plants in SGs.
- ii. Role of fauna like termites, bats, and many frequenting birds.
- iii. Identifying keystone species.
- iv. Detailed study on soils in Sacred Groves with reference to the plants regenerating.

9 Sharing Data.

The knowledge gained in carrying out studies on sacred groves may have to be shared with other related organizations within and outside the forest department including Biodiversity Board, Department of Science and technology and other stake holders since such information is required for the benefit of the people as a whole.

11. Recognition on contribution for Carbon Sequestration.

. Above all it is necessary to recognize the service of the custodians in the appropriate manner and give them enough encouragement for the valuable amount of carbon sequestration being contributed by them.

12. Intervention by Government.

The sacred groves are being well protected and conserved in general by the custodians without any legal enforcement from time immemorial. Therefore any intervention in the affairs of these sites by Forest Department or Government need to be planned and designed with caution not to disturb the freedom of custodians as it is a sensitive issue.

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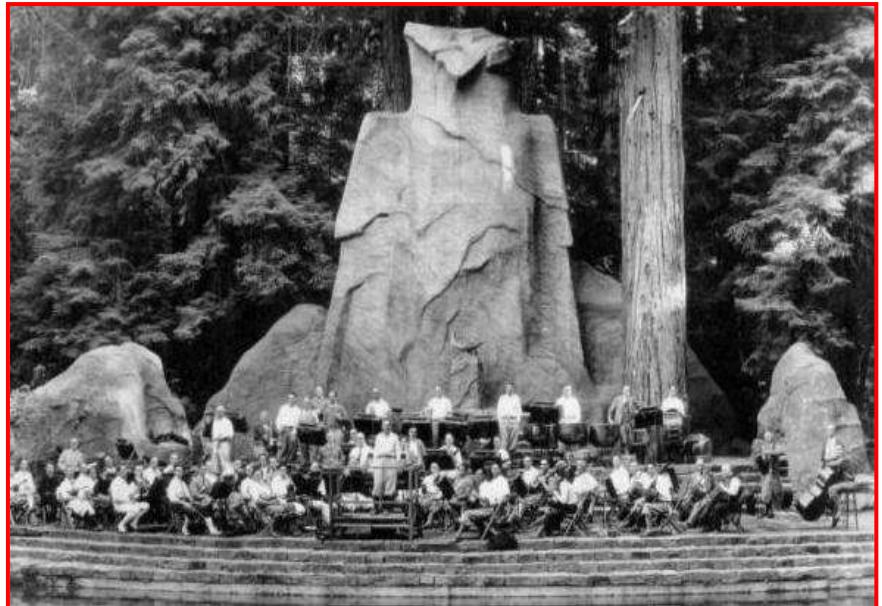
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Plate I



*1.Sacred Grove Island
Estonia. Baltic states-
Europe*

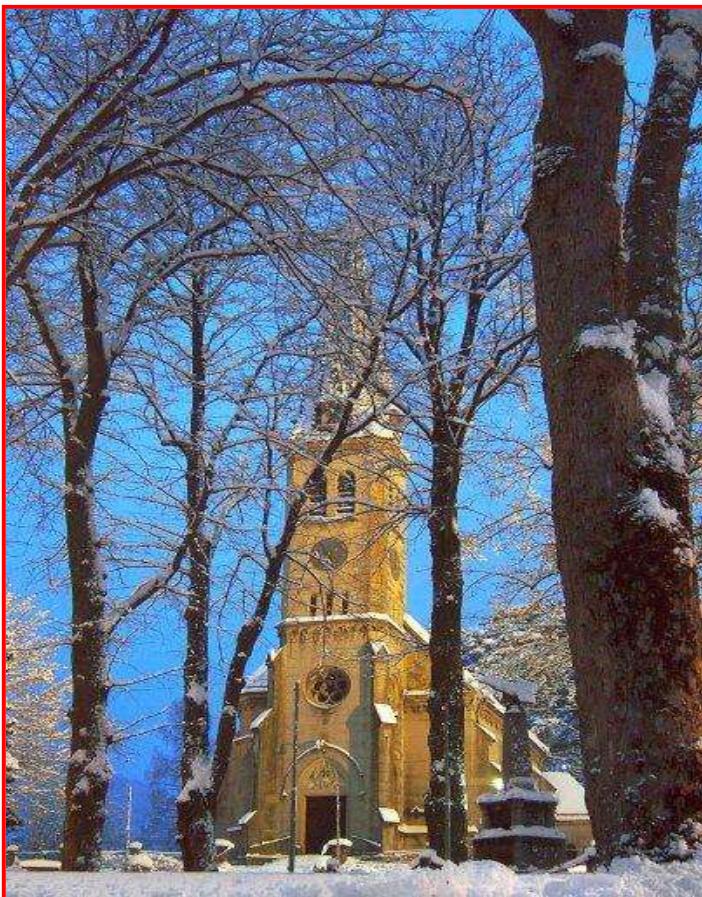


*2.Bohemian Grove-a
Sacred Grove in
California..*



*3.Osun-Osogbo Sacred
Grove-Nigeria-
UNESCO-World
Heritage Site 2005*

Plate II



*4.Grove in front of the church in weissenbach
an der Triesting.*

*5.Sacred grove in
Caucasus mountains
(Russia) .*





Panchalimedu



Paloor kavu



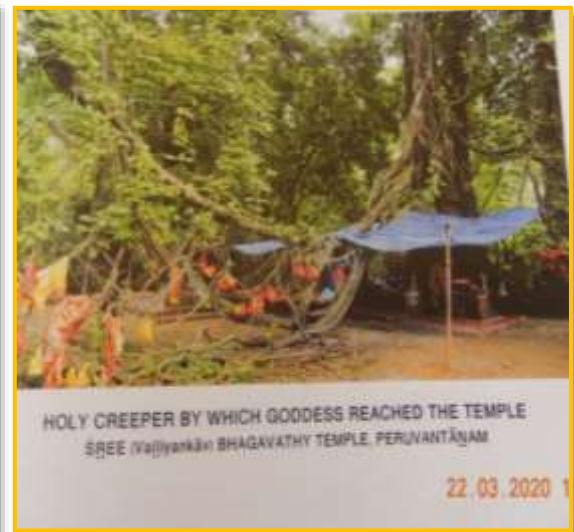
Vazhaveli Sree Durga



Dharma Sastha Kavu



Guha Temple- Marayur



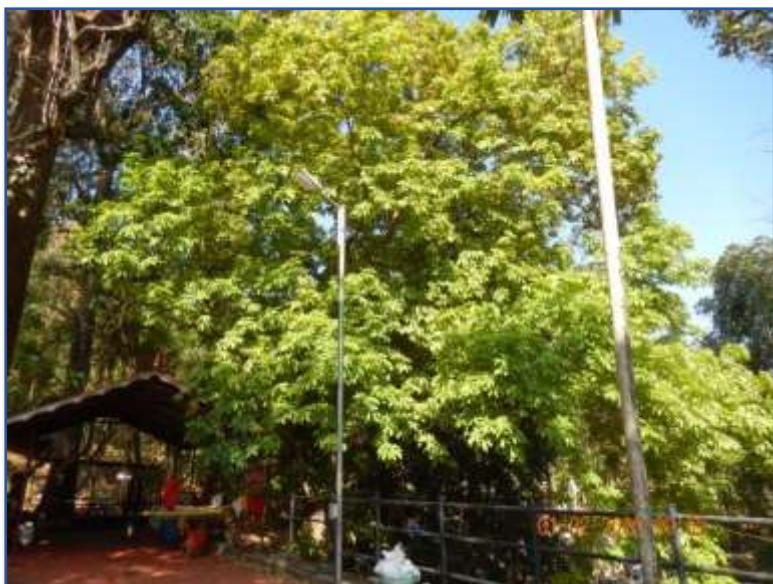
Connected to famous Panchalimedu.



Amarathu kavu-largest one.



Valliam kavu



1-Schleichera oleosa-

Poovam

Valliamkavu



2-Diospyros condolleana

Karimaram

Valliamkavu



3-Diospyros perigrina

Panachi

Vazhuvelikavu



4-Sterculia guttata

Aanathondi

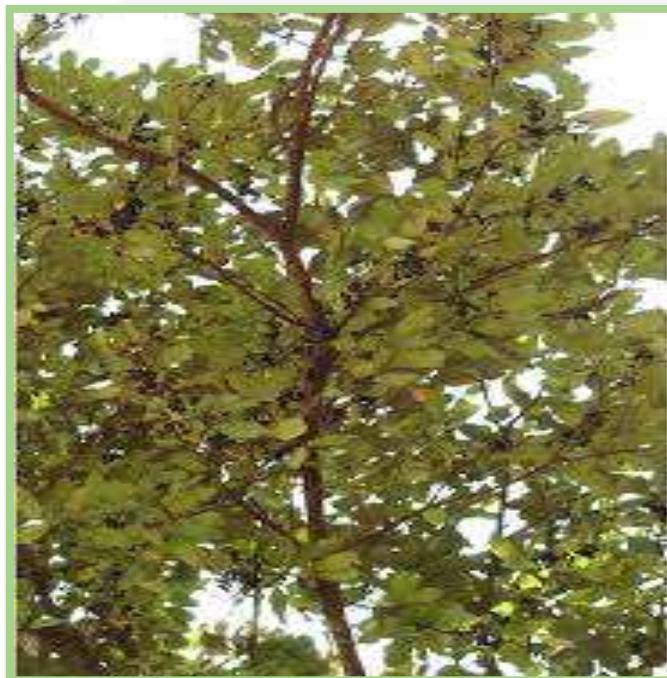
Paloorkavu



5- Bombax ceiba

See the spread of stem.

Amarathukavu



6-Chionanthus mala-elenji

Niravathkavu



7-*Strombosia ceylanica*-& flowers.

Kalmaicom-Amaramkavu



8.*Xanthophyllum arnotiana*-Madukka



9-Knema attenuata



10-Ripe fruit of Knema



11-Antidesma montanum.



1-*Sarcostigma kleinii*.

Oadal

Pallor kau



2-*Ipomoea paniculata*

Palmuthak.

Amarathukavu

-see the size of climber due to age.!



3.*Spatholobus
purpura* in flowers.

Athambuvalli.

Valliamkavu



Dendrobium macrostachyum

Orchid

Sauvagesia sandwicensis

Shrub



Biophytum rainwardtii.



Marayur turtles

IDUKKI DISTRICT

THODUPUZHA TALUK								
Kavu No. IDK/ Tdpa	Name of Kavu & Type of Ownership	Name of Owner/Custodian & Contact number	Location & Panchayath	Sy.No.	Extent (Cents)	Diety/Pooja Details	GPS Reading	Remarks Compound Wall/Fence/ Pond
	1. THODUPUZHA VILLAGE							
IDK/ Tdpa 1	Amaramkavu Devikshetramvka (Public Trust)	Bhaskaran Nair President Mob:9645433265	Pala Thodupuzha		100.00	Devi, Vanadurga, Nagarajavu, Nagayakshi Brahmin Pooja	09° 53. 424' 76° 41. 464'	Pond
2.	Madamanathuruthelmadhom Kavu (Family Trust)	Murali Potti President Mob:9446103947	Thodupuzha Thodupuzha		20.00	Nagarajavu, Nagayakshi, Chitrakoodam Brahmin Pooja	09° 52. 669' 76° 43 .120'	
	2. KARIKODU VILLAGE							
3.	Karikodu Devikshetramvaka Kavu (Devaswam Board)	Rajesh President Mob:9947237127	Pala Thodupuzha		20.00	Nagarajavu, Nagayakshi, Chitrakoodam Brahmin Pooja	09° 53.908' 76° 43.699'	CW
	3. ALAKODU VILLAGE							
4.	Panamattam Sree Durgadevikshetram (Family Trust)	Ammukutti President Mob:8281812578	Pala Alakodu		5.00	Vanadurga, Nagarajavu Brahmin Pooja	09° 53. 228' 76° 45. 924'	
	4. KODIKULAM VILLAGE							
5.	Chandrapallil Devikshetramvakakavu (Public Trust)	V.Sivaraman Nair President Mob:	Thodupuzha Kodikulam		5.00	Devi, Nagarajavu, Nagayakshi, Chitrakoodam Brahmin Pooja	09° 57. 833' 76° 44. 765'	
	5. KUDAYATOOR VILLAGE							
6.	Morkodu Gandharvankavil Nagarajakshetram (Family Trust)	Selukumar President Mob:8281570365	Pala Kudayatoor		10.00	Nagarajavu, Nagayakshi, Chitrakoodam ABrahmin Pooja	09° 48. 571' 76° 47 .861'	
	6. KARIMANNOOR VILLAGE							
7.	Thodupuzhakunnam Elampilakadu Devikshetramvaka Kavu (Public Trust)	Chandranpilla President.Sukumaran Mob:9447918189	Thodupuzha Karimanoor		10.00	Durga, Bhagavathi, Nagarajavu, Nagayakshi, Chitrakoodam Abrahmin Pooja	09° 55 .702' 76° 46 .111'	

Idukki District

7. UDUMBANOOR VILLAGE							
IDK/ Tdpa 8.	Peringasseri Nagarajakshetram (Family Trust)	P.A.Kesavan President Mob:9656449216	Thodupuzha Udumbanoor	5.00	Nagarajavu, Chitrakoodam Abraham Pooja	Nagayakshi, 76° 51 .096'	09° 51 .916'
9.	Kottayil Bhadradevikshetramvaka Kavu (Family Trust)	Thulasidharan President Mob:9744169342	Thodupuzha Udumbanoor	8.00	Nagarajavu, Chitrakoodam Braman Pooja	Nagayakshi, 76° 49 .017'	09° 54 .783'
10.	Trikalil Sreemahavishnukshetramvaka Kavu (Family Trust)	Mohanan President Mob:9447408154	Thodupuzha Udumbanoor	10.00	Mahavishnu, Nagayakshi, Chitrakoodam Brahmin Pooja	Nagarajavu, 76° 48 .677'	09° 54 .364'

PEERMADE TALUK

1. PERUVANTHANAM VILLAGE							
IDK/ Prmd 11	Umamaheswarakshetram (Devaswam Board)	P.V.Gopalakrishnan President Mob:9946290351	Peruvanthanam Peruvanthanam	10.00	Umamaheswaran, Nagarajavu, Nagayakshi, Chitrakoodam Brahmin Pooja	09° 33 .045' 76° 55 .485'	CW
12	Valliyankavu Devikshetram (Devaswam Board)	Arun President Mob:9895217121	Mundakayam Peruvanthanam	25.00	Nagarajavu, Nagayakshi Brahmin Pooja	09° 31 .542' 76° 57 .343'	
13	Manikkal Kavu (Private Trust)	K.N.Ramasadas President Mob: 9895102328	Mundakayam Peruvanthanam	3.00	Nagarajavu Abramana Pooja	09° 31 .542' 76° 55. 018'	
14	Niravathu Kudumabkavu (Family Trust)	Vijayakumar President Mob: 9744663611	Peruvanthanam Peruvanthanam	5.00	Nagarajavu, Chitrakoodam Brahmin Pooja	Nagayakshi, 09° 33 .005' 76° 55 .516'	
15	Sree Dharamasastakshetram Peruvanthanam vaka Kavu (Devaswam Board)	Mohanan Mob: 9496162087	Peruvanthanam Peruvanthanam	30.00	Sasthavu, Nagayakshi, Chitrakoodam Brahmin Pooja	Nagarajavu, 09° 32 .889' 76° 55 .470'	CW
16	Vazhavelil Sree Durgadevikshetramvaka Kavu (Public Trust)	Mohanan Nair President Mob:9961406224	Peruvanthanam Peruvanthanam	30.00	Durgabaghavathi, Nagarajavu, Nagayakshi, Chitrakoodam Brahmin Pooja	09° 32 .937' 76° 55 .476'	Pond(Natural)

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	2. MANJAMALA VILLAGE						
IDK/ Prmd 17	Vandiperiyar Sree Dharmasasthakshetramvaka Kavu (Family Trust)	Pratheesh President Mob:9744662531	Elappara Vandiperiyar		25.00	Sasthavu, Sivan, Nagarajavu, Nagayakshi, Chitrakoodam Brahmin Pooja	09° 34. 927' 77°05 .170'
	3. VANDIPERIYAR VILLAGE		.				
18	Sarppakavu (Family Trust)	Prahladan President Mob:7559097174	Vandiperiyar Vandiperiyar		3.00	Nagam Abramam Pooja	09° 34 .231' 77°06 .603'
	4. PEERUMEDU VILLAGE						
19	Muniswaran Kovil (Public Trust)	Paramasivan President Mob:8547681242	Peerumedu Peerumedu		3.00	Muneeswaran Abramana Pooja	09° 36 .392' 77°00 .561'
20	Peerumedu Sreekrishnaswamikshetramvaka Kavu (Devaswam Board)	Srijith President Mob:9746487751	Kuttikanam Peerumedu		3.00	Sreekrishnan, Kavil Nagarajavu, Nagayakshi Bramana Pooja	09° 34 .236' 76°59 .857'
IDUKKI TALUK							
	1. KANCHIYAR VILLAGE						
IDK/ Idki 21	Ayyappankovil Sree Dharamasasthakshetramvaka Kavu (Public Trust)	Vijayakumar President Mob:9447220214	Kanjiar Kanjiyar		5.00	Sasthavu, Nagarajavu, Nagayakshi, Chithakoodam Brahmin Pooja	09° 44 .117' 77°03 .060'
DEVIKULAM TALUK							
	1. KANTHALLUR VILLAGE						
IDK/ Dvkm 22	Kovil Kadavu Thenkasinadhan Kshetramvaka Kavu (Public Trust)	Vijayan P.A Mob: 9446934001	Kovil kadav Kanthaloor		10.00	Sivan, Sasthavu, Ganapathi Brahmin Pooja	10° 15. 182' 77°10 .061'
23	Kovilkadavu Mariyamman kovilvaka Kavu (Public Trust)	Pandimani (President) Mob: 9447007644	Kovilkadavu Kanthaloor		20.00	Sree Mariyamman, Sree Kaliyamman, Kuruppuswami, Nagarajavu	10° 15 .059' 77°10 .305'
24	Udayaperumalvaka Kavu (Family Trust)	Govindaswami Mob: 9447877842	Perumala Kanthaloor		100.00	Indan Pattari, Bhagavathi, Mulathali, Nagam Abramina Pooja	10° 12 .270' 77°11 .446'

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IDK/ Dvkm 25	Chitragupthan Kovil Vaka Kavu (Public Trust)	Krishnan K.G Mob:9447877842	Perumala Kanthaloor		5.00	Chitraguptha Sankalpam-Kallu Brahmin Pooja	10° 51 .093' 77° 11 .362'	
26	Sree Rama Guha kshetram Perumalavaka Kavu (Family Trust)	Krishnan K.G Mob:9447877842	Perumala Kanthaloor		50.00	Sreeramapadam ABrahmin Pooja	10° 12 .250' 77° 11 .388'	
27	Kookattunachi (Family Trust)	Suresh President Mob: 8547776620	Keezhanthur Kanthaloor		10.00	Kookattunachi-Maladaivam ABrahmin Pooja	10° 13 .668' 77° 11 .199'	
28	Chappalli Ammankovil (Public Trust)	Jagadeesh President Mob:9496431984	Kammittankuzhi Marayoor		50.00	Chappalli Amman Abrahmin Pooja	10° 16 .913' 77° 10 .393'	
2. KEEZHANTHUR VILLAGE								
29	Kannasiyamma Nagamma vaka Kavu (Family Trust)	Arumugam (President) Mob: 8547028033	Nachiyaval Kanthaloor		100.00	Nagayakshi Amma, Kannakshi Amma Abramana Pooja	10° 14 .167' 77° 10 .997'	
30	Vanadurga (Public Trust)	M.K.Prahladan President Mob: 9446173590	Keezhanthur Kanthaloor		3.00	Vanadurga, Pattalamman Abrahmina Pooja	10° 14 .078' 77° 12 .045'	
31	Anjinadu Vellalarvaka Kavu (Private Trust)	M.K.Prahladan President Mob: 9446173590	Keezhanthur Kanthaloor		10.00	Nagam, Malar-Sankalpam Abramana Pooja	10° 13 .817' 77° 11 .158'	
3. MARAYOOR VILLAGE								
32	Kudakalampetti Karupannan vaka kavu (Family Trust)	Ganapathi (President) Mob: 9495911227	Marayoor Marayoor		50.00	Nagam-Sankalpam ABrahmin Pooja	10° 16 .126' 77° 10 .551'	

