



INSTITUTION OF FORESTERS KERALA

COMPREHENSIVE STUDY ON SACRED GROVES IN KERALA

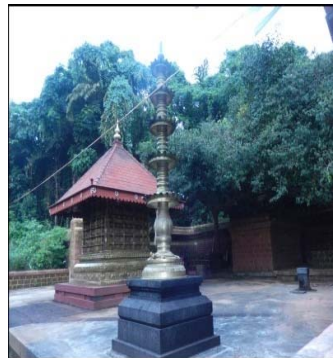
Report No: 6



Kannur District



Submitted to
CHAIRMAN
Kerala Forest Development Fund
Kerala Forest and Wildlife Department



2018

PREFACE

Institution of Foresters Kerala (IFK) is a society registered in the year 1987 under the Travancore Literary, Science 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 the 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. Subsequently districts such as Kollam, Alappuzha, Thrissur and Kozhikode were allotted. The study was completed and all the reports in respect of these five districts have been submitted. This is the sixth report now being submitted. The KFDF Research Committee which met on 20th Oct., 2015 allotted Kannur District for the study and the MOU was executed in Jan 2016 (vide-No. A 10(A) 18400/2012 dt-29-01-16). On completing the field work the number of sacred groves was found to be 1096 against the earlier expected number -around 100.

IFK record its immense gratitude to Kerala Forest Department in entrusting this glorious task with it. We also thank Shri. S.C.Joshi IFS (PCCF-D&PM) and Sri. L.K.Vashney IFS, Addl.PCCF and Chairman KFDF for their guidance in the beginning. Our thanks are due to Sri. P.K.Pathak IFS (Addl.PCCF), Sri. K.J.Varghese IFS (PCCF) and Sri. Rajan Sehgal IFS (APCCF) who subsequently took over the realm of affairs till the completion of this work. Our thanks are due to the 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, particularly Shri. Santhosh K John IFS (DCF Development) and his assisting team 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

We have taken all possible efforts to collect data exhaustively and prepare this report. Still if any one points out mistake of facts,we will examine and correct if found essential. We welcome comments and it will be our pleasure to clarify any of the details included in this report to all those concerned.

28-5-2018

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. The nature of work contributed by them is acknowledged as below:-

Field Enumeration & Data Collection	Sri. T.V Rajan ,Section Forest Officer (Rtd) Sri. P.Vijayan , Section Forest Officer(Rtd)
Field supervision & Field coordination	Sri. A.Sathyanadhan ACF (Retd)
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Verification of data entry & Compilation	Sri. M.S.Nair , Sri. PatricGomez , & Sri. S.Janardhanan ,
REPORT PREPARATION	
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Review of Literature	Sri. M.S.Nair& Sri. C.K.Karunakaran
Result of Study-Chapter III	Sri. PatricGomez
Listing and Frequency distribution of plants	Dr. N.Sasidharan
Socio-Cultural aspects	Sri. Patric Gomez
All other Chapters	Sri. M.S.Nair
Photographs contributed	Sri. M.S.Nair Dr. N.Sasidharan
Editing & Finalization of the Report	Sri. M.S. Nair (Principal Investigator of the project) Sri. Patric Gomez (Chief Coordinator of the project) Dr. N.Sasidharan Sri. S. Janardanan

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.

28/5/2018

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 6. : **Kannur District**

General

Sanctioning Authority : Addl.Principal Chief Conservator
(Finance,Budget& -Audit)
Chairman, KFDF Research Committee.

Implementing Agency : Institution of Foresters Kerala

Principal Investigator : M. S. NAIR

Date of Agreement : January .2016

Area of Study : All four taluks of Kannur District.

Geographical extent of the District : 2966 sq.km

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 based on GPS & providing SGs with Id numbers.

Methodology

Described data collection and documentation in the main report.

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.

KANNUR DISTRICT -NUMBER AND AREA OF SACRED GROVES.

Sl. No.	Name of Taluk	No. of Sacred Groves	Extent (Ha.)
1	Kannur	321	43.9
2	Thalassery	215	29.33
3	Thaliparamb	457	162
4	Iritty	103	28.59
	Total	1096	263.82 Ha.

Management

Three main categories identified-

- i. Malabar DevaswamBoard.-87
- ii. Public trust& Local Committees. -158
- iii. Private- -Kudumbakavu&KudumbaTrust,- 851

Id Numbers to Sacred Groves.

Id numbers have been provided taluk wise-

Kannur	KNR/Knur	1 to 321
Thalassery	KNR/Tlssy	1 to 215
Thaliparamba	KNR/Tlpr	1 to 457
Iritty	KNR/Irty	1 to 103

All the SGs have been given serial numbers coming in each taluk.

A Statement giving all other information including management category has been attached in the report talukwise.

Mapping-Separate map for each taluk has been prepared giving the location and Id numbers of SGs village wise based on GPS readings taken at each SG.

CHAPTER IV : COMPOSITION OF VEGETATION.

- i. Rare Species seen in the SGs have been listed out-noting conservation status
Trees-15, Shrubs-9 , Climbers-10.Herbs-3 ,Orchid-1
- ii. Frequency distribution of species brought out.
- iii. Plant association discussed.

Detailed Study of Selected Sacred Groves.

In all 25 SGs falling in the three regions low land-middle land and high land- have been inspected for detailed identification of plants and list prepared by an expert on Botany and Taxonomy .That is 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 porcupine, Lizard, bats, termites,peafowl etc.as could be collected with their habitats.

*Moisture conservation-*Extent of wet land contributed by numerous ponds within SGs.

CHAPTER VI : SOCIAL DIMENSIONS OF SACRED GROVES

Sacred Groves falling in different regions totaling 55 numbers were selected and the social conditions in relation to the Sacred Groves have been studied. Mainly four stake holders have been identified such as, i-Local people, ii. Custodians, iii, Priest hood, iv. Shop keepers and vendors. Representatives belonging to all the above categories have been contacted with suitable questionnaire and analyzed their views.

Study revealed that the network of social system centered around sacred groves built on faith on God, customs, harmony and flow of income is comparatively high as seen in

other districts... For the purpose of assessing Socio-economic condition SGs have been categorized into-

- Under Devaswam Board,
- Public Trusts & Local Committee,
- Private SGs,--Large
- Private SGs -small

The Economic Status for a whole year in the District.

Employment	-	Rs.3.4 lakhs Man days.
Remuneration	-	Rs. 17.38crore
Total amount generated under various sources	-	Rs. 67crore.

CHAPTER VII : SOCIO-CULTURAL ASPECTS OF SACRED GROVES

Though the number of folk art forms are very limited compared to other districts the volume is more on account of the huge number of Teyyams. Various practices based on belief are described in the following headings:-

- Concept of sacred groves,
- Gender of deity,
- Worship pattern,
- Folk arts like Theyyam, Vellattam etc.

CHAPTER VIII : MYTHS & LEGENDS.

Prepared based on information narrated by custodians and related people and also by studying related publications and reports.

Nine such cases are described.

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 and pictures.

Main recommendations

- i. Awarenessprogrammes 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. Appropriate recognition to custodians for contribution in carbon sequestration,
- v. Topics for Research.

Pictures on various sites, activities and plants- plates.

PART II

Maps of SGs with Id numbers taluk wise.

Detailed statements on SGs talukwise.

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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. As a result of such restrictions , several endemic and endangered plant and animal species have survived in the sacred groves since so many years.

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. Subsequently in India the Biological Diversity Act 2002 was enacted. 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 among other things 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.

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 grant to various selected sacred groves under this scheme. For implementing such a scheme a database covering inventory with all relevant details 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 incomplete.

This study is aimed at building a data base on the existence of sacred groves in Kerala, starting with Thiruvananthapuram district. By now another four districts (Kollam, Alappuzha, Thrissur and Kozhikode) also have been covered. Besides taking an inventory on the number of SGS available, information on the extent of vegetation, ownership, legal status, geographical location and such other important information are recorded 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. The absence of such information in the earlier available data base qualifies this study a unique venture.

This report is presented in two parts. Part 1 contains inventory details and vegetation study along with photographs of important sacred groves and plants. Inventory comprises various statements. The number in the statement given taluk wise can be taken as ID number of each SG. These numbers are shown in the respective taluk maps showing the location of the SG. The filled up formats giving all the details of each SG are included in the annexures such as details recorded. The words “Kavu” and “SG” are used often as synonyms of sacred grove.

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

- A comprehensive inventory of sacred groves in Alappuzha District with location and route..
- A complete documentation of Geographical scenario including mapping
- Identification of plant species in detail 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

METHODOLOGY

Area of Study

The project proposal envisages to take up the study in all the 14 districts of Kerala. This report covers Kannur district. This is almost on the north of Kerala, situated between North latitudes $11^{\circ} 52' 08''$ and $11^{\circ} 86' 89''$ and East longitude $75^{\circ} 21' 20''$ and $75^{\circ} 35' 55''$. The district stretches along the shore of Arabian sea and towards east up to the western Ghats. for a total area of 2966sqkm. The district is bounded by Kozhikode & Wayanad districts on the south, Karnataka state on the east and Kasaragod district on the north. . There are four taluks viz. Kannur, Thalassery, Iritty and Thaliparamba.

Objectives:

1. Arrive at an exhaustive list of manageable size of the sacred groves.
2. Conduct a detailed study of the vegetation and fauna including the prospects for conservation
3. Conduct a detailed study on the legal status of these groves, dependency of local people on such sites and their economic value.
4. Document present religious practices festivals, folklore and folk art related to these sacred groves.
5. Evaluate the impact of various projects implemented at the instance of Forest Department and other organizations in some of the sacred groves.
6. Evolve suggestions for future conservation and management of these sacred groves including expansion.

In addition to the above, mapping also has been carried out.

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 with Social Forestry Division contained only around 219 numbers. Though offices of local bodies are supposed to have some data on this, it was found impracticable to pursue that source. Hence publicity was given in daily News Papers in the district twice calling for the information before and after starting the work to be received before. The response was from only about 200 custodians.. It is after the field work was organized that some more applications have been received. But major part of the

number we could come across during the continuance of the field work by word of mouth which necessitated more than two to three visits to the same locality by the field team.

But by the time the field work was about to be completed IFK made a final call through the dailies against which more than fifty new applications were received. 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 1096 against the estimated number which was around 100

Constitution of Field Team

There were only two teams constituted for field data collection. All these teams were headed by one Rtd Section Forest Officer and a local person to assist. They were provided with necessary format for recording details, map of the taluks and G.P.S equipment for recording latitudes and longitudes.

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 and similar geographical details. Further, details on inspection would carry the vegetation, fauna, 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.

Supervision of data collection and expenditure

A subcommittee was constituted by the IFK Executive Committee to take appropriate decisions on expenditure and checking the data collected according to the format. Two or more of them often visit the sacred groves listed to satisfy the quality of working and render necessary suggestions required.

Extent of sacred grove

The extent of sacred grove 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 recorded on ocular estimation 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, and Under Local Committee (iii) Private (includes family trust or kudumba ownership). More details about these will appear in the chapter on Sociological Dimensions.

Documentation of Flora and Fauna.

Generally the field team is conversant with the identification of the species and common shrubs. But they have also taken the help of persons conversant with the identification of uncommon shrubs and herbs including medicinal plants. In addition services of an expert in Botany and Taxonomy also has been utilized to arrive at the wealth of flora in selected sacred groves.

CHAPTER II

REVIEW OF LITERATURE

There are plenty of literature authored by various scholars such as Gaikward, Oliver Kind, Dr. RaviprasadRao, MuhamedJafer 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 accessible through internet surfing. .

The sacred Groves came into existence thousands of years ago and in general they are dedicated by local communities to their ancestral spirits or deities. 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 a patches of vegetation or group of trees protected by the local people through religious and cultural practices evolved to minimize destruction. Sacred groves, 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 any form of life. Sacred groves are community based monuments of biological diversity.

Global Scenario

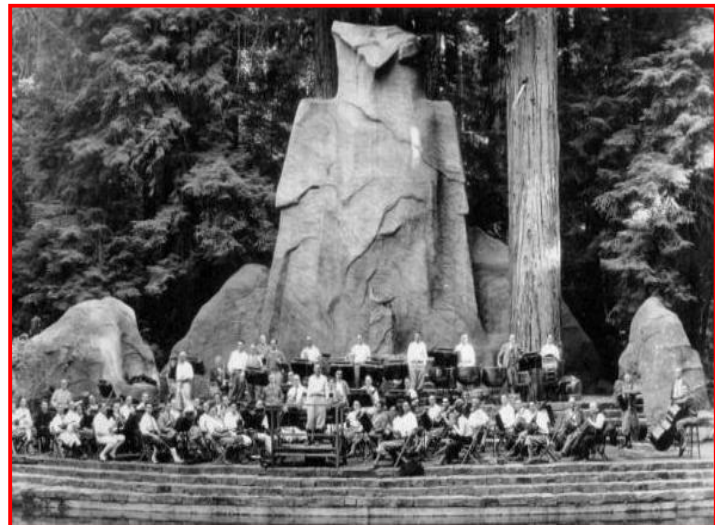
Sacred Groves (SG) are distributed across the globe and diverse cultures recognise them in different ways encoding various rules for their protection .Sacred groves associated with religious beliefs were there in many countries from time immemorial. Sacred groves have been reported from many countries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

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

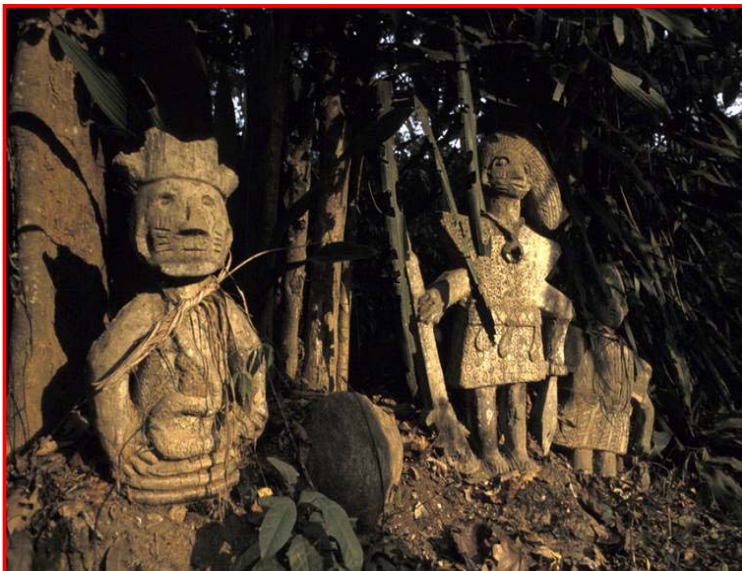
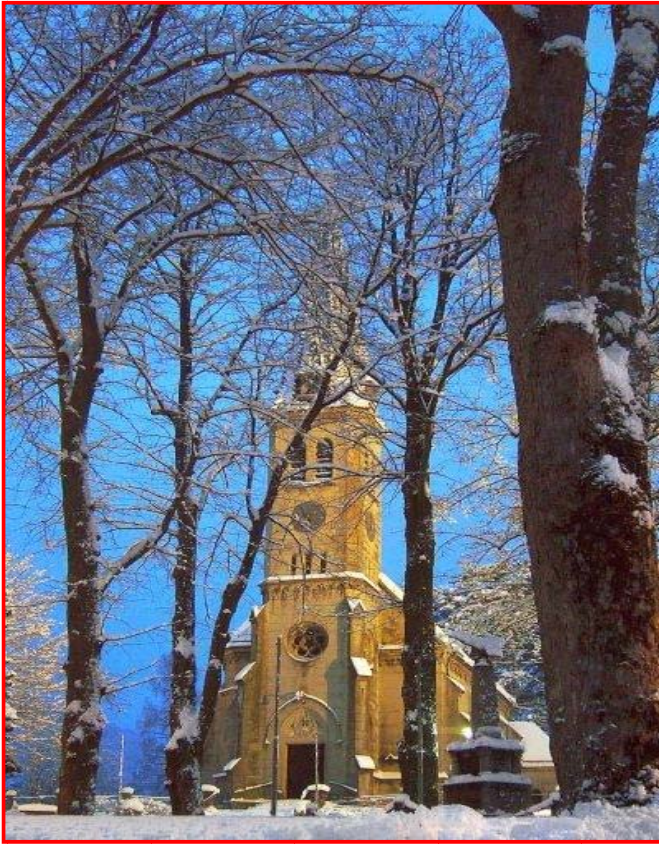


Plate II



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

5. Sacred grove in Caucasus mountains



In Europe sacred groves survived in the Baltic states longer than in other parts. The sacred grove island Estonia is the one.

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.

In Africa, among the Kikuyu, groves of *Migumu* tree are sacred and those trees were not to be cut. In these sacred groves, sheep and goats were sacrificed and prayers offered for 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 **UNESO World Heritage Site** in 2005.

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**. 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. 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**.(picture *PLATE II*)

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 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.

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.

In Arabia palm forest with altar has been reported. In Thailand Buddhist Monasteries and temples have sacred groves.

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 bengalensis* 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 WeissenbachTreisting 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 -

In our great epic Mahabharata divine forests and “Upavana” have been mentioned.-

Of course in India the major religion that holds and protects sacred groves is Hindism, 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 Gorakhpur is maintained by a Muslim saint “Mian 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 (Ragnathgunj 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 (Muslim saint) called HazratBalakShahidRehmatullahElachi, 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.

In Tripura , prior to the tribe’s mass conversion to Christianity in the twentieth century the Darlong Community had worshipped Nature. They believed in the existence of an over-soul called “PATHIAN” which inhabit in rivers, forest, certain trees etc.It is reported that they had many rituals connected with these which were associated with supernatural influences.

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. Warriar, 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 study 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. (Mohan 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 Alappuzha District the estimation is 33- by Dr. Induchoodan and 16-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 consistency 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. During 2005-08 a study was undertaken on the status and floristic diversity of sacred groves in Alappuzha district by Institute of Forest Genetics and Tree Breeding Coimbatore with Dr.Kannan C.S. Warriar as Principal Investigator. In this study report 1128 SGs have been recorded as identified the extent of which varied from one cent upwards. Further the study made by IFK listed almost double.

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 dicotyledons belonging to 95 families and 126 monocotyledons belonging to 20 families (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 Gnetumula) recorded from the sacred groves 154 are endemic to western Ghats and 33% of them are trees (Induchoodam 1998)- { Chandrasekhara u.m.2004} .

Ecological functions

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, Slender Loris, several amphibians, reptiles, apes 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 water snake. (Kannan C.S. Warriar, 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)

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)

Ecology of birds has been described by P Padmanabhan (2009 KFRI Research Report 406) which states that sacred groves serve as a roost sites .The holes, cracks ,and rotting woodpecker holes in the trunks of trees serve as ideal roosts for about 50 different animal species.

CHAPTER III

RESULTS OF STUDY

General

The study revealed that there are 1096 sacred groves covering an extent of around 264 ha of vegetative cover. Most of them are having 0.3 to 0.8 canopy density. Among these 74 numbers have more than one acre in extent. The largest one is Deviar kavu in Thaliparamba Taluk near Payyannur having not less than 72 Acs of wooded area. Thaliparamba taluk has the maximum number of SGs 457, and Iritty, the minimum-103. Large ones are mostly in Thaliparamba taluk. Here one SG by name Kuthirunagasthanam having 10 cents has no owner. No pooja is performed also. In Iritty taluk there are five SGs in Aayamkunnu village. They have a common name-Mundayamparamb with a small name added for distinguishing each other. All these are under Malabar Devaswam Board. All of them are very close by. There are no other SG in this village.

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KANNUR DISTRICT -NUMBER AND AREA OF SACRED GROVES.

Sl. No.	Name of Taluk	No. of Sacred Groves	Extent (Acs)
1	Kannur	321	108.48
2	Thalaserry	215	72.46
3	Thaliparamba	457	399.48
4	Iritty	103	70.63
	Total	1096	651.57 (263.79 Ha.)

AREA WISE DISTRIBUTION OF SACRED GROVES IN KANNUR DISTRICT

Sl. No.	Area class	No. of Sacred Groves	Extent (Cents)
1	Area up to 5 Cents	29 Nos.	146.00 Cents
2	6 Cents to 10 Cents	370 ,,	3250.00 ,,
3	11 Cents to 25 Cents	399 ,,	6866.00 ,,
4	26 Cents to 50 Cents	161 ,,	6855.00 ,,
5	51 Cents to 100 Cents	63 ,,	5600.00 ,,
6	101 Cents to 500 Cents	58 ,,	14819.00 ,,
7	501 Cents to 1000 Cents	11 ,,	9803.00 ,,
8	1001 Cents to 8000 Cents	5 ,,	17818.00 ,,
	Total	1096 Nos.	65,157 Cents (651.57 Acres) (263.79 Ha.)

(Largest : KNR/Tlpr/35- Deviyottukavu – Alapadamba Village – 72 Acres)

TALUK WISE DISTRIBUTION**KANNUR TALUK**

Sl. No.	Area class	No. of Sacred Groves	Extent (Cents)
1	Up to 5 Cents	17 Nos.	84.00 Cents
2	6 Cents to 10 Cents	117 ,,	1002.00 ,,
3	11 Cents to 25 Cents	112 ,,	1882.00 ,,
4	26 Cents to 50 Cents	40 ,,	1690.00 ,,
5	51 Cents to 100 Cents	17 ,,	1640.00 ,,
6	101 Cents to 500 Cents	18 ,,	4550.00 ,,
	Total	321 Nos.	10848.00 Cents (108.48 Acres) 43.9 Ha.

THALASSERY TALUK

Sl. No.	Area class	No. of Sacred Groves	Extent (Cents)
1	Up to 5 Cents	----	----
2	6 to 10 Cents	80 Nos.	716.00 Cents
3	11 to 25 Cents	75 ,,	1328.00 ,,
4	26 to 50 Cents	31 ,,	1375.00 ,,
5	51 to 100 Cents	19 ,,	1533.00 ,,
6	101 to 500 Cents	10 ,,	2294.00 ,,
	Total	215Nos.	7246.00 Cents 72.46 Acres (29.33 Ha.)

THALIPARAMBA TALUK

Sl. No.	Area class	No. of Sacred Groves	Extent (Cents)
1	Up to 5 Cents	10 No.	52.00 Cents
2	6 Cents to 10 Cents	141 ,,	1245.00 ,,
3	11 Cents to 25 Cents	175 ,,	3023.00 ,,
4	26 Cents to 50 Cents	73 ,,	3103.00 ,,
5	51 Cents to 100 Cents	21 ,,	1881.00 ,,
6	101 Cents to 500 Cents	22 ,,	5575.00 ,,
7	501 Cents to 1000 Cents	10 ,,	7303.00 ,,
8	1001 Cents to 8000 Cents	5 ,,	17818.00 ,,
	Total	457 Nos	39998 Cents (399.98 Acres) 162 Ha

IRITTY TALUK

Sl. No.	Area class	No. of Sacred Groves	Extent (Cents)
1	Up to 5 Cents	2 Nos.	10.00 Cents
2	6 to 10 Cents	32 ,,	287.00 ,,
3	11 to 25 Cents	37 ,,	633.00 ,,
4	26 to 50 Cents	17 ,,	687.00 ,,
5	51 to 100 Cents	6 ,,	546.00 ,,
6	101 to 500 Cents	8 ,,	2400.00 ,,
7	Above 501 Cents	1 ,,	2500.00 ,,
	Total	103 Nos.	7063.00 Cents 70.63 Acres (28.59 Ha)

ABSTRACT SHOWING**CUSTODIAN/OWNERSHIP/MANAGEMENT OF SACRED GROVES****KANNUR DISTRICT**

Sl. No.	Ownership/Custodian/Management	No. of Sacred Groves
1	Sacred Grove Owned by Government	--
2	Sacred Groves Managed by Devaswam Board/Malabar Devaswam/ Local Temple Devaswams	87 Nos.
3	Sacred Groves Managed by Public Trust/ Public Committees/Janakeeya Committees	158 ,,
5	Sacred Groves Managed by Individuals/ Family/Family Trust	851 ,,
	Total	1096 Nos

TALUK WISE DISTRIBUTION**KANNUR TALUK**

Sl. No.	Ownership/Custodian	No. of Sacred Groves
1	Sacred Grove Owned by Government	--
2	Sacred Groves Managed by Devaswam Board/Malabar Devaswam/ Local Temple Devaswams	26 Nos
3	Sacred Groves Managed by Public Trust/ Public Committees/Janakeeya Committees	67 ,,
5	Sacred Groves Managed by Individuals/ Family/Family Trust	228 ,,
	Total	321 Nos

THALASSERY TALUK

Sl. No.	Ownership/Custodian	No. of Sacred Groves
1	Sacred Grove Owned by Government	--
2	Sacred Groves Managed by Devaswam Board/Malabar Devaswam/ Local Devaswams	9 Nos.
3	Sacred Groves Managed by Public Trust/ Public Committees/Janakeeya Committees	46 ,,
5	Sacred Groves Managed by Individuals/ Family/Family Trust	160 ,,
	Total	215 Nos

THALIPARAMBA TALUK

Sl. No.	Ownership/Custodian	No. of Sacred Groves
1	Sacred Grove Owned by Government	0
2	Sacred Groves Managed by Devaswam Board/Malabar Devaswam/ Local Devaswams	34
3	Sacred Groves Managed by Public Trust/ Public Committees/Janakeeya Committees	15
5	Sacred Groves Managed by Individuals/ Family/Family Trust	408
	Total	457 Nos.

IRITTY TALUK

Sl. No.	Ownership/Custodian	No. of Sacred Groves
1	Sacred Grove Owned by Government	0
2	Sacred Groves Managed by Devaswam Board/Malabar Devaswam/ Local Devaswams	18
3	Sacred Groves Managed by Public Trust/ Public Committees/Janakeeya Committees	30
5	Sacred Groves Managed by Individuals/ Family/Family Trust	55
	Total	103 Nos.

Typical Sacred Grove



1. KalarivathukkalBhagavathykavu
3 Acres.
Caryotaurens in plenty.

2. Mundayat
Pulivettakkorumakankavu,
Portion from 20 Acs.year
marked for Adivasi
devotees -->



3. Eriveri Devi Temple Kavu.
Eriveri village- 10 Ac.
Hard laterite-
Plenty of Monitor lizard.

Typical Sacred Grove



4. Neeliyar kottam- 23 Acs.
Inner sacred portion.

5. Pond-NeeliarKottam



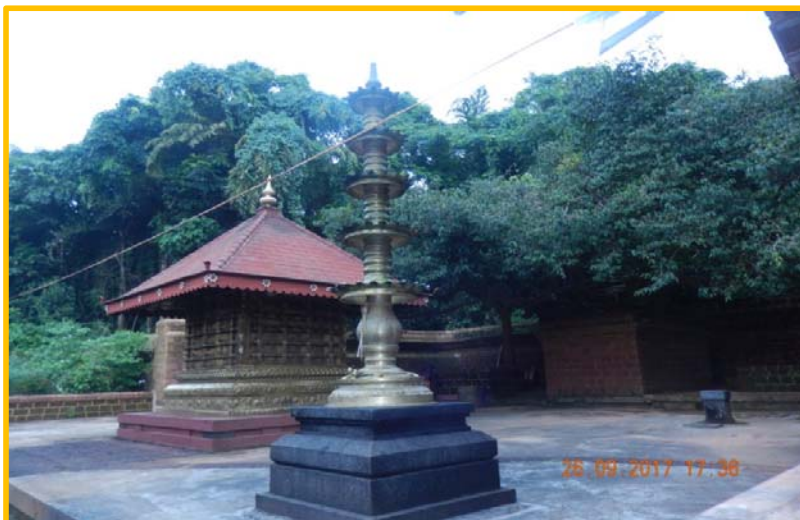
6. Neeliar kottam-
Rocky outcrop within.

Typical Sacred Grove



7. Konginial kavu -5 Acs.

8. Vareekara Kavv-20 Acs.



9. Oorpazhachi kavu -Edacode

Kannur- 3 Acs.

Very famous.

The Only *Saneeswara* Temple in Kerala.

CHAPTER IV

COMPOSITION OF VEGETATION

As it is well known the composition of plant species depend on the nature of soil and topography. In Kannur District, the areas of distribution of sacred groves can be categorised into i)Hilly , ii) Middle land, iii) swampy areas, and Coastal belt.The hilly belt is mainly in Irutty Taluk falling in Kottiyoor Reserve. This constitutes a vey small portion. Major part is in the middle land. Some of the swampy areas also occur there. In the coastal belt wet lands with mangrove vegetation is noticed. Generally there is predominance of trees and climbers.In Vareekara kavu the maximum nomer of species diversity is noted out of the selected 32 SGs.There the nmer of trees species are 26 and climbers,34.The lowest is in Arthil Kandoth Sarpakavu where trees are 14 and climbers,13. The statement below gives the total picture of diversity in 25 SGs..

Sl.No	Name of Kavu	Tree	Climber	Shrub	Total
1.	Shri Kalarivathikkal Bhagavathy Temple Kavu	31	22	13	66
2.	Pulivettakkorumakan Aarooda Temple Kavu	29	25	12	66
3.	Iruveri Shri Pulideva Temple Kavu	27	28	22	77
4.	Sri Dharmasasthashetram Bhagavathi Kavu	26	24	17	67
5.	Kuruvakkavu Bhagavathi Kavu	22	28	15	65
6.	Sri Oorpazhassi Temple Kavu	27	28	14	69
7.	Poongottu Kavu	40	20	16	76
8.	Mangattuparambu Neeliyar Kotta	28	28	16	72
9.	Konginichal Bhagavathy Temple Kavu	32	21	10	63
10.	Chamakkavu Bhgavathy Temple Kavu	30	22	13	65
11.	Paliyeri Shri Mookambika Temple Kavu	24	21	5	50
12.	Vareekkara Kavu Bhagavathi Temple	26	34	17	77

13.	Edappara Chamundessary Temple	27	31	16	74
14.	Madai Kavuvu	21	13	10	44
15.	Thayakavuvu	15	5	8	28
16.	Varavilkavuvu	34	27	15	76
17.	Valaranda Kavuvu	22	25	14	61
18.	Arayathattu Temple Kavuvu	18	14	14	46
19.	Pazhasi Madom Shri Devi Temple Kavuvu	22	24	13	59
20.	Shri Anallur Mullapra Bhagavathi Temple	17	8	13	38
21.	Pazhasi Kavuvu	9	23	6	38
22.	Arathil Kandoth Sri Sarpakkavuvu	14	13	5	32
23.	Kanakottu Muthappan Madappura Kavuvu	21	24	12	57
24.	Pathiriyad Shri Thirumangalam Sasthappan Temple Kavuvu	21	27	12	60
25.	Shri Muchilot Bhagavathy Temple Kavuvu	24	30	10	64

Table 24. Taluk-wise occurrence of species of trees, shrubs and climbers

Taluk	Tree	Climber	Shrub	Total
Kannur	97	70	56	223
Thaliparamba	85	72	46	203
Iratty	60	45	41	146
Thalassery	50	49	30	129

An association of *Myristia malabarica* and *Knema attenuata* is reported in these areas where swampy areas prevail. The *Myristica* swamps seen in Poongottu Kavuvu and Paliyeri kavuvu are representatives of the above set up. *Caryota urens*, *Holigarna arnottiana* and *Pothos scandens* make maximum representation. *Uvaria narum* and *Dalbergia horrida* also constitute climbers of dominance. Next comes *Olea dioica* among trees. *Rubiaceae* is one among the largest families of flowering plants. Other widely distributed families are *Fabaceae*,

Euphorbiaceae, and Apocynaceae. Sacred groves harbour a number of pteridophytes and bryophytes.

Keystone species

Apart from direct benefits of biodiversity conservation, there are indirect benefits which flow from sacred groves through ecosystem functions. Some species, though present in small numbers, play very important role by their unique abilities such as nitrogen fixation and attracting many birds ,animals 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 (ivi)'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 the essential qualities of keystone species the following species seen in these SGs are suggested for consideration and study in respect of this area. .

i. *Caryota urens* (Palmae)-This is almost very common in the SGs.It's regeneration status is 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 attracting many species.

ii. *Holygarna arnottiana*-(Anacardiaceae). This is shade tolerant. Flowering during Jan-Feb. Its fruit is liked by porcupine. This also is a common tree in SGs. Its roots bind soil on stream banks preventing erosion.

iii. *Myristica malabarica*- (Myristicaceae). This grows well in swamps and provides plenty of flowers, fruits etc. attracting birds and animals. It grows as a very big tree covering large area with its crown. Root system is widely spread. Thus it protects the soil and provides a haven for large number of fauna.

iv. *Syzygium travancoricum*.(Myrtaceae) This is very much similar to *Myristica* in its habit with respect to sacred groves.

v. *Artocarpus heterophyllus* (Moraceae)- This again is a species growing into large sizes and providing plenty of edible fruit attracting all birds and other fauna.

All these species can be propagated in sacred groves wherever possible to enhance the status of vegetation.

RARE & IMPORTANT PLANTS

Sl.No	Name of Plant	Family/ -local name	Remarks
	TREES		
1	<i>Actinodaphne malabarica</i>	Lauraceae/ Malavirinji	Vulnerable, endemic . both leaf & root are medicinal
2	<i>Aglaia lawii</i>	Meliaceae/ Karakil	IUCN-Red list, Seeds covered with edible flesh. Insecticidal also.
3	<i>Alseodaphne semicarpifolia</i>	Lauraceae/ Mulakunari	Endemic, threatened.
4	<i>Artocarpus gomezianus</i>	Moraceae/ Theettaplavu	Paliyeri kavu
5	<i>Celtis timorensis</i>	Cannabaceae	Stinking wood/ bark and root medicinal
6	<i>Diospyros candollena</i>	Ebonaceae / karimaram	

7	Holarhena pubescens	Apocynaceae/ Kudakapala	
8	Knema attenuata	Myristicaceae/ Chorappine	Poongotukavu. Threatened -Blood like fluid ooze out on a small cut on bark
9	Myristica beddomei	Myristicaceae/ Adakkapine	
10	Naringi crenulata	Rutaceae / Narinarakam	
11	Pterosperma rubiginosum	Sterculiaceae	Drooping branches- Medicine for fracture.
12	Sterculia guttate	Do	
13	Sterculia belanghas	Do/	Ornamental tree
14	Syzygium caryophyllatum	Myrtaceae/ Karinjara	
15	Syzygium travancoricum	Myrtaceae/ Vathamkollimaram	Critically endangered. Wet land habitat-cure for arthritis
	SHRUBS		
1	Canthium travancoricum	Rubiaceae	
2	Desmodium heterocarpum	Fabaceae/	Medicinal. Also used as a ground cover.
3	Discospermum sphaerocarpum		
4	Embelia tsjeriam	Myrsinaceae/ Ammimurian	Medicinal
5	Glycosmis mauritiana	Rutaceae	
6	Gomphia serrata	Ochnaceae/ Valarmani	
7	Isonandra lanceolata	Sapotaceae/	Spear headed leaves.
8	Litsea ghatica	Lauraceae	
9	Rauvolfia serpentine	Apocynaceae/Sarpagandhi	
	CLIMBERS		
1	Aristolochia indica	Aristolachiaceae	Used in number of treatments/snake bite
2	Ampelocissus latifolia	Vitaceae / Chembara vally	A wild grape. Root and stem medicinal-Bone fracture, Dysentery etc.
3	Gnetum edule	Gnetaceae/ Karuthodal	

4	Hugonia mystax	Linaceae/ Mothirakanni	
5	Luffa cylindrica		
6	Memycelon randerianum.	Melastomaceae/ kaikathetchi.	
7	Strychnos colubrina		Medicinal
8	Tinosperma chinensis	Menispermaceae/ Pothamrith	
9	Tylophora indica		Medicinal
10	Wattakaka volubilis	Asclepiadaceae	Root,stem & seeda are medicinal
	HERBS		
1	Amorphopallus bulbifer	Araceae/ Kattuchena	
2	Curcuma oligantha	Zing iberaceae	
3	Urena sinuata	Malvaceae/ Uthiram	
1	Rynchostylis retusa	Orchidaceae/ Seethamudi.	

CHAPTER V

LIST OF SPECIES SG WISE

Kannur Taluk

1. Shri Kalarivathikkal Bhagavathy Temple Kavu, Valapattanam

	Scientific name	Habit	Common name
	Tree		
1	Adenanthara pavonina	Leguminosae	Manchadi
2	Albizia saman	Leguminosae	Urakkamthoongi maran, Rain tree
3	Aglaia elaeagnoidea	Meliaceae	Njazhal
4	Alstonia scholaris	Apocynaceae	Ezhilam pala
5	Artocarpus heterophyllus	Moraceae	Plavu
6	Briedelia retusa	Euphorbiaceae	Mullenkaini, Mulluvenga
7	Careya arborea	Lecythidaceae	Pezhu, Aalam
8	Caryota urens	Arecaceae	Choondappana, Olattipana
9	Celtis timorensis	Ulmaceae	Oma
10	Chrysophyllum caimito	Sapotaceae	Star apple
11	Croton persimilis	Euphorbiaceae	Somarayam
12	Corypha umbraculifera	Arecaceae	Kodappana
13	Dalbergia lanceolaria	Leguminosae	Velleetti
14	Delonix regia	Leguminosae	Poomaram, Gulmohar
15	Erythrina variegata	Leguminosae	Mullumurukku
16	Ficus religiosa	Moraceae	Arayal
17	Holigarna arnottiana	Anacardiaceae	Cheru
18	Holoptelea integrifolia	Ulmaceae	Aaval

19	Lanea coromandelica	Anacardiaceae	Karasu, Udhi
20	Macaranga peltate	Euphorbiaceae	Vatta, Uppothy
21	Mallotus philippensis	Euphorbiaceae	Sindooramaram, Kurangumanjal
22	Mangifera indica	Anacardiaceae	Mavu
23	Miliusa tomentosa	Annonaceae	Kanakaitha
24	Mimusops elengi	Sapotaceae	Ilengi
25	Olea dioica	Oleaceae	Edala
26	Saraca asoca	Leguminosae	Ashokam
27	Sterculia guttate	Sterculiaceae	Kaavalam
28	Strychnos nux-vomica	Loganiaceae	Kanjiram
29	Tectona grandis	Verbenaceae	Thekku
30	Trema orientalis	Ulmaceae	Amathali, Pottama
31	Vitex altissima	Verbenaceae	Myla
	Climber		
1	Acacia caesia	Leguminosae	Incha
2	Calycopteris floribunda	Combretaceae	Pullani
3	Cansjera rheedei	Opiliaceae	
4	Capparis moonii	Capparaceae	
5	Cayratia pedate	Vitaceae	Chorivalli
6	Centrosema mole	Leguminosae	Kaattupayar
7	Croton caudatus	Euphorbiaceae	Umithinnikodi
8	Cyclea peltate	Menispermaceae	Padakizhangu
9	Dioscorea sp.	Dioscoreaceae	
10	Ichnocarpus frutescens	Apocynaceae	Parvalli
11	Jasminum coarctatum	Oleaceae	Kaattumulla

12	<i>Jasminum malabaricum</i>	Oleaceae	Kadambavalli
13	<i>Mikania micrantha</i>	Asteraceae	Dhirastrapaccha
14	<i>Merremia umbellate</i>	Convolvulaceae	Koravalli
15	<i>Passiflora foetida</i>	Passifloraceae	Bonchikkaya
16	<i>Pothos scandens</i>	Araceae	Varivalli, Paruvakkodi
17	<i>Sarcostigma kleinii</i>	Icacinaceae	Vellodal
18	<i>Smilax zeylanica</i>	Smilacaceae	Kareelanchi
19	<i>Toxocarpus kleinii</i>	Asclepiadaceae	
20	<i>Uvaria narum</i>	Annonaceae	Narumpanal
21	<i>Wattakaka volubilis</i>	Asclepiadaceae	Vattakkakkakodi
22	<i>Ziziphus rugosa</i>	Rhamnaceae	Thodali
	Shrubs		
1	<i>Antidesma acidum</i>	Euphorbiaceae	Asaripuli
2	<i>Carissa spinarum</i> var. <i>microphylla</i>	Apocynaceae	Cherumulli
3	<i>Chassalia curviflora</i> var. <i>Ophioxylodes</i>	Rubiaceae	Yamari
4	<i>Chromolaena odorata</i>	Asteraceae	Communistpatcha
5	<i>Ficus hispida</i>	Moraceae	Parakam
6	<i>Glycosmis pentaphylla</i>	Rutaceae	Paanal
7	<i>Grewia microcos</i>	Tiliaceae	Kottakka
8	<i>Hibiscus hispidissimus</i>	Malvaceae	Kalapoo, Panachan
9	<i>Hibiscus rosa-sinensis</i>	Malvaceae	Chemparathi
10	<i>Justicia adhatoda</i>	Acanthaceae	Adalodakam
11	<i>Mussaenda frondosa</i>	Rubiaceae	Vellila
12	<i>Pedilanthus tithymaloides</i>	Euphorbiaceae	Thathamma chedi
13	<i>Tabernaemontana heyneana</i>	Apocynaceae	Kundalappala, Kunninpala

	Herb		
1	<i>Alternanthera brasiliana</i>	Amaranthaceae	Chemcheera
2	<i>Haplanthodes neilgherryensis</i>	Acanthaceae	
3	<i>Pseuderanthemum malabaricum</i>	Acanthaceae	Chuttimulla

Note: In this sacred grove, *Caryota urens* is the most dominant species, followed by *Adenanthera pavonina*. The largest tree in the grove is *Albizia saman*. The undergrowth is dense, mostly with seedlings and saplings of *Caryota urens*. The other dominant undergrowth is *Chassalia curviflora* var. *ophioxylodes*. The dominant climber is *Calycopteris floribunda*. Exotics like *Mikania micrantha* and *Chromolaena odorata* are also established.

2. Pulivettakkorumakan Aarooda Temple Kavu, Mundakaad, Chowa

	Scientific name	Habit	Common name
	Tree		
1	<i>Adenanthara pavonina</i>	Leguminosae	Manchadi
2	<i>Aegle marmelos</i>	Rutaceae	Koovalam
3	<i>Aglaia elaeagnoidea</i>	Meliaceae	Njazhal
4	<i>Albizia chinensis</i>	Leguminosae	Vaaka
5	<i>Aporusa cardiosperma</i>	Euphorbiaceae	Vetti, Aechil
6	<i>Butea monosperma</i>	Leguminosae	Plash
7	<i>Carallia brachiata</i>	Rhizophoraceae	Vallabham, Vankana
8	<i>Caryota urens</i>	Arecaceae	Choondappana, Olattipana
9	<i>Cassia fistula</i>	Leguminosae	Kanikonna
10	<i>Chrysophyllum cainito</i>	Sapotaceae	Star apple
11	<i>Diospyros candolleana</i>	Ebenaceae	Karimaram
12	<i>Ficus benghalensis</i>	Moraceae	Peral
13	<i>Ficus exasperata</i>	Moraceae	Therakam
14	<i>Gliricidia sepium</i>	Leguminosae	Seemakonna
15	<i>Holigarna arnottiana</i>	Anacardiaceae	Charu, Cheru
16	<i>Macaranga peltata</i>	Euphorbiaceae	Vatta, Upothy

17	Mallotus philippensis	Euphorbiaceae	Sindooramaram, Kurangumanjal
18	Mangifera indica	Anacardiaceae	Mavu
19	Mimusops elengi	Sapotaceae	Ilengi
20	Olea dioica	Oleaceae	Edala
21	Plumeria rubra	Apocynaceae	Arali, Chempakappala
22	Polyalthia fragrans	Annonaceae	Nedumar
23	Psidium guajava	Myrtaceae	Pera
24	Pterocarpus sp.	Leguminosae	Athiruvenga
25	Sapindus trifoliatus	Sapindaceae	Pasakotta, Soapinkai
26	Sterculia balanghas	Sterculiaceae	Thondi
27	Sterculia guttata	Sterculiaceae	Kaavalam
28	Strychnos nux-vomica	Loganiaceae	Kanjiram
29	Tecoma stans	Bignoniaceae	Manjaruli
Climber			
1	Abrus pulchellus	Leguminosae	Kattumuthira
2	Ampelocissus indica	Vitaceae	Chemparavalli
3	Anodendron paniculatum	Apocynaceae	
4	Briedelia stipularis	Euphorbiaceae	Cherukapanachi, Kanjikottam
5	Calycopteris floribunda	Combretaceae	Pullani
6	Cansjera rheedei	Opiliaceae	
7	Cetrosema molle	Leguminosae	Kaattupayar
8	Cissus latifolia	Vitaceae	Chunnambuvalli
9	Connarus monocarpus	Connaraceae	Kooriel
10	Derris sp.	Leguminosae	
11	Dioscorea sp.	Dioscoreaceae	
12	Diploclisia glaucescens	Menispermaceae	Vattoli
13	Erycibe paniculata	Convolvulaceae	Erumathali
14	Gnetum edule	Gnetaceae	Karuthodal, Thuvakkai
15	Hippocratea arnottiana	Celastraceae	Puramkodi
16	Ichnocarpus frutescens	Apocynaceae	Parvalli
17	Jasminum coarctatum	Oleaceae	Kattumulla
18	Jasminum malabaricum	Oleaceae	Kadambavalli

19	<i>Lygodium scandens</i>	Lygodiaceae	Polivalli
20	<i>Merremia umbellata</i>	Convolvulaceae	Koravalli
21	<i>Pothos scandens</i>	Araceae	Varivalli, Paruvakkodi
22	<i>Salacia fruticosa</i>	Celastraceae	Ekanayakam, Ponkoranti
23	<i>Smilax zeylanica</i>	Smilacaceae	Kareelanchi
24	<i>Tetrastigma leucostaphylum</i>	Vitaceae	
25	<i>Uvaria narum</i>	Annonaceae	Narumpanal
Shrubs			
1	<i>Ananas comosus</i>	Bromeliaceae	Kadachakka, Pineapple
2	<i>Antidesma acidum</i>	Euphorbiaceae	Asaripuli
3	<i>Benkara malabarica</i>	Rubiaceae	Cholakkara
4	<i>Canthium angustifolium</i>	Rubiaceae	Kattaramullu
5	<i>Chassalia curviflora</i> var. <i>ophioxyloides</i>	Rubiaceae	Yamari
6	<i>Chromolaena odorata</i>	Shrub	Communistpatcha
7	<i>Grewia microcos</i>	Shrub	Kottakka
8	<i>Hibiscus surattensis</i>	Malvaceae	Kaalappoo
9	<i>Ixora coccinea</i>	Rubiaceae	Chuvannathetchi
10	<i>Memecylon umbellatum</i>	Melastomataceae	Kashavu, Kayampoo
11	<i>Mussaenda frondosa</i>	Rubiaceae	Vellila
12	<i>Tabernaemontana heyneana</i>	Apocynaceae	Kundalappala, Kunninpala
13	<i>Triumfetta rhomboidea</i>	Tiliaceae	Ottukai
Herb			
1	<i>Lepidagathis incurva</i>	Acanthaceae	
2	<i>Pennisetum pedicellatum</i>	Poaceae	Pochavalanpullu

3. Iruveri Shri Pulideva Temple Kavu, Chembilode.

	Scientific name	Habit	Local name
	Tree		
1	Acacia auriculiformis	Leguminosae	Acacia
2	Adenanthera pavonina	Leguminosae	Manchadi
3	Ailanthus triphysa	Simaroubaceae	Matti, Perumaram
4	Anacardium occidentale	Anacardiaceae	Kashumavu, Cashew
5	Artocarpus hirsutus	Moraceae	Anjily
6	Carallia brachiata	Rhizophoraceae	Vallabham, Varangu
7	Caryota urens	Arecaceae	Anapatta, choondapana
8	Cassia fistula	Leguminosae	Kanikonna
9	Delonix regia	Leguminosae	Poomaram, Gulmohar
10	Diospyros candolleana	Ebenaceae	Karimaram
11	Euodia lunu-ankenda	Rutaceae	Kanala
12	Holigarna arnottiana	Anacardiaceae	Charu, Cheru
13	Mallotus philippensis	Euphorbiaceae	Sindooramaram, Kurangumanjal
14	Macaranga petlata	Euphorbiaceae	Vatta, Uppothy
15	Mangifera indica	Anacardiaceae	Maavu
16	Mimusops elengi	Sapotaceae	Ilengi
17	Olea dioica	Oleaceae	Edala
18	Peltophorum pterocarpum	Leguminosae	Charakkonna
19	Phyllanthus emblica	Euphorbiaceae	Nelli
20	Santalum album	Santalaceae	Chandanam
21	Strychnos nux-vomica	Loganiaceae	Kanjiram
22	Swietenia macrophylla	Meliaceae	Mahagany
23	Syzygium caryophyllatum	Myrtaceae	Karimjaval
24	Terminalia catappa	Combretaceae	Thallithenga, Badam
25	Terminalia paniculata	Combretaceae	Maruthi
26	Vitex altissima	Verbenaceae	Myla

27	<i>Xylia xylocarpa</i>	Leguminosae	Irul, Irumullu
	Climber		
1	<i>Abrus precatorius</i>	Leguminosae	Kunni
2	<i>Ampelocissus latifolia</i>	Vitaceae	Vallimanga
3	<i>Briedelia stipularis</i>	Euphorbiaceae	Cherupanachi,
4	<i>Calycopteris floribunda</i>	Combretaceae	Pullani
5	<i>Cansjera rheedei</i>	Opiliaceae	
6	<i>Cetrosema molle</i>	Leguminosae	Kaattupayar
7	<i>Cissus latifolia</i>	Vitaceae	Chunnambuvalli
8	<i>Connarus monocarpus</i>	Connaraceae	Kooriel
9	<i>Cyclea peltata</i>	Menispermaceae	Malathangi
10	<i>Dalbergia horrida</i>	Leguminosae	Anamullu
11	<i>Dioscorea sp.</i>	Dioscoreaceae	Kattukachil
12	<i>Erycibe paniculata</i>	Convolvulaceae	Irumbanvalli
13	<i>Gnetum edule</i>	Gnetaceae	Karuthodal, Thuvakkai
14	<i>Hemidemus indicus</i>	Asclepiadaceae	Nannari, Naruneendi
15	<i>Hippocratea arnottiana</i>	Celastraceae	Kattadinayakam
16	<i>Hugonia mystax</i>	Linaceae	Mothirakkanni
17	<i>Ichnocarpus frutescens</i>	Apocynaceae	Parvalli
18	<i>Jasminum coarctatum</i>	Oleaceae	Kattumulla
19	<i>Jasminum malabaricum</i>	Oleaceae	Kadambavalli
20	<i>Pothos scandens</i>	Araceae	Paruvakkodi, Varivalli
21	<i>Rourea minor</i>	Connaraceae	Kooriel
22	<i>Salacia fruticosa</i>	Celastraceae	Ekanayakam, Ponkoranti
23	<i>Smilax zeylanica</i>	Smilacaceae	Kareelanchi
24	<i>Strychnos minor</i>	Loganiaceae	Vallikanjiram
25	<i>Tetrastigma leucostaphylum</i>	Vitaceae	
26	<i>Toxocarpus kleinii</i>	Asclepiadaceae	
27	<i>Uvaria narum</i>	Annonaceae	Narumpanal
28	<i>Ziziphus oenoplia</i>	Rhamnaceae	Cheruthodali
	Shrub		
1	<i>Ananas comosus</i>	Bromeliaceae	Kadachakka, Pineapple

2	<i>Antidesma acidum</i>	Euphorbiaceae	Asaripuli
3	<i>Benkara malabarica</i>	Rubiaceae	Cholakkara
4	<i>Breynia vitis-idaea</i>	Euphorbiaceae	Kireethi
5	<i>Canthium angustifolium</i>	Rubiaceae	Kattaramullu
6	<i>Carissa spinarum</i> var. <i>microphylla</i>	Apocynaceae	Cherumulli
7	<i>Chassalia curviflora</i> var. <i>ophioxylodes</i>	Rubiaceae	Yamari
8	<i>Chromolaena odorata</i>	Asteraceae	Communistpatcha
9	<i>Clerodendrum infortunatum</i>	Verbenaceae	Peruvalam
10	<i>Cycas circinalis</i>	Cycadaceae	Eenth
11	<i>Glycosmis mauritiana</i>	Rutaceae	Panal
12	<i>Gomphia serrata</i>	Ochnaceae	Valermani
13	<i>Hibiscus hispidissimus</i>	Malvaceae	Kaalappoo, Panachan
14	<i>Ixora coccinea</i>	Rubiaceae	Chuvannathetchi
15	<i>Ixora malabarica</i>	Rubiaceae	
16	<i>Leea indica</i>	Leeaceae	Njekku, Njellu
17	<i>Memecylon umbellatum</i>	Melastomataceae	Kasavu, Kayampoo
18	<i>Mussaenda frondosa</i>	Rubiaceae	Vellila
19	<i>Nothapodytes nimmoniana</i>	Icacinaceae	Peenari
20	<i>Polyalthia korinti</i>	Annonaceae	Koranti
21	<i>Tabernaemontana heyneana</i>	Apocynaceae	Kundalappala, Kunninpala
22	<i>Tarenna asiatica</i>	Rubiaceae	Kuppippoovu
	Herb		
1	<i>Acampe praemorsa</i>	Orchidaceae	Maravazha
2	<i>Microstachys chamaelea</i>	Euphorbiaceae	Njettavankku
3	<i>Naregamia alata</i>	Meliaceae	Nilanarakam

Note: In this sacred grove every large trees are totally absent. Among the trees *Adenanthera pavonina* and *Caryota urens* are the dominant. The woody climbers found here are *Derris brevipes*, *Connarus monocarpus*, *Hugonia mystax*, *Dalbergia horrida* etc.

4. Sri Dharmasasthashetram Bhagavathi Kavu, Kannadiparambu

	Scientific name	Habit	Local name
	Tree		
1	<i>Aglaia elaeagnoidea</i>	Meliaceae	Njazhal
2	<i>Alstonia scholaris</i>	Apocynaceae	Ezhilampala
3	<i>Anacardium occidentale</i>	Anacardiaceae	Kashumavu, Cashew
4	<i>Aporusa cardiosperma</i> (<i>Aporusa lindleyana</i>)	Euphorbiaceae	Vetti, Aechil
5	<i>Briedelia retusa</i>	Euphorbiaceae	Mulluvenga, Mullenkaini
6	<i>Carallia brachiata</i>	Rhizophoraceae	Varangu, Vallabhavam
7	<i>Caryota urens</i>	Arecaceae	Choondappana, Olattipana
8	<i>Cassia fistula</i>	Leguminosae	Kanikkonna
9	<i>Delonix regia</i>	Leguminosae	Poomaram, Gulmohar
10	<i>Erythrina orientalis</i>	Leguminosae	Mullumurukku
11	<i>Falconeria insignis</i>	Euphorbiaceae	Pattarupala, Kannampotti
12	<i>Ficus benghalensis</i>	Moraceae	Peral
13	<i>Gmelina arborea</i>	Verbenaceae	Kumizhu, Kumbil
14	<i>Holigarna arnottiana</i>	Anacardiaceae	Charu, Cheru
15	<i>Holarrhena pubescens</i>	Apocynaceae	Kudakappala
16	<i>Lanea coromandelica</i>	Anacardiaceae	Karasu, Udhi
17	<i>Mallotus philippensis</i>	Euphorbiaceae	Sindooramaram, Kurangumanjal
18	<i>Macaranga petlata</i>	Euphorbiaceae	Vatta, Uppothy
19	<i>Naringi crenulata</i>	Rutaceae	Narinarakam
20	<i>Olea dioica</i>	Oleaceae	Edala
21	<i>Santalum album</i>	Santalaceae	Chandanam
22	<i>Strychnos nux-vomica</i>	Loganiaceae	Kanjiram
23	<i>Trema orientalis</i>	Ulmaceae	Amathali, Pottamaram
24	<i>Vitex altissima</i>	Verbenaceae	Myla
25	<i>Wrightia tinctoria</i>	Apocynaceae	Dhanthappala
26	<i>Zanthoxylum rhetza</i>	Rutaceae	Mullilam

	Climber		
1	<i>Abrus precatorius</i>	Leguminosae	Kunni
2	<i>Acacia torta</i>	Leguminosae	Kakkincha
3	<i>Anamirta cocculus</i>	Menispermaceae	Pollakai
4	<i>Briedelia stipularis</i>	Euphorbiaceae	Cherupanachi Kanjikottam
5	<i>Calycopteris floribunda</i>	Combretaceae	Pullani
6	<i>Cansjera rheedei</i>	Opiliaceae	
7	<i>Cissus latifolia</i>	Vitaceae	Chunnambuvali
8	<i>Cissus sp.</i>	Vitaceae	
9	<i>Cosmostigma racemosum</i>	Asclepiadaceae	Vattuvalli
10	<i>Dalbergia horrida</i>	Leguminosae	Anamullu
11	<i>Dioscorea pentaphylla</i>	Dioscoreaceae	Chavalikizhangu
12	<i>Dioscorea sp.</i>	Dioscoreaceae	Kattukachil
13	<i>Diploclisia glaucescens</i>	Menispermaceae	Vattavalli
14	<i>Hippocratea arnottiana</i>	Celastraceae	Kattadinayakam
15	<i>Ichnocarpus frutescens</i>	Apocynaceae	Parvalli
16	<i>Jasminum coarctatum</i> (<i>Jasminum rottlerianum</i>)	Oleaceae	Kattumulla
17	<i>Jasminum malabaricum</i>	Oleaceae	Kadambavalli
18	<i>Lygodium scandens</i>	Polipodiaceae	Polivalli
19	<i>Merremia vitifolia</i>	Convolvulaceae	Manjavayaravalli
20	<i>Pothos scandens</i>	Araceae	Paruvakkodi, Varivalli
21	<i>Tinospora sinensis</i>	Menispermaceae	Potthamruthu
22	<i>Uvaria narum</i>	Annonaceae	Narumpanal
23	<i>Wattakaka volubilis</i>	Asclepiadaceae	Vattakakkakodi
24	<i>Ziziphus oenoplia</i>	Rhamnaceae	Cheruthodali
	Shrub		
1	<i>Bambusa bambos</i>	Poaceae	Mula, Illi
2	<i>Benkara malabarica</i>	Rubiaceae	Cholakkara
3	<i>Canthium coromandelicum</i>	Rubiaceae	Kattaramullu
4	<i>Chassalia curviflora</i> var. <i>ophioxylodes</i>	Rubiaceae	Yamari
5	<i>Chromolaena odorata</i> (<i>Eupatorium odoratum</i>)	Compositae	Communistpatcha

6	<i>Discospermum sphaerocarpum</i>	Rubiaceae	
7	<i>Flueggea virosa</i>	Euphorbiaceae	Perinklavu
8	<i>Grewia microcos</i>	Tiliaceae	Kottakka
9	<i>Hibiscus hispidissimus</i>	Malvaceae	Kaalapoo, Panachan
10	<i>Ixora coccinea</i>	Rubiaceae	Chuvannathetchi
11	<i>Jatropha gossypifolia</i>	Euphorbiaceae	Chuvannakadalavanakku
12	<i>Lantana camara</i>	Verbenaceae	Aripoochedi
13	<i>Memecylon randerianum</i>	Melastomataceae	Kaikathetchi
14	<i>Mussaenda frondosa</i>	Rubiaceae	Vellila
15	<i>Pavetta tomentosa</i>	Rubiaceae	Pavetta
16	<i>Rauvolfia serpentina</i>	Apocynaceae	Sarpagandhi
17	<i>Urena sinuata</i>	Malvaceae	Uthiram
	Herb		
1	<i>Amorphophallus sp.</i>	Araceae	Kaattuchena
2	<i>Caldium 51bicolour</i>	Araceae	Pullichembu
3	<i>Curculigo orchioides</i>	Hypoxidaceae	Nilappana
4	<i>Naregamia alata</i>	Meliaceae	Nilanarakam
5	<i>Zigiber zerumbet</i>	Zingiberaceae	Malayinchi

Note: This sacred grove is with many open areas. *Delonix regia* is the most common tree with plenty of regeneration. This grove is used as a shelter for elephants. The area around the trees where elephants are chained is devoid of under growth species. *Ficus benghalensis* is the largest tree in this grove.

5. Kuruvakkavu Bhagavathi Kavu, Chunda, Kannapuram

	Scientific name	Habit	Local name
	Tree		
1	<i>Aglaia elaeagnoidea</i>	Meliaceae	Njazhal
2	<i>Albizia chinensis</i>	Leguminosae	Peelivaka
3	<i>Aporosa cardiosperma</i> (<i>Aporosa lindleyana</i>)	Euphorbiaceae	Vetti, Aechil
4	<i>Briedelia retusa</i>	Euphorbiaceae	Mulluvenga, Mullenkaini

5	<i>Carallia brachiata</i>	Rhizophoraceae	Varangu, Vallabhavam
6	<i>Careya arborea</i>	Lecythidaceae	Pezhu, Aalam
7	<i>Caryota urens</i>	Arecaceae	Choondappana, Olattipana
8	<i>Delonix regia</i>	Leguminosae	Poomaram, Gulmohar
9	<i>Diospyros candolleana</i>	Ebenaceae	Karimaram
10	<i>Ficus callosa</i>	Moraceae	Kadaplavu
11	<i>Holigarna arnottiana</i>	Anacardiaceae	Charu, Cheru
12	<i>Lanea coromandelica</i>	Anacardiaceae	Karasu, Udhi
13	<i>Mallotus philippensis</i>	Euphorbiaceae	Sindooramaram, Kurangumanjal
14	<i>Mangifera indica</i>	Anacardiaceae	Maavu
15	<i>Mimusops elengi</i>	Sapotaceae	Ilenji
16	<i>Olea dioica</i>	Oleaceae	Edala
17	<i>Santalum album</i>	Santalaceae	Chandanam
18	<i>Sterculia guttata</i>	Sterculiaceae	Kaavalam
19	<i>Syzygium caryophyllum</i>	Myrtaceae	Kaninjaval
20	<i>Syzygium chavaran</i>	Myrtaceae	Njaval
21	<i>Trema orientalis</i>	Ulmaceae	Amathali, Pottamaram
22	<i>Vitex altissima</i>	Verbenaceae	Myla
	Climber		
1	<i>Abrus precatorius</i>	Leguminosae	Kunni
2	<i>Acacia caesia</i>	Leguminosae	Incha
3	<i>Beaumontia jerdoniana</i>	Apocynaceae	Swethapushpi
4	<i>Briedelia stipularis</i>	Euphorbiaceae	Cherupanachi Kanjikottam
5	<i>Calycopteris floribunda</i>	Combretaceae	Pullani
6	<i>Cansjera rheedei</i>	Opiliaceae	
7	<i>Cissus latifolia</i>	Vitaceae	Chunnambuvalli
8	<i>Cissus heyneana</i>	Vitaceae	
9	<i>Cosmostigma racemosum</i>	Asclepiadaceae	Vattuvalli
10	<i>Cyclea peltata</i>	Menispermaceae	Padakizhangu
11	<i>Dalbergia horrida</i>	Leguminosae	Anamullu
12	<i>Dioscorea pentaphylla</i>	Dioscoreaceae	Chavalikizhangu

13	<i>Dioscorea</i> sp.	Dioscoreaceae	Kattukachil
14	<i>Diploclisia glaucescens</i>	Menispermaceae	Vattoli
15	<i>Gnetum edule</i>	Gnetaceae	Karuthodal, Thuvakkai
16	<i>Ichnocarpus frutescens</i>	Apocynaceae	Parvalli
17	<i>Ipomoea mauritiana</i>	Convolvulaceae	Palmuthakku
18	<i>Jasminum coarctatum</i> (<i>Jasminum rotlerianum</i>)	Oleaceae	Kattumulla
19	<i>Jasminum malabaricum</i>	Oleaceae	Kadambavalli
20	<i>Merremia vitifolia</i>	Convolvulaceae	Manjavayaravalli
21	<i>Pothos scandens</i>	Araceae	Paruvakkodi, Varivalli
22	<i>Salacia fruticosa</i>	Celastraceae	Ekanayakam
23	<i>Smilax zeylanica</i>	Smilacaceae	Kareelanchi
24	<i>Tinospora sinensis</i>	Menispermaceae	Potthamruthu
25	<i>Uvaria narum</i>	Annonaceae	Narumpanal
26	<i>Wattakaka volubilis</i>	Asclepiadaceae	Vattakakkakodi
27	<i>Ziziphus oenoplia</i>	Rhamnaceae	Cheruthodali
28	<i>Ziziphus rugosa</i>	Rhamnaceae	Vanthudali
	Shrub		
1	<i>Antidesma acidum</i>	Euphorbiaceae	Asaripuli
2	<i>Atalantia racemosa</i>	Rutaceae	Kaattunarakam
3	<i>Bambusa bambos</i>	Poaceae	Mula, Illi
4	<i>Benkara malabarica</i>	Rubiaceae	Cholakkara
5	<i>Breynia vitis-idaea</i>	Euphorbiaceae	
6	<i>Canthium coromandelicum</i>	Rubiaceae	Kattaramullu
7	<i>Chromolaena odorata</i> (<i>Eupatorium odoratum</i>)	Compositae	Communistpatcha
8	<i>Discospermum sphaerocarpum</i>	Rubiaceae	
9	<i>Hibiscus hispidissimus</i>	Malvaceae	Kaalapoo, Panachan
10	<i>Ixora coccinea</i>	Rubiaceae	Chuvannathetchi
11	<i>Leea guineensis</i>	Leeaceae	
12	<i>Memecylon randerianum</i>	Melastomataceae	Kaikathetchi
13	<i>Mussaenda frondosa</i>	Rubiaceae	Vellila
14	<i>Phyllanthus reticulatus</i>	Euphorbiaceae	Neeroli
15	<i>Tabernaemontana heyneana</i>	Apocynaceae	Kundalappala,

			Kunninpala
	Herb		
1	<i>Curculigo orchioides</i>	Hypoxidaceae	Nilappana
2	<i>Curcuma oligantha</i>	Zingiberaceae	Kaattumanjal
3	<i>Naregamia alata</i>	Meliaceae	Nilanarakam

6. Sri Oorpazhassi Temple Kavu, Ndal, Edakkad

	Scientific name	Habit	Local name
	Tree		
1	<i>Adenanthera pavonina</i>	Leguminosae	Manchadi
2	<i>Aglaia elaeagnoidea</i>	Meliaceae	Njazhal
3	<i>Albizia chinensis</i>	Leguminosae	Peelivaka
4	<i>Anacardium occidentale</i>	Anacardiaceae	Kasumavu, Cashew
5	<i>Aporusa cardiosperma</i> (<i>Aporusa lindleyana</i>)	Euphorbiaceae	Vetti, Aechil
6	<i>Artocarpus heterophyllus</i>	Moraceae	Plavu
7	<i>Carallia brachiata</i>	Rhizophoraceae	Varangu, Vallabhavam
8	<i>Careya arborea</i>	Lecythidaceae	Pezhu, Aalam
9	<i>Caryota urens</i>	Arecaceae	Choondappana, Olattipana
10	<i>Chrysophyllum cainito</i>	Sapotaceae	Star apple
11	<i>Cocos nucifera</i>	Arecaceae	Thengu
12	<i>Ficus amplissima</i>	Moraceae	Aal
13	<i>Ficus arnottiana</i>	Moraceae	Kallarayal
14	<i>Ficus religiosa</i>	Moraceae	Arayal
15	<i>Gliricidia sepium</i>	Leguminosae	Seemakonna
16	<i>Holigarna arnottiana</i>	Anacardiaceae	Charu, Cheru
17	<i>Lanea coromandelica</i>	Anacardiaceae	Karasu, Udhi
18	<i>Macaranga peltata</i>	Euphorbiaceae	Vatta, Uppothy
19	<i>Mallotus philippensis</i>	Euphorbiaceae	Sindooramaram, Kurangumanjal
20	<i>Mangifera indica</i>	Anacardiaceae	Maavu
21	<i>Magnolia champaca</i>	Magnoliaceae	Chempakam

22	Mimusops elengi	Sapotaceae	Ilenji
23	Olea dioica	Oleaceae	Edala
24	Santalum album	Santalaceae	Chandanam
25	Tectona grandis	Verbenaceae	Thekku
26	Terminalia catappa	Combretaceae	Thallithenga, Badam
27	Vitex altissima	Verbenaceae	Myla
	Climber		
1	Abrus precatorius	Leguminosae	Kunni
2	Acacia caesia	Leguminosae	Incha
3	Anamirta cocculus	Menispermaceae	Pollakkai
4	Briedelia stipularis	Euphorbiaceae	Cherupanachi Kanjikottam
5	Calycopteris floribunda	Combretaceae	Pullani
6	Cassytha filiformis	Convolvulaceae	Moodillathali
7	Cayratia pedata	Vitaceae	Chorivalli
8	Cissus latifolia	Vitaceae	Chunnambuvalli
9	Cissus heyneana	Vitaceae	
10	Cosmostigma racemosum	Asclepiadaceae	Vattuvalli
11	Dioscorea pentaphylla	Dioscoreaceae	Chavalikizhangu
12	Dioscorea sp.	Dioscoreaceae	Kattukachil
13	Erycibe paniculata	Convolvulaceae	Erumathali
14	Gnetum edule	Gnetaceae	Karuthodal, Thuvakkai
15	Grewia sp.	Tiliaceae	
16	Ichnocarpus frutescens	Apocynaceae	Parvalli
17	Ipomoea cairica	Convolvulaceae	Paavadapoo
18	Jasminum coarctatum (<i>Jasminum rottlerianum</i>)	Oleaceae	Kattumulla
19	Jasminum malabaricum	Oleaceae	Kadambavalli
20	Marsdenia sp.	Asclepiadaceae	
21	Merremia vitifolia	Convolvulaceae	Manjavayaravalli
22	Passiflora vitifolia	Passifloraceae	
23	Pothos scandens	Araceae	Paruvakkodi, Varivalli
24	Sarcostigma kleinii	Icacinaceae	Vellodal

25	<i>Smilax zeylanica</i>	Smilacaceae	Kareelanchi
26	<i>Tinospora sinensis</i>	Menispermaceae	Potthamruthu
27	<i>Uvaria narum</i>	Annonaceae	Narumpanal
28	<i>Ziziphus oenoplia</i>	Rhamnaceae	Cheruthodali
	Shrubs		
1	<i>Breynia vitis-idaea</i>	Euphorbiaceae	Pavalapoola
2	<i>Chromolaena odorata</i> (<i>Eupatorium odoratum</i>)	Compositae	Communistpatcha
3	<i>Citrus medica</i>	Rutaceae	Ganapathinarakam
4	<i>Drynaria quercifolia</i>	Ploypodiaceae	Mathil panna
5	<i>Eheratia canarensis</i>	Boraginaceae	Chavandi
6	<i>Helicanthes elastica</i>	Loranthaceae	Itthikanni
7	<i>Hibiscus hispidissimus</i>	Malvaceae	Kaalapoo, Panachan
8	<i>Ixora brachiata</i>	Rubiaceae	Marathetchi
9	<i>Ixora coccinea</i>	Rubiaceae	Chuvannathetchi
10	<i>Lantana camara</i>	Verbenaceae	Aripoo, Poochedi
11	<i>Mussaenda frondosa</i>	Rubiaceae	Vellila
12	<i>Phyllanthus reticulatus</i>	Euphorbiaceae	Neeroli
13	<i>Rauvolfia serpentina</i>	Apocynaceae	Sarpagandhi
14	<i>Tabernaemontana heyneana</i>	Apocynaceae	Kundalappala, Kunninpala
	Herb		
1	<i>Acampe praemorsa</i>	Orchidaceae	Maravazha
2	<i>Curculigo orchioides</i>	Hypoxidaceae	Nilappana
3	<i>Naregamia alata</i>	Meliaceae	Nilanarakam

Note: In this sacred grove there are two very old trees of *Aporosa cardiosperma* (Aechil). It is informed that the trees are about 250 years old. Both the trees are male. The branches are propped with pillars to prevent lodging.

7. Poongottu Kavmu, Kannur

	Scientific name	Family	Common name
	Tree		
1	Actinodaphne malabarica	Lauraceae	Pattuthali
2	Adenanthera pavonina	Leguminosae	Manchadi
3	Aglaia lawii	Meliaceae	Karakil
4	Antiaris toxicaria	Moraceae	Maravuri
5	Aporosa cardiosperma	Euphorbiaceae	Aechil, Vetti
6	Artocarpus hirsutus	Moraceae	Ayani, Aanjili
7	Blepharistemma serratum	Rhizophoraceae	Nirkurunda
8	Carallia brachiata	Rhizophoraceae	Varangu, Vallabham
9	Caryota urens	Arecaceae	Choondappana, Olattipana
10	Casearia ovata	Flacourtiaceae	Malampavatta
11	Celtis timorensis	Ulmaceae	Poochakkurumaram
12	Cinnamomum malabatum	Lauraceae	Vayana
13	Elaeocarpus tuberculatus	Elaeocarpaceae	Thodayam, Vellathaanni
14	Ficus beddomei	Moraceae	Thavittaal
15	Ficus callosa	Moraceae	Kadamaram
16	Ficus drupacea var. pubescens	Moraceae	Manja aal
17	Flacourtia montana	Flacourtiaceae	Vayyamkaitha
18	Glochidion zeylanicum	Euphorbiaceae	Neervetti
19	Gymnacranthera farquhariana	Myristicaceae	Undappayin
20	Holigarna arnottiana	Anacardiaceae	Cheru, Charu
21	Hopea parviflora	Dipterocarpaceae	Kambakam
22	Knema attenuata	Myristicaceae	Chorappain, Chorakkali
23	Lagerstroemia speciosa	Lythraceae	Poomaruthu
24	Lophopetalum wightianum	Celastraceae	Venkadavam, Venkkotta
25	Madhuca nerifolia	Sapotaceae	Attu-ilippa
26	Mallotus philippinensis	Euphorbiaceae	Sindhooramaram, Kurungumanjal
27	Mangifera indica	Anacardiaceae	Maavu
28	Memecylon talbotianum	Melastomataceae	Marakkasavu

29	Mimusops elengi	Sapotaceae	Ilenji
30	Myristica beddomei	Myristicaceae	Kothappayin, Pasupathi
31	Myristica malabarica	Myristicaceae	Ponnampayin
32	Naringi crenulata	Rutaceae	Narinarakam
33	Olea dioica	Oleaceae	Idala
34	Polyalthia fragrans	Annonaceae	Aranamaram
35	Sterculia guttata	Sterculiaceae	Kaavalam
36	Strychnos nux-vomica	Loganiaceae	Kanjiram
37	Terminalia paniculata	Combretaceae	Maruthi
38	Vateria indica	Dipterocarpaceae	Vellappayin
39	Vitex altissima	Veberaceae	Myla
40	Zanthoxylum rhetsa	Rutaceae	Mullilam
	Climber		
1	Acacia intsia	Leguminosae	Incha
2	Chonemorpha fragrans	Apocynaceae	Perumkurumba
3	Cissus discolor	Vitaceae	Aranapuli
4	Cissus heyneana	Vitaceae	
5	Cissus trilobata	Vitaceae	Neela chunnabuvalli
6	Connarus monocarpus	Connaraceae	Kooriel
7	Dioscorea bulbifera		
8	Dalbergia horrida	Leguminosae	Aanamullu
9	Elaeagnus indica	Elaeagnaceae	
10	Gnetum edule	Gnetaceae	Karuthodal, Thuvakai
11	Myxopyrum smilacifolium	Oleaceae	Chathuramulla
12	Parsonia inodora	Apocynaceae	Penalivalli
13	Pothos scandens	Araceae	Varivalli, Paruvakodi
14	Smilax zeylanica	Smilacaceae	Kareelanchi
15	Spatholobus purpureus	Leguminosae	Valliplash, Paalunni
16	Stenochlaena palustris	Blechnaceae	Pannal valli
17	Strychnos minor	Loganiaceae	Vallikanjiram
18	Tetracera akara	Dilleniaceae	Nakkuvalli, Kottavalli
19	Tinospora sinensis	Menispermaceae	Pothamruthu

20	Ziziphus oenoplia	Rhamnaceae	Cheruthodali
	Shrub		
1	Justicia adhatoda (Adhatoda vasica)	Acanthaceae	Adalodakam
2	Antidesma acidum	Euphorbiaceae	Asaripuli
3	Asystasia crispata	Acanthaceae	
4	Chassalia curviflora var. ophioxyloides	Rubiaceae	Yamari
5	Drynaria quercifolia	Polypodiaceae	Mathilpanna
6	Glycosmis pentaphylla	Rutaceae	Paanal
7	Grewia serrulata	Tiliaceae	Narutha
8	Hibiscus hispidissimus	Malvaceae	Kaalapoo, Panachan
9	Hibiscus lunariifolius	Malvaceae	Malamkuzhupparetthi
10	Ixora brachiata	Rubiaceae	Marathetchi
11	Leea asiatica	Leeaceae	Njellu, Njekku
12	Mussaenda frondosa	Rubiaceae	Vellila
13	Pandanus thwaitesii	Pandanaceae	Kaitha
14	Pogostemon paniculatus	Lamiaceae	
15	Tabernaemontana alternifolia	Apocynaceae	Kundalappala, Kunninpala
16	Triumfetta rhomboidea	Tiliaceae	Ottukai
	Herb		
1	Adiantum incisum	Adiantaceae	
2	Alloteropsis cimiicina	Poaceae	
3	Amorphophallus sp.	Araceae	Kaattuchena
4	Anaphyllum wightii	Araceae	Keerikizhangu
5	Andrographis macrobotrys	Acanthaceae	
6	Bolbitis uppendiculata	Elaphoglossaceae	
7	Bulbophyllum sterile	Orchidaceae	
8	Curculigo orchioides	Hypoxidaceae	Nilappana
9	Cyathula prostrata	Amaranthaceae	Cherukadaladi
10	Cyperus cyperinus	Cyperaceae	
11	Curcuma aurantiaca	Zingiberaceae	Kaattumanjal

12	<i>Geophila repens</i>	Rubiaceae	Karimuthil
13	<i>Globba marantina</i>	Zingiberaceae	
14	<i>Lagenandra ovata</i>	Araceae	Aandavazha
15	<i>Ophiorrhiza mungos</i>	Rubiaceae	Amalpori
16	<i>Oplismenus compositus</i>	Poaceae	
17	<i>Smithia geminiflora</i>	Leguminosae	
18	<i>Stachyphrynium spicatum</i>	Marataceae	Kaattukoova
19	<i>Tragia involucrata</i>	Euphorbiaceae	Kodithoova, Vallichoriyanam
20	<i>Wedelia trilobata</i>	Compositae	Manjakayyoonni
21	<i>Zingiber zerumbet</i>	Zingiberaceae	Malayinchi

Note: The sacred grove is more like a *Myristica* Swamp, with patches of evergreen forests along the side of paddy field. *Myristica malabarica*, *Knema attenuata* and *Hopea parviflora* are the common trees. The most dominant species is *Myristica malabarica*. Along the stream sides *Pandanus thwaitesii* and *Lagenandra ovata* are common. *Gnetum edule* is largest climber. Many large sized trees present in this grove.

Thaliparamba Taluk

1. Mangattuparambu Neeliyar Kotta

	Scientific name	Habit	Common name
	Tree		
1	<i>Acronychia pedunculata</i>	Rutaceae	Verukutheeni, Vidukanali
2	<i>Adenanthara pavonina</i>	Leguminosae	Manchadi
3	<i>Aglaia elaeagnoidea</i>	Meliaceae	Njazhal
4	<i>Alseodaphne semecarpifolia</i>	Lauraceae	Mulakunari
5	<i>Alstonia scholaris</i>	Apocynaceae	Ezhilam pala
6	<i>Anacardium occidentale</i>	Anacardiaceae	Kasumavu, Cashew,
7	<i>Aporosa cardiosperma</i>	Euphorbiaceae	Aechil, Vetti
8	<i>Artocarpus heterophyllus</i>	Moraceae	Plavu
9	<i>Carallia brachiata</i>	Rhizophoraceae	Varangu, Vallabham
10	<i>Careya arborea</i>	Lecythidaceae	Pezhu, Aalam

11	<i>Caryota urens</i>	Arecaceae	Choondappana, Olattipana
12	<i>Chrysophyllum cainito</i>	Sapotaceae	Star apple
13	<i>Ficus benghalensis</i>	Moraceae	Peral
14	<i>Ficus amplissima</i>	Moraceae	Aal
15	<i>Ficus drupacea</i> var. <i>pubescens</i>	Moraceae	Manja-aal
16	<i>Ficus virens</i>	Moraceae	
17	<i>Holigarna arnottiana</i>	Anacardiaceae	Charu, Cheru
18	<i>Lanea coromandelica</i>	Anacardiaceae	Karasu, Udhi
19	<i>Macaranga peltata</i>	Euphorbiaceae	Vatta, Uppothy
20	<i>Madhuca neriifolia</i>	Sapotaceae	Attu-ilippa
21	<i>Mangifera indica</i>	Anacardiaceae	Mavu
22	<i>Memecylon talbotianum</i>	Melastomataceae	Marakaasaav
23	<i>Mimusops elengi</i>	Sapotaceae	Ilengi
24	<i>Olea dioica</i>	Oleaceae	Edala
25	<i>Strychnos nux-vomica</i>	Loganiaceae	Kanjiram
26	<i>Syzygium caryophyllatum</i>	Myrtaceae	Kaninjaval
27	<i>Syzygium chavaran</i>	Myrtaceae	Njaval
28	<i>Vitex altissima</i>	Verbenaceae	Myla
	Climber		
1	<i>Abrus precatorius</i>	Leguminosae	Kunni
2	<i>Ampelocissus latifolia</i>	Vitaceae	Chembaravalli
3	<i>Aristolochia indica</i>	Aristolochiaceae	Karalakam
4	<i>Briedelia stipularis</i>	Euphorbiaceae	Cherukapanachi, Kanjikottam
5	<i>Calycopteris floribunda</i>	Combretaceae	Pullani
6	<i>Cansjera rheedei</i>	Opiliaceae	
7	<i>Cayratia pedata</i>	Vitaceae	Chorivalli
8	<i>Cissus latifolia</i>	Vitaceae	Chunnambuvalli
9	<i>Dalbergia horrida</i>	Leguminosae	Aanamullu
10	<i>Dioscorea pentaphylla</i>	Dioscoreaceae	Chavali kizhangu
11	<i>Dioscorea</i> sp.	Dioscoreaceae	
12	<i>Erycibe paniculata</i>	Convolvulaceae	Erumathali
13	<i>Gnetum edule</i>	Gnetaceae	Karuthodal, Thuvakkai

14	<i>Gymnema sylvestre</i>	Asclepiadaceae	Chakkarakkolli
15	<i>Hugonia mystax</i>	Linaceae	Mothirakkanni
16	<i>Ichnocarpus frutescens</i>	Apocynaceae	Parvalli
17	<i>Jasminum coarctatum</i> (<i>Jasminum rottlerianum</i>)	Oleaceae	Kaattumulla
18	<i>Jasminum malabaricum</i>	Oleaceae	Kadambavalli
19	<i>Lygodium flexuosum</i>	Lygodiaceae	Polivalli
20	<i>Passiflora foetida</i>	Passifloraceae	Bonchikkaya
21	<i>Pothos scandens</i>	Araceae	Varivalli, Paruvakkodi
22	<i>Rourea minor</i>	Connaraceae	Kooriel
23	<i>Sarcostigma kleinii</i>	Icacinaceae	Vellodal
24	<i>Smilax zeylanica</i>	Smilacaceae	Kareelanchi
25	<i>Strychnos minor</i>	Loganiaceae	Vallikanjiram
26	<i>Uvaria narum</i>	Annonaceae	Narumpanal
27	<i>Wattakaka volubilis</i>	Asclepiadaceae	Vattakkakkakodi
28	<i>Ziziphus oenopia</i>	Rhamnaceae	Chruthodali
	Shrubs		
1	<i>Antidesma acidum</i>	Euphorbiaceae	Asaripuli
2	<i>Benkara malabarica</i>	Rubiaceae	Cholakkara
3	<i>Breynia vitis-idaea</i>	Euphorbiaceae	Chuvannaniruri, Pavalapoola
4	<i>Canthium coromandelicum</i>	Rubiaceae	Karamullu
5	<i>Chassalia curviflora</i> var. <i>ophioxyloides</i>	Rubiaceae	Yamari
6	<i>Chromolaena odorata</i>	Asteraceae	Communistpatcha
7	<i>Embelia tsjeram-cottam</i>	Myrsinaceae	
8	<i>Glycosmis pentaphylla</i>	Rutaceae	Panal
9	<i>Gomphia serrata</i>	Ochnaceae	Valarmani
10	<i>Grewia microcos</i>	Tiliaceae	Kottakka
11	<i>Isonandra lanceolata</i>	Sapotaceae	
12	<i>Ixora coccinea</i>	Rubiaceae	Chuvannathetchi
13	<i>Memecylon randerianum</i>	Melastomataceae	Kaikkathetti
14	<i>Mussaenda frondosa</i>	Rubiaceae	Vellila
15	<i>Premna serratifolia</i>	Verbenaceae	Munja

16	<i>Tabernaemontana heyneana</i>	Apocynaceae	Kundalappala, Kunninpala
	Herb		
1	<i>Bulbophyllum sterile</i>	Orchidaceae	
2	<i>Cheilanthes tenuifolia</i>	Pteridaceae	Silver fern
3	<i>Curculigo orchioides</i>	Hypoxidaceae	Nilappana
4	<i>Curcuma oligantha</i>	Zingiberaceae	Kaatumanjal
5	<i>Desmodium triquetrum</i>	Leguminosae	Orila
6	<i>Drosera indica</i>	Droseraceae	
7	<i>Drynaria quercifolia</i>	Ploypodiaceae	Mathil panna
8	<i>Hyptis suaveolens</i>	Lamiaceae	Naattappochedi
9	<i>Leucas aspera</i>	Lamiaceae	Thumba
10	<i>Luisia tristis</i>	Orchidaceae	
11	<i>Naregamia alata</i>	Meliaceae	Nilanarakam
12	<i>Nervilia crociformis</i>	Orchidaceae	Orilathamara
13	<i>Polycarpaea corymbosa</i>	Caryophyllaceae	
14	<i>Rhynchosyilis retusa</i>	Orchidaceae	Seethamudi,
15	<i>Vanda testacea</i>	Orchidaceae	Cheriyamaravazha

Note: In this sacred grove, the vegetation is fairly dense. *Memecylon talbotianum* is the most dominant tree species, followed by *Adenanthera pavonina*. The largest tree in the grove is *Syzygium chavaran*. *Vitex altissima* is also common. The undergrowth is dense, mostly with *Antidesma acidum* and *Memecylon randerianum*. There is dense growth of *Curcuma oligantha* among the herbs. The dominant climbers are *Hugonia mystax*, *Calycopteris floribunda* and *Dalbergia horrida*.

2. Konginichal Bhagavathy TempleKavu, Alakkode

	Scientific name	Habit	Common name
	Tree		
1	<i>Acacia auriculiformis</i>	Leguminosae	Acacia
2	<i>Adenanthara pavonina</i>	Leguminosae	Manchadi
3	<i>Aglaia elaeagnoidea</i>	Meliaceae	Njazhal
4	<i>Ailanthus triphysa</i>	Simaroubaceae	Matti, Perumaram

5	<i>Annona reticulata</i>	Annonaceae	Seethappazham, Aattha
6	<i>Aporosa cardiosperma</i> (<i>Aporosa lindleyana</i>)	Euphorbiaceae	Vetti, Aechil
7	<i>Artocarpus heterophyllus</i>	Moraceae	Plavu
8	<i>Briedelia retusa</i>	Euphorbiaceae	Mullenkaini, Mulluvenga
9	<i>Carallia brachiata</i>	Rhizophoraceae	Vallabham, Vankana
10	<i>Caryota urens</i>	Arecaceae	Choondappana, Olattipana
11	<i>Casearia ovata</i>	Flacourtiaceae	
12	<i>Chrysophyllum cainito</i>	Sapotaceae	Star apple
13	<i>Cinnamomum verum</i>	Lauraceae	Karuva
14	<i>Ficus drupacea</i> var. <i>pubescens</i>	Moraceae	Manja-aal
15	<i>Ficus hispida</i>	Moraceae	Parakam
16	<i>Holigarna arnottiana</i>	Anacardiaceae	Charu, Cheru
17	<i>Hopea parviflora</i>	Dipterocarpaceae	Kambakam
18	<i>Hydnocarpus pentandra</i>	Flacourtiaceae	Marotti
19	<i>Lannea coromandelica</i>	Anacardiaceae	Karasu, Udhi
20	<i>Macaranga peltata</i>	Euphorbiaceae	Vatta, Uppothy
21	<i>Madhuca neriifolia</i>	Sapotaceae	Aattuilippa, Njana
22	<i>Mallotus philippensis</i>	Euphorbiaceae	Sindooramaram, Kurangumanjal
23	<i>Mimusops elengi</i>	Sapotaceae	Ilengi
24	<i>Nyctanthes arbortristis</i>	Oleaceae	Pazhamulla
25	<i>Plumeria rubra</i>	Apocynaceae	Arali, Chempakappala
26	<i>Sapindus trifoliatus</i>	Sapindaceae	Pasakotta, Soapinkai
27	<i>Sterculia guttata</i>	Sterculiaceae	Kaavalam
28	<i>Stereospermum colais</i>	Bignoniaceae	Paathiri
29	<i>Strychnos nux-vomica</i>	Loganiaceae	Kanjiram
30	<i>Tectona grandis</i>	Verbenaceae	Thekku
31	<i>Vitex altissima</i>	Verbenaceae	Myla
32	<i>Zanthoxylum rhetza</i>	Rutaceae	Mullilam
	Climber		
1	<i>Abrus pulchellus</i>	Leguminosae	Kattumuthira
2	<i>Acacia caesia</i>	Leguminosae	Incha

3	Aganope thyriflora	Leguminosae	
4	Briedelia stipularis	Euphorbiaceae	Cherukapanachi, Kanjikottam
5	Calycopteris floribunda	Combretaceae	Pullani
6	Cissus latifolia	Vitaceae	Chunnambuvalli
7	Combretum latifolium	Combretaceae	
8	Dalbergia horrida	Leguminosae	Anamullu
9	Dioscorea sp.	Dioscoreaceae	
10	Erycibe paniculata	Convolvulaceae	Erumathali
11	Gnetum edule	Gnetaceae	Karuthodal, Thuvakkai
12	Ichnocarpus frutescens	Apocynaceae	Parvalli
13	Naravelia zeylanica	Ranunculaceae	Vaathakkodi
14	Piper nigrum	Piperaceae	Kurumulaku
15	Pothos scandens	Araceae	Varivalli, Paruvakkodi
16	Salacia fruticosa	Celastraceae	Ekanayakam, Ponkoranti
17	Smilax zeylanica	Smilacaceae	Kareelanchi
18	Spatholobus parviflorus	Leguminosae	Valliplash
19	Srychnos minor	Loganiaceae	Vallikanjiram
20	Tinospora sinensis	Menispermaceae	Pothamruthu
21	Uvaria narum	Annonaceae	Narumpanal
	Shrub		
1	Antidesma acidum	Euphorbiaceae	Asaripuli,
2	Chassalia curviflora var. ophioxyloides	Rubiaceae	Yamari
3	Ixora brachiata	Rubiaceae	Marathetchi
4	Ixora coccinea	Rubiaceae	Chuvannathetchi
5	Ixora javanica	Rubiaceae	Ashokathetchi
6	Justicia gendarussa	Acanthaceae	Vaathamkolli
7	Memecylon randerianum	Melastomataceae	Kaikathetchi
8	Morinda citrifolia	Rubiaceae	Cherumanjanathi
9	Mussaenda frondosa	Rubiaceae	Vellila
10	Tabernaemontana heyneana	Apocynaceae	Kundalappala, Kunninpala

	Herb		
1	Geophila herbacea	Rubiaceae	Karimutthil
2	Costus speciosus	Zingiberaceae	Channakoova
3	Curcuma aurantiaca	Zingiberaceae	
4	Curcuma oligantha	Zingiberaceae	Kaattumanjal
5	Lepidagathis incurva	Acanthaceae	
6	Stachyphrynium spicatum	Marantaceae	Kaattukoova

Note: *Hopea parviflora* is the most dominant tree in this grove. Large size trees are absent due to previous cutting. The canopy is dense and compact without openings except the area around the temple. *Antidesma acidum* and *Ixora coccinea* are the dominant undergrowth. The main climbers are *Calycopteris floribunda* and *Combretum latifolium*. The sacred grove is free from exotic invasive species.

3. Chamakkavu Bhgavathy Temple Kavu, Velluru

	Scientific name	Habit	Local name
	Tree		
1	Acacia mangium	Leguminosae	Mangium
2	Adenantha pavonina	Leguminosae	Manchadi
3	Anacardium occidentale	Anacardiaceae	Kashumavu, Cashew
4	Aporusa cardiosperma (<i>Aporusa lindleyana</i>)	Euphorbiaceae	Vetti, Aechil
5	Canthium umbellatum	Rubiaceae	Irumbarappi
6	Carallia brachiata	Rhizophoraceae	Vallabham, Varangu
7	Caryota urens	Arecaceae	Choondappana, Olattipana
8	Cassia fistula	Leguminosae	Kanikonna
9	Chrysophyllum cainito	Sapotaceae	Star apple
10	Cinnamomum verum	Lauraceae	Karuva
11	Ficus benghalensis	Moraceae	Peral
12	Ficus religiosa	Moraceae	Arayal
13	Gmelina arborea	Verbenaceae	Kumizhu, Kumbil
14	Gymnacranthera farquhariana	Myristicaceae	Adakkapayin

15	Holigarna arnottiana	Anacardiaceae	Charu, Cheru
16	Hopea parviflora	Dipterocarpaceae	Kambakam
17	Hydnocarpus pentandra	Flacourtiaceae	Marotti
18	Lannea coromandelica	Anacardiaceae	Karasu, Udhi
19	Mallotus philippensis	Euphorbiaceae	Sindooramaram, Kurangumanjal
20	Macaranga petlata	Euphorbiaceae	Vatta, Uppothy
21	Memecylon talbotianum	Melasotaceae	Marakassavu
22	Nyctanthes arbortristis	Oleaceae	Pavizhamulla
23	Olea dioica	Oleaceae	Edala
24	Strychnos nux-vomica	Loganiaceae	Kanjiram
25	Swietenia macrophylla	Meliaceae	Mahagany
26	Syzygium caryophyllatum	Myrtaceae	Kaninjaval
27	Tectona grandis	Verbenaceae	Thekku
28	Trema orientalis	Ulmaceae	Amathali, Pottamaram
29	Vateria indica	Diperocarpaceae	Vellappine
30	Vitex altissima	Verbenaceae	Myla
	Climber		
1	Anamirta cocculus	Menispermaceae	Pollakai
2	Calycopteris floribunda	Combretaceae	Pullani
3	Cansjera rheedei	Opiliaceae	
4	Cassytha filiformis	Lauraceae	Moodillathali
5	Cissus latifolia	Vitaceae	Chunnambuvalli
6	Connarus monocarpus	Connaraceae	Kooriel
7	Cosmostigma racemosum	Asclepiadaceae	Vattuvalli
8	Cyclea peltata	Menispermaceae	Malathangi
9	Dalbergia horrida	Leguminosae	Anamullu
10	Dioscorea wallichii	Dioscoreaceae	Kattukachil
11	Erycibe paniculata	Convolvulaceae	Erumathali
12	Gloriosa superba	Liliaceae	Menthonni
13	Gymnema sylvestre	Asclepiadaceae	Chakkarakkolli
14	Hugonia mystax	Linaceae	Mothirakkanni
15	Ichnocarpus frutescens	Apocynaceae	Parvalli

16	<i>Jasminum coarctatum</i> (<i>Jasminum rottlerianum</i>)	Oleaceae	Kattumulla
17	<i>Jasminum malabaricum</i>	Oleaceae	Kadambavalli
18	<i>Pothos scandens</i>	Araceae	Paruvakkodi, Varivalli
19	<i>Rourea minor</i>	Connaraceae	Kooriel
20	<i>Salacia chinensis</i>	Celastraceae	Ekanayakam,
21	<i>Uvaria narum</i>	Annonaceae	Narumpanal
22	<i>Ziziphus oenoplia</i>	Rhamnaceae	Cheruthodali
	Shrub		
1	<i>Canthium coromandelicum</i>	Rubiaceae	Kattaramullu
2	<i>Chassalia curviflora</i> var. <i>ophioxyloides</i>	Rubiaceae	Yamari
3	<i>Grewia microcos</i>	Tiliaceae	Kottakka
4	<i>Ixora coccinea</i>	Rubiaceae	Chuvannathetchi
5	<i>Gomphia serrata</i>	Ochnaceae	Valarmani
6	<i>Memecylon umbellatum</i>	Melastomataceae	Kasavu, Kayampoo
7	<i>Mussaenda frondosa</i>	Rubiaceae	Vellila
8	<i>Pavetta indica</i>	Rubiaceae	Pavetta
9	<i>Premna serratifolia</i>	Verbenaceae	Munja
10	<i>Phyllanthus reticulatus</i>	Euphorbiaceae	Neeroli
11	<i>Syzygium zeylanicum</i>	Myrtaceae	Poochappazham
12	<i>Tabernaemontana heyneana</i>	Apocynaceae	Kundalappala, Kunninpala
	Herb		
1	<i>Acampe praemorsa</i>	Orchidaceae	Maravazha
2	<i>Amorphophallus hohenackeri</i>	Araceae	Kaattuchena
3	<i>Alternanthera brasiliana</i>	Amaranthaceae	Chemcheera
4	<i>Bulbophyllum sterile</i>	Orchidaceae	
5	<i>Caldium 68bicolour</i>	Araceae	Pullichembu
6	<i>Curculigo orchioides</i>	Hypoxidaceae	Nilappana
7	<i>Curcuma xanthorrhiza</i>	Zingiberaceae	Manjakkova
8	<i>Drynaria quercifolia</i>	Polypodiaceae	Marappanna
9	<i>Naregamia alata</i>	Meliaceae	Nilanarakam
10	<i>Theriophonum infaustum</i>	Araceae	

11	Vanda testacea	Orchidaceae	
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4. Paliyeri Shri Mookambika Temple Kavu, Karivellur

	Scientific name	Habit	Common name
	Tree		
1	Adenanthara pavonina	Leguminosae	Manchadi
2	Alstonia scholaris	Apocynaceae	Ezhilam pala
3	Anacardium occidentale	Anacardiaceae	Kasumavu, Cashew
4	Antiaris toxicaria	Moraceae	Maravuri
5	Aporusa cardiosperma	Euphorbiaceae	Aechil, Vetti
6	Artocarpus gomezianus subsp. Zeylanicus	Moraceae	TeettaplavuPlavu
7	Barringtonia acutangula	Lecythidaceae	Aattupezhu
8	Carallia brachiata	Rhizophoraceae	Varangu, Vallabham
9	Caryota urens	Arecaceae	Choondappana, Olattipana
10	Cinnamomum verum	Lauraceae	Karuva
11	Diospyros candolleana	Ebenaceae	Karimaram
12	Ficus drupacea var. pubescens	Moraceae	Manja-aal
13	Gymnacranthera farquhariana	Myristicaceae	Adakkappayin
14	Garcinia xanthochymus	Clusiaceae	Pitthappuli
15	Holigarna arnottiana	Anacardiaceae	Charu, Cheru
16	Hopea parviflora	Dipterocarpaceae	Kambakam
17	Hydnocarpus pentandra	Flacourtiaceae	Marotti
18	Lanea coromandelica	Anacardiaceae	Karasu, Udhi
19	Madhuca nerifolia	Sapotaceae	Aattuilippa
20	Mangifera indica	Anacardiaceae	Mavu
21	Olea dioica	Oleaceae	Edala
22	Persea macrantha	Lauraceae	Kulamavu, Ooravu
23	Sterculia gttata	Sterculiaceae	Kaavalam
24	Syzygium travancoricum	Myrtaceae	Njaval
	Climber		
1	Acaia torta	Leguminosae	Kakkincha

2	Anamirta cocculus	Menispermaceae	Pollakkai
3	Briedelia stipularis	Euphorbiaceae	Cherukapanachi, Kanjikottam
4	Cissus latifolia	Vitaceae	Chunnambuvali
5	Combretum latifolium	Combretaceae	
6	Cyclea peltata	Menispermaceae	Padakizhangu
7	Derris scandens	Leguminosae	Poonjali
8	Dioscorea pentaphylla	Dioscoreaceae	
9	Dioscorea wallichii	Dioscoreaceae	
10	Diploclisia glaucescens	Menispermaceae	Vattoli
11	Erycibe paniculata	Convolvulaceae	Erumathali
12	Gnetum edule	Gnetaceae	Karuthodal, Thuvakkai
13	Ichnocarpus frutescens	Apocynaceae	Parvalli
14	Jasminum coarctatum (<i>Jasminum rottlerianum</i>)	Oleaceae	Kaattumulla
15	Jasminum malabaricum	Oleaceae	Kadambavalli
16	Parsonsia inodora	Apocynaceae	Penalivalli
17	Pothos scandens	Araceae	Varivalli, Paruvakkodi
18	Rourea minor	Connaraceae	Kooriel
19	Smilax zeylanica	Smilacaceae	Kareelanchi
20	Tetracera akara	Dilleniaceae	Nakkuvalli, Kottavalli
21	Uvaria narum	Annonaceae	Narumpanal
	Shrub		
1	Antidesma acidum	Euphorbiaceae	Asaripuli
2	Chassalia curviflora var. ophioxyloides	Rubiaceae	Yamari
3	Leea indica	Leeaceae	Njekku, Njellu
4	Ixora coccinea	Rubiaceae	Chuvannathetchi
5	Mussaenda frondosa	Rubiaceae	Vellila
	Herb		
1	Bulbophyllum sterile	Orchidaceae	
2	Amorphophallus sp.	Araceae	Kaattuchena
3	Costus speciosus	Zingiberaceae	Channakkoova
4	Rhynchostylis retusa	Orchidaceae	Seethamudi,

Note: The vegetation in this grove is fairly dense with trees and climbers. There are two very large trees of *Syzygium trvancoricum*. The most dominant tree species is *Gymnacranthera farquhariana* with good regeneration. Climbers are frequent.

5. Vareekkara Kavu Bhagavathi Temple, Peralam

	Scientific name	Habit	Local name
	Tree		
1	<i>Ailanthus triphysa</i>	Simaroubaceae	Matti, Perumaram
2	<i>Alstonia scholaris</i>	Apocynaceae	Ezhilampala
3	<i>Anacardium occidentale</i>	Anacardiaceae	Kashumavu, Cashew
4	<i>Antiaris toxicaria</i>	Moraceae	Maravuri
5	<i>Aporusa cardiosperma</i> (<i>Aporusa lindleyana</i>)	Euphorbiaceae	Vetti, Aechil
6	<i>Caryota urens</i>	Arecaceae	Choondappana, Olattipana
7	<i>Euodia lunu-ankenda</i>	Rutaceae	Naasakam, Kanala
8	<i>Ficus drupacea</i> var. <i>pubescens</i>	Moraceae	Manja aal
9	<i>Ficus hispida</i>	Moraceae	Parakam
10	<i>Ficus tsjahela</i>	Moraceae	Chela
11	<i>Gliricidia sepium</i>	Leguminosae	Seemakonna
12	<i>Gmelina arborea</i>	Verbenaceae	Kumizhu, Kumbil
13	<i>Holigarna arnottiana</i>	Anacardiaceae	Charu, Cheru
14	<i>Holoptelia integrifolia</i>	Ulmaceae	Aaval
15	<i>Lannea coromandelica</i>	Anacardiaceae	Karasu, Udhi
16	<i>Litsea coriacea</i>	Lauraceae	Maravettithali
17	<i>Mallotus philippensis</i>	Euphorbiaceae	Sindooramaram, Kurangumanjal
18	<i>Macaranga petlata</i>	Euphorbiaceae	Vatta, Uppothy
19	<i>Naringi crenulata</i>	Rutaceae	Narinarakam
20	<i>Olea dioica</i>	Oleaceae	Edala
21	<i>Schleichera oleosa</i>	Sapindaceae	Poovam
22	<i>Syzygium caryophyllatum</i>	Myrtaceae	Kaninjaval
23	<i>Trema orientalis</i>	Ulmaceae	Amathali, Pottamaram
24	<i>Vateria indica</i>	Diperocarpaceae	Vellappine

25	<i>Vitex altissima</i>	Verbenaceae	Myla
26	<i>Zanthoxylum retzia</i>	Rutaceae	Mullilam
	Climber		
1	<i>Acacia torta</i>	Leguminosae	Kakkincha
2	<i>Aganope thyrsoflora</i> var. <i>eualata</i>	Leguminosae	
3	<i>Alangium salivifolium</i> subsp. <i>hexapetalum</i>	Alangiaceae	Valliankolam
4	<i>Anamirta cocculus</i>	Menispermaceae	Pollakai
5	<i>Bauhinia phoenicea</i>	Leguminosae	Vallimandaram
6	<i>Briedelia stipularis</i>	Euphorbiaceae	Cherupanachi Kanjikottam
7	<i>Calycopteris floribunda</i>	Combretaceae	Pullani
8	<i>Cansjera rheedei</i>	Opiliaceae	
9	<i>Cissus latifolia</i>	Vitaceae	Chunnambuvalli
10	<i>Combretum latifolium</i>	Combretaceae	
11	<i>Cosmostigma racemosum</i>	Asclepiadaceae	Vattuvalli
12	<i>Croton caudatus</i>	Euphorbiaceae	
13	<i>Cyclea peltata</i>	Menispermaceae	Malathangi
14	<i>Dalbergia horrida</i>	Leguminosae	Anamullu
15	<i>Derris scandens</i>	Leguminosae	Poonjali
16	<i>Dioscorea pentaphylla</i>	Dioscoreaceae	Chavalikizhangu
17	<i>Dioscorea wallichii</i>	Dioscoreaceae	Kattukachil
18	<i>Gloriosa superba</i>	Liliaceae	Menthonni
19	<i>Gnetum edule</i>	Gnetaceae	Karuthodal, Thuvakkai
20	<i>Hippocratea arnottiana</i>	Celastraceae	Kattadinayakam
21	<i>Hugonia mystax</i>	Linaceae	Mothirakkanni
22	<i>Ichnocarpus frutescens</i>	Apocynaceae	Parvalli
23	<i>Jasminum coarctatum</i> (<i>Jasminum rotlerianum</i>)	Oleaceae	Kattumulla
24	<i>Jasminum malabaricum</i>	Oleaceae	Kadambavalli
25	<i>Merremia vitifolia</i>	Convolvulaceae	Manjavayaravalli
26	<i>Merremia umbellata</i>	Convolvulaceae	Koravalli
27	<i>Pothos scandens</i>	Araceae	Paruvakkodi, Varivalli
28	<i>Smilax zeylanica</i>	Smilacaceae	Kareelanchi

29	<i>Spatholobus parviflorus</i>	Leguminosae	Valliplash
30	<i>Strychnos minor</i>	Loganiaceae	Vallikanjiram
31	<i>Tinospora sinensis</i>	Menispermaceae	Potthamruthu
32	<i>Uvaria narum</i>	Annonaceae	Narumpanal
33	<i>Ziziphus oenoplia</i>	Rhamnaceae	Cheruthodali
34	<i>Ziziphus rugosa</i>	Rhamnaceae	Vanthodali
	Shrub		
1	<i>Allophylus cobbe</i>	Sapindaceae	Mukkannanpezhu
2	<i>Ananas comosus</i>	Bromeliaceae	Pineapple
3	<i>Antidesma acidum</i>	Euphorbiaceae	Asaripuli
4	<i>Canthium coromandelicum</i>	Rubiaceae	Kattaramullu
5	<i>Chassalia curviflora</i> var. <i>ophioxyloides</i>	Rubiaceae	Yamari
6	<i>Chromolaena odorata</i> (<i>Eupatorium odoratum</i>)	Compositae	Communistpatcha
7	<i>Flueggea virosa</i>	Euphorbiaceae	Perinklavu
8	<i>Grewia microcos</i>	Tiliaceae	Kottakka
9	<i>Hibiscus hispidissimus</i>	Malvaceae	Kaalapoo, Panachan
10	<i>Ixora brachiata</i>	Rubiaceae	Marathetchi
11	<i>Ixora coccinea</i>	Rubiaceae	Chuvannathetchi
12	<i>Lantana camara</i>	Verbenaceae	Aripoochedi
13	<i>Memecylon randerianum</i>	Melastomataceae	Kaikathetchi
14	<i>Mussaenda frondosa</i>	Rubiaceae	Vellila
15	<i>Rauvolfia serpentina</i>	Apocynaceae	Sarpagandhi
16	<i>Strobilanthes integrifolia</i>	Acanthaceae	Thottukurinji
17	<i>Tabernaemontana heyneana</i>	Apocynaceae	Kundalappala, Kunninpala
	Herb		
1	<i>Amorphophallus hohenackeri</i>	Araceae	Kaattuchena
2	<i>Caldium 73bicolour</i>	Araceae	Pullichemba
3	<i>Curculigo orchioides</i>	Hypoxidaceae	Nilappana
4	<i>Curcuma oligantha</i>	Zingiberaceae	Kattumanjal
5	<i>Naregamia alata</i>	Meliaceae	Nilanarakam

Note: In this sacred grove large trees are absent. Canopy is wide open. Invasive species such as *Eupatorium* and *Lantana* are common. The climbers like *Acacia torta*, *Merremia vitifolia*, *Merremia umbellata*, *Ziziphus oenoplia* etc. are species usually establish in the secondary vegetation.

6. Edappara Chamundessary Temple, Paathottam

	Scientific name	Habit	Local name
	Tree		
1	<i>Acacia auriculiformis</i>	Mimosaceae	Acacia
2	<i>Adenantha pavonina</i>	Leguminosae	Manchadi
3	<i>Aglaia elaeagnoidea</i>	Meliaceae	Njazhal
4	<i>Ailanthus triphysa</i>	Simaroubaceae	Matti, Perumaram
5	<i>Anacardium occidentale</i>	Anacardiaceae	Kashumavu, Cashew
6	<i>Aporosa cardiosperma</i> (<i>Aporosa lindleyana</i>)	Euphorbiaceae	Vetti, Aechil
7	<i>Carallia brachiata</i>	Rhizophoraceae	Vrangu, Vallabham
8	<i>Careya arborea</i>	Lecythidaceae	Pezhu, Aalam
9	<i>Caryota urens</i>	Arecaceae	Choondappana, Olattipana
10	<i>Cinnamomum malabatum</i>	Lauraceae	Vayana
11	<i>Diospyros candolleana</i>	Ebenaceae	Karimaram
12	<i>Euodia lunu-ankenda</i>	Rutaceae	Naasakam, Kanala
13	<i>Falconeria insignis</i>	Euphorbiaceae	Pattarupala, Kannampotti
14	<i>Ficus benghalensis</i>	Moraceae	Peral
15	<i>Ficus amplissima</i>	Moraceae	
16	<i>Ficus hispida</i>	Moraceae	Parakam
17	<i>Holigarna arnottiana</i>	Anacardiaceae	Charu, Cheru
18	<i>Lannea coromandelica</i>	Anacardiaceae	Karasu, Udhi
19	<i>Mallotus philippensis</i>	Euphorbiaceae	Sindooramaram, Kurangumanjal
20	<i>Macaranga petlata</i>	Euphorbiaceae	Vatta, Uppothy
21	<i>Mimusops elengi</i>	Sapotaceae	Ilengi

22	<i>Olea dioica</i>	Oleaceae	Edala
23	<i>Phyllanthus emblica</i>	Euphorbiaceae	Nelli
24	<i>Santalum album</i>	Santalaceae	Chandanam
25	<i>Strychnos nux-vomica</i>	Loganiaceae	Kanjiram
26	<i>Syzygium caryophyllatum</i>	Myrtaceae	Kaninjaval
27	<i>Vitex altissima</i>	Verbenaceae	Myla
Climber			
1	<i>Acacia torta</i>	Leguminosae	Kakkincha
2	<i>Ampelocissus latifolia</i>	Vitaceae	Chembaravalli
3	<i>Anamirta cocculus</i>	Menispermaceae	Pollakai
4	<i>Beaumontia jerdoniana</i>	Apocynaceae	Swethapushpi
5	<i>Briedelia stipularis</i>	Euphorbiaceae	Cherupanachi Kanjikottam
6	<i>Calycopteris floribunda</i>	Combretaceae	Pullani
7	<i>Cansjera rheedei</i>	Opiliaceae	
8	<i>Cissus latifolia</i>	Vitaceae	Chunnambuvalli
9	<i>Cissus sp.</i>	Vitaceae	
10	<i>Combretum latifolium</i>	Combretaceae	
11	<i>Cosmostigma racemosum</i>	Asclepiadaceae	Vattuvalli
12	<i>Dalbergia horrida</i>	Leguminosae	Anamullu
13	<i>Dioscorea oppositifolia</i>	Dioscoreaceae	Kanjirakizhangu
14	<i>Dioscorea pentaphylla</i>	Dioscoreaceae	Chavalikizhangu
15	<i>Dioscorea wallichii</i>	Dioscoreaceae	Kattukachil
16	<i>Diploclisia glaucescens</i>	Menispermaceae	Vattoli
17	<i>Erycibe paniculata</i>	Convolvulaceae	Erumathali
18	<i>Gloriosa superba</i>	Liliaceae	Menthonni
19	<i>Gnetum edule</i>	Gnetaceae	Karuthodal, Thuvakkai
20	<i>Hippocratea arnottiana</i>	Celastraceae	Kattadinayakam
21	<i>Hugonia mystax</i>	Linaceae	Mothirakkanni
22	<i>Ichnocarpus frutescens</i>	Apocynaceae	Parvalli
23	<i>Jasminum angustifolium</i>	Oleaceae	Kattumpichakam
24	<i>Jasminum malabaricum</i>	Oleaceae	Kadambavalli
25	<i>Merremia vitifolia</i>	Convolvulaceae	Manjavayaravalli

26	Pothos scandens	Araceae	Paruvakkodi, Varivalli
27	Smilax zeylanica	Smilacaceae	Kareelanchi
28	Solena amplexicaulis	Cucurbitaceae	Karakka
29	Tetrastigma sp.	Vitaceae	
30	Uvaria narum	Annonaceae	Narumpanal
31	Ziziphus oenoplia	Rhamnaceae	Cheruthodali
	Shrubs		
1	Antidesma acidum	Euphorbiaceae	Asaripuli
2	Breynia vitis-idaea	Euphorbiaceae	Pavilapoola
3	Canthium coromandelicum	Rubiaceae	Kattaramullu
4	Chassalia curviflora var. ophioxyloides	Rubiaceae	Yamari
5	Chromolaena odorata (<i>Eupatorium odoratum</i>)	Compositae	Communistpatcha
6	Euphorbia neriifolia	Euphorbiaceae	Ilakkalli
7	Gomphia serrata	Ochnaceae	Valarmani
8	Grewia microcos	Tiliaceae	Kottakka
9	Ixora brachiata	Rubiaceae	Marathetchi
10	Ixora coccinea	Rubiaceae	Chuvannathetchi
11	Lantana camara	Verbenaceae	Aripoochedi
12	Leea asiatica	Leeaceae	Njellu, Njekku
13	Memecylon randerianum	Melastomataceae	Kaikathetchi
14	Mussaenda frondosa	Rubiaceae	Vellila
15	Premna serratifolia	Verbenaceae	Munja
16	Tabernaemontana heyneana	Apocynaceae	Kundalappala, Kunninpala
	Herb		
1	Amorphophallus sp.	Araceae	Kaattuchena
2	Elephantopus scaber	Asteraceae	Anachuvadi
3	Naregamia alata	Meliaceae	Nilanarakam

7. Madai Kavu, Thaliparambu

	Scientific name	Family	Common name
	Tree		
1	<i>Aglaia elaeagnoidea</i>	Meliaceae	Njazhal
2	<i>Alstonia scholaris</i>	Apocynaceae	Ezhilampala
3	<i>Canthium dicoccum</i>	Rubiaceae	Irumbarappi
4	<i>Diospyros candolleana</i>	Ebenaceae	Karimaram
5	<i>Erythrina orientalis</i>	Leguminosae	Mullumurikku
6	<i>Falconeria insignis</i>	Euphorbiaceae	Kannampotti, Pattarupala
7	<i>Ficus drupacea</i> var. <i>pubescens</i>	Moraceae	Manja aal
8	<i>Holoptelea integrifolia</i>	Ulmaceae	Aaval
9	<i>Macaranga peltata</i>	Euphorbiaceae	Vatta, Uppothy
10	<i>Mallotus philippinensis</i>	Euphorbiaceae	Sindhooramaram, Kurungumanjal
11	<i>Memecylon talbotianum</i>	Melastomataceae	Marakkasavu
12	<i>Mimusops elengi</i>	Sapotaceae	Ilenji
13	<i>Plumeria rubra</i>	Apocynaceae	Chempakappala
14	<i>Sapindus trifoliatus</i>	Sapindaceae	Passakotta, soapinkai
15	<i>Schleichera oleosa</i>	Sapindaceae	Poovam
16	<i>Sterculia guttata</i>	Sterculiaceae	Kaavalam
17	<i>Strychnos nux-vomica</i>	Loganiaceae	Kanjiram
18	<i>Tamarindus indica</i>	Leguminosae	Puli, Vaalanpuli
19	<i>Terminalia paniculata</i>	Combretaceae	Maruthi
20	<i>Vitex altissima</i>	Veberaceae	Myla
21	<i>Zanthoxylum rhetsa</i>	Rutaceae	Mullilam
	Climber		
1	<i>Ampelocissus latifolia</i>	Vitaceae	Chembaravalli
2	<i>Briedelia stipularis</i>	Euphorbiaceae	Cherukapanachi, Kanjikottam
3	<i>Calycopteris floribunda</i>	Combretaceae	Pullani
4	<i>Croton caudatus</i>	Euphorbiaceae	Umithinnikodi

5	<i>Dalbergia horrida</i>	Leguminosae	Aanamullu
6	<i>Gymnema sylvestre</i>	Asclepiadaceae	Chakkarakkolli
7	<i>Hippocratea arnottiana</i>	Celastraceae	Kattadinayakam
8	<i>Hugonia mystax</i>	Linaceae	Modirakkanni
9	<i>Jasminum flexile</i>	Oleaceae	Kaattumulla
10	<i>Jasminum multiflorum</i>	Oleaceae	Mulla
11	<i>Mukia maderaspatana</i>	Cucurbitaceae	
12	<i>Strychnos colubrina</i>	Loganiaceae	Vallikanjiram
13	<i>Tinospora cordifolia</i>	Menispermaceae	Amruthu
Shrub			
1	<i>Allophyllus cobbe</i>	Sapindaceae	Mukkannanpezhu
2	<i>Canthium coromandelicum</i>	Rubiaceae	Kattaramullu
3	<i>Clerodendron infortunatum</i>	Verbenaceae	Peruvalam, Peruku
4	<i>Glycosmis pentaphylla</i>	Rutaceae	Paanal
5	<i>Grewia nervosa</i>	Tiliaceae	Kottakka
6	<i>Hibiscus hispidissimus</i>	Malvaceae	Kaalapoo, Panachan
7	<i>Ixora elongata</i>	Rubiaceae	
8	<i>Jatropha gossypifolia</i>	Euphorbiaceae	Chuvannakadalavanakku
9	<i>Sida alnifolia</i>	Malvaceae	Kurumthotti
10	<i>Tabernaemontana heyneana</i>	Apocynaceae	Kundalappala, Kunninpala
Herb			
1	<i>Acampe praemorsa</i>	Orchidaceae	Maravazha
2	<i>Curcuma aurantiaca</i>	Zingiberaceae	Kaattumanjal
3	<i>Elephantopus scaber</i>	Compositae	Aanachuvadi
4	<i>Haplanthodes neilgherrgensis</i>	Acanthaceae	
5	<i>Hyptis suaveolens</i>	Lamiaceae	Naattapoochedi
6	<i>Peristrophe paniculata</i>	Acanthaceae	
7	<i>Plumbago zeylanica</i>	Plumbaginaceae	Vellakoduveli
8	<i>Synedrella nodiflora</i>	Asteraceae	Mudiyan pacha

Note: Madayikavu is a mid land laterite sacred grove. The vegetation in this kavu is Dominated by herbaceous species such as Eriocaulon spp. Drosera indica, Polycarpha corymbosa, Utricularia spp. etc. Climbers and stragglers are also common.

8. Thayakavu, Thaliparamba

	Scientific name	Family	Common name
	Trees		
1	Avicennia marina	Avicenniaceae	Cheru uppatti
2	Avicennia officinalis	Avicenniaceae	Uppatti
3	Bruguiera cylindrica	Rhizophoraceae	
4	Caryota urens	Arecaceae	Choondappana, Olattipana
5	Cerbera odollam	Apocynaceae	Othalam
6	Cinnamomum verum	Lauraceae	Karuva
7	Excoecaria agallocha	Euphorbiaceae	Kannampotti, Kammetti
8	Holigarna arnottiana	Anacardiaceae	Cheru, Charu
9	Kandelia candel	Rhizophoraceae	Kuttikandal
10	Macranga peltata	Euphorbiaceae	Vatta
11	Mimusops elengi	Sapotaceae	Ilenji
12	Rhizophora mucronata	Rhizophoraceae	Pranthan kandal
13	Rhizophora apiculata	Rhizophoraceae	Vallikandel
14	Pongamia pinnata	Leguminosae	Ungu
15	Sonneratia alba	Sonneratiaceae	Nakshathrakandel
	Climber		
1	Calamus rotang	Arecaceae	Chooral
2	Cyclea peltata	Menispermaceae	Padakizhangu
3	Derris trifoliata	Leguminosae	Kammattivalli
4	Gloriosa superba	Liliaceae	Menthonni
5	Stenochlaena palustris	Blechnaceae	Pannal valli
	Shrub		
1	Aegiceras corniculatum	Myrsinaceae	Pookandel
2	Acanthus ilicifolius	Acanthaceae	Muthalamooku, Chakkaramullu
3	Acrostichum speciosum	Pteridaceae	Pannal

4	Clerodendron inerme	Vebenaceae	Cheruchinna Chinnayila
5	Ixora coccinea	Rubiaceae	Chuvannathetchi
6	Pandanus tectorius	Pandanaceae	Kaitha
7	Morinda citrifolia	Rubiaceae	Cherumanjanathi
8	Premna serratifolia	Verbenaceae	Munja
	Herb		
1	Leucas aspera	Lamiaceae	Thumba
2	Drynaria quercifolia	Polypodiaceae	Mathil panna

Note: It is a coastal sacred grove mostly with mangroves and mangrove associates. The mangrove species are belonging to Rhizophoraceae.

Irutty Taluk

1. Varavilkavu, Kodolippuram, Mattannur

	Scientific name	Habit	Common name
	Tree		
1	Acacia mangium	Leguminosae	Acacia
2	Aglaia elaeagnoidea	Meliaceae	Njazhal
3	Ailanthus triphysa	Simaroubaceae	Matti, Perumaram
4	Aporusa cardiosperma	Euphorbiaceae	Aechil, Vetti
5	Areca catechu	Arecaceae	Adakka
6	Artocarpus heterophyllus	Moraceae	Plavu
7	Carallia brachiata	Rhizophoraceae	Varangu, Vallabham
8	Caryota urens	Arecaceae	Choondappana, Olattipana
9	Cocos nucifera	Arecaceae	Thengu
10	Delonix regia	Leguminosae	Poomaram, Gulmohar
11	Erythrina orientalis	Leguminosae	Mullumurukku
12	Ficus callosa	Moraceae	Kadaplavu
13	Ficus hispida	Moraceae	Parakam
14	Ficus drupacea var. pubescens	Moraceae	Manja-aal

15	<i>Ficus nervosa</i>	Moraceae	Eechamaram
16	<i>Gliricidia sepium</i>	Leguminosae	Seemakonna
17	<i>Gymnacranthera farquhariana</i>	Myristicaceae	Undappayin
18	<i>Holigarna arnottiana</i>	Anacardiaceae	Charu, Cheru
19	<i>Hopea parvifolia</i>	Diperocarpaceae	Kambakam
20	<i>Hydnocarpus pentandra</i>	Flacourtiaceae	Marotti
21	<i>Litsea coriacea</i>	Lauraceae	Maravettithali
22	<i>Macaranga peltata</i>	Euphorbiaceae	Vatta, Upothy
23	<i>Mallotus philippensis</i>	Euphorbiaceae	Sindhooramaram, Kurungumanjal
24	<i>Mallotus tetracoccus</i>	Euphorbiaceae	Vattakumbil
25	<i>Mangifera indica</i>	Anacardiaceae	Mavu
26	<i>Mimusops elengi</i>	Sapotaceae	Ilengi
27	<i>Olea dioica</i>	Oleaceae	Edala
28	<i>Saraca asoca</i>	Leguminosae	Ashokam
29	<i>Sterculia guttata</i>	Sterculiaceae	Kaavalam
30	<i>Strychnos nux-vomica</i>	Loganiaceae	Kanjiram
31	<i>Swietenia mahagoni</i>	Meliaceae	Mahagony
32	<i>Tectona grandis</i>	Verbenaceae	Thekku
33	<i>Terminalia crenulata</i>	Combretaceae	Karimaruthu, Thembavu
34	<i>Zanthoxylum rhetza</i>	Rutaceae	Mullilam
Climber			
1	<i>Abrus puchellus</i>	Leguminosae	Kaattumuthira
2	<i>Acacia caesia</i>	Leguminosae	Incha
3	<i>Alangium salvifolium</i> subsp. <i>hexapetalum</i>	Alangiaceae	Valliankolam
4	<i>Ampelocissus latifolia</i>	Vitaceae	Chembaravalli
5	<i>Anamirta cocculus</i>	Menispermaceae	Pollakkai
6	<i>Briedelia stipularis</i>	Euphorbiaceae	Cherukapanachi, Kanjikottam
7	<i>Calycopteris floribunda</i>	Combretaceae	Pullani
8	<i>Cissus heyneana</i>	Vitaceae	
9	<i>Cissus latifolia</i>	Vitaceae	Chunnambuvalli
10	<i>Cosmostigma racemosum</i>	Asclepiadaceae	Vattuvalli

11	<i>Dioscorea pentaphylla</i>	Dioscoreaceae	Chavali kizhangu
12	<i>Dioscorea wallichii</i>	Dioscoreaceae	
13	<i>Gnetum edule</i>	Gnetaceae	Karuthodal, Thuvakai
14	<i>Hemidesmus indicus</i>	Asclepiadaceae	Nannari, Naruneendi
15	<i>Ichnocarpus frutescens</i>	Apocynaceae	Parvalli
16	<i>Jasminum coarctatum</i> (<i>Jasminum rottlerianum</i>)	Oleaceae	Kaattumulla
17	<i>Mikania micrantha</i>	Compositae	Dhirastrapacha
18	<i>Naravelia zeylanica</i>	Ranunculaceae	Vathakodi
19	<i>Piper nigrum</i>	Piperaceae	Kurumulaku
20	<i>Pothos scandens</i>	Araceae	Varivalli, Paruvakkodi
21	<i>Salacia fruticosa</i>	Celastraceae	Ekanayakam.Ponkoranti
22	<i>Sarcostigma kleinii</i>	Icacinaceae	Vellodal
23	<i>Spatholobus parviflorus</i>	Leguminosae	Valliplash, Paalunni
24	<i>Smilax zeylanica</i>	Smilacaceae	Kareelanchi
25	<i>Tetracera akara</i>	Dilleniaceae	Kottavalli, Nakkuvalli
26	<i>Uvaria narum</i>	Annonaceae	Narumpanal
27	<i>Ziziphus oenoplia</i>	Rhamnaceae	Cheruthodali
Shrub			
1	<i>Antidesma acidum</i>	Euphorbiaceae	Asaripuli
2	<i>Bambusa bambos</i>	Poaceae	Mula, Illi
3	<i>Capsicum frutescens</i>	Solanaceae	Kanthari mulaku
4	<i>Canthium angustifolium</i>	Rubiaceae	Karamullu
5	<i>Chassalia curviflora</i> var. <i>ophioxyloides</i>	Rubiaceae	Yamari
6	<i>Chromolaena odorata</i>	Compositae	Communistpatcha
7	<i>Clerodendron infortunatum</i>	Verbenaceae	Peruvalam
8	<i>Dichapetalum geloniodes</i>	Dichapetalaceae	
9	<i>Dracaena terniflora</i>	Dracaenaceae	Manjakantha
10	<i>Ixora coccinea</i>	Rubiaceae	Chuvannathetchi
11	<i>Leea asiatica</i>	Leeaceae	Njekku
12	<i>Leea guineensis</i>	Leeaceae	Njellu, Njekku
13	<i>Mussaenda frondosa</i>	Rubiaceae	Vellila
14	<i>Pedilanthus tithymaloides</i>	Euphorbiaceae	Thathammedi

15	<i>Rauvolfia serpentina</i>	Apocynaceae	Sarpagandhi
	Herb		
1	<i>Costus speciosus</i>	Zingiberaceae	Channakoova
2	<i>Curculigo orchioides</i>	Hypoxidaceae	Nilappana
3	<i>Desmodium triquetrum</i>	Leguminosae	Orila
4	<i>Drynaria quercifolia</i>	Ploypodiaceae	Mathilpanna
5	<i>Elephantopus scaber</i>	Compositae	Anachuvadi
6	<i>Naregamia alata</i>	Meliaceae	Nilanarakam
7	<i>Piper longum</i>	Piperaceae	Thippali
8	<i>Stachyphrynium spicatum</i>	Marantaceae	Kaattukoova
9	<i>Tectaria sp.</i>	Tectariaceae	
10	<i>Zingiber cernnum</i>	Zingiberaceae	Malayinchi

Note: In this sacred grove, the vegetation is fairly dense. *Gymnacranthera farquhariana* is the most dominant tree species, followed by *Hoigarna arnottiana*. The undergrowth is dense, mostly with *Antidesma acidum* and *Memecylon randerianum*. The dominant climbers are *Dioscorea wallichii*, *Acacia caesia* and *Spatholobus parviflorus*. Exotics like *Acacia auriculiformis* and *Swietenia mahogany* are common in the grove.

2. ValarandaKavu

	Scientific name	Habit	Common name
	Tree		
1	<i>Acacia auriculiformis</i>	Leguminosae	Acacia
2	<i>Adenanthara pavonina</i>	Leguminosae	Manchadi
3	<i>Aporusa cardiosperma</i> (<i>Aporusa lindleyana</i>)	Euphorbiaceae	Vetti, Aechil
4	<i>Bombax ceiba</i>	Bombacaceae	Mullilavu
5	<i>Carallia brachiata</i>	Rhizophoraceae	Vallabham, Vankana
6	<i>Careya arborea</i>	Lecythydaceae	Pezhu, Aalam
7	<i>Caryota urens</i>	Arecaceae	Choondappana, Olattipana
8	<i>Casearia ovata</i>	Flacourtiaceae	
9	<i>Falconeria insignis</i>	Euphorbiaceae	Pattarupala,

			Kannampotti
10	<i>Ficus beddomei</i>	Moraceae	
11	<i>Holigarna arnottiana</i>	Anacardiaceae	Charu, Cheru
12	<i>Lannea coromandelica</i>	Anacardiaceae	Karasu, Udhi
13	<i>Macaranga peltata</i>	Euphorbiaceae	Vatta, Uppothy
14	<i>Mangifera indica</i>	Anacardiaceae	Mavu
15	<i>Memecylon talbotianum</i>	Melastomataceae	Marakkassavu
16	<i>Olea dioica</i>	Oleaceae	Idala
17	<i>Phyllanthus emblica</i>	Euphorbiaceae	Nelli
18	<i>Sterculia guttata</i>	Sterculiaceae	Kaavalam
19	<i>Strychnos nux-vomica</i>	Loganiaceae	Kanjiram
20	<i>Syzygium caryophyllatum</i>	Myrtaceae	Kaninjaval
21	<i>Terminalia paniculata</i>	Combretaceae	Maruthi
22	<i>Vitex altissima</i>	Verbenaceae	Myla
	Climber		
1	<i>Abrus precatorius</i>	Leguminosae	Kunni
2	<i>Acacia caesia</i>	Leguminosae	Incha
3	<i>Aristolochia indica</i>	Aristolochiaceae	Karalakam
4	<i>Briedelia stipularis</i>	Euphorbiaceae	Cherukapanachi, Kanjikottam
5	<i>Calycopteris floribunda</i>	Combretaceae	Pullani
6	<i>Cissus latifolia</i>	Vitaceae	Chunnambuvalli
7	<i>Cosmostigma racemosum</i>	Asclepiadaceae	Vattuvalli
8	<i>Dalbergia horrida</i>	Leguminosae	Anamullu
9	<i>Diploclisia glaucescens</i>	Menispermaceae	Vattoli
10	<i>Dioscorea sp.</i>	Dioscoreaceae	
11	<i>Gymnema sylvestre</i>	Asclepiadaceae	Chakkarakkolli
12	<i>Hemidesmus indicus</i>	Asclepiadaceae	Naruneendi, Nannari
13	<i>Hippocratea arnottiana</i>	Celastraceae	Kattadinayakam
14	<i>Ichnocarpus frutescens</i>	Apocynaceae	Parvalli
15	<i>Jasminum coarctatum</i> (<i>Jasminum rottlerianum</i>)	Oleaceae	Kattumulla
16	<i>Merremia umbellata</i>	Convolvulaceae	Koravalli

17	Naravelia zeylanica	Ranunculaceae	Vaathakkodi
18	Passiflora foetida	Passifloraceae	
19	Piper sp.	Piperaceae	Kaattukurumulaku
20	Pothos scandens	Araceae	Varivalli, Paruvakkodi
21	Rourea minor	Connaraceae	Kooriel
22	Salacia fruticosa	Celastraceae	Ekanayakam, Ponkoranti
23	Tinospora sinensis	Menispermaceae	Pothamruthu
24	Uvaria narum	Annonaceae	Narumpanal
25	Ziziphus oenoplia	Rhamnaceae	Cheruthodali
	Shrubs		
1	Bambusa striata	Poaceae	Manjamula
2	Breynia vitis-idaea	Euphorbiaceae	Pavilapoola
3	Canthium coromandelicum	Rubiaceae	Kattaramullu
4	Canthium rheedei	Rubiaceae	Edalimullu
5	Chassalia curviflora var. ophioxyloides	Rubiaceae	Yamari
6	Chromolaena odorata (<i>Eupatorium odoratum</i>)	Compositae	Communistpatcha
7	Gomphia serrata	Ochnaceae	Valarmani
8	Ixora coccinea	Rubiaceae	Chuvannathetchi
9	Ixora malabarica	Rubiaceae	
10	Lantana camara	Verbenaceae	Arippoochedi
11	Leea guineensis	Leeaceae	
12	Memecylon randerianum	Melastomataceae	Kaikathetchi
13	Mussaenda frondosa	Rubiaceae	Vellila
	Herb		
1	Canscora pauciflora	Gentianaceae	Jeerakapullu
2	Costus speciosus	Zingiberaceae	Channakoova
3	Curcuma aurantiaca	Zingiberaceae	
4	Hyptis suaveolens	Lamiaceae	Naattapoochedi
5	Lepidagathis keralensis	Acanthaceae	Paramullu
6	Sopubia trifida	Scrophulariaceae	

3. Arayathattu Temple Kavu, Mannur

	Scientific name	Habit	Local name
	Tree		
1	<i>Albizia lebbek</i>	Leguminosae	Karivaka
2	<i>Aporusa cardiosperma</i> (<i>Aporusa lindleyana</i>)	Euphorbiaceae	Vetti, Aechil
3	<i>Caryota urens</i>	Arecaceae	Choondappana, Olattipana
4	<i>Cassia fistula</i>	Leguminosae	Kanikonna
5	<i>Corypha umbraculifera</i>	Arecaceae	Kodappana
6	<i>Dalbergia lancolaria</i>	Leguminosae	Velleetti
7	<i>Ficus hispida</i>	Moraceae	Parakam
8	<i>Grewia tiliifolia</i>	Tiliaceae	Chadachi, Unnam
9	<i>Holigarna arnottiana</i>	Anacardiaceae	Charu, Cheru
10	<i>Holoptelia integrifolia</i>	Ulmaceae	Aaval
11	<i>Mallotus philippensis</i>	Euphorbiaceae	Sindhooramaram, Kurungumanjal
12	<i>Mangifera indica</i>	Anacardiaceae	Maavu
13	<i>Melia dubia</i>	Meliaceae	Malavepu
14	<i>Mimusops elengi</i>	Sapotaceae	Ilengi
15	<i>Olea dioica</i>	Oleaceae	Edala
16	<i>Schleichera oleosa</i>	Sapindaceae	Poovam
17	<i>Terminalia bellirica</i>	Combretaceae	Thaanni
18	<i>Tectona grandis</i>	Verbenaceae	Thekku
	Climber		
1	<i>Abrus pulchellus</i>	Leguminosae	Kattumuthira
2	<i>Acacia caesia</i>	Leguminosae	Incha
3	<i>Alangium salivifolium</i> subsp. <i>Hexapetalum</i>	Alangiaceae	Valliankolam
4	<i>Anamirta cocculus</i>	Menispermaceae	Pollakai
5	<i>Briedelia stipularis</i>	Euphorbiaceae	Cherukapanachi, Kanjikottam
6	<i>Cissus latifolia</i>	Vitaceae	Chunnambuvali

7	<i>Dioscorea wallichii</i>	Dioscoreaceae	Kattukachil
8	<i>Gloriosa superba</i>	Liliaceae	Menthonni
9	<i>Ichnocarpus frutescens</i>	Apocynaceae	Parvalli
10	<i>Jasminum coarctatum</i> (<i>Jasminum rottlerianum</i>)	Oleaceae	Kattumulla
11	<i>Momordica sahyadrica</i>	Cucurbitaceae	
12	<i>Pothos scandens</i>	Araceae	Paruvakkodi, Varivalli
13	<i>Smilax zeylanica</i>	Smilacaceae	Kareelanchi
14	<i>Uvaria narum</i>	Annonaceae	Narumpanal
	Shrubs		
1	<i>Bulbophyllum sterile</i>	Orchidaceae	
2	<i>Chassalia curviflora</i> var. <i>ophioxyloides</i>	Rubiaceae	Yamari
3	<i>Clerodendron paniculatum</i>	Verbenaceae	Paruvalam
4	<i>Coffea arabica</i>	Rubiaceae	Kaappi
5	<i>Helicteres isora</i>	Sterculiaceae	Idampiri-valampiri
6	<i>Ixora</i> sp.	Rubiaceae	
7	<i>Lantana camara</i>	Verbenaceae	Aripoochedi
8	<i>Leea asiatica</i>	Leeaceae	Njellu, Njekku
9	<i>Litsea ghatica</i>	Lauraceae	
10	<i>Mussaenda frondosa</i>	Rubiaceae	Vellila
11	<i>Pavetta indica</i>	Rubiaceae	Pavetta
12	<i>Strobilanthes ciliates</i>	Acanthaceae	Karimkurinji
13	<i>Tabernaemontana heyneana</i>	Apocynaceae	Kundalappala, Kunninpala
14	<i>Sida alnifolia</i>	Malvaceae	Kurumthotti
15	<i>Urena lobata</i>	Malvaceae	Uthiram
	Herb		
1	<i>Amorphophallus bulbifer</i>	Araceae	Kaattuchena
2	<i>Asystacia crispata</i>	Acanthaceae	
3	<i>Caldium 87bicolour</i>	Araceae	Pullichembu
4	<i>Costus speciosus</i>		
5	<i>Curculigo orchioides</i>	Hypoxidaceae	Nilappana
6	<i>Curcuma xanthorrhiza</i>	Zingiberaceae	Manjakkova

7	<i>Cymbidium aloifolium</i>	Orchidaceae	
8	<i>Desmodium triquetrum</i>	Leguminosae	Orila
9	<i>Drynaria quercifolia</i>	Polypodiaceae	Marappanna
10	<i>Globba ophioglossa</i>	Zingiberaceae	
11	<i>Zingiber nimmoni</i>	Zingiberaceae	Kaattinchi

Tree growth in this grove is very dense with large trees. There are two very large trees of *Holoptelia integrifolia*, about 35 m tall. Other large trees are of *Terminalia bellirica* and *Schleichera oleosa*. Undergrowth is also dense with *Zingiber nimmoni*, *Globba ophioglossa*, *Strobilanthes ciliates*, *Amorphophalus bulbifer* and *Helicteres isora*.

4. Pazhasi Madom Shri Devi Temple Kavu

	Scientific name	Habit	Common name
	Tree		
1	<i>Acacia mangium</i>	Leguminosae	Mangium
2	<i>Adenanthara pavonina</i>	Leguminosae	Manchadi
3	<i>Aporusa cardiosperma</i>	Euphorbiaceae	Aechil, Vetti
4	<i>Carallia brachiata</i>	Rhizophoraceae	Varangu, Vallabham
5	<i>Careya arborea</i>	Lecythidaceae	Pezhu, Aalam
6	<i>Caryota urens</i>	Arecaceae	Choondappana, Olattipana
7	<i>Chionanthus mala-elenji</i>	Oleaceae	Mala ilanji
8	<i>Erythrina orientalis</i>	Leguminosae	Mullumurukku
9	<i>Ficus benghalensis</i>	Moraceae	Peral
10	<i>Ficus hispida</i>	Moraceae	Parakam
11	<i>Holigarna arnottiana</i>	Anacardiaceae	Charu, Cheru
12	<i>Litsea coriacea</i>	Lauraceae	Maravettithali
13	<i>Macaranga peltata</i>	Euphorbiaceae	Vatta, Uppothy
14	<i>Mangifera indica</i>	Anacardiaceae	Mavu
15	<i>Mitragyna tubulosa</i>	Rubiaceae	Poochakadamu
16	<i>Olea dioica</i>	Oleaceae	Edala
17	<i>Oroxylum indicum</i>	Bignoniaceae	Palakappayani

18	Schleichera oleosa	Sapindaceae	Poovam
19	Sterculia gttata	Sterculiaceae	Kaavalam
20	Strychnos nux-vomica	Loganiaceae	Kanjiram
21	Tecoma stans	Bignoniaceae	Manjaruli
22	Zanthoxylum rhetza	Rutaceae	Mullilam
	Climber		
1	Abrus pulchellus	Leguminosae	Kaattumuthira
2	Acaia caesia	Leguminosae	Incha
3	Alangium salivifolium subsp. hexapetalum	Alangiaceae	Valliankolam
4	Ampelocissus latifolia	Vitaceae	Chembaravalli
5	Anamirta cocculus	Menispermaceae	Pollakkai
6	Briedelia stipularis	Euphorbiaceae	Cherukapanachi, Kanjikottam
7	Cissus heyneana	Vitaceae	
8	Cissus latifolia	Vitaceae	Chunnambuvalli
9	Cosmostigma racemosum	Asclepiadaceae	Vattuvalli
10	Dioscorea bubifera	Dioscoreaceae	
11	Dioscorea pentaphylla	Dioscoreaceae	
12	Dioscorea wallichii	Dioscoreaceae	
13	Gloriosa superba	Liliaceae	Menthonni
14	Gnetum edule	Gnetaceae	Karuthodal, Thuvakai
15	Ichnocarpus frutescens	Apocynaceae	Parvalli
16	Lygodium scandens	Poypodiaceae	Polivalli
17	Merremia umbellata	Convolvulaceae	Koravalli
18	Mimosa diplotricha	Leguminosae	Aanathottavadi
19	Naravelia zeylanica	Ranunculaceae	Vathamkodi
20	Piper nigrum	Piperaceae	Kurumulaku
21	Pothos scandens	Araceae	Varivalli, Paruvakkodi
22	Smilax zeylanica	Smilacaceae	Kareelanchi
23	Uvaria narum	Annonaceae	Narumpanal
24	Ziziphus oenoplia	Rhamnaceae	Cheruthodali
	Shrubs		
1	Antidesma acidum	Euphorbiaceae	Asaripuli

2	<i>Chassalia curviflora</i> var. <i>ophioxyloides</i>	Rubiaceae	Yamari
3	<i>Chromolaena odorata</i> (<i>Eupatorium odoratum</i>)	Compositae	Communistpatcha
4	<i>Cycas circinalis</i>	Cycadaceae	Eenthu
5	<i>Desmodium heterocarpum</i>	Leguminosae	
6	<i>Hibiscus hispidissimus</i>	Malvaceae	Kaalapoo, Panachan
7	<i>Hibiscus rosa-sinensis</i>	Malvaceae	Chembaratthi
8	<i>Leea macrophylla</i>	Leeaceae	Njekku, Njellu
9	<i>Ixora coccinea</i>	Rubiaceae	Chuvannathetchi
10	<i>Mussaenda frondosa</i>	Rubiaceae	Vellila
11	<i>Pseudarthria viscida</i>	Leguminosae	Moovila
12	<i>Rauvolfia serpentina</i>	Apocynaceae	Sarpagandhi
13	<i>Tabernaemontana heyneana</i>	Apocynaceae	Kundalappala, Kunninpala
	Herb		
1	<i>Aeginetia indica</i>	Orobanchaceae	Keerippoovu
2	<i>Bulbophyllum neilgherrence</i>	Orchidaceae	
3	<i>Colocasia esculenta</i>	Araceae	Madantha
4	<i>Amorphophallus</i> sp.	Araceae	Kaattuchena
5	<i>Asystasia crispata</i>	Acanthaceae	
6	<i>Costus speciosus</i>	Zingiberaceae	Channakkoova
7	<i>Elephantopus scaber</i>	Compositae	Aanachuvadi
8	<i>Mimosa pudica</i>	Leguminosae	Thottavadi
9	<i>Zingiber cernuum</i>	Zingiberaceae	Malayinchi

Thalassery Taluk**1. Shri Anallur Mullapra Bhagavathi Temple, Dharmadom**

	Scientific name	Habit	Local name
	Tree		
1	<i>Acacia auriculiformis</i>	Leguminosae	Aacia
2	<i>Adenantha pavonina</i>	Leguminosae	Manchadi
3	<i>Anacardium occidentale</i>	Anacardiaceae	Kashumavu, Cashew
4	<i>Aporusa cardiosperma</i>	Euphorbiaceae	Vetti, Aechil

	<i>(Aporusa lindleyana)</i>		
5	<i>Carallia brachiata</i>	Rhizophoraceae	Varangu, Vallabhavam
6	<i>Caryota urens</i>	Arecaceae	Choondappana, Olattipana
7	<i>Ficus arnottiana</i>	Moraceae	Kallaroyal
8	<i>Ficus benghalensis</i>	Moraceae	Peral
9	<i>Ficus drupacea</i> var. <i>pubescens</i>	Moraceae	Manja-aal
10	<i>Holigarna arnottiana</i>	Anacardiaceae	Charu, Cheru
11	<i>Mimosops elengi</i>	Sapotaceae	Ilanji
12	<i>Pongamia pinnata</i>	Leguminosae	Ungu
13	<i>Spathodea campanulata</i>	Bignoniaceae	Spathodia
14	<i>Strychnos nux-vomica</i>	Loganiaceae	Kanjiram
15	<i>Syzygium caryophyllatum</i>	Myrtaceae	Kaninjaval
16	<i>Syzygium travancoricum</i>	Myrtaceae	
17	<i>Syzygium zeylanicum</i>	Myrtaceae	Poochappazham
	Climber		
1	<i>Dalbergia horrida</i>	Leguminosae	Anamullu
2	<i>Dioscorea</i> sp.	Dioscoreaceae	Kattukachil
3	<i>Gnetum edule</i>	Gnetaceae	Karuthodal, Thuvakai
4	<i>Ichnocarpus frutescens</i>	Apocynaceae	Parvalli
5	<i>Pothos scandens</i>	Araceae	Paruvakkodi, Varivalli
6	<i>Rourea minor</i>	Connaraceae	Kooriel
7	<i>Uvaria narum</i>	Annonaceae	Narumpanal
8	<i>Ziziphus oenoplia</i>	Rhamnaceae	Cheruthodali
	Shrubs		
1	<i>Bambusa bambos</i>	Poaceae	Mula, Illi
2	<i>Bauhinia acuminata</i>	Caesapiniaceae	Mandaram
3	<i>Clerodendron infortunatum</i>	Verbenaceae	Peruvalam, Peruku
4	<i>Crotalaria Pallida</i>	Leguminosae	Kiukilippa
5	<i>Hibiscus hispidissimus</i>	Malvaceae	Kaalapoo, Panachan
6	<i>Leea indica</i>	Leeaceae	Njekku, Njellu
7	<i>Ixora coccinea</i>	Rubiaceae	Chuvannathetchi
8	<i>Ixora javanica</i>	Rubiaceae	Ashokathetchi

9	Lantana camara	Verbenaceae	Aripoochedi
10	Mussaenda frondosa	Rubiaceae	Vellila
11	Polyalthia korinti	Annonaceae	Koranti
12	Premna serratifolium	Verbenaceae	Munja
13	Urena lobata	Malvaceae	Uthiram
	Herb		
1	Bulbophyllum sterile	Orchidaceae	
2	Caldium bicolour	Araceae	Pullichembu
3	Colocasia esculenta	Araceae	Madantha
4	Curculigo orchioides	Hypoxidaceae	Nilappana
5	Cyathula prostrata	Amaranthaceae	Cherukadaladi
6	Cyperus difformis	Cyperaceae	
7	Desmodium heterophyllum	Leguminosae	Nilamparanda
8	Justicia simplex	Acanthaceae	
9	Mimosa pudica	Leguminosae	Thottavadi
10	Sida acuta	Malvaceae	

Note: In this sacred grove there are about 12 large trees of *Syzygium travancoricum*, which is an endangered species. Exotic trees like *Acacia auriculiformis*, *Peltophrum pterocarpum* and *Spathodea campanulata* are planted. Tree growth in general is sparse. Part of the grove area is used as play ground.

2. Pazhasi Kavu, Pinarai

	Scientific name	Habit	Local name
	Tree		
1	<i>Caryota urens</i>	Arecaceae	Choondappana, Olattipana
2	<i>Cocos nucifera</i>	Arecaceae	Thengu
3	<i>Chrysophyllum cainito</i>	Sapotaceae	Star apple
4	<i>Ficus exasperata</i>	Moraceae	Therakam
5	<i>Mallotus philippensis</i>	Euphorbiaceae	Sindhooramaram, Kurungumanjal

6	Macaranga petlata	Euphorbiaceae	Vatta, Uppothy
7	Olea dioica	Oleaceae	Edala
8	Strychnos nux-vomica	Loganiaceae	Kanjiram
9	Terminalia catappa	Combretaceae	Thallithenga, Badam
Climber			
1	Alangium salvifolium subsp. hexapetalum	Alangiaceae	Valliankolam
2	Anamirta cocculus	Menispermaceae	Pollakai
3	Briedelia stipularis	Euphorbiaceae	Cherupanachi Kanjikottam
4	Calycopteris floribunda	Combretaceae	Pullani
5	Cissus latifolia	Vitaceae	Chunnambuvalli
6	Cissus sp.	Vitaceae	
7	Cosmostigma racemosum	Asclepiadaceae	Vattuvalli
8	Cyclea peltata	Menispermaceae	Paadakizhangu
9	Dalbergia horrida	Leguminosae	Anamullu
10	Derris scandens	Leguminosae	Poonjali
11	Dioscorea pentaphylla	Dioscoreaceae	Chavalikizhangu
12	Dioscorea sp.	Dioscoreaceae	Kattukachil
13	Hippocratea arnottiana	Celastraceae	Kattadinayakam
14	Ichnocarpus frutescens	Apocynaceae	Parvalli
15	Jasminum coarctatum (<i>Jasminum rottlerianum</i>)	Oleaceae	Kattumulla
16	Lygodium scandens	Polypodiaceae	Polivalli
17	Merremia vitifolia	Convolvulaceae	Manjavayaravalli
18	Pothos scandens	Araceae	Paruvakkodi, Varivalli
19	Pueraria phaseoloides	Leguminosae	Thottappayar
20	Mucuna bracteata	Leguminosae	Thottappayar
21	Rourea minor	Connaraceae	Kooriel
22	Uvaria narum	Annonaceae	Narumpanal
23	Ziziphus oenoplia	Rhamnaceae	Cheruthodali
Shrubs			
1	Chassalia curviflora var. ophioxyloides	Rubiaceae	Yamari
2	Clerodendron infortunatum	Verbenaceae	Peruvalam, Peruku

3	<i>Flueggea virosa</i>	Euphorbiaceae	Perinklavu
4	<i>Grewia microcos</i>	Tiliaceae	Kottakka
5	<i>Hibiscus hispidissimus</i>	Malvaceae	Kaalapoo, Panachan
6	<i>Mussaenda frondosa</i>	Rubiaceae	Vellila
Herb			
1	<i>Amorphophallus</i> sp.	Araceae	Kaattuchena
2	<i>Alternanthera brasiliana</i>	Amaranthaceae	Chemcheera
3	<i>Pennisetum</i> sp.	Poaceae	
4	<i>Zigiber zerumbet</i>	Zingiberaceae	Malayinchi

This sacred grove is called vallikettu, because of the dense growth of climbers. *Calycopteris floribunda* and *Mucuna bracteata* have smothered the trees along with *Dioscorea pentaphylla*.

3. Arathil Kandoth Sri Sarpakkavu, Thazhe Kayalode

	Scientific name	Habit	Local name
Tree			
1	<i>Adenanthra pavonia</i>	Leguminosae	Manchadi
2	<i>Aglaiia elaeagnoidea</i>	Meliaceae	Njazhal
3	<i>Albizia chinensis</i>	Leguminosae	Peelivaka
4	<i>Aporusa cardiosperma</i>	Euphorbiaceae	Vetti, Aechil
5	<i>Bombax ceiba</i>	Bombacaceae	Mullilavu
6	<i>Chrysophyllum cainito</i>	Sapoataceae	Star apple
7	<i>Holigarna arnottiana</i>	Anacardiaceae	Charu, Cheru
8	<i>Lannea coromandelica</i>	Anacardiaceae	Karasu, Udhi
9	<i>Mallotus philippensis</i>	Euphorbiaceae	Sindhooramaram, Kurungumanjal
10	<i>Mimusops elengi</i>	Sapotaceae	Ilenji
11	<i>Olea dioica</i>	Oleaceae	Edala
12	<i>Sterculia guttata</i>	Sterculiaceae	Kaavalam
13	<i>Strychnos nux-vomica</i>	Loganiaceae	Kanjiram
14	<i>Terminalia paniculata</i>	Combretaceae	Maruthi
Climber			
1	<i>Acacia caesia</i>	Leguminosae	Incha

2	<i>Calycopteris floribunda</i>	Combretaceae	Pullani
3	<i>Cansjera rheedei</i>	Opiliaceae	
4	<i>Cissus latifolia</i>	Vitaceae	Chunnambuvalli
5	<i>Centrosema molle</i>	Leguminosae	Kattupayar
6	<i>Dioscorea</i> sp.	Dioscoreaceae	Kattukachil
7	<i>Gnetum edule</i>	Gnetaceae	Karuthodal, Thuvakai
8	<i>Ichnocarpus frutescens</i>	Apocynaceae	Parvalli
9	<i>Merremia vitifolia</i>	Convolvulaceae	Manjavayaravalli
10	<i>Merremia umbellata</i>	Convolvulaceae	Koravalli
11	<i>Pothos scandens</i>	Araceae	Paruvakkodi, Varivalli
12	<i>Uvaria narum</i>	Annonaceae	Narumpanal
13	<i>Ziziphus oenoplia</i>	Rhamnaceae	Cheruthodali
	Shrubs		
1	<i>Chassalia curviflora</i> var. <i>ophioxyloides</i>	Rubiaceae	Yamari
2	<i>Chromolaena odorata</i>	Compositae	Communistpatcha
3	<i>Flueggea virosa</i>	Euphorbiaceae	
4	<i>Hibiscus hispidissimus</i>	Malvaceae	Kaalapoo, Panachan
5	<i>Mussaenda frondosa</i>	Rubiaceae	Vellila
	Herb		
1	<i>Hyptis suaveolens</i>	Lamiaceae	Naattapoochedi
2	<i>Pennisetum</i> sp.	Poaceae	
3	<i>Naregamia alata</i>	Meliaceae	Nilanarakam

Note: In the sacred grove tree growth is sparse; the large trees are *Albizia chinensis* and *Bombax ceiba*. Weedy species are more in the open areas.

4. Kanakottu Muthappan Madappura Kavu

	Scientific name	Habit	Local name
	Tree		
1	<i>Aglaia elaeagnoidea</i>	Meliaceae	Njazhal
2	<i>Aporusa cardiosperma</i> (<i>Aporusa lindleyana</i>)	Euphorbiaceae	Vetti, Aechil
3	<i>Briedelia retusa</i>	Euphorbiaceae	Mullenkaini, Mulluvenga

4	Carallia brachiata	Rhizophoraceae	Vrangu, Vallabham
5	Careya arborea	Lecythidaceae	Pezhu, Aalam
6	Caryota urens	Areaceae	Choondappana, Olattipana
7	Diospyros candolleana	Ebenaceae	Karimaram
8	Hopea ponga	Dipterocarpaceae	Eeyakam, Pongu
9	Euodia lunu-ankenda	Rutaceae	Naasakam, Kanala
10	Holigarna arnottiana	Anacardiaceae	Charu, Cheru
11	Mallotus philippensis	Euphorbiaceae	Sindhooramaram, Kurungumanjal
12	Mimusops elengi	Sapotaceae	Ilengi
13	Naringi crenulata	Rutaceae	Narinarakam
14	Olea dioica	Oleaceae	Edala
15	Pterospermum rubiginosum	Sterculiaceae	Ellootti
16	Santalum album	Santalaceae	Chandanam
17	Sterculia guttata	Sterculiaceae	Kaavalam
18	Strychnos nux-vomica	Loganiaceae	Kanjiram
19	Syzygium caryophyllatum	Myrtaceae	Kaninjaval
20	Vitex altissima	Verbenaceae	Myla
21	Zanthoxylum rhetza	Rutaceae	Mullilam
Climber			
1	Abrus pulchellus	Leguminosae	Kaattumuthira
2	Ampelocissus latifolia	Vitaceae	Chembaravalli
3	Anamirta cocculus	Menispermaceae	Pollakai
4	Briedelia stipularis	Euphorbiaceae	Cherupanachi Kanjikottam
5	Calycopteris floribunda	Combretaceae	Pullani
6	Cansjera rheedei	Opiliaceae	
7	Cassytha filiformis	Lauraceae	Moodillathali
8	Cissus latifolia	Vitaceae	Chunnambuvalli
9	Cissus sp.	Vitaceae	
10	Cayratia pedata	Vitaceae	Chorivalli
11	Combretum latifolium	Combretaceae	
12	Cosmostigma racemosum	Asclepiadaceae	Vattuvalli

13	<i>Dalbergia horrida</i>	Leguminosae	Anamullu
14	<i>Dioscorea pentaphylla</i>	Dioscoreaceae	Chavalikizhangu
15	<i>Dioscorea wallichii</i>	Dioscoreaceae	Kattukachil
16	<i>Diploclisia glaucescens</i>	Menispermaceae	Vattoli
17	<i>Gloriosa superba</i>	Liliaceae	Menthonni
18	<i>Gnetum edule</i>	Gnetaceae	Karuthodal, Thuvakai
19	<i>Hippocratea arnottiana</i>	Celastraceae	Kattadinayakam
20	<i>Ichnocarpus frutescens</i>	Apocynaceae	Parvalli
21	<i>Ipomoea mauritiana</i>	Convolvulaceae	Paalmuthakku
22	<i>Jasminum malabaricum</i>	Oleaceae	Kadambavalli
23	<i>Merremia vitifolia</i>	Convolvulaceae	Manjavayaravalli
24	<i>Pothos scandens</i>	Araceae	Paruvakkodi, Varivalli
25	<i>Rourea minor</i>	Connaraceae	Kooriel
26	<i>Salacia fruticosa</i>	Celastraceae	Ekanayakam, Ponkoranti
27	<i>Tetrastigma</i> sp.	Vitaceae	
28	<i>Uvaria narum</i>	Annonaceae	Narumpanal
29	<i>Ziziphus oenoplia</i>	Rhamnaceae	Cheruthodali
	Shrubs		
1	<i>Ananas comosus</i>	Bromeliaceae	Kadachakka, Pineapple
2	<i>Breynia vitis-idaea</i>	Euphorbiaceae	Pavilapoola
3	<i>Canthium coromandelicum</i>	Rubiaceae	Kattaramullu
4	<i>Chassalia curviflora</i> var. <i>ophioxyloides</i>	Rubiaceae	Yamari
5	<i>Chromolaena odorata</i> (<i>Eupatorium odoratum</i>)	Compositae	Communistpatcha
6	<i>Gomphia serrata</i>	Ochnaceae	Valarmani
7	<i>Grewia microcos</i>	Tiliaceae	Kottakka
8	<i>Hibiscus hispidissimus</i>	Malvaceae	Kaalapoo, Panachan
9	<i>Ixora coccinea</i>	Rubiaceae	Chuvannathetchi
10	<i>Leea asiatica</i>	Leeaceae	Njellu, Njekku
11	<i>Memecylon randerianum</i>	Melastomataceae	Kaikathetchi
12	<i>Mussaenda frondosa</i>	Rubiaceae	Vellila
	Herb		

1	<i>Amorphophallus</i> sp.	Araceae	Kaattuchena
2	<i>Costus speciosus</i>	Zingiberaceae	Channakoova
3	<i>Curculigo orchioides</i>	Hypoxidaceae	Nilampana
4	<i>Desmodium triquetrum</i>	Leguminosae	Orila
5	<i>Elephantopus scaber</i>	Compositae	Anachuvadi
6	<i>Naregamia alata</i>	Meliaceae	Nilanarakam
7	<i>Scleria parvula</i>	Cyperaceae	

Note: This grove has dense growth of climbers.

5. Pathiriyad Shri Thirumangalam Sasthappan Temple Kavu

	Scientific name	Habit	Local name
	Tree		
1	<i>Adenantha pavonina</i>	Leguminosae	Manchadi
2	<i>Aglaiia elaeagnoidea</i>	Meliaceae	Njazhal
3	<i>Albizia procera</i>	Leguminosae	Vellavaka
4	<i>Anacardium occidentale</i>	Anacardiaceae	Kasumavu, Cashew
5	<i>Aporusa cardiosperma</i> (<i>Aporusa lindleyana</i>)	Euphorbiaceae	Vetti, Aechil
6	<i>Carallia brachiata</i>	Rhizophoraceae	Varangu, Vallabhavam
7	<i>Careya arborea</i>	Lecythidaceae	Pezhu, Aalam
8	<i>Caryota urens</i>	Arecaceae	Choondappana, Olattipana
9	<i>Cassia fistula</i>	Leguminosae	Kanikkonna
10	<i>Diospyros candolleana</i>	Ebenaceae	Karimaram
11	<i>Holigarna arnottiana</i>	Anacardiaceae	Charu, Cheru
12	<i>Lanea coromandelica</i>	Anacardiaceae	Karasu, Udhi
13	<i>Macaranga peltata</i>	Euphorbiaceae	Vatta, Uppothy
14	<i>Mallotus philippensis</i>	Euphorbiaceae	Sindhooramaram, Kurungumanjal
15	<i>Mimusops elengi</i>	Sapotaceae	Ilenji
16	<i>Olea dioica</i>	Oleaceae	Edala
17	<i>Santalum album</i>	Santalaceae	Chandanam

18	Schleichera oleosa	Sapindaceae	Poovam
19	Strychnos nux-vomica	Loganiaceae	Kanjiram
20	Syzygium caryophyllatum	Myrtaceae	Kaninjaval
21	Vitex altissima	Verbenaceae	Myla
Climber			
1	Abrus pulchellus	Leguminosae	Kaattumuthira
2	Ampelocissus latifolia	Vitaceae	Chemparavalli
3	Anamirta cocculus	Menispermaceae	Pollakkai
4	Briedelia stipularis	Euphorbiaceae	Cherupanachi Kanjikottam
5	Calycopteris floribunda	Combretaceae	Pullani
6	Cansjera rheedei	Opiliaceae	
7	Cassytha filiformis	Convolvulaceae	Moodillathali
8	Cayratia pedata	Vitaceae	Chorivalli
9	Cissus latifolia	Vitaceae	Chunnambuvalli
10	Combretum latifolium	Combretaceae	
11	Dalbergia horrida	Leguminosae	Anamullu
12	Dioscorea pentaphylla	Dioscoreaceae	Chavalikizhangu
13	Dioscorea sp.	Dioscoreaceae	Kattukachil
14	Gnetum edule	Gnetaceae	Karuthodal, Thuvakai
15	Ichnocarpus frutescens	Apocynaceae	Parvalli
16	Jasminum flexile	Oleaceae	Kattumulla
17	Jasminum malabaricum	Oleaceae	Kadambavalli
18	Merremia umbellata	Convolvulaceae	Koravalli
19	Pothos scandens	Araceae	Paruvakkodi, Varivalli
20	Rourea minor	Connaraceae	Kooriel
21	Sarcostigma kleinii	Icacinaceae	Vellodal
22	Solena amplexicaulis	Cucurbitaceae	Kakkarikka
23	Smilax zeylanica	Smilacaceae	Kareelanchi
24	Tinospora sinensis	Menispermaceae	Potthamruthu
25	Tylophora indica	Asclepiadaceae	Vallippala
26	Uvaria narum	Annonaceae	Narumpanal

27	Ziziphus oenoplia	Rhamnaceae	Cheruthodali
	Shrub		
1	Chassalia curviflora var. Ophioxylodes	Rubiaceae	Yamari
2	Chromolaena odorata (<i>Eupatorium odoratum</i>)	Compositae	Communistpatcha
3	Crotalaria spectabilis	Leguminosae	Kilukilippa
4	Grewia microcos	Tiliaceae	Kottakka
5	Helicanthes elastica	Loranthaceae	Itthikanni
6	Hibiscus hispidissimus	Malvaceae	Kaalapoo, Panachan
7	Ixora coccinea	Rubiaceae	Chuvannathetchi
8	Leea asiatica	Leeaceae	Njekku, Njellu
9	Melastoma malabathricum	Melastomataceae	Athirani, Kalampotti
10	Memecylon sp.	Melastomataceae	
11	Mussaenda frondosa	Rubiaceae	Vellila
12	Premna serratifolium	Verbenaceae	Munja
	Herb		
1	Acampe praemorsa	Orchidaceae	Maravazha
2	Curculigo orchioides	Hypoxidaceae	Nilappana
3	Curcuma aurantiaca	Zingiberaceae	Kaattumanjal
4	Geophila repens	Rubiaceae	Karimutthil
5	Naregamia alata	Meliaceae	Nilanarakam
6	Zingiber cernnum	Zingiberaceae	Malayinchi

Note: In this sacred grove there are many large woody climbers consisting *Combretum latifolium*, *Gnetum edule*, *Diploclisia glaucescens* and *Rourea minor*. In general, the vegetation is dense with trees, climbers and shrubs.

6. Shri Muchilot Bhagavathy Temple Kavu, Kottayampoyil

	Scientific name	Habit	Local name
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Tree			
1	<i>Adenantha pavonina</i>	Leguminosae	Manchadi
2	<i>Aegle marmelos</i>	Rutaceae	Koovalam
3	<i>Aporusa cardiosperma</i> (<i>Aporusa lindleyana</i>)	Euphorbiaceae	Vetti, Aechil
4	<i>Carallia brachiata</i>	Rhizophoraceae	Varangu, Vallabhavam
5	<i>Caryota urens</i>	Arecaceae	Choondappana, Olattipana
6	<i>Cassia fistula</i>	Leguminosae	Kanikkonna
7	<i>Cinnamomum verum</i>	Lauraceae	Karuva
8	<i>Erythrina orientalis</i>	Leguminosae	Mullu-murikku
9	<i>Euodia lunu-ankenda</i>	Rutaceae	Naasakam, Kanala
10	<i>Ficus benghalensis</i>	Moraceae	Peral
11	<i>Ficus callosa</i>	Moraceae	Kadaplavu
12	<i>Ficus hispida</i>	Moraceae	Parakam
13	<i>Ficus religiosa</i>	Moraceae	Arayal
14	<i>Holigarna arnottiana</i>	Anacardiaceae	Charu, Cheru
15	<i>Mallotus philippensis</i>	Euphorbiaceae	Sindhooramaram, Kurungumanjal
16	<i>Mimusops elengi</i>	Sapotaceae	Ilenji
17	<i>Olea dioica</i>	Oleaceae	Edala
18	<i>Plumeria rubra</i>	Apocynaceae	Chembakappala
19	<i>Sterculia guttata</i>	Sterculiaceae	Kaavalam
20	<i>Strychnos nux-vomica</i>	Loganiaceae	Kanjiram
21	<i>Syzygium caryophyllatum</i>	Myrtaceae	Kaninjaval
22	<i>Terminalia crenulata</i>	Combretaceae	Karimaruthu
23	<i>Vitex altissima</i>	Verbenaceae	Myla
24	<i>Zanthoxylum rhetza</i>	Rutaceae	Mullilam
Climber			
1	<i>Abrus pulchellus</i>	Leguminosae	Kaattumuthira
2	<i>Ampelocissus latifolia</i>	Vitaceae	Chemparavalli
3	<i>Anamirta cocculus</i>	Menispermaceae	Pollakkai
4	<i>Calycopteris floribunda</i>	Combretaceae	Pullani
5	<i>Cansjera rheedei</i>	Opiliaceae	

6	<i>Cassytha filiformis</i>	Convolvulaceae	Moodillathali
7	<i>Cayratia pedata</i>	Vitaceae	Chorivalli
8	<i>Centrosema molle</i>	Leguminosae	Kattupayar
9	<i>Cissus latifolia</i>	Vitaceae	Chunnambuvali
10	<i>Cissus</i> sp.	Vitaceae	
11	<i>Combretum latifolium</i>	Combretaceae	
12	<i>Cyclea peltata</i>	Menispermaceae	Paadakizhangu
13	<i>Dalbergia horrida</i>	Leguminosae	Anamullu
14	<i>Dioscorea pentaphylla</i>	Dioscoreaceae	Chavalikizhangu
15	<i>Dioscorea</i> sp.	Dioscoreaceae	Kattukachil
16	<i>Gloriosa superba</i>	Liliaceae	Menthonni
17	<i>Ichnocarpus frutescens</i>	Apocynaceae	Parvalli
18	<i>Jasminum malabaricum</i>	Oleaceae	Kadambavalli
19	<i>Lygodium scandens</i>	Poypodiaceae	Polivalli
20	<i>Luffa cylindrica</i>	Cucurbitaceae	Peechanga
21	<i>Merremia umbellata</i>	Convolvulaceae	Koravalli
22	<i>Pothos scandens</i>	Araceae	Paruvakkodi, Varivalli
23	<i>Rourea minor</i>	Connaraceae	Kooriel
24	<i>Sarcostigma kleinii</i>	Icacinaceae	Vellodal
25	<i>Smilax zeylanica</i>	Smilacaceae	Kareelanchi
26	<i>Tetracera akara</i>	Dilleniaceae	Kottavalli
27	<i>Tetrastigma</i> sp.	Vitaceae	
28	<i>Uvaria narum</i>	Annonaceae	Narumpanal
29	<i>Thunbergia grandiflora</i>	Acanthaceae	
30	<i>Ziziphus oenoplia</i>	Rhamnaceae	Cheruthodali
	Shrub		
1	<i>Caesalpinia mimosoides</i>	Leguminosae	Poomullu
2	<i>Chassalia curviflora</i> var. <i>Ophioxyloides</i>	Rubiaceae	Yamari
3	<i>Chromolaena odorata</i> (<i>Eupatorium odoratum</i>)	Compositae	Communistpatcha
4	<i>Grewia microcos</i>	Tiliaceae	Kottakka

5	<i>Hibiscus hispidissimus</i>	Malvaceae	Kaalapoo, Panachan
6	<i>Ixora coccinea</i>	Rubiaceae	Chuvannathetchi
7	<i>Leea asiatica</i>	Leeaceae	Njekku, Njellu
8	<i>Mussaenda frondosa</i>	Rubiaceae	Vellila
9	<i>Phyllanthus reticulates</i>	Euphrbiaceae	Neeroli
10	<i>Urena lobata</i>	Malvaceae	Uthiram
	Herb		
1	<i>Acampe praemorsa</i>	Orchidaceae	Maravazha
2	<i>Amorphophalus sp.</i>	Araceae	Kaattuchena
3	<i>Asystacia crispata</i>	Acanthaceae	
4	<i>Chamaecrista kleinii</i>	Leguminosae	
5	<i>Curculigo orchioides</i>	Hypoxidaceae	Nilappana
6	<i>Curcuma aurantiaca</i>	Zingiberaceae	Kaattumanjal
7	<i>Cymbidium aloifolium</i>	Orchidaceae	
8	<i>Drynaria quercifolia</i>	Ploypodiaceae	Mathilpanna
9	<i>Naregamia alata</i>	Meliaceae	Nilanarakam
10	<i>Mimosa pudica</i>	Leguminosae	Thottavadi
11	<i>Sebastiana chamaelea</i>	Euphorbiaceae	Njettavanakku

Note: In this Sacred Grove, there are large open areas; part of the premise is used as play ground. The vegetation around the temple is fairly dense. The large trees are *Ficus religiosa*, *Mimusops elengi* and *Strychnos nux-vomica*.

CHAPTER VI

FREQUENCY DISTRIBUTION OF PLANTS

Among the *sacred groves (SGs) of the district, one time enumeration was carried out in 25 SGs based on the extant of area, vegetation type and location in the four taluks viz. Kannur, Thaliparamba, Irutty and Thalassery. For the analysis of the frequency of distribution and occurrence, perennial species like trees, shrubs and climbers alone were taken because enumeration was carried out only once in the Sacred groves. Among the 343 species enumerated, 144 are trees, 103 climbers and 96 shrubs. With regards to the frequency of occurrence, the most widely occurring species are *Pothos scandens*, *Holigarna arnottiana*, and *Caryota urens*. These are occurring in 23 SGs; followed by *Mussaenda frondosa*, *Uvaria narum* and *Ichnocarpus frutescens* in 22 SGs. **No species is found occurring in all the SGs. As many as 146 species are occurring** only in one SG; 48 species in two SGs; 25 species in three SGs and 25 species in four SGs. The frequency of occurrence of species in different sacred groves is provided in tables 1-22 and figure1.

*the total number of sacred groves in Kannur district

Analysis of species distribution shows that as many as 27 species enumerated from Poongottu kavu have not been recorded from other SGs; Thayakavu has 16 species; Aryattathu temple kavu has 11 species; Pulivettakkorumakan Aarooda Temple Kavu and Madai kavu has 8 species

Table 1. Species occurring in 1 sacred grove

Sl no	SPECIES	KAVU
1.	<i>Acacia intsia</i>	PK
2.	<i>Acanthus ilicifolius</i>	TY
3.	<i>Acronychia pedunculata</i>	MN
4.	<i>Acrostichum speciosum</i>	TY
5.	<i>Actinodaphne malabarica</i>	PK
6.	<i>Aegiceras corniculatum</i>	TY
7.	<i>Aglaia lawii</i>	PK
8.	<i>Albizia procera</i>	ST

9.	Albizia saman	SK
10.	Alseodaphne semecarpifolia	MN
11.	Ampelocissus indica	PA
12.	Annona reticulata	BT
13.	Anodendron paniculatum	PA
14.	Areca catechu	VV
15.	Artocarpus gomezianus subsp. zeylanicus	PS
16.	Asystasia crispata	PK
17.	Atalantia racemosa	KB
18.	Avicennia marina	TY
19.	Avicennia officinalis	TY
20.	Bambusa striata	VL
21.	Barringtonia acutangula	PS
22.	Bauhinia acuminata	SA
23.	Bauhinia phoenicea	VK
24.	Blepharistemma serratum	PK
25.	Bruguiera cylindrica	TY
26.	Butea monosperma	PA
27.	Caesalpinia mimosoides	SM
28.	Calamus rotang	TY
29.	Canthium dicoccum	MK
30.	Canthium rheedei	VL
31.	Canthium umbellatum	CB
32.	Capparis moonii	SK
33.	Capsicum frutescens	VV
34.	Celtis philippensis	PK
35.	Celtis timorensis	SK
36.	Cerbera odollam	TY
37.	Chionanthus mala-elenji	PM
38.	Chonemorpha fragrans	PK
39.	Cissus discolor	PK
40.	Cissus trilobata	PK

41.	Citrus medica	SO
42.	Clerodendrum paniculatum	AT
43.	Clerodendrum inerme	TY
44.	Coffea arabica	AT
45.	Crotalaria pallida	SA
46.	Crotalaria spectabilis	ST
47.	Croton persimilis	SK
48.	Derris sp.	PA
49.	Derris trifoliata	TY
50.	Desmodium heterocarpum	PM
51.	Dichapetalum geloniodes	VV
52.	Dioscorea oppositifolia	EC
53.	Dracaena terniflora	VV
54.	Eheratia canarensis	SO
55.	Elaeagnus indica	PK
56.	Elaeocarpus tuberculatus	PK
57.	Embelia tsjeram-cottam	MN
58.	Erythrina variegata	SK
59.	Euphorbia neriifolia	EC
60.	Excoecaria agallocha	TY
61.	Ficus nervosa	VV
62.	Ficus tsjahela	VK
63.	Ficus virens	MN
64.	Flacourtia montana	PK
65.	Garcinia xanthochymus	PS
66.	Glochidion zeylanicum	PK
67.	Glycosmis mauritiana	IS
68.	Grewia nervosa	SD
69.	Grewia serrulata	PK
70.	Grewia sp.	SO
71.	Grewia tiliifolia	AT
72.	Helicteres isora	AT

73.	Hibiscus lunariifolius	PK
74.	Hibiscus surattensis	PA
75.	Holarrhena pubescens	SD
76.	Hopea ponga	KM
77.	Ipomoea cairica	SO
78.	Isonandra lanceolata	MN
79.	Ixora elongata	MK
80.	Ixora sp.	AT
81.	Jasminum angustifolium	EC
82.	Jasminum multiflorum	MK
83.		
84.	Justicia gendarussa	BT
85.	Kandelia candel	TY
86.	Knema attenuata	PK
87.	Lagerstroemia speciosa	PK
88.	Leea macrophylla	PM
89.	Litsea ghatica	AT
90.	Lophopetalum wightianum	PK
91.	Luffa cylindrica	SM
92.	Lygodium flexuosum	MN
93.	Magnolia champaca	SO
94.	Mallotus tetracoccus	VV
95.	Marsdenia sp.	SO
96.	Melastoma malabathricum	ST
97.	Melia dubia	AT
98.	Memecylon sp.	ST
99.	Miliusa tomentosa	SK
100.	Mimosa diplotricha	PM
101.	Mitragyna tubulosa	PM
102.	Momordica sahyadrica	AT
103.	Mucuna bracteata	PZ
104.	Mukia maderaspatana	MK

105.	<i>Myristica beddomei</i>	PK
106.	<i>Myristica malabarica</i>	PK
107.	<i>Myxopyrum smilacifolium</i>	PK
108.	<i>Nothapodytes nimmoniana</i>	IS
109.	<i>Oroxylum indicum</i>	PM
110.	<i>Pandanus tectorius</i>	TY
111.	<i>Pandanus thwaitesii</i>	PK
112.	<i>Passiflora vitifolia</i>	SO
113.	<i>Pavetta tomentosa</i>	SD
114.	<i>Peltophorum pterocarpum</i>	IS
115.	<i>Persea macrantha</i>	PS
116.	<i>Piper</i> sp.	VL
117.	<i>Pogostemon paniculatus</i>	PK
118.	<i>Pseudarthria viscida</i>	PM
119.	<i>Psidium guajava</i>	PA
120.	<i>Pterocarpus</i> sp.	PA
121.	<i>Pterospermum rubiginosum</i>	KM
122.	<i>Pueraria phaseoloides</i>	PZ
123.	<i>Rhizophora apiculata</i>	TY
124.	<i>Rhizophora mucronata</i>	TY
125.	<i>Salacia chinensis</i>	CB
126.	<i>Sonneratia alba</i>	TY
127.	<i>Spathodea campanulata</i>	SA
128.	<i>Spatholobus purpureus</i>	PK
129.	<i>Sterculia balanghas</i>	PA
130.	<i>Stereospermum colais</i>	BT
131.	<i>Strobilanthes ciliatus</i>	AT
132.	<i>Strobilanthes integrifolia</i>	VK
133.	<i>Strychnos colubrina</i>	MK
134.	<i>Swietenia mahagoni</i>	VV
135.	<i>Tabernaemontana alternifolia</i>	PK
136.	<i>Tamarindus indica</i>	MK

137.	Tarennia asiatica	IS
138.	Terminalia bellirica	AT
139.	Thunbergia grandiflora	SM
140.	Tinospora cordifolia	MK
141.	Triumfetta rhomboidea	PK
142.	Tylophora indica	ST
143.	Urena sinuata	SD
144.	Vanda testacea	CB
145.	Wrightia tinctoria	SD
146.	Xylia xylocarpa	IS

Table 2. Species occurring in 2 sacred groves

Sl.No	SPECIES	KAVU
1.	Aegle marmelos	PA,SM
2.	Albizia lebbeck	SO,AT
3.	Allophylus cobbe	VK,MK
4.	Aganope thyrsoflora var. eulata	VK, BT
5.	Aristolochia indica	MN,VL
6.	Artocarpus hirsutus	IS,PK
7.	Beaumontia jerdoniana	KB,EC
8.	Bombax ceiba	VL,AR
9.	Carissa spinarum var. microphylla	SK,IS
10.	Cinnamomum malabatum	PK,EC
11.	Corypha umbraculifera	SK,AT
12.	Cycas circinalis	IS,PM
13.	Dalbergia lanceolaria	SK,AT
14.	Dioscorea bulbifera	PK,PM
15.	Discospermum sphaerocarpum	SD,KB
16.	Drynaria quercifolia	SO,PK
17.	Ficus arnottiana	SO,SA
18.	Ficus beddomei	PK,VL
19.	Ficus exasperata	PA,PZ

20.	<i>Helicanthes elastica</i>	SO,ST
21.	<i>Hibiscus rosa-sinensis</i>	SK,PM
22.	<i>Ipomoea mauritiana</i>	KB,KM
23.	<i>Ixora javanica</i>	BT,SA
24.	<i>Ixora malabarica</i>	IS,VL
25.	<i>Jasminum flexile</i>	MK,ST
26.	<i>Jatropha gossypifolia</i>	SD,MK
27.	<i>Justicia adhatoda</i>	SK, PK
28.	<i>Mikania micrantha</i>	SK,VV
29.	<i>Morinda citrifolia</i>	BT,TY
30.	<i>Nyctanthes arbortristis</i>	BT,CB
31.	<i>Parsonsia inodora</i>	PK,PS
32.	<i>Pavetta indica</i>	CB,AT
33.	<i>Pedilanthus tithymaloides</i>	SK,VV
34.	<i>Polyalthia fragrans</i>	PA,PK
35.	<i>Polyalthia korinti</i>	IS,SA
36.	<i>Pongamia pinnata</i>	TY,SA
37.	<i>Saraca asoca</i>	SK,VV
38.	<i>Sida alnifolia</i>	MK,AT
39.	<i>Solena amplexicaulis</i>	EC,ST
40.	<i>Stenochlaena palustris</i>	PK,TY
41.	<i>Swietenia macrophylla</i>	IS,CB
42.	<i>Syzygium chavaran</i>	KB,MN
43.	<i>Syzygium zeylanicum</i>	CB,SA
44.	<i>Syzygium travancoricum</i>	PS,SA
45.	<i>Tecoma stans</i>	PA,PM
46.	<i>Terminalia crenulata</i>	VV,SM
47.	<i>Tetrastigma leucostaphylum</i>	PA,IS
48.	<i>Toxocarpus kleinii</i>	SK,IS

Table 3. Species occurring in 3 sacred groves

1.	Acacia mangium	CB,VV,PM
2.	Albizia chinensis	PA,KB,AR
3.	Antiaris toxicaria	PK,PS,VK
4.	Canthium angustifolium	PA,IS,VV
5.	Casearia ovata	PK,BT,VL
6.	Cocos nucifera	SO,VV,PZ
7.	Croton caudatus	SK,VK,MK
8.	Derris scandens	PS,VK,PZ
9.	Ficus amplissima	SO,MN,EC
10.	Gmelina arborea	SD,CB,VK
11.	Hemidesmus indicus	IS,VV,VL
12.	Leea guineensis	KB,VV,VL
13.	Litsea coriacea	VK,VV,PM
14.	Madhuca neriifolia	PK,MN,PS
15.	Memecylon umbellatum	PA,IS,CB
16.	Phyllanthus emblica	IS,EC,VL
17.	Piper nigrum	BT,VV,PM
18.	Sapindus trifoliatus	PA,BT,MK
19.	Spatholobus parviflorus	BT,VK,VV
20.	Terminalia catappa	IS,SO,PZ
21.	Tetrastigma sp.	EC,KM,SM
22.	Urena lobata	AT,SA,SM
23.	Vateria indica	PK,CB,PS
24.	Ziziphus rugosa	SK,KB,VK
25.	Passiflora foetida	SK,MN,VL

Table 4. Species occurring in 4 sacred groves

1.	Acacia torta	SD,PS,VK,EC
2.	Ananas comosus	PA,IS,VK,KM
3.	Bambusa bambos	SD,KB,VV,SA

4.	Briedelia retusa	SK,SD,BT,KM
5.	Cissus sp.	SD,EC,KM,SM
6.	Connarus monocarpus	PA,IS,PK,CB
7.	Delonix regia	SK,IS,SD,VV
8.	Falconeria insignis	SD,EC,MK,VL
9.	Ficus callosa	KB,PK,VV,SM
10.	Ficus religiosa	SK,SO,CB,SM
11.	Flueggea virosa	SD,VK,PZ,AR
12.	Gliricidia sepium	PA,SO,VK,VV
13.	Glycosmis pentaphylla	SK,PK,MN,MK
14.	Gymnacranthera farquhariana	PK,VV, CB,PS
15.	Gymnema sylvestre	MN,CB,MK,VL
16.	Holoptelea integrifolia	SK,VK,MK,AT
17.	Hydnocarpus pentandra	BT,CB,PS,VV
18.	Leea indica	IS,PS,SA,ST
19.	Naravelia zeylanica	BT,VV,VL,PM
20.	Naringi crenulata	SD,PK,VK,KM
21.	Phyllanthus reticulatus	KB,SO,CB,SM
22.	Plumeria rubra	PA,BT,MK,SM
23.	Strychnos minor	IS,PK,BT, VK
24.	Tetracera akara	PK,PS,VV,SM
25.	Wattakaka volubilis	SK,SD,KB,MN

Table 5. Species occurring in 5 sacred groves

1.	Acacia auriculiformis	IS,BT,EC,VL,SA
2.	Ailanthus triphysa	IS,BT,VK,EC,VV
3.	Alangium salvifolium subsp. hexapetalum	VK,VV,AT,PM,PZ
4.	Artocarpus heterophyllus	SK,SO,MN,BT,VV
5.	Benkara malabarica	PA,IS,SD,KB,MN
6.	Cassytha filiformis	SO,CB,KM,ST,SM
7.	Centrosema molle	SK,PA,IS,AR,SM

8.	Cinnamomum verum	BT,CB,PS,TY,SM
9.	Cissus heyneana	KB,SO,PK,VV,PM
10.	Clerodendrum infortunatum	IS,MK,VV,SA,PZ
11.	Erythrina orientalis	SD,MK,VV,PM,SM
12.	Euodia lunu-ankenda	IS,VK,EC,KM,SM
13.	Hopea parviflora	PK,BT,CB,PS,VV
14.	Ixora brachiata	SO,PK,BT,VK,EC
15.	Lygodium scandens	PA,SD,PM,PS,SM
16.	Memecylon talbotianum	PK,MN,CB,MK,VL
17.	Rauvolfia serpentina	SD,SO,VK,VV,PM
18.	Schleichera oleosa	VK,MK,AT,PM,ST
19.	Terminalia paniculata	IS,PK,MK,VL,AR
20.	Trema orientalis	SK,SD,KB,CB,VK

Table 6. Species occurring in 6 sacred groves

1.	Abrus precatorius	IS,SD,KB,SO,MN,VL
2.	Alstonia scholaris	SK,SD,MN,PS,VK,MK
3.	Cayratia pedata	SK,SO,MN,KM,ST,SM
4.	Gomphia serrata	IS,MN,CB,EC,VL,KM
5.	Hugonia mystax	IS,MN,CB,VK,EC,MK
6.	Leea asiatica	PK,EC,VV,AT,KM,SM
7.	Premna serratifolia	MN,CB,EC,TY,SA,ST
8.	Sarcostigma kleinii	SK,SO,MN,VV,ST,SM
9.	Tectona grandis	SK,SO,BT,CB,VV,AT

Table 7. Species occurring in 7 sacred groves

1.	Abrus pulchellus	PA,BT,VV,PM,KM,ST,SM, AT
2.	Breynia vitis-idaea	IS,KB,SO,MN,EC,VL,KM
3.	Cassia fistula	PA,IS,SD,CB,AT,ST,SM
4.	Combretum latifolium	BT,PS,VK,EC,KM,ST,SM
5.	Diploclisia glaucescens	PA,SD,KB,PS,EC,VL,KM

6.	Lantana camara	SD,SO,VK,EC,VL,AT,SA
7.	Salacia fruticosa	PA,IS,KB,BT,VV,VL,KM
8.	Santalum album	IS,SD,KB,SO,EC,KM,ST
9.	Tinospora sinensis	KB,SO,PK,BT,VK,VL,ST

Table 8. Species occurring in 8 sacred groves

1.	Chrysophyllum cainito	SK,PA,SO,MN,BT,CB,PZ,AR
2.	Dioscorea wallichii	CB,PS,VK,EC,VV,AT,PM,KM
3.	Erycibe paniculata	PA,IS,SO,MN,BT,CB,PS,EC
4.	Ficus benghalensis	PA,SD,MN,CB,EC,PM,SA,SM
5.	Ficus drupacea var. pubescens	PK,MN,BT,PS,VK,MK,VV,SA
6.	Ficus hispida	SK,BT,VK,EC,VV,AT,PM,SM
7.	Gloriosa superba	CB,VK,EC,TY,AT,PM,KM,SM
8.	Memecylon randerianum	SD,KB,MN,BT,VK,EC,VL,KM
9.	Merremia umbellata	SK,PA,VK,VL,PM,AR,KM,ST
10.	Merremia vitifolia	SD,KB,SO,VK,EC,PZ,AR,KM
11.	Diospyros candolleana	PA,IS,KB,PS,EC,MK,KM,ST

Table 9. Species occurring in 9 sacred groves

1.	Acacia caesia	SK,KB,SO,BT,VV,VL,AT,PM,AR
2.	Ampelocissus latifolia	IS,MN,EC,MK,VV,PM,KM,ST,SM
3.	Canthium coromandelicum	SD,KB,MN,CB,VK,EC,MK,VL,KM
4.	Careya arborea	SK,KB,SO,MN,EC,VL,PM,KM,ST
5.	Cyclea peltata	SK,IS,KB,CB,PS,VK,TY,PZ,SM
6.	Hippocratea arnotiana	PA,IS,SD,VK,EC,MK,VL,PZ,KM
7.	Zanthoxylum rhetsa	SD,PK,BT,VK,MK,VV,PM,KM,SM

Table 10. Species occurring in 10 sacred groves

	Anacardium occidentale	IS,SD,SO,MN,CB,PS,VK,EC,SA,ST
	Rourea minor	IS,MN,CB,PS,VL,SA,PZ,KM,ST,SM

Table 11. Species occurring in 11 sacred groves

1.	Cosmostigma racemosum	SD,KB,SO,CB,VK,EC,VV,VL,PM,PZ,KM
2.	Grewia microcos	SK,PA,SD,MN,CB,VK,EC,PZ,KM,ST,SM
3.	Syzygium caryophyllatum	IS,KB,MN,CB,VK,EC,VL,SA,KM,ST,SM

Table 12. Species occurring in 12 sacred groves

1.	Antidesma acidum	SK,PA,IS,KB,PK,MN,BT,PS,VK,EC,VV,PM
2.	Cansjera rheedei	SK,PA,SD,KB,MN,CB,VK,EC,AR,KM,ST,SM
3.	Mangifera indica	SK,PA,IS,KB,SO,PK,MN,PS,VV,VL,AT,PM

Table 13. Species occurring in 13 sacred groves

1.	Aglaia elaeagnoidea	SK,PA,SD,KB,SO,MN,BT,EC,MK,VV,AR, KM,ST
2.	Anamirta cocculus	SD,SO,CB,PS,VK,EC,VV,AT,PM,PZ,KM,ST,SM
3.	Dioscorea pentaphylla	SD,KB,SO,MN,PS,VK,EC,VV,PM,PZ,KM,ST,SM
4.	Lanea coromandelica	SK,SD,KB,SO,MN,BT,CB,PS,VK,EC,VL,AR,ST
5.	Sterculia guttata	SK,PA,KB,PK,BT,PS,MK,VV,VL,PM,AR, KM,SM
6.	Tabernaemontana heyneana	SK,PA,IS,KB,SO,MN,BT,CB,VK,EC,MK,AT,PM

Table 14. Species occurring in 14 sacred groves

1.	Hibiscus hispidissimus	SK,IS,SD,KB,SO,PK,VK,PM,SA,PZ, AR,KM,ST,SM
2.	Jasminum coarctatum	SK,PA,IS,SD,KB,SO,MN,CB,PS,VK, VV,VL,AT,PZ
3.	Jasminum malabaricum	SK,PA,IS,SD,KB,SO,MN,BT,VL,SA, PZ,AR,ST,SM
4.	Dioscorea sp.	SK,PA,IS,SD,KB,SO,MN,CB,PS,VK, EC,KM,ST,SM

Table 15. Species occurring in 16 sacred groves

1.	Adenanthera pavonina	SK,PA,IS,SO,PK,MN,BT,CB,PS,EC,VL,PM,SA,AR,ST,SM
2.	Chromolaena odorata	SK,PA,IS,SD,KB,SO,MN,VK,EC,VV,VL,PM,AR,KM,ST,SM
3.	Gnetum edule	PA,IS,KB,SO,PK,MN,BT,PS,VK,EC,VV,PM,SA,AR,KM,ST
4.	Smilax zeylanica	SK,PA,IS,KB,SO,PK,MN,BT,PS,VK,EC,VV,AT,PM,ST,SM
5.	Vitex altissima	SK,IS,SD,KB,SO,PK,MN,BT,CB,VK,EC,MK,VL,KM,ST,SM

Table 16. Species occurring in 17 sacred groves

1.	Dalbergia horrida	Except SK,PA,SO,PS,TY,VV,PM,AR
2.	Macaranga peltata	Except KB,PK,PS,AT,SA,AR,KM,SM
3.	Mimusops elengi	Except SD,MN,CB,PS,VK,VL,PM,PZ

Table 17. Species occurring in 18 sacred groves

1.	Briedelia stipularis	Except SK,PK,CB,TY,SA,AR,SM
2.	Carallia brachiata	Except SK,VK,MK,TY,AT,PZ,AR
3.	Ziziphus oenoplia	Except SK,PA,BT,PS,MK,TY,AT

Table 18. Species occurring in 19 sacred groves

1.	Calycopteris floribunda	Except PK,PS,TY,AT,PM,SA
2.	Ixora coccinea	Except SK,PK,MK,AT,PZ,AR
3.	Mallotus philippensis	Except MN,PS,TY,VL,PM,SA
4.	Strychnos nux-vomica	Except KB,SO,PS,VK,TY,AT

Table 19. species occurring in 20 sacred groves

	Aporosa cardiosperma	Except SK,IS,MK,TY,PZ
	Chassalia curviflora var. ophioxylodes	Except KB,SO,MK,TY,SA
	Cissus latifolia	Except SK,PK,MK,TY,SA

Table 20. species occurring in 21 sacred groves

1.	Olea dioica	Except BT,MK,TY,SA
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Table 21. Species occurring in 22 sacred groves

1.	Ichnocarpus frutescens	Except PK,MK,TY
2.	Uvaria narum	Except PK,MK,TY
3.	Mussaenda frondosa	Except BT,MK,TY

Table 22. Species occurring in 23 sacred groves

1.	Caryota urens	Except MK,AR
2.	Holigarna arnottiana	Except MK,PZ
3.	Pothos scandens	Except MK,TY

Abbreviations:SK-Shri Kalarivathikkal Bhagavathy Temple Kavu; PA-Pulivettakkorumakan Aarooda Temple Kavu; IS-Iruveri Shri Pulideva Temple Kavu; SD-Sri Dharmasasthashetram Bhagavathi Kav; KB-Kuruvakkavu Bhagavathi Kav; SO-Sri Oorpazhassi Temple Kav; PK-Poongottu Kav; MN -Mangattuparambu Neeliyar Kotta; BT-Konginichal Bhagavathy Temple Kav; CB-Chamakkavu Bhgavathy Temple Kav; PS-Paliyeri Shri Mookambika Temple Kav; VK-Vareekkara Kav Bhagavathi Temple; EC-Edappara Chamundessary Temple; MK-Madai Kav; TY-Thayakavu; VV-Varavilkavu; VL-Valaranda Kav; AT-Arayathattu Temple Kav; PM-Pazhasi Madom Temple Kav; SA-Shri Anallur Mullapra Bhagavathi Temple; PZ-Pazhasi Kav; AR-Arathil Kandoth Sri Sarpakkavu; KM -Kanakottu Muthappan Madappura Kav; ST-Pathiriyad Shri Thirumangalam Sasthappan Temple Kav; SM-Shri Muchilot Bhagavathy Temple Kav.

33.	Mangattuparambu Neeliyar Kotta	28	28	16	72
34.	Konginichal Bhagavathy Temple Kavu	32	21	10	63
35.	Chamakkavu Bhgavathy Temple Kavu	30	22	13	65
36.	Paliyeri Shri Mookambika Temple Kavu	24	21	5	50
37.	Vareekkara Kavu Bhagavathi Temple	26	34	17	77
38.	Edappara Chamundessary Temple	27	31	16	74
39.	Madai Kavu	21	13	10	44
40.	Thayakavu	15	5	8	28
41.	Varavilkavu	34	27	15	76
42.	Valaranda Kavu	22	25	14	61
43.	Arayathattu Temple Kavu	18	14	14	46
44.	Pazhasi Madom Shri Devi Temple Kavu	22	24	13	59
45.	Shri Anallur Mullapra Bhagavathi Temple	17	8	13	38
46.	Pazhasi Kavu	9	23	6	38
47.	Arathil Kandoth Sri Sarpakkavu	14	13	5	32
48.	Kanakottu Muthappan Madappura Kavu	21	24	12	57
49.	Pathiriyad Shri Thirumangalam Sasthappan Temple Kavu	21	27	12	60
50.	Shri Muchilot Bhagavathy Temple Kavu	24	30	10	64

Table 24. Taluk-wise occurrence of species of trees, shrubs and climbers

Taluk	Tree	Climber	Shrub	Total
Kannur	97	70	56	223
Thaliparamba	85	72	46	203

Irutty	60	45	41	146
Thalassery	50	49	30	129

Among the taluks, Kannur has the highest species diversity.

The analysis with respect to family shows that Leguminosae is dominating among the all 348 species. It has 44 species, followed by Rubiaceae and Euphorbiaceae with 19 species; Moraceae (16 species); Apocyanaceae (14 species)

In total tree species Leguminosae dominating. It has 20 species, followed by Moraceae (15); Euphorbiaceae (10); Lauraceae and Rhizophoraceae (6)

Rubiaceae is dominating in shrubs. It has 18 species, followed by Euphorbiaceae, Acanthaceae and Malvaceae with 7 species.

Leguminosae is dominating in climbers with 19 species, followed by Vitaceae (6 species); Asclepiadaceae (7); Convolvulaceae and Oleaceae (6).

Analysis with respect to taluk shows that Leguminosae is the dominant family in all the taluks of Kannur district.

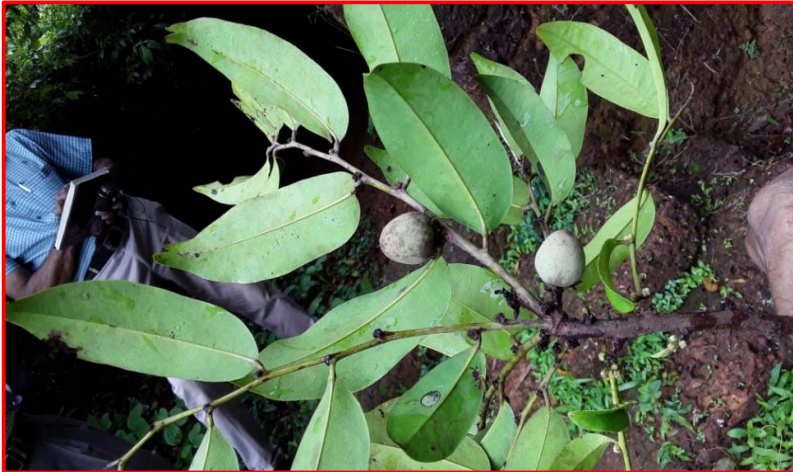
In SGs of Kannur taluk Leguminosae is dominating with 26 species, followed by Euphorbiaceae (16); Apocyanaceae (13); Moraceae (12).

In Thaliparamba taluk Leguminosae is the dominant family with 19 species, followed by Euphorbiaceae (15); Rubiaceae (12); Moraceae (10).

In Irutty taluk the family Leguminosae is dominating with 19 species, followed by Rubiaceae (11); Euphorbiaceae (10).

In Thalassery taluk Leguminosae is dominating with 17 species, followed by Euphorbiaceae (8); Moraceae (7).

Tree



1. *Diospyros candolleana*,
Karimaram
F-Ebenaceae

2. *Sterculia guttate*,
Kavalam, F-Sterculiaceae



3. *Syzygiumcaryophyllatum*
Karimjara, F-Myrtacea

Tree



4. Naringi crenulate,
Narinarakam.
F-Rutaceae

5. Alseodaphnesemecarpifolia,
Karukotta, F-Lauraceae



6. Syzygiumtravancoricum.
Vathamkollimaram,
F-Myrtaceae

Trees



7. Actinodaphnema labaria
F- Lauraceae-- Pattuthali
Endemic-Leaf & Root Medicinal
Poongottukavu. Kannur talu

8. Artocarpus gomezensis
F- Moraceae- Theetaplavu
Paliari Srimookambika Templek
avu.
Thaliparamba taluk



9. Knema attenuata
F- Myristicaceae- Chorapine
Poongottukavu.
Thalaserry taluk.

Shrubs



1. *Discospermum sphaerocarpum*,
F-Rubiaceae,
Critically endangered.

2. *Glycosmis mauritiana*,
F-Rutaceae,
panal



3. *Canjara rheedii*,
F-Opiliaceae-climber also.



Shrubs



4. *Gomphia serrata*,
F-Ochanaceae,
Valarmani.

5. *Antidesma acidium*,
F-Euphorbiaceae,
Asaripuli.



6. *Sterculia villosa*,
F-Sterculiaceae,
Poochapazham.

Shrubs



7. *Canthium travancoricum*,
F-Rubiaceae.

8. *Rauvolfia serpentine*,
F-Apocynaceae,
Sarpagandhi.



9. *Litsea ghatica*,
F-Lauraceae,

Climber



1. Aristolochia indica
F-Aristolochiaceae.
Garudakkodi.
Medicinal

2. Calycopteris floribunda flower
F-Combretaceae- Pullanji



3. Memylonrandrianum,
F- Melstomaceae.
Kaikathetchi

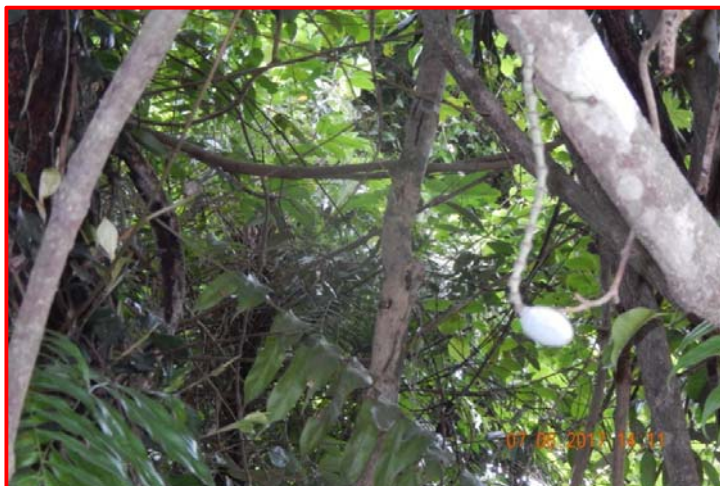


Climber



4. *Amelocissus latifolia*,
F-Vitaceae, Champaravalli

5. *Hugonia mystax*,
F-Linaceae
Mothirakanni



6. *Gnetum edule*
F-Gnetaceae
Karuthodal

Climber



7. *Tinospora chinensis*'

F-Menispermaceae'

Pothuvalli

8. *Cissus* climber
(*Glyptocarpa*)

Vitaceae-red tendril,

Chunnambuvalli.



9. *Wattakaka volubilis*

F-Asclepiadaceae.

Medicinal



Herbs



1. Amorphopallus bulbifer,
F-Araceae.
Kattuchena

2. Curcuma oligantha,
F-Zingiberaceae.



Herbs



3. *Urena sinuate*.

F-Malvaceae.

Uthiram

4. Orchid.

Rhynchostylis retusa,

F-Orchidaceae.

Seethamudi.



CHAPTER VII

ECOLOGICAL STATUS

Sacred groves with their richness in biodiversity are of immense ecological significance. The sacred groves have well developed forest ecosystems and high degree of species richness and a rich biodiversity in general, depending on extend of preservation of the grove. Sacred groves are a biological heritage and a system that has helped to preserve the representative genetic resources existing in the surrounding regions for generations. The vegetation as well as the biological setup in a sacred grove is normally fully protected from human interference through customary taboos and restrictions with cultural and ecological implications. The degree of sanctity of the sacred forests varies from one grove to another. In some forests even the dry foliage and fallen fruits are not touched. People believe that any kind of disturbance will offend the local deity, causing diseases, natural calamities, and failure of crops. 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 been 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 besides studies made earlier by other agencies. This is confined to vegetation, soil conditions, faunal significance and water conservation.

Salient features of vegetation

The lie of the land in Kannur district is generally a flat type which is mostly on midland and coastal region. Only a small portion falls in hilly terrain. The general floristic composition and physiognomy of vegetation of the sacred groves are typically like the low land evergreen forests. The vegetation in undisturbed groves is luxuriant and comprises three stories of trees mixed with shrubs, lianas and herbs. The ground is humus laden and covered with litter. The ground layer is usually thickly populated with species which prefer humus and love shade. Along with a few angiosperms, ferns, Selaginellas and many species of macrofungi like Agaricus also occur. Dead trunks of fallen trees harbor a variety of Polyporales, especially species of Fomes and Polyporus as is common. The diversity of plants is governed by the soil condition. The leading type is loamy soil and there are

Myristica swamps both in midland and coastal region. Typical species relating to myristica swamps and mangrove vegetation are noticed. Some examples are noted below.-

Poongottukavu in Morazhavillge in Kannur Taluk.:-

Here most of the area is Myristica swamp. An association of endemic species like Myristicamalabarica, Knemaattenuata and Hopeaparviflora is noticed. The first two belong to Myristicaceae family and both are vulnerable or rare in status. Hopea is also vulnerable. They exist in this peculiar condition. Many trees have buttressed roots and high girth. Pandanus thwaitesii and Lagenandera ovata which are characteristic to stream banks and swamps are seen here. Woody gymnosperm-Gnetum edule is in plenty. Climbing pteridophyte Stenochlaena palustris and bryophytes like Riccia sp., Porella sp. and Funaria sp. are met with in this grove.

Thayakkavu-Mattool village-Thaliparamba:-

This is a sacred grove situated on the banks of Valapattanam River with mangrove predominant vegetation. The soil is salt marsh. As much as 11 true mangrove species and 19 mangrove associates are recorded here. Besides the dominant species Rhizophora mucronata, Kandelia candel, Sonneratia alba, Avicinia marina and Bruguiera cylindrica etc. are seen. Along with the above some endemic species like Holigarna arnottiana, Mimosa selengi and Pongamia pinnata do exist.

Chama kavu-Vellur-Payyanur.:-

Here 30 tree species and 22 climbers have been identified. They all come under the very common varieties with dense growth. Hugoniamystax dominates among climbers. Actinodaphne malabarica is also seen here.

Neeliyarkottam-Morazha village-Thaliparamba:

This is more or less a flat terrain with scattered rocky outcrops. The density of vegetation is comparatively less and the age and size of trees is also less. This is an extensive one with more than 20 Acres. Most dominant tree here is Memecylon talbotianum. Among the large trees, the notable one is Syzygium chavaran, which is a rare species. A rare climber – Ampelocissus latifolia is growing well here. The incidence of climber species is 28 number. Here also woody climbers such as Hugoniamystax, Calycopteris floribunda and

Dalbergia horrida are plenty. The incidence of Curcuma oligantha is high among herbs. Another peculiarity is the existence of orchids such as Luisiastrea, Nervilia criciformis, Rynchosystis retusa, Vandatestacea.

Madayi Kavu-Madayi village-Under Devaswam Board.

This is in midland Lateritic zone- The vegetation is dominated by herbaceous species like Eriocaulon, Drosera indica, Polycarpea corymbosa etc.

Other observations are:- In Varavilkavu, Mattannur the vegetation is very dense and the predominant species is Gymnacranthera farquhariana followed by Hoigarna arnottiana.

Arayathattu Temple Kavu, Mannur-Here undergrowth is dense with Zingiber nimmoni, Globba ophioglossa, Strobilanthes ciliates, Amorphophalus bulbifer and Helicteres isora. In this sacred grove, there are two very large trees of Holoptelea integrifolia.

In Pazhassi Kavu, Pinarayi, there is heavy infestation of climbers such as Calycopteris floribunda and Mucuna bracteata smothering the trees along with Dioscorea pentaphylla. But just behind we find dense growth of Cayotaurens as if it is a plantation by itself.

Natural 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 whipple 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 shoots 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. Large seeds do not germinate unless they are buried beneath the litter or mineral soil as seen in the case of *Diospyros peregrina*. It is a shade bearer. Its seeds are dispersed by bats and monkeys. If exposed to sun for longer period it seldom germinate and grow. This is confined to wet locations of coastal belt. Natural regeneration of shrubs and climbers is not a matter of concern since they multiply even under reduced light conditions. As most of the SGs are comparatively small in extent unlike large stretches of forest growth, light penetration from lateral side is also possible which mitigate adverse condition for the growth of light demanders. Natural regeneration is generally good in the case of Anjily (*Artocarpushirsutus*), Manchady (*Adanentherapavonina*), Charu (*Holigarna arnotiana*), Uletty (*Caryotaurens*), Marotty (*Hydnocarpuspentandra*), etc. which are common in almost all the sacred groves.

In Kalarivathukkaltemplekavu regeneration of *Caryotaurens* is plenty and culling the seedlings is to be thought of to promote other species. *Gymnacrantherafarquariana* regenerates very well in Paliyeri temple kavu. Sandal wood is generally a light demander though it can tolerate shade to some extent. But we have noticed more sandal saplings in many along fringes. This can be seen in Dharmasastha temple kavu at Kannadiparambu. The fact that these patches are protected from fire is also contributing to improved regeneration status. But the role of invasive species mainly climbers, is a matter that calls for deep thinking.

Soil Condition

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 nitrogen 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 nitrogen is concerned. Release of nitrogen from decomposing litter is double that from fine roots.

SOIL TEST

Soil samples were taken from 15 sacred groves at different locations. The result of soil test shows that in most of the cases availability of organic carbon is generally medium even though the samples were taken after the areas received very good showers. The high concentration of fine roots in surface layer of soil facilitates rapid uptake of nutrients released from decomposing litter.

Organic Carbon - (OC) is the most important constituent of the soil which influence the plant growth as a source of energy and a trigger for nutrient availability through mineralization. An increase in OC 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. But in these areas acidity is comparatively low. Potassium is more in clayey soil but it is not in the form for absorption by plants. It is helpful in photo synthesis, opening and closing of stomata. 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.

The number of soil samples taken is not sufficient enough to make authentic conclusions on the occurrence of various species. Moreover, such a detailed study is beyond the purview of this report. One of the main observations made is that the soil is generally loamy and pH is more than in all the cases. The reason for gregarious growth of *Caryotaurens* seen in the sacred groves need to be studied by competent agency.

Water conservation.

Almost all sacred groves are associated with ponds. The water from the pond is used for temples rituals and poojas and therefore, kept clean. As the ponds are either within the groves or along the boundary of the groves, these will not dry up during summer. The ponds play a key role in maintaining the water table of the area around the groves. It is observed

that the number of ponds is less but they are large. Again quite a number are not natural ponds and they are manmade. But the underground water table is comparatively high.

Name of Taluk	Total SGs	Ponds
Kannur	321	131
Thaliparamba	487	176
Thalassery	215	84
Iritty	103	47

Faunal Significance

The fauna associated with sacred groves somehow owe their existence to mythological concepts. The tortoise, porcupine, monitor lizard, peacock etc. To that extent they get maximum protection in SGs.

The sacred grooves harbour numerous birds, butterfly flies and bats apart from primates and small mammals.(Chandran-1993). Number of white tortoise live in ponds attached to SGs. They feed on small plants and vegetable food items and grains offered by the devotees. Tortoise is very much respected by them. According to epic Ramayana, God Vishnu incarnated himself as a tortoise during churning of the ocean. This belief is the main reason for the protection extended to this species in sacred groves.

Porcupine is another animal seen in many SGs which are large in extent. The Deviyottu Kavu under Devaswam near Payyannur having an extent of 72 acres forms a good habitat for porcupine. It was locally stated that number of them are often seen moving along the periphery at dusk. They mostly take herbivorous diet such as inner bark of trees, fruits, bulbs, tubers etc. Occasionally they consume insects and small vertebrates. In this particular SG since none is permitted to enter and to that extent this animal get sufficient protection.

Monitor lizard is seen by the field team in various SGs many times. This species is included in the IUCN Red List as threatened species. It is noticed in sacred groves adjacent villages and is diurnal. It could be seen in the mornings and evenings. It being carnivore, can eat anything it can overcome. This is considered to have medicinal value and tribals do not spare them. Being a top predator and scavenger this can check the population of rats as wild cat does. They feed on eggs, fish etc. They also get protection in SGs since they come under the category of venerated ones. This team noticed some by noon time in SGs with heavy

laterite. There are temples elsewhere exhibiting golden replica of monitor lizard for devotees to touch which is considered to be a sign of good luck.

On the ground there are termites, ants and earth worms which play an important role in building up soil. Around 100 sp. of mammals, 476 sp. of birds, 156 sp. of reptiles, 91 sp. of amphibians and 196 spp. of fishes are reported to be available in the sacred groves of Kerala. (KFRI Research Report. 406) Though the above information indicates the potential giving an overall picture, in these pockets of SGs many of them are not visible on one or two visits as all depends on the season. The animals found are those which nested there in like snakes, frogs, tortoise, lizards etc. and those visit the site for food and temporary shelter like bats. A clear study on this fauna would involve long period of periodical observation by experts, not to speak of the cost. In this report the study team noted the animals seen directly and also gathered information from the custodians or local people and also available literature specific to such cases. Bats, small mammals, civets, monitor lizard monkeys and Peacock are the animals very frequently visiting these SGs. Termite mounds are seldom noticed even though they are generally present inside dead wood and below soil.

Role of termites

Termites are insects that live in colonies composed of individuals (i) from more than one generation, (ii) those give co-operative care of the young and (iii) those showing reproductive division of labour. Some species live within wood and others inside soil matrix in nests that are described as diffuse gallery systems. There are still others which while living inside soil and build mounds.

Termites form a significant element of soil micro-fauna. The food of termites mainly is plant material. Termites can also feed on animal products such as dung, fresh mammalian carcasses. Some termites feed directly on the wood of living trees while there are others which depend on humus in the soil. The former type possess an intestinal fauna of flagellate protozoa which initiate the digestion of cellulose. The other one depend on fungi and bacteria acting on food supply before it is eaten. Another type depends on the humus present in the soil for nourishment and utilizes large amount of excreta for construction of mounds. Studies on termites also reveal that they have no sight and they are deaf. They recognize their nest mate by their special odor. They leave scent trails to food sources outside the nest. The scent comes from a gland present on the underside of the abdomen.

Below ground nests are very common where moisture remains at low levels throughout the year. Here evaporation and desiccation remain low. Cellulose is the desired product for them though they feed on grain, dung etc. Lignin from plant particle is used to reinforce nest material and shelter tubes though it is non-digestible. They eat their dead to gain protein-a case of cannibalism. In dry conditions termites are the main decomposers of litter due to their ability to avoid dehydration and face prolonged desiccation.

The influence of termites on living trees adversely affects timber production. But their activity on fallen and dead wood in sacred groves improve the soil fertility. Termites take active role in cellulose processing and soil bioturbation. In doing so they establish symbioses with both microbes in the guts and many organisms in their mounds. They act on soil and litter by feeding and excavating soil. They break down litter into smaller particles and expose inner surfaces of litter for early action by bacteria and fungi. Their mounds are seen in some of these SGs where leaf litter is plenty during cold season.

Wild cat- (*Felis tigris*)

Wild cat is the ancestor of domestic cat. It feeds on ducks, small rodents, fish, egg etc. They live in rocky areas with tall trees. The presence of wild cat is an indication of high degree of faunal density.

Mongoose (*Herpestes javanicus*)- is considered to be a destroyer of vermin. It feeds on wide variety of vertebrates and occasionally on fruits and vegetables.

Bats

The bats visiting the SGs fall under the category of fruit bats and they form abundant group of mammals. They are seen roosting in many sacred groves. They play important ecological roles as prey and predator, arthropod suppression, seed dispersal, nutrient distribution etc. As studies indicate that the economic benefits from bats in general are, biological pest control, plant pollination, seed dispersal, guano mining, bush meat and medicine, aesthetic value, education and research. In spite of the economic benefits, damage caused on human, livestock and agricultural crops are also reported. They have enemies also such as amphibians, reptiles, owls etc. Most of the bats are predated during roosting or foraging. They form hosts for parasites as we learn about bat fleas, bat flies, bat mite and bugs which live on the skin surface and in fur of bats.

Although pollination by bats is relatively uncommon, in arid and semi-arid habitats agave and cacti are pollinated by bats. Seed dispersal in respect of fleshy fruits done by bats is tremendous. The night foraging fruit bats are more active than birds in foraging fleshy fruits, covering long distances and defecate during flight and thereby contribute seed dispersal.

The guano is having high nutrient potential and it is dispersed over landscape during flight. Bat guano is reported to support diversity of organisms like arthropods, fungi, bacteria and lichens.

With the basic information as described above when we watch their role in sacred groves we feel that many of the observations and their behavior remain unanswered. Generally the bats seen in sacred groves are those having yellow colour at the abdomen which is visible when they hang upside down while roosting. They are commonly seen roosting in trees like, Vateria, Elanji, Njaval, Elavu, Punna and Pana. Evidently they prefer trees bearing fleshy fruits. But we have not come across bats roosting on *Antiaristoxicatia*. It is presumed that they avoid this tree due to the toxic sap this tree contains in their bark.

Another observation is that they are not very common in sacred groves. But there are many SGs where bats are not reported. Though they are seen in one SG in the nearby SGs they are absent. They are seen only in very few SGs attached to temples. Here again they occupy isolated corner where disturbance is least. One reason for their selection of SG may be least disturbance from people, availability of fruit trees not only in the SG but in surrounding area supporting palms like coconut, and areca nut. Apparently they avoid crop applied with pesticides. Local people complain about the damage they cause to the agricultural crop like palms.

There are instances where the trees are destroyed by their roosting in SGs. Caryottaurines, tall *Vateria* and *Adenantha* trees and also coconut and areca nut palms... While some of the custodians raise this complaint against bats, most of the custodians of SGs supporting bats have no such problem. Another observation is that they also roost in trees without any leaves.

Peacock

Peacock visits some of the SGs finding favourable conditions of food. It feeds on plant parts, insects, white ants etc. Also it takes plenty of water. It can devour even snakes. It scratches termite mound in sacred groves and eat the ants coming out. Pea fowl is reported from many of the SGs. But they are mostly on the move. They prefer SGs adjoining paddy fields. Local information is that they suddenly appear in the morning or evenings soon after rain subsides. Sacred groves with light canopy and bushy undergrowth or tall grass are stated to be their favorite. Their way of foraging make the surroundings healthy. They feed on lizards, rodents, and even small snakes. They avoid flying but do fly to tall trees for roosting.

By virtue of their iridescent bluish green plumage and beautiful large tail they are noticed easily by people. They escape from falling victim to the hunters as long as they are in the vicinity of sacred groves.

CIVET-(Toddy cat)

This elusive nocturnal animal is mostly herbivorous. Besides fruits they feed on small insects. They relish palm flower sap and has earned the name-Toddy Cat. They are very commonly reported to be seen in SGs. The presence of Caryotaurens in most of the SGs promote this species.

CHAPTER VIII

SOCIO CULTURAL ASPECTS

Introduction

There is a version that the name Kannur might have been derived from the words, Kannan (Lord Krishna and Ur (Place) making the place of Lord Krishna. Because of its natural location- between the Western Ghats and the Arabian Sea, this district is known as the 'Crown of Kerala'. Kannur is an ancient port town which has been mentioned in the Greek literature and considering its strategically important location, all colonial powers like the Portuguese, the Dutch and finally the British took over absolute control over this port during their regime. Marcopolo mentions Kannur as the emporium of Spice Trade. Kannur was the capital of the Arakkal Sultanate, which was the only Muslim dynasty that ruled in Kerala. Kannur along with Lakshadweep islands were leased originally from the Kolathiri rulers. When it became part of the British rule, the name Kannur was anglicized as Cannannore.

Kannur is a land with lot of myths and legends as well as historical events. Combination of different styles of Aryan and non- Aryan culture and the influence of Jain and Buddhist philosophies shaped the culture of the people in this area.

The Concept of Sacred Groves

In India, every religion has their own traditions, practices and rituals which are aimed at keeping nature un disturbed. The Hindu religion give reverence to the five basic elements of nature- Earth (*Prithvi*), Fire (*Agni*), Water (*Jal*), Air (*Wayoo*) and Space (*Akash*). All the five elements are treated as body of God and are worshipped. These five elements are protected for religious, cultural and spiritual reasons. 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 worshipping, 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.

Scenario in the district

Categorization of Sacred Groves of Kerala was once a common feature in every village. Time immemorial, the original groves came in to the hands of individual families and remained family-owned property. As the families split into smaller units, many of the members retained the grove with the place of worship. Since many families were unable to follow the 'Kavu' rituals, they were handed over to organizations like the Devasam Boards or local trusts and temple committees.

Till the beginning of this century, sacred groves were an indispensable adjunct of the traditional Hindu families of Kerala. Sacred groves and associated ponds constituted a unique network of ecological system that intervened with the life and culture of the people of Kerala. The study conducted in the district reveals that out of the 1096 SGs identified, 78% of the SGs are owned by individuals or families or family trusts, 14% by public trusts or Janakeeya Committees and the balance 8% by Temple trusts or Devasam Boards. The largest SG in the district (72 Acres) is owned and managed by a tribal community, the *Mavilans*. Another peculiarity in the district is that many of the SGs spread over extensive land areas. In Kozhikode district, where the total number of SGs were 1231, the land area under SGs was only 348 Acres and in Alappuzh district where the total number is 2242, the area covered is only 451 Acres. In Kannur a total of 1096 SGs occupy 652 acres of land area.

The role of gender in sacred groves can be analyzed at four levels:

- (a) The gender of the deity associated with the sacred groves;
- (b) The gender of the priests conducting poojas in the groves;
- (c) The nature and extent of access to men and women in various rituals, festivals and ceremonies in the groves, and harvest of biomass from the groves; and
- (d) The role of gender in the management of the sacred groves.

Regarding gender of deities, the male deities associated with the SGs in the district are:- *Risheeswaran, Thondan deivam, Brahmarakshas, Dharma deivam, Bhairavan, Wynad*

kulavan, Oorpazhassi, Lavakusan, Kodiveeran, Karanavar, Gulikan, Kuttichathan, Ayyappan, Sivan, , Krishnan, Ganapathy, Narasimhamoorthy, Sasthav, Paramasivan, Mahavishnu, Valyachan, Gurunadhan, Vettakorumakan, Perunthachan, Velutha bhootham, Bali, etc.

Among the female Dieties *Bhadradevi, Durgabhagavathy, Bhadrakali, Devi, Parvathy, Bhuvaneswari, Vanadurga, Puthiya Bhagavathi, Raktha chamundeswari, Kalleriamma, Valiya thamburatti, Thai paradevatha, Puliyoorkali, Seetha Devi* etc are most common.

Nagar, Nagaraja, Nagarprathishtha, Naga kanyaka, etc are the snake deities. In certain cases there will be only *Chithrakoodam* where deities are only *sankalpam*. It is noticed that SGs dedicated to Snake Gods (Serpant Gods) is less in Irutty Taluk than other taluks in the district.

Regarding the gender of the priest, it appears that the priesthood rests with males without exception.

There are strict practices in the nature and extent of access to men and women in various rituals, festivals and ceremonies in the groves. Since majority of the SGs are attached to households, daily lighting of the lamp is done by usually women. In very few SGs women are not permitted to enter the Kavau.

Management of the SGs normally vests with men. In certain cases, as per records the owner may be a woman, but management is executed generally by men.

Worship

The worship pattern varies from place to place and Kavau to Kavau. Except in exceptional cases, daily pooja is not practiced in the SGs.

Except a few, ownership of most of the *Kavus* vests with *Nampoothiry* (Brahmin) community. *Nair* and *Ezhava* communities also own a number of *Kavus*. A few *Kavus* belong to scheduled castes and few with Scheduled Tribes. The largest kavau in the district (72 acres- *Deviyottu kavau* in Irutty Taluk) belong to the Tribal Community, *Mavilans*. Here they are very strict in not allowing others to enter the Kavau, nor even to take a photograph of the kavau. Regarding poojas in the SGs of the district, though the ownership is as mentioned

above, poojas are mainly *brahmana pooja*. *Abrahminapoojas* are performed mostly by *Ooralas*, *SGs having Oorala poojas are more in Irutty Taluk*.

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. Poojas are either monthly or seasonal.

Rituals in these sacred groves constitute a mixture of practices by agrarian society and hunting society. Agrarian society perform *Nira and Putheri* which represent harvesting of agricultural produce and cooking of fresh grain respectively. *Sarpabali and Noorumpalum* are methods of worshipping snake deity. *Pampumthullal* is a dance performed by girls and the main priest accompanies them by singing prayer songs. *Kalampattu* is performed to appease not only Goddesses but also the spirits of demons and Lord Ayyappa.

In Kottiyoor Siva temple the temple festival (utsav) begins every year by mid-May and lasts for 28 days. *Ilaneer Veppu* or submitting tender coconuts before the deity is an important ritual during the festival. Thousands of tender coconuts brought by hundreds of devotees from different parts of Malabar are submitted on a special day. The very next day is *Ilaneerattam*. On this day, the main priest pours coconut water collected from the tender coconuts on the idol.

Folk Arts

Folk dances of great originality and colour have evolved among the large population of the oppressed classes and the tribal of this district. These were possibly manifestations of the tribal need to communicate to the ruling classes their frustrations and social anger. Some folk dances evolved as a result of their ceremonies to propitiate their gods. Among the *Adiyans* there is a folk play in which an old man plays on a *thundi* (drum) and the men sing and dance to the beating of the drum. Though the women do not participate in the dance, they join in the community singing. The art forms of the *Pulluvar* are ritualistic. Most of their songs are related to worship, ritual, custom and exorcism. The *pulluva* art is expressed in the background of snake-worship.

Folk Dances: A large number of folk plays and dances are prevalent among the scheduled castes and tribes. Each tribe has its own glorious collection of folk plays and dances which are performed during festivals. The Malayans have the Theeyattom ceremony which consists of dancing with masks and singing and the Ucchavali ceremony which is symbolic of human sacrifice. The Paniyar have their characteristic devil dance.

Godamuri : Godamuri is an entertaining folk-play of a quasi-religious nature which is performed in the central parts of Kannur district by the Malayans who are experts in devil dancing.

Vedan Pattu : This is a peculiar ceremony observed in certain parts of the district in the month of Karkidakam (July-August) which coincides with the season of scarcity in Kerala.

Kathakali : The 300 year-old dance form known as Kathakali is exclusive to Kerala. It combines opera, ballet, masque, and pantomime to create one of the most elaborate and technically difficult dance forms.

Theyyam and Vellattam: Theyyam is a popular ritual form of worship in North Malabar. This art evolves from *kaliyattam* practiced by aboriginal tribes of the northern region. The performers of Theyyam belong to lower cast community. They are men belonging to SC/ST such as Vannan, Malayan, Mavilan, Pulayan, Velan and Koppalan communities.

Theyyam is performed with costumes of gorgeous colours and *mudi*(Headgear) or crown of varying size worn on head. This comprises worshipping ancestors, heroes, demons; virginal cult, zoolatry and blood cult. To avoid slaughtering the ritual hunt is performed symbolically. At the beginning of Theyyam, -Thottam- the ritual song is recited which is a poetic narration of the legend of the deity. This ritualistic dance with rare grotesque make-up and costume, lively foot work, gymnastic fervor represents a glorious period of the folk life in Kerala. It is the worship of spirits by invoking them to the mortal body of the dancer who impersonates those spirits and gives blessings to the believers.

Long ago Theyyam was performed very rarely in a year with long intervals. These days the interval of performance varies from SG to SG and it has only rainy season as the off season in most of the cases. There are various types of Theyyam under different names relating to various deities, heroes and the like. Almost eight months can be considered as

season for Theyyam. Usually Theyyam is performed on a very large scale with the local crowd irrespective of their religion.

Though Theyyam season lasts for about eight months excluding rainy months, the performers visit individual houses to perform rituals such as Vedan, Adi and Kothamoori. This is because the agrarian societies ceased exist; the performers have sought more opportunities for their livelihood.

During Theyyam , dancer behaves like human beings listening to the problems of devotees and suggests suitable remedies for them. Obtaining holy blessings from Theyyam is considered to be the most valuable moment for them. They pray and dedicate offerings for solutions to their problems like bachelorate , infertility . After the fulfillment of the wish the devotee give offerings to propitiate the deity. Such a devotee can offer a mini Theyyam as offering. The picture here



illustrates a similar case seen at Neeliarkottam. Here the couple brings the child they got blessed before the Mini Theyyam and get the blessings directly.

Cost of Theyyam:- The cost varies from place to place and from size to size. For a mini Theyyam it may cost around Rs. 3500 to 50,000. In respect of regular Theyyam the cost may run up to a few lakhs. In a normal performance about 14 assistants in ordinary dress accompany the main dancer.

Vellattam- This is also similar to Theyyam but differs in frequency, method of presentation and cost. The objective remains the same namely propitiating the spirits for favours done. In Vellattam the dancer wears a small crown only and takes different shapes. Costumes also have lesser standards. There is no specified dress though all are supposed wear some other than normal and attractive type of dress. There may be two dancers with three or four assistants in normal dress. The move around the sanctum sanctorum with devotees following them. At time they remain standstill respond flames raised as rituals. Vellattam is



performed every day by noon in Oorpazhassi kavu near Kannur.

This is performed at Muthappan Temple Kavu in the morning and sometimes at evening

Marathukali : It is a competitive "game art" conducted in temple yards. It has gained ritualistic importance. The game lasts for a long time; at times it may extend to a day or more.

Poorakkali : It is a temple festival held in the Bhagavathy temples in the month of Meenam (March-April). In this festival which lasts nine days, the local people celebrate the rebirth of Kama, the god of love and rejoice in regaining the feelings of love. It has a dramatic folklore touch and its literature is embellished with glorious deeds of Lord Siva and Lord Vishnu.

Vadakken Pattukal : Ballads sung in praise of the exploits of local heroes form an important source of inspiration for the community.

Kalaripayattu : Thalassery is the seat of the martial art Kalari Payattu, the forerunner of Karate & Kung-Fu. Around 40 Kalary arenas of the martial art are spread around the district. Kalari Chikitsa, a special type of physiotherapy treatment for diseases as well as toning up the body is also a specialty here.



Kalari meaning school and Payattu meaning combat, Kalaripayattu is one of the advanced combat sciences of the world and has reproduced many a hero whose exploits are celebrated in legends and folk songs.

Acknowledgements:

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CHAPTER IX

KANNUR SOCIO-ECONOMIC CONDITION

Sacred Groves exist from time immemorial by virtue of the regard people exhibit towards them for various reasons. They are centres of cultural evolution of human being. There are religious myths and religious practices connected with them. Number of people living around sacred groves are connected with it one way or other. Most of them are devotees visiting grove and prying the deity besides making offerings for benefits gained. Some others take it as their livelihood by engaging themselves in the maintenance activities like conducting pooja, protecting the surroundings, such similar activities. There are various rituals practised which are a mixture of agrarian society and hunting society. Nira and Puthari are part of harvest festival. Bringing harvested products is meant by Nira and Puthari denotes cooking the newly harvested material. Folklore and traditional culture are kept alive for posterity. Rituals take the form of art in which many cultural activities develop. People get rained in performing such arts for their lively hood. Such performances attract the local people in watching and enjoying. Such crowd is attracted by salesmen starting from small vendors up to shop keepers. In other words the existence of a sacred grove at a place has its impact in the social life around. But the impact depends on the level of maintenance of the sacred groves which again is governed by the category of custodians.

A. CUSTODIANS OF SACRED GROVES.

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

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 851 such SGs coming under private category in this district. The sub-groups are two, -i. Kudumbakavu, ii. Kudumba Trust/Committee .

Kudumbakavu.

In this case ,as is generally seen in respect of Hindu families, the sacred grove form part of own property of the family being maintained traditionally from generations to generations with the purpose of maintaining general protection of the family and worshipping deity based on their religious belief. The head of family normally is the top authority in the management. Since these sacred groves are hundreds of years old they hold a link to the family partition deed wherein stipulations are there for the maintenance of sacred grove and allotment of additional area for generating income to maintain them. .

Kudumba Trust / Committee

In certain cases the partition deed stipulates the responsibility of maintaining the sacred grove with a specific family and when the same family expands into more number of families later without losing their right and responsibility to preserve the sacred grove; these families work jointly to manage the affairs of the SG. In such cases they have the option to form a committee or register a trust as the case may be without altering the legal status as private. The trust/ committee periodically elect office bearers like President, Secretary and committee members to manage the activities relating to the SG. A byelaw is only optional and they sometimes manage with clear understanding among them.

II. Public Management.

In this case the ownership goes to a public body which governs the management according to generally approved legal principles. 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. In this there are two sub-categories namely Public Committee and Public Trust.

i. Public Committee.

Such committees are usually formed when an owner of the SG is financially too poor to manage the affairs of the SG while at the same time the local people consists of devotees having faith in the deity or sacred grove. Another reason is when the SG is on the verge of complete destruction or encroachment by other people inviting resentment from local devotees . All such instances immediately provoke the local people to form committees to

maintain and protect the SG. Again instance are there when the land under an SG is purambke under Revenue, Forest or Panchayat like minded people constitute a public committee for security.. Some such committees go in for registration with local Registrar's Office. They maintain registers of accounts for every monetary transaction and present all matters during the meetings.

ii. Public Trust

This is a more solid and strong institution having more legal backing. They adopt a byelaw as stipulated by Registrar of Societies and obtain registration as per rules. They elect president, secretary, treasurer and committee members and follow their activities according to the duties and responsibilities stipulated in the byelaw. The circumstances leading to the constitution of public trust are the same as in the case of Public Committee.

Since the above two fuction more or less in the sae manner they are taken together and the total number is found to be 158.

III. Malabar Devaswam Board.

There are SGs attached to Temples under the management of Devaswam Board. There are instances where temples are constructed by the custodians which were subsequently taken over along with SG by Devaswam Board for management. The SGs of this category was formed in this manner. 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 to SG..There 87 such SGs under Devaswam Board.

1.Community owned SGs

The custodians of sacred groves belong to various communal groups. Also we find that people from different religions associate in this venture.Both forward communities and backward communities own Kavu.Among Thiyyas the prominent deity is male gods. Harijans and STs also do maintain sacred grove. They have their own rituals and practices.The DeviotuKavu in Thaliparamba taluk is under Devaswam. But it is managed by a group of tribal families called Mavilan. They do not allow others to enter the sacred grove always. The head of the family is free to enter and conduct pooja. Rarely during festivals others are allowed. They perform Theyyam and collect money from devotees. This

community earned the right since long time back by virtue of a Mythological story. Unlike in other districts the number of SGs where entry is prohibited by others is more in this district. However in majority of the cases there is no restriction. There exists harmony among various communities managing sacred groves .

B. SOCIO-ECONOMIC CONDITION

Rituals based on tradition play a dominant role in the management of sacred groves. There are various stakeholders such as the priests, the assistants in conducting pooja. They get regular income from the custodian. It can be monthly where daily pooja is performed. In other cases it is occasional like once a week or month. There has to be someone to clean the premises. This is generally a monthly routine. The priests and owners get their share of offerings from the devotees.

The offerings can be in the form of fixed items for which prescribed amount is paid as in regular temples. Another is in the form of presenting certain items which was earlier visualized by the devotee and which again add to the wealth of the SG. Agricultural products are also offered.

The third type is the special performance desired to be performed at the instance of the devotee. A typical one is Theyyam. Besides the main performer the helpers also get a share of the money. Theyyam performers are professionals and when it is not staged in sacred groves during off-season they get offers to perform it in individual houses. Their income varies anything from Rs. 1000 per person.

In addition to the above a set of people engaged in selling toys, sundry items required by floating population to the sacred groves do get some business. In sacred groves attached to major temples there are permanent shops being run. Such people also form a small set of stakeholders in this aspect. But these are connected to seasonal activities a realistic inventory is not possible in this venture. There was certain amount of reluctance on the part of custodians in revealing the flow of expenditure and income. Hence a detailed tabulation on the generation of money centred around sacred groves done in earlier cases could not be done. But in respect of some of the typical cases could be collected which constitute the following rough estimation economic scenario.

A. Sacred Groves attached to Malabar Devaswam Board.

The total Number-87

In respect of these sacred groves the expenses and income goes to the Devaswam and income and expenditure arising out of the sacred groves cannot be separately estimated. However in the light of previous experience it is found necessary to year mark only 10 % of the probable total estimate can be year marked to the credit of sacred grove.. There is no need for a priest separately. Similar is the case with kazhakoms, purchase of pooja materials etc. But part of the expense and income of one SG come from the account of the main temple.

Per Year Cost -for one year -Rs. Lakhs

Employment - Mandays	Remuneration	Cost of maintenance	Festival Expenses	Total Income
250	3.00	0.12	0.50	4.00
	For 87 Numbers			
21750	261	10.44	43.55	348

B. Under Trusts & Local Committees -158 Nos.

As already explained the management pattern is almost the same in these categories. Local people make financial contributions and participate in different activities such as rituals and festival art performance. The magnitude depends on the size of the sacred grove. Most of the SGs are between 10 to 20 cents in size. A few are around 50 cents. But they do go in for major performances like Theyyam and Vellattam. They do not make any compromise on pooja rituals and protection activities. An estimation of economic condition in respect of a typical case is worked out which can be taken as an average.

There will be minimum three employees- namely main priest, an assistant and a part time worker for cleaning etc. They constitute 2.5 man days. They are paid monthly at the rate of Rs. 8000, 5000 & 2000 respectively. Around Rs. 2000 will be required for purchasing pooja materials. Naturally additional requirements will be met by devotees. The cost of festivals vary considerably and the annual requirement of Rs. five lakhs provided is the minimum. Income come in various forms like cost of offerings, placing in cash box, sponsoring programmes, donations etc. Usually total income is more than the expenditure. In addition there may be at least three Theyyams in an year which would involve participation

of 45 performers and the cost amount to remuneration of Rs.0.30 lakh and allied expenses of Rs. 1.5 lakh every year.

Estimation for One Year----- Rs. In lakhs

Employment - Mandays	Remuneration	Cost of maintenance	Festival Expenses	Total Income
900 +45=945	1.8 + 0.30=2.10	0.24	5.00 + 1.5 = 6.5	10
	For 158 Numbers			
1,49,310	331.80	37.92	1027.00	1580

C. Under Family or Family Trust.

The socio-economic condition varies according to the prosperity of the custodians and size of SGs. A number of SGs in this category are very large in size varying from 5 to 23 Acs. Most of these are managed jointly by more than one family. They are generally very rich also. This being the condition, the management is elaborate in rituals and other festival programmes. Taking these facts into consideration the SGs under management of families have been divided into two-

Group-1 Those with large groves- The team could identify them as -73 numbers.

Group-2-They form the rest-782 numbers.

Group-1

As stated already the rituals here are elaborate. Besides conducting pooja both morning and evening with associated offering to propitiate the deity there will be free supply of food to devotees on important days. Free food can be sponsored by a devotee or a set of devotees or arranged by custodian. Those participate in the food distribution can be more than one hundred. As regards festival, Theyyam or Vellatam take the prominent role. Other than off-season of about four months in all the other eight months Theyyam or Vellatam will be there. There can be at least two to three in a month. At times there may be mini theyyam which is usually offered by some individual for blessing received.

The number of regular employees is more. One priest with an assistant and two men for cleaning and protection are in the normal set up. Not less than Rs. 30000 is required towards remuneration to these employees. Pooja material would cost much and around an amount of Rs. 15000/pm is the minimum estimate. This exclude the cost during festivals. Taking a minimum of 20 Theyyams & mini Theyyams in an year around 250 people will be engaged and total cost would run to Rs. (2+8)-10 lakhs.

Employment - Mandays	Remuneration	Cost of maintenance	Festival Expenses	Total Income
1460 +200	3.60+2=5.6	1.80	7.00 +8 =15	25
	For 73 Numbers			
1,21,180	408.80	131.40	1095.00	1825

Group -2 Under Rest of the Families- less of activity. 778 numbers.

These are the sacred grove which are seen in majority. The custodians are mostly individual families managing the SGs due to faith and their intention is only conservation. Most of the expenses are met from own income. Some may accept donations from devotees when ever necessary. Local people visiting the SG for prayers put their offerings in cash or pay for conducting pooja. Pooja is carried out seasonally. May be once or twice in a month though lighting lamp in the evening is done by members of the family. One main priest with an assistant attend the pooja , generally twice a month. The number of man days in a month will be 4 in a typical case and the remuneration may be Rs. 5000 in all. At least one or two festivals will be conducted even on a small scale and total cost in an year may be Rs. 1.5 lakhs. The flow of funds in a typical case for an year is tabulated below.

Employment - Mandays	Remuneration	Cost of maintenance	Festival Expenses	Total Income
48	.60	0.24	1.50	3.00
	For 778 Numbers			
37344	466.80	186.72	1167.00	2334.00

Shops and vendors.

People running shops and vendors moving across to sell sundry items and toys constitute a group of stakeholders but they are only very few. Of course they do exist at some SGs. There cannot be a generalisation for their presence. Simply because a sacred grove is large there need not be this group of people. For example at NeeliarKottam having 23 Acs. in extent ,there are no shops. During festival time some vendors may or may not appear. At the same time in EdapparaChamundeswary Temple Kavu of 7 Acs.in Morazhavllage,there are 8 shops and 4 vendors. In Pazhassimadom(1.5Ac.) kavu at Pazhassi village, Iritty Taluk 5 shops and 3 vendors are noted. Another reason for less number of this category is the “Annadanam” (supplyof free food) arranged in many sacred groves. In the famous Oorpazjassy Temple Kavu in Kannur Taluk there are no shops. Every day by noon Vellattam is organised there followed by *Annadanam*.

.Though their number is comparatively much less a provision is made in this estimation.According to the field team in about 20 % of the sacred groves(say-200) only there can be shops and vendors and their number and yearly income would be 1 & Rs.75000 and 1 & 60000.

Statement for One year

Rs. Lakhs

Category	Man days	Remuneration	Expenses	Icome
Shopkeepers	300	0.75	1.20	2.5
Vendors	300	0.60	1.00	1.75
Total	600	1.35	2.2	3.25
	For- 200 SGs			
	2,64,000	270	440.00	650

ABSTRACT for WHOLE DISTRICT--**Rs. Lakhs**

Category	Employment- man days	Remuneration	Cost of Maintenance	Festival Expenses	Total Income
Attached to Devaswam	21750	261	10.44	43.55	348
Public Trust &Local Committee	149310	331.8	37.92	1027	1580
Group-1 large SGs-family owned	12180	408.8	131.40	1095	1825
Group-2 others	37344	466.8	186.72	1167	2334
Shops-vendors	120000	270	440	--	650
TOTAL	340584	1738.4	806.48	3332.55	6737

CHAPTER X

MYTHS & 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. There are only a very few instances to point out and myths & legends which are more or less same in this area as could be collected.

Myths

The myths and legends prevalent in the following sacred groves are explained below.

OorpazhachiKavu.

There are many legends ascribed to SreeOorpazhachiDaivatharKavu.

Legend-1

Once Lord Vishnu happened to laugh harmlessly at his resort. Unfortunately for him Goddess Lakshmi interpreted it as an act of mockery aimed at her. She cursed her husband to lose his head. Lord Siva and Brhma approached Lakshmi to redeem Vishnu from the curse. She said Kali was insulted by Siva and She was in a state of penance to attain fair complexion. If Brahma can reward Kali with the object of her penance , Vishnu will be redeemed from the curse. Thus Brahma blessed Kali and the later in turn redeemed Siva from the curse. Kali invited Siva to stay at her place and Siva was Sri Oorpazhchi.

Legend-2

This legend deals with how See Oorpazhachi became Sri OorpazhachiDaivathar. Lord Kirathasunu (Vettakkorumakan) was a great warrior but his self pride was a source of distress to the Gods. At the request of Gods Lord Vishnu disguised himself as a hunter and engaged Vettakkorumakan in duel with bow and arrows. During the course of duel Vettakkorumakan sensed that the opponent was Daivathar. He also noticed a new weapon Churika with Daivathar. Vettakkorumakan desired to have that and Daivathar agreed to grant it on condition that he would never place it down on earth and shift the bow and arrows to his left hand. Vettakkorumakan happily agreed . While holding the Churika he felt the weight of churika increasing minute by minute . Troubled by this development Vettakkorumakan went in for a truce. Finally he and SreeOorpazhachiDaivathar became friends and Vettakkorumakan abandoned his vane self-pride.

Legend-3

Arjuna was too proud of his abilities. In order to teach him a lesson, Siva and Parvathi go in disguise as tribal hunters where Arjuna was doing penance. In the meanwhile a boy was borne to the couple. The boy behaved extremely naughty and caused disturbance to saints and complained to Mahavishnu. Mahavishnu disguises as a hunter and humbled the boy. Then the boy was given a dagger (Churika). This son of Siva was defied as Vettakkorumakan.(Souce-1 to 3--Articles on OorpazhachiKavu from in Internet.)

Legend-4 NeeliarKottam sacred grove

The kali is known as Neeliyamma and the kavu is known as Neeliyarkottam. Neeliyamma appears in two forms. One is a calm and another is ferocious. The calm form is in Thazhekotta where pooja is conducted by Namboothiri. The items used are flowers, rice, pudding etc. In the Melekkavu the deity is in ferocious form. Here the pooja is conducted by non-brahmins and the items include toddy, flesh and de-husked rice. The deity here appears in the place as Theyyam and hear the problems of the people to give blessings and solutions.

Legend-5 Madayikavu-in Madai village.

The main deity is Devi-(Bhadrakali).

The story is that after killing the demon *Darikasura* the Devi was not prepared to give up and started *the killing dance*. God Siva appeared and persuaded her to take a bath to cool down mentally and physically. God Siva excavated a lake using his *throsoola* for her. As she took bath cooled down, Siva was given a seat in the north-east part and Kali also lived there. The lake is called Vadukunna lake near Madaikavu.

Another version is that the origin of Madayikavu is associated with Rajarajaswera temple in Thaliparamba where the pooja was performed by Brahmins. The Devi wanted Saktheya pooja instead of Brahmina pooja. The responsibility of shifting devi to another place was taken up by Lord Parasurama. He put the goddess in a *sankha* (a divine conch shell) and threw away. The shankha fell on the ocean and a land was formed there. That land was called Madayi and Devi was shifted there.

Legend-6 Poongottukavu. In Kolari village Kottiyoor forest.

This spreads over a large extent and only a small portion is with local families called Ooralaans. The presiding deity is Lord Ayyappa. Once people tried to cut some trees and sow paddy. The result was, in place of paddy seedlings what came up was tree seedlings with bowed roots. People then realized the presence of divine force there and withdrew from this attempt.

Legend-7 Iriverikavu. Iruveri village of Kannur taluk.

The legend behind its origin is that Lord Siva and Parvathy took the form of tiger and gave birth to five children. The tiger cubs once killed and ate all the cows of a landlord Kurubrathiri. He sent one Nair to kill all tiger. But he was killed by the tigers. As the Nair deputed was returning, Kurumbathiri went inside the forest in search of him. He came across Nair's dead body. When he tried to return he was not able to lift his umbrella. He felt the presence of divine God and prayed the divine force to come with him. The Tiger group wanted a place of residence. The Kanayannur Sree Ganathy temple authorities refused to give a place. After that Ganapathy temple authorities faced many dangerous situations and saw

many omens. On hearing this the Kurumbayilmeelayi and the Karanavars built a shrine of puliTheyyam at their place.

Legend-8 Chama kavu. Vellur village-Payyannur.

The myth is that some family tried to cultivate chama(a cereal-Panicum sumatrense). To their surprise instead of chama, Syzygiumzeylanicum(Chalyakani) and Memycylonranderianum (kashavu) grew up. This made them understand the mistake and the kavu came to be known as Chamakavu.

Another story is that years ago a man from this village used to visit Madayikavu during festival. Once he prayed to the deity that he may not be able to go there next year due to illness and old age. It is believed that when this man returned from Madayikavu , the deity also followed him and remained in Chamakavu.

Legend- 9 – Origin of Kandi-theyyam.(May be related to kandal -the mangroves.

Theyyam is a very popular art performance in north kerala. It has different forms. Among that one is the Kandi theyyam. There was a beautiful girl belonging to Pulaya community in a village there. A landlord had an eye on her and desired to have sex with her. But she did not agree in spite of the fact that several persuasions were made through his followers. Finally he decided to take revenge on her. She used to visit a marshy area for fishing. At the instance of the landlord his followers spread out heap of grass over the marshy place and she was persuaded to go over and collect grass for cattle. Believing that the girl went over it. She was hoodwinked. It was over deep water and the girl drowned there when the grass gave way.

There after many unforeseen tragic instances developed in the village and people believed that they were due to the curse in killing the girl. When ever there is a misery in the society or any serious damage the marshy structure in the fishing area, people conduct a theyyam to appease the Goddess Devi.(Source-Book on Mangroves by Pokkudan.)

CHAPTER XI

THREATS

There are various factors that pose a threat to the survival of some of the SGs. The Society of Environment Kerala (SEEK) while studying the status of sacred groves in Kannur area observed that large scale degradation has taken place in the sacred groves in Naduvil, Cherupuzha and Alakode Panchayats due to migration of settlers..Degradation fall under the following categories.

1. Intention to reduce the extent for self motive

- i. Most of the sacred groves are owned by families and 65 of them are more than one acre in extent. In order to get income for maintenance there is a tendency to clear a portion and construct temples for regular worship and attract more devotees. There are instances where total area of the SG is one acre or above but the actual area under vegetation may be much less . The rest of the area is under temple and allied constructions.
- ii. There are other instances when the member of a group of families owning the SG show desire to part with their share or clear their share for financial gain.In the process , practice of shifting deity to major temples by conducting necessary pooja by priests did happen occasionally.

2. Legal disputes on ownership.

There are disputes among the families regarding ownership. Edayilekkavu, Paliyerikavu,are examples.

3. Encroachment or threat of encroachment

In Kammadethukavu and Chekkerykavu in Alakkod Panchayat ethreat of encroachment by neighbours is reported.In the later case large area has been already encroached.

4. Development activities-

There are many instances wherein vegetation in sacred groves had been cleared for development activities. This is mainly for forming roads, play ground for school etc. The examples are Chamakkavu, Payyannur Subrahmanya temple kavu, Malliyotkavu, Mavilayikavu, Perlassery temple kavu etc. Similarly area has been cleared for constructing auditorium in Karekkakavu in Kadannapally.

Damage from human interference-

The vegetation is reported to be damaged by cutting undergrowth in Neeiar Kavu and Andallur kavu. Any one visiting these will know this. They are very close to roads and there is sparse growth of trees.

Absence of custodian-

In Kuthiru Nagasthanam Kavu of Karivellur village in Thalipaamba taluk the custodian could not be located. It extends over 10 cents. No pooja is going on. Such wooded areas are vulnerable to destruction.

Damage by animals-

The Kadavile kavu in Peralam village of Thalipatramba there is heavy concentration of bats damaging the plants. In Aranchalkavu of Peringanam panchayat there are plenty of monkey which even tend to raid the adjacent houses. Local people manage to dig a pond to prevent their attack. How this is effective is yet to be studied.

3. Dumping Solid Waste.

There are some SGs which are very close to congested residential and commercial places. Dumping solid waste into SGs is not uncommon particularly when there is no boundary wall. In such cases fire damage, damage to regeneration and even development of feeling of aversion among devotees are the ill effects. Fortunately such instances are comparatively less.

4. Damage by invasive species.

Though most of the Sacred Groves are protected with compound wall and fence, the invasion of exotic weeds constitute a threat to the conservation of Kavus. Exotics such as *Mikania micrantha*, *Eupatorium odoratum*, *Hyptissuaveolens* and *Lantana camara* are the main invasive climbers. *Calycopteris floribunda*, *Mucunabrachteata*, *Hugoniamystax* and *Anamirtha* climbers also get their turn. Local climbers also flourish as invasive species and suppress the growth of other tree saplings and even tall trees...Even Invasive species come up when native species are not able to dominate indicating poor ecosystem and degradation.

The woody vines need support for climbing. Naturally they have stems and are flexible. This enables them to grow long and blanket the canopy preventing growth of desirable species. These climbers tend to remain a constant fraction of the total biomass. Most of them are deep rooted plants and have wide vessels that can carry large volume of water up the stem. Small twigs and even small stems are girdled by tendrils or twining stems. Thus they are very much adapted to do damage to other vegetation without any check taking the advantages they have as described above. This phenomenon is evident in many sacred groves. This calls for scientific study to evolve solutions for preventing diminution of the typical vegetation in sacred groves.

CHAPTER XII

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 in five districts it is the total number exceeds 6000. It is likely the total in the whole state would be around 10,000 and at least 30 % of them deserve financial and technical assistance from government agency.

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. This has to be done after convincing and ascertaining the willingness of the custodians. A few seedlings considered to be typical for sacred groves are noted below for information of social forestry wing of KFD.

Trees- *Vateria indica*, *Aglaia elaeagnoides*, *Holygarna arnottiana*, *Ficus* species, *Aphanamixis polystachya* (Chemmaram), *Vaticachinensis*, *Cynometra travancorica*, and *Dipterocarpus indicus*. These are producing plenty of fruits most of which are liked by fauna, thereby promoting biodiversity status. *Dipterocarpus indicus* (kalpine) is a vulnerable species.

Shrubs-Clerodendrum serratum (Cheruthekku), Anidesmadiandrum, Allophyllus serratus, Flacourtiaindica, Glycosmis pentaphylla etc. These plants have medicinal properties.

Climbers like Alangium salvifolium, Coscinium fenestratum, and herbs like Scopariadulcis, Crotelariaretusa, Geophilarepens having medicinal value also can be promoted in sacred groves.

More details if required can be seen in pages 21-23 under the chapter-IV Composition of Vegetation.

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 which may be ideal.

5. Ensure fair distribution of grant

When grants are distributed to SGs, it has to be ensured 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. An effective followup on utilisation after distributing grant is essential.

6. 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 and ARANYAM Magazine.

7. 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.
- v. Methods to quantify role of SGs in Carbon Sequestration.

8. 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.

9. 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.

10. Intervention by Government.

The sacred groves are being well protected and conserved in general by the custodians without any legal enforcement. 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.

Norms Suggested for Distribution of Grant under International Bio-diversity Campaign to Sacred Groves by Social Forestry Wing.

1. Necessity

Sacred Groves are now fragmented habitats housing gene pools and have become the last refuge for many threatened, endangered and endemic plant and animal species. Outside the forest limits they constitute isolated vegetative patches in a mosaic form and are protected by the custodians which contribute in Conservation of Bio-diversity and establishment of healthy bondage among local people through faith in God. But they are not free from threats that can cause degradation or disappearance, particularly when there exist rising land value and greed for land for non-forest purpose. Hence it is appropriate that all possible assistance

for the upkeep of these pristine vegetation is extended by Government for proper maintenance.

2. Objective

To ensure fair distribution of financial assistance to the deserving applicants for maintenance activities for protection of the SGs.

3. Identification of requirement

Activities

- Construction of Compound Wall,
- Cleaning and maintenance of existing pond,
- Eliminating invasive species scientifically.
- Supplementing regeneration of tree species----site specific.
- Monitoring growth and regeneration of important plants and movements of fauna in selected SGs.
- In general observe phenology of plant and animal life, by engaging trained students in selected SGs.

This is essential for creating awareness among the youth on conservation of Bio-diversity.

4. Eligibility

- SG should have old trees of typical species under reasonable upkeep.
- Should have local acceptance in the neighbourhood.
- Low annual income.
- SGs associated with prominent temples and under Public Trust, Devaswam Board etc, to be **excluded**.
- Eliminate SGs having ownership dispute.
- Proper performance in utilisation of previous grant if any.
- Contribution in carbon sequestration.
- **Grading-** Based on the above considerations,the SGs in each district may be categorised into three or four categories before fixing the quantum of grant.

5. Allotment of Funds.

Total amount received may be apportioned among various districts according to the number of SGs. As regards the districts where IFK has taken up the inventory, the number can be taken in descending order as below.

- Alappuzha
- Kozhikode,
- Kollam
- Thrissur and
- Thiruvananthapuram.

6. Financial Support

i. Financial assistance

This depends on the amount available and the cost of activities proposed. This payment has to be followed up by inspection later.

ii. Grant

A grant in the form of reward for the best managed sacred grove in a Taluk or District can be considered if funds are available. Irrespective of the quantum of amount, awarding such a grant would go a long way in creating awareness and enhancing bio-diversity conservation.

7. Selection of SGs.

In selecting SGs from among the applicants, preference can be given to community owned SGs and SGs existing on areas of high land value like those in cities, towns and road sides.

In making selection , the applications may be examined by a committee at district level consisting of officials from Forest and Local Self Government.

In case the committee need further information about the applicants the members of IFK team may be able to provide the required details based on their visits.

