BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL (SZ) CHENNAI

ORIGINAL APPLICATION NO. 261/2017(SZ)

KURUVICHIRASRI.NAGARAJATEMPLE

VERSUS

KUNNATHUNADUGRAMA PANCHAYAT AND OR

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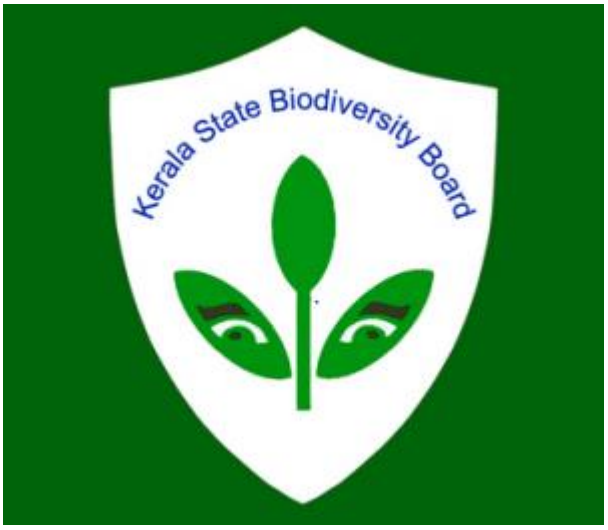
STUDY REPORT PREPARED ABOUT BIODIVERSTY, EXISTENCE, OWNERSHIP AND GENERAL INFORMATION OF THE KURUVICHIRA SRI NAGARAJA TEMPLE AS THE PER THE DIRECTION FROM KERALA STATE BIODIVERSITY BOARD

Prepared by

KERALA STATE BIODIVERSITY BOARD (KSBB), ERNAKULAM DISTRICT

&

TECHNICAL SUPPORT GROUP- ERNAKULAM DISTRICT



AUGUST, 2020

STUDY TEAM MEMBERS

KERALA STATE BIODIVERSITY BOARD(KSBB) MEMBERS

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2.**Sri. Sreeraj N K**. Project fellow, Ernakulam District Coordination, Kerala State Biodiversity Board.

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1. **Dr. A. U. Arun, Associate Professor, Department of zoology, St.Peter's College, Kolenchery, Ernakulam (Dt), Kerala.**
2. **Sri. Ebin. P. J. Assistant Professor, Department of Botany, Sacret Heart College, (Autonomous), Thevara, Kochi.**
3. **Sri. `Ramachandran P K, Former DC, KSBB. Pranavam House, Vadakode P O., Kochi 682021.**

INTRODUCTION

Kuruvichira (10°1'7"N 76°26'12"E.) is a place near Pattimattom village in Ernakulam district of Kerala and situated near pattimattom junction of Kolenchery-Perumbavoor Road and 17 km northwest of Muvattupuzha. Kuruvichira is a natural pond ecosystem comprising natural flora and fauna. As per the complaint filed by Sri. K. S. Raveendran Nair the so called Sri. Nagaraja Temple is situated on the banks of this lake. An expert committee comprising. Dr. A. U. Arun, Associate Professor, Department of zoology, St. Peter's College, Kolenchery, Ernakulam (Dt), Kerala, Sri. Ebin P. J. Assistant Professor, Department of Botany, Sacred Heart College, (Autonomous), Thevara, Kochi, Smt. Sreeja K. S. Ernakulam District Coordination, Kerala State Biodiversity Board. Sri. Sreeraj N. K. Project fellow, Ernakulam District Coordination, Kerala State Biodiversity Board visited that area on 8th August 2020. Kuruvichira lake comprises an area about 54.1149 cent with its northern boundary demarcated by the survey number 521/2 (Varkey Abraham, Kannoth), South Eastern side demarcated by the survey number 521/3 (Leela Gopalakrishnan, Ashwathy), Southern side by 521/4 (A K Sivasankara pillai), South-west by 520/7 (Sreedharan Nanikkara) and west side by 520/5 (Mary Yohannan, Kumullil). The so called temple is located near the southern border of the lake (Sketch 1 & 2) (Google map - 1,2,3,4,5,6 & 7).

Information about the Sri. Nagaraja Temple.

The temple is situated on about 5 square meter area of land on the banks of that lake. Nagaraja is a Sanskrit word and its meaning is 'King of Snakes'. Lord Anantha is

the thousand-headed immortal and infinite snake upon whom rests Lord Vishnu in the primordial ocean of milk (Kshirasagara). There are several families in Kerala having a *Sarppakkavu* in their own land. Once in six months or once in a year there used to be *puja* (offerings) to the snakes in these Sarppakkavu. Even now, there are *Sarppakkavus* in Kerala where people worship snakes. To these "preserved forests" none are allowed to enter even for collecting firewood or for anything else. These forests are filled with trees and plants, which are herbs for the treatment of snakebites. In the clan of Serpents the Ashta Naga, a group of eight serpents were considered important in divine world. They were:- Thousand headed Adi Shesha or Ananta Nag, Padma, Mahapadma five headed green serpent, Kuligan with the symbol of Moon on her head, Vasuki the King of Serpents, Shankapala, Thakshak and Gharkoda. The presiding Serpent God Nagaraja graces from the sanctum with five heads. The entrance of the sanctum has two Serpent deities namely Darnendran, a male and Padmavathi, female. They are considered to be the Dwarakapalakas for the sanctum. The presiding deity Nagaraja in the sanctum is enshrined on a wet sand surface instead of on cemented floor. Normally this is the basic structure of almost all Nagaraja temple. When we evaluated that area, there was no such deity in that area and no remnants of such worship could be observed there. That place was found to be an aggregation of vegetation only and anything special that can be related with the temple was also not found there. No temple or temple remains could also be observed in that area. The relatives of the complainant narrated that once in a year they carry out *puja* (offerings) to the snakes in thes *Sarpakavu*. Normally when *sarppaootu* is carried out, localized cleaning is also

carried out. But the assessment of that area proved that nothing has taken place there during last many months.

SARPPAKKAVU

Sacred groves in India are known under different names in different parts of the country as ‘Dev’ in Madhya Pradesh, ‘Deorais or Deovani’ in Maharashtra, ‘Sarnas’ in Bihar, ‘Oran’ in Rajasthan, ‘Devarakadu’ in Karnataka, and “Sarpa Kavu or Kavu' in Tamil Nadu and Kerala. The role of natural sacred sites, particularly sacred groves, is attracting increasing interest in international organisations and conservation organisations such as UNESCO, the WWF and has significant relevance for the implementation of article related to Conservation of Biological Diversity which stresses more on the use of traditional wisdom and practices for conservation and sustainable use of biological diversity.

The size of the sacred grove in Kerala varies as small as one cent to 20 or more hectares. On a rough estimate Kerala has about 1500 sacred groves which are distinct and unique in biological diversity. Most of the sacred groves represent the relics of once gregarious and abundant low lying evergreen forests of the Western Ghats. Only very few are reported from the foothills and the high ranges. This sacred grove has an area of five square meter and on the banks of the lake. Sastha, Bhagavathi, Sarpa Kavu, Amman, Kamaljai, Mariai, Bhavani and Bhagavathi are the deities to whom these groves are dedicated. Serpent worship is an important feature of sacred groves in the State, as nearly all *kavus* have images of snakes. White Dammar, Night-flowering jasmine, Black varnish tree, Niepa bark tree, Santa Maria tree, Ceylon Ironwood and Tamarind are among the most commonly found plant species in the sacred groves. The

vegetation in the undisturbed sacred groves is luxuriant and with multi-layered trees mixed with shrubs, lianas and herbs. The ground is humus laden and abundant with fungus and ferns. The floristic composition is highly influenced by exposure to anthropogenic pressures, cattle grazing, edaphic and climatic variations. But this piece of land with plants does not look like a sacred grove. The plant diversity in that specific area is less and varieties among plants are scarce. This land mass is associated with common plants and rich diversity was absent in that area.

The animals found in the sacred grove are of two types, those which inhabits the groves like snakes, frogs, lizards and other lower group of organisms and higher group of fauna who nests and dens there and those who visit the grove temporarily for food, shelter, etc. Besides this, sacred groves is the habitat of a large number of smaller organisms. Sacred groves act as an abode for many rare, endemic, endangered species and exist as special ecological entity. Animal diversity in the disputed area was very poor, no specific ecosystem could be identified in that area. Only earthworms, centipedes, millipedes, termites, butterflies, spiders, dragonflies and Damselflies were the only animal group noted in that area during the visit (Table 1). The fauna noted from that area belongs to common group, presence of any endangered or threatened group of organism could not be monitored there. The abundant animal diversity normally present in sacred grove was absent in that area, only natural population and low animal diversity was noted. The animal diversity index was low there and no way can this place be categorized as sacred grove. During the floristic diversity study, about 17 species flowering plants were found exclusively in the sacred grove (Table 2).

KURUVICHIRA LAKE

A pond is an area filled with water, either natural or artificial, it may arise naturally in floodplains as part of a river system, or be a somewhat isolated depression. It may contain shallow water with aquatic plants and animals. Factors that affect the type of life found in a lake include depth and duration of water level, nutrients, shade, presence or absence of inlets and outlets, effects of grazing animals, and salinity. Lakes are frequently man-made, or expanded beyond their original depth and bounds. Among their uses, lakes provide water for agriculture and livestock, aid in habitat restoration and aquaculture.

Kuruvichira lake comprises an area about 54.1149 cents with its northern boundary demarcated by the survey number 521/2 (Varkey Abraham, Kannoth), South Eastern side demarcated by the survey number 521/3 (Leela Gopalakrishnan, Ashwathy), Southern side by 521/4 (A K Sivasankara pillai), South-west by 520/7 (Sreedharan Nanikkara) and west side by 520/5 (Mary Yohannan, Kumullil). The lake is a habitat for hundreds of plant and animals. The size of the lake was found to be larger than the one at present. Due to siltation and death of aquatic plants and animals, its depth has been decreasing very much. It was noted that the maximum depth of the pond was 10 to 12 feet with an average depth of 6 feet. The animal fauna of the lake is very diverse with numerous animal species. It provides good environment for fishes and other aquatic organism. Aquatic weeds were distributed throughout the pond and it provides high productivity also. But the lake is found to be in the decline phase of growth and will deteriorate and die soon.

There is a gentle slope of land into the lake; it provides an opportunity to discharge all the effluents into the lake from the nearby land. The pond receives

rainwater from nearby area and it is the end point of agriculture water discharge. Due to heavy discharge of silt and nutrients regular eutrophication is a common phenomena, The most conspicuous effect of eutrophication is the creation of dense blooms of noxious, foul-smelling phytoplankton that reduce water clarity and harm water quality. Algal blooms limit light penetration, reducing growth and causing die-offs of plants in littoral zones and bottom, this also lowers the success of predators that need light to pursue and catch prey. When these dense algal blooms eventually die, microbial decomposition severely depletes dissolved oxygen, creating a hypoxic or anoxic ‘dead zone' lacking sufficient oxygen to support most organisms and this may cause the death of aquatic organisms and lead to the abundant growth of rooted plants. Heavy distribution of these rooted plants lead to the flattening of the bottom and eventual loss of depth. This may be the reason why except in some specific location the depth of pond is very low. If the pond is allowed to remain like this for long, it will lead to the gradual death of that aquatic body. This may affect the basic existence of hundreds of plants and animals in that locality. Besides this it may affect the water level in the nearby wells and natural water bodies.

Ecosystem services are the suite of benefits that ecosystems provide to humanity. The natural species, or biota, are the caretakers of all ecosystems. It is as if the natural world is an enormous bank account of capital assets capable of paying life sustaining dividends indefinitely, but only if the capital is maintained. In order to evaluate the special ecosystem qualitatively, a survey was conducted in that area. Faunal composition of Kuruvichira and allied area did not show any special features, no endangered or threatened group of organism was noted there (Table.3). The faunal

composition of that area was a normal one; organisms such as earthworms, ants, spiders, centipede, millipede, termites, butterflies, dragonflies, Damselflies, fishes and birds were observed in the area (Table.3).

For floral investigation the study area was visited and filed studies were conducted from June to August, 2020. A total of 36 species of flowering plants from 28 families have been collected and identified from the study area. There are 12 tree species, 10 climbers, 7 shrubs and 7 herbs. Among the 36 species, only three are exotic and remaining species are indigenous. Based on the IUCN Red List of Threatened Species (Version 2020-2), seven plant species have been recognized as 'Least Concern' and rest of the species have not been evaluated (Table.4).

POSSESSION OF TEMPLE AND POND

A temple is a symbolic house, seat and body of divinity. It is a structure designed to bring human beings and gods together, using symbolism to express the ideas and beliefs of Hinduism. The symbolism and structure of a Hindu temple are rooted in Vedic traditions, deploying circles and squares. Hindu temples come in many styles, are situated in diverse locations, deploy different construction methods and are adapted to different deities and regional beliefs, yet almost all of them share certain core ideas, symbolism and themes. After repeated requests also the so called owner could not produce any document showing their possession of that temple. The legal heirs informed about the existence of a trust, but they could not produce any document showing the existence of a trust, it's registration number, annual meeting minutes or other document proving the ownership of the temple. They do not have direct path towards the sacred grove. They have to make use the land of neighbors to enter in the

disputed sacred grove. The sketch available from the village office showed that the so called lake and sacred grove is in '*Purampokku*' (Land owned by the government).

PRESENT CONDITION OF THAT AREA

The sacred grove does not have any significant role in the ecological sustenance of that area; it is a very small accumulation of plants and animals in an area of nearly five square meters. This land mass does not have any important role in the microclimate of that area, the floral and faunal biodiversity of thesacred grove is limited and cannot be considered as an ecologically fragile environment. But the nearby lake is a potential area with high biodiversity. Different types of animals and plants are present in the ponds (a separate list is attached). The lake is an important water resource in that area both for irrigation and drinking purpose. The pond is in the verge of death due to accumulation of silt and sand and the death of rooted aquatic plant is also a threat to the pond. An immediate intervention is needed for the revival of the lake.

SUMMARY AND CONCLUSION

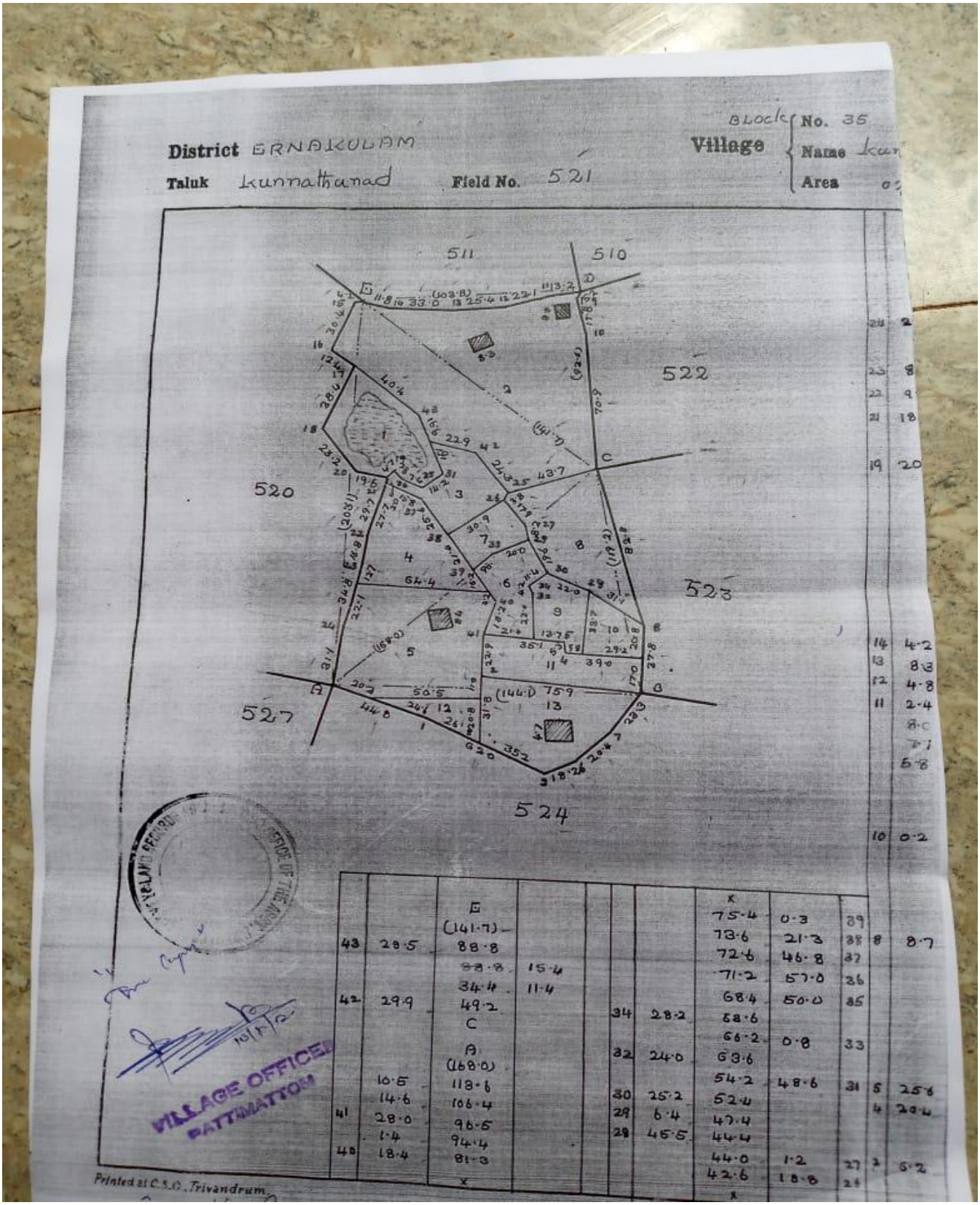
1. **The so called sacred grove is very small and having an area of nearly 5 square meters.**
2. **The floral and faunal composition of the so called sacred grove is poor, no special, endangered or threatened organisms or plants could be observed in that area.**
3. **The floral and faunal composition of the lake and surrounding area is very rich and need attention.**

4. **The lake is on the verge of death and immediate revival is needed, the biodiversity of the pond is high and it is fragile also**
5. **The so called sacred grove area is found to be "Purampokku" (Belongs to the government).**
6. **There were no remains of Sri. Nagaraja Temple in that sacred grove. It is not associated with any ancient temple.**
7. **The legal heirs of the complainant could not produce any document proving their ownership of the temple as well as sacred grove.**
8. **An immediate action is needed to revive the lake to provide water for irrigation and drinking purpose in that area.**
9. **All the claims regarding the existence of temple, sacred groves, its possession were found to be wrong**
10. **But the lake is with high biodiversity index, highly fragile in nature, decaying and verge of death and need immediate attention.**

SUGGESTIONS

1. **A scientific plan should be adopted to revive the lake.**
2. **The lake is the major freshwater resource in that area, so it needs to be properly measured, safeguarded and maintained well.**
3. **Being a low lying area, this lake can hold flood water and protect its neighborhood from the potential risk of flood.**

4. **A scientific committee should be formed to safeguard the lake under the supervision of govt.**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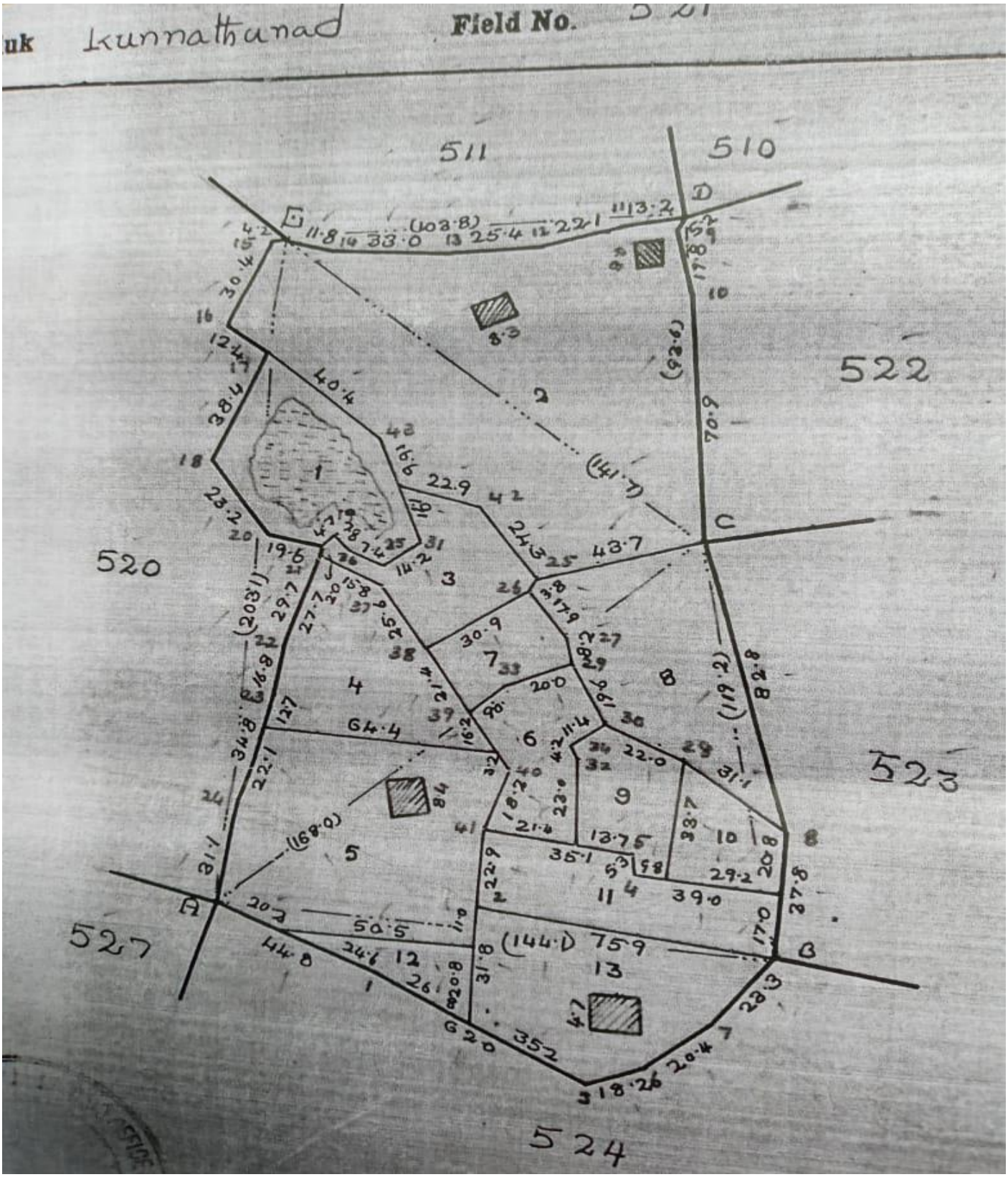
SKETCH 1



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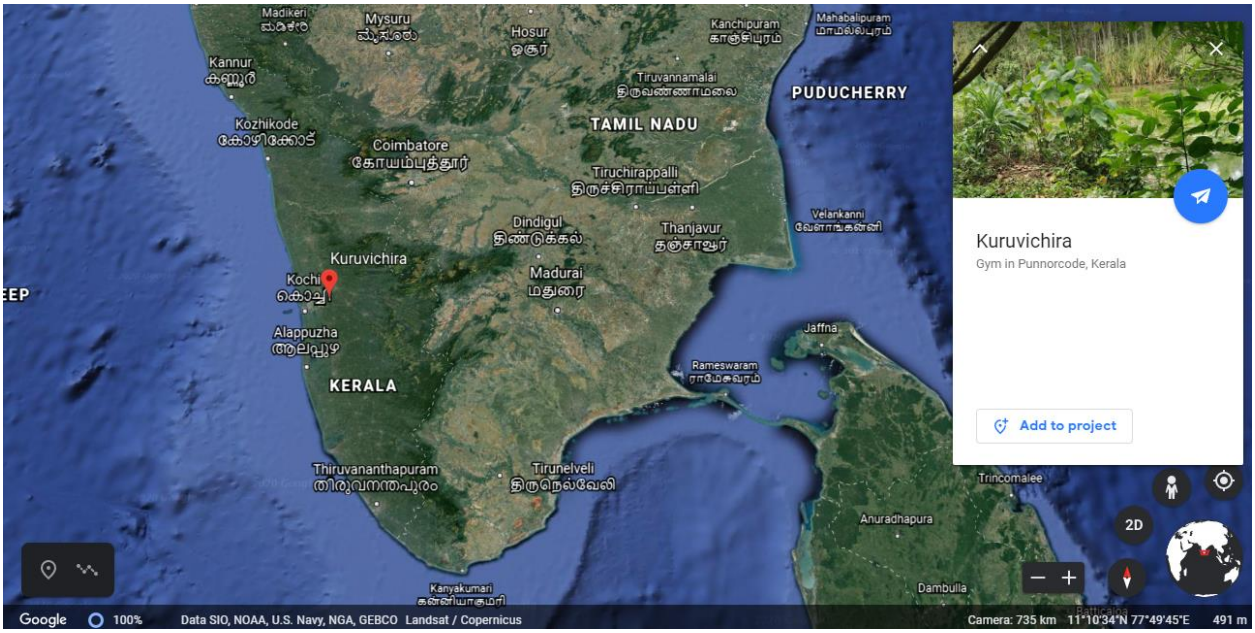
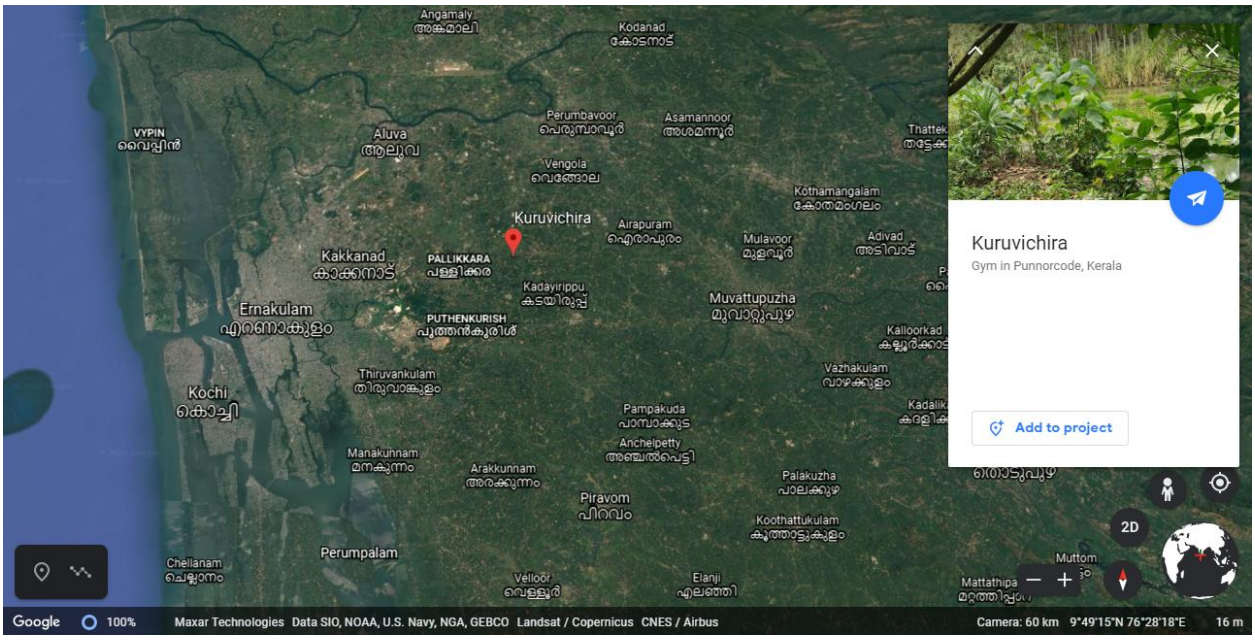
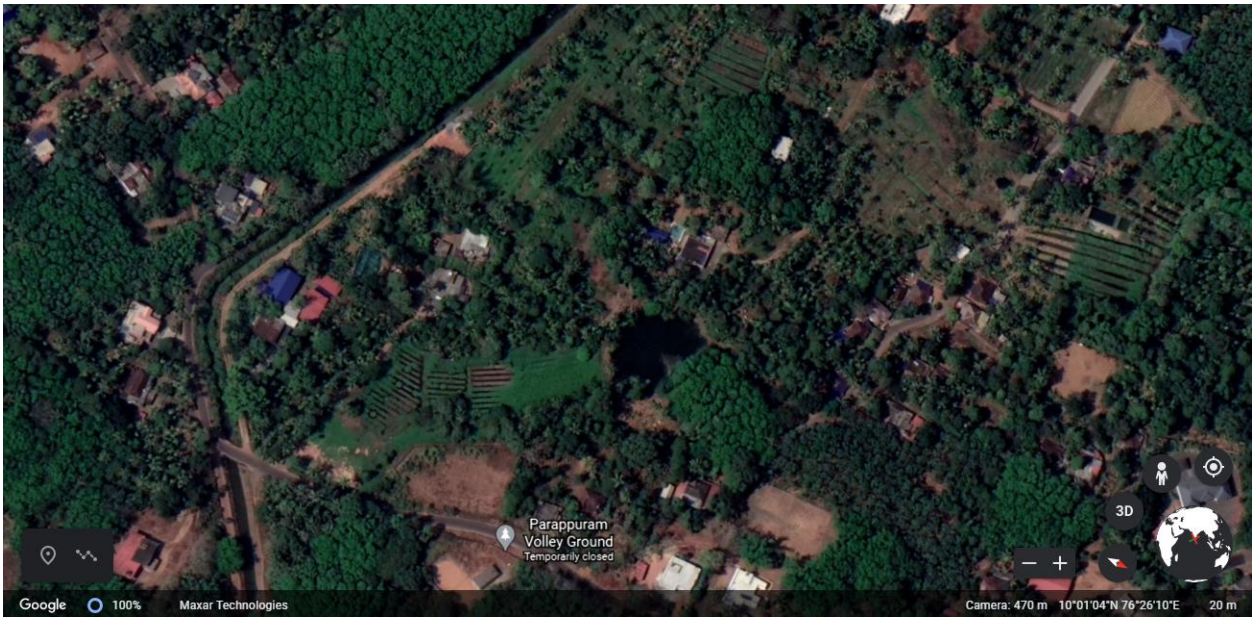


GOOGLEMAP - 1



GOOGLEMAP - 2

GOOGLEMAP -3



GOOGLEMAP - 4

GOOGLEMAP - 5

GOOGLEMAP - 6

GOOGLEMAP - 7

Table. 1. Faunal composition of the sacred grove

Sl.No	Scientific name	Common name of the species
Annelids		
1	Megascolex sp.	Earthworm
2	Perionyx sp	Earthworm
Arthropods		
1	Scolopendra sp	Centepede
2	Phyllogonostreptus sp	Millipede
3	Arthrosphaera sp	Millipede
4	Anoplodesmus sp	Millipede
5	Coptotermes sp	Termites
6	*Diacamma sp*	Black ant(Katturumbu)
7	Danainae	Lemon pancy
8	Agrionemis sp	Thumbi
9	Clubiona sp	Spider

Table.2. List of flowering plants in the Sacred Grove

Sl. No.	Name of the Plant	Family	Malayalam Name	English Name	Habit	Distribution	IUCN Red list Category
1	*Anamirtacocculus*	Menispermaceae	Nanchuvalli	Levant berries, Fish berries	Climber	Indo-Malesia	Not Evaluated
2	*Axonopuscompressus*	Poaceae	Kaalappullu	Carpet Grass, Broad-leaved carpetgrass, Buffalo Grass	Herb	Tropics and subtropics	Not Evaluated
3	*Calycopteris floribunda*	Combretaceae	Pullanni, Pullanji, Varavalli	–	Climber	Indo-Malesia	Not Evaluated
4	*Caralliabrachiata*	Rhizophoraceae	Vallabham, Vankana, Varanga, Varrungu	–	Tree	Indo-Malesia and Australia	Not Evaluated
5	*Cissuslatifolia*	Vitaceae	Chunnambuvalli	–	Climber	Peninsular India and Sri Lanka	Not Evaluated
6	*Elephantopusscaber*	Asteraceae	Aanachuvadi	Prickly leaved elephant's foot	Herb	Pantropical	Not Evaluated
7	*Glycosmispentaphylla*	Rutaceae	Kuttippannel, Panal,	–	Shrub	Indo-Malesia	Least Concern
8	*Hemidesmusindicus*	Periplocaceae	Nannari, Naruneendi	Indian sarsaparilla	Climber	India and Sri Lanka	Not Evaluated
9	*Ichnocarpusfrutescens*	Apocynaceae	Palvalli, Parvalli	Black creeper	Climber	Indo-Malesia and Australia	Not Evaluated
10	*Macarangapeltata*	Euphorbiaceae	Vatta	–	Tree	India, Sri Lanka and Andamans	Not Evaluated
11	*Memecylonumbellatum*	Melastomaceae	Anakkayavu, Kalayam, Kannavu, Kayampoomaram, Kasavu	Ironwood tree	Tree	Peninsular India and Sri Lanka	Not Evaluated
12	*Merremiaumbellata*	Convolvulaceae	Kolavaravalli	Yellow Merremia	Climber	Pantropical	Not Evaluated
13	*Mussaendafrondosa*	Rubiaceae	Vellila	Schizomussaenda	Shrub	Peninsular India	Not Evaluated

14	*Olea dioica*	Oleaceae	–	–	Tree	India	Not Evaluated
15	*Pothosscandens*	Araceae	Anapparuva, Paruvakodi, Paruval	–	Climber	India to Malesia and Madagascar	Not Evaluated
16	*Vitexaltissima*	Verbenaceae	Myila, Mylellu	–	Tree	India, Indo-China, Malesia and Sri Lanka	Not Evaluated
17	*Ziziphusoenoplia*	Rhamnaceae	Cheruthudali	Jackal jujube	Climber	Tropical Asia and Australia. Throughout the hotter parts of India	Not Evaluated

Table. 3. Faunal composition of the Lake and nearby area

Sl.No	Scientific name	Common name of the species
Annelids		
1	Megascolex sp.	Earthworm
2	Perionyx sp	Earthworm
Arthropods		
1	Scolopendra sp	Centepede
2	Phyllogonostreptus sp	Millipede
3	Arthrosphaera sp	Millipede
4	Anoplodesmus sp	Millipede
5	Coptotermes sp	Termites
6	*Diacamma sp*	Black ant(Katturumbu)
7	Danainae	Lemon pancy
8	Agrionemis sp	Thumbi
9	Clubiona sp	Spider
10	Oecophylla sp	Weaver Ant
11	Monomorium sp	ant
12	Papilio clytia	Common mime
13	*Euripus consimilis*	Painted courtesan
14	*Rhyothemis variegata*	Onathumbi
15	Brachythemis sp	Changathi thumbi
Pisces		
1	*Channa striata*	Varal
2	*Clarias dussumieri*	Nadan Muzhi
3	*Anabas testudineus*	Karoop
4	*Pundius mahecola*	Urulan paral
5	*Aplocheilus lineatus*	Manathukanni
6	*Pundius chola*	Paral
Frogs		

1	*Hoplobatrachus tigerinus*	Pokkachchi Thavala
2	Hylorana malabarica	Manavatti thavala
3	Rhacophorus sp	Flying ~~frog~~ Frog
Reptiles		
	Fowlea piscator	Neerkkoli
	Ptyas mucosa	Indian rat snake
Birds	*Dendrocygna javanica*	Eranda
	Phalacrocorax niger	Kakkattaravu
	Ardeola grayii	Indian Pond Heron,
	Nycticorax nycticorax	Pathira kokku
	Corvus macrorhynchos culminatus	Balikkakka
	Alcedo atthis taprobana	King fisher
	Dinopium benghalense	Common woodpecker
Mammals		
	Herpestes edwardsi	Indain grey mongoose
	Rattus ranjiniae	Rat

Table 4.List of flowering plants (angiosperms) identified from the study area(Kuruvichira Pond and Associated Vegetation)

Sl. No.	Name of the Plant	Family	Malayalam Name	English Name	Habit	Distribution	IUCN Red list Category
1	*Alstoniascholaris*	Apocynaceae	Ezhilampala, Pala, Yekshippala	Devil tree, Shaitan wood	Tree	South and South East Asia to Australia	Least Concern
2	*Anamirtacocculus*	Menispermaceae	Nanchuvalli	Levant berries, Fish berries	Climber	Indo-Malesia	Not Evaluated
3	*Areca catechu*	Arecaceae	Adakkamaram	Areca palm	Tree	Cultivated from India to the Solomon Islands and less commonly in Africa and Tropical America	Not Evaluated
4	*Artocarpusheterophyllus*	Moraceae	Plavu	Jack fruit tree	Tree	Widely cultivated in the tropics, origin is probably South India	Not Evaluated

5	*Asystasiagangetica*	Acanthaceae	Upputhali	Chinese violet, Creeping Foxglove	Herb	Peninsular India, Sri Lanka, Arabia and Africa	Not Evaluated
6	*Axonopuscompressus*	Poaceae	Kaalappullu	Carpet Grass, Broad-leaved carpetgrass, Buffalo Grass	Herb	Tropics and subtropics	Not Evaluated
7	*Cabombacaroliniana*	Cabombaceae	Mullenpayal	Carolina fanwort	Herb	Native of North America	Not Evaluated
8	*Calycopteris floribunda*	Combretaceae	Pullanni, Pullanji, Varavalli	–	Climber	Indo-Malesia	Not Evaluated
9	*Caralliabrachiata*	Rhizophoraceae	Vallabham, Vankana, Varanga, Varrungu	–	Tree	Indo-Malesia and Australia	Not Evaluated
10	*Caryotaurens*	Arecaceae	Aanapana, Choondappana	Elephant's palm, Fish-tail palm	Tree	Indo-Malesia	Least Concern
11	*Cissuslatifolia*	Vitaceae	Chunnambuvalli	–	Climber	Peninsular India and Sri Lanka	Not Evaluated
12	*Clerodendruminfortunatum*	Verbenaceae	Periyilam, Perukilam		Shrub	Indo-Malesia	Not Evaluated
13	*Cycleapeltata*	Menispermaceae	Padakizhangu, Padathali	Pata root	Climber	India and Sri Lanka	Not Evaluated
14	*Desmodiumtriflorum*	Fabaceae	Nilamparanda	–	Herb	Indo-Malesia and Australia	Least Concern
15	*Elephantopusscaber*	Asteraceae	Aanachuvadi	Prickly leaved elephant's foot	Herb	Pantropical	Not Evaluated
16	*Ficushispida*	Moraceae	Thondi	–	Tree	Indo-Malesia to Australia	Least Concern
17	*Ficustinctoria var. cuspidifera ssp. gibbosa*	Moraceae	Ithimottu	–	Tree	India, China and Sri Lanka	Least Concern
18	*Glycosmispentaphylla*	Rutaceae	Kuttippannel, Panal,	–	Shrub	Indo-Malesia	Least Concern
19	*Hemidesmusindicus*	Periplocaceae	Nannari, Naruneendi	Indian sarsaparilla	Climber	India and Sri Lanka	Not Evaluated

20	*Hibiscus hispidissimus*	Malvaceae	Matthippuli, Panichakam		Shrub	Paleotropics	Not Evaluated
21	*Hyptiscapitata*	Lamiaceae	–	–	Shrubs	Native of Tropical America; naturalised in some parts of India and Malesia	Not Evaluated
22	*Ichnocarpusfrutescens*	Apocynaceae	Palvalli, Parvalli	Black creeper	Climber	Indo-Malesia and Australia	Not Evaluated
23	*Ixoracoccinea*	Rubiaceae	Chethi	Sacred Ixora	Shrubs	Peninsular India and Sri Lanka	Not Evaluated
24	*Lanneacoromandelica*	Anacardiaceae	Karayam	Wodier, Jhingam	Tree	Indo-Malesia and China	Not Evaluated
25	*Limnophilaheterophylla*	Scrophulariaceae	Manganari		Herb	Indo-Malesia and China	Least Concern
26	*Macarangapeltata*	Euphorbiaceae	Vatta	–	Tree	India, Sri Lanka and Andamans	Not Evaluated
27	*Memecylonumbellatum*	Melastomaceae	Anakkayavu, Kalayam, Kannavu, Kayampoomaram, Kasavu	Ironwood tree	Tree	Peninsular India and Sri Lanka	Not Evaluated
28	*Merremiaumbellata*	Convolvulaceae	Kolavaravalli	Yellow Merremia	Climber	Pantropical	Not Evaluated
29	*Mussaendafrondosa*	Rubiaceae	Vellila	Schizomussaenda	Shrub	Peninsular India	Not Evaluated
30	*Olea dioica*	Oleaceae	–	–	Tree	India	Not Evaluated
31	*Pothosscandens*	Araceae	Anapparuva, Paruvakodi, Paruval	–	Climber	India to Malesia and Madagascar	Not Evaluated
32	*Salacia chinensis*	Hippocrateaceae	Cherukoranti		Shrub	Indo-Malesia	Not Evaluated
33	*Scopariadulcis*	Scrophulariaceae	Kallurukki	Sweet broomweed	Herb	Native of Tropical America; now Pantropical	Not Evaluated
34	*Uvarianarum*	Annonaceae	Korandapazham		Climber	South India and Sri Lanka	Not Evaluated

35	*Vitexaltissima*	Verbenaceae	Myila, Mylellu	–	Tree	India, Indo-China, Malesia and Sri Lanka	Not Evaluated
36	*Ziziphusoenoplia*	Rhamnaceae	Cheruthudali	Jackal jujube	Climber	Tropical Asia and Australia. Throughout the hotter parts of India	Not Evaluated

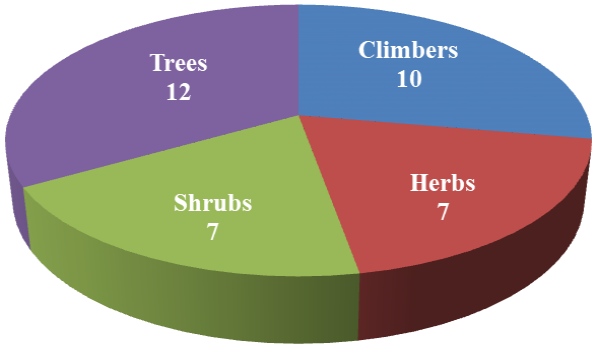


Figure 1. Life forms (habit)

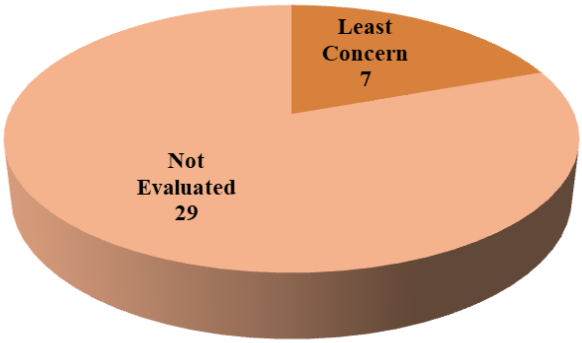


Figure 2.IUCN Red List of Threatened Species (Version 2020-2) – category wise distribution