INTRODUCTION

1.1 GENERAL

Sacred groves have existed from time immemorial all over the world as patches of densely wooded areas, harbouring unique flora and fauna with perennial water sources in the vicinity. Many sacred groves have been preserved as sustainable resources, ensuring the basic capital intact and hence considered valuable gene pool and the first major effort to recognize and conserve biodiversity. In India, they are known from the Himalayas, Northeast India, and highlands of Bihar, Orissa, Madhya Pradesh, Andhra Pradesh, Karnataka, Tamil Nadu and Kerala. Locally they are known variously as “Ka Law Kyntang”/“Ka Law Adong”/“Ka Law Lyngdoh” in Meghalaya, “Than” in Assam, ‘Oran’/“Vani”/“Kenkri” in Rajasthan, “Devrai”/“Deviahate” in Maharashtra, “Sarana” in Central India, “Nandavana” and “Kovilkadu” in Tamil Nadu, “Devarkadu”/“Kan”/“Sidharavanam” in Karnataka, “Kavu” in Andhra Pradesh, and “Kavu”/ “Sarpakavu”/“Nagavanam” in Kerala. In the first document on sacred groves, Brandis (1897) states that “Very little has been published regarding sacred groves in India, but they are, or rather were very numerous... These, as a rule are not touched by the axe, except when wood is wanted for repair of religious buildings”. Gadgil and Vartak (1975) observed that in many parts of India, sacred groves represent surviving examples of climax vegetation and are disappearing under the influence of modernization. In the words of Dr. M. S. Swaminathan, the sacred groves, “Unlike a botanical garden, where a wide range of trees and plants are collected and cultivated for the purpose of our education and enjoyment, the sacred groves are one method of expressing the gratitude of human families to the trees which sustain and support life under a given agro-ecological condition.” The age-old system of having a temple, a tank and associated sacred grove explains the
ancient method of water harvesting and sharing in villages of Kerala. As an ecosystem, they help in soil and water conservation, besides preserving the biological wealth. They are the treasure house of rare and endangered species of animals and abode of many medicinal, endemic, endangered and economically important plants. The ponds and streams adjoining the groves are perennial sources of water. Many animals and birds resort to them for their water requirements during summer. The nutrients generated in the groves find their way into the adjoining agro ecosystems like paddy fields, coconut, tapioca and rubber plantations (Ramachandran et al., 1991). They provide a country-wide network of protected areas, wherein the inherent diversity of flora and fauna are preserved for present and future human use. While the adjacent areas were all cleared for agriculture, the sacred groves are maintained intact for generations to support relic vegetations and are often among the best places to study endemism (Induchoodan & Balasubramaninan, 1991). Ward & Conner (1927) reported existence of about 15,000 sacred groves in Travancore. Ramachandran and Mohanan (1991) identified 239 sacred groves in Kerala. Induchoodan and Balasubramanian (1991) made a study on the endemic plants of three sacred groves. Induchoodan (1998) identified 364 important sacred groves in Kerala with floristic wealth of over 722 species. A number of studies have been conducted on the floristic diversity of Sacred Groves throughout the Western Ghats (Gadgil & Vartak, 1975, 1976 & 1981; Unnikrishnan, 1995; Chandran & Gadgil, 1993a & b). Chand Basha (1998) has given an account on the distribution and conservation values of sacred groves in Kerala. A detailed survey of sacred groves in Kozhikode district shows that there are 65 sacred groves and listed 83 Naga Kottas in the district (Unnikrishnan Nambeesan, 1999).

Sacred Groves are important, not only because they are sacred, but values of far reaching importance are implicit in them. The scientific economical social and spiritual values implicit in them will have to made explicit. The new land reforms in Kerala and the religious beliefs and taboos of younger generations are major threats in protecting and conserving these sacred groves. Under these circumstances, preservation, conservation and management of the sacred groves are an important necessity and warrants top priority.

1.2 FLORA AND VEGETATION

The general floristic composition and physiognomy of vegetation of the sacred groves are typically like the low level evergreen forest. The vegetation in undisturbed groves is luxuriant and comprises several stories of trees mixed with shrubs, lianas and herbs. The soil
is rich in humus and covered with thick litter. Macro fungi are abundant, so also the ferns. Whenever there is a water body, algae and water plants grow gregariously. Floristic variations have occurred in many sacred groves exposed to human and animal interferences and climatic and edaphic changes. Top canopy is represented by species like *Artocarpus hirsutus*, *Vateria indica*, *Hopea* sp., etc.

1.3 CONCEPT OF THE SACRED

The concept of sacredness implies the perception of the existence of something, or much, not yet fully understood. Man knows that he is part of the whole of nature, but the whole is awe inspiring, imperfectly understood and must therefore be treated with care and respect. While discussing the difference between sacred and divine, Vannucci (1998) remarks, “it should be noted that, for instance, it would be incorrect to speak of “divine groves” or “divine forests”, and that sacredness is different from divinity”. As a logical consequence, all living bodies and things or associations of living beings are to be respected as sacred manifestations, not just symbols but also as embodiments of the Eternal mysterious. For the ancients, everything that was not fully understood was sacred, vastly because it was not mysterious; since the concepts of life and living are vastly unexplained, as a corollary, all living things had to be sacred (Vannucci, 1995). The word ‘sacred’ should be interpreted not in the narrow sense of religious belief alone but to cover all places, which people have chosen to care for, whatever may be the reasons. The right interpretation of ‘sacred’ would be that which is held in great esteem and awe and hence sacred to the people.

1.4 CULTURAL VALUES AND HERITAGE OF SACRED GROVES

1.4.1 Worship/Deities of Sacred Groves

There are many myths, legends and faith associated with the sacred groves of Kerala. All sacred groves of Kerala are dedicated to Gods or Goddesses or to certain ancestral or natural spirits. The deities in the sacred groves are at times represented by some trees like *Alstonia scholaris*, *Adenanthera pavonina*, *Hydnocarpus pentandra*, *Commiphora caudatum*, *Caryota urens*, *Holarrhena antidysenterica*, *Strychnos nux-vomica*, *Ficus tinctorius*, *Mimusops elengi*, etc. A stone slab installed at the base of the tree is the altar on which the offerings including the animal sacrifices are made. These trees are also considered to be the abode of ancestral or natural spirits and demons. The sacred groves owned collectively by the villagers are mostly dedicated to Lord Ayyappa and called as ‘Ayyappankavu’ or
‘Sasthamkavu’ and to Goddess Bhagavathi called ‘Bhagavathikkavu’ or ‘Ammankavu’. One
interesting feature about ‘Ayyappan Kavu’ is the freedom to enter this sacred grove to offer
worship irrespective of the caste or creed. Sacred groves owned by the tribal communities are
dedicated to ‘Vanadevatha’, the Goddess of the forest, or to natural spirits or demons or
ancestral spirits. The fishermen caste ‘Dheevara’ or ‘Araya’ also maintain sacred groves in
the coastal areas of Kerala. These groves are called ‘Cheerma’ or ‘Cheerumba’ and the patron
deity is ‘Cheerma’. ‘Cheerma’ is the Goddess of smallpox and other epidemic diseases. The
sacred groves owned by families are mostly dedicated to Snake God (Naga) or Goddess or
both, hence, known as “Nagakkavu” or “Sarpakkavu”. Sacred groves of the tribal inhabiting
near and around the forest areas are known as ‘Madankavu’ or ‘Yakshikkavu’. The sacred
groves of North Kerala are mostly associated with Goddess whereas the sacred groves of
South Kerala are associated mostly with snake worship. Many sacred groves associated with
Siva temples also have serpent Gods.

The various patrons Gods/Goddess/Spirits associated with the sacred groves are grouped
as follows:

(a) **Dedicated to Snake Gods (Sarpakkavu/Nagakkavu):**
They are variously known as Nagam’, ‘Nagaraja’, ‘Nagakanya’, ‘Sarpam’,
‘Nagayakshi’, ‘Karingayakshi’, and ‘Karinganagini’.

(b) **Dedicated to Goddess Kali (Kalikavu/Bhagavathikkavu):**
They are variously known as ‘Amma’, ‘Ayiravalli’, ‘Bhadrakali’, ‘Bhavani’,
‘Vanadevatha’.

(c) **Dedicated to Lord Ayyappan (Ayyappankavu/Sasthamkavu):**
They are variously known as Ayyappan, Sastha, and Paradaivam.

(d) **Dedicated to Spirits:**
They are variously known as ‘Arukola’, ‘Marutha’, ‘Madan’, ‘Yakshi’, ‘Gandharvan’,
‘Yogeeswaran’, and ‘Muthappan’.

Many sacred groves have more than one deity, the patron deity and two or more
supporting deities.

The local people observe a strict code of conduct in protecting the sanctity of sacred
groves. Human interventions are not normally allowed inside sacred groves except to perform
rituals and offer prayers and offerings to propitiate the deities. No material, either plant or
animal origin, are not permitted to be taken out of the sacred groves except on certain
exceptional cases or occasions, and that too, only after consulting the local priest. No one is allowed to cut or remove any plants or kill animals associated with the sacred groves; even the fallen twigs, branches or leaves are not to be removed. Violation of the rules that disturb or dispel the sanctity of the sacred grove and its immediate surroundings were considered to be unpardonable sins that will invite the wrath of the patron deity or spirits by bringing epidemic disease, famine, natural calamities or sufferings to the people.

1.4.2 **Rituals and Celebrations in the Sacred Groves**

It is believed that the spirits inhabiting the kavu would manifest their displeasure in different ways. Therefore, annual rituals are performed on the belief that as long as the sacred groves exist, none can destroy them for money or other material gains. The rituals and rites performed in the sacred groves vary with the region, caste and patron deity of the sacred grove. ‘Noorum Palum’ is an important offering made to the Snake Gods in ‘Sarpakkavus’. ‘Noorum Palum’ is the offering of rice powder, turmeric powder, lime, cow’s milk, tender coconut water, ‘Kadali’ banana and ghee. This ritual is performed on ‘Ayilyam’ star of the local almanac every year. A ritualistic devotional dance called “Pambuthullal” or “Nagappattu” is also performed by girls once in every 10 or 12 years or as and when required, as per the predictions of the priest to propitiate the Snake Gods. Elaborate preparations are to be made to organize the “Pambuthullal” or “Sarpamthullal”. The ground in front of the serpent deities are cleaned and thinly plastered with a paste of fresh cow dung and mud in the morning which will become dry by evening. Then, the area is decorated beautifully with tender coconut leaves, banana stem/pith, leaves of mango tree, jack tree, peepal tree, etc. Some invocational ‘Pooja’ is done and offerings of fruits and rice preparation are made. Brass lamps or stone lamps are lit and designs of various sketches of Gods and images of serpent Gods known as “Nagakkalam” or “Sarpakkalam” are drawn on the plastered floor with powders of 5 different colours; rice powder for white, burned paddy husk charcoal powder for black, green leaf powder for green, red coloured sand for red and turmeric powder for yellow. The girls and the main priest who are to perform the “Sarpamthullal” observe 41 days of strict discipline before the ceremony. Late at night at about 10 pm, the girls take their seat on one side of the ‘Sarpakkalam’ and the priest takes his seat on the opposite side. Husband and wife of the Pulluvar family sit on a corner of the “Sarpakkalam” with their traditional musical accompaniment called the ‘Pulluvakkudam’ and sing the devotional song known as the ‘Pulluvanpattu’ to invoke the serpent Gods. The girls
with unlocked hair hold the tender inflorescence of areca nut palm, close their eyes and
concentrate on the ‘Pulluvanpattu’. Within half an hour, the girls begin to shiver and shake
their body, which is considered the sign of being possessed by the serpent Goddess ‘Nagini’
when the girls are then known as ‘Naginis’. The music emanating from the strings of
‘Pulluvakkudam’ and the drum beating with a peculiar rhythm provides the background and
the girls start dancing by moving like snakes through the ‘Sarpakkalam’ to reach in front of
the male priest who also begins to show the sign of being possessed by the ‘Nagaraja’, the
serpent God and begins to shake his body violently and dance with the fast rhythm of the
drum. The girls get exhausted due to their dance and faints down one after another. At this
juncture, the ‘Nagaraja’ is ready to bless the devotees, answer their questions and clear their
doubts pertaining to matters like misfortunes, diseases or problems of the
society/family/individuals. ‘Nagaraja’ tell the devotees that the diseases/misfortunes faced by
the devotees are due to violation of the sanctity of the sacred groves, killing of snakes or
dispelling/disturbing other elements of the sacred grove. He suggests them to do penance for
their abuse, preserve the sanctity of the grove and ensure protection of the flora and fauna of
the sacred grove. The whole ceremony lasts till midnight or sometimes till the daybreak. But
this elaborate ceremony has now become rare and some of the villagers feel that the
misfortunes and deterioration in the social and family life are due to the disappearance of
these rituals and ceremonies.

Similar rituals are also performed in sacred groves associated with goddesses or Lord
Ayyappan or ancestral spirits or demons. The ‘kalam’ design drawn in such groves are
mostly the images of goddesses or Ayyappan or ancestral spirits/demons and the ‘kalam’ thus
made are known after the patron deity of the sacred grove, whose image is drawn.

Animal sacrifice is also a part of the rituals in sacred groves associated with
Goddesses and ancestral spirits/demons, where, after being possessed by the patron deity, the
priest asks for blood of fowls sacrificed at the altar. After this, the priest blesses the devotees,
answers their questions and suggests how to solve their problems. Sometimes, goats are also
sacrificed at the altar of the grove to satisfy the deity.

1.4.2.1 **Theyyam**

Most of the sacred groves associated with Goddesses in northern Kerala perform the
ritual dance called ‘Theyyam’ or ‘Theyyattam’ or ‘Kaliyattam’ (Plates 11-16), which literally
means the dance of God. ‘Theyyam’ is a distortion of the word ‘Daivam’ in Malayalam or
Tamil for God. Theyyam is also known as ‘Thira’ or ‘Thirayattam’. Only the male members of some particular castes like the Vannan, Malayan, Cheravan, Chingathan, Velan, Mannuthan, Anjuthan, Koppalan, Pulayan, Pampathar and Paravan alone perform this devotional dance. More than 100 types of ‘Theyyam’ representing various goddesses, spirits and demons are known. The performers of ‘Theyyam’ are supposed to be possessed by the deities they represent and move in measured steps and rhythmic dances from time to time, and continue till the end of the performance. Most interesting feature of ‘Theyyattam’ is that the performers use resplendent costumes of gorgeous colours and magnificent facial makeup (Plate 16) and the towering headgear called the ‘Mudi’ (Plate 14 D), which makes ‘Theyyam’ as one of the unique spectacular pageant among the ritual dances of Kerala, and perhaps India. The Theyyam season begins from Thulam 10 (early November) of the Malayalam calendar and lasts till the end of May. The last Theyyam of the year is held during May at the famous Kalarivathukkal Temple at Valapattanam of Kannur district.

Theyyam or Kaliyattam, a popular centuries-old ritual performance associated with sacred groves of North Malabar, is a unique combination of dance, music and religious worship. It reflects the main features of a traditional tribal culture dating back to the early days of Dravidian influence. There are around 450 Theyyams and Saktism, Vaishnavism and Saivism have a powerful role in the Theyyam cult. In several cult centers, violent ritual practices are totally forbidden which is a clear indication of the influence of Buddhism, Jainism and Brahmanism. Some of the deities represent the Moppila (Muslim) heroic figures such as Ali Chamundi, Bappirian (Plate 12 C), Ummachi and Ali Theyyam, which indicates the advent of Islam and the resultant synthesis brought out by the Muslim community in North Malabar, reflecting the confluence of different religious traditions and beliefs and the religious harmony that existed during those days.

After a period of intense preparation involving abstinence, fasting, prayer and solitary confinement, the Theyyam wears the costume of the deity. The Theyyam performance, which often takes place late at night, has an aura of divine splendor, as it is accompanied by rituals and devotional hymns. As the Theyyam dances in synchronization with drums and music, it provides a thrilling, awe-inspiring and unearthly experience. The performer loses his physical identity and becomes the deity during those moments and creates the illusion that he is then the supreme power capable of blessing and inspiring his devotees. During the performance, he identifies himself with the deity and receives homage from the worshippers who revere
him as such. In this elevated state, he is presumed to have supernatural powers and he moves, speaks, heals and blesses the devotees. According to Jnana Yoga, he proclaims 'Aham Brahmasmi', i.e., I am the Brahma. It is a moment of total synthesis, which will reinforce the faith in the supreme power.

There is lot of elegance, regality and exclusiveness that goes with the attire of individual Theyyams. Tender fronds of coconut palm (Plate 12 A & B; 13 A & C; 15 A), wild flowers, ornaments made of wood, seashells, peacock feathers and metal, and bright coloured clothes with unique patterns and designs give each Theyyyam a distinctive appearance. The facial painting and makeup too are unique and no Theyyams are alike, each one having its own identity. This speaks much about the effort made to give a meticulous individual touch and distinctive appearance to each Theyyam.

Purpose of Theyyam Performance

Theyyams are performed with various objectives. The Kaliyattam festival conducted in the sacred groves or family houses were mainly with the intention that they may bring prosperity and well being to the family and the village as a whole. The family gods and village deities were worshipped through the performance of Theyyams. It was believed that if certain village deities were not propitiated through Theyyam performance, they could cause misery to the village or community as a whole. Theyyams are also performed for specific purposes or occasions such as curing or warding off certain epidemics. Vasoorimala, Khandakaranan, Dandadevan and Puthiya Bhagavathy Theyyams were performed to prevent small pox. There were also instances, where the Theyyams of Muchilot and Kannangattu Bhagavathy (Plate 14 A) visited the patient’s house for speedy recovery and restoration of health. For painless delivery, the Uchitta Theyyam was performed and the Maka Bhagavathy, Naga Bhagavathy and Nagakani Theyyams were performed for the welfare of the progeny. When a particular desire or wish is fulfilled or family disputes, court cases and problems related to hatred or vengeance are amicably settled, an act of gratitude towards that deity, the Muthappan (Plate 13 D), Pottan Daivam (Plate 15 A) and the Kathivannur Veeran Theyyams were performed. For agricultural prosperity, well being of animals and before embarking on hunting expeditions, certain Theyyams were performed. The ancient war heroes and heroines are also remembered and worshipped through the Theyyam performance.

Stages of Theyyam Performance
In the initial stage of performance (‘thudangal’), the ‘thottampattu’ (devotional songs) are usually sung without any decorative costume or makeup. On this occasion, the performer accompanied by drummers and wearing only a small red headdress recites the ‘thottampattu’ followed by songs related to the deity. The accompaniment of musical instruments creates a vibrant devotional atmosphere. In the second stage called ‘Vellattam’ (Plate 15 B), the performer does certain rituals and feats in an elegant manner. In the case of Theyyams where the ‘thottampattu’ is very long, Vellattam is not performed, wherein, only the invocation of the deity is performed initially. After a brief interlude, the performer appears in elegant costumes and facial makeup (‘Mukhathezhuthu’) (Plate 16). Finally, the performer puts on the ‘mudi’ or headdress and is seated on a sacred seat called ‘Peedham’ in front of the sanctum, which symbolizes the act of identifying the performer with the deity. This is followed by the actual moment of "becoming" the deity, the moment of crossing the line, as he stares into a small hand-held mirror. It is at this point that the performer perceptibly slips into another state of being, his eyes widens focusing on his own transformed image of the deity. This is the moment of synthesis known as the ‘mukhadarshanam’ (viewing the face), when the performer identifies himself with the deity. These moments of the performance are quite dynamic and filled with a hypnotic spell that mesmerizes the audience.

‘Theyyam’ is an exceptionally vigorous dance in which the performer moves foreword and backward and reaches its heights of frenzy when the movements become quicker and quicker in tune with the rhythmic beats of traditional drums, cymbals, etc. The performer occupying the central position among the surging devotees and spectators, move in procession around the village and finally returns to the sacred grove. When the theyyam performer sits on the heavy wooden stool called the “Peedham” (Plate 14 C) and proclaims his appreciation of the ceremonies, the devotees prostrate before him and offer offerings and pray for blessing to fulfill their wishes or solve their problems.

The Theyyam bestows upon the devotees benediction and 'prasadam', which is called the 'kurikodukkal'. Different gods and goddesses give different types of ‘prasadams’. The goddesses usually distribute a mixture of rice powder and turmeric, believed to be excellent for many ailments. Certain Theyyams like the Vettakkorumakan (Plate 14 B), Urpazhachi, Veluthabhootham and Munjappan gives raw rice as the ‘prasadam’. Theyyams associated with Lord Shiva usually bless the devotees with ‘bhasma’ (ash).
Certain performances are so dangerous that the artist puts his life at risk when he decides to include some items which could be performed only after adequate practice and self control. The audience remain awe struck, enthralled by such incredible performances. The performer should learn to distribute his weight to different parts of the body by supple movements of his limbs. Some of the dangerous feats (Plate 15 C) performed by the Theyyams are again attributed to the divine vibrant power in them during the performance, which is specially mentioned below:

(a) *Thaiparadevatha* dances with an enormous 'mudi' (headdress) towering like a ten-meter tall coconut tree (Plate 14 D).

(b) *Chamundi* wearing only tender coconut fronds, repeatedly throws himself into fire heaped up to a height of two meters without apparently any effort or damage (Plate 15 C).

(c) *Puthiya Bhagavathy* has burning wicks tied around the waist and the performer dances in the burning heat, directly exposed to the flames (Plate 12 A & B).

(d) *Kandanarkelan* does walking in fire with a heavy dress.

Though there had been instances of accidental death in the case of unskilled artists who perform Muchilot Bhagavathy, Kannangattu Bhagavathy and Pottakkattu Bhagavathy, this astonishing immunity to fire creates awe and wonder among the devotees. The Theyyam performers are expected to strictly observe rigorous purification processes like fasting for 3-21 days (in exceptional cases, extending up to 41 days) and chanting of ‘mantras’ for 3 to 41 days prior to the performance. During this period, they are allowed to drink only a concoction made of millets, have to remain secluded, take only vegetarian diet, avoid liquor, chant mantras and engage in acts of self-purification. Fire-related Theyyam performers have to chant ‘Agnimantras’ and Bhagavathy, while the Theyyam performers have more mantra related rituals.

*Makeup and Costume*

Usually, 8 to 10 hours are required for facial makeup of the Theyyam performer (Plate 16) according to the tradition. The crown, the headdress, breast plates, arm ornaments, bangles, garland and the woolen or cotton garments are so elaborately furnished and differently shaped that the overall costume and makeup of a Theyyam will awe anyone.

All male and female Theyyams wear bangles and anklets on the feet. In the case of Bhagavathy in her terrifying mood, oil wicks are tied to the waist and burnt. The dress of the
heroic Theyyams are made of split bamboo covered with red cloth and for some other Theyyams, they are woven out of tender coconut palm leaves. Theyyams of Bhagavathy wear a silver diadem of serpent's heads crowned with red flowers and a huge golden collar carved out of wood and set with fancy jewels. The breasts of goddesses are generally covered with glittering ornaments and make-up known as ‘ezhu tharam’ (seven types).

The Headdress

The headdresses are of different types; some are conical, circular, rectangular, round and long in shape and others are made of peacock feathers. These headdresses are classified not only on the basis of shape and size but also on the basis of the objects by which they are prepared. They are made out of bamboo splices and wood, covered with coloured cloth, flowers and tender coconut palm leaves. The Vishnumurthy theyyam uses the dress made of tender coconut leaves, which provides protection from the heat of the scorching sun. A circular headdress is used in the case of Puthiya Bhagavathy (Plate 12 A & B), Chamundi and Rakta Chamundi (Plate 13 A, B & C), Kannangattu Bhagavathy, Vettakkorumakan (Plate 14 A & B), and Muchilot Bhagavathy. The Kshethrapalan, Thaiparadevatha and Bhagavathy Theyyams use a 55-65 feet tall headdress known as the “mudi” made of long bamboos covered with red cloth (Plate 14 D), which are lifted by several helpers to keep the balance when crowned on the head of the Theyyam performer.

1.5 WHY CONSERVATION?

Protection of the environment and life supporting systems are interwoven with biodiversity conservation. Sacred groves are valuable gene pools and the first major effort of the society to recognize and conserve biodiversity. They harbour many rare, endangered/endemic plants and animals and have been preserving many rare and endemic wild plant species, which potentially benefit mankind in medicine, agriculture, and industry as a source of natural products for drugs, food, fuel, fibre, etc. In general, they act as nursery and storehouse of many plants used in ayurvedic, tribal and folk medicines. Besides preserving rich biodiversity, they help in soil and water conservation. The ponds and streams adjoining the groves serve as perennial water sources, serving as the last resort to many animals and birds for their water requirements, especially during summer. Sacred groves enrich the soil through its rich litter and the nutrients generated by litter decomposition are not only recycled within the sacred grove ecosystem but also find their way into the adjoining agro ecosystems. In spite of the very high land to man ratio, these groves have been thriving
due to the very high reverence and importance people attribute to them. In the context of the dwindling of evergreen forests at an alarming rate in the Western Ghats, preservation and management of the sacred groves are unavoidable, as each ‘kavu’ is a treasure house of many rare/endangered species, germplasm collection of all the plants in an area and an abode of rare/endemic medicinal and economically important plants.

1.6 ECOLOGICAL SIGNIFICANCE

Being a unique unit in the rural landscape, the sacred grove performs several ecological functions, which can directly or indirectly help in the maintenance of ecosystem health of all interacting landscape units. According to Rajendra Prasad (1995), sacred groves with their complex array of interaction, influence the flora and fauna of the region as well as the microclimate of that locality. The soils of sacred groves show high porosity and low bulk density compared to the soils of the vicinity. The thick litter cover and channels created by soil macro fauna together enhances water retention, root system development, gaseous exchange, and heat conductance. The role of sacred groves as micro watersheds has been recognized by several workers. In Maharashtra, many major sacred groves are located in the catchment of rivers (Gokhale et al., 1998). For example, Bhimashankar in Pune district harbour a large grove of over 700 ha at the origin of Bhima, a major tributary of the river Krishna. The ecosystem services of sacred groves through watershed functions in Tamil Nadu have been studied in detail (Swamy et al., 1998). According to Rajendra Prasad (1995), most of the sacred groves in Kerala are associated with freshwater ecosystem, and to certain extent, these water bodies meet the water needs of the local communities. People residing in the settlements located near Nagoni sacred forest in Himachal Pradesh believe that the sacred forest being located on steep and rugged slope towards ridges regulates the flow of water and sediment to the settlements and agricultural land down the slope (Singh et al., 1998).

1.7 ECONOMIC SIGNIFICANCE

It is well known that the climax form of vegetation in any locality often tends to be richer in species than the earlier stages of its succession. As climax forests, the sacred groves are particularly diverse in tree species and the life forms, especially climbers and epiphytes which are dependent on trees for their existence. With the destruction of forests around them, the sacred groves have become the last refuge of many plant species, and hence islands of biodiversity.
Many plant species, which depend on the sacred groves for their very survival in the region, have become the last refuge of many plant species which are of considerable economic value. A striking example of this was provided by a small sacred grove at the village of Tunbad in Shrivardhan Taluk, which harboured a magnificent climber Garabi or Gaidhari (Entada phaseoloides Merr.), a leguminous climber, the bark of which was used by the local people in treating cattle against snakebites. It is told that this was the only specimen of this species within a radius of 40 km and people came up from considerable distances to this grove for collecting its bark. It is certain that many species now preserved in the sacred groves possess such medicinal properties and may prove to be of considerable economic value, if properly studied and utilized sustainably.

Apart from preservation of rare species, the sacred groves may be serving the function of conservation of biodiversity of common trees. Two sacred groves in Maharashtra support ancient Teak (Tectona grandis), although teak has disappeared from the vicinity of groves in the locality.

1.8 THREATS

In many parts of the country, during the past three decades, sacred groves have started deterioration both in terms of cultural and biological integrity, though the nature and extent of threats and pressures are often regional and even grove-specific. The magnitude of these threats varies from region to region as well as from one type of grove to another. The major threats to sacred groves can be grouped under the following ten heads:

1.8.1 Commercial Forestry

Over the past two centuries, the local people have lost their customary rights of forest management in many parts of the country, due to government regulations. Hence, many sacred groves have been destroyed due to commercial forestry operations.

1.8.2 Development Projects

Some of the sacred groves that fell under government vested lands were destroyed when townships grew. Railroads and highways have also taken their toll of many sacred groves, and some of them have been inundated by big dam projects.

1.8.3 Shift in Belief Systems
In some cases, conversion to other religions has resulted in the mismanagement and degradation of sacred groves.

1.8.4 Sanskritization

In many places, local folk deities have been replaced with Hindu Gods and Goddesses. This has resulted in the erection of temples in the sacred groves leading to their fragmentation and destruction.

1.8.5 Pilgrimage and Tourism

The integrity of many groves with regional or pan-Indian character has suffered deterioration due to the influx of large number of pilgrims and tourists.

1.8.6 Removal of Biomass

In many sacred groves, removal of biomass and cattle grazing was permitted and continuation of these practices over generations has resulted in the dwindling of the groves.

1.8.7 Encroachment

Many instances have been reported, where the groves have been encroached by local communities as well as by people migrating from outside for settlements and agriculture.

1.8.8 Modernization and Market Forces

The most recent threat to sacred groves comes from the process of modernization. Local traditions are being challenged by the westernized urban culture and the present education system has failed to instill respect for local traditions and need for conservation of sacred groves. As a result, the sacred groves are losing its cultural importance among the younger generations. The spread of market economy has resulted in the denial and erosion of identities of local communities. The lure of short-term commercial gains has prompted the destruction of many traditional resource bases, including sacred groves.

1.8.9 Fragmentation

Many of the sacred groves have been fragmented by roadways, extension of power lines, reclamation of land for agriculture, and illegal encroach may lead to fragmentation of the grove and consequently to loss of biodiversity and disruption of ecological functions.
1.8.10 **Socio-cultural causes**

Religion had an overwhelming influence on the preservation of forest patches as sacred groves, in addition to the ecological and economic values attributed to them. A notable feature of Indian culture is the continuation of many prehistoric religious practices, despite the growth of dogmatic religions along with them. Vedic Hinduism, with its text-based dogmas, appeared in the Indian sub-continent during the fourth millennium BP. Despite its proclaimed faith in gods abstracted from the elements of nature like water and wind, sun and moon, planets and stars, for the next 1,500 years or so was on a course of collision with the various earlier regional cults of India, which were more intimately linked to local ecosystems. There was, however, no outright rejection of folk cults related to nature. By the time the great Epics like Mahabharata and Ramayana were composed, the Hindu religion, the most ancient of the dogmatic religions such as Jainism and Buddhism to develop in the subcontinent, went on hybridizing with the various indigenous creeds. Such a cultural transformation and changing worldview of nature among the people of the Western Ghats were among the causes for the decline of the sacred groves (Chandran *et al.*, 1998).