

---

## Sacred Groves of the Western Ghats of India

*M.D.S. Chandran\**, *M. Gadgil\*\** and *J.D. Hughes\*\*\**

---

\*Department of Botany, Dr. Baliga College of Arts and Science, Kumta  
581343, Karnataka, India

\*\*Centre for Ecological Sciences, Indian Institute of Science,  
Bangalore 560012, India

\*\*\*University of Denver, Denver, Colorado 80208, USA

### INTRODUCTION

The genesis of sacred groves in the Western Ghats may go back to hunting-gathering societies which attributed sacred values to patches of forests within their territories as they did to several other topographic or landscape features like mountain peaks, rocks, caves, springs and rivers. The practice of setting aside patches of forests as sacred groves would have strengthened with the spread of agriculture, when slashing and burning of forests began on a massive scale. There is no simple explanation for this. The reasons could be religious and cultural compulsions as well as subsistence and ecological needs. In the Western Ghats, sacred groves are very characteristic of the agricultural landscape. Despite the rising popularity of worship in temples (several of them constructed in place of groves), the groves, although diminished in area, still persist as an integral part of the eco-cultures of most pre-Brahminic agricultural societies. In the worship associated with the groves, many traces of hunting traditions are still found.

Communal hunting is conducted at least once a year to appease the deities of the groves among many farming communities like the Halakkivokkals and Namadharis of Uttara Kannada, and the Kodavas of Coorg. In the Kasaragod district of northern Kerala, special sub-committees of hunters are formed in connection with the annual festivities of the *kavus* (groves). The animals hunted are sacrificed to the deities. The practice of

---

sacrificing domestic animals like fowls and goats may be carried out on special community occasions, or at other times in fulfillment of the vows taken by individual devotees. Where the deities have been Sanskritized the hunting and animal sacrifices have been discontinued. However, in many Kerala temples, *pulliveta* (a symbolic hunt) is conducted, and gourds instead of live animals are sacrificed to the deities. The association of deities of the groves with weapons like tridents and arrows or spears is reminiscent of the hunter-gatherer tradition. The devotees of the famous Aiyappa temple of Sabarimala in Kerala may carry a wooden arrow with them; just as devotees carry tridents to the shrines of Murukan (identified with Subrahmanya, son of Shiva), a god of many Tamil Nadu hilltops. The Tamil people of Yalappanam in Sri Lanka identify most of their deities with tridents (Sivathambi, 1991). Although early agriculturalists in the Western Ghats caused deforestation, they also preserved sacred forests in honor of village gods.

Sacred groves, called *kans* and *devarakadus* in Karnataka, and *kavus* in Kerala, are associated mainly with agricultural communities. In the preagricultural Western Ghats, clad in primeval forests, sacred groves *per se* would not be ecologically differentiated. But the beginnings of agriculture here, over three millennia ago, would have seen the shrinkage of forests and biodiversity, setting in of soil erosion, fertility loss, drying up of the watershed and changes in the microclimate. Therefore the practice of protecting sacred groves increased in significance with the arrival of agriculture. The groves, in addition to their role as the abodes of gods, would have protected a range of landscape elements with their characteristic biodiversity. The larger groves would also have functioned as resource patches where non-timber forest produce could be harvested in a regulated fashion.

At present, sacred groves are found in a wide range of situations, from the estuaries of the West Coast to the montane heights of the Western Ghats at over 2,000 m elevation. The ecosystems covered by the groves range from mangroves and fresh water swamps to different forest types.

Mangroves of the West Coast have steadily declined due to heavy population pressures, reclamation for agriculture and, of late, shrimp farming. Yet, occasionally, one may see a sacred grove of mangroves still retained. It may just be a clump of trees. A grove of over half a hectare is still found in the Aghanashini estuary of Kumta. Unnikrishnan (1995) reported a unique mangrove sacred forest of about 7 ha in northern Kerala.

Sacred groves of evergreen-semievergreen forest types are commonest in southwest India. Groves of deciduous trees are found along the drier eastern slopes of the Western Ghats. In the Pune district of Maharashtra, Gadgil and Vartak (1976) studied 23 groves situated in varied locations

from the floor of the river valley through slopes at different heights to the top of the plateau. The groves cover vegetation types from stunted forest on the exposed hill crest at 800-1500 m to tall luxuriant growth in the ravines. In another study covering 233 sacred groves of Maharashtra, Gadgil and Vartak (1981) observed a range of vegetation from semievergreen to dry deciduous type in rainfall regimes from 5,000 mm to 500 mm, protected as sacred groves. Burman (1992) considers sacred groves of the Maharashtra Western Ghats to be much more numerous than Gadgil and Vartak (1976, 1981) observed in their various studies. He found that all Gond and Mahadeo Koli tribals and Kunbis have sacred groves almost in every village, their size ranging from a clump of trees to 60 ha, the median being 1.5 ha.

*Myristica* swamp is an endangered fresh water swamp ecosystem found in a few locations in the southern Western Ghats. These swamps may give rise to perennial streams. Evergreen forest trees with various root anomalies in the form of stilts and breathing roots, and many other plants, are associated with the swamps. Due to conversion into arecanut gardens and rice fields, most such swamps have vanished. Some survive, enjoying some degree of protection because they are associated with deities. Katlekan, in Uttara Kannada, the abode of a Bhuta (a spirit), has several rare trees endemic to the Western Ghats, such as a species of wild nutmeg, *Myristica fatua* var. *magnifica*, and *Gymnacranthera canarica*. Aravanchalkavu, Andalurkavu and Theyyotukavu, sacred groves of northern Kerala, are associated with *Myristica* swamps (Chandran and Gadgil, 1993a, b,c; Unnikrishnan, 1995).

### SACRED GROVES FOR CONSERVATION OF BIODIVERSITY

Set amidst a mosaic of landscape elements like shifting cultivation fields and fallows, permanent agricultural areas, savanna and secondary forests, the sacred forests protected several valuable food plants including mango (*Mangifera indica*), jackfruit (*Artocarpus integrifolia*), *Garcinia* spp., *Caryota urens*, an important starch and toddy producing palm, spices like pepper (*Piper nigrum*) and cinnamon (*Cinnamomum* spp.), and scores of medicinal plants. Despite rising human pressures, sacred groves shelter many elements of the biota which may have vanished elsewhere in the local landscape.

Gadgil and Vartak (1975, 1976) found a grove in the Kolaba district of Maharashtra harboring a solitary specimen of the liana *Entada phaseoloides*. People came from an area of about 40 km radius to collect its bark to treat cattle bitten by snakes. Another Maharashtra grove had two magnificent trees of *Canarium strictum*, otherwise present only in Uttara Kannada 200 km to the south. One grove in the Pune district and another in the Yeotmal district were found to support ancient teak forests which



Fig. 1. *Dipterocarpus indicus* endemic to the Western Ghats of India, has its northern limit in some of the sacred forests of Uttara Kannada (Karnataka)

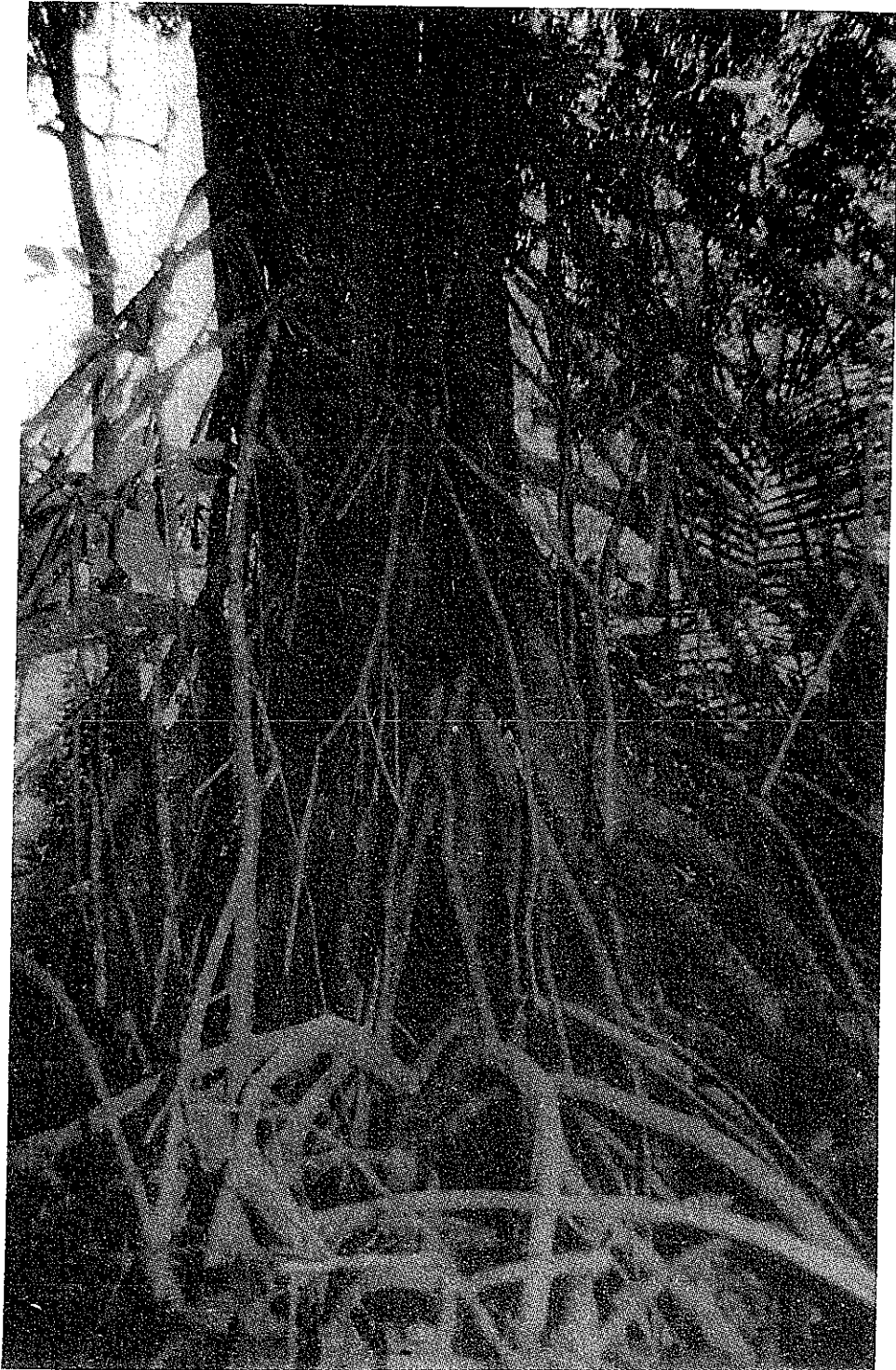


Fig. 2. *Myristica fatua* var. *magnifica*, a highly threatened trees of the Western Ghats of India in a threatened ecosystem—The *Myristica* Swamp This fresh water swamp is part of a sacred forest in Uttara Kannada, Karnataka

had vanished from elsewhere in those districts. These teak specimens represent genetic variants of considerable importance in improving the stock of this important timber tree.

*Dipterocarpus indicus* is an evergreen timber tree endemic to the southern Western Ghats. Palynological study by Caratini et al. (1991) shows that over 3,500 years ago it was also a common tree of Uttara Kannada in the central Western Ghats. Today it is mainly confined to two *kans* in the district, which form the northern limit for this tree. In the entire 10,200 km<sup>2</sup> area of Uttara Kannada, with closed forests covering over 60%, the natural population of another dipterocarp, *Vateria indica*, occurs only in an isolated one hectare grove in Mattigar village in Siddapur taluk, which is the northern limit for this Western Ghat endemic. Yelakundlikan, a sacred grove of 4 ha in Shimoga district, in the neighborhood of Uttara Kannada, is another remarkable sanctuary for this tree.

As noted above, Katlekan in southern Uttara Kannada is perhaps the only sacred grove which shelters *Myristica fatua* var. *magnifica*, an endangered endemic tree of the Western Ghats. Exclusive to the *Myristica* swamps, it also exhibits its rare presence in the Travancore forests of the southern Western Ghats. Katlekan has many other endemics: a fragile shade palm (*Pinanga dicksonii*), *Semicarpus auriculata*, *Dipterocarpus indicus* and *Gymnacranthera canarica*. Katlekan and its neighboring evergreen forests form the northern limit in the Western Ghats for the lion-tailed macaque (*Macaca silenus*), an endangered primate (Chandran and Gadgil, 1993a).

*Kunstleria keralensis*, a climbing legume, reported from a sacred grove in southern Kerala, is a new genus record for India and a new species altogether (Mohanan and Nair, 1981). *Blepharistemma membranifolia*, *Buchanania lanceolata* and *Syzygium travancoricum* are rare species found only in the sacred groves of Kerala (Nair and Mohanan, 1981). Mohanan also discovered a rare species of cinnamon, *Cinnamomum quilonensis*, in some of the *kavus* of Alapuzha district in Kerala (Unnikrishnan, 1995). Chandran (1993) found a high level of endemism in the *kans* of Uttara Kannada. The Kallabbekkan in Kumta taluk, over 50 ha in extent, despite being in the midst of arecanut-spice gardens of a populated village, is rich in endemics like wild nutmegs (*Myristica malabarica*), cinnamon, *Garcinia gummi-gutta* and pepper. Despite the degradation they have suffered in recent times, these *kans* still are gene pools for pepper of world importance. Many of the evergreen-semievergreen *kans* of Shimoga occur in a rainfall zone of 1150-1740 mm where one may normally expect moist deciduous forests. Someren (1871) described Induvallikan as a remarkable patch of evergreen in the otherwise deciduous Belandur forest of Shimoga. The *kan* had magnificent evergreen trees like *Artocarpus* spp.,

*Calophyllum tomentosum*, *Cinnamomum* spp., *Elaeocarpus* spp., *Persea macrantha* and *Vateria indica*. Of the *kans* of Yellapur in Uttara Kannada, Puri et al., (1989) stated: "The kan forests are the patches of evergreen forests left in the midst of moist deciduous forests. Due to the presence of local deities in the kan forests the species are not felled "

Some of the notable wild relatives of cultivated plants found in the sacred forests are *Garcinia* spp., mango, *Artocarpus* spp. and *Piper* spp. The ground layer in the sacred groves often harbors wild turmeric (*Curcuma* spp.), wild ginger (*Zingiber* spp.), and cardamom (*Elettaria cardomomum*). Ponds close to sacred groves often have wild rice (*Oryza* spp.).

### Animal Diversity of the Sacred Groves

The landscape of the pre-colonial Western Ghats, where sacred groves were enmeshed in secondary forests, fallows and grasslands, would have been ideal for wildlife. Animal life was very rich in the region until the close of the nineteenth century. But landscape changes resulting from state takeover of forests and hunting for sport by British sportsmen and local gunmen caused the decimation of wildlife (Campbell, 1883; Chandran and Gadgil, 1993b). Decline of the groves, impoverishment of the village commons, invasion of the grassy clearings by forest growth following the ban on shifting cultivation, and raising of plantations of timber trees and other commercial crops may have contributed to the overall wildlife decrease.

It cannot be expected that isolated sacred groves would shelter any major mammalian wildlife. Nevertheless, they harbor numerous birds, butterflies and bats, apart from primates and minor mammals. A survey by Chandran and Gadgil (1993c) with the help of ornithologist Ranjit Daniels, in 25 km<sup>2</sup> of rural landscape on an undulating terrain at 600 m in the Siddapur taluk of Uttara Kannada showed that even the small fragments of formerly large groves form good habitats for birds. In this case study area, under traditional land use, sacred forests occupied 6% of the land. Today the 54 surviving groves occupy only 0.3% of the area. These forests are heavily impacted by human activity, reduced to almost scrub and tree savanna or converted into plantations of exotic trees. We recorded 107 species of birds in just two days of sampling efforts. This is a good number considering the total number of 416 bird species recorded by Daniels (1989) from the entire district, over 400 times larger than the case study area. Of these 107 bird species, 33 were typical forest species, which included crested goshawk (*Accipiter trivirgatus*), lesser serpent eagle (*Spilornis cheela melanotis*), bronzed drongo (*Dicrurus aeneus*), fairy bluebird (*Irena puella*), and Nilgiri flowerpecker (*Dicaeum erythrorhynchus*).

White bellied blue flycatcher, an endemic bird of the Western Ghats, was found in a 0.6 ha evergreen grove in Kalyanpur village which also has a tiny pond inside it. Eight species were migratory, including eastern swallow (*Hirundo rustica*), Indian golden oriole (*Oriolus oriolus*), and greenish leaf warbler (*Phylloscopus* sp.). Most of the forest birds were found in the sacred groves of the region; other birds occurred in the general landscape. The bird diversity was highest in the groves of Mattigar (1 ha) and Kalyanpur (0.6 ha).

A detailed account of the animal diversity in the *kavus* of northern Kerala is given by Unnikrishnan (1995). In a pond in the Melothumkavu of Kasargod district, hundreds of white tortoises are protected. The worshippers of the grove feed these tortoises. The serpent groves of Kerala are well known for various snake species, including cobra, viper, krait and python. Nine species of frogs have been reported from these *kavus*. Jafar Palot, a naturalist, sighted a rare bird, the white bellied sea eagle (*Haliaeetus leucogaster*), considered divine by the fisherfolk, in some of these *kavus*. The disappearance of tall trees from the densely populated Kerala coast has affected this bird adversely. Out of twelve nests found in the region eight were located in the large trees of the *kavus*, which also are home to fruit bats and hornbills. More than half of about 400 species of birds recorded from Kerala have been spotted in the *kavus* of Northern Kerala. These include rare forest birds like crested goshawk and three-toed forest kingfisher (*Ceyx erithacus*). Thavidisserikavu is perhaps the only sacred grove in Kerala which has the Nilgiri langur (*Presbytis johni*), a threatened species (Unnikrishnan, 1995).

### **Sacred Groves and Watershed Protection**

Most sacred groves of the Western Ghats are associated with ponds, streams, springs or rivers. Wingate (1888a) stated that the *kans* of Uttara Kannada were of "great economic and climatic importance. They favor the existence of springs, and perennial streams, and generally indicate the proximity of valuable spice gardens, which derive from them both shade and moisture." The Government of Bombay (1923) highlighted the watershed value of the *kans*:

"Throughout the area, both in Sirsi and Siddapur, there are few tanks and few deep wells and the people depend much on springs. Heavy evergreen forests hold up several feet of monsoon rain....if an evergreen forest is felled in the dry season, the flow of water from any spring it feeds increases rapidly though no rain water may have fallen for some months ...."

The *kavus* of Kerala, including the smaller serpent groves in the premises of houses, are associated with water bodies. The people believed that the groves were responsible for permanent water bodies in their habitation. The older generation of people believed that desecrating a *kavu* would cause drying up of the pond. A serpent *kavu* or an abode of snakes was an indispensable adjunct to well-to-do Nair and Nambudiri families of Kerala. The sage Parasurama is said to have advised his Brahmin followers of the West Coast that the places allotted to the Nagas (snakes) were to be left untouched by the spade, thus enabling the underwood and creepers to grow luxuriantly (Pillai, 1940). There is no doubt that, unlike the case in most other parts of India, the Nambudiri Brahmins of Kerala adopted the indigenous practice of sacred groves, and themselves became the keepers of the groves.

### SACRED GROVES AND SUBSISTENCE

Strict taboos existed against any form of interference in the smaller sacred groves of the Western Ghats. But the larger groves played a major role in supplying a variety of non-wood produce of subsistence value to local communities. This produce included fruits of various species like mango, *Artocarpus* spp., *Garcinia* spp., spices like cinnamon, pepper, various edible seeds, medicinal plants, toddy from the palm *Caryota urens*, etc. Rattan canes (*Calamus* spp.) and reeds like *Ochlandra* were collected for basket or mat weaving. Pepper, exported in large quantity from the West Coast from the time of the Roman empire, was an important product of the *kans* of Uttara Kannada and Shimoga (Chandran and Gadgil, 1993a). The collection of non-timber forest produce from the village *kans* was not an open access affair. In the *kans* of Sorab, Brandis and Grant (1868) found, the local inhabitants used to pay taxes or *warg* to the state for the privilege of collection. Each privilege holder, or *wargadar*, operated in a specific part of the *kan* without infringing into another's area. Even today, despite its state of decline, the villagers of Kallabbe in Kumta derive a good income from their *kan*, collecting marketable nontimber produce like wild nutmeg (*Myristica malabarica*), *Garcinia gummi-gutta*, pickle mango, mushrooms, honey and various medicinal plants. The *kan* indeed provides employment for a number of poor families here.

The sacred groves shelter several medicinal plants of great value not only for the primary health care of the village communities, but many also important in modern pharmacopoeia. These include *Dioscorea* spp., *Piper longum*, *P. nigrum*, *Saraca asoca*, *Garcinia gummi-gutta*, *G. indica*, *Symplocos racemosa*, *Strychnos nux-vomica*, *Vateria indica*,

*Asparagus racemosa*, *Nervilia sp.*, *Zingiber zerumbet*, *Syzygium travancoricum* and *Hydnocarpus alpina*. The ponds of the groves may have lotus (*Nelumbo nucifera*) and water lily (*Nymphaea stellata*), which are reputed in native medicine.

On a landscape of slash and burn cultivation and fire-prone secondary forests the evergreen sacred groves would act as natural fire breaks, sheltering tracts of fire-sensitive species and safeguarding the watershed. Fire affects the regeneration of forests through burning of seeds, seedlings and trees and indirectly through increasing surface temperature of soil, reducing organic matter, modifying soil texture and facilitating erosion. Not fully realizing the role of *kans* in traditional land use system of the Western Ghats, D. Brandis, the first Inspector General of Forests of British India, along with another officer, L. Grant, wondered in 1868 at the two kinds of forests that Sorab taluk in Shimoga: the dry (deciduous) and the evergreen *kans*. During the dry months, fires raged through the dry forest. But, "No fires enter the evergreen forest, leaves, branches and fallen trees accumulate and gradually decay, forming ultimately a rich surface layer of vegetable mould." They wondered "why a certain locality should be covered with evergreen, and another in the immediate vicinity with dry forest?" (Brandis and Grant, 1868).

With the state consolidating its hold over forest resources and prohibition of shifting cultivation in most of the central and southern Western Ghats during the latter half of the nineteenth century, fire ceased as a notable ecological factor. The myriads of evergreen sacred forests may well assist in the natural restoration of evergreen forests in their surroundings through supply of seeds and favourable microclimatic conditions. Evergreen forests are on the return in the central Western Ghats, free from the pressures of coffee, tea and rubber plantations which are widespread in the southern parts (Chandran, 1993; 1997b).

### THREATS TO THE SACRED GROVES OF THE WESTERN GHATS

From early in the nineteenth century, the British laid claim to the forests of the Western Ghats, including the sacred forests. British forestry, in its early stages, was focused on harvesting important ship-building and other marketable timbers like teak (*Tectona grandis*), rosewood (*Dalbergia latifolia*), poon (*Calophyllum tomentosum*), anjili (*Artocarpus hirsuta*), etc. Teak was taken mainly from the secondary deciduous forests of the river valleys and plateaus (Gadgil and Chandran, 1989). It is to be assumed that local communities enjoyed their age-old rights and privileges in the sacred forests up to the mid-nineteenth century, when they began to lose them.

Following the Indian Forest Act of 1878, which consolidated a state monopoly over forest resources, the local people, unable to meet their biomass needs because they were excluded from former village commons, turned to the sacred forests. For instance, in the drier eastern parts of Sirsi and Siddapur taluks in Uttara Kannada, where every village had its own evergreen to semi-evergreen sacred *kans*, the state monopoly over the timber-rich secondary forests of deciduous trees made the people depend on their *kans* for routine use. Later the Government of Bombay permitted the villagers to gather dry fuelwood from them. By the 1920s, many *kans* were already full of canopy gaps that favored *Lantana*, a prolific exotic weed which sheltered pigs to the ruin of the groves (Collins, 1922). Some decades later *Eupatorium*, an even more aggressive exotic, invaded. The degraded forests and grazing lands in the vicinity of villages, which earlier had been under control of local communities, and presumably utilized in a sustainable fashion, were converted into "minor forests" by the state and thrown open to the public. The breakdown of the village community management of property resources resulted in unregulated exploitation of these common lands, liquidating the forest growth (Gadgil and Iyer, 1989). Naturally this would have increased the pressure on the village sacred forests (*kans*). The *kans* were no longer separated from the rest of the landscape by trenches, and people and cattle freely started moving in and out of them.

Simultaneously, the arecanut cum spice gardeners, who were already assigned some *betta* or leaf manure forests by the government, started encroaching into the *kans*. In the words of R.T. Wingate (1888b):

"Anyone acquainted with the interior of Kanara [Uttara Kannada] cannot fail to be struck with the gradual encroachment being made on the evergreen. The people ignore their *betta* assignments proper, and resort to the evergreens in the rains ... for....*soppu* [green leaves for manure].... They cut and hack the evergreen forest trees. The consequence is that the sunlight penetrates the natural shade, the pepper vines and other wild fruits die off, the springs dry up, and the evergreen eventually disappear".

In densely populated northern Kerala, cattle grazing, crisscrossing footpaths, collection of green and dry leaf manure and fuelwood affect the ecology of the *kavus*. Mining of china clay and laterite bricks is ruining other *kavus*. The widening canopy gaps favor deciduous tree species and weeds like *Eupatorium* and *Mikania*. The declining evergreenness of the *kavus* will have telling consequences upon their ecology (Unnikrishnan, 1995)

In the *devrais* of Maharashtra, Gadgil and Vartak (1976) noted that taboos relating to the groves began to weaken, especially since Indian Independence in 1947. Removal of leaf litter and dead wood became a common practice since western Maharashtra was deforested to meet the demand for charcoal from nearby urban centers.

The *devarakadus* of Coorg had fluctuating fortunes under state management. Their area had increased from 4399 ha to 6278 ha between the years 1873 and 1905 under the management of the Forest Department. Although record of encroachment into the *devarakadus* and alienation of portions of them for coffee plantations goes back to the 1880s, their major shrinkage took place between 1905 and 1985 when they were brought under the management of the Revenue Department. This decline is more noticeable after Indian Independence in 1947. Kalam (1996) noted the case of Mahalingeshwar Devarakadu in Palur village. Nearly 61 of its 68 ha area had been encroached upon. Coffee cultivation had spread into it and within its confines were 43 houses. Yet another *devarakadu* under severe encroachment since 1982 was in Bharadi village. First a planter encroached upon 11 ha for planting coffee and pepper and another 4 ha was encroached by a plantation company. This was followed by an onrush of migrant laborers. Currently 130 families live in this *devarakadu*. The settlement is said to be complete with a burial-cremation ground and a kindergarten. Recently 1.6 ha area of Chamakavu, a grove in Kasaragod district was cut to make room for a school playground. Vareekarakavu of Kannur district, which had an area of 20 ha, two decades ago, was exploited for timber by the owners, as well as encroached by the people, so that it got reduced to just about one ha.

Encroachment in the *kavus* of southern Kerala has become a rampant affair. The breakup of the old joint families into nuclear families has resulted in a lack of manpower to protect family sacred groves. Poachers and encroachers are threatening the very existence of many *kavus*. Despite being aware of the ancient wisdom that the destruction of the *kavus* will spell doom to the wells and ponds in their vicinity, the householder, to cope up with soaring land prices, is often compelled to clear off the serpent grove in the corner of his property. This is done after observing necessary rituals propitiating the serpent and by installing serpent idols in tiny enclosures in the place where the entangled grove once stood (Nayar, 1987; Unnikrishnan, 1995).

Human settlements and expansion of agriculture, apart from tree felling and gathering of other biomass, are affecting the *kans* of Shimoga too. At Sorab, the town itself is expanding into the Hiresekunikan. The remains of the *kan* today, with widely spaced trees, are infested with *Eupatorium*;

roads and footpaths crisscross the grove and housing complexes are sprouting within its precincts.

### State Forestry in Sacred Groves

The impact of state forestry, especially on the larger groves, became evident from the mid-nineteenth century. Brandis and Grant (1868) found the *kans* of Sorab in the Mysore kingdom (under British suzerainty) in a state of neglect. Perhaps due to the higher taxation imposed on the local privilege holders or *wargadars*, many *kans* were deserted. Pepper vines were no longer cared for and the villagers did not maintain the cattle-proof trenches around the *kans*. Someren (1871) found several unoccupied *kans* in the Belandur area of Shimoga.

The British began to employ contractors for collecting non-wood produce from the *kans*. As (Wingate 1888a) observed:

"I am still of the opinion that the system of annually selling by auction the produce of the *Kans* is pernicious one. The contractor sends forth his subordinates... who hack about the *kans* just as they please, the pepper vines are cut down from the root, dragged from the trees and the fruits then gathered while the cinnamon trees are all but destroyed.... I was greatly struck with the general destruction among the Kumta evergreens; they were in a far finer state of preservation fifteen years ago".

Wingate (1888a) also alludes to the fact that a proper demarcation of the *kans* was not conducted by the government, implying that several sacred groves cum safety forests merged with ordinary forests and lost their identity (Chandran and Gadgil, 1993a). Since most evergreen species of the groves have perishable wood, the state was not initially interested in timber extraction from the *kans*. However, the resource shortage faced by the common people after the forest reservations resulted in tree felling within the *kans*. Rao (1919), described the "disastrous" effects which followed fellings in the *kans* of Shimoga, including decline and disappearance of the water supply.

During 1940s *Dipterocarpus indicus* from Katilekan in Uttara Kannada was supplied to the railways and a plywood company. A forest working plan of 1966 for Sirsi and Siddapur taluks in Uttara Kannada included 4,000 ha of *kans* for felling industrial timbers (Shanmukhappa, 1966). Another working plan for Sirsi included 670 ha of *kans* belonging to 10 villages for selection felling of well grown trees (Thippeswami, 1963). A *kan* in Siddapur was even clear-felled and converted into an Eucalyptus plantation (Chandran and Gadgil, 1993a). During 1976 the village *kan* of Kallabbe in Kumta taluk, rich in endemics and in fine state of preservation, was leased out to a plywood company which extracted hundreds of large

trees from it. Although the villagers went to the High Court of Karnataka and won the case against the state in asserting their rights over the *kan*, the years of dispute witnessed the breakdown of traditional management of the *kan*, which is on the road to ruin.

From 1970s the state took to timber harvesting from the *devarakadus* of Coorg which were already on a state of decline. Some of the groves had expensive trees like rosewood (*Dalbergia latifolia*) and sandalwood (*Santalum album*). The government felt it was necessary to exploit these and reimburse a share of the sale proceeds for improvement of temples in the Coorg district. To this the Divisional Forest Officer of Hunsur responded.

*Devarakadus* are spread over 104 villages in Virajpet taluk of Coorg district. In each village there are about 2 to 12 *Devarakadus* and they are in small bits and many of the bits are less than an acre. There are valuable tree growth in these *Devarakadus*. The *Devarakadus* are sacred forests usually assigned to some deity or temple. Therefore the village community protect the *Devarakadus* and usufructs are used for betterments of the temple and community purposes. Large scale exploitation of trees may not be advisable, as village people may agitate against... and they may lose their faith in the protection of such forests and consequently may indulge in destruction of forests. Therefore, selection felling of overmatured, dead, dying and wind fallen trees of all species only may be taken up. Softwood timber may be given on contract to some of the wood based industries and firewood out of lops and tops of the trees be sold at the spot by conducting petty auction sales (Kalam, 1996).

Thus began an organized timber exploitation by the state in the sacred forests of Coorg. The Chief Conservator of Forests (General) for Karnataka in 1975, regarding sharing a portion of the proceeds with the temples wrote, "it is not possible to make payments to the temples in the absence of any specific provisions".

## **SOCIO-CULTURAL CAUSES OF DECLINE OF THE SACRED GROVES**

Religion had an overwhelming influence on the preservation of forest patches, in addition to other 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 alongside 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, Vedic Hinduism 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 related 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, already a nature based one, had incorporated many more cults related to trees, animals, bodies of water and various other natural aspects. 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 and Hughes 1997). Following temple building and consecration of the new deities the groves get cut, exploited in other ways, ignored or even subjected to other land uses. There are also many instances where groves continue to be protected even where temples have become the centers of worship.

Sacred groves, no doubt, are on the decline. But there is a redeeming factor structured into the Indian culture which promises to reawaken the sacred in nature. Indeed the efforts in this direction began millennia ago. In the *Vibuti Yoga* of the *Bhagavad Gita*, Sri Krishna raises his followers to exalted levels of spiritualism in nature by revealing to Arjuna his cosmocentric vision. The divine spirit permeates the entire universe including the elements of the local landscape. Krishna declares, "Of all the trees I am *Asvatta*" (*Ficus religiosa*). In fact the Indian landscape, both urban and rural, is dotted with myriads of sacred *Asvatta*, whose worship could be traced back to the Indus Valley culture. *Ficus* spp. have been, of late, recognized by ecologists as a keystone species of the tropical forests, fruiting at critical times and sustaining animal life (Terborgh, 1986). Krishna also considers himself to be the Sun among the celestial bodies, Marichi among the winds, Ocean among the water bodies, Meru among the mountains, Ganga among the rivers, Himalaya among unmoving things, Airavatai among elephants, thunderbolt among weapons, Vasuki among poisonous snakes, Makara (shark?) among fishes and so on.

This is undoubtedly an effort to unify the people of diverse faiths of the Indian subcontinent into the acceptance of one supreme god, but with a difference, that is without rejecting the various indigenous cults which made them live in kinship with the elements of nature. Here we find the wisdom of Krishna who bridges the religion of the Vedic people, who primarily worshipped various cosmic powers, with that of the non-Vedic people, who mostly found divinity in the elements of the local landscape, including the plants and animals.

In fact the Hindu scriptures highlight the sacredness of trees. Most streams and rivers are sacred too for the people. Indeed the term *Tirthayatra*

is understood as a pilgrimage to holy waters, which naturally are associated with watershed forests. The *Matsyapurana*, for instance attaches great importance to the planting of trees and even to the celebration of tree festivals. The same Purana states, "A son is equal to ten deep reservoirs of waters and a tree planted is equal to ten sons" (Kane, 1962).

The Hindu *Dharmashastras* exhorted people to plant gardens of sacred trees in the premises of temples. These temple gardens may be called "Star Forest," "Planet Forest," and "Zodiac Forest," and they contain sacred trees of diverse kinds, favorites of the various heavenly bodies (Chandrakanth et al., 1990). There are forests of other miscellaneous kinds. A drawback of these text-based Hindu sacred forests is that the trees recommended for planting in them come from diverse ecosystems. At the best their planting together may constitute an arboretum rather than a sacred forest. For instance the Star Forest has, among the 27 species recommended, *Acacia catechu* and *Calotropis gigantea* from the desert, *Pinus longifolia* from the snowy heights of the Himalayas, and *Piper longum* and *Mimusops elengi* from the tropical evergreen forests. Whereas numberless original sacred groves, which are often patches of natural vegetation, like the *kavus*, *kans*, *devarais* and *devarakadus* of the Western Ghats, are perishing due to changes in religious outlook, commercial exploitation, encroachments and negligence, the concept of the ritualistically reconstituted sacred forests like the Star, Planet and Zodiac forests are likely to find favor. The Forest Department of the Government of Karnataka, while permitting industrial felling and other alterations of *kans* and *devarakadus*, recently made elaborate plans for creating new temple forests in Uttara Kannada. Such a forest of trees of ritualistic importance has already been planted in the Bekal village of Sirsi taluk. This forest, or rather a garden of trees coming from diverse bioclimatic regions, is in no way an adequate substitute for many of the *kans* which even today shelter rare species and rare kinds of ecosystems, play important roles in soil and water conservation, and perform various other ecological functions. The sacred grove is therefore to be seen in a proper historical, religious, cultural and ecological context.

In the northern Indian plains, considered the heartland of Brahminic Hinduism, temple construction began in the Mauryan period and intensified during the Gupta period. The trend gradually spread to the rest of India as well. Nakeera, a poet of the Sangam literary period in the early Christian era, stated that Lord Muruka (identified as a son of Shiva), could be found in the deep wood, in a place surrounded by waters, rivers, tanks, meeting places under trees and new grown groves. He was the owner of all hilly tracts with rich groves (Ramachandran, 1990). The Brahminic influence in the Western Ghats-West Coast region began in a major way from the fourth century A.D. with the Kadamba kings of Uttara Kannada, who were

instrumental in introducing Brahmins in this tract. Whereas on the one hand temples began to appear as worship centers, on the other hand some Brahmins also adopted the cult of the sacred groves, true to the cultural syncretism of the Hindus. In Kerala for instance, it is almost mandatory for the Namboodiri Brahmins to have a sacred grove in the compound of their traditional household or *illam*. Namboodiris are the priests for many famous temples situated in well preserved sacred groves as in the Iringolekavu of Perumbavoor in Ernakulam district.

But barring such exceptions, various cultural transformations along the Western Ghats-West Coast have adversely affected the sacred groves. The spread of dogmatic world religions like Christianity and Islam, which derided such practices, caused the decline of the groves in their pockets of influence through the last thousand years or more. Christian and Muslim households are, generally, not associated with sacred groves.

The conversion of sacred groves into temples is seen as a major cause for weakening links between gods and groves in Kerala by Unnikrishnan (1995). Shrines and temples are being constructed inside the groves in Coorg (Kalam, 1996). Bhuthasthanas, or small shrines devoted to the reigning spirits of the sacred groves have become common place in Dakshina Kannada. Sacred groves in the interior of hilly Uttara Kannada are relatively immune from such changes. But many village communities here too are yearning to keep pace with the all pervasive cultural changes. In the urban parts of Uttara Kannada such changes have already taken place. Thus one will not be surprised to see a mother goddess (considered an incarnation of Parvati, Shiva's consort) in the form of a three meter high termite mound, housed under a concrete roof, in a temple complex, of Kumta town. Yet another larger termite mound worshipped as Betedevaru [Hunter God] by the Halakkivokkal peasants, is found under a tiled roof in a humbler shrine of the same town.

### **SACRED GROVES: A FADING LEGACY AND SURVIVALS IN THE WESTERN GHATS**

Where indigenous people have depended for long periods of time on local environments for sustenance they have developed a stake in conserving, and in some cases enhancing, biodiversity (Gadgil, et al., 1993). Folke and Berkes (1995) consider traditional ecological knowledge as differing from scientific knowledge in being moral, ethically based, spiritual, intuitive and holistic and having a large social context. In contrast to the traditional ecological perception of nature found in indigenous societies, modern scientific management, with its roots in the utilitarian

and exploitative world view, assumes that humans have dominion over nature (Gadgil and Berkes, 1991; McNeely, 1991). Conservationists, often voicing a view that separates the natural world from the human world, called for endangered species to be protected in pristine natural habitats, protected areas sanitized of human influence. Of late, however, ecologists are beginning to form more holistic views of biology, together with the realization that humans are everywhere a vital part of the ecological landscape (Johnson, 1995).

The practice of worshipping the elements of nature, including patches of primal vegetation, dates back to antiquity. The decline or outright ruin of sacred groves in most of the world may be correlated to the transformation of ancient agricultural societies into formidable political and military powers, whose strength was derived from the non-sustainable exploitation of the natural resources of their own and neighboring territories. Mention may be made of ancient Greece and Rome, where deforestation and ecological crises, including decline of the sacred groves, has been noted (Hughes, 1994). The arrival of the major world religions such as Christianity and Islam, which denounced and decreed against paganism in general, resulted in the groves largely vanishing from the face of Europe and most other lands which came under the sway of these religions.

In the subcontinent of India Buddhism and Jainism, which came into existence about 2,500 years ago, while not negating the traditional worship associated with the sacred groves, promoted stupas or temples as worship centers with the groves gradually losing their importance. It is notable that Buddha, who himself was born in a sacred grove, Lumbinivana, often delivered his sermons from the *Chaityas* of the sub-Himalayan belt, which were originally sacred forests dedicated to sylvan deities like the *Yakshas*. Subsequently the *Chaityas* became centers of Buddhist monasteries and stupas. The pipal tree (*Ficus religiosa*) is sacred to Hindus, Buddhists, and Jains alike to this day.

Jainism developed on similar lines, incorporating the agricultural cults, while deifying the *Thirthabkaras* in the temples (*Basdis*). The Jains of the Western Ghats region, mainly belonging to the agricultural and trading classes, even today pay obeisance to the deities of the groves such as *Bhutas*, *Yakshis*, and serpents. Serpent stones can still be found under the sacred trees in front of the Jain temples.

Hinduism is built up on the foundation of the Vedas, which lay much emphasis on the worship of the elemental forces of nature. Through the passage of millennia, the text-based Vedic Hinduism expanded within the Indian subcontinent, incorporating within its manifold cults associated with sacred groves and sacred waters. In the cultural syncretism of today's Hinduism, most of the deities of the groves have been accepted as

incarnations of the major Hindu gods or as their kin or minions. As temples were built to house major gods like Shiva, Vishnu, Parvati, Lakshmi, Ganesha, etc., the lesser gods were given subsidiary positions within the sacred grove adjoining the temple or under the canopy of sacred trees.

Centralization of religion, which came rather late in the Western Ghats region, went hand in hand with the concentration of political power. Except for tiny bits of sacred groves which remained under the control of village communities or individual households, the state, particularly from the British period, asserted control over the sacred forests. Since the state did not consider the groves, like the *kans* of Uttara Kannada and Shimoga, as sacred, they merited treatment not much different from the rest of the forests, and were subjected to various commercial pressures or were thrown open to meet the biomass needs of the local communities.

The sacred groves of the Western Ghats can still be rescued and restored if it is realized that:

- (1) The sacred groves, under various names such as *kans*, *kavus*, *devrai*, *devarakadu*, etc., are in the last phase of their existence. Despite their waning state many of them still harbor the best natural vegetation for given regions, and provide refugia for rare species of flora and fauna. The groves protect the watersheds and act as storehouses for medicinal plants and non-timber forest produce, as well as enhancing landscape heterogeneity and safeguarding microclimates.
- (2) The historical role of sacred groves in the development of the syncretic culture of modern India has been grossly neglected. On the contrary, the groves, despite rising fascination for them among scientists and environmentalists, are viewed as something associated only with primitive worship.
- (3) The people in general consider regular worshipping of the major gods in large temples as a sign of their social advancement, and worship of the lesser gods of the groves as an unavoidable periodical necessity to avert their displeasure. They like the Brahmin priesthood to trace the lineages of the gods of the groves into relationship with the major gods of Hinduism.

If the Indian elites realize this situation and consider that the Hindu gods, despite their present popular conception, have their genesis from nature, nature in general and groves in particular will merit more serious thought from the angle of their conservation. With such realization it may be possible to forestall the destruction of what may accurately be termed as living museums of Hinduism, the stages in the evolution of which are enshrined in the sacred groves of the Western Ghats.

#### REFERENCES

- Brandis, D and Grant 1868 *Joint report No 33, dated 11th May 1868, on the kans in the Sorab taluka*. Forest Department, Shimoga
- Burman, R J J 1992. The institution of sacred grove *Journal of Indian Anthropological Society*, 27: 219-238.
- Campbell, J. M. 1883. *Gazetteer of the Bombay Presidency, Vol 15. Kanara (parts 1&2)*, Government Central Press, Bombay.
- Caratini, M., Fontugne, M, Pascal, J. P, Tiscot, C and Bentaleb, I 1991. A major change at ca 3500 years BP in the vegetation of the Western Ghats in North Kanara, Karnataka. *Current Science* 61: 669-672
- Chandrakanth, M G , Gilless, J.K, Gowramma, V and Nagaraja, M G. 1990. Temple forests in India's forest development *Agroforestry Systems* 11: 199-211.
- Chandran, M D.S. 1993. *Vegetational Changes in the Evergreen Forest Belt of the Uttara Kannada District of Karnataka State* Ph D thesis, Karnataka University, Dharwad
- Chandran, M D.S. 1997a. Transitions in Post-Indus Ecological Traditions of India. Paper presented at the Conference on Ecological History and Traditional Sciences of India, 27-29 March, Centre for Science and Environment, New Delhi.
- Chandran, M D.S. 1997b On the ecological history of the Western Ghats *Current Science* 73: 146-155.
- Chandran, M D.S. and Gadgil, M. 1993a Kans- safety forests of Uttara Kannada In M. Brandl (Ed) *Proceeding of the IUFRO Forest History Group Meeting on Peasant Forestry' 2-5 September 1991, No 40, Forstliche Versuchs- und Forschungsanstalt, Freiburg*, pp 49-57
- Chandran, M D S and Gadgil, M 1993b. State forestry and the decline in food resources in the tropical forests of Uttara Kannada, Southern India. In: C M Hladik, A. Hladik, O F. Linares, H , Pagezy, A., Semple, and M Hadley (Eds) *Tropical Forests, People and Food*, MAB Series, Vol. 13, UNESCO-Parthenon, Paris, pp. 733-744
- Chandran, M.D S and Gadgil, M. 1993c. *Sacred Groves and Sacred Trees of Uttara Kannada (a pilot study)* Report submitted to the Indira Gandhi National Centre for the Arts
- Chandran, M.D.S and Hughes, J.D. 1997. The Sacred Groves of South India: Ecology, Traditional Communities and Religious Change. *Social Compass*, forthcoming
- Collins, G.F.S., 1922 A report on the general condition of forest administration in Siddapur taluka (15 June); Forest Settlement Office, Karwar.
- Daniels, R J R. 1989. *A Conservation Strategy for the Birds of Uttara Kannada District*. Ph D thesis, Centre for Ecological Sciences, Indian Institute of Science, Bangalore
- Folke, C and Berkes, F 1995. Mechanisms that link property rights to ecological systems In: S. Hanna, and M. Munasinghe, (Eds.) *Property Rights and the Environment: Social and Ecological Issues* The Beijer International Institute of Ecological Economics & The World Bank, pp. 121-137
- Gadgil, M. and Berkes, F 1991. Traditional resource management systems *Resource Management and Optimization* 18: 127-141.
- Gadgil, M , Berkes, F. and Folke, C. 1993 Indigenous knowledge for biodiversity conservation *Ambio* 22: 151-156
- Gadgil, M and Chandran, M D S 1989. *Environmental impact of forest based industries on the evergreen forests of Uttara Kannada district. A case study: final report* Department of Ecology and Environment, Government of Karnataka.
- Gadgil, M. and Iyer, P 1989. On the diversification of common property resources use by the Indian society In: F Berkes (Ed ), *Common Property Resources : Ecology and Community Based Sustainable Development*. Belhaven Press, London, pp 240-255.
- Gadgil, M., and Vartak, V. D. 1975. Sacred groves of India : a plea for continued conservation. *Journal of Bombay Natural History Society* 72: 314-320
- Gadgil, M. and Vartak, V. D 1976. The sacred groves of Western Ghats in India. *Economic Botany* 30: 152-160

- Gadgil, M. and Vartak, V. D. 1981. Sacred groves of Maharashtra: An inventory. In : S.K Jain (Ed.) *Glimpses of Ethnobotany*, Oxford University Press, Bombay, pp 279-294
- Government of Bombay, 1923. Revenue Department Resolution No. 7211, (May).
- Hughes, J.D. 1994 *Pan's Travail: Environmental Problems of the Ancient Greeks and Romans* John Hopkins University Press, Baltimore
- Johnson, N. C. 1995 *Biodiversity in the Balance : Approaches to Setting Geographic Conservation Priorities*. Biodiversity Support Program, WWF, Washington.
- Kalam, M A. 1996. *Sacred groves in Kodagu district of Karnataka (South India)* Pondy Paper in Social Sciences 21, French Institute, Pondicherry
- Kane, P.V. (Ed.) 1962. *History of Dharmasastra*. Vol. 5, Part 1 Govt. Oriental Series, Class B., No. 6. Bhandarkar Oriental Research Institute, Pune
- McNeely, J A. 1991. Common property resource management or government ownership : Improving the conservation of biological resources *International Relations*, 211-225
- Mohanan, C N., and Nair, N.C. 1981 *Kunstleria Prain*—a new genus record for India and a new species in the genus *Proceedings of the Indian Academy of Sciences B-90*: 207-210.
- Nair, N.C. and Mohanan, C N. 1981. On the rediscovery of four threatened species from the sacred groves of Kerala *Journ Econ. Tax. Bot* 2: 233-235.
- Nayar, P.K.B. 1987. *Religion, Mythology and Ecosystem*. Report to the Department of Environment and Forests, Government of India, New Delhi
- Pillai, T.K.V. 1940 *Travancore State Manual*. Vol.1. Government of Travancore, Trivandrum
- Puri, G. S., Gupta, R. K. and Meher-Homji, V. M. 1989 *Forest Ecology*, Vol. 2. Oxford & IBH, New Delhi.
- Ramachandran, C. 1990. *The forest, our divine source*. Seminar on Ecology and Ancient India, 28 April, Institute of Oriental Study, Thane
- Rao, M.S.N. 1919. *Working plan report of Belandur State Forest*, Ananthapur Range, Shimoga District Forest Department, Shimoga
- Shanmukhappa, G. 1966. *Working plan for the unorganized forests of Sirsi and Siddapur*. Government of Mysore, Bangalore.
- Sivathambi, K. 1991. Divine presence and/or social prominence—An inquiry into the social role of the places of worship in Yalappanam Tamil society. *Journal of Institute of Asian Studies* 9: 1-22
- Someren, G.J., Conservator of Mysore and Coorg, 1871. Letter No PWD, Rev. For. No 1507 to the Chief Commissioner of Mysore, Forest Department, Shimoga.
- Terborgh, J. 1986. Keystone plant resources in the tropical forest. In: M.E. Soule (Ed.) *Conservation Biology: The Science of Scarcity and Diversity* Sinauer Associates, Inc., Publishers, Sunderland, Massachusetts
- Thippeswami, S.C. 1963. *Sirsi town firewood supply plan*. Government of Mysore, Bangalore.
- Unnikrishnan, E. 1995. *Sacred Groves of North Kerala - an EcoFolklore Study* (in Malayalam), Jeevarekha, Thrissur
- Wingate, R.T. 1888a. *Settlement proposals of 16 villages of Kumta taluk, No 210, Forest Settlement Office, Karwar*.
- Wingate, R.T. 1888b. *Extract from the Assistant Officer's letter no 46, dated 5th March to the Survey and Settlement Commissioner* Forest Settlement Office, Karwar.