CHAPTER 1

INTRODUCTION

Man has a strange relation with the Biosphere - his life giving environment - which he has modified for better and for worse to meet his own requirements. Even though man is a recent addition, he has been modifying the biosphere into an anthroposphere by his scientific and technological skills. Demographic pressure has brought about catastrophic changes on the earth - the only place in the universe known to sustain life. Man's greed and need to dominate, to exploit and to incorporate nature into his own reaches is responsible for the current devastation in which quite a number of species, products of millions of years of evolution, are threatened with extinction.

By this process man is endangering his own existence and his dominance is not firmly based on the delicate and complicated weave of the living fabric of the earth's surface. Human activities are progressively reducing the planet's-life-supporting capacity at a time, when rising human numbers and consumption are making increasingly heavy demand on it. In other words, "We are perturbing the environment at a faster rate than we can understand or predict the consequence" (Schnelder, 1989). Man's impact on natural environment can be seen almost over the entire biosphere. Very often, he has modelled the harmonious productive landscapes and established subtle equilibrium with nature. This type of development, can in effect estrange man from his own environment and his dimensions have become inhuman in an artificial environment subjected to erosion, pollution, desertification, acid rains, global warming, etc.

The incredible rate of deforestation taking place as part of our developmental programme is adding fuel to the fire. It is an axiom that removal of forest cover in the tropics is unsustainable and is leading to the depletion of forest resources and of the products and services these forests could otherwise yield. It is estimated that nearly half of the world's woodlands and forested areas may have vanished since 1950, and yearly losses are now placed between 1-2 percent, i.e., 20-50 million acres on a global basis (Mary Lord, 1980) and it's implications are generating concern amongst a wide range of people and institutions (Singh and Singh, 1992). Various international bodies have appealed to the humanity to alter this course of destruction or devastation, before irreversible social and economic disruption occurs. Governments of different countries have been trying to achieve
conservation through various means like, declaring areas as Reserved Forests, Wildlife Sanctuaries, National Parks, Biosphere Reserves, World Heritage Sites and so on, but it is often found that prime conservation areas of the world are often seen as something set aside and kept remote from human affairs. Even entry is restricted. Local people do not have any involvement in them. Their administration are becoming complex and expensive. It is still not very clear how these protected areas will help to conserve biological diversity without the involvement of local population (Jayasamant, 1992). If conservation is to succeed, it must become part of humanity's adaptation to living environment and it should be economically viable, ecologically sound and socially acceptable at national and local levels.

The deep links between man and nature were fully understood by the ancient wise men of India, who evolved several methods to conserve nature like, provisions for sacred groves, sacred plants, sacred animals, sacred ponds, sacred rivers, sacred mountains etc. In India, a variety of plant and animal species have been considered sacred by one or more communities and therefore never destroyed (Presler, 1971). These and many such traditional culture and beliefs were well devised living styles to maintain a stable human ecosystem. According to Gadgil and Guha (1992) the traditional patterns organised sustainable resource use by the implementation of a number of thumb-rules which were bound to be arbitrary and were implemented on the basis of magico-religious sanctions and social conventions. It is clear that centuries ago, a unique system of adaptation to the natural environment was devised by the Indian society before the advent of civilization in other parts of the globe.

From an ecological point of view, sacred groves demand prime consideration because values of far reaching importance are implicit in them. When ecological degradation and deforestation have been going on at an alarming rate as a global phenomenon, in India, there are thousands of pockets where religion has offered protection to the landscape. Such pockets are called 'Sacred Groves and are known under different names in different parts of the country; e.g. "Kavu" (in Malayalam), 'Sindhhravana' or 'Devarakadu' or 'Pavithravana' (in Kannada), 'Devarai' or 'Deoban' (in Marathi) 'Orans' (in Rajasthani) etc. Extent-wise they vary from one m² to about a million m². 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 relict vegetations and are often among the best places to study endemism (Induchoodan and Balasubramanyan, 1991).
They also help to preserve the cultural identity of the country. Each grove has its own mode of worship. In the groves of North Kerala there is a special type of art and worship called "Thayyattam" viz. - dance of "Thayyam" (Plates 1 and 2). "Thayyams" are deiforms of the God or Goddess in the grove and the prophecies of "Thayyams" are considered to be the words of the deity. If somebody does any damage to the grove either in word or deed, the compensation or punishment shall be dictated by "Thayyam". Similarly there is another mode of worship in South Kerala called "Kalamezuth".

Removal of any plant material or killing any animal from the sacred grove is a taboo (Hazra, 1975; Gadgil and Vartak, 1976) and hence they are free from human interference (Vartak and Gadgil, 1981). Wind fallen trees of even valuable timber species are left to nature and never extracted (Plate. 3). Therefore, these sacred groves support relics of the forests that must have once covered a large part of Western Ghats and other portions of the land (Vartak, 1983). The latter described sacred groves as "natural museums of living giant trees, treasure-house of rare, endemic and endangered species, dispensary of medicinal plants, recreation centre for urban life, garden for botanists, gene bank of economic species, paradise for nature lovers and laboratory for environmentalists".

Till the beginning of this century sacred groves were an indispensable adjunct of traditional Hindu families in Kerala. Prior to 1800 AD about 15,000 groves were present in the erstwhile Travancore State alone (Veluppillai, 1940). Logan (1887) has mentioned that innumerable groves were present in Malabar (Travancore is southern part and Malabar is northern part of the present Kerala State). This practice is falling into desuetude due to various reasons.

Sacred Groves are invariably associated with certain Gods or Goddesses. In Kerala, they are normally associated with Goddess "Durga", "Lord Ayyappa" and "Nagaraja" and are never destroyed under fear of wrath from presiding deity. Along with the Sacred Groves certain species are also considered holy and are planted and protected (eg. Aegle marmelos, Alstonia scholaris, Azadirachta indica, Butea monosperma, Calamus rotang, Crataeva religiosa, Elaeocarpus tuberculatus, Ficus religiosa, Mimusops elengi, Nyctanthes arboristis, Ocimum sanctum, Santalum album, Saraca asoca and Syzygium cumini). Thus, nature conservation is seen to be closely linked with religion. Our culture has provided protection to the landscape in different pockets of the country where the relict vegetation is preserved intact from human interference. Thus, the sacred groves serve as unique examples of in situ genetic resource conservation through the involvement of local people in the most economic and efficient manner. They safeguard representative examples of the
Plate 1 Theyyam (during festival in a grove)

Plate 2 Theyyam (during festival in a grove)
main ecosystems by conserving the plant and animal resources and are complimentary to the already existing conservation sites (Induchoodan, 1988).

In India, scientific investigations pertaining to sacred groves are restricted mostly to listing of plants (floristic studies) and ethnobotanical aspects. No detailed ecological investigation on any other aspects has been undertaken so far and this pioneer study, covering Kerala state has the following objectives:

a. To survey and locate sacred groves in Kerala whose areas are exceeding 200 square metres.

b. To ascertain the typology of sacred groves based on floristic composition.

c. To assess the floral wealth and to enumerate the phytogeographical elements present in them.

d. To conduct phytosociological analysis in selected groves to understand the vegetation structure and to assess the floristic richness and diversity.

e. To assess regeneration status of tree species in selected groves.

f. To identify the presence of economically important species with an emphasis on timber trees, medicinal plants and wild relatives of cultivars.