GENERAL INTRODUCTION

Biodiversity is the very basis of human survival and economic well-being, and it encompasses all life forms, ecosystem and ecological process (Singh, 2002). It has attracted the world’s attention because of the growing awareness of its importance on the one hand and the anticipated massive depletion on the other hand. Increasing human population has caused increased resource exploitation and alteration of land use pattern. Biodiversity-rich areas could have strong human impact (Singh, 2002). Plants are the basis for life on earth and without their capacity to capture the sun’s energy through the process of photosynthesis there would be no life on our planet. Therefore plants are vital to the continued existence of life. There are between 250 and 300 thousand species of flowering plants, an estimated 200 thousand species of algae (Groombridge, 1992), as well as many species of ferns, conifers, mosses and liverworts giving a total of over half a million plant species in the world. Each species has different habitat requirements, performs different ecological functions in different ecosystems and has different potential uses for human kind.

Biological diversity means the variety of life and its processes including the variety of living organisms, the genetic differences among them, and the communities and ecosystems in which they occur (Keystone, 1991). The term biodiversity, an amalgam of two words biological and diversity, is a blanket term for the natural resources and its biological resources. The term biodiversity refers to the number, variety and variability of all life forms, microorganisms, plants and animals and the ecological complexes they inhabit (Gupta, 2000). Biodiversity is also defined in terms of three fundamental and hierarchically related levels of biological organization such as the ecosystem or ecosystem diversity, species or species
diversity and gene or genetic diversity (Gupta, 2000). Biodiversity is the variety of life. The concept of biodiversity includes the entire biological hierarchy from molecules to ecosystems, or the entire taxonomic hierarchy from alleles to kingdoms, all the logical classes in between individuals, genotypes, populations, species etc., and all the different members of all these classes. It also includes the diversity of living organisms and processes at all these levels of organization. This is such a wide-ranging description that it has kept the definition of the term “bio-diversity” vague and ensured that its measurement remains capricious (Sarkar and Margules, 2002).

Human beings have used 7000 kinds of plants for food, but only 20 species supply 90 percent of the world’s food and just three – wheat, maize and rice - supply more than half. Although the major food crops in use today were domesticated thousands of years ago, the potential for other species also play a predominant role in the agriculture world (Pandey, 1995).

Recognizing the growing severity of threats to biological diversity and the increasing international nature of the action required to address the threats, a global strategy for dealing with all aspects of biological diversity, prepared by the World Resource Institute, UCN, FAO and UNEP was put forth at the United Nations Conference on Environment and Development held at Rio de Janeiro.

Biodiversity is an inherent quality of all the living organisms. It is essential for attaining sustainable gains in productivity per unit of land, water, energy and time. To a great extent it depends on the people of the region, their cultural, social and food habits as well as agricultural priorities. The most apparent example of this aspect is seen in Bishnoi dominated villages of Rajasthan and Haryana. People of this community are perfect vegetarians and do not permit the killing of animals like deer, blue bull, black buck and other animals and birds.
with the result that these animals loiter in their villages like domestic animals. Conservation of bio-wealth and genetic resources is essential for providing security to the food ecosystem of the nation. Due to lack of interest in taxonomy, the exact nature of plants, animals and microbial species could not be properly assessed so far. However, some of the rough break-up at global level are as follows (WCMC, 1992):

- a. Green plants - 300,000
- b. Insects - 800,000
- c. Fishes - 23000
- d. Birds - 9000
- e. Reptiles - 6500
- f. Mammals - 4100
- g. Microbes - Few thousands.

**Distribution of living species in India**

In India the inventory of plant and animal species has been prepared by BSI and ZSI respectively. Endangered and threatened species have also been indicated. The figures published by them and (Khoshoo, 1994) upto 1994 are given in Table 1; Fig. 1.
<table>
<thead>
<tr>
<th>S. No.</th>
<th>Taxon</th>
<th>No. of species</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Bacteria</td>
<td>85</td>
<td>0.8</td>
</tr>
<tr>
<td>2.</td>
<td>Fungi</td>
<td>23000</td>
<td>21.2</td>
</tr>
<tr>
<td>3.</td>
<td>Algae</td>
<td>2500</td>
<td>2.3</td>
</tr>
<tr>
<td>4.</td>
<td>Bryophyta</td>
<td>2564</td>
<td>2.4</td>
</tr>
<tr>
<td>5.</td>
<td>Pteridophyta</td>
<td>1022</td>
<td>0.9</td>
</tr>
<tr>
<td>6.</td>
<td>Gymnosperms</td>
<td>64</td>
<td>0.1</td>
</tr>
<tr>
<td>7.</td>
<td>Angiosperms</td>
<td>15000</td>
<td>13.9</td>
</tr>
<tr>
<td>8.</td>
<td>Insect</td>
<td>53430</td>
<td>49.3</td>
</tr>
<tr>
<td>9.</td>
<td>Mollusca</td>
<td>5050</td>
<td>4.7</td>
</tr>
<tr>
<td>10.</td>
<td>Pisces</td>
<td>2546</td>
<td>2.4</td>
</tr>
<tr>
<td>11.</td>
<td>Amphibia</td>
<td>204</td>
<td>0.2</td>
</tr>
<tr>
<td>12.</td>
<td>Reptilia</td>
<td>446</td>
<td>0.4</td>
</tr>
<tr>
<td>13.</td>
<td>Aves</td>
<td>1228</td>
<td>1.1</td>
</tr>
<tr>
<td>14.</td>
<td>Mammalia</td>
<td>372</td>
<td>0.3</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>107,511</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>
Fig. 1. Diagram showing percentage of different biota in India (Source: BSI and ZSI, 1994)
The Indian region is floristically very rich due to its immense variety of climatic and altitudinal zones coupled with varied ecological habitats. According to Udvardy (1984) 10 biogeographical regions representing three biomes and two natural realms are found within the Indian region. Of the estimated 45000 plant species of different groups, flowering plants alone comprise 15000 species, which belong to 315 families and 2250 genera. Of these about 000 species are endemic (140 genera, 47 families) and 2560 taxa (17%) belong to tree species. Further, Indian region has little less than world’s half of the aquatic flowering plant species. Insectivorous plants, saprophytes, parasites and others with peculiar biological adaptations are also found in this region (Pandey, 1996).

Centres of biodiversity

Credit should be given to the great Russian biologist N.I. Vavilov who in 930s made monumental studies on the centres of origin of crop plants and domesticated animals. Most of these centres fall in tropical, sub-tropical hot temperate belt where majority of developing countries are located (Vavilov, 1951). Locations of the centres of biodiversity and conservation of their germplasm should be given top priority. Fortunately India is at the confluence of flora and fauna of Africa, Mediterranean, Europe, Chino-Japanese and Malaysian origin with a substantially rich endemic species. Western Ghats and Eastern Himalayas are the regions of rich biodiversity in India and they need all possible protection; and care has to be taken to prevent pilferage of plants from these regions. There are various actors responsible for creation of hyper biodiversity in specified regions (hot spot locations). These include bio-geographical zones (Udvardy, 1984); peaks of growth of different axonomic groups; exact relationship which exists between dominant and rare species and role of “key stone” species in different ecosystems which regulate the functioning of the ecosystems. Certain ecosystems like mangroves, wetland and coastal areas need special
ttention because of their significance and also because their biodiversity is not frequently explored.

**Types of factors involved in biodiversity impacts**

In order to produce recommendations that can be generalised across the region while at the same time are grounded in local reality, we developed a simple framework for categorizing the factors threatening biodiversity reported in the case studies. The framework consists of five different types of factors, which are defined and described (Vayda, 1983).

1. **Biodiversity impacts**: Changes in ecotype, vegetations, animal or plant types and species observable over a relatively short period. Where quantifiable measures of change could not be obtained they are relied on villager’s perceptions of changes.

2. **Drivers of impacts**: Drivers are the activities (mostly human activities) such as hunting wild life environment or specific components of biodiversity and thus constitute the direct drivers of change in biodiversity at the local level (Geist and Lambin, 2002).

3. **Underlying factors**: Underlying factors are causally related to the drivers of biodiversity impacts. Although there are many reasons why specific activities or behaviours are undertaken (Vayda, 1983), some factors have a broader impact by motivating many individuals to engage in either particular activities or a range of activities. Thus, underlying factors operate at a larger scale than in the household or even in the community. Many underlying factors operate over a longer period of time, and thus include longer-term trends (such as population in growth and migration).

4. **Trigger factors**: Triggers are causally related to the drivers of impacts on biodiversity. Triggers are factors that operate over a specific period of time, and often it is the ‘trigger events’ that lead to the other factors coming into operation with the exception of natural disasters. Trigger factors mostly do not operate directly on biodiversity, but ‘trigger’ other factors that lead to the drivers, sometimes through complex causal chains (such as change of land tenure and building new roads).
5. **Contributing factors**: Especially at the site specific level, a complex array of biophysical, socio-economic and cultural factors may all have played some part in determining a particular outcome. Identifying which specific factor has played what role is a difficult task. We have attempted, when interpreting the individual case studies, to make a weak form of the ceteris paribus assumption. That is, all other things being equal, changes in this factor would lead to changes in levels of impact on biodiversity. Thus, contributing factors include predisposing factors or initial conditions that are judged to have played a causal role in the process that lead to an impact on biodiversity. Contributing factors do not include concomitant but non-causative factors.

**Loss of Biodiversity**

Biodiversity is a natural attribute of ecosystem and is the product of interactions between social and natural systems (Sajise, 1995), and as such, biodiversity has close links with local ecological, economic and socio-cultural functions. Ecological functions include hydrological cycles, food chain, vegetation succession, soil erosion control and climate regulation. Functions related to direct human use include food, medicines, handicrafts, fuel wood and timber for furniture and house construction. Cultural functions include the creation of symbolic values, regulation of human spirit interactions and aesthetic and recreational functions. Biodiversity often has marketing value, which provides a substantial income particularly for forest dependent indigenous peoples. With the explosive growth of human population, the life support system of the earth is becoming increasingly threatened as the rate of global change accelerates. Human use of the world's natural resources to provide food, shelter, clothing and fuel has led to major environmental impacts, including massive deforestation, air and water pollution and global warming.
According to a report of the National Research Council (U.S.), more than half of all species are likely to become extinct by the year 2100 (NRC, 1992). Wilson (1992) estimates that about 27000 species are being driven to extinction each year. Expanding human populations, over exploitation of natural resources, habitat loss and pollution are contributing to a greater extent for rapid degradation of environmental quality, with its irreversible loss of species diversity.

Increasing degradation of natural habitats of native vegetation in India, drastic changes in land-use pattern, mounting development pressures and alarming over-exploitation of biowealth have attracted much attention of conservation biologists. Two of the 18 ‘hot pots’ on the globe, where rich endemic biodiversity stands threatened today, occur in India. These spots are: i. Eastern Himalaya and ii. Western Ghats. These two areas contain 5332 endemic species of higher plants, mammals, reptiles, amphibia and butterflies (WCMC, 1992).

Tropical forests which hold more undescribed species than any where else, are specially under pressure from deforestation and cultivation in developing countries of the world. As these habitats disappear, so do the species unique to them. As species disappear, so do their potential to aid our future needs, and we are left with one less weapon in our dwindling arsenal for survival (Stuessy, 1990). Rapid deforestation and degradation of prime natural forest areas coupled with over-exploitation of many species have brought sharp decline in population of several hundred plant species rendering them vulnerable and extinction-prone particularly among the endemics with very narrow distribution and limited populations.
Status of plant biodiversity in Western Ghats

The Western Ghats is a chain of mountains of 1600km in length running parallel to West coast of Peninsular India from the river Tapti to Kanyakumari, the southern tip of the Peninsular India. The mountain chain is part of the Indian plate of the Gondwanaland origin. The biogeographical province of Western Ghats covers 160,000 km² of which 100,000km² forms mountainous terrain. The Western Ghats straddle the states of Kerala, Tamilnadu, Karnataka, Maharasta and Southern Gujarat.

The Western Ghats, a mountain consisting of different kinds of forests located throughout the Western regions of Peninsular India is one of the 18 tropical biodiversity hot spots in the world (WCMC, 1992). Generally all kinds of forests in that region are under mild to severe biotic pressure according to the local needs (Pascal, 1988). Conservation efforts for individual species and total habitats are being undertaken where the biodiversity is disturbed severely. In the Western Ghats, the major types of forests are the scrub jungle up to 600m, the dry deciduous forest up to 800m, the moist deciduous forest (1200m), the wet evergreen forest (1800m), the shola forest above 2100m, the low grassland and the high altitude grass land (above 2000m).

The primary forests of Asia, particularly those of the Western Ghats and the Eastern Ghats of Peninsular India are disappearing at an alarming rate due to anthropogenic activities and are replaced by forests comprising inferior species or their land use pattern changed (Parthasarathy, 1999). The disappearance of tropical forests comes at a time when our knowledge on their structure and dynamics is woefully inadequate (Hubbell and Foster, 1992). Understanding of forest processes is necessary for assessment of potential impacts, the amelioration of effects of disturbance, optimisation of productivity and rehabilitation of ecosystem (Congdon and Herbohn, 1993).
Role of organic matter in tropical dry deciduous forest

The dead organic matter present on forest floor, commonly known as litter, is mostly composed of dead plants and shed organs (Medwecka-Kornas, 1970). In terrestrial ecosystems, a major portion of energy fixed by green plants in net primary production makes its way to the soil in the form of dead organic matter (Odum, 1971). It is acting as a nutrient source in the upper soils, which is of great importance in maintaining the fertility of forest soils. Substantial quantities of organic matter in forest ecosystems reach the soil by way of litter fall, which is subsequently broken down into forms available to plant and microorganisms, thereby completing the nutrient cycle. The persistence of these large litter structures is important to the structural and functional integrity of forest ecosystems. According to Yawitt and Fahey (1984) forest floor detritus represents an interphase between atmospheric and soil environments where a number of interactive complex processes occur which affect the chemistry of the soil, solution and the availability of nutrients. The input of the soil is mainly dependent upon the nature and type of litter and the rate of its decomposition.

The organic matter subjected to microbial decay in soil comes from several sources. Vast quantities of plant remains and forest litter decompose above the surface. Subterranean portions and the above ground tissues of the plant that are mechanically incorporated into the soil body become food for the microflora. Animal tissues and excretory products are also subjected to attack. In addition, the cells of the microorganisms serve as a source of carbon for succeeding generations of the microscopic community.

Litter has important effects on soil physical properties also. Organic matter reduces bulk density, increases water holding capacity and cation exchange capacity (Hoyle, 1973). Litter accumulation also checks weeds, protects the soil from the erosive impact of
ain and reduces surface water run-off (Singh et al., 1984). Maintenance of soil organic
matter concentration is especially important in many tropical and sub-tropical soil where
organic matter concentration is low.

The litter dynamics of terrestrial ecosystem in general includes the processes
such as fall, accumulation and decomposition of litter. The functioning of these processes is
largely controlled by biotic and abiotic variables (Singh and Gupta, 1977; Swift et al., 1979).

The quantity of litter at a given time in the soils depends upon the percentage
of net primary production that falls on ground each year. Every year approximately $10^{17}$,
grams (about 100 billion tons) of organic matter is produced on the earth by photosynthetic
organisms (Vallentyne, 1962). A majority of energy fixed in primary production, fluids its way
to the soil in the form of decomposition only. The oxidation of photosynthetic product
through the respiration of organisms into CO$_2$ and H$_2$O is another major way of utilization of
organic matter.

Decomposition of litter is regulated by a host of variables including the litter
physical properties, climate and macro and micro faunal responses. In spite of the complexity
of the decay process, the two most important controls of litter decomposition rates are
probably the prevailing climatic environment and susceptibility of the substrate to attack by
the specialized decomposers, i.e. substrate quality (Meentemeyer, 1978).

Odum (1971) pointed out that the long and complex process of degradation of
organic matter controls a number of important functions in the ecosystems, for example: (i)
the recycling of nutrients through mineralization of dead organic matter, chelation, and
microbial recovery in the heterotrophic layer (ii) production of food for a sequence organisms
in the detritus food chain (iii) production of regulatory 'ectocrine' substances and (iv)
modification of the inert materials of the surface of earth to produce, for example the unique earthly complex known as soil.

A wide variety of soil organisms including the organism containing fauna and micro organisms are taking primary role in the degradation of the litter. By the action of these organisms, the organic forms and most of the nutrients are made available for plant uptake. The faster the rate of degradation, the more is the nutrient availability and consequently the greater is the forest productivity (Singh et al., 1993).

A fraction of litter accumulated in the forest floor is decomposed by the decomposing community and the remaining portion is added upto the next litterfall. There is thus a build up of forest floor material. In course of time the income equals the loss and a steady state accumulation is attained (Olson, 1963; Swift et al., 1979; Waring and Schesinger, 1985). The quantity of litterfall and the loss of litter through decomposition are the chief responsible factors for the productivity of forest ecosystems.

The process of decomposition governs reaching of nutrients to roots and hence this becomes an important function of ecosystem. The activities of micro flora and fauna through litter decomposition are essential in the mineralization of organic matter in the soil surface layers. The soil micro-organisms involved in this process are bacteria, fungi, actinomycetes, protozoa and sometimes higher animals. Their actions can promote primary production in nutrient limited systems by releasing nutrients for plant growth.

The nature and amount of organic matter produced after the decomposition of litter fall depends on the dominating tree species present and the site characteristics of the area, which regulate the physical factors and physico-chemical properties of soil (Hosur et al., 1997). Thus, the percentage of return of nutrients varies with species, site conditions,
Harseberger (1896), one of the fathers of American economic botany, first joined the term ethnobotany. But Kintikar and Basu (1993) attributed the credit for cultivating ethnobotany to the ancient Hindus. Schultes (1960) defined that 'ethnobotany is the study of the relationship that exists between people of primitive societies and their plant environment'. In more simple words, it is an anthropological approach to botany. Jain (1987a) described ethnobotany as the total natural and traditional relationship and the interactions between man and his surrounding plant wealth. According to his latest version of 1995, the study includes all aspects of direct relationship of plants with man that is either abstract or concrete. The former includes faith in the good or bad powers of plants, taboos, avoidance, sacred plants, worship and folklore and the latter includes all uses of plants. This science must have had its numerous births in primitive societies when people depended on wild plants for most of their needs, but at the onset of settled life and when agriculture began, numerous earlier records could be kept and the dependency on plants assumed even greater importance. Ethnobotany has only recently come into existence as a distinct academic component of the natural sciences, which took interest in its uses, symbolism, ritualistic and other aspects of the practical life.

**Medical health care**

An anonymous collection from the Multan Dynasty (206 B.C. to 220 A.D.) and several important works from the China Dynasty (265 to 420 A.D.) form some of the earlier records in China. Ethnobotanical data recorded in herbals such as LI Shih – Chen’s encyclopaedic work, Pents’ ao Kang mu, were not published until 1596.
In Europe, ethnobotanical records began with Dioscorides producing De Materia medica in the first century B.C. In India one of the most important early sources is the Rig Veda (4500 B.C. – 1000 B.C.) where the leading properties of some herbs are mentioned in the form of sonnets, which were often recited in religious rituals (Wasson, 1971) identified Soma as Amanita muscaria and attributed Ephedra as one among the Surrogates of Soma. Dharmar (1968) enlisted 248 botanical drugs mentioned in Atharva Veda and Rig Veda.

The Egyptian medical record, now known as the Ebers papyrus, was compiled approximately in 1500 B.C. according to earlier sources. The first herbal New World published in 1952, known as the Badianus manuscript, is the product of the Aztec physician Martin de la Cruz, who worked with elderly medicine men to document first hand information. In the New World, written records go back to pictorial writing of the Aztecs and Mayas.

According to a report of the World Health Organization (WHO, 1977) based on the studies by various national governments and international organizations, local herbalists who alone attend to medical problems of 75 – 90 percent of the world population, rely on traditional medicine to maintain its health (Weragoda, 1980). In recognition of the political, economic and social barriers slowing the delivery of modern bio-medical health care to most of the world’s population, the World Health Organization (WHO) has embarked on an ambitious program to evaluate herbal medicines (Akerele, 1985; Penso, 1980; WHO, 1978).

Drug discovery

Early in human history, familiarity with those plants capable of causing noticeable physical and physiological changes when ingested or otherwise applied to the human body, became associated with certain individuals. They gradually acquired great
owers among primitive societies. They are usually repositories of vast knowledge, acquired largely on a trial and error basis by oral transmission from one generation to the other that helped in strengthening the medicinal use or uses of the plant by continuous screening on human beings following their own way of traditional practices.

Schultes (1960) remarked about four decades ago as “many of our official drugs have come incidental to the work of individual botanist, busy with some larger projects and I am convinced that most of the discoveries will be made by botanists, ethnobotanists or anthropologists engaged in leisurely fashion in their own research, rather by team of expeditions sent out to find few drugs. And we must not minimize or overlook the role which the layman has played in the past and in the present”. This emphasis will do away with the doubts that daunt the minds of the scientists engaged in physico-chemical research. When these plants were investigated they yielded other physico-chemical principles that helped miracles in the field of drug discovery. A drug when tested for cardiac property in U.S.A proved very much effective in potency in human beings. Maheswari (1983) cited investigations undertaken in several countries for inventing new drugs from the age-old herbalists and emphasized tapping such knowledge for this very purpose. Schultes (1960) and Schultes and Hofmann (1980) mentioned that one of the most important uses, that plants are “good for”, is a producer of unique and diverse chemical compounds. The investigation of the use of plant-derived chemicals has been an important part of ethnobotany. The ethnobotanical field workers aim to provide full information necessary for ethnopharmacological investigations (Bruhn and Holmstedt, 1981; Croom, 1983) as well as to describe the health beliefs and medicinal system that form the context in which plant-derived medicines are used. Indigenous knowledge about smells, tastes and biological effects of plants, the ethnobotanists contribute to the development of new chemical products ranging
from sugar substitutes (Compadre et al., 1985) to pharmaceuticals (Swaine, 1972). Thus ethnobotany helps to eliminate random samplings of a flora in drugs research, wasting huge amount of money and a lot of time and enabling the researchers to save and bring out hidden and secret uses that are required in pharmacological research.

Swaine (1972) remarked that until 1930, around 90 percent of the official medicines brought out by several countries in their own pharmacopoeias incorporating drugs, the therapeutic effects of which were already proved at least according to the producers and techniques of the periods, were of plant origin. But, after the second world war, conditions became more favourable for the development of synthetic chemistry. Since 1960s, nearly 90 percent of all standard medicines have been of synthetic origin and lowered medicines of plant origin to a secondary and reduced role. Even though, many new and useful drugs originated from natural products are now available, no one can replace them till date. A rough estimate reveals that 25 percent of modern drugs is directly or indirectly derived from plant products.

Policy planning

Policy makers are beginning to respect the authority of indigenous and peasant communities and are seeking ways to build successful partnership with them. Communities and governments are increasingly recognising that strong, local, common property regimes backed by the power of the state, play a critical role in sustainable resource management. Developing countries used such models in making policy recommendations (Posey, 1984; Toledo and Barrera-Bassols, 1984; Toledo et al., 1976) and critically studied assessing the ecological relations within human manipulated ecosystem. Knowledge of resources and successful resource management / harvesting systems, provides information about human adaptation to the social and natural environment and also identifies the effects of public
policy on plant resources and their uses (Alcorn and Molnar, 1990; De Walt, 1982; Lynch and Alcorn, 1991). The policy makers can predict the effects of new policies under consideration on the basis of negative results of certain types of development activities and formulate programs to circumvent the predicted negative impacts. Innovations built upon existing systems, help in the understanding of extant beliefs and decision making factors that policy implementers and development planners need to introduce changes successfully (Brokenshaw and Riley, 1980). Understanding of human ecology thus helps beforehand for designing rural development programs and in any overall plan for tribal development in forest areas (Maheswari, 1983).

sustainable farming techniques

Within traditional agro-ecosystems, human activities influence both the crops and the natural vegetation occupying the regions (Posey and Bal’ee, 1989). One can develop a model based on the existing data for the use of plants that can alter plant populations in weed control, development of crops, conservation of crop, genetic resources (Oldfield and Alcorn, 1987), sustained agricultural production (Alcorn, 1990), domestication of cultigens depending upon plant responses to human activities as well as upon human reaction to plant qualities and responses to management (Kupzow, 1980; Rindos, 1984), in formulating new agricultural methods or cultigens (Johnson, 1971; Vermeer, 1979) and observing individual variation between farmers (Alcorn, 1984). Pathways developed on the understanding of a region ethnobotanical dynamics by controlling the methods of certain plants or techniques incorporated into the existing agro-ecosystem which facilitates to achieve farmers’ participation in evaluating and accepting new recommendations (Alcorn, 1992; Vermeer, 1979).
Conservation of biodiversity for sustainable utilization in human welfare

The lessons that were learnt from the ethnobotanical studies, helped preserve representative areas of the habitats in the most logical way setting aside the acreage necessary to sustain a balanced ecosystem capable of supporting life to create parks and biological reserves, for understanding the potential utility of the flora and fauna of tropical regions are little or nothing. It is estimated theoretically that 500 square kilometres in Amazonian Ecuador could yield over 6 million$ annually in wildlife product on a sustainable basis and identified such potentials in tropical countries by adequate management. For example, latex from Rubber tree (*Hevea brasiliensis*), brought out the Industrial Revolution (Schultes, 1977). Biological diversity found in forests especially in tropical regions needs to be preserved for future generations by managing with some sort of rational economic returns. In fact, Myers (1988, 1990) identified that 18 hot spots occupying 0.5 percent of the Earth's surface (746,000 km²) have about 49,955 endemic species approximately 20 percent of the plant species in the world.

Intensive studies on the influence of forest vegetations on various parameters have been carried out only in temperate countries (Anderson, 1973; Fogel and Cromack, 1977). Quantitative analysis of forest vegetations of Himalayas and other areas has been carried out by several workers. But, not much work has been done with regard to the impact of different forest vegetations on the soil properties, litterfall, forest floor litter, litter decomposition, etc.
The present study has been carried out in different sites of tropical dry
eciduous forests in Western Ghats, Tamil Nadu, with the following objectives.

1. To analyse the physico-chemical properties of the soils and climatic and biotic factors.

2. To study the composition of plant biodiversity.

3. To find out the rate of litterfall in the study sites.

4. To estimate the accumulated litter in the forest floor.

5. To study the Ethnobotanical aspects of Marunduvalmalai forest.