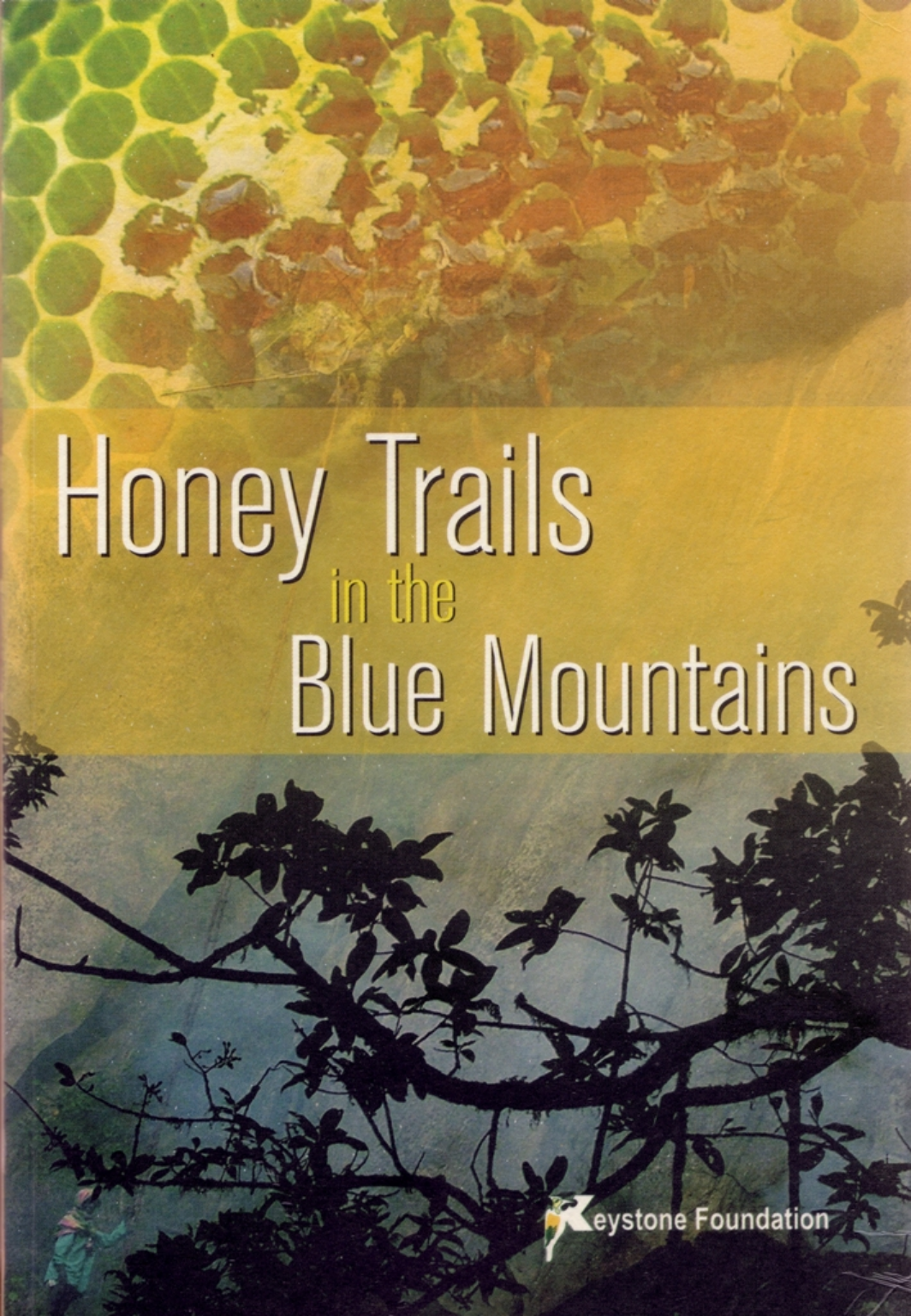

Honey Trails
in the
Blue Mountains
Keystone Foundation

Map I

The Nilgiri Biosphere Reserve – Administrative Boundaries

A
Macroscape

The Nilgiri Biosphere Reserve is a complex eco-system, harbouring a diverse flora and fauna. Its land forms, forests and water bodies are unique, lending to the world's biodiversity by creating niche vegetations like the sholas and grasslands. Its ecological importance is recognized world wide and is the reason for declaring it a Biosphere Reserve. Besides the natural heritage, this reserve has since long been home to a rich cultural heritage. It has several adivasi communities who are hunter gatherers, pastoral nomads and artisans and have lived in this area, following their distinct culture and practices.

This section describes the Biosphere Reserve and provides a backdrop to the issues it faces both in the conservation of ecological diversity and the livelihood of adivasis, which are more than often, linked.

1

The Nilgiri Biosphere Reserve - An Introduction

The Nilgiris lends its name to the first designated Biosphere Reserve of India established in the year 1986, upon the proposal of UNESCO through its Man and Biosphere Programme. The Nilgiri Biosphere Reserve was identified as being representative of the bio-geographical zone of the Western Ghats and the setting up of the Reserve aimed at conserving large tracts, rich in biodiversity and to promote sustainable use of resources.

The reserve was set up on 1.9.86 vide order number J.22010/6/86.CSC, Government of India. The NBR is located in southwest India, north of the Palghat Gap between 10°45'-12°5' N latitude and 76°10' - 77°10' E longitude.

The 5520 sq. km. Nilgiri Biosphere Reserve (NBR) lies at the trijunction of the three southern states of India - Kerala, Tamil Nadu and Karnataka (Map I). As the Western Ghats extends southwards, the NBR appears as a contiguous unit of dense forests and wide-ranging landscape. Encompassing high hills, wide plateaus and undulating features, NBR includes the towering Nilgiri Hills that extend into the north and south with a number of off-shoot ranges. The south-west slopes are steep, while on the eastern side, the slopes are relatively gentle. The northern parts of the reserve extend into the Mysore plateau and the southern tail forms relatively smaller hills in the west of the Coimbatore plains. The highest elevations of the NBR are over 2500 m above mean sea level (MSL) and the lowest, 400 m below MSL. 'The NBR is bio-geographically part of the Indo-Malayan realm and an appropriate representative of the topographic and climatic complexity of the Western Ghats – biodiversity 'hot-spot' in India' (Daniel, 1996).

NBR includes two of the ten bio-geographical zones of India. It represents one of the world's biodiversity hotspots with more than 3700 plant species and 684 vertebrate species, of which 156 are endemic (Daniel, 1996). The Palghat Gap separates NBR from the southern Western Ghats that touch the southern extremity at Kanyakumari in Tamil Nadu. It is at Kanyakumari that these ranges, comprising of the Sahyadris, Nilgiris, Anaimalais and Agastyamalai, end almost

upon the sea front, completing the stretch of more than 1600 km from the Tapti river in Gujarat.

The richness of the Biosphere Reserve has attracted several adventurers, researchers, scientists, anthropologists as well as plunderers of the varied wealth that it bestows. There has been much change over the past decades since Independence and large tracts of forested hills have been ruthlessly exploited, much of the original land use altered and dams built over free flowing rivers. Intensive demographic changes over the years have disbalanced the equation between the indigenous people and migrants. NBR today, is a region in flux.

The Nilgiri Biosphere Reserve was established mainly to fulfill the following objectives:

- *To conserve in situ genetic diversity of species*
- *To restore degraded ecosystems to their natural conditions*
- *To provide baseline data for ecological and environmental research and education*
- *To function as an alternate model for sustainable development*

The increasing environmental degradation has caught the imagination of concerned citizens who are striving to preserve this unique ecosystem. These include efforts to ban the use of plastics, growing of organic foods, preserving animal corridors and more; efforts that shall be discussed in greater detail in the following chapters.

The following facts emphasize the biodiversity richness of the NBR and the need for conservation and sustainable management of resources.

Table I

Nilgiri Biosphere Reserve at a Glance

Date of Setting:	1986
Biome:	Grasslands & Tropical Montane, Moist, Dry Deciduous and Wet Evergreen Forests
Location:	Parts of the states of Karnataka, Tamil Nadu and Kerala
Protected Areas:	Wynaad, Nagarhole, Bandipur, Mudumalai, Mukurthi and Silent Valley
Elevation:	300 to 2623 MSL
Total Area:	5520 sq. kms.
Flora:	Rich in a variety of species; around 112 endemics and 53 Rare, Endangered & Threatened (RET) species (Annexure II); Nilgiris district alone has more than 6000 recorded species of flora.
Fauna:	More than 100 species of mammals, 550 of birds, 30 of reptiles and amphibians have been reported. Largest known populations of the endagered lion tailed macaque and Nilgiri tahr, largest population in South India of gaur, elephants, tigers, sambar and chital. Freshwater fishes of genera Horabogrus, Bhavania and Travancoria are restricted to Western Ghats, as also 4 genera of primitive amphibians, a family Uropeltidae of snakes, Schoenicola amongst birds and Platycanthomys amongst mammals.
Adivasis	It forms home to several adivasi communities, including one of the surviving hunter-gatherers of the Indian Sub-continent - the Cholanaickens in the New Amarambalam Forests; apart from the Todas – a well known pastoral group in the upper Nilgiris, there are other communities, such as Paniyas, Irulas, Kurumbas, Kurichiyans, Mullukurumbans, Betta Kurumbas, Kasabas, Adiyans, Allars, etc.

Geography

The reserve is unique for it unifies a wide landscape of protected regions. The rich flora and fauna has resulted in several areas being declared as protected which include the Rajiv Gandhi National Park (Nagarhole) and Bandipur in Karnataka;

Wynaad Wildlife Sanctuary, Nilambur, Silent Valley National Park, Attapadi Reserve Forest (Palakkad district) in Kerala; Siruvani Hills, Mudumalai Wildlife Sanctuary, North and South Divisions of the Nilgiris, and Mukurthi National Park in Tamil Nadu (Daniel, 1996). Besides, areas like the New Amarambalam Reserve Forests are rich repositories of biodiversity (Daniel, 1993). The reserve also provides an extensive habitat for the largest South Indian population of tigers, elephants and other large mammals.

Many streams and rivers rise from the Nilgiri Hills – the main being Bhavani, Moyar, Kabini and Chaliyar. The first two rivers have been dammed for electricity production, at different places creating many small reservoirs. Map II illustrates the drainage and water regime of NBR. These rivers drain off in the west to the Arabian Sea and in the east flow, through the plains of Tamil Nadu to join the Bay of Bengal.

Geology and Soil

Hills in Nilgiri Biosphere Reserve are ancient. Geological evidences suggest that the underlying rocks are archaean, about two billion years old. The geology of the area consists of charnockites of Nilgiri gneiss varying from acid to ultrabasic ones. The intermediate syenodiorites are the most common geological formations. Minerals present in the rock are blue quartz, plagioclase feldspar, hornblende, hypersthene, and secondary minerals such as garnet.

The origin of the Nilgiri plateau has long been a subject of detailed studies. Based on the geological structure and geo-morphological evidence, a number of geologists have put forth different hypotheses for the origin of the Nilgiris plateau. The prevalent view is that the plateau has come in to existence due to uplift by block faulting.

Landslides are a common occurrence due to the thickness of the weathered rocks and the presence of steep hill slopes. The rate of creep and erosion is pronounced at places along steep hill slopes, road sections and stream courses. To minimize the effect of erosion, the hill slopes are cut into terraces and large-scale plantation is being done. The banks of major streams are also protected by construction of masonry structures.

The relatively low country around the massif is made up of hornblende biotite gneiss, biotite gneisses, micaceous and ferruginous quartzites with emplacement

of ultrabasics like dunite, peridotite, pyroxenite, gabrro, and anorthosite. Climatic conditions favour intense chemical weathering of materials. White kaolin clay formed as a result of the decomposition of feldspars can be observed in many areas. The soils are at most times stained with black, marking the presence of ferromagnesian minerals. The soil is scattered with irregular oxidation stains giving it a deep red colour in some places, and yellow where the iron has been leached due to drainage.

Regarding fertility, the soils are generally deficient in plant nutrients and are acidic with pH values varying from 4.6 to 6.1. These soils contain a large percentage of alumina and iron, which restrict the availability of phosphates to plants. Even the most badly eroded soils have the capacity to recuperate by proper application of organic and inorganic manures and fertilizers. Nutrient content studies show that the soils are rich in nitrogen and potash and low in phosphorus. The depth of the topsoil varies from 0 to 45 cm, on an average and that of the sub soil from 3 to 4.5 m.[1]

Climate

The climate of the NBR is tropical – marked by heavy monsoons. The western ranges receive higher precipitation (upto 4600 mm) while the eastern parts are part of the rain shadow, receiving less than 800mm rainfall annually. Most of the precipitation is during the SW monsoons. The east and northern parts often suffer from drought conditions, though they receive some showers during the SE winter monsoon. On an average, temperatures range between 10^{o}-30^{o}C across the region. The upper areas see sub zero temperatures and suffer from frost during the winter months.

Biodiversity

The region consists of Evergreen, Semi Evergreen, Moist, Dry and Montane (shola) tropical forests. The Western Ghats, and the Nilgiri region in particular, harbour a bewildering wealth of flora and fauna: mammals, birds, reptiles, amphibians, and fresh water fishes; much of which are endemic to the region. The NBR is 0.15% of India's land area and has 20% of all angiosperms, 15% of all butterflies and

[1] Refer Annexure I for the Geology of the Nilgiri Region

Map II

Rivers and Drainage

23% of all vertebrates. Of the 285 endemics in the Western Ghats, 156 (55%) are in the NBR (Daniel, 1993).

Four thousand species of flowering plants are known from the Western Ghats (Nair and Daniel, 1986). The gymnosperm flora is represented by *Cycas circinalis* (Cycadales), *Decussocarpus wallichianus* (Coniferales) and *Gnetum ula* and *Gnetum contractum* (Gnetales). Amongst the lower plants, around 150 species of pteridophytes, 200 species of bryophytes, 200-300 species of algae and 800 species of lichens are known. There are 600 species of fungi known from the Western Ghats (Nair and Daniel, 1986).

Because of its geographic avoidance and subsequent evolution, the Western Ghats is one of the richest centers of endemism in India. Of the 4,000 species of flowering plants in Western Ghats, 1500 species are endemic (Nayar, 1996). The high level of diversity and endemism in Western Ghats has given it the status of one of the hot spots of the world (Myers, 1988). Two mega centers of endemism i.e. Southern Western Ghats and Northern Western Ghats fall in this region. According to Nair and Daniel, 2100 species of flowering plants are endemic to peninsular India, 'most' of which are 'confined' to the Western Ghats. More recent authors have suggested that there could be 1500 species of flowering plants endemic to the Western Ghats (Johnsingh, 2001). Although the exact number keeps varying with the author and time, what is of interest is that nearly 38% of all species of flowering plants in the Western Ghats are endemic. Further it is to be noted that 63% of India's evergreen woody plants are endemic to the Western Ghats (Johnsingh, 2001).

The Nilgiri Biosphere Reserve is very rich in plant diversity. The Nilgiri Mountains are considered as the most important centre of speciation of flowering plants in the Western Ghats (Blasco, 1970). About 3,200 species of flowering plants can be seen here of which 132 are endemic to the reserve. Of the 175 species of orchids found in the Nilgiri Biosphere Reserve, 8 are endemic.

The fauna of the Nilgiri Biosphere Reserve includes over 100 species of mammals, 350 species of birds, 80 species of reptiles and amphibians, 300 species of butterflies and innumerable invertebrates. 31 amphibians and 60 species of reptiles that are endemic to the Western Ghats also occur in the Nilgiri Biosphere Reserve (Daniel 1996).[2]

[2] For a list of endemic and endangered species of the Western Ghats, refer to Annexure II

Outlines of History

Botanical evidences pertaining to the maintenance of grassland cover in the upper Nilgiris are said to indicate human interventions in the eco-history of the region that go back to about 3000 years ago. The Nilgiri funerary structures dated between AD 100 and 1100 are considered by Noble (in Hockings, 1989:131) to be related in varying ways to ancestral Badagas, Kurumbas, Kotas and Todas. The political history of the region is linked to Early Kadambas, Gangas, Later Kadambas, Hoysalas and the Vijayanagar Kingdom. It is said that during the Vijayanagar times, settled agriculture expanded through the plateau region of Sigur, changing the rhythms of shifting cultivation practices. During Tipu Sultan's rule in the 18th century, the people of Nilgiris were familiar with land assessments and trade. The British took over the region in 1799 and with the establishment of a centralized revenue system, the role of people in resource management underwent vast changes that are part of the present study.

During the 1800-1860s, the British regime introduced plantations of tea and coffee and many exotic commercial tree species like eucalyptus, wattle and chincona. Teak, sandalwood and rosewood was also extracted from natural forests for revenue. However, it was during post-Independence times that the severity of ecological damage was felt in the area. In the 1950s migration into the area increased with agriculture opening up and river valley projects being undertaken all over the Sahyadris. Certain rules also led to large scale conversion of forests into agricultural land – an example was the Kerala Private Forest Act 1971, which allowed the state to take over private forests without paying compensation. This led to large scale deforestation (Prabhakar, 1994).

Over the years, the state has realised that development in this area can only be done keeping environmental concerns in mind. Though much remains to be done – the formation of the Hill Area Development Programme for some parts of the NBR was a welcome move. The ecological sensitivity of the area also led to vast forest patches to be declared as National Parks and Sanctuaries.

A Human Reserve

The NBR has a significant percentage of adivasi population, dependent on natural resources for their livelihood. Archaeologically, the region has some evidence of populations since Neolithic times. The presence of cairns, barrows, azarams, kistvaens, cromlechs, cave paintings, some pottery and forts suggest the same.

The diverse communities have had a symbiotic relationship in the past but are now fragmented and few in number yet strung together culturally. Their socio-economic situation is significantly deprived as the developments in the region have led to land alienation and the further marginalisation of these communities. A rather patronising attitude to these people, since the time of the British, has continued to build conventional development projects for them and no efforts have been made to assimilate their special link with the forests and the land.

The small indigenous population is engulfed by larger populations of migrants from different parts of the country. These immigrants have come to the area mainly for acquiring land for plantations, farm houses or resorts. These high populations use resources intensively and exert immense pressure on water resources of the area.

2

An Ecological Reserve Under Threat

The Nilgiri Biosphere Reserve is ecologically sensitive and vulnerable to changes that constantly threaten to engulf this fragile region. These include grazing pressure, demand for fuelwood, demand for small timber, fire, demand for green manure, encroachment, demand for Non Timber Forest Produce (NTFP), poaching and smuggling, development projects, land use practices, pesticides, soil erosion and water logging, increase in population density, pilgrimage and mining and quarrying. Some of the threats facing the region are elaborated below.

Extensive Plantations and Agriculture

Much of the pristine vegetation of the NBR has been replaced by plantations of tea and coffee, marshes converted into vegetable fields and vast stretches of high altitude wilderness planted with commercial forests. A large extent of the land use is flawed as the steep terrain of the region has been utilized for agriculture with little consideration for erosion.

In the Nilgiri district, tea governs the economy of the region. Previously forested lands were cleared for tea plantations to employ the migrants in general and the Sri Lankan repatriates in particular, by the Tamil Nadu Tea Corporation(TANTEA). This activity resulted in an economic boon, but an ecological disaster - promoting mono-culture, excessive use of chemical pesticides, fertilizers and an extremely dependent population. World prices determine the local price of tea, which fell drastically in the late 1990s, causing an economic drought and subsequent wide scale protests by small and marginal farmers in the plateau.

Besides tea, cultivation of vegetables on steep slopes is undertaken, which leads to soil erosion and lack of water retention. Potatoes, carrots, cauliflowers, cabbages, beans, beetroot are the main vegetables cultivated, all of which are grown with excessive use of chemical fertilizers and pesticides. Large agricultural tracts – such as those around Nagarhole, lie close to forests. The threat

of encroachment, use of chemicals in cash crop cultivation and grazing by domestic cattle are common in these areas.

Futile Forestry

The forests of Nilgiri Biosphere Reserve have suffered the onslaught of selective cutting of valuable timber (teak, sandalwood, rosewood) for more than two centuries. Introduction of exotic species for making army barracks and railway tracks during World War times was also widespread. Across-the-board plantations of wattle, eucalyptus and cinchona took over grasslands, removing distinct vegetation and the pasture lands of indigenous pastoral communities. In addition, extensive modification of the natural vegetation was undertaken by the Forest Department with the introduction of exotic commercial tree crop plantations and tea plantations.

After much pressure from environmental groups, all such activities have been stopped in the NBR, except in the Nilambur region, where teak plantations thrive and are regularly replenished by the Kerala Forest Department. However, tell-tale signs exist in the form of *coupes* (forest areas marked for felling), where timber logging was regularly done. These *coupes* have left their mark not only

Map III

Forest Plantations

on the condition of the forests, but also on the names of settlements, some of which are even presently referred to as Kil Coupe and Mel Coupe.

Fires, grazing, illegal timber felling and poaching exert their pressure today. Incidences of fire are common across the NBR in the dry season extending from January-March. Fires due to natural or manmade reasons cause wide scale damage in these areas and negatively impact wildlife. Such incidences are common in the Mudumalai Sanctuary and Sigur. Incidences of illegal timber felling and poaching are also high in the NBR. Most of the threats are from the western side – in the border areas between Kerala and Tamil Nadu and between Kerala and Karnataka. This makes the entire complex of national parks and sanctuaries, especially Wynaad, Nagarhole, Bandipur and Mudumalai susceptible to poachers. Nagarhole reports high poaching of elephants and has received huge amounts of negative publicity when frequent news of elephant poaching came to the fore. Organised poaching of mammals is rampant in the remote parts of the biosphere reserve, especially in the eastern part of the Moyar River. The Moyar Gorge region is isolated in nature and hence uncomplicated for poachers to carry out their activities. Reports occur, of large fish and mammals being hunted regularly from these parts.

Grazing is a major concern in these areas. Farming communities often keep large herds of cattle for manure. This practice is traditional - the adivasis take the cattle for grazing into the forests, sell the milk and give the manure to the farm owner. This system is called *pattis* or *hundis* and exists in Sigur, Bandipur and Nagarhole regions. Of late, these cultural links are broken due to land use change and crop preferences and so this manure is commercially sold in lorry loads to buyers in the region. However, the large numbers of cattle, dependent on a shrinking forest base are a cause of worry. Managers and environmentalists have been working towards reducing the grazing pressure in these forests. In Sigur and adjacent Mudumalai area, this practice has drastically reduced over the past three years. However in parts of Nagarhole, it is still common to see wild elephants and cattle grazing, together, on the banks of the Kabini.

Illegal Harvesting of Non Timber Forest Produce (NTFP)

A major occupation within the forests of the NBR, is collection of NTFPs, including medicinal plants. Always treated as a minor activity by the Forest Department – this activity has increased in the region, over the past few years. The collection of these products is often unsustainable, leading to their low populations and sometimes total disappearance of species from these areas. This is especially true of medicinal plants like *Rauwolfia serpentina* and *Saraca asoka*, which have become rare. The rules of collection vary from state to state, making it convenient to have cross border transactions. As the markets of these products are often informal and traditional, this is difficult to change. This problem is widespread in all forest areas of the NBR, but more pronounced in regions such as Sathyamangalam, Pillur, Wynaad, Nilambur and Attapadi.

Despite several measures being undertaken by the Government under Joint Forest Management, NTFPs are controlled by traders and middlemen. The system is largely exploitative of the adivasi collector and unsustainable for the resource itself.

Controlling the Waters

Rivers, reservoirs, streams, springs and ground water are all tapped in this region. Due to population pressures, demands from plantations and vegetable industry, water resources are over exploited. However, dry land agriculture is still common in the NBR as most of the major rivers have been tapped upstream, for hydel power production, culminating in reservoirs which feed the plains. Examples of these

include the Nugu, Kabini and Bhavanisagar Reservoirs. Pollution of water sources from human population concentrations (urban areas) and from the extensive use of pesticides is also high. Nilgiri and adjacent districts are among the highest users of chemical fertilizers and pesticides in Tamil Nadu state. The region has a number of factories with approximately seven major industries and 175 tea and other small scale industries (Daniel, 1996).

Besides, there are several industries in the base of the hills, which pollute river water extensively. Most of them are along the River Bhavani and fall within Tamil Nadu state. These include dyeing and spinning units, paper and sugar factories. In the past, a major polluting industry – the South India Viscose factory was closed down due to environmental lobbying. Small manufacturing units are often more polluting and need to be studied in greater detail. There is a need to address these issues, with catchment treatment work and protection of sources.

Uncontrolled Tourism

There is a high influx of tourists in the NBR region. The major tourism zones include the Siruvani Waterfall, with mostly local tourists who visit for recreation and leave behind solid waste in the form of plastic wrappers, bottles and more. The next major tourism belt is the Upper Nilgiri region based around the towns of Coonoor and Ooty. The visitors include visitors from outside the state, foreigners and day visitors from cities and towns of Tamil Nadu. The Ooty-Coonoor region is the hub of most tourist activities with the estimated number of people touching more than 1.2 million annually. The third zone is Sigur Plateau where wildlife tourism is in vogue. A consequent spin-off of the wildlife tourism enterprise is widespread reports of night safari and increased pressures on the meagre resources of this dry plateau. The fourth zone is Bandipur belt where a number of resorts have come up, adjacent to the Bandipur Tiger Reserve. This comprises visitors from parts of Karnataka and outstation visitors from other parts of India. The fifth zone is Nagarhole where a majority of the tourists are willing to pay more for high end services that include luxury-settings. The sixth zone is Wynaad where there have been recent developments in tourism and a number of middle to high end resorts have come up that cater to varying clientele. The seventh zone is Silent Valley National Park where only a limited number of tourists are permitted.

Of these seven zones, the Sigur and Ooty plateaux and Bandipur region are under severe pressure. Lack of civic sense among visitors to these places is felt in the wildlife environs. In Sigur and Nagarhole, it also leads to firewood cutting for tourist needs. This 'green greed' - has led to the mushrooming of several wildlife resorts, guest houses and camp sites in the area. Many private estates have converted to this lucrative business. e.g. in Sigur there are more than thirty wild life resorts and hotels which put severe pressure for resources in that plateau (Keystone, 2006).

Besides, there is little restriction on the number and kinds of vehicles that are let into the protected areas, especially in Mudumalai (Daniel, 1996). Roads have proven to be a major source of degradation of the forest regions and in fast forwarding exposure of adivasis to jetsetters from all over the nation. One particular example is the road that passes through Masinagudi and upto Ooty through the forested regions of Sigur. This road is exposed to vehicles that seek to avoid the long travelling time on the main Gudalur-Mysore highway.

Human-Wildlife Conflict

Due to indiscriminate land use and allocation of revenue/private land in the middle of forest areas, there is a high incidence of human-wildlife conflict in the NBR. This is mainly related to elephants, raiding crops and killing people or leopards picking cattle from the village. Human-wildlife conflict is fast becoming a critical threat to the efficient management of the vulnerable regions in the biosphere reserve.

According to World Conservation Union (World Park Congress, 2003), human-wildlife conflict occurs when wildlife's requirements overlap with those of human populations, creating costs to residents and wild animals. Direct contact with wildlife occurs in both urban and rural areas, but it is generally more common inside and around protected areas, where wildlife population density is higher and animals often stray into adjacent cultivated fields or grazing areas.

In the Nilgiri Biosphere Reserve, human-wildlife conflict is increasing with regard to mega herbivores. The elephant with a large home range and equally large food requirement has been among the most affected species. Numerous incidents have occurred in the past years and an effective mitigation strategy is still underway. The reasons that are causing these conflicts are many. The main reason can be

attributed to habitat fragmentation caused by human activity like reservoirs for irrigation and electricity generation, tea & cardamom estates and forest plantations. Wildlife Trust of India has done a detailed survey of these disturbed corridors and has put forth suggestions on what needs to be done to manage these habitats.

Human wildlife conflicts have far reaching environmental impacts. Threats to particular species is one consequence as animals are not able to cope with pressures on their natural habitat. A number of elephants in the region are electrocuted or fall in deep ditches meant to protect human settlements. Snakes, deer and small mammals are crushed under speeding vehicles. Loss of natural habitat coupled with habitat fragmentation is the most overriding cause of animal injury and death. This conflict causes immense damage to human groups too. Most forest villages suffer from crop depredation and damage to physical infrastrutucure such as water pipes, electrical installations and livestock. A study suggests that most conflicts occur within the reserve forest boundary which forms part of the home range of large mammals, especially elephants. In these cases, people who have encroached upon these reserve forests face maximum conflict situation (Thomas, 2006).

To mitigate losses, several physical measures have been taken to prevent animals from crop raiding and entering human habitations, the main ones being elephant trenches and electric fencing. Presently, some organisations, environmental and peoples' groups are trying out effective ways to tackle the problem of conflict. In recent years, such attempts include eco-restoration, removal of exotics, joining fragmented corridors through purchase of private land, promoting sustainable NTFP collection and ensuring effective wildlife protection.

3

Forests in the Nilgiri Biosphere Reserve

A veritable store house of natural wealth, the Nilgiri Biosphere Reserve is an irreplaceable paradise. Located at the meeting point of the Western and the Eastern Ghats, the vast eco-region harbours unique floral and faunal wealth. Within an area of about 5520 sq. km, there are as many as six protected areas including the sanctuary complex of Wynaad, Nagarhole, Bandipur, Mudumalai, Mukurthi and Silent Valley. The large contiguous extent of forest has the highest density of protected areas in the entire nation. The total area of the biosphere reserve is 5520 sq. km., of which 1240 sq. km. (22.4 %) is the core zone, 3239 sq. km. (58.6%) is the manipulation zone (forestry), 335 sq. km. (6.06%) as manipulation zone (agriculture) and 706 sq. km (12.78%) as the restoration zone (Daniel, 1996).

The Nilgiri Biosphere Reserve completely encircles the massive Nilgiri Plateau and extends over wide and diverse ecological, geological, cultural, climatic and geographic zonations. Due to enormous diversity, there have thrived distinctive forest types and numerous endemic species. The Reserve includes within its area parts of two of the twelve biogeographical zones of India (The Malabar Rainforests and Deccan Thorn Forests).

The NBR includes all the important forest types that are found in South India such as Tropical Thorn Forests, Tropical Dry Deciduous Forests, Tropical Moist Deciduous Forests, Tropical Semi Evergreen Forests, Sub Tropical Broad Leaved Forests, Tropical Wet Evergreen Forests, Southern Montane Wet Temperate Forests, Southern Montane Wet Grasslands and Subtropical Hill Savannas.

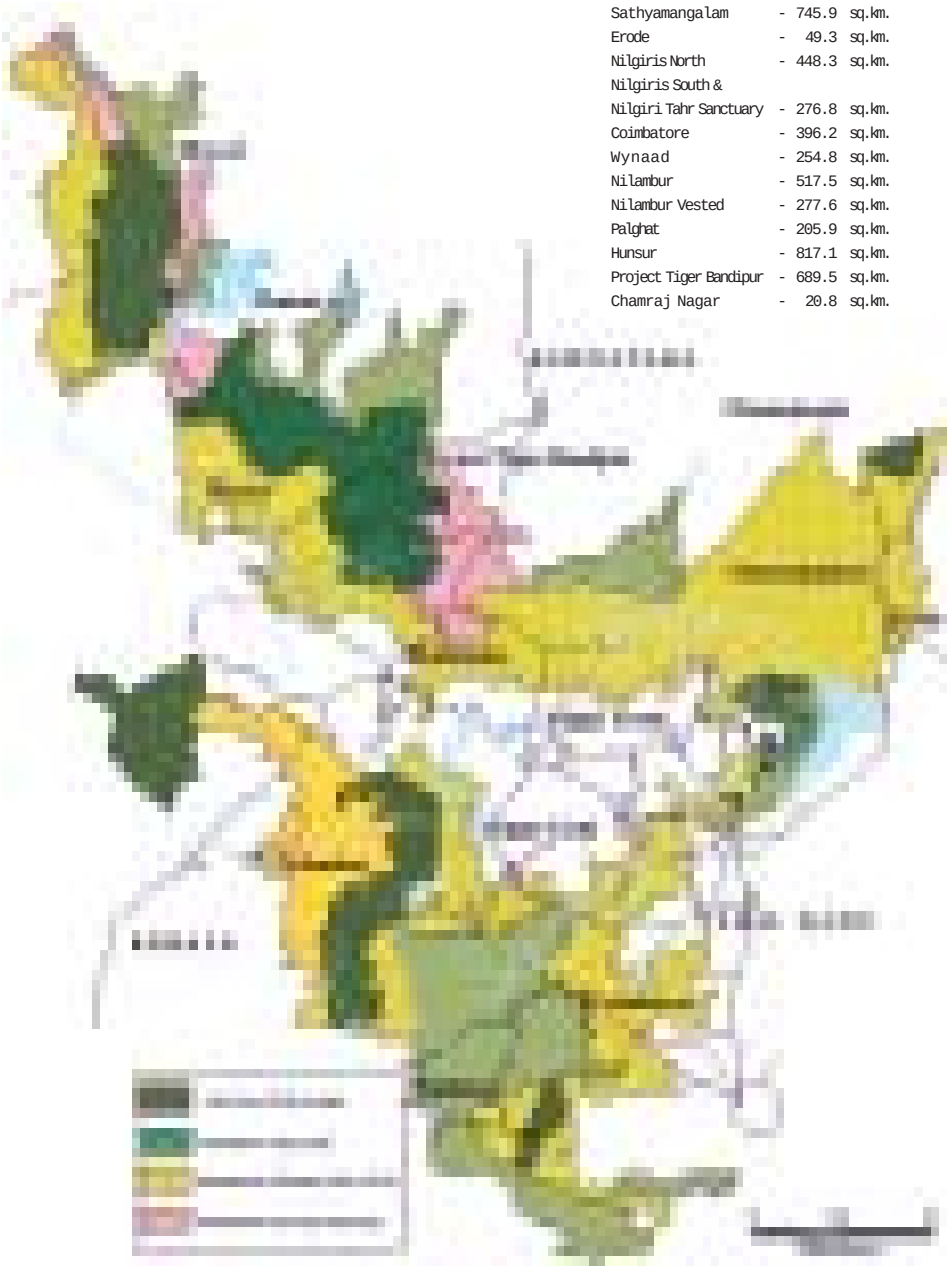
Forest Divisions

The entire land area stretches across more than eight revenue districts and forms the largest contiguous patch of protected forests in the nation. These forests though rich and diverse are also irrevocably transforming into a protected island. Human pressures from all sides, be it in Tamil Nadu, Karnataka or Kerala are pushing the forests and animals deeper inside these protected zones. The concern of proper management of Reserve Forests is also urgent for they do not receive the

Map IV

Forest Management

Mudumalai	- 321.2	sq.km.
Sathyamangalam	- 745.9	sq.km.
Erode	- 49.3	sq.km.
Nilgiris North	- 448.3	sq.km.
Nilgiris South & Nilgiri Tahr Sanctuary	- 276.8	sq.km.
Coimbatore	- 396.2	sq.km.
Wynaad	- 254.8	sq.km.
Nilambur	- 517.5	sq.km.
Nilambur Vested	- 277.6	sq.km.
Palghat	- 205.9	sq.km.
Hunsur	- 817.1	sq.km.
Project Tiger Bandipur	- 689.5	sq.km.
Chamraj Nagar	- 20.8	sq.km.



Map V

Protected Areas

level of protection as received by the protected zones. These large forests, if transformed into an island are likely to suffer immensely because of the complete stoppage of flow of biodiversity between different types and locations of forests.

The region is divided into core, manipulation and restoration zones that signify management regimes of protection, forestry operations and regeneration of degraded forests. The core zone largely comprises of the most protected parts of and parts of the Nilgiri Eastern Slopes and Minchkuli range of Sathyamanagalam Forests. A large part of the Reserve is classified as manipulation zone - this is a threat if logging operations are allowed in future. The restoration zones is mostly restricted to the Attapadi Forests that have suffered the relentless onslaught of man in the previous decades. Presently, the management of the Nilgiri Biosphere is under the administrative and political jurisdictions of respective state governments.

Table II

Protected Areas of the NBR

No	Name	District	Area (Ha)	Notification
1	Mudumalai WLS & NP	Nilgiris	21776	27.01.40
2	Mukurthi NP	Nilgiris	7846	15.10.91
3	Wynaad WLS	Wynaad	34444	03.05.73
4	Bandipur NP	Mysore	87420	15.03.85
5	Nagarhole NP	Mysore & Kodagu	64339	01.04.83
6	Silent Valley NP	Palakkad	8952	15.11.84

The autonomy of the states and different interpretations of the law by the forest departments of these states, has resulted in minimal cohesive management of the NBR. A good example is the policy regarding honey collection itself, where Karnataka and Tamil Nadu ban collection officially; it is allowed in bordering Kerala. This leads to cross border trade, a string of middlemen and exploitative prices.

Forest Types

Pioneering work was done on classification of forest types and vegetation by Champion and Seth in 1968 and the classification still holds forth against newer classification because of its comprehensive nature. However, a need was felt to incorporate further data as much more knowledge was assimilated after the publication of the previous classification. The issue regarding classification does not get settled with newer versions of classifications because of the bewildering successional stages and diversified local adaptations. The French Institute of Pondicherry has worked on developing a Forest Map of South India taking several parameters for reference. This system of classification is useful for gaining insight on specialized niches of vegetations. In this book, we have attempted to incorporate both the work by Champion and Seth as well as the Forest Map of South India by the French Institute. Following is a description of forest types (see also Annexure III).

Evergreen Forests

These forests are characterized by giant trees, multilayered species variation and luxuriant vegetation. The giant lofty trees can go upto a height of 150 feet or more and are often supported by huge buttresses. These trees offer refuge to a multitude of life forms including mosses, ferns, epiphytes, orchids, birds and often small animals.

Map VI

Evergreen Forests

The annual rainfall is more than 2000 mm with a maximum of 4 to 5 dry months, and the mean temperature higher than 15^{0}C throughout the year. The soil is loamy laterite. The main NTFPs are wild nutmeg (*Myristica* Spp.), cinnamom (*Cinnamonum* Spp.), cane (*Calamus* Spp.), *Piper longum*, honey and other herbs.

They are located in the western part of the reserve in Kerala and Tamil Nadu, Silent Valley, Attapadi Reserve Forest, New Amarambalam, Nilambur Division and small pockets of Coimbatore Division in Tamil Nadu.

Semi Evergreen Forests

These forests are moist and occur as a transition zone between the Evergreen and Moist Deciduous Forests. The trees are slightly lower in height and usually found in the lower or more accessible regions of the Evergreen Forests. Buttressed trees are quite common, lianas are also abundant.

Map VII

Semi Evergreen Forests

There are two possible transition zones for these forests - either they are secondary forests moving towards the evergreen climax or degraded forms of the Evergreen Forests. In some degraded areas around habitations, bamboo (*Bambusa arundinacea)* and sandal wood (*Santalum album*) are also found.

Lagerstroemia lanceolata is the predominant deciduous species. The other main species are *Bischofia javanica*, *Calophyllum polyanthum*, *Tetrameles nudiflora* and *Dalbergia sissoo.*

Shola Montane Forests

The Sholas are found intensively in the Nilgiri South Division and adjacent areas of Kerala in the upper reaches of Silent Valley, Attapadi and New Amarambalam. They are also highly concentrated in the Western Catchment area, forming part of the Mukurthi National Park. They are accompanied by grasslands and importantly, the origin of most of the rivers of the zone. The trees are short to medium height (7-20 mts), have small dense leaves and make a thick canopy. There

is a thick concentration of mosses and ferns. They have a high water retention capacity. They are also classified as the Shola Montane forest type due to their slow growth, high susceptibility and confined geographical area – they are referred to as "Living Fossils". The average rainfall is around 1000-1200 m with a maximum dry season of not more than a month.

Map VIII

Shola Forests

The main trees in this forest are *Michelia nilagirica, Bischofia javanica, Calophyllum tomentosum, Toona ciliata, Eugenia* Spp., *Ficus racemosa, Mallotus philippensis, Rhododendron nilagiricum, Persea macrantha, Litsea floribunda,* etc.

Map IX

Grasslands

Grasslands

They exist alongside the Sholas at high altitudes. The grasses are generally less than 80 cm in length. Some species are *Cymbopogon polyneuros* and *Eragrostis nigra*. These grasslands have reduced due to plantation of eucalyptus and acacia as commercial forests, during the time of the British.

Map X

Moist Deciduous Forests

Moist Deciduous Forests

These forests are restricted to parts of Nilambur Valley, and even here they have been mostly converted to teak plantations. Wynaad, the south western part of Nagarhole and western part of Mudumalai also contain remnants of this type. Rainfall is around 3000-4000 mm with a dry season of 3-4 months. The soil is generally red lateritic loam. They are also classified as Moist Deciduous Teak type.

The undergrowth includes many evergreen shrubs and small trees. The trees reach a height of 25-30 mts. Buttresses, lianas and dense undergrowth are common. Some species are common to the Dry Deciduous forest type also.

The common trees include *Tetrameles nudiflora, Stereospermum personatum, Dysoxylum binectariferum, Ficus nervosa, Ficus racemosa, Pterocarpus marsupium, Bombax ceiba, Terminalia bellerica and Terminalia tomentosa.*

Dry Deciduous Forests

These forests are found along the interstate boundaries of the three states, falling partly within Wynaad Sanctuary, Bandipur Tiger Reserve and Mudumalai Sanctuary. The main species include *Acacia nilotica, Anogeissus latifolia, Tectona grandis, Azadirachta indica, Butea monosperma, Hardwickia binnata, Cassia fístula, Dalbergia paniculata, Sterculia urens,* etc.

Map XI

Dry Deciduous Forests

Map XII

Scrub Woodlands

Scrub Woodlands

Scrub woodlands are found in fire prone areas with wide spacing of trees. It is found along the northern part of the Reserve with a high proportion of fire resistant species. *Phyllanthus emblica*, *Diospyros melanoxylon* and *Bridelia retusa*, *Tectona grandis*, *Anogeissus latifolia*, *Cassia fistula* etc. are found here. Besides, *Acacia nilotica*, *Acacia leucophloea*, *Butea monosperma* and *Bauhinia racemosa* are also found.

Forests for Whom?

The detailed description of the forest types with details on the trees, lianas, shrubs and herbs point to the importance of the natural heritage. These forests are the source of several rivers, streams, swamps and marshes cumulatively bringing water to the region. Forests mean many things to many people. It is a source for food for some, a supply of medicinal plants for others and a valuable economic source of timber for many. All these are traditional demands that have been met by the forest since life began on earth. There were infact few forests that has not brought benefits to either man or animal. This role of the forest as a mutual agent of assistance is acknowledged by millions. For them, forest is the omnipresent philanthropist.

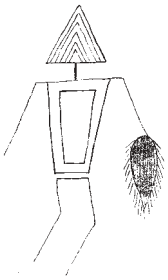
However, over the past decades, the importance of the rapidly declining forests has been grudingly acknowledged by people who receive its benefits from distant locations. A person in a city is now forced to pay higher amounts for that piece of furniture that was a fraction of the price some years back as compared to the present. People now realise that forests need to be conserved. Is it to be conserved for the benefit of urban conglomerations in commercial markets or is it to be conserved for people who live in adjacent areas and subsist on them, or is to be conserved to protect the invaluable wild flora and fauna that enrich the planets' biodiversity.

These issues are related to the ownership, use and management of the forests. How will the resources be utilized and by whom, for whom? The State, representing many interests, including that of the demand of the distant consumer has larger concerns in mind and often brings about changes in forest laws to meet the larger objectives. Dams, logging, mining and large projects are undertaken to meet these goals and permenantly alter these areas and their ecology. However, it is difficult to ignore the communities who have traditionally lived by the forests and accessed it for their livelihood. Can they be made partners in forest management and continue to protect its resources, undertaking the least damaging activity of NTFP collection, rather than large scale mutilation of forest regions.

Recent advocates of conservation promote exclusion of forest dependent people from their homes for the larger interest of the society, a concept that is opposed

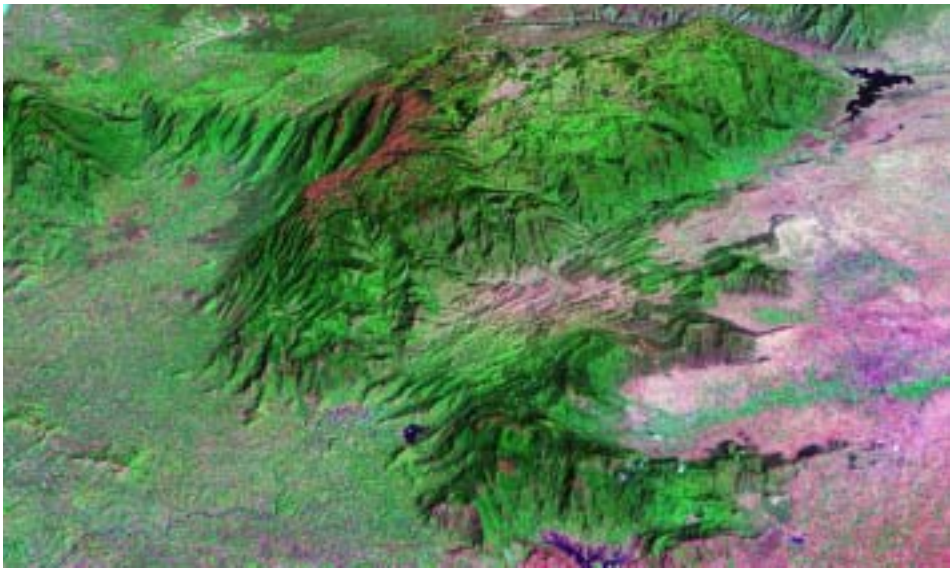
by groups who actively promote encroachment of displaced groups claiming that these forests are their own.

There is a wide variety of choices people have made for themselves, forgetting that the forests inherently comprise three elements – flora or trees and shrubs, fauna or animals and man. These three are intrinsic to the very identity of the forests. But in the divide between many interest groups, it is easy to focus on the importance of any of these three components individually. Through an isolated window, focus on either one of the three is likely to lead to an imminent collapse of the forest ecosystem. Forests will then cease to exist as they do now and remain but a mere plantation or a forest village or a zoo or a research station.



Map XIII

Physical Map of the Nilgiris



This map shows the Upper Nilgiri Plateau and the
numerous offshoots that extend into Kerala and Karnataka.
The lower portion is the Attapadi region with the
Coimbatore plains on the right and Kerala plains on the left.
The upper portion consists of the
Bandipur region extending into Nagarhole.

Map XIV

Indigenous Communities

4

People of the Nilgiri Biosphere Reserve

The Nilgiri Biosphere Reserve is home to indigenous communities who have traditionally been dependent upon natural resources, utilizing and surviving on forest resources for a long period of time. These distinct ethnic groups have small populations and live in geographical concentrations, often distinct from one another (Keystone, 1994). It forms home to several adivasi communities, including one of the surviving hunter-gatherers of the Indian sub-continent - the **Cholanaickens** in New Amarambalam Forests of Nilambur region. The groups include the **Todas, Kotas, Irulas/Kasabas, Aalu Kurumbas, Paalu Kurumbas, Jenu Kurumbas, Kaadu Nayakas or Kattunaickens, Sholegas, Betta Kurumbas, Urali Kurumbas, Kaadu Kurumbas, Paniyans, Kadars, Cholanaickens, Pathinaickens, Mudugas, Adiyans, Arnadans, Kurichiyans, Mullukurumbans, Malaivedans, Panjari/Badava Yeravas, Tani Yeravas, Karimpalans, Pathiyans, Malapulayans, Mala Kudiyas, Muduvas, Mala Malasar, Malapanikkars, Malamuthans and Thachanaadans.** Besides, there are groups like the **Badagas, Wynaadan Chettis** and **Manthadan Chettis,** who are not classified as Scheduled Tribes but are part of the ecological and social heritage of the Nilgiri region.

Considering the vegetation and land use of each zone, practices amongst these communities vary. Land distribution, forest dependence and modern developments vary within the Reserve, depending on the accessibility, social affiliations and state policies. However, these societies did not live in isolation but had close cultural and social links amongst them. This formed the 'society' of what is presently declared as the Nilgiri Biosphere Reserve till the advent of the British in 1820.

After the arrival of the British, forest lands were taken over by the State and 'worked' for revenue in different ways. The ancestral domains of adivasi people were not a consideration. So from a life where the forest was a large home, most adivasis became landless and unable to stake claim over their lands. The process of land

alienation has since, only become more intense, with increase in population of migrants and settlers. Further changes in the forests with the advent of commercial forestry and logging, changed forever the status of the adivasi's lifestyle. As an example, a detailed survey done in the Kotagiri and Coonoor taluks of Nilgiri district shows that 39% families are landless, 14% own land which is less than 1 acre and 35% between 1-2 acres. 11.8% own land which is between 2-3 acres. (Keystone, 1998)

The state of the adivasi community today has been very well summed up by A. William Jebhadas and William A. Noble, "As the plantations spread, Irulas lost usufruct rights over considerable tracts and were forced to contend with large, capitalistic, efficiently run enterprises close to their own hamlets. Their main benefit of easy employment on plantations brought with it the termination forever of any seasonal dependence upon gathering, trapping, or hunting. Irulas did also benefit from the modernizing amenities associated with plantations. When eventually most of them worked on plantations, they led a dual existence, one related to daily work rounds, largely controlled by foreigners, and another, still tied to many of their own traditional ways." (In Hockings, 1989:303).

The indigenous people of the Nilgiris are amongst the most primitive groups in Southern India. Though living in resource rich areas, they suffer from what can be termed material poverty. Being ecosystem people, the indigenous communities have maintained a lifestyle that was not exploitative of natural systems. However, surrounded by relatively prosperous communities of migrants, indigenous communities feel a deep sense of apathy at their present condition and often tend to blindly follow the ways of the dominant and richer communities. This has an impact on their culture, food and overall lifestyle.

As mentioned in a previous chapter, the gamut of factors leading to rapid degradation of forests and changes in policy, demography and land use has had an impact on indigenous communities – these include loss of tenural rights over forests, loss of food security, conversion of available lands into non food crop-lands and a high degree of dependency upon wage labour especially in the estates that dot the higher fringes of many adivasi settlements. This has also led to a breakdown in their community governance systems and indebtedness to money lenders.

Association between Forests and People

The adivasis of the Nilgiris are traditionally hunter gatherer communities and depend on the forests for their existence. Usually, cooperative ties exist between communities, each covering their own 'foraging' territories. The people collect NTFPs for trade, honey being one of the major items. Other items collected for trade are mainly resin, gooseberry, myrobalans, soapnut, *eecham* grass, wild pepper and nutmeg, etc. The collection is a major source of seasonal livelihood for the people.

Adivasis began using NTFPs many centuries ago, as a result of which, their indigenous and ethno-botanical knowledge of their surroundings is immense and diversified. Numerous instances have been documented wherein the adivasis shows precise knowledge with respect to the properties of a particular plant. Traditionally they used to harvest species based on a time tested schedule resulting in minimal harm to the harvested species. Besides adivasi paintings and oral tradition continually make a mention of their relations with the forest. Traditional *vaidyas* are still the mainstay for indigenous people and their services taken great use of. This reciprocal relationship underscores the importance and need to preserve NTFP resources. Promotion, preservation and documentation of indigenous knowledge can go a long way to achieve this objective.

Traditional and cultural uses of the forests are also high for most adivasi communities. Their deities live in the forests, with the ensuing protection often resulting in large tracts being nurtured as 'sacred groves'. The rules for the use of such forests is strictly governed by the community and punishments meted out to those who violate the unwritten law. Non-commercial use of forests is also high amongst these communities – where the forests are accessed for local medicine, fibre, food, fuel, fodder, timber, thatching and so on. These uses are not regarded as significant, mainly because they do not contribute monetarily to the national economy. However, as a select list of some of the important non-commercial NTFPs suggest, they form an invaluable part of the social and cultural lives of the people. The following table takes a look at several plants that are highly valued by adivasis and used in numerous ways in their daily lives. These wild foods and medicines are essential for nutritional intake of the people and is an integral part of the adivasi culture.

Table III

Select List of Non-commercial NTFPs

Botanical name	Irula name	Part used	Use	Vernacular names
Acacia pennata	*Seengai*	Tender leaves	improves body strength	*Vellai indu* (T)
Amaranthus spinosus	*Mulla/Mullu*	Tender leaves	reduces excess water from the body	*Mullu keerai* (T)
Amaranthus viridis	*Kuppai dagu*	Tender leaves	improves digestion and cures nervous disorder	*Kuppai keerai* (T)
Asparagus racemosus	*Neer muthi*	Tuber	cures stomach disorder, removes stone in the urinary tract	*Thaneervittaan kizhangu, Kadamoolam, Ammaikodi, Nili chedi* (T)
Boerhavia diffusa	*Searandai/ Kurujai*	Tender leaves	chest pains	*Mookkarattai, Saarai* (T)
Cardiospermun halicacabum	*Sipotalie*	Tender leaves	cures pain in knee joints	*Modakathan keerai (T)*
Cassia tora	*Thagarai*	Tender leaves	cures skin disease	*Tagarai* (T)
Celosia argentea		Tender leaves	quenches thirst	*Pannai keerai* (T)
Cleome gynandra	*Bholae chedi*	Tender leaves	secretion of milk, digestion	*Nalla velai* (T)
Coccinia grandis	*Thondai*	Tender leaves, fruit	cure for diabetes	*Kovay* (T), *Kovakaya* (M)
Decalepis hamiltonii	*Maagalie*	Tuber	improves digestion and relieves stomach disorder	*Maahaali Kizhanku, Mavillinga Kizhanku* (T)
Dioscorea oppositifolia	*Riya*	Tuber	cures nervous disorder	*Verrolaivalli, Malayan kizhangukoddi, Kavvala kodi, Thavai kachchu* (T), *Kanji (M), Bellarai* (K)
Dioscorea tomentosa	*Nurai*	Tuber	improves digestion and immunity	*Vallaikodi, Chedhukkandhi (T), Nuran, Chaval, Koran-pidan (M), Nurai genusu (K)*

Ficus racemosa	*Atthi*	Fruit	purifies blood, improves digestion	*Atthi (T,M,K)*
Flueggea leucopyrus	*Poolie*	Fruit	cures gastric troubles	*Madhuppullaanthi, Vellaipoolaa* (T)
Ipomoea staphylina	*Ugina kodi*	Tuber	cures piles	*Onaan kodi* (T)
Moringa oleifera	*Murungai*	Tender leaves, fruits	improves appetite and digestion	*Murungai* (T), *Muringa* (M)
Opuntia stricta	*Chappathi kalli*	Fruit	quenches thirst	*Nagathali, Sappathikalli* (T), *Palakakkali, Nagamullu,* (M)
Phyllanthus emblica	*Nelli*	Fruit	cure for anaemia, cleanses intestine	*Nelli (Tam, Mal)*
Schleichera oleosa	*Puli pooca*	Fruit	cures gastric troubles	*Puvan* (T), *Puvam* (M), *Chakota* (K)
Scutia myrtina	*Sodalie/ Bata sodalie*	Fruit	improves digestion	*Tuvadi* (T)
Solanum nigrum	*Kakkai / Manathakali*	Tender leaves	relieves stomach ache & mouth ulcer, removes worms from stomach	*Manathakallie keerai, Milaguthakkaalie* (T)
Solanum torvum	*Sundai*	Fruit	removes worms from stomach	*Sundai* (T),
Tamarindus indica	*Sulla maram*	Tender leaves, fruit	appetiser	*Puli* (T), *Amlam* (M), *Hunesegida* (K)
Ziziphus jujuba	*Elanthai,*	Fruit	improves digestion	*Yellandae, Ilantha* (T), *Elesi Cherumali* (M), *Yelchi* (K)
Ziziphus oenoplia	*Sallie, Suri, Sodalie*	Fruit	secretion of saliva	*Kottei* (T), *Mulli* (M)

Adivasis and Subsistence Agriculture

Traditionally, most communities grew mixed crops of millets through the practice of shifting cultivation. Now, this mode of cultivation is largely discontinued with commercial crops having taken over homestead and marginal lands. The main crops now grown are tea, coffee, vegetables, paddy, banana, ginger, corn and millet. Mixed agriculture has reduced drastically and is not followed as an intensive practice.

However, a persistent problem with agriculture is that it requires investments of time and money; it is rarely remunerable in rain fed regions and crop destruction from wild animals is also a constant threat. Thus, agriculture continues to be a major gamble increasing the vulnerability of dependent communities, more so in the drier parts of the Biosphere.

In addition to collection of forest produce and subsistence agriculture, wage labour is a major occupation. Several adivasis work in agriculture fields and in tea and coffee estates that dot the upper reaches of the Reserve. A significant amount of wage includes labour for the Forest Department, Electricity Board and local infrastructure work for the revenue and panchayat bodies. In several villages, wage labour supersedes most occupations as it assures a constant supply of cash. However, other than providing direct income, wage has numerous drawbacks. People depend heavily upon this form of employment and refrain from carrying out traditional activities such as NTFP collection and agriculture. This has resulted in loss of traditional skills and inability to carry on these activities in the future generations. The most important relates to the loss of food sovereignty and nutrition.

The dependence upon wage labour is summed up best in the words of Jamman from Kil Coupe village in Kotagiri taluk. He says that “the number of days in a week for wage labour is dependent upon food availability in the house. Only when the reserve comes down to 1-2 days food, do I start thinking about going for work. Usually a week’s provisions costs me Rs. 200/- (for 2 people) and can go upto 500/- if the family is large. We do not keep any substantial reserves of cash. If one person is ill, the other will go for work and if we are short of money, we will take a loan. Some people from Sirumughai or the tailor at Mamaram, lend money regularly. Usually, a loan is taken to spend on `something more than food’ or for

festivals and funerals. Wage work is omnipresent and one of the main sources of income generation for the entire village".

Some relevant facets of Adivasi life today are the following.

A Saturday Wage Syndrome

Currently, the choice of wage labour is the best option for most adivasis. Landless families have no option but to work as estate, farm, forest or road workers. Those with marginal lands – cannot depend on it for returns and livelihood. Rain fed agriculture on steep mountain slopes cannot sustain a family. Besides, the inputs required for initial land work is very high and no family can afford it. The location of their villages, usually very close to forest areas, also make them victims of crop raiding by wild animals.

In a number of cases, across the NBR, it is a common sight to see adivasi people working on other peoples' lands for wages ranging from Rs. 30-50/- per day, while their own lands are barren. The number of women going for regular work is much higher than the men. Rarely will an adivasi work for more than 3-4 days a week, wherein he can earn between Rs. 200-300/-. This includes NTFP collection work. The rest of the time is spent on other personal activities. This wage limit is now a benchmark, against which the amount of work to be done, depends. Honey collection is one of the activities, which usually can earn them higher wages. Even adivasis who have migrated for wage work to plantation areas like Coorg, come back during good honey seasons.

Therefore, the number of days people work and what activity they take up depends on the kind of remuneration available and the season of the year. According to findings from a survey, adivasis go for collection of NTFP starting January and February and end with the honey harvest in May-June. This period is interspersed with some daily wage plantations labour work. Between July-November, the people in the upper plateau have no option other than wage labour, but in some areas, it is difficult to get any employment opportunities. According to Nanjan from Kallampalayam, "after stocks of cultivated millet are over, it is often difficult for some people to survive - at that time we have to collect different roots from the forest to supplement our food." (Keystone, 1998)

The Moneylenders-Traders Wrap

Usually, their meagre earnings are just enough to meet their daily needs. In times of illness, festivals and funerals, they borrow at exorbitant rates of interest from local money lenders. Repayment of these loans, by taking more loans or selling their homestead produce like coffee and pepper, is common. It is common to have loans of Rs. 600-2000/- which are taken for meeting daily needs or for undertaking funeral rites, marriages, festivals and medical treatment. In the village, a debt of Rs. 800/-, which needs to be repaid in instalments of Rs. 100/- each, is done so over a period of ten weeks wherein the lender earns Rs. 200/-, lending at 120% per annum! Sometimes, larger loans are taken for carrying out one-time agricultural activities, which remain unpaid if the crop fails.

Line houses & Colonies

Traditional adivasi villages are widespread with houses and gardens around. There are very few such villages in the NBR now. Most people have been settled in 'line houses'. The design and layout of these houses are decided by the government to `provide all facilities at one place'. This has also been administered in areas,

Adivasi Line Houses in Boothanatham

Traditional Paddy Fields, now inside a Sanctuary

where people have been relocated from Protected Areas and settled outside the boundary. This total dependence on government for managing their settlements has killed the spirit of the independent adivasis, and made them move from self sufficiency to dependence. A combination of these factors has eroded the local governance and leadership within the community.

Ration Arisi – Food & Nutrition

The change in land, society and governance has altered the food habits of the people of this region. With slash and burn agriculture and hunting declared as illegal, they do not produce either grains or the proteins, which they obtained earlier from these sources. Most families now depend on the subsidized ration rice (*arisi*), which is part of the public distribution system. The health and nutritional status of these people, especially women, is abysmal. Ailments ranging from anaemia, sickle cell anaemia, general debility and child bearing problems are common.

Profiling the Communities

The following text describes some of the communities in this region. This is a brief description, based both on primary and secondary studies. Special emphasis is given to their livelihood strategies and the present relationship to the forests. The major honey dependent communities are described in greater detail.

Hunter-Gatherers/ Foragers

The way in which man relates to nature, often governs how resources are used, conserved or destroyed and to understand this, is critical. Hunting and gathering follows a philosophy of taking from nature, which is bountiful. For years, the activities of hunter-gatherers have interested many researchers. According to some researchers, it gives them more time for leisure and allows them to take what they can harvest. Hunter gatherers depend on the forest for food and for collecting items of commercial exchange value. A good example is in the case of Aalu Kurumbas who collect all types of honey, but do not sell *Apis florea* (*kolan jenu*) and Dammer bee honey, using it for their own consumption and as medicine.

Kurumbas form the largest numerical group among hunter gatherers and are known by several names in different regions. The group is dived into several sub groups and the Jenu, Mullu, Urali, Beta and Aalu are all considered as Kurumbas.

Aalu Kurumbas

Mostly residing in the southern and eastern belt of the mid ranges of the Nilgiris district, the Aalu Kurumbas have been historically known for their sorcery powers and providing medicine from the forest. Their name in the Nilgiri context is said to indicate that they were 'jungle-dwellers'. The Aalu Kurumbas are divided into two endogamous groups: the *Nagara* and the *Bellaga*. These two are further divided into many clans or *kulams*.

Traditionally, a *mothali* administers the village with the help of three assistants; one specialising in agricultural issues, one for marriage issues and one who works as a messenger or spokesman. The settlement size varies from 3-60 households, with an average of 14 households and a population of 40 people. These are usually dispersed settlements or a few huts adjacent to Irula villages.

Usually, an Aalu Kurumba village or *motta* or *kombai* was made of five to six huts which were constructed using bamboo, secured with mud and supported by a tiled roof. Today, these Kurumbas are settled in villages, adjacent

Map XV

Aalu Kurumba Villages in the Nilgiris

to forests, eking out their living, partly by working on their own lands, working for wages in nearby estates or collections from the forest. Many now live in the government housing schemes that are brick houses with concrete roofing, commonly known as line houses - in rows, with flat drying yards in the front.

These people are today becoming part of the world around them, abandoning traditional ways of life due to numerous forces which operate on the beleaguered community - e.g. the adivasis of Jogikombai have shifted from their remote village of Erukalkombai. The homesteads are often unkempt, close to large rocks which they use for various chores like drying, cleaning, washing, sharpening tools, cutting firewood, etc.

Kurumbas collected myrobalans, barks and roots, both for use and exchange for grain and salt. They also practiced slash and burn cultivation with millets, an activity uncommon now.

Kurumba Art and Dance

Kurumba art is traditionally practiced by the male members, temple caretakers, or priests. The women of the family contribute to the decorations at home in the form of borders around the door and windows and *kolams* on the floor. The Kurumbas share a common musical culture with other Nilgiri tribes. Bamboo pipes (*kuvalu* and *bugiri*), mono faced drums (*tambatte*) and two faced drums (*are*) are popular instruments. Themes are either balladic or associated with death and marriage rituals. In dance there are two kinds: the *gandesa attam* is performed by the men while the slower version *yen attam* is performed by the women. However, it is only the men who take part in the theatre. Staged by the firelight or under moonlight, both the female and male roles are enacted by men alone. Themes are often punctuated with comedy (National Folklore Support Centre, 2000). The rock paintings of Kurumbas are also well known and a few sites have been found including one at Vellarikombai village below Kotagiri.

Life-style of the Kurumbas

The Kurumbas maintain a close link with the Badagas, dispensing the traditional ethno-medicine and providing music at some of Badaga festivals and rituals. This also has given them the opportunity to collect and provide items like *dhupa* (*Canarium strictum*), honey, bamboo baskets and *eecham* (*Phoenix loureirii*.) brooms. Though the Badagas, do not grow grain any longer, some items like the above are still exchanged with Kurumbas, but for cash.

The foraging pattern of these adivasis is somewhat specialized, as it deals more with medicinal plants and honey. Most of the elder Kurumbas have deep knowledge about medicinal plants. Most Kurumbas have been involved in honey collection from the large Rock Bee combs on high cliffs. These adivasis do not usually collect honey from trees - it is left for the Irulas, who also live in the same area, often in the same settlement.

They presently number 1732 people in the Nilgiris and 1612 in the Attapadi hills (Keystone, 2005 and ITDP, 1999).

Kadukurubas

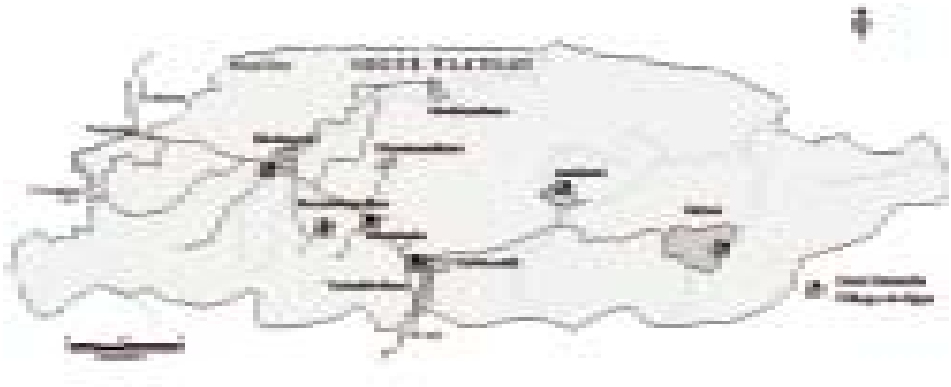
This community mainly lives in the Mysore district of the Nilgiri Biosphere Reserve. It is difficult to distinguish between the two communities, as they are very similar in their lifestyle. However, detailed studies of kinship may reveal different entities. These people also depend on different means of wage work, forest collection and mixed agriculture. They are good bamboo basket makers and are also skilled in forest labour work including the trapping of wild elephants. Their population is estimated at 15,000.

Jenu Kurumbas

These people, living in the northern part of the reserve, are named such due to their skill in honey collection (*Jenu* means honey). These Kurumbas are concentrated in the Mysore and Kodagu districts of Karnataka. Cultivable land has been given to these communities, though they are traditionally hunter-gatherers. Some of the people undertake seasonal agriculture or else depend on wage labour. They collect forest produce, mainly honey during the season and travel sometimes across the forest, to Kerala, to sell produce. They are socially organized into groups and *sangams* in different zones. Ulrich Demmer has described this gathering community on the northern slopes of Nilgiris. He further adds, "But since the establishment of Reserved Forest Areas and the wildlife sanctuaries of Mudumalai and Bandipur (in the middle this century), the Jenu Kurumba are deprived of their rights to forage in these forest areas permanently and are forced to live in settlements at the periphery of the sanctuaries and Reserved Forest Areas. In the forest areas however, they are entitled to gather the so-called `minor forest products' .....and the Jenu Kurumba are engaged throughout the year....for that purpose they form gathering camps moving through the Reserve Forest Areas. However they return to their settlements, (either as the whole camp

Map XVI

Jenu Kurumba Villages in Sigur



or simply as single conjugal pairs) in cycles lasting from three to five days. After selling their gathered products to the Society, the Jenu Kurumbas, after a stay as short as possible in the settlement, buy provisions for the next gathering trip and return to the forest.

But most of the time there will be several conjugal pairs, who move together in search of minor forest products, forming gathering camps. Even though these camps do not co-operate in the actual process of gathering, their members are expected, due to their kinship position, to support and help each other in case this should be necessary.....Such camps are called *jodi* by the Jenu Kurumba, a term denoting a 'pair', a 'couple', but also more generally 'those who are one, united and equal'." (Demmer, in Hockings, 1997:164).

Kattunaickens

The Kattunaicken get their name from the words *kadu* (forests) & *nayakan* (leader/ chief) and their synonyms are the *Jenu Kuruba, Kattunayakan, Then Kuruba, Then Kurumban, Jenukoyyo Sholanayakas and Naicken* (Hockings, 1989:249) though these alternate names are largely tentative.

They live in the northern, northwestern, and western foothills of the Nilgiri region in what is usually referred to as the Nilgiri Wynaad or the southeastern Wynaad. Their number was roughly estimated at 1400 in 1981 but could have increased in the present time. Before Nurit Bird-David's pioneering research, they had not

been previously documented in great detail. In the Nilgiris too, Kattunaickens are often referred to as the Jenu Kurumbas and vice versa, though this a case of mistaken identity for both the groups (Nurit Bird-David, in Hockings, 1989:255)

Kattunayakan is also the name of a Telugu speaking immigrant community in Tamil Nadu proper and has led to continual confusion, at least in the minds of census authorities, with reference to the exact population of these people.

There are small conglomerations of Naicken hamlets situated in a pocket amidst an area populated by other people, and nearly cut off from other similar conglomerations. Presently, the Kattunaickens live near or inside estates or are settled just outside the Mudumalai and Wynaad Sanctuaries. The concentration of the Kattunaickens is in the Wynaad District. Some Naickens, especially those living inside the Mudumalai Sanctuary and in Wynaad, have special affiliations with Manthadan Chettis and the Mappilas, working in their paddy fields and supplying them with forest produce, including firewood. They have their own language which is used among themselves; with other non-adivasis, they speak Malayalam or Tamil.

Map XVII

Kattunaickens in Gudalur

They live as a nuclear family and follow patrilocal residence. The settlement sizes are very small, with an average of 5-8 households; sometimes just 1-2 families can be found living together. The groups used to shift traditionally but restrictions placed upon them have led to a sedentary lifestyle. At present, the Naickens live with very few assets in small bamboo huts and are extremely shy in meeting outsiders. The primary occupation is based on hunting and gathering, especially honey; they are in fact amongst the most important honey collecting communities in the region. Around their houses they grow a little ginger, coffee, pepper, tapioca and yam - but are generally not cultivators. The Kattunaickens are experts in basketry. In current times, labour has become the primary means of livelihood with food gathering being relegated lower down the order, primarily due to restrictions on travelling and access to forests.

Betta Kurumbas

The Betta Kurumbas live in northern parts of Gudalur taluk of Nilgiris district, extending into the Mysore district in the north. These people live in large settlements of 60-80 households. Most have no land and depend on wage labour and NTFP collection for a large part of the year. With the rapid change to tea cultivation in Gudalur area, these adivasis have become daily wage workers. Many of them have found employment with the Forest Department as watchers and elephant mahouts. Some of them are skilled bamboo workers.

Today, the Betta Kurumbas have access to Government schemes and help from other agencies. During the season, they go into the forest to mainly collect *shikakai* (*Acacia sinuata*), *kodampuli* (*Garcinia gummigutta*) and some medicinal plants. They are not major honey collectors and akin to the Irulas, cover a wide area and collect small volumes. The more specialized/skilled collection of herbs and honey is left for the Kattunaickens.

Muduvans / Muduvars / Muduvas

The Muduvars are a small population in the NBR, close to the Boluvampatty area of the Coimbatore Hills. Muduvars simply means an aboriginal or an ancestral people. Francis, in his Nilgiri Gazetteer identifies their habitations in the Bhavani valley also (Francis, 1908:152). This community is considered to be at the top in the hierarchy of adivasis in this area. They practice agriculture and have control over large areas of land for both cash and food crops. Most of their villages are in the upper plateau areas, adjacent to Tropical Evergreen Forests. They mainly

grow beans, pepper and cardamom and also have *vayal* areas in the valley for paddy cultivation. Many of them are self-sufficient. They also have good knowledge of the forest for medicinal plants and collect large amounts of *Canarium strictum* for their rituals and sale.

Irulas

Irulas are the predominant people in the relatively low altitude regions in southern and eastern slopes of the Nilgiris and northern and eastern slopes of Coimbatore. Their counterparts in the northern slopes of Nilgiris (the Sigur plateau) are referred by several people as Kasabas. They are among the larger adivasi groups in NBR.

Anthropologists do not consider them to be the original inhabitants of the hills. Not as a rule, but it has been observed that the Irulas tend to occupy regions near the plains and not necessarily parts of the plateau. They have moved up to the mountains either for wage labour or while doing slash and burn agriculture. Having been in regular touch with the plains, they are much influenced by the market economy. Usually, the Irulas have very little link with other adivasis, other than the Kurumbas.

Hunting, food gathering and agriculture form a distinctive way of making a living, which now they do mainly for commerce. They usually go in groups into the forest and collect items for sale. Till now, hunting for small game and gathering food from the forest is common. They collect honey from the Rock Bees from trees and from the combs of the smaller bee - *Apis cerana*. They have a more widespread foraging strategy, collecting more volume for trade. They have knowledge of various medicinal plants. However, they hold the Kurumbas in awe for their alleged flair in sorcery and medicine.

As wage employment on nearby plantations has increased, local trade with neighbours plays a lesser role in the Irula economy. Their mixed income source strategy, makes them less dependent on any one resource for their livelihood. Whereas about 40% comes from home gardens and dry farm agriculture, 15-20% from daily wage labour, 15-35% from gathering and hunting, besides some from barter and other sources. (Zvelebil, 1988:85)

An average Irula settlement size is 30 households - they have very neat houses and clean front yards. Their homesteads are full of useful and ornamental trees, especially banana. They also have some livestock - chicken and goats being the most common. Today, most Irula villages have access to Government housing and some other facilities. More in number than the Kurumbas, they are slowly adapting to the changes in the hills. Most Irulas in the NBR still follow the old slash and burn system (though on their own land) and grow millet and vegetables.

Kasabas

The Kasabas live in the northern part of the Nilgiri District inhabiting forest lands between the base of the Nilgiris and the Moyar River. Linguistically, they are supposed to form part of the larger Irula complex (Zvelbil, 1988: 25). While they are clubbed with Irulas in the Nilgiri region, some of them are parallelly termed and identified with Uralis and Solegas in the Bilgirirangan ranges of southeast Karnataka and the adjoining plateau of Tamil Nadu.

They have large settlements, averaging 80 households. Their houses are small and neat. Living close to a wildlife rich area, these adivasis are adept in the forest. They are good NTFP collectors and have a high economic dependence on this activity. Most of the adivasis have land, which is left barren due to lack of water facilities. Since the land is rocky, it is seasonally planted with millet and

vegetables. Crop destruction from wild animals is also a constant threat to them.

They, like the Irulas, collect NTFP in bulk and sell it to traders. They collect honey from trees and small rocks. They also hunt small game. The Kasabas are also herdsmen, looking after herds of cows, owned by the Badaga community from whom they earn wages. However, this has created an extensive overgrazing pressure in the area. The whole area, in which the Kasabas live, is under consideration for being declared a protected area.

Sholigas / Solegas

These hunter-gatherers are mainly located in the Karnataka part of the NBR, bordering between Bandipur and Biligirirangan Betta. Small numbers of them also live in Theppakadu (within Mudumalai Sanctuary) of the Nilgiris. This area is covered with forests, which is their largest resource base for livelihood and sustenance. The main collection in the whole zone is of honey, gooseberry, *eecham* and lichen. They also practice shifting cultivation growing *ragi* (*Eleusine coracana)*, which is their staple diet. They are now settled in villages undertaking seasonal agriculture, slowly joining the mainstream, supported by several government and NGO initiatives. There is increasing man-animal conflict in their villages and recently, their rights on harvesting NTFP have been withdrawn, citing conservation concerns and sparking a debate on the rights of indigenous people.

Mala Malasas

The Malasas are found in the district of Coimbatore and in the adjoining parts of Kerala. These people are a forest community, living on marginal cultivation (slash and burn), and collection of NTFPs. A large part of their diet also consists of wild tubers (*Dioscorea* Spp.) The Malasas live in low elevations and almost down to the plains. Some villages have good access and infrastructure facilities. Most of the younger generation is getting educated and some are working on regular jobs. Some Malasas practice settled agriculture, whereas most earn their livelihood through daily wage jobs.

Cholanaickens

The Cholanaickens live in the Karulai Forest Range of Nilambur South Division in Malappuram district of Kerala, forming part of the western NBR. They are among the most primitive indigenous community, still in the pre-agricultural level of development. They are grouped under various clans, Panapuzha, Achanalla,

Map XVIII

Cholanaickens of New Amarambalam Reserve

Kuppanmala, Thannikai, Manalla, Dhontapara, Karimpuzha, Puchapara, Kurithodu, Valiyathodu, Alakkal and Punjakolli. They believe that many years ago there was a big flood in the blue hills and a couple escaped the deluge and were swept ashore at Maanchery. Their offspring are the present day Cholanaickens. The Cholanaickens of Karulai reside in the forests above and around Maanchery and consider the Nayakas who live below Maanchery to be Pathinaickens. The *Cholakkar* as they refer to themselves, still lead a very forest dependant lifestyle.

The people live in temporary shelters alongside rivers and shift to caves in the monsoons. They prefer to live by the river banks, along the Karimpuzha, Cherupuzha, Talipuzha and Punnapuzha, often under large rock overhangs and in huts made of reed, bamboo and grass.

The *Jenmakkaran*, the traditional headman of the clan, is the priest, the healer and is held in respect. Some common medicines, he uses from the wild are *Nannari, Shathavari, Nagadhandhi, Aadapadiyan, Orila, Muvila, Aasharipuli, Manjakoova, Valli thuva, Erivalli, Anachuvadi, Kuruvanji, Karingkurinji, Kolaka, Padakizhangu, Eenjavalli, Komullu, Naikurana,* etc. But they believe that it's their gods who heal them and not so much the herbs. At their worship sites inside the forests, terracotta images of elephants, dogs, umbrellas, lamps and human figures can be seen. They also pray to their ancestors. The idols are kept in baskets inside the home and taken to the forests on the day of the puja.

The women start bearing children from a very early age and this has its toll on their health and life span. At Maanchery, the number of women is very few. Nowadays, it is observe that more *Cholakars* marry *Pathikars* and vice versa.

Their lives are closely linked to the Semi Evergreen and Moist Deciduous Forests around that area. They collect NTFPs and sell them to the Co-operative Society of Nilambur. Their forest collection is traded with rice, tobacco, salt, oil and other necessities, from the Society. Now, they number approximately 426 (Keystone, 2002) and continue their lifestyle, though slowly being drawn into modern market economies.

Paniyas

This community has a significant presence in the Wynaad region. They number approximately 6000 and many of them were (are) bonded labourers to the

landlords in Wynaad. They have now been rehabilitated, but a large number do not own land and go back as labourers. In recent times, protests in the Muthanga region in the Wynaad, were related to access to land and included the Paniya community, amongst other adivasis. Access to land and work, living conditions are the major issues facing this community.

Pastoralists/ Herders

Pastoralists are people who depend for their living, primarily on livestock. They inhabit those parts of the world where the potential for crop cultivation is limited due to lack of rainfall, steep terrain or extreme temperatures. After land and forests, livestock constitutes the most important resource for livelihood strategies of the adivasis. Livestock raising is an important component constituting a cash reserve in times of distress.

In order to optimally exploit the meager and seasonally variable resources of their environment and to provide food and water for their animals, many pastoralists are nomadic or semi-nomadic (www.pastoralpeoples.org, 2006). Amongst the indigenous groups, it is the Todas who can still be identified as pastoralists in the Nilgiri Biosphere Reserve.

Todas

Though few in numbers (approximately 1500 people), the Todas are well known for their uniquely distinct features and traditions. They are scattered in over 60 settlements in the Nilgiris. The Todas are easily distinguishable by their traditional dress called the Puthukulli which is made of a thick cotton cloth with one or two stripes in red, blue and/or black. The Toda women have a distinct pattern of hair makeup with long ringlets of tresses hanging on either side of their face.

The Todas are vegetarians and their traditional diet included milk products, millets and cereals. Cultivation was not preferred by the people but currently several Toda villages engage in agriculture. Some people have also leased out large tracts of land to outsiders for cultivation, irrevocably changing the face of the traditional Toda land that consisted largely of grasslands. They are pastoralists, traditionally breeding buffaloes for livelihood. Most of their rituals are related to this animal or its milk and milk products. The respect for grasslands is high and they are considered as sacred for the community. Due to the nature of their lives, they traditionally commanded large stretches of land for grazing. These were mainly

in the upper areas of the Nilgiris, with grassland and shola vegetation. After the advent of the British and the introduction of exotic plantations of acacia and eucalyptus, their pastures were lost and many of their traditional landmarks became meaningless.

Their traditional huts, like igloos, are about fifteen feet in length and twelve feet in breadth and are made of different products from the forest. These huts are constructed in a manner that protects the people from heavy rains and intense chill of the cold months. The Toda villages are called *munds*. Besides huts for habitation, they also contain huts set apart for the sacral storage of milk.

The Todas have vast knowledge of the land, flora and fauna of the Nilgiri region. They revere all natural elements and several of endogenous landmarks and sites in their surroundings. Their mythology is dominated by divine beings like *Tokisy, On* and *Kwaten*. In modern times, Hindu religious beliefs and customs have penetrated into their pantheon.

Agriculturists

Agriculturists are a set of people who till the land for their livelihoods. Amongst the indigenous communities of the Nilgiri Biosphere Reserve, there are large numbers of agriculturists practicing their livelihood for centuries. As indigenous communities change their livelihood strategies, agriculture tends to become a primary occupation, cohabitating with animal husbandry, forest produce collection, etc. When conditions are favourable towards agriculture, people sustain their livelihood for more than six months from the output. However, some adivasi communities are recent converts to agriculture, mandated to work in the fields due to increasing restrictions on the earlier hunter gatherer activities that they undertook.

Kurichiars

They live in the forested Wynaad region of the NBR and are widely considered as one of the earliest inhabitants of the Wynaad hills. They have a vibrant history and had revolted against the British with the forces of the Pazzhasi Raja. Their reputation as expert archers continues to this day.

They are the only matrilineal society in South India. The women participate in agricultural operations, fishing, animal husbandry, fuel collection, etc. Most land is owned by the lineages, whereas there are a few individual owners in present

times. Traditionally they were shifting cultivators and hunters but now they mostly farm or are farm labourers. Some Kuruchiars are also in government jobs and defence establishments. Government schemes and programmes have reached out to this community.

Mullu Kurumbas

The Mullu Kurumbas are concentrated in the Wynaad region, including parts of Gudalur. Known more for their hunting and bird catching traditions, they now practice agriculture in the *vayals* of Wynaad. The women engage in fishing traditionally. Today, most people are educated and hold jobs.

They have taken advantage of government schemes and of their special status. They have largely borrowed their present day cultural practices from the Nayars of Kerala, though traditional animistic features in their religion still prevail among them.

Chettis

Small but significant populations of Chettis, speaking two distinct languages are found in the region. The Wynaadan Chettis mostly live in Kerala sectors bordering Nilgiris. Manthadan Chettis are indigenous to Gudalur. A good number of Manthadan Chettis have always lived in what is presently known as Mudumalai Sanctuary zone. Both these Chettis are basically cultivators. They have also hereditarily engaged Paniyas as their farm-labourers.

Badagas

Badagas constitute the largest single ethno-linguistic entity in the Nilgiri district of the NBR. This community numbers approximately 2,00,000. Customarily, tillers and herdsmen, now the community members are in all walks of life. They are supposed to have come to the Nilgiris, after the break up of the Vijaynagar Empire in 1565. However, according to Zvelebil, if indeed the Badagas arrived only at the end of the 16th century, then they surely would not be considered by the Todas and Kotas as making up the triad of the autochnothous, indigenous, inner layer of the three communities of the plateau. (2001:143; 462). Badaga language was also in fact the *lingua franca* of the Nilgiris (ibid., 314) before the arrival of the British. The complex debates on the origin and dispersion of the Badagas continue to this day.

Map XIX

Badaga Territorial (*Seeme*) Boundaries

After the British came to Nilgiris, it was the Badagas who took to change and modernity with surprising ease. However, even today, they maintain their ethnic distinctiveness which is reflected in language, settlements and attire. They are classified as 'backward class' but there is an increasing demand amongst large sections of the community members to be accorded a tribal status.

Artisans

Kotas

The Kotas are the artisanal adivasis of the Nilgiris. There are seven Kota villages in the hills which are widely and evenly dispersed. Kolmel, Trisigadi, Menaad, Porgaad, Kinnaad, Kurgoz and Kalaags are the seven Kota settlements which together comprise 325 households. They are skilled as blacksmiths, silversmiths and carpenters. For their livelihood, Kotas traditionally produced crops of grain, millet, garlic, mustard, etc., in addition to bartering for artisanal services provided to other Nilgiri people. By early 1900s, they started growing potato and later tea. They were also adept in maintaining coffee gardens, small pear orchards and

orange groves. Presently, a number of Kotas practice agriculture for home and commercial demands.

Ainor, Amnor and *Kamtraaya* are the principal traditional deities of the Kotas. *Kamtraaya* is considered as the creator of the universe. *Kannatraaya* is another deity in their pantheon. Every Kota village has two temples dedicated to *Ainor* and *Amnor*. The most important among their festivals is the one commemorating *Kamtraaya* at the beginning of their annual cycle of rituals.

The women practice pottery. During earlier times, they supplied tools, pots and other artisanal services mainly to Badagas and Todas. Now these occupations are not followed as modern equipments have taken over. Some pottery is still resorted to for ritualistic purposes.

Kota pottery is an intricate ritual linking several facets of their livelihood and lifestyle. Though Kota pottery lacks in embellishments, it has rare grace and poise. The practice of pottery is a collective enterprise in which both women and men participate. However, even though men join in construction of the wheel and help women in digging of the clay and firing, the shaping of the pots on the wheel and paddling is entirely done by the women. Kota women know their clay quite well. Their work includes collecting the clay with the help of men, drying and pounding it into fine particles, making appropriate mixes, forming the clay on the wheels, paddling the pots into desired shapes, burnishing and firing the pots.

The Kota people, who face a threat of extinction, due to their small numbers, need support to revive this dying art and tradition and their indigenous knowledge of ceramics and clay has to be conserved. They are now mostly educated and can be seen holding government jobs, owning tea gardens or running small businesses.

Adivasis Under Changed Dominance

There has been a vast change in contemporary times from the above documented livelihood patterns of the adivasis. Though these communities were distinguished as much by their mix of food procurement strategies as they were by language and other customs, there were fixed patterns of economic, social and ritual exchange between the Todas, Kotas, Badagas, Irulas and Kurumbas (Hockings, 1989:370). These ties are said to have become moribund since about the 1930s. In the process, environments necessary for self-sustaining symbiotic diversity have been considerably reduced in the adivasi areas.

Adivasis who form a miniscule minority (barely 8 percent of the population of India) differ from others in one aspect, their livelihood is closely intertwined with their survival. Unlike most who save money and plan for the future, adivasis are most unlikely to do it - not because they are inept at that but because they life and customs are not in conjunction with the modern mentality of hoarding money. Also, as many adivasis are primarily not specialist agriculturists, they do not enjoy the sort of food security and subsidy support that farmers all over India can aspire to have. Thus, while understanding livelihood perspectives of Adivasis, it is neither feasible nor advisable to pin them under any category and generalise their occupations.

The beauty of adivasi existence lies in the fact that he is not bound by any compulsion to follow dictums. An adivasi may be working in the forest one day, be an agriculturist the other, may undertake wage labour sometime, may spend one afternoon by hunting small game, and surprise visitors by not carrying on any visible form of employment for months and yet would know how to arrange his next meal; for when prodded, he reluctantly mentions that he is just practicing an ancient art form of his tribe which he might barter the following month with his relatives in Attapadi.

Large sections of the present NBR were traditionally divided into socio-cultural territories, which enabled a cross-community social fabric. Since the advent of the British and introduction of modern modes of subsistence, there has been a transformation from hunting and gathering, pastoralism, rotation of crops, artisanal exchange to work in the forests, plantations, wage earning jobs and other modern employment enterprises.

Today, with change occuring rapidly, political and governance processes have contributed further to marginalize these communities. It is increasingly difficult for adivasis to follow their social systems as they are administratively divided into different states, their traditional boundaries and landmarks are eroded and migrant populations exert enormous pressure on the natural resources of the area. How long would the adivasis hold on to their cultural and ecological rootings and how soon would they be subsumed into the mainstream. These are some of the questions that the book attempts to address, by analysing the status of livelihood strategies of adivasi communities. Thereby it is sought to articulate a sustainable adivasi ethic in modern times.

The later sections, on honey hunting, aspects of community action, indigenous knowledge, traditions, use and markets attempt to look deeper into these questions. The policies pertaining to NBR, spread over in three states, vary significantly, with the result that large patches of grey spots exist that cause gaps in implementation. On the other hand, we also have to recognize the changes happening in these communities. The older generation is torn between their traditions and modern developments that rapidly occur all around them whereas the younger generation is steadily losing the links to the forest. The latter also seek job opportunities outside their environment, sometimes migrating and other times staying back only to realize that their traditional lifestyle is not adequate to meet present day complexities.

5

Non Timber Forest Products - Markets and Policies

Forests are a source of livelihood for millions of people across the world, having been traditionally valued for timber, pulp and more recently, as a source for fuel. However, for more than a century, benefits accruing from forests were usually enumerated as if only timber came from these forests. All other products were classified as 'Minor Forest Produce' (MFP). It was often forgotten that forests provide Non Timber Forest Produce as well, which play a major role in the rural economy.

NTFPs are biological resources other than timber, which are harvested from either natural or managed forests. Some NTFPs include fruits, nuts, oil seeds, resins, medicinal plants, spices, animal products and grass varieties. In tropical forests, the number of different NTFPs exploited, is incredibly large.

These NTFPs are an important source of livelihood for many Indian communities particularly those living in forest fringe villages. They play an important role in the local economy of an area - the different needs of people with regard to food supplements, medicine, raw materials for processing and manufacturing, for making tools and implements and of course, for mere trade, are met through collections from the forest. Often, in traditional societies, some of these products have significant social and cultural significance.

NTFPs also play an important role in the sustainable management of forests. Whereas extraction of timber and pulpwood depends on clear felling, that hardly takes into account the role of conserving endemic tree species and has traditionally focused more on monocultures of teak (*Tectona grandis*) and eucalyptus species; NTFP extraction depends on keeping the forest intact – for sustainability for the future. This also means, indirectly conserving faunal diversity and protecting the water resources.

Usually, all these roles get nullified in the face of less revenue which is received from the sale of NTFPs. "The average annual revenue from all NTFPs at current

market prices is Rs. 273 crores. If the production of NTFPs attains full potential, the annual revenue on account of NTFPs will increase four times and reach Rs. 1090 crores." (Agarwal (ed.), 1992).

Yet, the conventional view is that of the market failing to capture all the costs and benefits of forest use. What is usually valued is the amount of timber and pulpwood sold, but not the benefits, however insignificant, of NTFPs that are extracted. These NTFPs may be consumed or utilized for personal purposes or can be sold, nevertheless they are of immense significance for the people who are dependent upon these resources.

In the Nilgiri Biosphere region, there are certain prominent observations that emphasize the significance of NTFPs and also inform us of the low importance accorded to these products. NTFP trade being diffused over a large area and in the hands of small groups of middlemen is almost a forgotten trade, albeit a profitable one. Out of sight translates into out of mind as the mainstream rarely has a ready use for raw NTFPs. This provides dealers with an opportunity to regulate the market as per their rules, leading to huge amounts of loss for the collector who may not realize that the product collected and sold for low rates, have a final sale price several times over and above the prices they receive from an intermediate trader.

On analysis of the problems related to NTFPs in all third world countries, due to which their value has not been recognised, the following reasons emerge -

- Tropical forest management systems are historically timber based
- NTFPs are seasonal
- The raw materials for NTFPs are often gathered from government owned/ common lands (as opposed to private)
- Producers are frequently rural people and often poor or landless; production is at a small scale
- Percentage of final sale price for NTFPs received by the local level collector is extremely small
- Most NTFPs are marketed through unofficial, informal channels

NTFP and Village Economy

The contribution of NTFP to the village economy varies from area to area, depending on the levels of dependence. To a large extent, aspects of seasonality

and markets, govern the collection. In a study covering 67 villages in the Nilgiris district, it was observed that between 50-80% of the people from these villages, were involved in collection (Keystone, 1998). Visits to forests are frequent, as for many, the option of working in plantations is not there while others, even though they have the choice, would rather work in the forest all year round.

The main factors on which NTFP collection depends include -

- The natural yield in the forest
- The arrival of agents/traders in the village to ask for different products
- The rate offered by the agent/trader

Earnings depend on the amount a person can collect in a day and number of days they spend on collection. Some items, collected in smaller quantities can give better returns - lichens, *kodampuli (Garcinia gummigutta)*, honey, bees wax and resin are the highest paying items. Some adivasis prefer not to collect items which fetch a lower price, and during that time go for wage labour.

For most, there is little knowledge on post collection trade routes. When demand is high, people are willing to collect as much as they can from the forest. Honey, *nellikai* and several other products are often harvested before maturity.

In Pillur region, employment opportunities are absent and dependence on NTFP collection is very high. During the months between July-September, there is a tremendous problem in finding work. Though some adivasis own land, the yield is not enough due to destruction by wildlife and no irrigation facilities. Even in Sigur, Mudumalai, Nagarhole, Bandipur and Wynaad regions, which are accorded the status of sanctuaries, there are not enough work opportunities. Some adivasis are employed in the Forest Department as watchers, guards, etc. There is some work from December-January onwards, for those who clear fire lines in the sanctuaries. Some adivasis in Mudumalai work with the Chettis for upto two months during the paddy planting seas. Dependence on NTFP, medicinal plants and honey collection is very high in this region and is going on, though illegally.

Exploitation by traders is omnipresent, with few means of correct measurement of volumes. The trader often refrains from offering prices as decided at the beginning of the season. NTFP trade is also susceptible to volatility of prices due to the seasonal behaviour of NTFPs and frequent crop failures. Excessive harvest of a single produce and lack of demand for a particular produce leads to reduction

of wholesale prices, with the result that it is the adivasi collector who must bear the losses.

The markets become volatile mostly during off season or at the end of the season, but on a yearly basis the fluctuations in price can be attributed to stagnation in finished goods market, slow down in consumption, stock deterioration and creation of artificial demand. Market to market variations can be attributed to consumption patterns in an area where the product is unavailable, conversely nil consumption in an area where the produce is found in abundance. Increased number of intermediaries and unfair trade practices also lead to fluctuations in prices.

Most of the items collected by the adivasis involve no processing, before the sale. However, drying is important and has to be done for all the seeds collected - traders usually base the price on the moisture in the seeds. Honey is usually squeezed out of the comb and filtered through a white muslin cloth. *Dhupa* (*Canarium strictum*) has to be collected and cleaned of mud and other impurities, for high rates. Roots and barks are also dried. Some items which use the full plant, usually a creeper, are cut into pieces and dried before selling. The process of drying decreases the weight and this is a constant battle between the primary collector and the buyer.

The Honey Market – A Niche Trade

Most adivasis consider honey as an economically profitable venture. However, many miscalculate the time and effort for such an activity. Honey gathering is also an event - living in the forest for a night, cooking and sleeping in the jungle, etc keeps them occupied. The expense for the team varies between Rs. 200 - 1000/- , depending on the size of cliff. There is higher expense when hunting on cliffs than when on trees. The higher the cliff, the longer the ladder and therefore, the mandays spent are more. If there are only one or two colonies on a high cliff, those colonies are left unharvested. It is difficult for the group to invest more time to make the rope ladder, given the small returns from the few colonies.

Usually, returns from honey are good and incomes are more than the daily wage rate i.e approximately Rs. 100/- a day. In a good season, a team of four honey hunters can make upto Rs. 15,000/- from honey collection in 3 months.

A comparative analysis of the returns the tribals receive per kilo of honey show that the rate received in the accessible plateau areas is higher where there are roads, tea estates and tourists.

However, it is difficult to sell large quantities of honey in bottles and the money received is not immediate. The amount received per bottle varies a lot and also buyers are known people who tend to haggle, attempting to lower the amount. After spending a few days harvesting honey, honey hunters do not have any resources to survive on and so tend to sell their honey at a lower rate for receiving money immediately.

The Rules of NTFP Collection

Earlier Phase

NTFPs in the region were collected from the Reserved Forest (RF) areas through a system of auction. The Forest Department estimated the yield each year and sent a notice for auction. Specific items were selected for collection by the Forest Department in specified Forest Ranges. The highest bidder was then given the contract, with preference given to a tribal co-operative society if they took part in the bid. The party that got the auction, then engaged various agents, who in turn engaged adivasis for collecting the produce. The flow is as follows :

System of Trade (Till 1999)

Forest Department (District Forest Officer)

▼

Highest bidder/Tribal Society
permit given for collectors from FD Range Office

▼

Agent

▼

Sub agent (optional)

▼

Adivasi collector

The important aspects in this system that called for review were –

- The method of estimation of forest stock was based on the average stock of the past three years and a visual estimation. After determining the

approximate quantity, the Forest Department fixed the price per product according to the prevalent market rate reducing collection, transportation and sundry charges. This determined the maximum revenue accruable to the Forest Department. The Range Officer of each range issued 'cutter chits' for the collectors, specifying the item for collection and a specified period. This pass, bore the Ranger's signature and was issued through the contractor.

- The method also promoted several levels of agents solely for collection, which reduced the rate paid to the collector.
- There was collection of all items with no heed to those listed for collection or those restricted by a certain area or range.

Current Phase

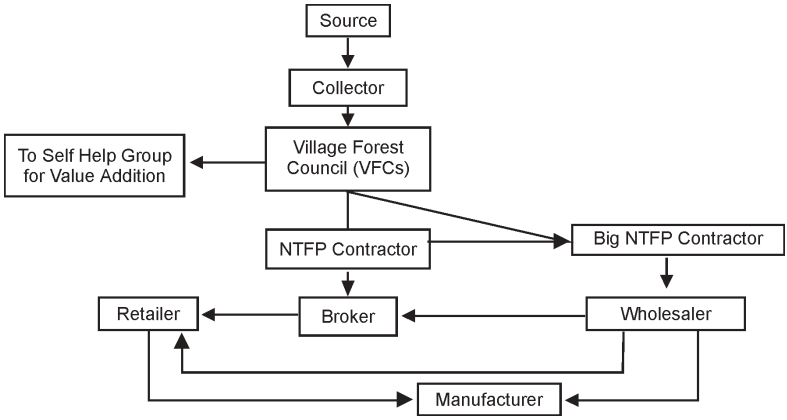
Currently, there are two chains of NTFP markets. The first exists at the collection and processing level wherein the collector sells the collected NTFPs to the Village Forest Council (VFC) which is authorized by the government to collect NTFPs. Infact and in actual practice, the adivasis who collect the forest produce do so under the provisions of a NTFP contractor who has been authorized by the VFC to collect the NTFPs. The NTFP contractor then sells the produce to a big contractor in large towns, the details of which has been explained in the next diagram. The next steps are predetermined as the big NTFP contractor who may also double up as the wholesaler, proceeds to supply the NTFPs to the manufacturers. A simple model of the market in the present times is given below.

Most NTFPs collected from the region are traded in large markets. Traditional barter routes are still followed by private traders who take it to nearby markets and collection centres. These places are usually at the foothills, leading to central trading places further in the plains. These places have wholesalers, who then sell their items in Coimbatore, Salem, Dindigul and Tuticorin in Tamil Nadu. Thereafter, the trade patterns become hazier and the products soon find their way into the hands of dedicated units. The major trade centres are Thrissur, Palghat (both in Kerala), Coimbatore, Madurai, Virudhunagar and Chennai (in Tamil Nadu). Kottakkal in Kerala is one of the major buyers of medicinal plants.

It may be noted here that though the new rule confers the NTFP collection rights on VFCs, the earlier system of handing out contracts still persists in major parts of Tamil Nadu. Lack of funds, transport and storage problems are frequently cited as reasons by the officials for continuing with the contractor system to date. The

Figure I

Present System of Trade



big NTFP contractors with the capacity to acquire large ranges on lease employ atleast 50-100 gatherers under regular employment. It is tough for the small NTFP contractor who mostly manages to take up a small range and is constantly short of labour resulting in inadequate collection of NTFPs.

The change in rules abolishing the lease of forest areas to contractors is in the best interest of forests and to the adivasis. If access is denied to the NTFP contractors into the forest, the harvests would be limited to adivasi collectors and localizing operations will certainly improve the market value of NTFPs along with providing protection to the forest wealth.

Role Players in the Trade

As with any business that has wide economic ramnifications for a large number of people, similar is the scenario in the NTFP trade with an established chain of role players and decision makers.

Retailers - Every mid size town has one crude/country drug merchant or *nattu marundhu kadai*, who retails raw drug along with NTFPs. They are traders who have inherited the business and are well versed with a variety of drugs and herbs. The clientele include small homeopathic clinics, siddha medical practitioners, grocery/provision shops, traditional/tantric practitioners of herbal medicines and households. Here the margins are sizeable and quantities sold are 100 gm to a few kilos. No fixed margins exist, but according to patronage and size of order,

prices vary. This end of the market is exploitative, as a person without adequate knowledge will end up with a poor quality produce, paying a higher price. Being traditional traders and having inherited the business, these role players have neither changed their style of functioning nor their business premises. Well established over the years with wide contacts and networking they are able to move goods to areas of demand and exchange information on stock positions and order positions over phone.

Figure II

Major Role Players

End Users - These are manufacturers of ayurvedic medicines, tonics, tanneries, construction companies, who use the NTFPs as part of the process of their manufacture / activity. The end users buy these NTFPs from dealers, agents and country drug merchants and pay a fairly fixed rate, as they require these NTFPs on a regular basis.

Trade Scenario in Tamil Nadu and Kerala

Situated in the heart of the town of major cities like Palghat, Thrissur (in Kerala), Coimbatore, Madurai, Virudhunagar, Dindugal, Salem and Chennai (in Tamil Nadu) are the country drug merchants who act as wholesalers to the NTFP market. Apart from dealing in a variety of roots, barks, leaves, seeds and tubers, these dealers arrange supplies to end users/ retailers with supplies of NTFPs.

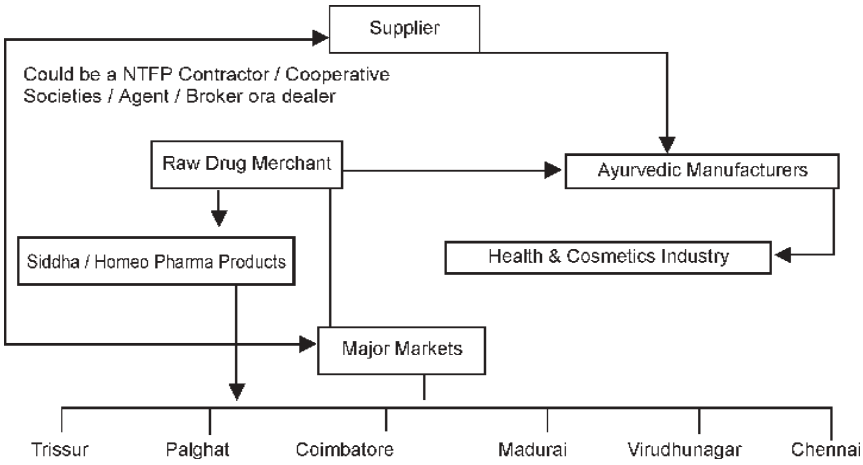
The market is grey in nature and these dealers shield the others who partake in this business from valuable inputs on demand and price. Their position as monopoly suppliers for all the requirements to end users, allow them to determine the market price for NTFPs. These dealers are mostly traditional buyers and sellers with vast knowledge about availability, quality, quantity and crop cycles.

In Kerala, the State Federation of Scheduled Castes and Scheduled Tribes Development Cooperative is the body that deals with NTFPs in the state and is the apex body of Tribal Cooperative Societies (TCS) of the state. These societies numbering 31 are spread all over Kerala and the NTFPs collected by them are marketed by the apex body. The Federation has branch offices in Trivandrum, Adimali, Thrissur and Wynaad. All societies are affiliated to the branches based on location.

Adivasis who have the right to collect NTFP have no right to make any direct sale to traders; they have to sell it to the societies. The government of Kerala has granted exclusive rights of collection of some notified items to the TCS. There is a state level committee called NTFP committee, which determines the prices for different NTFPs for different stages, namely, 'collection charges', 'procurement charges' and 'sale prices'. The 'collection charges' are the minimum prices by which the SC/ ST Federation procures the produce from TCS and the 'sale prices' are the possible revenue that can be earned by the SC/ST federation from the sale of the produce. The SC/ST Federation under its marketing strategy, sell some of the produce to the Pharmaceutical Corporation Kerala and the remaining part of the produce is sold through auctions.

Figure III

Trade Patterns in Tamil Nadu and Kerala



Map XX

NTFP Trade Corridors

Trade Scenario in Karnataka

The main markets in Karnataka are in Gundulpet, Kollegal, Chamrajnagar, H.D. Kote and Bangalore. There is a system of Large and Multi-Purpose (LAMPS) in Karnataka, which aggressively buys all the produce under a co-operative system. These societies then ask for tenders and sell their produce in bulk. Most of the buyers are from Kerala and some, from the northern part of the country, for specialized products.

Illegal Trade in NTFPs

The three states of Kerala, Tamil Nadu and Karnataka have banned some items for trade as NTFPs. The considerations for banning these NTFPs are that of the vulnerability of the particular specie. However, divergence in policy between the three states results in active cross border trade harming the environment beyond economic counts. Illegal tade though banned, is yet flourishing all over the 5520 sq. km. of the NBR.

There are several illegal traders dealing in products which are not allowed for collection by the Forest Department. They get orders from outside buyers and then get the items collected from the adivasis. Usually they are indebted to the trader and work for a pittance. The operations of these traders poses serious threats to certain species, as it is totally unregulated.

> *At the foothills on the Ooty - Mettupalayam Ghat Road lives Shanmugam (name changed), who has been a trader for almost 30 years. He deals with all NTFPs and has a very wide collection area, especially in Coonoor, Kotagiri, Mettupalayam and Manjur Ranges. Shanmugam has a group of adivasis with him, who collect a large number of produce. He helps adivasis with loans and understands them well, often using their addiction to alcohol to his advantage. He also feels that he cannot give much to the adivasis as it depends on the prevailing market rate. He deals upto six tonnes of NTFPs in a season.*

Some illegal NTFPS in Tamil Nadu are *vela* (*Acacia leucophloea*), *vembadam* (*Ventilago maderaspatana*), *shatavari* (*Asparagus racemosus*), *kurunthoti* (*Sida* Spp.), *dhupam* (*Boswellia serrata*), *elandai* (*Zizyphus jujuba*), *kullamav* (*Persea macrantha*), *veppam kottai* (*Azadirachta indica*), kodampuli (*Garcinia gummigutta*), *kathkurumilagu* (*Piper nigrum*), *nannari* (*Hemidesmus indicus*), *katu jathikai* (*Myristica malabarica*), *thipili* (*Piper longum*), *thatbut kodi* (*Passiflora*

edulis), *perambu kai* (*Calamus rotang*), *pungam* (*Pongamia pinnata*), *katu inji* (*Zingiber* Spp.), *katu manjhal* (*Curcuma montana*).

Illegal Trade in Dhoopa

As per rules, collection of resin from Canarium strictum is banned. However, many collectors have regularly been collecting the resin. White dhoopa, collected from the bark is priced at Rs 60-70 /kg while the black one collected from the soil is sold for Rs. 40-50/kg. As the resin is found in small quantities at a time, the villagers keep collecting at intervals and when it weighs a kilo or two, sell it to the traders. This helps them get instant money in time of need. The buyers are generally households and traders in the towns who use it during prayers.

The markets are unregulated and informal. At the village, it is governed by petty traders. At the region level, it is the industry demand that determines quantities, prices and items to be collected. However, markets and NTFP movements are also governed by policy. The following section describes the policies existing in the NBR region, with repect to NTFPs.

Forest Policy with respect to Trade and Conservation

The key guiding force for the management of forests, including medicinal plant resources, remains the National Forest Policy of 1988. The GOI vide resolution no. 3-1/1986/F.P. dated the 7th December 1988, enunciated the National Forest Policy that provided a national perspective on forest management problems and specified actions required for taking them. The policy sought popular participation as a means for resolving conflicts between local and national goals of forest conservation and for restoring wastelands. The policy also states that the principle aim of forest management must be to ensure environmental stability and maintenance of an ecological balance, which is vital for sustenance of all life forms, human, plant, or animal and that the derivation of economic benefits (mainly through commercial timber exploitation) must be subordinated to this principal aim. The new policy recognized the dependence of tribal communities on forests and stressed fulfillment of local needs, people's participation and decentralized planning. As per the Policy, adivasis have been provided a right to extract benefits from their neighbouring natural areas. Certain provisions have been provided for them as follows.

Section- 4.3.4.2. The holders of customary rights and concessions in forest areas should be motivated to identify themselves with the protection and development of forests from which they derive benefit. The rights and concessions from forests should primarily be for the bonafide use of the communities living within and around forests.

Section- 4.3.4.3 The life of adivasis and other poor people living within and near forests revolves around forests. The rights and concessions enjoyed by them should be fully protected. Their domestic requirements of fuel wood, fodder, minor forest products, and construction timber should be the first charge of forest produce.

However, it is beyond doubt that experience from the ground points towards the contrary. Due to the applicability of the concept of total protection of protected areas, adivasis are not allowed into sanctuaries and neither are they allowed to collect any minor forest produce. They are provided few rights and more often than not, even these are not granted. As a result, there is a constant tussle between the adivasis and the State.

Villages lying adjacent and within the sanctuary regions are highly vulnerable to any disruption of their traditional rights. Though Village Forest Councils (VFCs) have been formed in some areas, many have not been able to achieve their mandate. The major issue is that the rules governing the protected areas differ a lot from the rules governing Reserve Forests. VFCs were registered under the Society Registration Act, 1970. Under the 73rd & 74th amendment of the Panchayati Raj it was directed that more powers should rest with the Village Panchayat, including those related to NTFP collection from adjacent forest areas. Participation from the people is inadequate and passive. There are several issues with regard to sharing of access rights. There is no proper marketing approach for NTFPs. There is no clarity about what can be done in adopted villages and Reserve Forest areas. There is an overlap between contractors and VFC members, in which the former usually dominate – due to their traditional market dominance.

The Wildlife Protection Act (WLPA), provides the following stipulations relating to access to forests.

Art 35(6) that no person shall destroy, exploit, or remove any wildlife from a national park, or destroy or damage the habitat of any wild animal or deprive any wild animal of its habitat within such National Park except under and in accordance with a permit granted by the Chief Wildlife Warden and no such permit

shall be granted unless the State Government, being satisfied that such destruction, exploitation, or removal of wildlife from the National Park is necessary for the improvement and better management of wildlife therein, authorizes the issue of such permit.

Under Section 19-25 of the WLPA, 1972, the Collector (administrative head of a district) is duty bound to inquire into and determine the existence, nature and extent of the rights of any person over a sanctuary or a national park.

How do Policies Work

Keystone conducted a study in 2006 on VFC functioning and the changes that are taking place with the new laws in place. One of the VFC Federations, Keystone works with, was chosen for detailed analysis in the Sathyamangalam Division of Erode District in Tamil Nadu – which also forms part of the NBR.

In the Sathyamangalam division, the main NTFPs collected are nellikai, seemar, tamarind and kadukai. The dense forests contain many NTFPs, with the main adivasi communities, Sholigas and Irulas, long dependent on them for their livelihood needs.

Priot to the organisation of the VFCs, forest tracts were contracted out to private traders, who in turn had collection agents in the area. These agents employed the adivasis for NTFP collection seasonally. Weighing as well as payment was done on - site, daily. Payment was on the basis of weight. This was often the point of exploitation with faulty payments and weighing. Besides the approved NTFPs, other medicinal plants and NTFPs were also collected, especially wild mango and lichen. Adivasis had no other alternative, but to accept these rates as the contractor could also hire 'outsiders' to collect NTFPs. Since the pass was issued to the contractor, no other checking was carried out. This system benefited the contractors, as it allowed them to easily collect huge quantities of NTFPs – both listed and unlisted.

With the advent of the VFC in 2003-04, the scenario changed. The collection rights are solely of the adivasis and the quantity collectively collected by the VFC, is auctioned. Interactions with the VFC president as well as collectors revealed that they are fully aware of the rules governing VFC formation. Since

its formation, the government has been gradually trying to phase out the contractor system. But the problem lies in the lack of funds with the VFC. So though VFC exists, they are unable to provide for the costs of collection, storage and movement of NTFPs. VFCs lack bargaining power and prices are fixed by the big contractors. The system, presently, has given rights to the people without the powers to claim them. According to the contractors, this sytem is easier for them as they can bargain on the price after the collection is done by the VFC. This reduces their risks related to labour, transport and climate related losses.

In February 2007, with efforts being taken by the District Forest Officer and Keystone Foundation – the VFC attempted to sell nellikai and eecham. The sale faced problems related to permits of products by the Range Officers and lower prices being fixed by the contractors in the open market. This caused a loss to the VFC, who did not get enough to pay the collectors at the given minimum fair price, allotted by the government. This effort is however ongoing and final results awaited.

The policy move seems to be in the right direction, which gives rights to the adivasi collectors. However, the trade is held in the nexus between traders and forest officials. This is difficut to break and needs to empower the people with financial and management skills. There is a need to build capacity at the adivasi collectors' level to enable value addition at the village level. Value added products would fetch higher prices and also provide employment. There is a need to improve harvest techniques and introduce effective storage and grading techniques. All these interventions will enable these bodies to be stronger in the future.

6

Honey and the Adivasi Livelihood

Honey hunting has been practiced since ancient times in several parts of the world (Crane, 2000). In India too, honey hunting is an ancient art with the three southern states of Tamil Nadu, Kerala and Karnataka having an enduring tradition of honey harvesting. Over the ages, it is an activity, identified most commonly with forest dwellers or adivasis. They have carefully preserved remnants of this art form with traditions lasting centuries. The Onge in the Andamans, Gurung in Nepal, Batak in Palawan and the Chenchus and Kurumbas in mainland India are as synonymous with honey hunting as they are for their nomadic and wilderness based lifestyles.

NBR has major honey-producing zones, with massive honey cliffs or 'bee nesting' trees present in large numbers (Keystone, 2006)

Honey hunting is carried out in various ways, as a result of the type of adivasi group and regional topography. Though geographically adjacent, groups have formed specialized niches that differentiate one from the other e.g. Kurumbas and Irulas often share the same village but one is an expert on rock hunting while the latter is a master of scaling trees. This has resulted in specific 'honey

territories' and methods of collection and has given rise to specialized techniques and traditions, mastered as per one's own needs.

Some hunter gatherer communities hunt for honey as tradition, while others look upon it as an economic activity. A range of techniques, traditions, beliefs and superstitions exist amongst adivasis. However, for all, honey hunting is an essential part of life, made interesting by its sheer thrill and risks.

The honey hunters of NBR are renowned for their skill. The Aalu Kurumbas in the eastern and southern parts of the Nilgiris and in Attapadi are renowned for scaling cliffs more than 500 feet in height while the Kasabas and Irulas are adept in harvesting large quantities from giant trees. The Kattunaickens are expert hunters in and around Mudumalai and Muthanga forests just as the Jenu Kurubas are famous in Nagarhole and Mysore regions. There are also the Cholanaickens, renowned for their legendary skills in New Amarambalam region using basic equipments to scale high trees and cliffs.

Map XXI

Honey Zones with Prominent Cliffs

The major honey zones include Kotagiri and Coonoor slopes of the hill district of Nilgiris, Sigur, Mukurthi, Mudumalai, Bandipur, Nagarhole, Wynaad, Silent Valley, Nilambur, New Amarambalam Reserve Forests, Attapadi Valley, Pillur Valley, Anaikatti, Boluvampatti and Sathyamangalam Hills.

The Importance of Honey in Traditional Societies

Then, Jenu, Madhu, Melit, Mitsu, Mil, in whatever language honey is called, since antiquity, has been a part of religious ceremonies, to mark personal events such as birth, death and marriage, as a symbol of love and to celebrate prosperity. There is a popular saying which associates wealth in a kingdom to a land that is flowing with milk and honey. In most communities, honey is offered to a newborn child even before mother's milk. Such is the acceptance of honey in societies worldwide.

Honey is an ancient food revered for its miraculous healing properties. Technically, it is composed of sugars such as glucose, fructose, sucrose and water. Yet, the uniqueness of honey lies in numerous other substances that are present in minute quantities – more than 181 of them - these substances provide honey with a unique essence distinct from mere sugar. Specific types of honey have distinct aroma and flavour which is attributed to the plant sources. The final produce that the honey hunter gulps with delight is actually a mixture of sugars, water, acids, enzymes, minerals, etc.

This knowledge is the result of modern scientific research, though the adivasis themselves, were invariably aware of diverse benefits that could be extracted from the golden liquid. They have used honey as food and medicines since ages. Honey is used as a medicine & traditionally eaten with *keerai podi* (Amaranthus powder) or *maida roti* (wheat flour bread/pancakes). Jackfruit seed, roasted in fire and honey is also eaten. The brood is eaten along with honey for curing chest pain and colds. Honey is applied on burns amongst Kurumbas. The larvae are eaten - they are cooked like *puttu* and *upma* or the young brood is eaten along with honey. The Kattunaickens eat the young bees too. For medicinal purposes, *kolan jenu* - *Apis florea* is preferred to any other honey. This is because of the small size of *Apis florea* and its foraging pattern, allowing it to take nectar from small plants and herbs. The same is true for honey from the *Melipona* Spp. (Dammer bee) which is rare as it is available in small quantities. Dammer honey is given to new born children and pregnant women as a source of nutrition. The Irulas use honey as a medicine along with the ash of burnt peacock feathers. For stomachache and tiredness, the root of bamboo is powdered and eaten with honey.

Bees are revered for their extraordinary capacity of generating sweet honey. Adivasis consider bees to be a superior being bringing fertility to the land. The honey hunter takes great care in ensuring that no harm befalls the bees. Bees are

supposed to be pure creatures. This sense of purity awards them respect from harvesters who make every effort to ensure that bees do not take offence at the hunter – an important consideration why the honey hunter undergoes such penance before setting out into the forest.

Bees are valuable. A major role played by bees is that of pollination. This means better yields in agricultural and horticultural crops, i.e. more food produced in the same area. The effect of sufficient pollination on natural vegetation is even more important. It is a way to secure floral diversity which makes ecosystems less vulnerable. More vegetation increases the carrying capacity of the area and allows associated life forms to evolve.

Changes in the flora and fauna affect the population and presence of bees. Large, strong colonies are found in areas of high floral availability throughout the year, i.e. with a high diversity in vegetation. There are some trees and habitats that bees seem to prefer more than others. Some of these trees are named below.

Table IV

Some Trees that Honey Bees Prefer for Nesting

Botanical name	Family	Common name	Flowering	Fruiting	Vernacular name
Albizia lebbeck	Mimosaceae	Woman's tongue	Feb-Apr	Apr-Oct	*Vagai* (T), *Vaga* (M), *Bagemara* (K)
Anogeissus latifolia	Combretaceae	Axle wood	Apr-Jun	Jun-Aug	*Vellay naga* (T), *Marukanchiram* (M), *Dinguga* (K)
Ceiba pentandra	Bombacaceae	White Silk cotton	Jan-Apr	Mar-Apr	*Ilavum, illavam-panju* (T), *Panya* (M)
Canarium strictum	Burseraceae	Black Dammar	Mar-Apr	Apr	*Karuppu Kungiliyam* (T), *Kunthirikam, Pantham* (M), *Manda dhup* (K)
Grewia tiliaefolia	Tiliaceae		Apr-May	Jan-Dec	*Thadachi* (T), *Chadicha* (M), *Tadasal* (K)

Mangifera indica	Ancardiaceae	Mango	Jan-Mar	ripening by Jul-Aug	*Maa* (T), *Mavu* (M, K)
Persea macrantha	Lauraceae		Feb-Mar	May-Jun	*Kolamavu*(T)
Pterocarpus marsupium	Fabaceae	Indian Kino	Jun-Aug	Jul-Mar	*Vengai* (T), *Venga* (M), *Honne* (K)
Syzygium cumini	Myrtaceae	Jambolan	Mar-Apr (hills), Jul-Aug (plains)	Jun-Jul (hills), Sep-Oct (plains)	*Naval* (T), *Naga, Naval* (M), *Narala* (K)
Tectona grandis	Verbenaceae	Teak	Jun-Sep	Jul	*Thaekku* (T,M), *Suganai* (K)
Terminalia arjuna	Combretaceae	Arjuna	Apr-Jul	Jun	*Vella marda, Vellamatta, Kula maruthu*(T), *Vella maruthu* (M), *Maddi* (K)
Terminalia bellirica	Combretaceae	Myrobalan	Apr-May	matures by Sep	*Tani* (T),*Thani* (M)
Terminalia chebula	Combretaceae	Chebulic myrobalan	Mar-May	ripens by Oct	*Kadakai* (T), *Kaduka* (M)
Terminalia crenulata	Combretaceae		Jul	Jul-	*Karumaruthu* (T), *Thembava* (M)
Toona ciliata	Meliaceae	Indain Mahogany, Red cedar	Feb-Mar	ripens by Nov	*Santhana vembu*(T), *Mathagirivembu*(M), *Tundu* (K)

The Giant Rock Bee (*Apis dorsata*)

Apis dorsata is among the largest, most productive and dangerous bees known to man. Records of prehistoric paintings from Bhopal, Singanpur, Panchmari and others suggest that they are among the oldest hunted bees known to man. The Giant Bee forms a large comb of up to two metres across and almost one and a half metres in height. Thousands of bees cling to the hive, containing upto 20 kgs of honey, in some cases. Due to the weight of the comb, bees build them using

strong support and in open spaces. They also prefer to build their combs in the same spot, year after year. Thus, the chosen sites are easily identified by man but rarely accessible to other predators of honey.

The bees generally choose an overhang in sheer rock faces, strong branches of a tall tree and steep escarpments with upto a hundred or more colonies in the vicinity. In urban areas, they prefer the high undersurfaces of modern buildings. The bee is considered highly vicious if provoked and has been known to cause deaths also. It migrates over long distances to areas of abundant nectar flow. It has great strength and capacity to forage over large distances with some records of upto 1000 metres and even more.

Much of their activities in a nesting place can be documented but little is known on migration patterns. Though, they have been known to migrate between 50 km to 250 km, yet much of this information is based on informal sources and the bee occasionally springs surprises that shakes established scientific knowledge. These bees are migratory in nature, and move large distances to areas with abundant nectar flow in different seasons. Efforts to domesticate the bee have been tried, but have not been very successful. The economic importance of the bee in India is very high as it contributes almost two - thirds of the total production of honey to the industry.

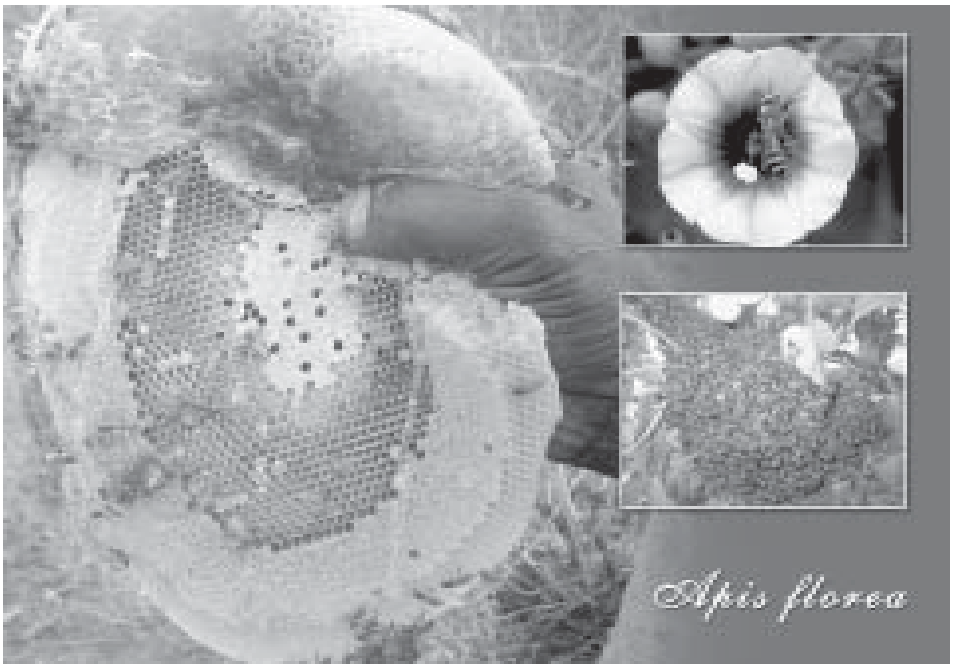
The Asian Honey Bee (*Apis cerana Fabricius*)

Being indigenous from Afghanistan to Japan and China, *Apis cerana* exhibits a number of races and sub-races, which differ widely in productivity, behaviour and body size. Feral (wild) colonies nest in cavities of trees, rocks, stone walls and other dark enclosed places, building several parallel combs. Honey for rearing of brood is stored in the upper part of central combs while pollen and brood are stored below. Surplus honey is stored in the outer combs.

Apis cerana often absconds (leaves) the nest in case of severe disturbance or lack of food. Their temper is gentle to moderately aggressive, with a distinct positive correlation between colony size and aggressiveness. Beekeeping with *Apis cerana* in simple hives, has been practised in India for at least 2000 years. In Tamil Nadu, some honeyhunters, hunt only *Apis cerana* honey. It is a valuable pollinator with a foraging range of 800 metres.

The Little Honey Bee (*Apis florea Fabricius*)

The small single comb nests of *Apis florea* is often found in dense, shrub vegetation, in cavities of trees and rocks or under roofs of palm leaves. Workers form a multi-layered protective blanket covering the comb. Sticky plant



resins are used on the branch supporting the comb, to protect the colony from ants.

Honey is stored in the upper part of the comb while pollen, brood and drone cells are stored below. Honey usually sells at better prices than honey from *Apis cerana* and *Apis dorsata*, due to reputed medicinal properties. The annual yield from a colony is about 1-3 kgs. Honey can easily be harvested, without destroying the colony by applying a little smoke. Unfortunately, honeyhunters often collect the whole comb. If disturbed, the bees desert the comb, but often return within a short time. It is a valuable pollinator with a foraging range of up to 500 metres.

Dammer Bees (*Trigona* Spp. and ***Melipona* Spp.)**

They are the smallest among the honey-yielding bees. They are often called stingless bees because they do not sting but bite. Their nests are built in trunks of trees, logs, wall crevices or under the roofs of dwellings. In Tamil Nadu, there is a tradition of keeping Dammer bees in bamboo hives. The bees are easily hived and seldom abscond their nest.

Dammer bees gather propolis (plant resins) and use it together with wax, to construct their nest. In the nest, there is a group of separate cells for brood rearing

and another group of larger 'sacs' for storage of pollen and honey. The dark and bitter honey is valued for its medicinal properties. Information on honey yields, range from 20 grams to 1 kg per colony per year. They are valuable pollinators of small herbs and shrubs.

Traditional Honey Hunting

Honey hunting as an activity is ingrained within adivasis. The activity symbolizes a binding element amongst them, as elaborate rituals and ceremonies bring together members of the community into a communal display of goodwill. Mutual ties are intensified because of the relatively large number of people who set out for the hunts, are related and from the same village. This togetherness is unidirectional as it focuses towards ensuring safety of the group that sets out into the forest. Within some groups, the tradition of brother-in-law being responsible for the safety of the hunter is followed diligently.

In several areas, certain cliffs have been venerated and marked as sacred - there is no extraction of honey from them. Accurate reasons for the worship are unclear but it is true that the honey hunter is one person who over several generations has been conscious of the need to preserve the bees by leaving cliffs unharvested.

Leaving cliffs untouched results in the protection of bees, this in turn contributes to increased cross-pollination and diversity of the forests. This finally indicates - in the words of a honey hunter, 'that bees prefer their forest and return again because of the purity of the region'. In simple words, it indicates that the particular ecosystem is healthy and it is here that the bees prefer to settle and further their colonies. These legends and traditions have their utility.

First, they reaffirm the hunters' ecosystem centric respect towards his immediate environment and seek to make him a part of the greater complex of nature and not a competitor to it. Secondly, these legends preserve an age-old system of community monitoring which seeks to cause minimum damage on the ecosystem and regard all life as sacrosanct. Thirdly, folklore and traditions signify the prominent place of honey hunting in the socio-cultural milieu of the adivasi way of life. Finally, these legends assist in simplifying complexities and inherent risks associated with the act of honey hunting by codifying practical and easy to use rules.

These links between the bee, forest, animal and man are complex and perhaps best understood by the older generation who lament that loss of forests could start the cycle of doom which would ultimately leave the community poorer by several degrees.

Kurumba and the young bee – a Toda tale

In former times, the Kurumbas of Pony village (Attapadi) searched for honey and ate honey; and if the Todas went and found honey and took honey from the comb, they killed those Todas by sorcery. One day, a Kurumba was searching for honey on Mount Odon (above Kwisymund) where the 'Kures' tree (Eugenia calophyllifolia) and the 'Kos' tree (Ligustrum perottetti) were blossoming and the bees were sucking the flowers. At that time, the Kurumba who had come searching for honey, caught and seized in his hand a young bee and tying a thread to the young bees waist, he let it go. Then this Kurumba thought, ' I will look and find out where the young bee, which I myself released after tying a thread on it, has it honeycomb'. When he took from the comb all the honey which he himself saw, he used to look on the waist of the young bee, saying. ' is it the one on which I tied the thread?' when this Kurumba acting like this, looked for three years, he was unable to find the bee which

he had himself released after tying a thread on it. This Kurumba searching for honey in this manner, went searching for honey to that place called Mount Etyoty (Mount Hethe of the Badagas) on this side of Pirgor munds (Kotagiri section of the plateau). At that time he found a honeycomb there. At the time when he was about to take that honey from the comb, the young bee which he himself had released on Mount Odon after tying a thread to it, having sucked flowers, taking pollen, entered into the tree-hollow with the thread which he had tied on it (before releasing it), the Kurumba saw it. At that time he realised,' it is the young bee which I had released on Mount Odon, after tying a thread on it has its honeycomb here' and he was very happy, so they say.

The above story, in dictated form, was collected by late Prof. Emeneau in the 1930s. It was published in his monumental work, TODA GRAMMAR AND TEXTS – 1984: Philadelphia, USA; Text 161, pp 362-63

The Practice of Honey Hunting

Honey hunters harvest honey either alone, in pairs or in most cases, groups of five to ten people. They harvest numerous combs in a single trip extracting honey from upto thirty or more colonies in an area. Normally the major honey flow is for a couple of months, depending on the area, from anywhere between March to July. The ancient art form of honey hunting comprises several activities. The elaborate preparations, rituals and 'on hunt' activities are discussed below.

The first step is the formation of a unit. Conventionally, a group consisted of members from the same village, usually related through blood ties. The main hunters' brother-in-law forms the crux of the operation as he holds the rope ladder on which the hunter descends.

While most groups collect honey from smaller cliffs or trees, it is the Kurumba who scales the high cliffs. This perhaps explains the Kurumbas' minute care in choosing the group while others have now allowed a degree of relaxation to creep into this very important exercise. A group once formed usually remains unchanged for several seasons. A member returns to his group irrespective of his present occupation elsewhere.

The other members of the group assist in numerous ad hoc jobs including -

- Making the smoker and rope ladder using forest vines
- Setting smoke below the nesting site
- Collecting wax and honey
- Holding the ladder from below

The group sets out to search for honey cliffs and trees soon after the bees have nested. The actual date for hunting is usually based on common consensus amongst the honeyhunting group. It is then that they declare that the comb is ripe and the hunt must start.

Once a colony is sighted, they wait for the comb to mature. After sighting, they put a mark indicating that this place has been taken. Some groups may mark their presence with a simple sign; others may use tobacco while some may hide herbs which irritate the bees. It is only when the actual person removes the herbs that bees calm and hunting may start. Chanting of *mantras* on the spot ensures that no one else can disturb the colony. First, the group observes the status of honey. The honey comb passes through three stages of growth before it can be harvested and a good honey hunter patiently waits out - harvesting only at the ideal moment. He constantly checks the condition of the comb on his forest forays and only when the time is ripe, the group starts the hunt. If a comb is sighted early, they wait out for approximately a month before starting the hunt. Adivasis know that the right time for harvesting is at the stage when the cells are capped and moisture is at a certain level signifying maturity of the honey.

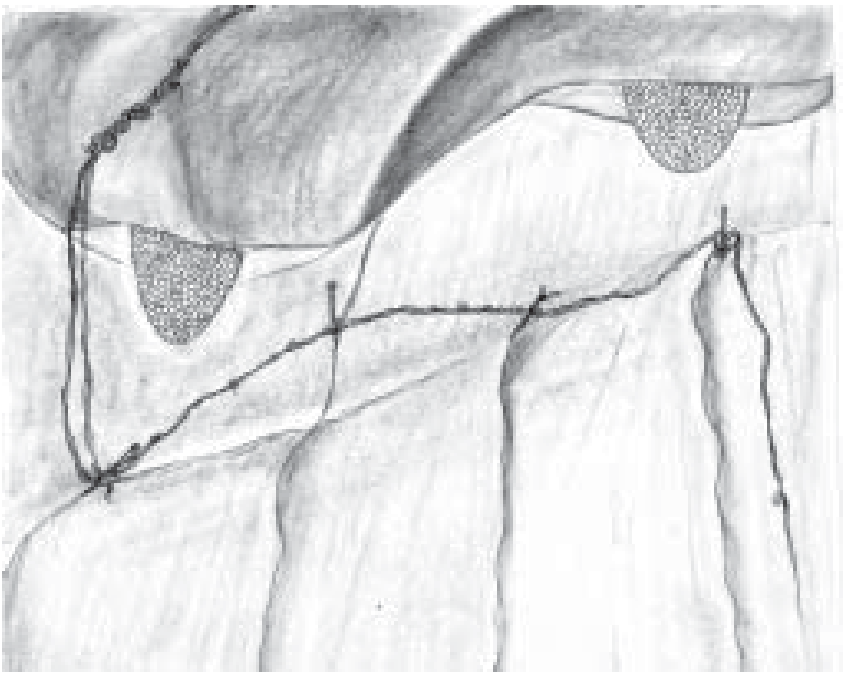
If a comb is seen in the wild, long after the comb has been populated, then they wait for the flowers to wither as this means that the bees have collected their requirement of pollen and nectar and much of the honey is formed.

Visually, they observe the comb for its shape and thickness. The shape of the comb determines the stage of the colony development and maturity. A thick upper portion implies more honey. Adivasis feel that not much harm is done to the bees because harvesting is done at a time when the honey is maximum, the brood portion is less and the bees are ready to migrate.

Preparation begins in serious earnest. Days before the harvest, the honey hunter observes a strict regimen of fasting, praying and bathing with regularity. Any relationship with women is usually avoided. Observance of these austerities varies significantly in different groups.

Adivasis worship their gods before setting out. They believe that some sites are god's cliffs or trees - from where no honey can be collected. Spirits are accorded special status during this period, as there is a belief that disturbing or angering the spirits can lead to an unsuccessful hunt or even a death in the vicinity. The village *pujari* is consulted and it is he who usually fixes the date and time for the harvest. He conducts a *puja* invoking the gods and ancestors, praying for their blessings and signals the start of the entire process. They also believe that the rock is their 'mother', the rope is their 'father' and the tree on top of the cliff is their *anna* (elder brother). After honey is harvested they keep some on the rock, and under the tree first, before eating it themselves. In some cases, after harvesting, they honey comb is given to 3 sides (directions) and some is left on a *dadasal* leaf for the gods, then only that honey can be eaten.

The honey collecting ritual includes an invocation to the bees to leave their combs so that honey can be collected, beseeching them to return to bring forth the blossoms in the forest and fields. *Mantras* protect the Kurumbas from bee stings. Some plants are also used to prevent bee stings and are used regularly by the tribals. The leaves and some twigs are tied to the body or kept in a pocket to have the required effect. Some *mantras* are also used to reserve bee colonies/cliffs. Tobacco is used for this purpose and a mark is made on the cliff, seeing which no other honeyhunting group harvests from that cliff. They believe in the *Kath Manasa* (spirit in the forest), whom they fear and pray to. Many stories and tales are there about



this Spirit, amongst the tribals. Some tribals carry a small plant as a protection against the *Kath Manasa*.

Oh my dear woman, mother, sister and everybody else
Come and join in the feast
Let us sing and dance
We have collected honey successfully
Eat how sweet, the bee god gives us
Let us sing and dance
We have not used iron or any other metal to cut he comb
Bee god will not be angry
Next year also they will give honey to us
Eat, eat; careful - there may be a bee in the honey.

These intricate rituals are crucial to the community, as they believe that honey hunting is an activity favoured by the gods. Rituals that are not followed properly are believed to provoke unnatural events.

Seasons

The main season for honey collection is during the period between mid April to mid June. Sometimes, depending on the weather, flowering and rains, honey is available in March and also in the month of July. However, according to most adivasis, the two main months are critical for collection to be profitable. If they are late, honey will be less as during the windy *Adi* (July - August) month bees use honey from their reserve. During October - November, there is a small season for honey collection, but the honey in the combs is little and very few people go for collection.

Techniques of Honey Hunting

Honey hunting is widespread over several regions of the greater Nilgiri belt. Over the years, each group has imbibed variations in field conditions such as topography, climate forest type to form a specialized niche. This niche is vital as it suggests diversity of use and that the systems of traditional honey hunting are alive and thriving.

Cliff hunting and tree hunting are two commonly used methods for honey harvesting. Both methods are unique and involve a degree of risk as well as specialisation. Markets encourage large-scale collection of honey for commercial sales. Some groups, having access to market trends and spread out over large areas readily take up tree hunting as they can harvest larger quantities. Moreover, due to numerous trainings, most now harvest without touching the brood portion. The bees resettle and start comb formation again. Ultimately, two harvests can be achieved during a season. Home consumption is meagre as most of the harvest is used for commercial purposes.

Cliff Harvest Systems	Tree Harvest Systems
- Ladder system	- Tying bamboo sticks with cane
- Cane looping	- Bamboo ladder with cane
- Ropes with platforms/baskets	- Bamboo ladder and pegs
- Bamboo pole system	- Neighbouring tree as support
- Bamboo step ladders	- Steps into the tree trunk
- Bamboo scaffolding	- Pole set against the tree trunk
	- Use of rope for climbing

On the other hand, communities such as the Kurumbas and Naickens have a close cultural link with honey hunting. Moreover, living in comparative isolation has instilled a deep sense of affinity towards the forest and its resources. Also, the presence of cliffs is more widespread in Kurumba inhabited regions as compared to others - a major reason for them taking on the task of cliff hunting.

According to adivasis, *Apis dorsata* nests more on rocks, than on trees and are found more in mountain areas. The bees settle in protected places, away from strong winds, lashing rain, etc. They prefer cliff overhangs. These bees come again and again to the same place as in the previous year. Though there is no threat to bees, they are sometimes attacked by bats (*vavva, narsai*) and bee eaters (*jenu unni*).

Adivasis also believe that the bees may change their migration pattern and go to some other mountain range or in some other direction. There is a belief that the hills of Sathyamangalam in Erode district and extending into the Mysore Plateau have more honey because the whole area belonged to the King of Mysore! It is observed by the adivasis that honey bees are more in number one year and less the next year. They follow an alternate cycle of migration to the mountains.

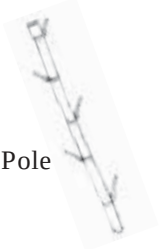
Cliff Honeyhunting

The Aalu Kurumbas in Kotagiri and Coonoor taluks, Cholanaickens in the New Amarambalam Reserved Forests, some Kattunaickens in Wynaad and Gudalur, some Kasabas in and around Osilibarai cliff in Sigur, Kurubas in Bandipur and Uralis in Sathyamangalam, practice cliff hunting. Cliff hunting is a specialized

Table V

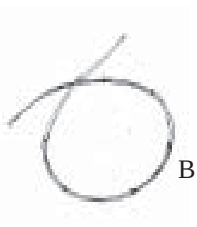
Material used for Honey hunting

Botanical Name	Part used	Strings	Ladder	Calms	Smoker	Basket liming	Spear	Basket	Vernacular name
Bauhinia racemosa	Coppice/Bark		3						*Archi, Atti* (T)
Hardwickia binnata	Bark		3						*Acha* (T), *Kamra* (K)
Ocimum gratissimum	Leaf	3							*Elumicchan thulasi* (T)
Albizia amara	Leaf	3							*Wunja* (T), *Varacchi* (M), *Chigare* (K)
Boswellia serrata	Leaf	3							*Parangi sambrani, Madi* (K)
Kydia calycina	Bark	3							*Venadi* (T), *Velukku, Nedunar, Venta* (M), *Belleka, Nayibende, Bendi* (K)
Calamus rotung	Stem		3						*Perambu* (T)
Oroxylum indicum	Bark		3						*Achi, Pana, Pei* (T), *Palaga-paiyani* (M), *Bunepale* (K)
Bambusa arundinacea	Stem/Pole	3				3	3	3	*Periya Mungil,* (T), *Mulla, Illi* (M), *Dongi, Bidungalu, Hebbidru* (K)
Dendrocalamus strictus	Stem/Pole	3							*Kalmungil* (T), *Kalmungil* (M), *Keribidur* (K)



Bamboo Pole

Storage Container

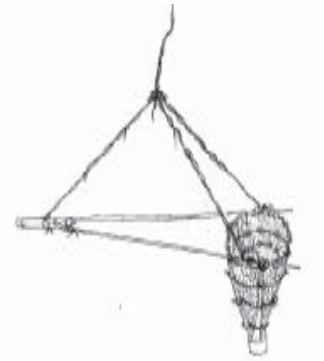


Bamboo Rope

Botanical Name	Part used	Strings	Ladder	Culms	Smoker	Basket lining	Spear	Basket	Vernacular name
Derris scandens	Runner/stem	3							*Tekil* (T)
Derris benthamii	Runner/stem	3		3	3				*Biscuiti kodi* (Ir)
Cayratia Spp.	Runner/stem	3							*Narala kodi* (Ir)
Gnetum ula	Runner/stem	3							*Ana pendu, Thanni Kodi* (T)
Ziziphus oenoplia	Leaf	3							*Kottei* (T), *Mulli*
Secamone emetica	Runner				3				*Aangaaravalli, Siru aattaankodi, Nilamarandaikkodi* (T)
Debregeasia longifolia	Leaf/Bark			3	3				*Kattunochi* (T), *Keppasi* (M)
Strychnos nux-vomica	Leaf			3	3				*Yetti, Eddikanchera, Kanjaram* (T), *Kanjeram* (M), *Kasara, Kanjavara* (K)
Cassia fistula	Leaf				3				*Konnei* (T), *Konna* (M), *Kakke* (K)
Clausea heptaphylla	Leaf				3				*Karambae* (Ir)
Strobilanthes Spp.	Leaf				3				*Kurinji* (T,M)
Murraya paniculata	Leaf			3					*Sedichi* (Ir)

Filter

Knife



Basket

profession because of the inherent risks involved. Hunting for Giant Rock Bee combs requires expertise, developed with practice and consistency. Besides, cliffs are sparsely spread out and wherever situated, are mostly in the domains of the above mentioned groups.

Tree Honeyhunting

Almost all adivasi groups in the biosphere region harvest from trees. One advantage is that there is less need of complex instruments. Also, colonies are widespread during the honey flow season and collection is possible in huge quantities. *Apis dorsata* is found in the high trees along riparian patches. As is common with cliffs, bees seem to prefer the same tree in certain areas for nesting.

Call for a New Respite

"Few adivasis embark on the forest-laden paths. The present generation shies away from the craft, implying that the good life of today's world is far more attractive than these adventures. Bees no longer flood the cliffs in their millions. Reduction of combs has led to a fall in income and loss of interest in this profession. Only few adivasis still understand the special link that binds them to the bee and its ecology. Commerce has replaced the voyage of a culturally significant event. Forests have dwindled....." (Keystone Film, 1999)

Other issues facing honeyhunters and bees alike is the shrinking habitat of bees, use of pesticides and rapidly changing weather patterns disturbing bee ecology. Problems are aplenty yet hope arises out of the fact that the honey hunter is a naturally born conservationist who gazes at the forest with deference and does not take up a combative stance at it.

An experienced honey hunter understands the importance of bees in conservation of the ecosystem. He plants ideas of conservation into the minds of future hunters through his acts of preservation.

- He only harvests those combs that have less brood and more honey signifying that the comb has matured fully.
- Correct level of moisture content aids in harvesting the comb at the right moment without affecting the comb adversely.
- He differs from others for he does not fire combs and instead just smokes the bees out. Some indigenous and mainstream communities do the

opposite, for they fire the combs that lead to the death of a large number of bees.

- He is involved in lifelong monitoring of cliffs for signs of changes in bee ecology that could affect his livelihood as well as that of the future generations.

- To counteract the loss of the brood in the harvested comb, he always leaves some colonies intact on each cliff that he harvests.

- Leaving part of the comb intact also helps, as it promotes immediate clustering of the bees around the harvested comb once the smoke has cleared. This helps in the sustainability of the colony which is rebuilt soon after.

Eventually, the role of the bee and the hunter in this cycle of production and consumption needs to better acknowledged. As a caretaker of the environment, the honey hunter understood the linkages between conservation of the bee and its effects on his livelihood. His understanding must be taken into consideration while making decisions that might effect his livelihood. Reviving his ties and that of his offspring to a conservation centric ethic will prove beneficial. Pressure need to be lessened on the bees to revert dwindling productions. Increased livelihood opportunities such as beekeeping will have twin benefits - of increasing production of honey and reducing pressure on the bees. This and a persistent effort to follow up forest protection with a zeal, will provide both the hunter and the bee a degree of respite – respite that may well be enough to induce fresh air down the badly parched lungs of environment today.

7

Nilgiri Biosphere Reserve – Road Map for the Future

The rich natural heritage of the biosphere, although facing a series of myriad issues, remains crucial and calls for attention to enable protection, conservation and an ecologically sensitive development. Several views are heavily biased to human populations and some to wildlife and forests. Considerable protection has been accorded to the region in the form of national parks and sanctuaries, but in doing this, has it impoverished the population of erstwhile hunter gatherers? This is the question that needs to be addressed in all the regions – be it the Pillur area and the dam, Wynaad and Gudalur with land alienation problems or the Upper areas of the Nilgiri plateau where land use changes have forever altered the Toda way of life.

The past years of development has resulted in domination of other populations and migrants over the voice of the shy and small adivasi populations. The state needs to re-think its development strategy and perhaps have special regulations which will protect the interest of adivasi communities and preserve the ecology of the area. Such examples exist in India itself – like the Abhujmadh area in Bastar, Chattisgarh protecting the lifestyle of Maria community and the hill state of Himachal Pradesh which places restrictions on purchase of land. This has not materialized in the Nilgiri region because the Biosphere Reserve spreads across three states. With three governments in play, it would require a significant amount of political will and a development thought process that takes eco-regions into consideration and not necessarily state or district boundaries.

Experiences of a Decade with Adivasis and Forests

Keystone Foundation has been working in the NBR since 1995, with the goal of balancing conservation of the natural resources, livelihoods of indigenous people and enterprise oppurtunites for them. Interventions began with an understanding of honey, bee ecology and adivasis. Sustainable harvesting methods for wild honey collection, beekeeping, honey quality, processing, better prices for honey and wax, value adding products in village centres and marketing through an ecologically

conscious 'Green Shops' followed soon after. Training and dialogue with honey gatherers is a constant effort, in the quest to reach the goal of conservation.

Addressing an issue through the three sided prism of conservation, livelihood and enterprise has shown that balancing them is possible. Unsustainable practices need to be stopped without a loss in income from NTFP collections. Similarly, prices need to be made equitable for the collectors and alternative livelihoods explored. These efforts are ongoing with a long term focus on biodiversity conservation and better livelihoods for the people.

Policy Framework

Honey hunting and as a consequence, NTFP management has several aspects to be institutionally covered in future. Policies must ensure that products are only dealt by the Village Forest Committees or Vana Samrakshan Samitis. These have been formed under the nation wide Joint Forest Management programme and are active in some areas, whereas in others, they are at a nascent stage. Often, VFCs are not allowed to grow because of the age old nexus between the officials and the traders. A sensitive policy must aid in eradication of these unsustainable links. A major drawback is that VFCs do not have funds to buy NTFPs and have to depend on traders to extend the initial capital resulting in low prices for adivasi gatherers.

Illegal trade of NTFPs is a major concern in most parts of NBR. This is due to porous inter-state boundaries. Today this trade is governed by demand from the ayurvedic industry. There is a need to reconcile this situation in the entire NBR, so that collection is regulated across the region and there are checks on the quality of product and its time of collection.

Community Participation

Commercially collected NTFPs are a good source of livelihood for adivasi communities. Processing and value addition of these NTFPs will add a greater amount of income for the people as proven in places where such a methodology has been implemented. This will serve the twin purpose of generating employment/income and also conserving resources by adapting sustainable harvesting techniques. However, in our opinion, rights to the collection and use of NTFPs should be given to indigenous people, mainly to aid in maintaining the age old link with the forest, but also to ensure that lobbies of encroachers and

timber mafia do not enter these areas. It is only by adopting participatory management techniques, providing for some rights and enforcing some responsibilities on a wider base of people, can the remaining forests be protected.

A key learning from Keystone's work in the NBR with adivasis, relate to the breakdown of their social fabric. The changes brought about by land use, crop patterns and overall development has led to fragmentation of the community and a rather individualistic stance of each family – earning enough for their needs. Perhaps, to revive the concept of the Biosphere Reserve, fostering a community based conservation approach with these people as is now being done in protected areas across the world, will be useful. Strengthening community institutions for conservation can go a long way towards maintaining socio-cultural identities of the adivasis, to help them refrain from the pull of being subsumed in the 'mainstream'. Efforts need to be taken to explain the concept of the Biosphere Reserve to adivasi communities also. This would help build a larger understanding of their environment and synergy between the efforts being undertaken in small pockets of the NBR for ensuring adivasi rights.

Markets

Also needed is an urgent appreciation of the forest as a resource that need not be exploited as and when required but also that a forest by itself is a living resource, one that existed for millennia and one that was judiciously utilized by communities as well. The modern understanding differs considerably from the concept of a forest in the minds of indigenous people.

The use of forests for economic benefits is likely to be a long lasting cause for its degradation - based on the systematic assumptions of use values of a patch of forest. In our forays in the greater Nilgiri region, one common observation has been that those adivasis who enter the forest for extracting resources cause considerable damage to the eco-system through overexploiting or incorrect deployment of their skills. As against them, adivasis who have somehow managed to maintain their traditional relations with the forested parts follow a method in each of their acts, whether it be leaving a number of combs, or extracting *nellikai* in a particular season. The value of the forest in terms of its benefits to human communities and intangible benefits that accrue to the overall ecosystem is perhaps a systematic way of making people understand the value of the forest for large sections of the society.

Markets that contribute to ensuring a better appreciation of the forest wealth is worth an initiative that may perhaps go a long way in forest conservation. For it is an irrefutable fact that markets exist and thrive in an economy that is highly dependent upon these forests. Markets need to be controlled through stringent measures; the handing over of power to local communities is one of them. Forest dependent communities with help from agencies that include the government, environment groups and the forest guard in the local beat, and with a little more knowledge of the wealthy resources they live in, would continue preserving the forest as a whole and not as a mere economic resource.

There needs to be regulations in this sector, which secure the interest of both business and conservation. If there is sufficient economic benefit from the forests, they will help protect resources and prevent vested lobbies. This will help preserve greater numbers of plant and animal life and keep the water regime, intact. NTFPs, therefore, must be viewed in a different light today. Mere collection will not make adivasis economically well off. A new gathering strategy has to be evolved, taking into account, inputs from their existing practices and norms.

As emphasized before, private businesses in the sectors of herbal pharmacy, herbal cosmetics, dyes and paints and food processing which use NTFP as a raw material are not involved in the process of conservation of these very species. Ayurvedic, Siddha and Unani medicine providers, who commercially sell their products, must today, also work towards conservation of species and their propagation. Besides cultivation, fixing quality parameters and establishing more scientific criteria for purchase will in turn prevent large scale destruction of all resources. It will also make the adivasi collector, conscious and aware of what the market accepts.

The other important section of society – the consumers, must also be involved in forest conservation issues, ensuring use of products which are sustainably harvested and fairly traded. These aspects still need a lot of consistent and concerted work in the future to be effective.

Eff0rts in the Greater NBR

At a larger scale in the NBR, there is a need to protect forests from further encroachment and reduce the pressure of fuelwood extraction for commercial purposes. More effort on renewable energy resources in the region can help to meet the needs of the NBR and the adjacent plains. The need to treat the region

as a whole is also felt, in the research and documentation aspects where the flora, fauna and adivasi people can be put together as one, instead of the present fragmented situation. A consolidated flora of the NBR needs to be put together, especially for the forests within Tamil Nadu state. Efforts to revive forests, start up nurseries, include rare and endangered plants and have regular methods of initiating restoration work in the area – will have a beneficial outcome for the forests of the NBR.

Our experience shows that this is a daunting job, constantly confronted by several hurdles – the biggest being the lack of fund allocation for conservation needs. Increased involvement of planters, citizens, students, traders in this endeavor can lead to a dynamic change. The burden of conservation and protection of the natural environment need not lie only with adivasis and other forest communities but with as many sections of the society as it is possible. Handing down conservation as a duty to be performed to an adivasi is inappropriate as large amounts of degradation has historically taken place by other role players and not adivasis.

Issues related to the particular adivasi communities in the reserve cannot be seen in isolation – for they are intricately intermeshed with other communities in the hills today. In most areas, wage is the only livelihood avenue left for the people. This is seen as an unwise option as it splits the social fabric and causes difficulties for people who are old, sick or unable to undertake hard work. Strategies to deal with hunter gatherer communities or those classified as 'primitive tribal groups' require more thought provoking ideas. Adivasi populations are small and scattered; access to food, health care and education is often a problem and their social organizations are weak. Development programmes of the government often do not reach these people or are not acceptable to them in the form in which they come. Typically, the concerned authorities and the Department of Tribal Development should evaluate their present programmes and methods of working and come up with innovative strategies for the future. NGOs working in this field also need to rethink their programmes to address these communities and their typical situation.

Wildlife

Human-wildlife conflicts abound in the area within the NBR and need to be addressed for maintaining sustained healthy populations of elephants and avoiding crop raiding and destruction to humans. Historically known for

poaching of elephants and tigers, heightened during the time of Veerappan, this trend is slowly reducing due to strict vigilance. Some efforts are being made by NGOs like WWF and WTI which need to be supported. Identification and rehabilitation of key corridor areas in the NBR will go a long way in supporting one of the largest populations of the endangered Asian Elephant.

Water

Being a mountain region, water and wetlands in the upper areas are very important for both upland and downstream communities. Whereas some springs exist on the slopes, most of the perennial water bodies emerge from the upper areas. There is a need to preserve these sources and prevent their destruction due to construction, human habitations, etc. Pollution of water sources from excessive use of pesticides and fertilizers is also required. There are many discussions ongoing to make the Nilgiri district, which lies mainly in the upland, an organic area. This would be a big step towards conservation and greatly benefit the communities and wildlife that need water downstream.

Development for the Hills

Given the ecologically sensitive regions of the NBR, one cannot wish that 'no development' happens. With more investments into this part of the country for IT parks, hotels and townships – pristine areas like this will have to face the brunt of change and challenge. Other than protected areas and those under RF category, changes in development will put a lot of pressure on the resources in the hills. It is not only the space these development projects occupy directly, but also the surrounding resources that they use that impact the environment. Groups like Keystone, in co-ordination with other similar minded organizations – can make a change in the development paradigm by having in place alternatives for livelihoods and enterprise, which benefit directly or indirectly the cause of conservation.

Map XXII

Micro regions of the Biosphere Reserve

Cells of Trails

The Nilgiri Biosphere Reserve is an endemically rich landscape peopled by groups with diversely primitive livelihood patterns. Each niche has its own story to tell with vibrant histories and an exciting present. These places, though uniquely identifiable for their individuality can still be grouped together based on certain common physical and social linkages. The section studies this division of regions focusing on their histories, people, forests, honey hunting techniques and similarity of problems and issues that the localities face presently. These localities or regions are Attapadi, Nilambur and the Wynaad Forests of Kerala, the Nilgiri Plateau, Coimbatore Hills, including Pillur, Boluvampatti and Anaikatti, Sathyamangalam Forests, Mudumalai Sanctuary and Sigur Plateau of Tamil Nadu and Bandipur and Nagarhole in Karnataka.

8

Attapadi - In the Shadow of the Massif

Situated in the south western part of the Nilgiri Biosphere Reserve north of the Palakkad gap and at the south-western base of the Nilgiris, Attapadi constitutes a fascinating ecosystem within the Biosphere. It has a total area of 745 sq. km. spread over three panchayats namely Agali, Pudur and Sholayur. It is located between $10^0$55' and $11^0$15' North latitude and $76^0$21' and $76^0$48' East longitude. The boundaries are – Tamil Nadu on the north and east, Mannarkad Taluk on the south and Silent Valley National Park on the west.

Map XXIII

The Attapadi Block with Silent Valley National Park

Attapadi is a case study of man degrading the surrounding environment through acts of commission and omission. In earlier times, it was a predominantly adivasi enclave insulated by geography and access regimes. Subsequently, during the 1900s started the process of degradation which ruined the forests, with maximum damage occurring in the 1970s. In recent times, large scale immigration has upset the social equilibrium. During the British era, selective felling and conversion of plantations was an ongoing process, but the wave of land use changes that came later brought in commercialization. As a result, indigenous people lost control over their resources, were pushed into marginal lands, became indebted to the State and settlers, and were relegated to wage labour.

Geography

Attapadi is one of the two extensive eastward sloping plateaux in the Western Ghats of Kerala, large parts are dry in nature. Mean annual rainfall varies from above 900 mm on the eastern boundary to above 3000 mm in the western half. Based on rainfall, the area can be grouped into high, medium and low rainfall areas. Bhavani and Siruvani are the two major rivers of Attappadi. While the Bhavani originates from the Nilgiris, the river Siruvani descends from the southern portion of Attapadi at Muthikulam. Both the rivers have been dammed and water diverted to Tamil Nadu. The Attapadi region is classified as an Integrated Tribal Development Block within Mannarkad taluk of Palghat district in the Kerala.

Area: 745 sq. km.
Tribal hamlets: 187
Tribal communities:
Irulas, Mudugas, Kurumbas

AHADS

In the light of above destructive activities and to restore the degraded wastelands, Attapadi Hills Area Development Society (AHADS) has been set up. It is the implementing agency of Attapadi Wasteland Comprehensive Environmental Conservation Project (AWCECP), with the assistance of Japan Bank for International Cooperation (JBIC).

Forests and Vegetation

The land use can be classified as dense forests (18%), degraded forests (29%), grasslands (6%), agricultural plantations (11%), agriculture and habitations (35%), rock (0.7%) and water bodies (0.6%) (Anonymous, 1991). The dense forests exist only in some parts of Attapadi. Degraded forests, cover an area of 210 sq.km., which comprise mostly the erstwhile private forests vested with the government in 1971.

Attapadi has moist deciduous forests dominated by rosewood (*Dalbergia* Spp.) and *sedichi* (*Grewia tiliaefolia*). The other commonly found species are *vagai* (*Albizia lebbeck*), *thandi* (*Terminalia bellerica*) and *kilinji* (*Toona ciliata).*

Tropical rain forests exist on the way to Silent Valley National Park. Plantations of eucalyptus and teak have been carried out by the Forest Department. The rain forest is composed mainly of tree species like *Litsea floribunda, Cullenia excelsa, Macaranga peltata, Palaquium ellipticum, Mesua ferrea* and so on. Weeds including *Lantana camara* are also found along the pathway and road sides. Tree crops of jackfruit, cashew, coconut, erythrina, areca, banana and pepper surround the villages. Cultivation of millets like *tenai* and *samai* is also common (Keystone Survey, 2006).

The vegetation in the Palur region on the eastern side is dry deciduous. The land is mostly fallow and barren land but in recent years due to interventions of AHADS, cultivation is now possible and plantations of teak and bamboo can be seen.

People

The population in Attapadiy consists of both indigenous and non indigenous people. The latter constitute settlers from Tamil Nadu and other parts of Kerala. The tribal communities identified in the study area are Kurumbas, Mudugas and Irulas of whom the Kurumbas are a primitive tribal group. (Muraleedharan P. K., et al, 1997).

Surveys attest to the Irula population being 84%, Muduga 10% and Kurumba as 6%. The main source of livelihood of the people in the area is agriculture and collection of Non Timber Forest Produce from the forest. The degradation of the forests over the recent past and non availability of sufficient sources of irrigation has seriously affected the livelihood of the people especially the tribal inhabitants of the area (AHADS, 2002).

The Irulas, originally shifting cultivators, have now taken up settled cultivation. Mudugas who also practiced shifting cultivation, have also started settled cultivation. Kurumbas who form a numerically miniscule minority, with just 6% of the adivasi population are the only known honey hunters of the cliffs in the area.

Attapadi valley has restrained and yet inspiring cultural links with the Blue Mountains. The sacred geographical limits of the Todas and Badagas converge at the Malleswara peak. Attapadi valley is called '*Baani Seeme*' – or pertaining to Bhavani river valley, by the natives. Kurumbas (labeled as Paalu Kurumbas by linguists) live in fourteen hamlets in the valley. They number around 1600 and 50% of them are aged below eighteen years (ITDP Profile, 1999). Developmental programmes launched since 1976 are yet to reach any of the indigenous communities, a prime cause for their increasing susceptibility to traders dealing in Forest produce and illegal ganja.

The fourteen Kurumba villages are scattered across the region in two sectors. Seven villages are towards the north-west of the district bordering Nilgiris and Palakkad and the other seven towards the east bordering Coimbatore district. The influences of Kerala and Tamil Nadu can be distinctly seen in their way of dressing, language as well as cultural activities like festivals and marriage rituals (Keystone Survey, 2006).

The Sacred Axis of Attapadi

The grandeur and mytho-sacral orientation of the Malleswara peak can only be realized by those who have seen it, rising from the bowels of Attapadi valley. The view of the peak pinnacled at 1664 m and the overbearing boulder of hill next to it, command a superb view, from the Attapadi valley as well as Kinnakorai slopes in the Nilgiris. On a clear, cloudless day, one can have a fantastic view of this site, also from the Madheswara knoll in Guddaiyur, as well as from Bilichi in the vicinities of Karamadai, near Mettupalayam. The Malleswara peak evokes the memory, not only of a violent episode in the annals of the adivasis of Attapadi but also the veneration of a poignant mandate found in their traditions.

Many "innocent eons ago", there lived a mighty hunter-chief in Attapadi. Being childless, he was growing weary of his existence in the outbacks of Attapady. He decided to move out of Attapadi for a few years, but wanted his barren

wife to find out in the meanwhile, a suitable spouse for him. As fate would decree, neither he nor his wife at that time had known that she had already conceived. Sixteen years rolled by and the Irula chief's wife, in the meanwhile had given birth to a beautiful girl and she grew up to be the most attractive lasse in the whole of their forested domain.

On a fine day, after sixteen years, the hunter-chief returned to his moorings. Considering him to be a mendicant, the girl offered all hospitality, the mother

being away at that particular time. The hunter-chief thought that his wife had actually found a spouse for him. Falling prey to a mad lust he tried to approach her. The mother had returned by then and she was shocked beyond belief at this catastrophe. She tried to make her husband see sense but utterly failed in all her attempts. The hunter-chief was not convinced but he decided to wait for his next opportunity.

A few weeks afterwards, the whole of Attapadi was getting ready for the heralding of a new year nearer to the new moon day. As it was customary for the Adivasis, a grand 'koothu' was on the anvil. The hunter-chief decided to carry away the girl on that day. At the height of the boisterous celebrations, the hunter-chief cornered the girl. The mother was aghast and

asked her daughter to disappear from the scene. While she was fleeing, the mother cried to the gods to halt this horrendous episode. The gods heard the mother's cries. The bamboo poles holding the canopy for the koothu were suddenly metamorphosed to stone pillars and as though dynamited, got splintered into pieces of rock and the same scattered in the vicinities of Pottu kallu (hence the name). The sky turned blood red and the foliage canopy caught fire and the bamboo groves inflammed it. The wild hives, driven by a ghastly smoke and wind let all their honey flow into the river Bhavani. Dense clouds from the sky descended and engulfed the whole valley. After a long time, the clouds returned to the sky. There was an eerie silence. The adivasis who had fled, returned, to see, at the spot where the wife of the chief stood, a charred boulder of hill and next to it where the chief had stood, the awe inspiring peak. The girl was not to be seen anywhere.

The following year, the usual celebration was in the offing. The Irulas decided that the Todas and the Badagas who also had linkages with Attapadi should be invited too, to appease the spirits of the hunter-chief and his wife, now turned into sacred sentinels. The Todas came with their offerings of a piece of their cloak and berries. The Badagas came with their offerings of venison. The Irula priests entered into a trance and the couple-spirits spoke through them. They were prepared to accept the offerings of the Todas and Badagas on one condition. In order to propitiate the disappearance of their unmarried daughter, they mandated that the Irula women should co-habit with the Todas and the Badagas. The progeny of those who cohabited with the Todas became the Mudugas and those who cohabited with the Badagas became Kurumbas. Thus came into being the Peak-diety (Mala + Easvara = Malleswara), alongwith his consort, still guarding the Attapadi valley.

The above recorded legend was verified with Maaran, the Irula headman, Sellan, the Muduga headman both at Karuvarrayur in Attapadi valley and Siraangi, the Badaga headman of Kinnakorai, in the year 1985)

Contributed by Rev. P. K. Mulley

Honeyhunting

Honeyhunting as a cultural and economic activity of the Kurumbas has witnessed several changes over the past decades. There is now a high market driven need to collect honey in some areas of the region.

Cultural significance seems to be strongly rooted amongst them in the northern and western parts. Prior to setting out on the first harvest of the season, a *puja* is performed by the *pujari* and this usually takes place near the site of harvest. However, not much cultural significance is attached to honey hunting in the eastern villages and amongst other adivasi communities. The Muduga community mainly collect *Apis cerana* honey, (like the Todas) and inhabit the upper reaches of Attapadi.

The honey season is from April to May. The groups set out to the forests for three to ten days depending on the distance to be traveled and the number of combs available for harvesting. Expenses are incurred on food and other basic necessities to be bought for hunting and personal use while camping in the forests.

According to a group of villagers, upto ten combs are harvested in a day which can yield upto 200 kgs of honey and more depending on the size of the combs. Large numbers of combs are found on the cliffs and usually only $1/4^{th}$ are harvested. The harvesting is usually done in consecutive weeks in the season. Cliff hunting is much more difficult and risky. To reach the combs located on high cliffs and almost inaccessible areas, bamboo pegs are hammered into the crevices of the rocks/cliffs. On reaching a height parallel to the combs, a bamboo pole is laid over and tied to the pegs like a bridge. This bridge is then used for reaching the combs. In case the honey combs are at a lower position the 'bamboo bridge' is laid inclined.

On trees, the number of combs is much lesser but the average honey quantity is approximately similar to the amount harvested in the region. Combs on trees are harvested using the following two techniques. In some cases, a bamboo pole with shoots is chosen. This pole is then tied to the tree and used for climbing and harvesting honey. Another technique is to cut small steps in the tree trunk to climb upto the comb.

Women are not directly involved in honeyhunting in any of the villages but they provide useful information on the combs, numbers and sites which they usually come across while collecting other NTFPs.

Honey is collected by squeezing the comb with bare hands and filtered with cloth before selling to the society or traders.

Honey Markets

The Chundaki Kurumba Cooperative Society in Sholayur panchayat provides membership to the Kurumbas in the region with all the members of the indigenous community above 18 years of age being eligible to be members. The Kurumbas have to sell all NTFPs, including honey, collected by them to this Society. The Society is the major buyer of honey in the region. Other communities can also sell honey and other NFTPs to this society, but are not entitled to be members besides being ineligible for benefits from the Society. Till 2005, Rs. 70/- per kg of honey was offered to adivasis. This has been increased in 2006 to Rs. 80/- per kg.

Table VI

Honey Sales

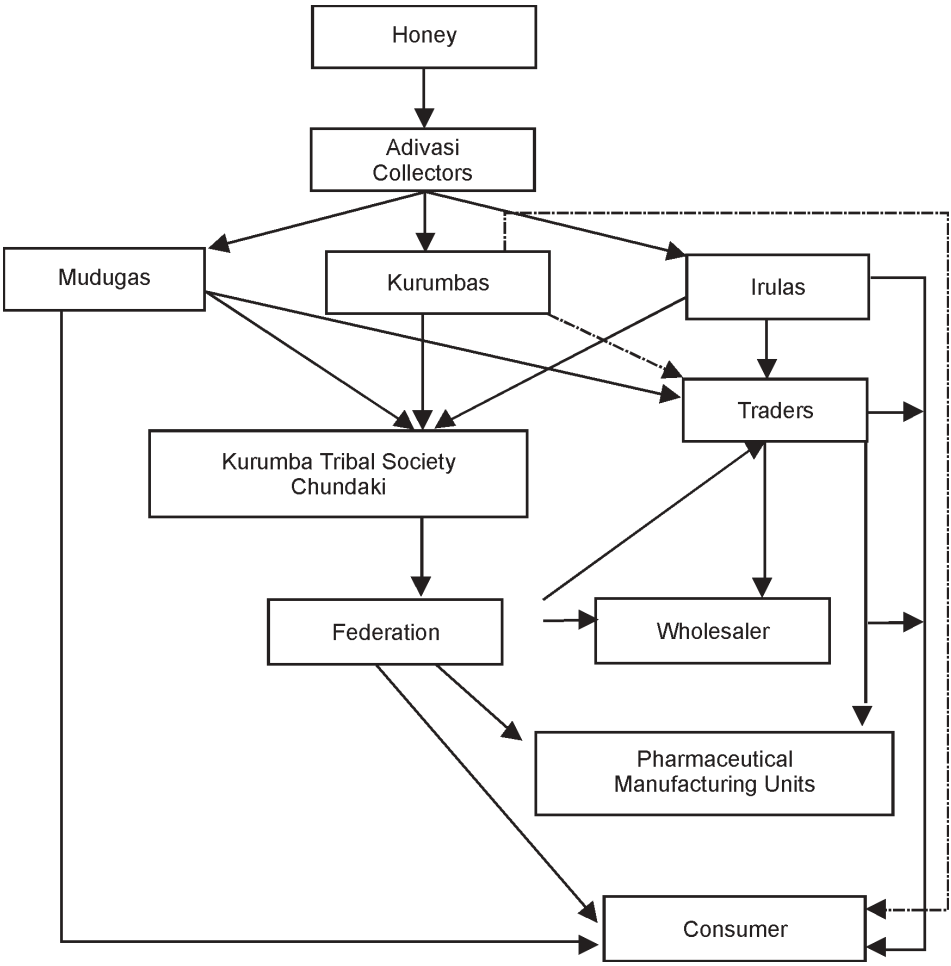
Region	Sold to	Rate Sold	Type of Honey
Attapady	Chundali Co-op Society/ Private Traders	Rs.80/ Rs.105-120	*Apis dorsata*

Selling the honey outside to private traders and consumers ensures Rs. 105-125/- per kg, but strict vigilance by the Society deters the members from selling their produce outside. They prefer selling it to the society as the membership gives various other benefits of bonus (18 - 25%) and loans in times of need. However, the practice of selling outside is mostly followed by other communities.

There is also considerable collection from small nests of *Apis florea* and *Trigona* Spp. and is generally not sold, though it may fetch a better price compared to *Apis dorsata* honey. The honey is valued by the communities for its medicinal value.

Figure IV

Complex Trade Scenario



Non Timber Forest Produce

A Minor Forest Produce Committee regulates the collection of NTFPs in terms of the produce that can be collected and sold to the Society. According to the people in the northern villages, there are clearly demarcated boundaries for each village. The demarcation is usually a cliff or stream and any attempt at collecting NTFPs outside the boundary by the villagers is strictly not allowed. But the villagers

towards the east maintain that they followed no such demarcations and hunted wherever they pleased and allowed other village folks to hunt in areas close to their villages.

Table VII

NTFPs Collected

Local Name	Scientific Name	Part Used	Purpose
Kurumkungiliam	*Canarium strictum*	Resin	Incense
Urinchikai	*Sapindus trifoliatus*	Fruit	Hair treatment
Nellika	*Phyllanthus emblica*	Fruit	Food
Chinnikai	*Acacia sinuata*	Fruit	Hair treatment
Kurunthotti	*Sida rhombifolia*	Entire	Medicine
Nannari	*Hemidesmus indicus*	Root	Medicine
Nutmeg	*Myristica dactyloides*	Fruit	Food
Orila	*Desmodium gangeticum*	Leaf	Medicine
Muvila	*Pseudarthria viscida*	Leaf	Medicine
Pada kizhanagu	*Cyclea peltata*	Tuber	Medicine
Chunda	*Solanum indicum*	Root & Fruit	Medicine

Remaining In the Shadow Of The Forest

While in the Attapadi region, the striking feature was the different appreciations of forestry resources within adivasi groups themselves, separated merely by geography. However, geography has also proven to be a major reason for the isolated nature of Attapadi and also for the widespread neglect that continued over the past decades. Much of the degradation in Attapadi has not affected the Kurumbas of the northwest, where rich forest still abounds, while in the east, the forests are all but totally degraded. The north west area being inaccessible for upto six months of a year is difficult to reach by foot too, as compared to the east.

The eastern part with severely degraded forests evokes disturbing responses from those who come here. Degraded, locals say socially as well as in physical resources,

it is here that interventions need to be intelligently placed and not imposed upon the people.

Besides, illegal cultivation of *ganja* (*Cannabis sativa*) flourishes in inaccesible parts attracting elements of society that include the mafia and traders. This induces availability of easy money and a syndrome of violence. Forest and Police Departments are often involved in raids with adivasis suffering considerably. However, over the years, the land area under cultivation has reduced with cultivation moving upto very remote regions in the hills. The government is making several efforts through AHADs to improve the lives of the people. Attapadi remains a challenging area, where the aim would be to get back the *attas* (leeches) in a lush forest and a sustained livelihood option for the people.

9

Gudalur - Convergence Zone

Situated at the crossroads of divergent linguistic and political boundaries, Gudalur (meaning confluence) is the converging point of the three states of Tamil Nadu, Karnataka and Kerala. It is a window with myriad hues and shades that speaks out several stories, all true in their respective limits, yet adding to the complexity that makes up the present history and society of the region.

Map XXIV

Gudalur and Pandalur Taluks

Gudalur was known as Nilgiri Wynaad in earlier times. Gudalur and Pandalur taluks currently constitute one of the largest subdivisions of Nilgiris district and is home to unique adivasi groups, namely Betta Kurumbas, Mullu Kurumbas, Nayakas, Paniyas, Chettis and others. Lying to the north west of the Nilgiris district, this micro region is situated on the southern extremity of the Mysore Plateau and separated from the Sigur plateau by the Moyar River, bound by the Nilgiri massif in the south east and sloping down steeply to Nilambur towards the south and the west.

Gudalur's uniqueness lies in being an inter–frontier zone of the Nilgiri Biosphere Reserve with its Tropical Evergreen and Moist Deciduous Forests forming a wonderful portion of the Biosphere in the form of the famed Mudumalai Sanctuary that lies within the taluk and bordering Bandipur, Nagarhole and Wynaad protected areas.

Geography

Due to its proximity to the western part of the Sahyadris and located uniquely in the meeting point of both the monsoons that touch mainland India, the region has a much higher rainfall, 2000 - 4000 mm as compared to the rest of the district and has naturally occurring luxuriant vegetation. Infact, the town of Devala within the taluk is known as "the second Cherrapunji", for the heavy amounts of rain that pours into the region. The natural vegetation consists of swampy grasslands in the valley and Dense Moist Deciduous and Evergreen Forest types on the hill slopes.

Gudalur is the watershed for a large number of major rivers, including the Moyar, Chaliyar and the Pandiyar-Punnampuzha. According to one local estimate, a total of over hundred rivers or streams flow out of the Gudalur area with some prominent ones being *Bennehole*, *Kakkanahallah*, *Bidarhalla*, *Doddgattihalla*, *Umbarahalla*, *Avarahalla* and *Kurumbarpallam* streams.

The general topography is that of a more or less undulating form. Generally low hills occur with gentle slopes along with large swampy valleys locally known as *vayals*. These *vayals* are predominated with large areas of wetlands and rice cultivation. Today, the *vayals* forms the natural resource base for a large proportion of migrants as well as locals who practice subsistence agriculture. Large areas of the *vayals* have been converted for other land use and are no longer suitable

for agriculture. Padanthurai, a large *vayal* is one of them which needs to be protected to prevent it from the fate that has befallen many others.

***Padanthurai** is a predominantly rural area situated in Gudalur Taluk at an elevation of more than 900 metres above sea level. It literally means "water-basin land". The region lies close to the Mudumalai Wildlife Sanctuary. The huge wetland at Padanthurai is an intensively modified wetland where a diversity of crops like bush beans, ginger, arecanut, banana and paddy, flourish. Paddy is the main crop with vegetables grown in the drier seasons. Water from numerous wells is used both for drinking as well as washing needs. A large number of people depend on the wetland for their livelihoods. Most of them are intensely cultivated and modified for human usage. Native flora and wildlife have relatively diminished and the area often turns dry in the summer months. A high density of population, use of pesticides in the fields and multiple extraction of water are threatening Padanthurai and many more wetlands.*

Forests

The utilization of timber in this zone has been a story of sequential exploitation. Teak was a major source of revenue generation for the British. The forests of the area were extensively exploited by opening up newer areas. As a result, Gudalur has been considerably affected by changes taking place in the last two centuries. Introduction of plantation crops and undue exploitation of forests resulted in severe degradation of natural resources.

The Mudumalai Sanctuary consists of the following ranges - Theppakadu, Mudumalai, Kargudi and Masinagudi. Large areas were introduced to scientific forestry and under its guise, the forests in Gudalur were reserved and local people denied access to the forests. A system of working plans was introduced. The system of clear felling continued till late 1940s.

The forests were relentlessly exploited and as a result most of the high quality forests have been exhausted. With opening up of large tracts of forest, considerable migration occurred and that has forever upset the social equilibrium. As a result, the ecosystem people have been marginalized to serve the commercial interests of innumerable plantations.

Protected Sanctuary

The Mudumalai Sanctuary lies towards the south of the Nilgiris Hills and is separated from the Bandipur Tiger Reserve by the Moyar river that flows along the border of Tamil Nadu and Karnataka. Mudumalai means 'ancient hills'. A major road connection i.e. the Mysore - Ooty highway runs through the park. The terrain is extremely varied with hills, valleys, ravines, watercourses and swamps. The vegetation comprises Tropical Moist Deciduous Forests, Dry Deciduous Forests and Scrub Forests. There is a large percentage of mixed forests with bamboos present. The protection accorded to the sanctuary has helped in a varied and large population of wildlife including avian fauna such as minivets, hornbills, woodpeckers, mynahs, parakeets and orioles. Besides, there is a high density of large mammals such as the elephant, tiger, gaur and wild dogs.

Though protected, the sanctuary is not bereft of problems. It continues to experience increasingly, biotic pressure from the east and south. Small towns like Masinagudi and Singara pose threats to the fragile ecosystem, besides the numerous villages which dot the area along Gudalur.

Land rights are still ambiguous and encroachments are common - the plantations slowly inch into the forests. Farmers have devised unique ways of living – they are up against the elements as well as the giant pachyderms that constantly threat to invade their fields. However it is the adivasis who face the brunt – having lost their land rights, with no place for resettlement and the constant harassment & exploitation by petty officials and traders.

The issue of encroachment is all pervading. Inside the sanctuary, lies the Benne block having a few patta lands. There is a group of Chetti patta lands in Mudumalai block as well (total leased land is 55.00 hectares). In addition to this, the Chetties are cultivating 645.63 acres in different revenue settlements inside the sanctuary. The Forest Department has plans to relocate the people living inside the sanctuary to other places in the taluk. The villages originally envisaged for rehabilitation were Srimadurai and Cherumulli with potential land being offered as high as 1600 acres. But there has been little further progress in this matter.

With rapidly increasing populations and a shrinking land base, it is but critical that the sanctuary be accorded greater safety, but in hardening their stance, the Forest Department often isolates the marginal adivasi groups who have no other means of livelihood, other than the forests and its resources.

Historical and Social Gudalur

Gudalur, was part of south- east Wynaad and was previously called, the Nilgiri Wynaad. Large tracts of it (about 290 sq. miles) came within the territorial control of the Vaalunnuvar (hereditary ruler) of Nambalakode. He derived his political authority from the Kotiote or Kottayam Raja of Cannanore on the West Coast. Nambalkode and similar Nair Principalities in the Malabar region were annexed by Hyder Ali of Mysore by 1773. The British gradually acquired these territories in 1783. The Zamorin of Calicut then became the overseer of these territories on behalf of the British. He made the Thirumalpad of Nilambur Kovilagam, the suzerain of Nambalkode (Gudalur) division. There were also other petty rulers like the Nelliyala Arasu (a Lingayat of Kannada extraction) and the more famous Kerala Varma, the Raja of Pazhassy whose sway extended as far as Nellakottai. It should be mentioned here that Pazhassy Raja was one of the earliest native rulers in South India who challenged the British supremacy (1795-1805); he fought with the assistance of Kurichiya adivasis in these battles.

Since 1845, the Thirumalpad of Nilambur started leasing out large extents of forest lands in Gudalur for European plantations. The government itself, also took on lease from Nilambur Kovilagam 46,600 acres of forests in Mudumalai. This was done apparently to exploit the splendid teak, vengai, venteak and blackwood available in the ravines. It is a quirk of history that the adivasis living in these tracts of forests from time immemorial are now being asked to give up their habitations and to become refugees in their own lands!

In 1877, Gudalur division was detached from the Malabar district and was made part of the Nilgiris. The gold-mining activities (1879-1902) in the Devala and Pandalur sectors of Gudalur triggered off an influx of immigrant population into the area. When the gold mining failed, coffee and tea plantations provided refuge to this increased population. With the elimination of fear of malaria, the flood-gates of population-rise opened and by the 1950s the increase in population reached 68.1% (Adams, in Hockings, 1989:321). Subsequently a steady increase of Syrian Christian communities from neighbouring Kerala, people from Tamil Nadu plains and other populations came to be topped by the Sri Lankan Tamils in the 1970s.

The socio-political and ideological compulsions from a newly emerging Gudalur society,made the government of Tamil Nadu to pass the Gudalur Janmam Estates (Abolition and Conversion into Ryotwari) Act 1969 and it came into force in 1974.

Certain sections of the society moved the Supreme Court in 1977 for redressal of certain provisions. The Supreme Court gave its verdict in 1999. But the government of Tamil Nadu has not yet started acting on it.

Emerging Conflicts

Amidst this restless situation, the past century has witnessed emerging conflicts in two of Gudalur's most treasured resources - the primeval forests and the indigenous communities.

Amidst the disorder and continuing migration, land encroachment became predominant. The large encroachers have taken over bulk of the higher quality land for estate purposes with some being more than 500 acres.

The continual and uncontrolled land grabbing has consequently marginalized the indigenous communities and restricted their sources of livelihood to an already depleting traditional resource system. Sandwiched between the increasing estates on one side and the Mudumalai sanctuary on the other, their life is still in a state of flux even as you read these lines now. What added to their concern was the change of status of access to resources. Presently, with lease agreements being signed by most stakeholders, the indigenous people were left behind in the race to offer proof of their existence and traditional domains of tribal life.

Section 8: Under this section, jenmis (holders of the original Jenmom land) are entitled to pattas for lands that they or their employees are cultivating.

Section 9: Under this section, tenants of the original jenmis are entitled to pattas for lands that they or their employees are cultivating. To receive these pattas, the tenants must show that they were enjoying the land in 1969 and had been doing so for a continuous period of three years before.

Section 17: This section, later to prove the most critical to Gudalur's land situation, empowers the government to renew or terminate leases that have been taken on Jenmom land. However, there is no provision for the grant of pattas on land that fall under this section.

Section 53: This section empowers the Settlement Officer to decide whether an area in the Janmom lands should be included in government forests.

Contrary to arrangements that the companies and plantations have had, indigenous people had usually exercised their customary rights of hunting-gathering. While the *jenmis* recognized their rights, they did not have a legal relationship over the land, a cause for widespread alienation.

Adivasis in Gudalur

Gudalur is also home to a multi-diverse set of indigenous people who have made the forests of the land their home for centuries. There are five prominent

indigenous groups viz. Paniyas, Bettakurumbas, Mullu Kurumbas, Kattunaickens and Irulas inhabiting the valley. While other communities are scattered throughout the district, it is the Mullu Kurumbas who are concentrated in one particular region - the western part of Cherangod.

Adivasis in Gudalur region differ significantly from those in other regions of the Nilgiris, especially in their dressing and lifestyle patterns. A striking difference is the pattern of homesteads, which unlike the varying resource use and altitudinal variation of settlements in the hills is more homogeneous. "*This multiethnicity has had one relevant impact and that is of the absence of ancestral domains and territorial divisions. The whole land was of all the groups and all the groups indeed made their living from the land by equitable sharing of the resources.*"

There was a minimal degree of specialization and wherever it was, it was because of the immediate environment that gave a particular community enough choice to gain expertise in a particular profession. Thus, the Kattunaickens were the suppliers of forest based produce to the other communities and the Paniyas were agricultural serfs who worked on the land of the Chetti. Minimal specialisation has led anthropologists to label adivasis in the Gudalur region as most commonly cultivators and/or food gatherers. Due to the closeness of habitats, a number of social functions were celebrated together. Another interesting fact was of that of divergence of social systems inspite of living adjacent to one another, Furer Haimendorf writes that *the social system of the Wynaad tribes are diverse... and the social anthropologist is in the unusual position of finding within easy walking distance, communities presenting several varieties and combinations of patrilineal, matrilineal and bilateral systems of descent and inheritance (*Haimendorf, 1952:36*)*

A large number of adivasis practice settled agriculture presently, with occasional forays into the forest. However, there exist within the adivasis, several groups who have held to their expertise in the face of rapidly changing scenarios. The honey hunters belong to a small minority maintaining their traditional niche for centuries. Even in a predominant adivasi village, the number of honey hunters is negligible as compared to the population structure of the village, signifying the specialized nature of this profession.

There are exceptions to this unwritten rule and it is infact most visible in the Kattunaicken dominated villages adjacent to the Mudumalai sanctuary. The

Kattunaickens are small in number with most optimistic estimates touching not more than 600 people, yet most members of the community belong to honey hunting groups. The Kattunaickens are concentrated in regions upto Wynaad of Kerala with major population groups in the northern most flat Mudumalai Sanctuary, in the southern most Ouchterlony valley, at the eastern border around Gudalur and on the western side in Cherangod.

Honeyhunting

Honey hunting is a primary activity of the indigenous people residing in the Gudalur region, especially groups living close to the rich forests of Mudumalai. Looking along the map of Mudumalai, it is clear that these and many more villages are situated next to the sanctuary and infact may have been located further inside in the bygone era. It is clear from the map that the villages are staggered along the length of the sanctuary touching Kerala state on the other extremity.

All villages show a remarkable similarity in their methods of honey collection. During the day, they scout for combs and arrive at the site late in the evenings for collection. They use bamboo ladders adding upto three ladders to reach the comb.

The first person who spots the honey marks it and henceforth no one can collect from that particular position. Usually, a group of two to three people set out for the hunt which may increase to ten, in a good season. During hunts, they pitch a camp close to a water source and then move out in small groups and then regroup in the evening. They do *puja* and offer honey to the gods before and after the first collection. They offer coconut, *dhoopa*, betel leaf, banana and *karpuram* to the gods, including *Malaidevam* (a major god of the honey hunters).

During the hunt, one man climbs with others helping him. If a ladder cannot be tied to the honey tree, the hunter climbs a neighbouring tree to reach the main tree. Bark is used to tie the ladder. They use the bark of *saagai maram* to tie the rope though often nylon ropes are used. However, only traditional ropes made from forest material are used to lower the honey. Plastic tins are used nowadays for collecting honey. They squeeze the honey in the forest itself. Kattunaicken woman often go to the forest for squeezing and filtering and also assist in tool making. The Kattunaickens harvest *Apis cerana* all through the year but make it a point not to harvest during moonlight, a time they consider inauspicious.

As per most people who responded to this question unambiguously, the situation of the forest is not as healthy as it used to be. An old man in a village inside the sanctuary said that the forests were thriving earlier but the destructive weed lantana has now taken over. He says honey quantities have come down. He says that the flowering is not happening at the right time, rains come in at strange periods, and flowers refuse to flower. 'Climate change'was a phrase that he used, probably not realising that this term has international importance with respect to the increasing global warming. 'Climate change' in his village and global warming are so closely inter-related. Many people say that the status of honey and forest has gone down because of fires. However, they do add that some portions of the forest are still in a healthy state.

Honey Zones

Each forest region has natural habitats that offer several benefits to a colonizing group of bees and it is from these regions that a large amount of honey is collected.

Table VIII

Honey Rich Zones

Main Honey Hunting Zones	Nearest areas to the Honey Hunting Zone
Chembakolli	Mandara, Chickhalla, Doddalu, Adapatty, Game Hut, Mudumalai, Nardi, Nagampalli, Jenubarai
Moolakadu	Benne, Nardi, Chola, Mudumalai, Kargudi, Game Hut
Gulimoola	Nardi, Pambavyal, 27th mile, Bospara.
Nagampalli	Palaimara, Gujala, Nardi, Kalbarai,
Allur	Thorapalli, Singara
Kamrajnagar	Valamadi, Guindy, Moolakadu, Kakkanhallah, Puliyalam, Jenubarai, Game Hut, Mudumalai, Barwood (Yellamalai), Nadovattam (Ooty Road), Singara, Bandipur
Odakalli	Kakkanhallah, Benne, Chickmanglur
Kuttichatanmoola	Adapatty, Jodipallam,Oithapallam, Benne, Kakkanhallah, Nardi, Game hut, Nardi

The availability of several suitable bee trees enables and attracts bees to congregate in large numbers inside the sanctuary area. There are hardly any honey trees left outside the sanctuary.

Table IX

Major Nesting Trees for *Apis dorsata*

Common Name	Scientific Name
Venteak	*Lagerstroemia lanceolata*
Mango	*Mangifera indica*
Chadachi	*Grewia tiliaefolia*
Karumati	*Terminalia crenulata*
Vengai	*Pterocarpus marsupium*
Pandhammaram	*Canarium strictum*
Palaimaram	*Bombax ceiba*
Semmaram	*Terminalia bellerica*

Markets

The honey collected is locally marketed by most people in the eastern part of the taluk. There are several persons who are involved in the purchase of honey and other NTFPs from the local adivasis. Some honey is also purchased by residents of the local tea estates.

It is only the villagers who live adjacent to Kerala or in the western portion of the sanctuary who sell their products to the agent in Allathur, bordering Kerala state. Most of them do not sell directly to Kallur society in Kerala as the society requires that only its members can sell to the society, so they prefer to sell it to one of the agents in Allathur who takes a hefty commission of 20 % . However, it is still profitable for the local people to undertake the risk and sell the honey to agents in Allathur. e.g. During the honey season, the local rate will be between Rs. 30-45 to the local traders and if they cross over to Allathur, they can sell at around Rs. 55.

Table X

Market Structure of Honey and Bees Wax

Village	Rate sold	Rate of wax/Kg	Type of honey	Average per person/trip	Groups
Tharpakolly	Rs.50	Rs.60-70	Rock	300-400kg	2
Paalapalli	Rs.55	Rs.60	Tree	15kg	1
Maanimoola	Rs.25-50	Rs.40	Rock	300kg	2
Kutti chatanmoola	Rs.35-40	Rs.30-35	Rock	100 kgs	7
Chembakolli	Rs. 45	Rs.60	Tree, dammer, Rock	10 kg	7-9
Moolakadu	Rs.45	Rs.70	Dorsata	20 kg	5
Nagampalli	Rs.35-45	Rs.60	Dorsata	200 kg	everybody
Vellangur	Rs.45-50	Rs.60	Dorsata	200 kg	5-8
Benne	Rs.55	Rs.60-70	Tree	300 kg	>5
Allur	Rs.35-40	Rs.45	Dorsata	60 kg	2
Kamrajnagar	Rs.50	Rs.60	Tree, dammer, Rock	200 kg	1
Odakalli	Rs.30-55	Rs.30	Dorsata	Worth 100 Rs.	5
Mudhugolli	Rs.40-45	Rs.45-55	Dorsata	42 tins/ group	>8

As per the notification of the department, the revenue generated from NTFP collection is negligible and thus not feasible. However, the data collected shows that out of 13 villages surveyed, each village had an average of 35 % of its population who were active honey hunters. If the population of the Kathnaickens was more and if only the Kathnaickens are taken as sample population, the number of honey hunters increase dramatically. In villages like Benne, forest gatherers account for almost 100 % of the population.

Non Timber Forest Produce

NTFPs are important sources of livelihood for adivasi communities particularly those living in forest fringe villages of Gudalur. Collection was earlier done for barter and is today done commercially, as a means of livelihood. The local economy depends to a large extent on collection, processing and sale of these valuable products.

Besides honey, there are several other NTFPs collected by the adivasis of the Gudalur/ Mudumalai belt and sold to local dealers. Gatherers are usually provided an advance against supplies and are extended small credit during the off-season to cover shortage of income and to meet emergencies. Though a collection centre exists at Srimadurai, it is located at a great distance from most villages. This forced many groups to take their honey to the Kallur society outpost in Keral state as they could walk through the forest without being checked upon.

Some trade also takes place in rare herbs. When a better price is offered the gatherer turns to the illegal trader. This is possible because the trader can offer a few rupees more as he does but not incur the NTFP contract cost. The quantities smuggled are usually small. However, it is only the most wayward gatherer who associates with illegal operators.

They collect a wide variety of NTFPs as well as firewood for their daily use. No Kathunaickens was found who did not venture out in the forest at least once in two days. For them, the forest is their mother and the source of their sustenance.

Table XI

Highest Collection of Individual NTFPs

Common Name	Scientific Name	Part Used	Purpose
Nurai	*Dioscorea tomentosa*	Tuber	Food
Bamboo	*Bambusa arundinacea*	Stem	Basket making & construction
Pullu	*Poa Spp.*	Leaf	Thatching
Kurunthoti	*Sida Spp.*	Root	Food
Nellikai	*Phyllanthus emblica*	Fruit	Food
Chunda	*Solanum indicum*	Root	Food
Kadukai	*Terminalia chebula*	Fruit	Food

Pandham	*Canarium strictum*	Resin	Incense
Padakizhangu	*Cyclea peltata*	Tuber	Food
Valla pandham	*Boswellia serrata*	Resin	Incense
Kullarmaavu	*Persea macrantha*	Bark	Food
Shadavari	*Asparagus racemosus*	Root	Food
Sivakai	*Acacia sinuata*	Fruit	Hair treatment
Manjal	*Curcuma longa*	Tuber	Food
Kaattu inji	*Zingiber Spp.*	Rhizome	Food
Kurumilagu	*Piper Spp.*	Fruit	Food
Amolpuri	*Chasalia Spp.*	Root	Food
Puchakai	*Sapindus emarginatus*	Fruit	Hair treatment
Wild banana	*Musa Spp.*	Friut	Banana
Kasturi manjhal	*Curcuma aromatica*	Rhizome	Food

However some adivasis said that they find it difficult to collect *nellikai* as they have to tackle the forest department people. To ask for bamboo also, they have to approach the guard. There is a comparatively less demand for tubers from outside. Similarly in Nagampalli, they collect lichen only when the people from Kerala ask for it as it is a very labour intensive work. Kattunaickens in many villages also take tree moss and sell it to members of the Kallur society and not directly to the society as only the members can sell to the society.

Firewood is a major extraction and source of income for many adivasis. Conservative counts suggest that as per head load weighs 10 kilos and each person collects a minimum of 5 head loads every month, the figure for a small village of 20 people goes to 1000 kilogram of biomass extraction per year/ per village, and again as a rejoinder - this figure is on the lesser side. The rate of regeneration of biomass is absolutely undocumented but the people say the condition of the forest and NTFP collection has remained stable over the years.

10

Nagarhole and Bandipur – Between the Core and the Buffer

Nagarhole and Bandipur are located in the northern portion of the Nilgiri Biosphere Reserve. These two zones are honey rich areas with numerous cliffs and 'bee trees' abounding in the forests. However, both being national parks are accorded the highest degree of protection and exclusion. This protection forbids human extraction for any domestic or commercial purpose. Thus, this zone is outside the realm of NTFP extraction related issues. The traditional inhabitants of the forest regions have been resettled in the periphery of the parks where they continue to eke out some livelihood using forest resources and also being increasingly dependent upon outside market forces.

Map XXV

Bandipur Tiger Reserve in Karnataka

Bandipur is contiguous to the large forests of Nagarhole in the north, Mudumalai in the south and Wyanad in the west. Presently, the national park is designated as an important tiger habitat and accorded adequate safeguard against poachers and encroachments. However, more than two hundred years ago, large parts of the region was under cultivation. Numerous irrigation tanks in the reserve indicate that the region was once well populated. It is said that the region was depopulated during the intense wars of Tipu's times and was reclaimed by patches of dry deciduous forest. Presently, these erstwhile irrigation tanks provide a much needed water source for wild animals, thus contributing to the presence of large numbers of these fauna. These private hunting reserves of the Mysore *rajas*, were declared as a national park and have grown to become a prime wildlife habitat of Southern India.

There are approximately one hundred and fifty villages along the boundary of Bandipur Tiger Reserve who are dependent on forestry resources for their every-day needs of fuel wood, grazing and timber. Population density is high especially on the periphery. The tradition of keeping cows in the area, which feeds the 'beef' market in Kerala, leads to further depletion of the forest through extensive grazing. Numerous policies attempt to control this by `rules, fines and punishment' but the problem has been persisting for years now. The same situation extends into the Nagarhole region, where sometimes wild elephants and domestic cattle can be seen grazing together on the Kabini banks!

Both Bandipur and Nagarhole face extensive pressure and much of the fringes of the forest are degraded. However, the inner areas still has some of the finest, vast and well protected stretches of forests. These are essential for the movement of and to support populations of large mammals who are otherwise facing a deepening crisis of fragmented habitat, poaching, cattle grazing and depletion of food resources.

People and Honeyhunting practice in Bandipur

Jenu (honey) Kurumbas, as their name implies go for honey collection in the forest during the season. There are several Jenu Kurumba villages in these areas, resettled outside the boundary of the protected area. Other than Jenu Kurumbas, the area has Yeravas, Betta Kurumba and Sholiga communities.

Though illegal, honey hunting activities flourish as it has been a traditional livelihood practice in which the people are highly skilled. Besides, people do not have other skills that could earn them substantive income.

The Boundaries of Honey Collection within sanctuary limits include Kakkanhalla, Belkupai *parai*, Gopalswamy *betta*, Moolapuram *betta*, Ketan *barai* falls, Kallukomba, Chinakadu *barai*, Begur Range; Gundre; Ambettai *betta*, Alaiberai *betta*, Allandi *gettai kerai*. There is the enormous dependence for habitat rich forested patches. Extraction is more in such regions leading to management problems and conflict situations for the adivasis.

The major seasons of honey collection are after the *mungar* (summer) showers in May-June and the second season commences during the flowering of *yella* (sesame) in October to November. Adivasis maintain that the *mungar* season brings in more honey.

A group of 4-5 honey hunters go for collection. Honey hunting is done during the night and preparations are made during day. A bamboo *(bidur*) ladder is made to climb the trunk. This is tied with *Sage Nar* rope, which is also used for the smoker. *Sage* is found mainly in the Siganpur *betta*. The rope lasts for up to 10 years if kept properly. Other fibers used are *bende* (*Kydia calycina*) and *karachi maram* (*Hardwickia binnata)* bark.

During a good harvest, they can collect up to 25 kgs/person in a week. Each comb may provide 4-10 kgs of honey depending on flowering and rains. The honey combs are collected in a bamboo basket (*bidur kukke*) after cutting with a long bamboo spear. This is usually lowered down where the combs are crushed by hand and filtered through a cloth into a can/vessel. There is also one cliff in the area – Belkuppai Parai. A 150 feet rope ladder made from *vattikai kodi* is made to harvest the combs. The cliff has between 40-100 combs depending on the season.

Table XII

Major Nesting Trees for *Apis dorsata*

Common Name	Scientific Name
Matti	*Terminalia arjuna/ T. tomentosa*
Ellaghu/Boord	*Bombax ceiba*
Atti	*Ficus Spp.*
Kadambai	*Anthocephalus indicus*

	Honne	*Pterocarpus marsupium*
	Thani	*Terminalia bellerica*
	Peekai	*Dalbergia sissoo*
	Manga	*Mangifera indica*

People and Honeyhunting practice in Nagarhole

Nagarhole - though the name is said to be derived from 'gaur' (*Naagu*, in local parlance), the rich stretch of forests presently happens to be a large habitat for Asian Elephants. About 1500 of them have been counted to be roaming the enclaves of this really wild park. The forest enclaves also feed several water -bodies in extraordinary spots and hence the suffix to the name (*Hole* or stream-courses). The boundaries of Nagarhole merge with the Marenaad hills (Brahmagiri) in the vicinities of Iruppu falls. This picturesque locale, according to some adivasi legends, is the place of origin of Paniyas, now dispersed in adjoining tracts in Kodagu, Wynaad and Nilgiris. A long time ago, they say, herds of pachyderms migrating from elsewhere, stamped upon the tuber-rich terrains of Paniyas and constantly destroyed their environs. Consequently, the Paniyas fled the place.

Map XXVI

Nagarhole National Park

Crop raiding by wild animals, particularly elephants, has been a common problem in Nagarhole. There are occasional cases of human injury or death due to elephant trampling. This has been a contentious issue that has been adversely impacting the relationship between the forest officials and the villagers of peripheral villages.

The boundaries of honey collection include Sargur Forests (Kalkarai, Waranchi), Upallu *kadu,* Beda *halla,* Edupache *kerai*, Chevellu *kere*, C.K. *betta*, Kasde *betta*, Hedi *yalla*, Forest Range - Mailleru, Gundre Range area. Dodda halla, Bavihalla, Tarimakadu kulli, Kakkankote RF – Doddadi Kadu, Kaimara, and upto the Balle Halla and Masina betta near Bavali, Madapatnahalla, Sanballe Kadu, Doddaballe Kadu, Sigur kadu, Hudubaru Kadu, Sukkunu katte, Molur Range within which usually Kudigi and Kadigarai has more honey.

Table XIII

Major Nesting Trees for Apis dorsata

Common Name	Scientific Name
Suganai (Teak)	*Tectona grandis*
Boorde	*Bombax ceiba*
Matti	*Terminalia Spp.*
Ala	*Ficus Spp.*
Tadachi	*Grewia tiliaefolia*
Karumaram	*Diospyros Spp.*
Arali	*Ficus religiosa*
Beetai	*Dalbergia latifolia*
Bikka	*Elaeocarpus serratus*

Jenu Kurumbas of this region go to the forest for honey and stay for upto 20 days. They use an ordinary coir rope from the market as traditional vines are difficult to work with. Sometimes *Sage naar* is used. They make a pit in the forest and line it with leaves, in which the combs are put. These are later crushed by hand into the tin. Bears often come to attack them and rob the honey – for this they have to light a big fire.

Markets

The honey that is collected in these areas is mostly sold to the Gundlupet and LAMPS Society in Karnataka and the Pulpalli Society in Kerala of through other agents. Honey from other bees is also collected. It is either sold or used for personal consumption. Other NTFPs collected are given in the table below.

Table XIV

Honey Markets in Bandipur and Nagarhole

Village	Sold to	Rate sold	Rate of wax (per Kg)	Type of honey	Average per person/ trip	Groups
Maddur Colony	Gundulpet Society	Rs.50/kg	85/-	*Apis dorsata* (AD)	25kg	4-5
Annadhikudi	Gundulpet Society	Rs.60/kg	100/-	A D	15kg	4-5
Guddekeri	Not Known	Not Known	Not Known.	A D	15kg	4-5
Kadanakalami	Gundulpet Society	Rs. 400-500/ tin*	Not Known	A D	20kg	4-5
Malathadi	Pulpalli Society	Rs.15/ bottle	Not Known	A D	15kg	3-4
Hosanalli	Kerala through agents	Rs.80/kg	80/-	A D	3-10kg	Not Known
Bavikere	Pulpalli Society	Rs.55/kg	35/-	A D	10kg	3
Badhda Girijan Adi	LAMPS Society of H.D. Kote	Rs.35/kg	25/-		25kg	7-8
Machur-Gulur Adi	Kerala	Rs.60/kg	50/-	A D	Not Known	Not Known
Balle	Kerala & H.D. Kote Society	Rs.60 & Rs. 40/kg respectively.	60-80/-	A D	10kg	4-5
Hallanhalli Adi	Kallur Society	Rs.60/kg	Not Known	A D	Not Known	Not Known

*1 tin = 20 litres

NTFPs

As Nagarhole & Bandipur are classified as National Parks, human activity is highly restricted so is the collections of forest produce. However, wild foods and some medicines are regularly collected by adivasis.

Table XV

Non Commercial NTFPs

Common Name	Scientific Name	Part Used	Purpose
Aralekai	*Terminalia bellerica*	Fruit	Food
Nellikai	*Phyllanthus emblica*	Fruit	Food
Noore	*Dioscorea pentaphylla*	Tuber	Food
Narala	*Syzygium cumini*	Fruit	Food
Kadukai	*Terminalia chebula*	Fruit	Medicine
Kadale	*Grewia hirsuta*	Root	Medicine
Barali	*Dodonaea angustifolia*	Leaves	Medicine

The over powering impressions one leaves with, from both Nagarhole and Bandipur, are those related to boundaries, rights and the thin line between illegal and legal. The population of Jenu Kurumbas is relatively large and have been organized over the years with NGO intervention. The Jenu Kurumba association fights for adivasi rights – rights to collect honey and other resources, to cultivate, to graze their cattle, to access water and medicine – all from the protected forests. The largest area of the core zone of the protected area and the Nilgiri Biosphere Reserve lies within this region, harbouring a vast biodiversity. This situation has led to conflict, with the two sides taking extreme positions of conservation and livelihood.

11

The Nilgiri Plateau - New Imperatives

The Nilgiri Plateau, including the high altitude Mukurthi National Park has been the scene of unprecedented changes over the past two hundred years. From the time it was discovered by the English till now, the area has been favoured for its temperate climate. It has also been subject since British times to intense exploitation of its resources. Large areas were converted to plantations of eucalyptus, pine and wattle, subsistence agriculture replaced by commercial seasonal crops, and proliferation of numerous exotic species. The trapping of hydro electric power led to the immigration of countless people, besides permanently changing the water regime. The British took their interest for plantation to such heights that they converted large areas of the naturally occurring *Sholas* and grasslands into monocrop plantations of eucalyptus, pine and wattle or tea. However, the colonial phase is overshadowed by the post independence period when the process of exploitation greatly increased.

The indigenous people are now completely overwhelmed by large extents of commercial plantations and inhabit the marginal areas. They do however cling

Map XXVII

Taluks of Nilgiris

to their earlier traditions and customs, but are now largely cut off from their modes of subsistence. Most work as wage labour in estates and live as fringe members of the larger society.

Kotagiri and Coonoor form part of Nilgiri plateau and are home to a large number of honeyhunters. The Kurumbas and Irulas who live in these parts have traditionally been practicing this form of occupation for long periods. The Toda community also collect honey from *Apis cerana* colonies and have an intricate culture related to bees.

Though adjacent, the two regions differ significantly in terms of the geography, land use and people. While Kotagiri lies mostly on the eastern part of the district, Coonoor lies entirely in the southern portion of the region. Kotagiri has a high proportion of dry deciduous forests while the Coonoor region is predominantly moist.

The Kotagiri region forms the eastern edge of the district bordering the Satyamangalam hills to the east, Coimbatore district to the south and Ooty and Coonoor taluks to the west. Due to the difference in geography, Kotagiri taluk is widely differentiated as the eastern slopes and upper areas. The eastern slopes comprising large tracts of forest areas are located in steep slopes at altitudes ranging from 1600 to 100 m above MSL while the upper area comprising of sholas, grasslands and much changed land use of tea cultivation is located at an uniform altitude range of 1500 -2000 metres above sea level.

Located at a favourable altitude, not subject to the chilling cold experienced in Ooty taluk, Kotagiri enjoys a cool weather for most of the year. Moving down from the town, the region progressively witnesses warmer weather that turns to tropical heat in the Mettupalayam region. Kotagiri experiences considerably less rain as compared to other parts of the district. Lying in the rain shadow region, Kotagiri experiences rainfall that varies considerably from 1500 mm to 800 mm in the more eastern region.

Kotagiri has several forest types including Montane Shola and Grasslands, Dry Deciduous Forests and Dry Thorn Forests. There are some patches of Wet Evergreen and Moist Deciduous also found in the region, mostly along riverine patches. These forests are all classified under reserve forests and have not been accorded special protection. There are a number of wetlands in these regions too, which are an important source of water supply for people downstream.

The forests of Coonoor have a high concentration of honey hunters and is equally endowed with a diverse urban population. The taluk headquarter lies at an altitude of about 1800 metres and is located at a major junction in the overall context of the district. The taluk has been an important centre for business in the hills, as a centre for defence establishments and a hub for communication.

Coonoor abounds with steep escarpments and a moist climate emboldened by the bounty of the south west as well as north east monsoons that lash the region with plentiful rains. As a resultant, the region features an ecology that is moist in nature with large trees and plentiful vegetation.

The adivasis regions are dominated by the Kurumbas, a community which has very small populations in other parts of the district. They live in inaccessible regions, though many have now shifted to roadside colonies bordering tea estates. The upper Coonoor areas also have Toda populations across the Kundah region. Coonoor and Kotagiri have a large number of honey hunters who are experts in both tree as well as cliff honey hunting.

How does a Kurumba trail honey?

Honey hunting is practiced by a number of adivasis in the region. The activity highly specialized requiring strict adherence to rules and conventions. In the words of a Kurumba hunter, "*The honey hunting activity requires a lot of concentration. The vine on which I hang is like my mother/Lord. As we climb down we sing praises of the vine and remember god constantly. Only those combs are harvested which have less brood. The young brood which we collect is mixed with honey as a paste and eaten later. We also collect bees wax and use it for making candles for the village and for lighting the torches while returning from honey hunting.*"

Kurumbas hunt for honey in the season from mid April onwards to mid July, when they go to look for hives. Once located, they put a mark - an indication to the other hunters that it is reserved by them. Nobody takes honey from marked hives that are identified through *mantras* or chants.

A date is set for harvesting the honey. A few days before, the honey hunter goes on fast - praying & bathing regularly. He contacts his brother-in-law and another trusted person and goes for hunting the comb. The wife or any other woman should not be seen while going for honey hunting. On the day of harvest, the hunter

does not eat anything, least of all, anything non-vegetarian. He does not talk but is all the time chanting mantras and invoking God to keep him safe. While he climbs the ladder, he sings 'bee songs' in praise of the bees. The brother-in-law holds the rope on top of the cliff when he swings on the rope ladder, made of vines i.e. creepers from the forest. This ladder is prepared during the day time and the honey is harvested in the evening (dusk). The main equipments used are a forest vine rope ladder, knife, leaves for smoking, bamboo baskets and sticks to collect the comb. They cut the brood part first and it falls off; only the brood with the young comb is eaten. The rest of the comb is collected in tins and squeezed out by hand in the village. It is sometimes filtered through cloth. The first honey is tasted by the priest of the village. The rest is shared between all villagers and partly sold to known people.

The Kurumbas use rope ladders and bamboo sticks as steps for the ladder; the other tools are coir rope, *aruval* (curved knife), tins, bamboo baskets and long split bamboo sticks with a sharpened end; smoker is mainly the protective gear used; some adivasis apply honey or plant extract *suti kodi* to treat stings from *Apis dorsata*. They harvest honey from high cliffs . They make a rope ladder with forest vines or from the bark fibers of trees on which they suspend. Rock bees

Map XXVIII

Coonoor and Kotagiri Region

make their combs under cliff overhangs, which have to be reached by swinging and using long bamboo sticks to cut the combs. The rope ladder *(mal)* is made with green fibers and is used as long as it is flexible and does not dry. This ladder is used as it is strong, does not get cut while being rubbed on sharp rocks and does not catch fire. It is the lifeline for the honey hunter.

They also pray at the graves of their ancestors prior to hunting. The Irulas mark colonies with tobacco to prevent other people from harvesting. Pieces from the first harvested comb are offered in three directions. Many of the main spirits exist on some rocks from which no honey can be extracted; a simple prayer is done at the honey rock before the harvesting season.

Badagas and Honey

A medical doctor and a free-lance botanist, Francis Buchanan was assigned by Marquess Wellesley, the Governor-General to investigate the state of agriculture, commerce etc., in the dominions of the Rajah of Mysore, acquired by the East India Company. He wrote his valuable report day by day while travelling (1800-01), in the form of a journal. His journal entry, dated the 24th of October 1800 makes a reference to Badagas and Honey.

Buchanan reports that the Badagas inhabit the hill country between Dannayakankotte (presently Bhavanisagar) and Nelliala, lying near Malabar. His entry obviously pertains to Badagas in the Kotagiri region. Interestingly enough he calls them "honey and wax gatherers". In a typical colonial fashion he goes on to bemoan,"the quantity of honey and wax which they procure is considerable and they pay nothing for it, there being no forest renter in this district." Colonial intentions and recordings apart, it should be noted that the Badagas knew a lot about honey. They traditionally collected honey from tree hollows, rock crevices and root layers. What Buchanan did not know was that since a long time in the past, the Kotagiri patriclan among the Badagas had been identified as the honey-sept folk. The Lingayat priests, for ritual purposes called them madhura or maantha-kula people, to mean honey/ sweetness- marked clan. Later European writers hyper corrected it to madhave – sept (Thurston and Rangachari, 1909: 75).

Badaga lexical evidences suggest that they had known atleast half-a-dozen kinds of bees and honey. There are several place names too indicating ancient

foraging circuits. Bits of tales relating to honey are also not lacking in Badaga lore. There are also a few lineages in Badaga society who recall honey gatherers as their forbears.

Badagas took credit, that alongwith the Todas, they only had the expertise to draw out the honey while their counterparts, the Kurumbas, the Kasabas and the Solegas always destroyed the combs to collect honey. They were called "honey cutters" in contrast to Badagas and Todas known as "honey drawers". But then, cliff hunting for honey was never practiced at any time by either the Badagas or Todas. The Kasabas always vigorously contested the Badaga claims. Nevertheless, both the Badagas and Kasabas unflinchingly believed that the Kurumbas possessed the tricks even to re-nest the hives (especially so during the Strobilanthes seasons) at their whims and fancies!

The honey carrying adivasi god Kaarayya of the Uralis and Solegas of Melseeme and the Kaarerayya or Kaarodaya of the Badagas probably shared the same ancestry. The Maari shrine at Sokkanalli in the Sigur plateau (one of the seven in the Moyar valley) is said to be an erstwhile sacred abode of the "honey-goddess", in Badaga tradition. Badaga account also identifies the cave-art site at Bellare (Vellarikombai) below Kotagiri, as the hoary shrine of the honey-goddess of the territory.

The hyper corrections found in the modes of livelihood among modern Badagas have rendered honey, a forgotten property. However, prayers uttered in traditional Badaga ceremonies nostaligically recall, the abounding of honey, apart from the overflowing of milk and abundance of grains.

Contributed by Rev. Philip K. Mulley

Honey-gathering practices of Todas

The Todas take honey from tree cavities from colonies of Apis cerana, which come to settle in the Sholas. During the season, this honey has special significance to the community, is rarely sold and is traditionally guarded. Honey trees have an ancestral property status and are handed over from father to son. Each family has their own traditional trees with cavities called sirfs in which Apis cerana colonies settle seasonally. Todas take honey while blowing gently to calm the bees. Honey is then squeezed and filtered with a cloth. Brood combs are usually not harvested. During the season, the colony produces honey and is known to migrate in the rains. Bees return every year to these tree cavities and build their colony during the time when shola trees bloom. Colonies come in late November and December and the honey flow season lasts from February to May. Honey is mainly consumed by the community and small quantities sold to tourists and local shops at premium prices.

Honey and its gathering can be found mentioned in all aspects of Toda life: in mythological stories, ancient songs, prayers, various life-time rituals, personal and clan names, pre-historic rock art, names of sacred rivers, plants, birds, animals and embroidery patterns.

The upper Nilgiris have two major river systems that originate in their catchments. Given the position of sanctity that honey occupies to the Todas, there is little wonder that the origins of both these rivers are mythologically rooted in honey! ...

...There is another mythological story of the god Korattaihh who is said to have ordered that a nearby maw(r)sh (Michelia nilagirica) tree that was over eighty feet high, should attract some bees so that honey could be collected. This tree is one of the most sacred species and often mentioned in prayers when referring to specific sacred maw(r)sh trees in the vicinity of the dairy temple. It belongs to the magnolia (champak) family and has large white, wonderfully fragrant flowers. When these begin to mass flower in the sholas around September, Todas elders can predict the impending end of the southwest monsoon with unerring accuracy. Expectedly, swarms of pezhtaihhn bees (Apis dorsata) started to congregate around and on this tree. After some time, almost three hundred hives were formed on this huge tree, making it bend under their

weight. One day, the Todas, Kurumbas and Irulas decided to jointly harvest all this honey since there was so much work involved. While the Todas lit the fire at the ground level to smoke the hives, the Kurumbas and Irulas climbed upon the tree and started to gather the honey. This went on for most of the day and each hive was cut open and the honey along with the comb collected onto a basket below.. A Toda who later comes to his traditional hive in search of honey would find that the honey has been extracted and looking at the root understands that misfortune would befall him if he were to look here for honey even during the next season. Such instances are still reported to occur. There are several other stories that relate to honey and it's gathering, but the above stories go back to the 'dream time', when the Toda gods and goddesses dwelled in the Nilgiris.

In various rituals too, honey expectedly plays an important role. The funeral ceremonies along with the mandatory lifetime rituals are performed with the aim of ensuring a safe passage of the departed and the departing spirit to the after world, amunawdr. Therefore, many essential items that the just departed would require en route are placed along with the corpse. Honey and grain are often mixed by the spouse of the departed inside a metal bowl and placed by the side of the corpse to be consumed on the route to the realm of the dead. In the past, large quantities of honey would be placed in a bamboo vessel for consumption by the departing spirit.

Contributed by Tarun Chabbra

Refer to Annexure VI for full article.

Honey Flows (1995-2005)

Since 1995, Keystone has been monitoring the bees and honey collection. Keystone has had regular supply of honey from a number of villages in the Coonoor and Kotagiri taluks of the district. However, it has been observed that the supply of honey has been erratic, being plentiful in one year and almost nil in the other. This data had been regularly collected for the past ten years and an analysis carried out. The data pertains to field level information on the name and village of the honey hunter and his group members, the main areas of collection and filtering methods, the name of trees/cliffs and the height at which the comb was found etc. In this analysis, Coonoor and Kotagiri regions have been divided further into

distinct zones so as to achieve a clearer representation of honey trends over the years.

Table XVI

Major Honey Zones of the Nilgiris District

Barliar-Kallar zone	Pillur-Slopes	Geddai slopes	Konnavakarai slopes	N.E.Slopes
Kolikarai/kozhikarai	Hulikkal	Bellathicombai	Attadi	Gerikyoor
Adderly	Mallikorai	Bellathi Marapalam	Anilkaadu	seddikal
Burliar	Sengalcombai	Kinnakorai	kolithorai/kozhithorai	Kallapalayam
Kallar	Geddey	Kuriyamalai	Semanarai	Kokalthorai
Marikodu	Sampur Lees	Manjacombai	Mettupalayam	Kudasaloor
Pudukadu	Maanaar	Manjoor	Thalamukh	Anthiyorai
Sempukarai	Kavalcombai	Melkundah	Mammaram	Thalavadi
Mailaarai	Veeracombai	Nedugalcombai	Anthiyarai	Selurai
Kurumbadi	Neeralacombai	Thaniyakandi	Kunjapanai	Kadasholai
Marapallam	Palaniyappa Estate	Thumbanericombai	Sundapatti	Nattakal
Melsempukarai	Mattupatti	Kothukal	Vellaricombei	Kumaramudy
Pudurcombai	Drooke	Kottakal	Idukorai	Melkattabetu
Erukkalcombai	Johicombai	Sengotaraiyan malai	Mammaram	Gandavayal
Selas	Chengalpudur	Mattupatti	Mullour	Kokkodu
Ariyoor	Chengalcombai		Araiyoor	Mettukal
Araiyoormattam	Pillurmattam		Kalloor	Samaigodur
Sembukarai	Bambaracombai		Kilcoupe	Vagapanai
Baviyoor				

The Coonoor region supplies more honey in quantitative terms 2005 has been a very good year and the reasons could be attributed to the postive seasonal cycle pattern coupled with prolific rainfall. (Chart I)

It has been observed from visual estimations and indigenous knowledge that at a certain height, in trees as well as cliffs, maximum number of colonies are found. The data available substantiates the assumption that the number of combs differ on the basis of height of the tree to be true. Maximum numbers of colonies on trees were found at heights of 200 ft. from the ground. (Chart II)

On cliffs, the average number of colonies found varied according to height though not in a linear way. This means that the height of combs show variation as combs are many at 200 feet and reduces after 250 feet. The highest number of colonies (12.74) was found to exist at a height of 500 ft. This was followed by 7.67 colonies

Chart I

Honey Trend

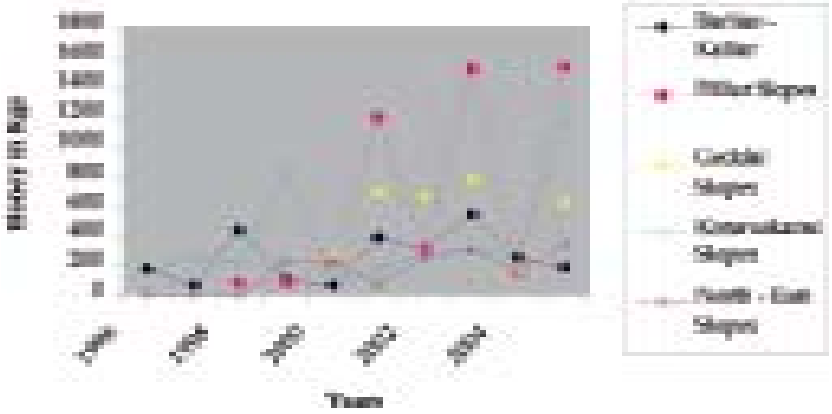


Chart II

Height of Tree and Corresponding Average Number of Bee Colonies

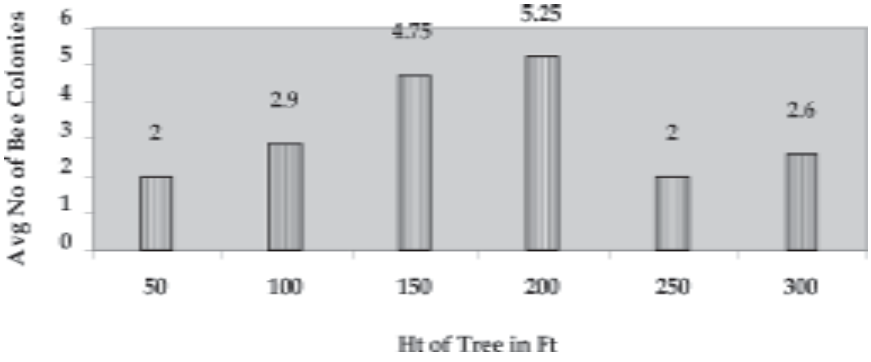
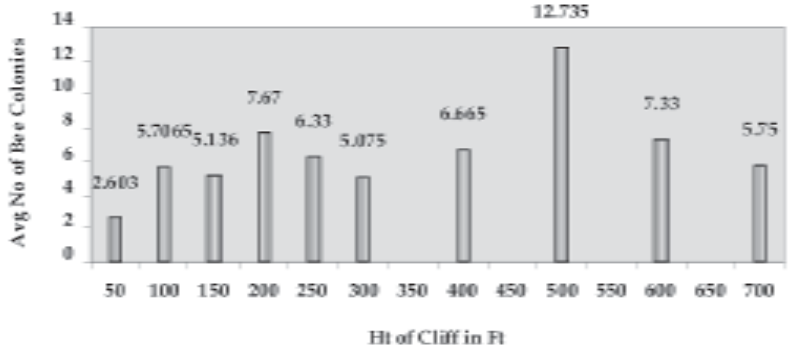


Chart III

Height of Cliff and Corresponding Average Number of Colonies



at 200 ft. and 7.33 colonies at 600 ft. The numbers falls sharply after 500 ft. where it had reached its peak of almost 13 colonies.

In addition, the number of combs on a tree were counted on the basis of height. Thus a young banyan tree at 50 ft. would have variance in number of combs as compared to the same tree at a greater height. The table gives a list of the trees which are found to be occurring at various heights in Coonoor as well as Kotagiri region and the average number of colonies at various heights.

Table XVII

Average Number of colonies on Trees

Ht in feet	Name of tree	Average no of colonies
up to 50	Banyan *Ficus Spp.*	1
up to 50	*Kilinji Toona ciliata*	2.2
up to 50	*Vaagai Albizia lebbeck*	2
up to 50	*Magamaram Mimusops elengi*	1
upto 100	Banyan *Ficus Spp.*	2.3
upto 100	*Kilinji Toona ciliata*	1.6
upto 100	*Dhoopa Canarium strictum*	1.5
upto 100	*Vaagai Albizia lebbeck*	2.8
upto 100	*Magamaram Mimusops elengi*	1
upto 100	*Mathimaram Terminalia arjuna*	5
upto 150	*Kilinji Toona ciliata*	4
upto 150	*Vaagai Albizia lebbeck*	2
upto 150	*Mathimaram Terminalia arjuna*	2
upto 200	*Vaagai Albizia lebbeck*	3
upto 200	*Mathimaram Terminalia arjuna*	2.5
upto 250	*Kilinji Toona ciliata*	2
upto 300	*Dhoopa Canarium strictum*	1.5
upto 300	*Kilinji Toona ciliata*	1
upto 300	*Vaagai Albizia lebbeck*	2
upto 300	*Mathimaram Terminalia arjuna*	4

- Banyan tree (*Ficus Spp*.) was found at a height upto 100 ft. Upto 50 ft the Banyan tree had an average of 1 colony per tree while at heights above 50 ft. upto 100 ft. it had an average of 2.3 colonies per tree.

- *Kilinji* (*Toona ciliata*) tree has the highest range in height. It was found at height less than 50 ft. and upto a height between 250 ft. and 300 ft. It shows the least number of colonies at a height between 250 and 300 ft., while the maximum no of colonies i.e. 4 were found at a height of 100-150 ft.

- *Vaagai* (*Albizia lebbeck*) is another tree which occurs at various heights. It shows a constant of 2 colonies per tree at all heights except between 100-150 ft. where the average is 2.8 colonies per tree.

- *Magamaram* (*Mimusops elengi)* occurs at heights upto 100 ft. with an average of 1 colony per tree.

- *Dhoopa* (*Canarium strictum*) occurs at heights above 50 ft. upto 300 ft. The average no. of colonies per tree is found to be 1.5 at all the heights it occurs.

- *Mathimaram* (*Terminalia arjuna*) occurs at a height between 100 ft. to 300 ft. The maximum no of colonies, an average of 5 per tree, was found at heights close to 100 ft.

The average has been determined for tree as well as cliff combs and for sweet and bitter honey separately area-wise, i.e. for Coonoor and Kotagiri separately.

Combs on trees in Coonoor region for both sweet as well as bitter honey have higher quantities of honey per comb than from those in Kotagiri. The maximum of 6.5 kg./comb was for sweet honey from combs on trees in Coonoor.

The combs on cliffs in Coonoor show a higher quantity of honey per comb for the sweet type. It is 9.68 kg./comb in Coonoor and 6.1 kg./comb for Kotagiri.

For bitter honey from the cliffs, Kotagiri is slightly higher with 6.3 kg./comb than Coonoor region with 5.6 kg./comb. This is the average data over the years, yearly fluctuations can be seen but not much varies from the average over the years even in lean seasons.

Table XVIII

Quantity of Honey Yield

Region	Source	Type	Kg./comb
Coonoor	tree	sweet	**6.568**
Coonoor	tree	bitter	**6.573**
Coonoor	diff	sweet	**9.668**
Coonoor	diff	bitter	**5.558**
Kotagiri	tree	sweet	**5.937**
Kotagiri	tree	bitter	**5.595**
Kotagiri	diff	sweet	**6.049**
Kotagiri	diff	bitter	**6.269**

If we analyse the trend of the people who collect honey – over the years this number has gone up and a younger population has come into the field. This calls for added training and better controls over harvesting.

12

Nilambur - Overexploiting the Evergreen

Of the aggregate of regions that we studied in the Nilgiri Biosphere Reserve, there is none which can parallel the amazing diversity of the Nilambur forests. Forests are everything in Nilambur, infact the very word Nilambur is said to mean a place of *Nilimba* which means bamboo in Sanskrit. The lives of the people revolved around the forests for social, cultural and economic purposes. Nilambur was also the home to the oldest teak plantations in the country. Infact, Indian teak has come to be associated with Nilambur.

Map XXIX

Nilambur North and South Forest Divisions

The Nilambur taluk falls within the Malappuram district of Kerala and comprises two divisions, namely Nilambur North and South. The region lies to the south west of the Nilgiri District, as the Nilgiri hills fall along steep slopes from an altitude of 2500 metre to 50 metre over a relatively small distance. This spectacular drop gives rise to almost mythical wall like features that rise like a fortress protecting the Nilgiri region. The taluk borders the Gudalur and Wynaad South Forest Divisions in the north, plain regions in the south and the Mukurthi National Park in the east.

The Nilambur region is considered a biodiversity hotspot and accorded a great degree of protection. The New Amarambalam Reserve Forests lying within Nilambur division forms a part of the core zone of the NBR. The taluk comprises all the seven hill forest types of Southern India and a study suggests that the flora of New Amarambalam is more diverse than most other areas of the state of Kerala, other than the Silent Valley National Park (KFRI, 2002). The region could be home to several unaccounted for species that may yet be discovered. The upper reaches of New Amarambalam, bordering the Mukurthi region is also home to the highly endangered Nilgiri tahr.

The region is home to indigenous communities who are considered distinctive in their livelihood and social set up. The Cholanaickens are a hunter gatherer community that maintain a forest dependent lifestyle, though now under considerable influence from outsiders which include traders of forest produce. They are considered to be the only indigenous community in mainland India that still lives in caves.

Besides, the Cholanaickens, the other major indigenous communities include the Padinaickens, Kattunaickens, Paniyas and Ernadans - all groups are highly forest dependent, though wage labour has come to be ranked as the major means of livelihood. These adivasi groups form an integral part of the social systems of Nilambur but over the past decades have lost out almost completely to the intimidating presence of other mainstream groups and businessmen. They are now, effectively a minority within their own erstwhile kingdom.

Features of Nilambur Forests

Rich semi evergreen and moist deciduous forests
Remote Location
Hunter gatherer like Cholanaickens, Kattunaickens
Primitive land use patterns
Frequent hunting expeditions
Very intensive collection of NTFPs
Extreme dependence on the Manjeri Society for barter
Poor health status of adivasis, especially of women
Newly set up colonies under government programmes
Vana Samrakshana Samitis (VSS) well organized

Geographical Nilambur

Nilambur forms a contiguous forest belt in Kerala state adjoining the Silent Valley National Park. This variation coupled with very high rainfall has contributed to making Nilambur a botanist's paradise. The rugged topography descends on a southwesterly direction and is very steep in the upper reaches of the region.

The forests provide the western part of the district with a large number of rivers and streams. The most important river is the Chaliyar with a length of more than 169 kms. The rivulets that drain into the Chaliyar include Karimpuzha and Cherupuzha. They are mostly downstream flow of waters from above the Karkur and Kundah ranges of ghats in the Nilgiris. Rivers are the lifelines of the region, as they provide vital water during the scarce months of the summer season. The health of the rivers also suggests the importance of protecting forests. Local residents constantly mention that heavy forest degradation usually leads to a fall in water availability in the rivers as has happened in adjacent regions such as Wynaad and Attapadi.

The region located within the humid tropical climatic zone experiences varied temperature regimes from 21^{o}C to 38^{o}C without much variation in daily temperatures. However, the fact that there is wide divergence of altitude makes the change in temperature quite discernible with Nilambur plains getting very hot in the summer season.

Nilambur experiences copious rainfall from the Southwest monsoon with small showers during the Northeast monsoons. The rainfall can touch upto 4000 mm

in the escarpment region. It is one of the localities in the whole of Western Ghats, receiving maximum precipitation in two monsoon periods.

Forests of Nilambur

The forest types in the region vary and include West Coast Tropical Evergreen Forests, West Coast Semi-Evergreen Forests, Very Moist Teak Forests, Southern Secondary Moist Deciduous Forests, Southern Sub-Tropical Evergreen (Hill) Forests, Southern Montane Wet Temperate Forests and Secondary Moist Bamboo Forests.

These forests are spread over a relatively small area with the West Coast Tropical Evergreen Forests seen in and around the Kundah Hills of New Amarambalam Reserve at an elevation of 800-1250 m and a rainfall regime of over 2500 mm. The West Coast Semi-Evergreen Forests are found on an altitudinal range of 500-800 m and occupy a niche between Wet Evergreen and Moist Deciduous Forests. This type is found on the northern slope of Aron region and on either sides of the Karimpuzha. The Moist Deciduous Forest is found in Karulai and Kalikavu ranges and witnesses a greater degree of disturbance than the previous two forest types. The Southern Sub-Tropical Evergreen (Hill) Forests are found along the upper reaches of the Kundah Hills and the Southern Montane Wet Temperate Forests occur above them along the ridges of the Kundah in the Nilgiris District.

The region has a high diversity of flora as well as fauna. Elephant, Bonnet Macaque, Barking Deer, several types of Civets, Sambar, Spotted Deer, Tiger, Leopard, Sloth Bear, Lion Tailed Macaque, Nilgiri Tahr, Giant Malabar Squirrel, Great Indian Hornbill, Mouse Deer, Porcupine, Monitor Lizard, Pangolin, Wild Dog, Nilgiri Langur, Gaur, Wild Boar etc are commonly seen in the plantations and forests of this division. The Nilgiri Tahr is very common in the high reach grasslands alone, the Mukurthi.

Historical Nilambur

Nilambur went into British possession after the conflict with Tipu Sultan and was opened for commercial exploitation. However, due to the intricate system of land tenure that was intimately linked to the social system of Malabar, the British had to accede ownership to the *janmis* and the *zamorin* of Calicut.

The British increasingly exploited the plains of the Nilambur region and the accessible areas were fast depleted. Plantations started with great vigour and the first recorded successful teak plantation was the Connolly Teak Plantation of Nilambur by 1844. Plantations were increased often at the cost of clear felling existing forests to lay teak plantations.

The New Amarambalam Reserve Forest, covering 32, 447.56 ha. was declared as Reserve Forests in 1898. It was purchased from the private ownership of Edavana Kovilagam in a public auction and taken into the government's position in 1888. Earlier, there was little extraction from these regions, but by the 1930s, these slopes also started getting worked upon. These forests were divided into compartments and systematically worked upon. Most of the best species were cut and the forests were left with undesirable trees. The whole British period is marked with high exploitation of the forest and the Shoranur-Nilambur railway line laid in 1927 helped augment the process of exploitation. With the British taking over most land, restrictions were imposed on collection of NTFPs and leases were handed out to contractors for the following NTFPs – fruits, *sivakai*, roots, honey, wax ginger, dammar and turmeric.

As a result of British activities, various townships developed to provide labour for exploitation of forests and interaction increased between the local people and the outsiders.

The most visible impact of the modern period was the large scale immigration into the valley and greater intensification of commercial activities. Only the declaration of the area as a biosphere reserve halted the mindless hunger for timber. The natural evergreen forests and its deciduous degradations in the more accessible areas have been transformed into even-aged mono-culture plantations of teak and other timber species. The natural evergreen forests and its degradations have been selectively harvested to remove all the large size valuable timber species. Further, by improvement felling and artificial regeneration in the gaps, the composition of the natural forests were altered to improve the stocks of commercially valuable species. These two processes reduced the density of trees and altered the species composition of these forests.

Plantation now covers upto 9625.07 ha of the area and natural forest is limited to small regions in the New Amarambalam Reserve Forest. Plantations were raised by clear felling natural forests and burning debris to enrich the soils. These practices were similar to the shifting cultivation mode which utilized the nutrients from

the vegetation debris of clear-felling. After one rotation, the replanting in many such areas was a failure. This was because the mono-culture even-aged trees degraded the soils and after final felling there was no vegetation debris to provide the nutrients for the next crop. These have led to steady decrease of natural forests; degradation of forest soils because of the opening of the canopy; increase in pest and other insect attacks on mono-culture plantations; and an increase in degraded and scrub lands in areas where the plantations were a failure.

Bamboo which used to be prolific in the riverine strips has now been replaced by townships of human populations. The gregarious flowering and decay of bamboo culms were periods when the forests were opened up. During the last flowering of bamboo, the open areas created were colonised by human immigrant groups and planted with crop plants.

The adivasis, especially the Cholanaickens, though confined to the remote and inaccessible regions have served as a commercial interest for outsiders in gathering the forest produce and are thus now dependent to a small extent upon the societies for their livelihood, especially the cash economy.

Indigenous People

The Cholanaickens, Kattunaickens, Pathinaicken, Paniyas and Ernadans comprise the major hill tribes living in the division. They are currently in a stage where gathering for food has given way to gathering for an income to buy the food that is invariably leading to changes in their social structures. The Cholanaickens of Karulai reside in the forests above and around Mancheri and consider the Nayakas who live below Mancheri to be Pathinaickens. The *Cholakkar*, as they refer to themselves still lead a very forest dependant lifestyle.

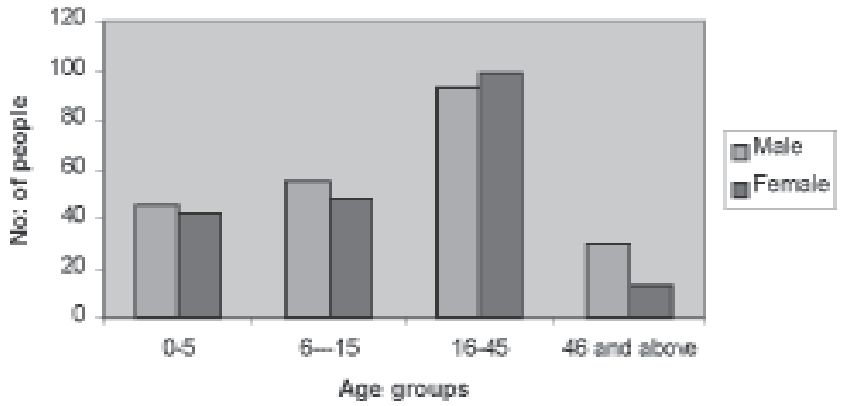
The Cholanaickens constitute a miniscule percentage of population when compared to the mainstream communities and even other indigenous communities. By virtue of the rich forest they live in and the isolated nature of their social structures, these people are at an increasingly high risk of succumbing to modern economy. Already, there is a change in their livelihood patterns from gathering for food to gathering for sale in the market. Earlier, they were hardly seen in local towns but are now a frequent presence in nearby localities such as Karulai. While working with them, which is never easy to do so, there was an attempt to document their population in various localities where they live. The following few graphs show the actual population of the Cholanaickens at the present time.

Population of Cholanaickens at 4 different locations

Maancheery, Population - 182 (F=76, M=106)	Achanalla, Population - 23 (F=15, M=8)	Alakkal, Population - 78 (F= 38, M= 40)	Punjakolli Population - 143 (F=73, M=70)

Chart IV

Age Group of Cholanaickens



Participatory Forest Management Initiatives

Nilambur is divided into following two Forest Divisions. The major regions of honey collection by indigenous communities are found within these two regions. The two divisions are Nilambur North and Nilambur South . The Nilambur North Division comprises the following ranges Vazhikadavu, Nilambur and Edavanna. The Nilambur South Division that includes the New Amarambalam Reserve Forest comprises two ranges, Karulai and Kalikavu. Under the initiative of the department, a number of VSSs have been formed in both the divisions. The VSS has been instrumental in bringing better management to the forests with active cooperation of the Forest Department and adivasis.

Table XIX

Commercial and Non Commercial NTFPs Collected

Sl.No.	Scientific Name	Common Name	Habit	Product
	COMMERCIAL			
1.	*Canarium strictum*	*Pandam*	Tree	Resin
2.	*Elettaria cardamomum*	*Ellam*	Shrub	Seed
3.	*Garcinia gummi-gutta*	*Kodam pulli*	Tree	Fruit
4.	*Asparagus racemosus*	*Shitari*	Climber	Root
5.	*Zanthoxylum rhetsa*	*Muliam*	Tree	Fruit
6.	*Piper longum*	*Thipalli*	Shrub	Fruit
7.	*Sapindus emarginatus*	*Kokkala*	Tree	Fruit
8.	*Acacia sinuata*	*Cheenika*	Climber	Fruit
9.	*Mucuna* Spp.	*Kakumkai*	Climber	Fruit
	FOOD			
10.	*Piper nigrum*	*Kurumollagu*	Climber	Fruit
11.	*Cinnamomum* Spp.	*Patta*	Tree	Bark
12.	*Atrocarpus heterophyllus*	*Alasu*	Tree	Seed
13.	*Piper* Spp.	*Kattu vettila*	Climber	Leaf
14.	*Mangifera* Spp.	*Chola manga*	Tree	Fruit
15.	*Bauhinia malabarica*	*Amban*	Tree	Leaf
16.	*Phyllanthus emblica*	*Nellikai*	Tree	Fruit
17.	*Dioscorea* Spp.	*Nare*	Climber	Root
18.	*Mushroom* Spp.	*Alambu*	Climber	
19.	*Atrocarpus hirsuta*	*Anjelee*	Tree	Fruit
	FUEL			
20.	*Fuelwood* Spp.	*Chowdakolli*	Tree	Branches
	MEDICINAL PLANTS			
21.	*Calamus* Spp.	*Chooral*	Tree	Whole
22.	*Arenga wighti*	*Kattu thengu*	Tree	Leaves
23.	*Sterculia villosa*	*Nari maram*	Climber	Bark
24.	*Bambusa bambos*	*Molla*	Grass	Whole
25.	*Ochlandra* Spp.	*Odhe*	Grass	Whole
26.	*Costus speciosus*	*Naruku*	Shrub	Leaves
27.	*Hydnocarpus laurifolia*	*Neervatti*	Tree	Leaf
28.	*Lasiosiphon eriocephalus*	*Nanju*	Climber	Bark
29.	*Acacia caesia*	*Inje*	Climber	Bark
30.	*Coix* Spp.	*Cholamai*	Grass	Seed
31.	*Elaeocarpus* Spp.	-	Tree	Seed

Honeyhunting

In the Nilambur North region, the rope used to make the ladder (*maal*) is made from the *Savathi* tree bark and they sit and swing towards the combs. Making the rope ladder is a long and cumbersome process. There are not many cliffs in the area – a major one is Thandangankallu. In one hand they have the bamboo basket and in the other, a bamboo spear.

Usually honey is taken from trees, on which they tie bamboo ladders with cane. Honey is harvested at night. The undergrowth around these trees is cleared to attract the bees. The number of colonies has not gone down and bees frequent the same trees every season. The person who clears the tree undergrowth harvests from that particular tree. Harvesting from marked trees is not common, reflecting to traditional systems of management.

Honey is harvested for 3 months and every week, an average 10 kgs per day is collected. 2-3 people go together for honey harvesting. Young people are interested in honey collection and they are trained by the elders. Honey is sold to the Society for Rs. 50/- at Nilambur. Bees wax is also sold to the Society for 75/-.

There are four types of honey collected by the adivasis – *malai tenu* (*Apis dorsata*), *thodathi* (*Apis cerana*), *kal thenu* (*Apis florea*), *cheru then* (*Trigona* Spp.) Other NTFPs such as black dammar are also collected. They have to stay in the forest to collect resin (*Canarium strictum*) which they do by burning the base of the tree. Canarium is not abundant in this region and they manage to collect miniscule quantities – in dust form. There is no'tree-sharing' understanding amongst people in the case of resin. *Cheenikai* (*Acacia sinuata*), *kollakai* (*Anamirta cocculus*), *marvattikai* (*Hydnocarpus pentandra*), *Asparagus racemosus*, *amalpuri* (*Rauwolfia serpentina*), *kakkankai* (*Entada rheedii*) Nutmeg (*Myristica dactyloides*), *thippali* (*Piper longum*), *Curcuma* Spp. are also collected from the area.

In the New Amarambalam Region (Nilambur South), the Cholanaickens are the major collectors of honey and other NTFPs. They practice both methods of hunting using simple tools and material.

For cliff honey collection, they come down on cane ladders towards the nests. One end of the ladder is attached to one strong honey-comb to avoiding swinging and to support the ladder – this is done with a cane rope with a small bit (peg) in

the end. A smoker of green leaves is used to irritate the bees. They fix their bodies in the ladder enabling free movement of hands and harvest the combs using a cane basket and a long bamboo spear. Iron is not used as they believe that bees will not return the next time.

Honey collection is done at night. If there are 2-5 combs, a single person will collect the honey, however more combs enables a group of two to three persons to hunt and share the money from the sale of the honey equally. When they harvest alone, the basket is held on the shoulder, such as in a haversack. All ropes, strings and baskets are made of cane.

In tree honey collection, honey is collected from high trees by scaling the tree trunks – this is done by tying sticks/bamboo to the tree trunk with the help of cane ropes. Amongst Pathinaickens, groups of 4-5 go for honey collection, whereas amongst the Cholanaickens it is only 2 persons. It is customary to go with the brother-in-law. They go above the branch where the comb is and then cut the comb into the basket, with the help of a bamboo spear. A smoker is used. Trees belong to the person who clears the base of undergrowth and keeps it ready for the bees. This is usually the same tree for a person over the years. They harvest combs that have more honey and less brood. The young brood and small bees are eaten. Honey is harvested for 3 months and every week on an average 10 kgs per day is collected.

The areas where honey is collected are Velakamalai (50 combs), Pata karimban (200-250 combs), Panapuzha para (10-15 combs). The areas mentioned are cliffs that are rocks belonging to families and are passed down the generations.

Markets

About 119 species of NTFPs are found in the region and adivasis are legally permitted to collect NTFPs from the forest, collection is done through the federation. Of the major NTFPs, nearly 27 are regularly collected by the people. Kattunaickens and Cholanaickens are regularly involved in collecting NTFPs.

The MFP Society is based in Manjeri (collection center) and comes under the Nilambur SC/ST Co-operative Society. It also has collection centers in Vaniyampuzha and Punjakolli. All 38 Cholanaicken families (139 individuals) and another 5 Pathinaicken families are members of this Society. The Society is the Cholanaickens main contact with the outer world. They can also buy rice from

the Society, besides selling their forest produce. Earlier, the Society used to work on the basis of exchange (barter) with rice, presently money is paid on a weight basis. Often grocery is exchanged in return for forest produce.

Table XX

Major Forest Produce Collected

S. No.	Produce	Quantity	Purchase Rate	Season
1	Honey	2500 Kgs	50 Rs/Kg	March-May
2	Bees Wax		60/kgs	March - May
3	*Cherutenu* (Dammer Honey)	10-20 kgs.	125 Rs/Kg	June-July
4	*Chinikai* (*Acacia sinuata*)	2000 Kgs	10 Rs/kg	March- April
5	*Sambrani/Kungliam* (*Canarium strictum*)	10,000 Kgs	1st Quality – Rs 40/kg 2nd Quality – Rs 25/kg	All year
6	*Kaatu Inji* (*Zingiber Spp.*)	300 Kgs	15-20/kg	
7	*Nellikai* (*Phyllanthus emblica*)	Max. 100 kgs	4-5/kg	November
8	*Poochakai* (*Sapindus emarginatus)*	700 - 1000 kgs	3-4/kg	

A Future Outlook

Nilambur remains one of the rare places in the nation thriving on high biodiversity. Studies suggest that the region is ranked next only to the Silent Valley in its high biodiversity index. The region is also home to some unique indigenous communities. The Cholanaickens and the wild animals are sensitive to adverse changes and both need to be accorded a higher degree of protection in the long run.

The New Amarambalam Valley has historically been an isolated region and this continues till today. The Cholanaickens in this valley, along with some more groups of adivasis have been observed to be increasingly susceptible to change-agents operating from outside the sphere of

protection accorded by the forests. While some advocate opening their society to the entire spectrum of development initiatives, the Cholanaickens require more patience from being dished out such plans for their society. Often, the shift from barter to monetary trade has resulted in growing indebtedness and a high rate of alcoholism, especially among the youth. Development imperatives are vital but perhaps in New Amarambalam, they need to be thoughtfully designed and spread over a long period of time, lest the Cholanaicken lose their identity.

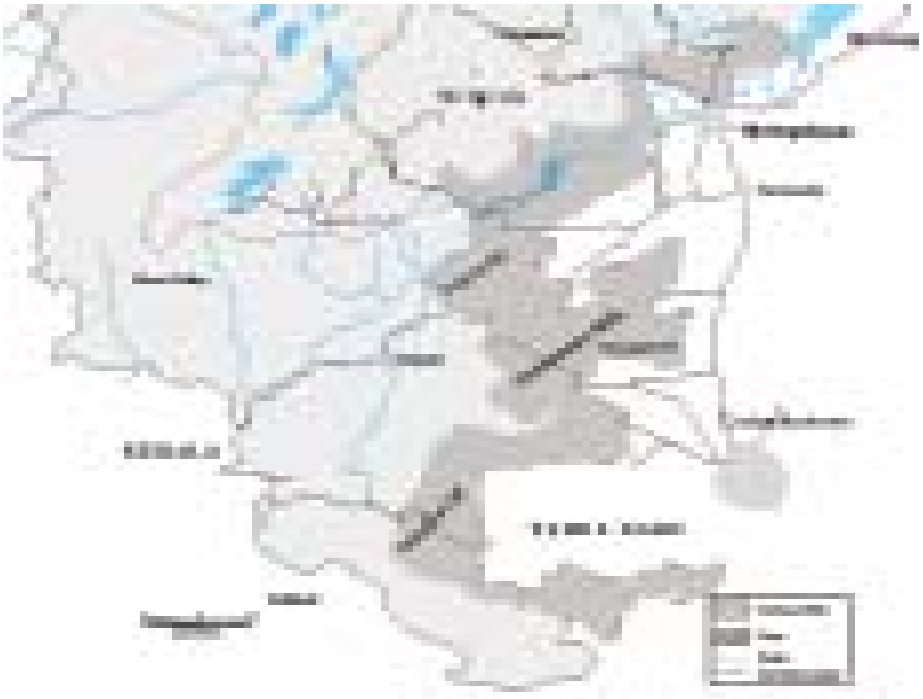
13

Coimbatore Hills - Degraded Forests

Combatore Hills is a commonly used term for the hilly uplands of Pillur, Anaikatti and Boluvampatti forest areas. This geographical complex is towered over by the Lambton Peak, named after the pioneer of Indian Trignometrical Survey Grid. Together, they are contiguous, reaching upto Attapadi Reserve Forests in Kerala. This region is amongst the lesser known forests within the NBR and faces long term threats due to exploitation from increasing populations on all sides.

Map XXX

Coimbatore Hills with Pillur, Boluvampatti and Anaikatti Forests



Pillur

Pillur lies in an isolated region - densely forested and sparsely populated, forming the southeastern branch of the Nilgiri Biosphere Reserve. Lying southwest of the Nilgiris district, these hills are located in Mettupalayam and Karamadai taluks of Coimbatore district, bounded by the Satyamangalam and Nilgiris divisions on the north and northwest and by the Palghat division of Kerala in the south and southwest. The Pillur Hills are accessible from the Coonoor slopes and also from the village of Veliankadu lying to the west of Karamadai.

Pillur is located at an average elevation of 400 metres and receives a rainfall of upto 1400 mm in certain patches. As an ecological zone, it extends into the Attapady area of Kerala and as a result has copious social, cultural and economic relations with that state.

It is interesting to note that that the major inhabitants of these hills are Electricity Board staff and some Irula villages, who are adept at eking out their livelihood from forest resources. Two distinct social groups, two livelihood options. One, paid government employees living in a difficult terrain yet enjoying a secure life and another whose livelihood depends to a great extent on the forests, much of which has been usurped in developmental projects. Yet, both the groups live harmoniously. A secondary byproduct of this relation is the primary dependence of adivasis on wage labour emanating from these camps.

Forests

Pillur is contiguous with the Kerala forests in the west and the Coonoor slopes of the Nilgiri massif in the north. The forests in this zone are unique for they exhibit a wide variety in altitudinal and floral diversity ranging from Moist Deciduous to Scrub Woodland and interspersed by numerous riverine patches capped by large areas of bamboo brakes. The forest types vary in as much containing large patches of Evergreen Riparian Forests and Dry Deciduous Forests. The lower hills have a scrub to dry deciduous, with some moist patches. It has been observed that the forest trees are of medium to large sized trees. Deciduous species like *Gyrocarpus americanus, Anogeissus latifolia, Tectona grandis*, are very common. Other important species include A*lbizia amara, Azadirachta indica, Butea monosperma, Hardwickia binnata, Cassia fístula, Dalbergia paniculata, Sterculia urens*, etc.

Occurrence of shrubs and herbs are seen in open canopy areas, usually in areas close to villages. Occurrence of lianas is also seen in this forest. Invaders like *Lantana* and *Eupatorium* Spp. are frequent.

The dense forest cover means that the faunal population is not as visible as that of Sigur. However, the regions' importance as an animal habitat cannot be ignored for it lies in the corridor of elephants traveling from Attapadi to Bhavani. During the migratory season, the region welcomes elephants in large numbers.

Geographically, the region has been worked extensively over the past decades due to its easy proximity to the vast demand base. The colonial government started sequentially exploiting the forest, first departmentally and then by the contractor system. Yearly *coupes* were delineated and auctioned according to the working plan specifications. Most of the extraction was for fuel wood to meet the demand of the towns nearby. Due to the poor regeneration, the area was run over by opuntia and lantana. The whole zone was also subject to pastoral pressure from the plains. Due to the expansion of agriculture, the only grazing lands were left in the forest and as a result the area was under severe pressure.

Map XXXI

Pillur

Bamboo which was abundant on the slopes of the Nilgiris was increasingly extracted and so were other forest produce. With the restriction of access, the government started leasing out most of the NTFP zones to local contractors. The people were left with little other option than to be wage labourers for the state. The modern state on its part continued exploiting the resource, and even though it experimented with ill thought of projects like growing teak, most of these projects met with failure. The modern state also ushered in a change in the water regime with numerous power projects. The human groups which were hitherto relatively isolated from the changes in the outside world are now dependent upon the markets for wage labour and trade.

People

The major groups of people living here include the Irulas and a few traders who constitute the major link between the tribal and the outside world. There is also a large settlement of 'outsiders' for the EB operations at different camp sites. The villages are forest settlements, located close to the one major road that passes through the region. The more isolated villages are provided with solar fences for protection against crop raiding by elephants. Given its western aspect, the water resources in this area are good. Some villages have access to irrigation channels and water for irrigation – the extent of land is usually large with a family owning 4-5 acres of land. People grow sesame, horse gram, *ragi* and a host of vegetables.

There are several villages in the area – all of them inhabited by Irulas. The major villages include Puchamarathur, Paralikadu, Nellimarathur, Sethumadai, Singallur, Nellithurai, Situkunni, Surki, Kodiyur, Neeradi, Veerakal, Anai palam, Chinnalacombei, Thondai and so on. The major occupation of the people is NTFP collection, though this is not necessarily true for the entire year. Some groups like those in Parlikadu, Puchamarathur and Thondai are efficient agriculturists. There are several honey gathering villages in the area. Villages like Puchamarathur and Neeradi have the highest number of honey gatherers.

Livelihood Perspective

Irulas are forest dependent groups interspersed by other occupations such as farming, pastoralism and wage labour living almost entirely within forest settlements and/or on the fringes of forest patches. The adivasis of Pillur are mainly NTFP collectors and dependent upon the forest for their survival. Most of their daily needs are met by the forest and very often they barter forest produce in the

market place for cereals and other daily need requirements. The people also engage in agriculture which provides for some part of their food security. Another major occupation is working as wage labour in the fields of well off farmers. Occasionally they work for daily wage in some government run project and also for the Forest Department.

The entire Pillur zone is exploited for NTFP collection and is considered to be big business. Large quantities of silk cotton, tamarind, lemon, honey and many more NTFPs find their way down to Karamadai and then further on to other places of the nation. Often, during NTFP season traders are to be found scouting for adivasis and paying them advances for future produce. NTFPS though a boon for the people is also an instrument through which traders control the lives of the adivasis. By offering them advances against yet to be purchased products, traders invariably tighten their control over them and often purchase the produce as per their own convenience. The noose of deceit looms large over the adivasis of Pillur and it is a big challenge for anybody attempting to fight this malaise.

Pillur is a fragile zone and is beset by its own peculiar problems. Perhaps its very location has become a double edged sword – for its isolation helps prevent unwanted elements from disturbing the ecosystem and yet its very isolation can't help stop adverse discrimination of its people by outsiders and stripping of forest wealth by unscrupulous elements.

For the people, life is a corollary to the water level in the dam. Numerous villages lying on the periphery of the dam depend entirely upon the water level to carry on day to day activities and yet due to complexities in collecting water for agricultural practices, a daily struggle goes on to eke out a decent sense of survival. Though most of the people live in the catchment area of the dam, yet are not entitled to sufficient usage of water. Electricity is also hard to get as they do not have the monetary strength to source it.

The Pillur zone consists of numerous reserve forests and sparsely populated villages. It is an integral though much neglected part of the Biosphere Reserve and is poorly managed. A major part of the area lies in the catchment of the Bhavani and adjacent to the equally fragile Attapadi regions of Kerala. Any damage or disturbance to these areas has an immediate and catastrophic effect on the downstream beneficiaries, damages which can be undone by effective management. Besides, the people are highly dependent upon NTFPs and there is a growing need for better

utilisation of these resources. The needs and rights of the people cannot be bypassed and any effective ecodevelopment programme must take into account the aspirations of the people.

Boluvampatti

Boluvampatti with the famous Siruvani Falls, is a predominant Irula adivasi region. Boluvampatti valley has an archaelogical history going back to about 2000 years ago. The ash - mound and pottery remains indicate that the valley was once upon a time populated by pastoral communites.

Some of the major villages are Thanaikandi, Jagriborathy, Sarkarborathy, Vellaipathy, Sangaipathy, Sadivayal, Kalkothy, etc. It is a backward region and elephant country. SHGs have done prominent work including solar lighting on the road to the Siruvani Falls.

Most people are tree honey hunters with only two major cliffs near Siruvani Falls and Thenvarai (Namakalpilvarai) which are not harvested. There are also some minor cliffs, below 200 feet including Poondi varai, Vellengiri Malai Periya Parai, and Vandikal madu varai. Honey collection is similar to Pillur, by tying bamboo sticks with cane (andai) to climb the tree. The adivasis also collect honey from *Apis cerana*, *Apis florea* and Dammer bees.

Sweet Siruvani

The water from Siruvani river (now being supplied to Coimbatore city) has a legendary reputation of being sweet in taste. The Siruvani river rises in Attapady valley. The Todas of yore, from the Nilgiris used to have their pastoral camps in Attapadi valley, close to Potta malai hills of the Irulas. Once, a Toda sent through his Irula assistant, lots of fresh greens and vegetables from the plains to his home-mund. Todas enjoyed this stuff, because in normal course they had only millets given by the Badagas. The Irula young man who was sent to the Toda mund happened to see the beautiful daughter of the Toda counterpart. On his return to Potta malai, he expressed his desire to marry this Toda belle. His father made the move with the girl's father. The Toda became furious about Irulas' intention and stoutly refused to entertain any move in this regard. Enraged at the refusal, the Irula with all his associates, raided the Toda milk huts in the vicinities of Potta malai.

All the stored milk broke open into the nearby stream which fed Siruvani river and the river turned sweet. Since then, the Todas stopped driving their herds to this camp. The Badagas who also had their pastoral camps in the adjacent tracts, started calling this upper stream of Siruvani, majjige-halla or buttermilk stream. Todas started calling this river Polpaw (milky river).

Story collected at Singuli-Irula village in Anaikatti, Coimbatore, 1984

Rev. Philip K. Mulley

Anaikatti

The major honeyhunting villages of Anaikatti are Arakadavu, Doomanur, Sembukarai and Muttiyur. The people of Arakadavu (situated in the belt of Pillur slopes) are linked closely to the people of Pillur. Their fore fathers are from Neeradi and also some of their area cliffs are harvested by Soorandi people (near Athikadavu). They have very good honeyhunting groups of all ages.

Doomanur and Sembukarai are villages deep inside the forest area. They have good bamboo forests which is one of their sources of income. These people don't have water for irrigation. Most of the agriculture pattern is rain fed so their dependence is high on the forest.

In Anaikatti, the major and minor honey flow seasons are between October-November and between April-June. When flowering is good, groups may find colonies even in small trees.

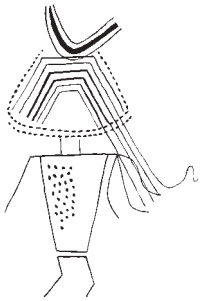
An analysis of the various villages, harvest area and prices is given below which suggests that the sale price for honey is a little higher in the region as compared to neighbouring regions. This is because of the high demand from urban centres that are not far away from these forests.

Table XXI

Honey Markets in Anaikatti

No.	Village Name	Name of the Cliffs	Collection of Wax	Price in Rs Honey	Wax	Quantity harvested	Market
1	Arakadavu	Kalla,Thai,Maha, Porucha,Varaikal, Thattikal	yes	80	75-100	1500 lits	Gopanar society Anaikatti Kerala
2	Doomanur	Eruki,Sambari,Kadalai Kadalai,Kambi, Soorai,Parkudu, Makallar,Vavankallu	no	80	0	0	Thadagam Bai
3	Muttiyur	Kurdumalai,Kallitattu, Krumbayurkuli,Aam. Ootttakal,Guru, Irullis,Kutharikal	no	50-60	0	1200 lits	Thayanur
4	Sembukarai	only trees	no	0	0	0	--

Anaikatti and Boluvampatti regions are highly deforested with excessive rates of erosion and siltation. As with other degraded forest areas, these forests need to be rapidly preserved and protected, while maintaining the rights of the adivasis who live in this area.



14

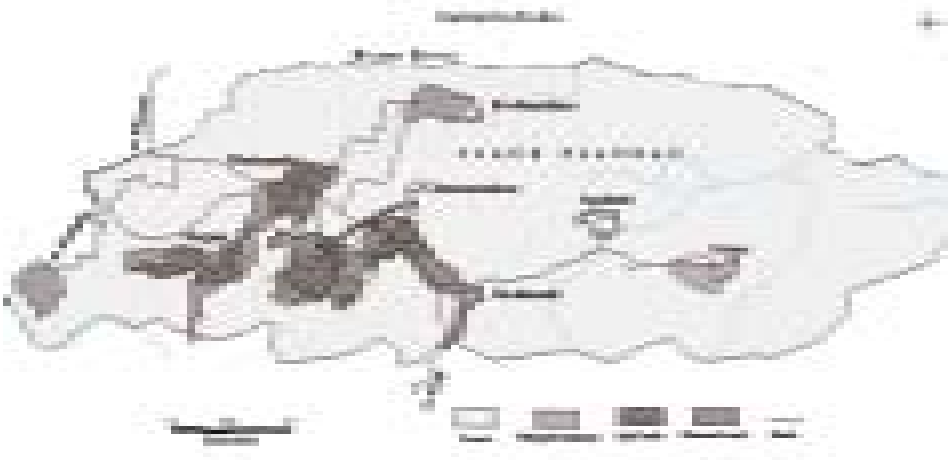
Sigur – Man, Forests and Conservation Initiatives

Sigur region forms a critical ecosystem within the Biosphere Reserve, a region that holds out both a great hope and a continual anxiety about its future.

Sigur which lies north to the Nilgiri massif is a distinct ecosystem often passed over in preference to the more popular and specialized niches, that lie adjacent to it. For eons, it has been an important communication zone but has never been occupied for long by outside communities. Comprising a vast plateau and stretching almost 20 km in length, it is a rich repository of culture and ecology.

Map XXXII

Sigur Plateau



Thick forest cover and ancient temples, battered forts and lively folk tales speak of the mysteries hidden in the vast scrub land. Even the population variance tells tales of stories we might never know fully. There are evidences of high population in Sigur and contiguous areas in Bandipur in ancient times, however the current

low population density have made the area a frontier zone, an outpost of civilization. From being the domain of Tipu Sultan to the British and now hosting wildlife sanctuaries, hydel power units and a rapidly growing threat to its biodiversity, Sigur is forever an area in flux.

Forests

The forests are contiguous with those found in sanctuaries like Wynaad, Mudumalai and Bandipur Tiger Reserve. In the east, the forest cover extends to the Sathyamangalam region, in the west it borders the Mudumalai Sanctuary, in the north, the Moyar Gorge separates it from the Mysore Plateau and in the south, the Nilgiri massif presents a formidable front.

Lying on the eastern part of the Nilgiri Biosphere Reserve, most of the plateau lies in the rain shadow region with average rainfall varying from 1400 mm in the western most edge to less than 800 mm in the eastern regions with a dry season of upto 8 months. The mean temperature does not go below 15^{o}C.

This diversity in rainfall has led to the profusion of a unique floral diversity harbouring giant trees along the riverine patches, multiple canopy layers in the west and an almost desert like stunted vegetation on the east. Though presenting a desolate view, the scrub lands are host to numerous floral and faunal species and its importance cannot be undermined.

There are upto three storey levels of trees. Scrub woodland forms a major portion of the eastern part; it consists of groups of trees separated by thickets either derived from a dense forest by exploitation of the upper tree stratum, or from an open forest by the invasion of bushy species. The tree stratum can reach a height of upto 12 mts. These forests are subject to intense biotic pressure from both fire as well as grazing. Quite often these forests are found to be highly degraded and are then referred to as open forest.

The Sigur forests lay under the domain of Vijayanagar and subsequently of Mysore rulers and the British. It is a crucial inter-frontier zone in South India. However, these forests have been continuously disturbed ever since the British arrived. The British introduced several schemes and plans for working the forest. Besides exotic biota, crop varieties of cotton, tobacco, chilies, plants like lantana and opuntia were introduced. The latter proliferated like weeds all over the area. By 1905, however a large part of the area was declared a Reserve Forest

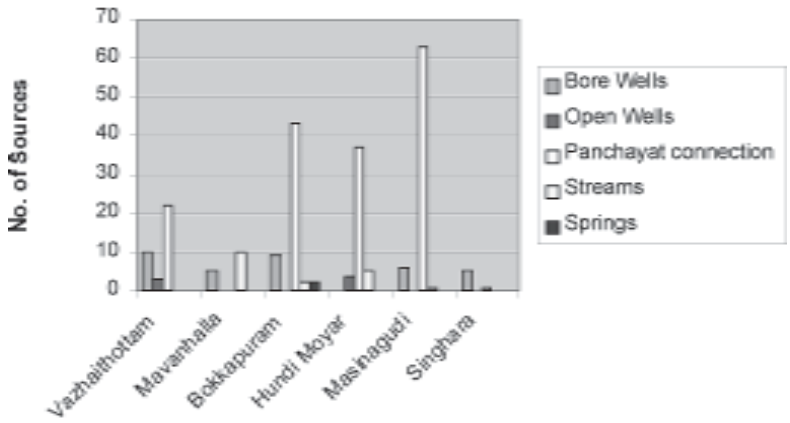
amounting to upto 82.75% of the Sigur plateau. The colonial state extracted revenue from commercial exploitation of valuable trees like sandalwood. Besides, a large number of farmers let their cattle in for grazing. The sandalwood was sequentially exploited from more accessible to lesser accessible areas and by 1923 all the sandalwood trees in the accessible areas were exploited. By the fifth decade of the century, the natural vegetation was considerably altered and exotics like lantana and opuntia proliferated.

With Independence, came the thrust on hydel power projects (Pykara – Singara) and increasing emphasis on agriculture and pastoralism. Population increased and so did the demand on resources which dwindled at an alarming rate. The pressure on valuable resources can be observed by the land distribution in the area and the sharing of water resources.

A survey was conducted for about 236 landholdings within the seven settlement areas (Keystone, 2006). The water usage for drinking purpose & for irrigation was assessed. From the questionnaire findings, the following graphs have been computed.

Chart V

Types of Drinking Water Sources in Forest Villages of Sigur

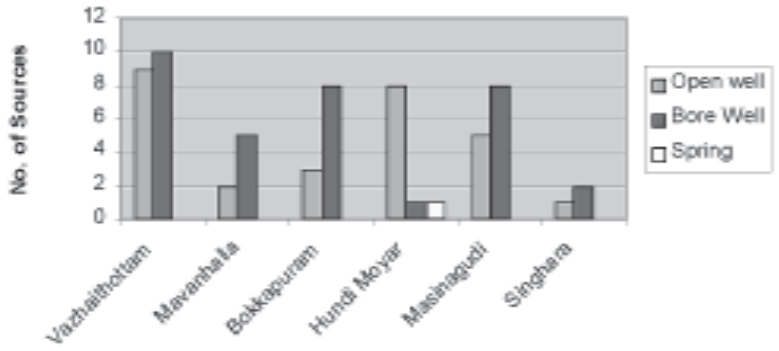


The graph clearly suggests that forest villagers who were traditionally dependent upon streams for their water needs now almost wholly depend upon panchayat supplies for their needs. This is a definite sign of fast changing times wherein rivers flowing from upstream to Sigur have begun drying up leading to a

condition bordering on a partial famine situation for most of the year. As dependence increases upon panchayat sources, villagers have been observing a steady drying up of traditional water sources like streams and springs.

Chart VI

Sources for Irrigation



Agriculture is on the increase in the region with irrigated water being supplied to far flung villages. However, increasing demand for water for cash crops is leading to further complications as the hitherto dry region is witnessing a spurt of water demanding cash crops and a consequent high demand. The area now faces a critical water problem with steady lowering of the water tables and presence of innumerable bore wells in private lands and estates.

Hydel power projects have had a twin fold effect upon the dry lands of Sigur. On the one hand, traditional water sources have been blocked and diverted for use leading to an artificial scarcity of water sources. On the other, there is a surplus of water in some areas where irrigation projects have reached leading to a spurt in agricultural production, a benefit accrued mainly by recent migrants to the plateau region.

Wildlife and its preservation

Being protected and located within or in the boundaries of the sanctuary area, the zone has a rich faunal population and has several species like Spotted Deer (*Axis axis),* Gaur *(Bos gaurus),* Tiger *(Panthera tigris),* Leopard *(Panthera pardus),* Elephant *(Elephas maximus)* and so on.

However, the situation was not so during the earlier times. The British state gave exclusive privileges to the ruling elite for *shikar* and game in the plateau and a Nilgiri Game Association was formed in 1877 to regulate game hunting. The local groups were legally excluded from utilizing any of the wild animals as food. However, snaring of small game continued all through.

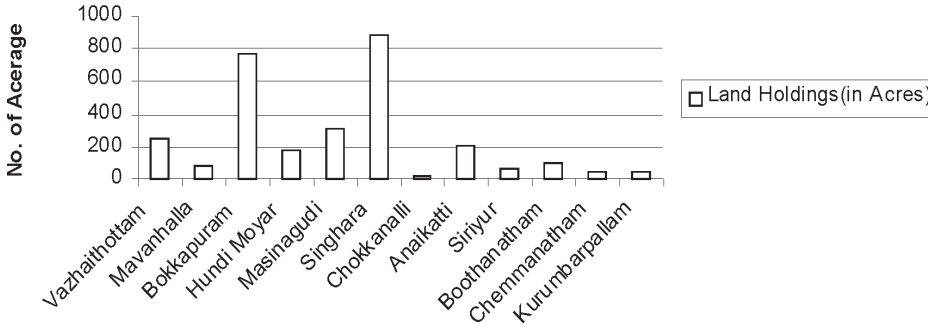
With Independence came the thrust on hydel power projects and increasing emphasis on agriculture and pastoralism. Population increased and so did the demand on resources which dwindled at an alarming rate.

By this time, wildlife conservation was initiated following the drastic depletion of the forest and restrictions have been placed on the wanton destruction of resources. Today, a large part of the area is reserved and is contiguous with the present day Mudumalai sanctuary. Though the rise of towns like Masinagudi and Singara threaten to disturb the ecology of the area, yet the very fact that the area is still inaccessible over large parts makes it safe from intense degradation. Currently, the situation is relatively stable as there is little inward migration. Besides, the forests are highly restricted and not exploited for commercial reasons.

However, the recent growth of wildlife tourism has encouraged private land owners, especially at Bokkapuram and Singara to convert fallow lands into resorts focusing on park tourism. Much of these lands, which were uncultivated and as private forests, are slowly changing. This land use is threathening the movement of elephants and other mammals.

Chart VII

A Comparison of Land Holdings across Settlements in Sigur



The land holding pattern suggests that forest villagers have very less land, usually between one acre to five acres. Howvere, it is the outsiders who own large chunks of land which prove to be major obstacles to elephant movement. Map XXXII clearly shows the extent of privately held land in the region.

People

Sigur Ghat is home to diverse communities. The entire region is essentially a continuation of the Mudumalai sanctuary and is sparsely populated. There are few villages and are mostly inhabited by the Irulas, Kasavas and Jenu Kurumbas. Hunting, food gathering and agriculture form a distinctive way of making a living, which now they do mainly for commerce. They are good hunters of small game and collect NTFPs in large communities. Living adjacent to forests, they tap many of its resources and carry on trade with outsiders. Agriculture forms a major part of their livelihood and accounts for more than 50% of income in many areas. The other sources of livelihood include daily wage labour, and some minor forms of barter amongst the community members. Their mixed income source strategy makes them less dependent on any one resource for their livelihood.

The region has a long and diverse history and is known to lie on major communication routes of ancient south India. Though much of the land is now uninhabited, yet if we dig further we find traces of history lying strewn about. Dolmens, menhirs, ancient temples speak highly of the prehistoric cultures in the area and evocative names, forts and leftover relics articulate suggestively of an exciting history of the bygone era.

The Kasabas are the major adivasi group and they live in large settlements, averaging 80 households. Presently, their houses are mainly built with the support of the panchayat or the Forest Department. Living close to a wildlife rich area, these adivasis are adept in the forest. They are good NTFP collectors and have a high economic dependence on this activity. They too, like the Irulas, collect NTFP in bulk and sell it to traders. They collect honey from trees and small rocks. They also hunt small game. The Kasabas are also herdsmen, looking after herds of cows, owned by the Badaga community from whom they get wages. However, this has created an extensive overgrazing pressure in the area. The whole area in which the Kasabas live, is under consideration for being declared a protected area, an extension of the Mudumalai Sanctuary.

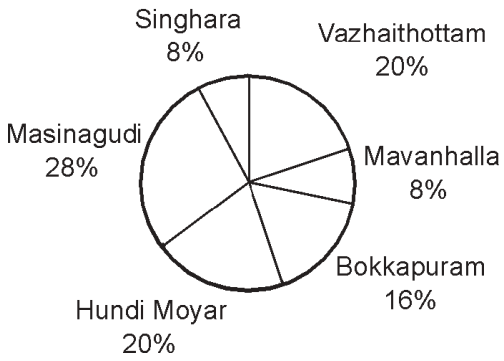
The main villages include Vazhaithottam, Thengumarada, Kurumba pallam Anaikatti, Siriur, Boothanatham, Chokkanali, Chemmanatham and Masinagudi. Each of these villages has small settlements of Irulas or Kasabas or both.

Agriculture has become a prime activity of the adivasis with restrictions imposed on collection and sale of forest produce. Steadily, forest villages adopt agriculture and the trend suggests that villages with more access to towns and tourist centres have more land under cultivation especially in the villages of Masinagudi and Hundi Moyar.

Crops grown by the people in this region are beans, carrot, banana, tomato, coconut, chilly, amla, guava and mango, garlic, cabbage, capsicum, brinjal, corn, ragi, mochai, panni avarai, turmeric and so on. More crops are grown and the usage of chemicals and pesticides are high. Taking into account of the soil composition the chemical inputs are very harmful to the soil and people. The usage of water is also high in this regard for irrigating various crops.

Chart VIII

Percentage of Crops Grown



Honey Hunting and NTFP Collection

Sigur has an ancient history of honey hunting and the process of hunting is well defined. People follow a set of rituals before they set out to harvest the honey from the cliffs or the trees. The first stage is the pre-harvesting stage, wherein the group goes to the site to estimate the amount of honey. The people feel that when *palapoo (Wrightia Spp.), negul (Tribulus terrestris)* and *bokkapoo (Pterolobium*

hexapetalum), good nectar and pollen sources, start blooming, the bees arrive. They believe that when *karasi* starts blooming, the bees start to migrate. There is no nectar flow in the *karasi* flower.

There are some populations of Jenu Kurumbas, Kattunaickens and Sholigas who harvest *Apis dorsata* honey. Though honeyhunting is practiced by a few, there is a high percentage of honey collection from *Apis cerana* collected by the Kasavas. The Kasavas living in the lower areas of the Nilgiris (Masinagudi Plateau) have two seasons in close proximity, *karbogha* (June-July) and *mungar* (August). *Mungar* season is considered as the better season for honey collection.

As per the medicine man of Chokkanali village, there are three stages of honey harvesting on the basis of comb size:

Molapthenu *- when the adult bees rest with a small bit of honey comb. There is usually 1-2 liters of honey present. Most people hesitate to harvest these combs and do it only in extreme conditions of need.*

Thattuthenu *- Now, the larvae is formed (brood rearing is taking place). If they harvest in this stage, then most of the brood is eaten.*

Gherapachadathenu *– brood is at a pupal stage. They blow their sweat to make bees familiar to the smell.*

The main honey collection areas are riparian patches, forests near Masikoil, Moyar Gorge and Osalibarai, along the Siriyur slopes. More colonies are found in the *mathi* (*Terminalia arjuna*), mango (*Mangifera indica*), and *thattalamaram*.

They carry a cigar made of herbs and rolled with tobacco, which they smoke below the nest. The smoke stuns the bees who then scatter. This dispersal of the bees aids in visually estimating the number of bee layers present in the comb so that they can prepare better. They also come to know whether the comb is fresh or ready for harvest. The honey hunter makes a mixture of 2-3 leaf types and hides them under the site. They put them in a rock or someplace close to the hive. This leaf mixture excretes a smell which is obnoxious to the bees and agitates them if anyone tries to approach and harvest them. Therefore in a unique type of ecological monitoring, only the actual person who has hid the leaves harvests the comb. This is a way of protecting ancestral domains.

Honey hunters prepare for collection by making rope ladders from *karachimaram* (*Hardwickia binnata)* The reasons for using this are that it is mostly a high tree and thus provides longer fibres. Besides, when the bark is being taken off, it is soapy on the inner part and this helps a lot when the fibre is to be twisted into the rope. Also, the strength of the fibre is legendary as it does not get cut even against continuous scraping against rocks and sharp edges.

The second stage is harvesting when upon reaching the nest, the group commences a *puja* and pray to their ancestors. The people have a belief that their ancestors will provide them stability in their pursuit and that the *puja* will give them protection against evil spirits. When harvest is over, they offer some honey to the gods and take the remainder to their homes whereupon they divide the share amongst themselves. Honey is hardly sold and mostly consumed.

Sigur in the Next Few Decades

The Sigur Plateau forms a conglomeration of unique features that make it so valuable as well as fragile. Forest fragmentation is a serious threat to the plateau. As observed in the land holding pattern, large parts of the region are classified as revenue forests and people have access to these lands. Sigur is also home to the new phenomenon of wildlife tourism and numerous resorts have sprung up in various corners of the reserve. These resorts are now a major harbinger of social change bringing with them positive as well as unwanted benefits to the people. These tourism activities, under the guise of well intentioned policies of ecotourism could possibly form a great threat to the wildlife of the region.

Ecologically, the Sigur plateau is an immensely fragile zone. Being fire prone and subject to frequent biotic pressure, the forests are constantly getting degraded.

There are seven settlements on the Sigur plateau, and six identified corridors used by elephants for movement and habitat that wind between their widening footprints, Reserved Forests (RFs), and the steep slopes of the Nilgiri hills to the south and those of the Moyar Gorge to the north. Most of these settlements were historically established along rivers and are now enclosed within revenue land boundaries. As their size has increased (mainly due to hydroelectric construction projects), development, agriculture and tourism, village lands have expanded to form a near-continuous boundary between the Sigur plateau's RFs, leaving only narrow corridors. Animal movement and access to surface water is now largely

prevented by human-made barriers such as electric fencing and agricultural activities.

The first priority therefore, is to generate awareness about the fragility of the region and stop regarding the open forests as a wasteland. For, wasteland it is not. Teeming with life, providing a bulwark against desertification of the ecozone and providing refuge to numerous wild animals, Sigur has its own ecological niche. As a major elephant corridor and as a transition zone between the Western and the Eastern Ghats, as a watershed for the Moyar and subsequently the Cauvery, the beauty of Sigur is multifaceted and clothed in myriad hues.

15

Sathyamangalam – A Sylvan Canvas

The Satyamangalam region lies to the east of the district of Nilgiris. With claims to fame that includes a high density of wild elephants, an almost total control of resources in the hands of the people and the legacy of brigands like Veerappan, Sathyamangalam has been blessed with some of the largest contiguous forest patches in the Nilgiri Biosphere region. The forest division comes under the taluk of Sathyamangalam and is widely regarded as one of the richest forest regions

Map XXXIII

Sathyamangalam

of the state of Tamil Nadu. The Sathy forests as Sathyamangalam is commonly called are contiguous with the forests of Nilgiri District, the Biligirirangan Sanctuary as well as forests of Kollegal and Chamrajnagar in Karnataka, thus forming a large patch of forests representing the Eastern Ghat ecotype.

The cultural geography of the hill tracts above Satyamangalam has always been entwined with that of the Nilgiris. The Badagas and the Kurumbas have had traditional claims over these terrains and called them *Melseeme* (frontier zone). Even a Toda god found it worthwhile to preside over these hills (albeit grudingly), from atop a peak at 5216 feet, overlooking the Bilgirirangan Sanctuary. A Badaga ballad of bygone days, describes the naves and slopes of these hills as a *'honey-corridor'* and *a 'milk-contour',* respectively. The ancient transhumance and foraging expeditions of Badagas and Kurumbas across this corridor of hills, practically ceased with the emergence of the Bhavanisagar reservoir in the 1950s.

The forests are classified as Reserve Forests and continue from the Nilgiri region in the west and consist of mostly scrub vegetation around the prominent temple of Bannari Amman. The forests continuing from the Moyar valley slowly turns to Dry Deciduous around Dhimbam. Thereafter, the forests are contiguous with some small patches exhibiting tendencies of Moist Deciduous as well as Semi Evergreen Forests. Overall, the Sathyamangalam Forest is Tropical Dry Forest, part of the South Deccan Plateau Dry Deciduous Forests eco-region. It includes Thorn Forests, Dry Deciduous Forests and Tropical Hill Forests. Many of the higher elevations of the Biligirirangan range have Shola, or dwarf Moist Deciduous Forest and Montane Grassland habitats.

Spread over an area of more than 1360 sq km, the territorial forest divison is one of the largest in Tamil Nadu. The region is predominantly dry with the maximum rainfall rarely crossing more than 850 mm. However, a major part of the region is located at a altitude of more than 1000 metres and is salubrious in nature.

The region is considered to be among the prime habitats of the Asian elephant. Besides, the elephant whose population is estimated to be more than a thousand at any given time of the year, the forest are home to an amazing diversity of birds, large mammals, reptiles and other forms of wildlife.

Table XXII

Some Animals

Vernacular name	Common Name	Scientific Name
Koda	Common Langur	*Semnopithecus entellus*
Puli	Tiger	*Panthera tigris*
Siruthai	Leopard	*Panthera pardus*
Pogakothi	Jungle Cat	*Felis chaus*
Keeri	Common Mongoose Small Indian Civet	*Herpestes edwardsii* *Viverricula indica*
Karubekku	Sloth Bear	*Ursus ursinus*
Benil (Jenchanna)	Malayan Giant Squirrel	*Ratufa bicolor*
Chennai	Three Striped Palm Squirrel	*Funambulus palmarum*
Egina	Indian Field Mouse Bandicoot Rat	*Mus booduga* *Bandicota indica*
Mulanthi	Porcupine	*Hystrix indica*
Sarangu	Barking Deer	*Muntiacus muntjak*
Alungu	Pangolin	*Manis crassicaudata*
Anthi	Wild Boar	*Sus scrofa*

Table XXIII

Some Birds

Vernacular name	Common Name	Scientific Name
Kadukozhi	Grey Jungle Fowl	*Gallus sonneratii*
Navil	Peafowl	*Pavo cristatus*
	White-bellied Woodpecker	*Dryocopus javensis*
	Coppersmith Barbet	*Megalaima haemacephala*
Kanthi	Indian Grey Hornbill	*Ocyceros birostris*
	Hoopoe	*Upupa epops*
	White-throated Kingfisher	*Halcyon smynensis*
	Green Bee-eater	*Merops orientalis*
	Greater Coucal	*Centropus sinensis*
	Spotted Owlet	*Athene brama*
	Indian Nightjar	*Caprimulgas asiaticus*
	Rock Pigeon	*Coulmba livia*
	Emerald Dove	*Chalcophaps indica*

	Little Egret	*Egretta garzetta*
Kakka	House Crow	*Corvus splendens*
	Black Drongo	*Dicrurus macrocercus*
Karuli	Common Myna	*Acridotheres tristis*
	Red-vented Bulbul	*Pycnonotus cafer*
	Red-whiskered Bulbul	*Pycnonotus jocosus*
	Yellow-billed Babbler	*Turtoides affinis*

Table XXIV

Some Reptiles and Amphibians

Vernacular name	Common Name	Scientific Name
Poriamai	Star Tortoise	*Geochelone elegans*
Kothi	Northern House Gecko	*Hemidactylus flaviviridis*
	Rock Gecko	*H. maculates*
	Garden Lizard	*Calotes versicolor*
	Southern Green Calotes	*Calotes calotes*
	Chameleon	*Chamaeleon Zeylanicus*
Apparani	Common Skink	*Mabuya carinata*
Piruka	Common Indian Monitor	*Varanus bengalensis*
Manulu	Russell's Earth Boa	*Eryx conicus*
	John's Earth Boa	*Eryx johnii*
Eppavu	Python	*Python molurus*
Sarayavu	Ratsnake	*Ptyas mucosus*
Asurunagaravu	Indian Tree Snake	*Dendrelaphis tristis*
	Common Wolf Snake	*Lycodon aulicus*
	Common Green Vine Snake	*Ahaetulla nasuta*
	Common Indian Krait	*Bungarus caeruleus*
Ngaravu	Cobra	*Naja naja*
Karunagam	King Cobra	*Ophiophagus Hannah*
Kolakkayavu	Russell's Viper	*Daboia russelii*
	Saw Scaled Viper	*Echis carinata*
Neerkappai	Common Indian Toad	*Bufo melanostictus*
	Indian Pond Frog	*Euphlyctis hexadactylus*

(Keystone Survey, 2006)

Indigenous People

The main indigenous communities in this area are Uralis (popularly called Irulas as per the Government nomenclature) and the Sholigas. Both the groups were hunter gatherers, traditionally. Now, almost entirely settled in villages with agricultural land they mainly grow *ragi, avarai* and *macca cholam* as rain fed crops. Each family has 1-2 acres of land. In recent years, the lack of rain has resulted in poor yields and decreased the amount of food availability. However, agriculture is practiced widely whenever climatic conditions are suitable in the region.

Table XXV

Crops cultivated

Agricultural crops	Common Name	Scientific Name
Ragi	Finger Millet	*Eleusine corocana*
Samai	Little Millet	*Panicum sumatrens*
Tenai	Fox Tail Millet	*Setaria italica*
Macca cholam	Maize	*Zea mays*
Mochai	Poor man's bean	*Lablab purpureus*
Avarai	Lablab	*Dolichos lablab*
Kaduku	Mustard	*Brassica juncea*
Ell	Seasame	*Sesamun indicum*
Beans	Soybean	*Glycine max*
Pusinikai	Pumpkin	*Cucurbita maxima*
Milakai	Chillies	*Capsicum frutescens*
Urulai	Potato	*Solanum tuberosum*
Kothamalli	Coriander	*Coriandrum sativum*
Kondaikadalai	Chick Peas	Cicer arietinum
Carrot	Carrot	*Daucus carota*

Living in isolated villages, separated by other centres of inhabitation by several kilometers, the adivasis have formed a natural affinity with the forest over years. Coupled with agriculture, forest dependence for collection of NTFPs has increased and is regularly done, due to the strong/organized presence of the LAMPS at Sathyamangalam. The 22 VFCs now govern the collection and sale of forest produce and are conscious of their rights in the forest. Though a number of NTFPs are present, large sections of the population are primarily engaged in the collection of the following NTFPs.

Table XXVI

Collection of Non Timber Forest Produce (NTFP)

NTFP	Scientific Name
Shikakai	*Acacia sinuata*
Soppukai	*Sapindus emarginatus*
Marapasam	Lichens
Mango	*Mangifera indica*
Seemaru	*Phoenix loureirii*
Nellikai	*Phyllanthus emblica*
Kadukai	*Terminalia chebula*

Honeyhunting

Uralis collect honey both from cliffs and trees. Though the knowledge of other bees exists, they are not harvested in large quantities, except for *Apis florea* in the areas of Ramrani and Talaimalai.

From trees, climbing is done by cutting steps into the tree trunk or by placing a log along the tree trunk. The honey hunter is above the comb, which he cuts and lowers into a vessel, suspended by a rope. As opposed to tree honey collection, cliff honey hunting, is more common.

They follow traditional methods and materials to harvest honey. The rope ladder is made from the bark fibre of *Kal Karichi Maram* (*Hardwickia binnata*) or *Aasa maram* (*Bauhinia racemosa*), the preparation of which takes a long time and varies from village to village. This rope ladder is stored in a dry place – with no attack from termites, fire and water. It can be used for 4-5 years, if stored well. The honey hunters go in groups of 10-25 people and stay at night in the forests to harvest honey from the cliffs. A fire is made below the cliff to smoke away the bees.

The honey hunter coming down the rope ladder has a suspended 'smoker' made out of green leaves and dry twigs. Usually, the leaf of *Phoenix* Spp. is preferred and is readily available. Honey combs are collected in a vessel, usually a tin vessel cut longitudinally (*kurke dabba*) and suspended by a fibre rope. These are lowered to the group waiting below, who keep emptying the vessel and sending it back. The combs are squeezed by hand to take the honey. Young brood/larvae

are eaten with honey. Waste combs and brood parts are thrown away – wax is collected only by a few groups.

Two seasons of honey are reported - March end to early June (*munger tenu*), this period is synonymous to the period of bloom of the *vengai* (*Pterocarpus marsupium*). These are the months of May, June & July. They get good honey when the *vengai, koli, bokka, inda* (*Pterolobium hexapetalum*), *selai vaghai* (*Albizia* Spp.*)* flower during the Munger honey flow season. The second season is in *Kartikai-Marghali* (October-November), which is mainly from cultivated crops of sesame, horsegram and niger.

A single tin of honey which may weigh 2o kg. sells for Rs. 350-400 to the Forest Department. Honey sold in a bottle sells for Rs. 50 per litre. Some people like those in Geddesal, find it easy to sell at Vivekananda Girijan Kalyan Kendra (VGKK) in the Biligirirangan Hills.

The Sathyamangalam region spread over two states and encompassing a large forest area has been a traditional centre for large collections of rock honey. Forest blooms are the major source of honey in the area for *Apis dorsata*. These forests have been undisturbed for a period of more than ten years due to the activities of Veerappan. Most adivasis agree that in comparison to the Nilgiris, there is considerably more honey here.

However, due to numerous factors such as high amounts of collection over the past three years and a general decline in the health of the forest (low flowering, low rains and extreme drought conditions), there is reduction in honey collection, both in terms of number of colonies and the amount of honey per colony. The people also complain that traditional boundaries followed earlier are not adhered to now. Honey collection is done in a crude manner; they are squeezed in an unhygienic method. This could be a reason for the high incidence of fermentation reported from this area.

Though the hill regions of Sathyamangalam are primarily a habitat of the adivasis, there are also some migrants into the area. The region is also an important habitat for animals such as the elephant. Co-existing for a long period of time, adivasis and animals have thrived till today, but the future of both is at a crossroads and sometimes pulling at opposite directions. There is a proposal for a railway line that will cut through some of the best preserved forests of the region, a threat to the very identity of the region. Coupled with rapidly increasing pressure on

the forests, it is a plausible certainty that the Sathy forest will rapidly disintegrate. Not as a warning of gloom but as a reminder of the doom that has affected far too many places in the nation, it is but imperative that Sathy and the large forest that have continued to thrive should be allowed to flourish.

16

Wynaad –Hope for Harmony

Located in the extreme northern corner of the state of Kerala, Wynaad with an area of 2132 sq.km. is home to one of the last remaining patches of forests in the state. One of the most backward districts of Kerala, Wynaad has hidden treasures, the lure for which is leading to rapid degradation of the land.

Originally, an adivasi abode, the greatest issue of concern is that of alienation of these very adivasis. Historically, a majority of people were adivasis but over the past several decades, Wynaad's treasured land has become a magnet for settlers who have been pouring in from all parts of the state to the extent that adivasis are now a minority with neither political protection nor assured land rights. Ruled

Map XXXIV

Wynaad

by the Vedars and later by the Pazhassi Raja of Kannur, Wynaad faced turbulence after invasions by the Mysore kings and later annexation by the British. Post Independence, Wynaad was broken down and became a part of Cannannore and Kozhikode districts. However, following long drawn discussions, the present district comprising of Vythiry, Mananthavady and Sulthan Bathery was formed in 1980. The adivasis who were relatively unattached to the Mysore and British invasions were however swamped by the influx of settlers who, lured by tales of Wynaads' fertile soil and cheap land came in droves, especially from Southern Kerala.

Wynaad's Persisting Problems

Wynaad, it seems has turned into a hole of trouble, for adivasis as well as farmers and these problems have been best illustrated by P. Sainath in his series of articles on the land. We use some of his writings to showcase these very problems affecting Wynaad today.

Wynaad produces 82 per cent of Kerala's coffee. It has been a huge income and foreign exchange earner for years. But it is now deeply enmeshed in the crisis sweeping the region. Coffee is the second most highly traded commodity in the world after oil. Wynaad briefly saw a great rise in prices in the late 1990s when frost hit the Brazilian crop. Wynaad's exposure is worse than most because its coffee has no internal market. Unlike Karnataka and Tamil Nadu, Kerala is not a coffee drinking land. Wynaad is home to one of the best Robusta varieties anywhere. Yet there is little effort to promote coffee within the district or State. Expensive but poor quality instant coffee rules the roost here.

Imports of pepper from Sri Lanka, including large quantities that are simply routed through that country but not actually produced there, have devastated farmers in Wynaad, home of the world's best pepper. The district saw 150 farmers or more take their lives in 2004, most of them pepper and coffee growers, all of them deep in debt. The spice of life now carries a whiff of death. Pepper prices - Rs. 270/kg., a few years ago - fell to just over Rs. 50/kg. by 2004. Debts rose as prices sank. And credit dried up. Pepper from here has long been a big foreign exchange earner. Kerala accounts for 90 per cent of India's production. Yet, today with falling prices, farmers have been forced to take extreme steps - kharshika prathisandhi or the agrarian crisis.

Adapted from the following articles: 'Coffee sails globally, sinks locally', 'Spice of life carries whiff of death' and 'Weddings on hold as prices crash' published during 2005.

Geography

Geographically, the Nilgiri Wynaad region or Gudalur taluk is a continuation of Wynaad. Wynaad itself is a mix of swampy lands, forests and hilly terrain at altitudes ranging from 700 m to 2100 m. The major peaks include Chembra peak (2345 m), Vellairmala (2145 m), Brahmagiri (1608 m) which soar above the adjoining plains. The terrain is very rugged and almost the entire district is mountainous in nature. This ruggedness of terrain is considered by most people to be the very reason of Wynaad's isolation over the centuries.

The isolated nature of the district has been the reason for the absence of railways. However, roads are of a good quality connecting to various parts of Kerala and other neighbouring states. Wynaad lies to the west of Gudalur taluk as well as parts of Mysore district. To the west and north west are the two districts of Kannur and Kozhikode and to the south is the district of Mallapuram.

The forests of Wynaad forming part of the Nilgiri Biosphere Reserve comprise Tropical Moist and Dry Deciduous Forests. These forests are contiguous with Mudumalai Sanctuary in Tamil Nadu and Bandipur Tiger Reserve in Karnataka and together constitute an immense contiguous forest space crucial for the survival and migration of several species of wild animals in their natural habitat. There are some patches of Semi Evergreen Forests in the western corner of the region. Though the entire district was heavily forested in the past, presently most of the forested area is accorded protection in the form of the Wynaad Sanctuary, which is divided into two divisions.

The Wynaad Sanctuary, notified in May 1973, extends over an area of about 473 sq. km. It is one of the largest elephant reserves in terms of population and land area. The importance also stems from the fact that during the summer months (February-June) there is large scale migration/movement of animals from Karnataka and Tamil Nadu to the Sanctuary where water is generally available in plenty (CEC, 2000). The land of forests is also the land of rivers with the Kabini River, draining the entire district along with its three tributaries, the Panamaram, Mananthavady and Kalindy.

Located at a slightly higher altitude and influenced by the humid tropical climatic zone, Wynaad experiences varied temperature regimes from 10^{O}C to 35^{O}C . The average rainfall is 2,500 mm per year.

People of Wynaad

Of the total population of 780,619 in the district, more than 36 percent of the people are adivasis. Wynaad also has the highest percentage of adivasi population within the state of Kerala. The major adivasi groups include the Paniyas, Kattunaickens, Kuruchiars and the Mullu Kurumbas.

Wynaad has also suffered from the large influx of settlers over centuries, the problem having compounded over the past few decades. The first settlers were the Jains from Karnataka who came in the 13th century who were followed by the fuedal lords who came from the Kannur region in the 14th century who took over large parts of the region. However, the bulk of the settlers came prior to independence and in the later decades. This migration has had far-reaching effects for the indigenous communities. They have been displaced from several parts of the district and are now found mostly in the hilly and the least inaccessible parts. Land grabbing destroyed much of the famed forests, converting them into estates of coffee, rubber, tea and other cash crops. Exploitation of the gullible adivasis has led to their alienation, dispossession of land and often agitations such as the much publicised incident at Muthanga Reserve.

The influx of the settlers has also had a very serious repercussion in the form of man-animal conflicts, for the forests are the traditional corridors for elephant movement. With large areas having been converted into agriculture, elephant paths have been irretrievably disturbed. Studies have shown that 92% of the damage by wildlife has been on agricultural crops. There have been very few instances of human injury (1.1%) and death (0.6%) due to wildlife (Bashir, 2000). This suggests that crops now stand in areas where forests were located and chances are that this type of conflict would increase in the near future.

Currently, other than the Mullu Kurumbas and Kuruchiars who have some land, the livelihood options for most of these communities is either wage labour or NTFP collection. Forest is the primary support system for most groups with collections of honey, *shikakai, kurunthotti,* tree and stone moss being high, for commercial purposes. A large number of forest produce is used for medicinal and personal use by these communities also. The forest, though protected is accessed by people

intensively, including pressures of grazing from the Karnataka side. Labour and work options being few in the northern part of Wynaad, many people migrate to Coorg as estate workers. Although, it is difficult to gather accurate data, Wynaad contributes highly for the state of Kerala in terms of foreign exchange earnings.

Wynaad Colonisation Scheme

This scheme officially came into being since April 1944, largely through the initiative of Sir S.V.Ramamurthi, I.C.S,one of the advisors to the government of Madras. The details of the scheme were originally drawn up by Mr.S.Y.Krishnaswamy I.C.S, when he was Collector of Malabar and were approved by Mr.S.V.Ramanmurthi.

Under this scheme, 34000 acres of thickly wooded jungle land were cleared for this purpose in tracts round about Sultan Battery. Colonisation actually commenced from 1948. The first batch of colonists were selected by the collector of Malabar on Feb.1.1948 and upto July 31, 1952,2841 colonists were settled.

Under mentioned categories were selected for the colonization.

Ex-servicemen	*1825*	*Ex-tappers*	*5*
Ex-INA man	*3*	*Exisitng settlers*	*750*
Aborginals	*251*	*Political settlers*	*1*
Landless Civilians	*6*		
		Total	*2841*

Ordinarily, a colonist was allotted five acres of dry land and two acres of wet land or in the alternative ten acres of dry land only, except in the case of few aborginals to whom only one to three acres of dry land and two acres of wet land were given " as it was considered that they would not be able to develop five acres of dry land. Wetlands not allotted to colonists, were leased to local residents or successful colonists.

Advances and grants were made by the government to colonists, under the following heads of expenditure: land reclamation, house construction of wells, construction of latrine and also grants for adopting precautionary measures against the depredation of wild animals!

Extracted from a report filed for 'The Hindu' in the year 1953: A. Dharmalingam, Correspondent, Ootacamund.

Honeyhunting

The main honey gatherers of the region are the Kattunaickens and occasionally, the Kuruchiars. Most have been settled on the fringe of the forests in 'colonies'. As with other adivasis, land alienation is an overriding problem with the honey hunters. For example, the village of Ponkuzhi is a colony where they were settled in a teak plantation and given 20 acres of land. Fighting for survival, they have converted most of the area for their houses and small farms – where they grow coffee, pepper and other homestead produce. However, they are not primarily agriculturists and mostly depend on the forest for survival. The Society is their main means of transaction and it offers them some benefits also. Barter of produce is also possible in the Society with the norm being 5 kgs. robusta coffee or 3 kgs green pepper for 1 kg pulses.

The infamous firing at Muthanga

The Kerala Government passed an act in 1975 that would ensure and treat all alienated adivasi lands as "stolen property" and that the lands would be restored to its rightful owners - the adivasis. But, this act was never implemented by agencies.

Adivasis slowly mobilized themselves over the years leading to sustained protests that included protests in the state capital also. The government declared that adivasi families would get five acres each. However, with little signs of progress, groups of adivasis settled in Muthanga range. They were however, forcibly evicted. This forcible eviction was not a mere eviction as extreme force was used and adivasis were severly assaulted. About two dozen were killed, making the Muthanga firings one of the worst cases of atrocities recorded against adivasis in the country.

Usually, while engaged in forest collection, they earn an amount approximately equivalent to the daily wage, e.g. 10 kgs of teak seeds can be collected per day and at the rate of Rs. 6 per kg, the collection will earn them approximately Rs. 60 which is equal to the daily wage offered in the region. Similarly they can collect upto a sack of *pasam* (8-9 kgs) per day and 50-60 kgs of *nellikai* per person. In the recent years, forest forays have become reduced due to the strict enforcement of law and as a result, the adivasis are forced to look for daily wage. This syndrome of wage has become the norm of employment avenues and as a resultant forest dependence has reduced. It is not easy to understand the change

of attitude in the minds of most adivasis whose reduced forest forays that has led to reduced dependence on forest products have also led to a more commercial appreciation of these resources. For most of the younger adivasis, forests are a mine to gather NTFPs or firewood for sale in the market and not for their socio-cultural needs. When the forest ceases to be a part of their overall continuum of life, they also partly cease to be an adivasi; the forces of modernity totally mould them as one more of the exploiters.

It is interesting to note that the region produces some of the highest amounts of medicinal honey from *Apis florea* and *Trigona* Spp.

Table XXVII

Honey bees found in the region

Common Name	Scientific Name	Nesting habits
Nasuri/Nesur/Kodugh	Dammar – *Trigonna sp.*	Cavities in trees, houses.
Pitt/Thude	*Apis cerana*	Cavities in trees
Vela	*Apis dorsata*	Cliffs, trees
Kol thenu	*Apis florea*	Shrubs
Kotan tenu	*Apis florea /Apis cerana*	Cavities in trees

The indigenous communities of Wynad collect honey from different sources and have varying techniques for each source of honey. Due to commercial reasons, much of the honey is collected for sale and rarely consumed. During honey season, all people of the village go for honey collection – men, women and the young. Children are strictly monitored as they may eat lots of honey leading to low amounts for sale.

Besides forest collection, they also place pots in the *tinnai* of their houses, where Dammer (*Trigona irridipenis*) honey can be collected over a period of five to eight years. When the pot is full, they get upto six kgs of honey. In the forest, Dammer bees live in hollows of trees and bamboos. The *vejjai* (*Anogeissus latifolia*) has lots of cavities, and is also the dominant species in the forest. On an average a person collects upto 30 kgs of Dammer honey in a season. They do not specially go for a particular honey, but harvest whatever honey they see along the way. The dammer honey earns higher returns from the society at Rs. 120-130 per kg.

Adivasis usually collect honey from trees as cliffs are virtually nonexistent in the region. *Apis dorsata* is collected in high numbers and fetch upto Rs. 60 per kg. There are certain prominent trees in the forest which are known as Honey trees as bees regularly make their way to these sites.

Honey groups make a rope ladder from *Saagai* and use bamboo to climb trees. This is done during the day as well as the night. The bamboo is split along the middle longitudinally, and steps attached to the node. For cliff collections, the group uses ropes and tins to reach the honey comb. However, post collection there is not much emphasis on quality control or segregation. *Apis cerana* that is collected from the wild and *Apis dorsata* honey is mixed and sold as one. Post harvest cleanliness is randomly followed with many groups squeezing the combs by hand and selling the product to the society.

The adivasis traditionally had boundaries of collection which was strictly adhered to. However, this practice is not followed by many groups presently. The boundaries of their area of collection can be ascertained by some of the following landmarks and demarcated areas. They are Nool Puzha, Mul Halla, Kolli, Manjal Tod and Maraghada. Irali bettu in Wynaad (4 hrs walk), Kurnegala in Karnataka (6 hrs walk) and some parts of the adjoining Mudumalai Sanctuary,

Benne (6 hrs walk) and Gopalswamy Betta (3 hrs walk) are also visited. These boundaries merge well with the topography of the region. They are comparable to the boundaries demarcated by other adivasi groups in Bandipur and Mudumalai zones.

The Forest department has worked with the adivasi and a number of VSS have been formed with the objective of protecting and conserving the forests. This is a positive step that would go a long way in ensuring that the forests continue to thrive as they did in the past and adivasis play a central role in protecting the forest.

The tribal cooperative is located in Kallur adjoining the Mudumalai region and also in Pulpally. The government of Kerala has granted exclusive rights of collection of some of the notified items of non-timber forest products (NTFPs) to the TCS. There are 1400 tribal members in the Kallur Society, which also has a shop in Sultan Battery. This is linked to the State Cooperative Federation.

No Space for Humans nor Elephants

The Wynaad region of the NBR needs a reworked strategy, perhaps one of land redistribution, difficult to achieve in the present day socio-political situation. Though adivasi leaders like C.K. Janu are making their voice heard, the state has to respond in a way that balances the demands of the communities and the needs of the migrant population. The issue is beyond honey and NTFPs – but one of social justice. Besides, the condition of the land – with all its pitfalls, high use of chemicals, low productivity, crashing world markets for cash crops, has resulted in the whole area having a sense of gloom. Tourism, promoted by the state zealously, cannot hide the core issues which confront a discerning traveler in Wynaad. Neither can the face of under nourished adivasi people in colonies be forgotten.

In the face of it, adivasis have rights in Wynaad to collect NTFPs and migrate for wage to different places including Coorg. However, the basic right of land and getting a part of the heritage, which was always theirs' still remains to be addressed.

Annexure I

Geology and Soils of the Nilgiri Region

The origin of the Nilgiri plateau has long been a subject of detailed studies. Based on the geological structure and geo morphological evidence, a number of geologists have put forth different hypotheses for the origin of the Nilgiris plateau. The prevalent view is that the plateau has come in to existence due to uplift by block faulting. Blandford held the view that this is a relic feature carved out by erosional processes.

The Geological Survey of India carried out pioneering geological work in the Nilgiris district in the 1850s. According to Blanford, the Nilgiris plateau has been formed by three systems of faults along its peripheries. This is based on the prominent escarpments. East north east faults with down throw to the south east of the plateau, parallel to the Bhavani River and a corresponding escarpment north west of Naduvattam with a down throw towards north west, form the first system of faults. The second system of faults trending northwest refers to the escarpment of Kundah facing Udhagamadalam and another near St. Catherine's Falls near Kotagiri. The third system comprises the northern boundary of the plateau and through the short southern escarpment of Kundah.

According to Venkata Rao and Subramaniam (1979), a cyclic upward of the continental crust accounts for the high level deposition of the surface and elevation of co-existing erosional surfaces in the Nilgiris plateau. They consider that mega lineaments whose surface expressions are shears represent faults of Precambrian age along which the Nilgiri hills were uplifted as blocks. Auden (1971), postulates that many of the escarpments in Nilgiris are etched out by erosion processes.

The events of uplift have been timed for the cretaceous and Miocene periods. Blanford considers the upheaval of the Nilgiris in two stages. The first was in the Cretaceous time and the second after the deposition of Cretaceous rocks. Wadia has speculated that the Nilgiris rise synchronizes with the uplift of Ceylon in the tertiary period. The alluvial deposits in Pykara and adjoining valleys are at a fairly high level above the bed stream and denote the uplift of the alluvial formation. Stanford has suggested that these may represent alluvium formed prior to the uplift of the Nilgiris.

It is interesting to note that the higher elevation on the Nilgiris plateau is made up of charnockites while the plains are composed of gneisses, viz, hornblende biotite gneiss and garnetiferous quartzo felspathic gneiss. The rock knoll of 342 *Sannakkal Mokkai*

is constituted of garnetiferous gabbro. Thus the difference in the topographic elevations has bearing on the nature of rock types present.

Lithology and Structure

The main Nilgiris massif is dominantly comprised of charnockites (the reason for the Nilgiri hills being called as Blue Mountain) inter banded with pyroxene granulites and garnetiferous quartzo felspathic gneiss. The relatively low country around the massif is made up of hornblende biotite gneiss, micaceous and ferruginous quartzites with emplacements of ultra basic like dunite, perodotite, pyroxenite, gabbro, dolerites and pegmatites. On the Nilgiri plateau there are a number of lateritic cappings, which are aluminous.

The lithological succession is as follows.

Quaternary	Soil and laterite
Secondary rocks	Magnesite
Intrusive igneous rocks	Amphibolites
	Pink felspathic granite
	Dunite
	Peridotite
	Garnetiferous gabbro
Metamorphic rocks	Garnetiferous quartzo felspathic gneiss
	Hornblende plagioclase gneiss
	Charnockite

The regional foliation trend of rocks varies from ENE-WSW to EW with steep dips varying from 60° to vertical on either sides indicating synforms and antiforms.

A prominent lineament east-northeast is the one from Kundah to Moyar through Udaghamandalam over a distance of 48 kms. This lineament has flexure towards east-northeast. This has been offset by a north-northwest trending fracture in the south-west corner of the district along which the Bhavani River makes the initial flow for 10 kms.

Annexure II

Endemic Species

Group	Total species	Endemic species	% endemism
Angiosperms	4000	1500	38
Butterflies	330	37	11
Fishes	218	116	53
Amphibians	121	94	78
Reptiles	157	97	62
Birds	508	19	4*
Mammals	120	14	12

NBSAP Document

Endemic and Endangered Birds

The following birds are endemic to the Western Ghats and seventeen are rare and endangered species

Nilgiri wood pigeon -	*Columba elphinstoni*
Malabar parakeet	*Psittacula columboides*
Malabar hornbill	*Ocyceros griseus*
Whitecheeked barbet	*Megalaima viridis*
Whitebellied treepie	*Dendrocitta leucogastra*
Malabar lark	*Galerida malabarica*
Greyheaded bulbul	*Pycnonotus priocephalus*
Rufous babbler	*Turdoides subrufus*
Rufousbreasted laughing thrush	*Garrulax cachinnans*
Greybreasted laughing thrush	*Garrulax jerdoni*
Wynaad laughing thrush	*Garrulax delesserti*
Black-and-rufous flycatcher	*Ficedula nigrorufa*
Whitebellied blue flycatcher	*Cyornis pallipes*
Nilgiri flycatcher	*Eumyias albicaudata*
Broadtailed grass bird	*Schoenicola platyura*
Whitebellied shortwing	*Brachypteryx major*
Malabar whistling thrush	*Myiophonus horsfieldii*
Nilgiri pipit	*Anthus nilghiriensis*
Crimsonbacked sunbird	*Nectarinia minima*

A rich variety of unique butterfly species is also found in the forests of this division.

Endemic Mammals

Madras hedgehog	*Hemiechinus nudiventris*
Day's shrew	*Suncus dayi*
Salim Ali's fruit bat	*Latidens salimalii*
Wroughton's free tailed bat	*Otomops wroughtoni*
Lion-tailed macaque	*Macaca silenus*
Nilgiri langur	*Trachypithecus johnii*
Nilgiri Marten	*Martes gwatkinsi*
Malabar civet	*Viverra civettina*
Brown palm civet	*Paradoxurus jerdoni*
Nilgiri tahr	*Hemitragus hylocrius*
Jungle striped squirrel	*Funambulus tristriatus*
Bonhote's mouse	*Mus famulus*
Ranjini's rat	*Rattus ranjiniae*
Malabar spiny dormouse	*Platacanthomys lasiurus*

Nameer, (1998); Johnsingh (2001).

Annexure III

Forest Classification

I. Evergreen Forests

These forests form a major portion of the western part of the reserve and are characterized by giant trees, multilayered species variation and luxuriant vegetation. The giant lofty trees can go upto a height of 150 feet or more and are often supported by huge buttresses. These trees offer refuge to a multitude of life forms including mosses, ferns, epiphytes, orchids, birds and often small animals.

These evergreen trees are often regarded as the climax vegetation in the ecological ladder. There are three kinds of evergreen forests in the biosphere area namely Low Elevation Evergreen, Medium Elevation Evergreen and High Elevation Evergreen

Low Elevation Evergreen and Degradations

These critical and immensely fragile ecosystems are found around the west coast in Kerala upto an altitude of 1500 metres. Much of these forests have been destroyed and only remnants occur along the Chaliyar basin at New Amarambalam, the Muthikulam – Palghat hills and small pockets in the Coimbatore division. The low elevation evergreen forests in the biosphere can be classified under the *Dipterocarpus-Mesua-Palaquium* series. The annual rainfall is more than 200 mm with a maximum of 4 to 5 dry months, and the mean temperature higher than 15^0 C throughout the year. The soil is loamy laterite.

Moist Evergreen Forests

These are multilayered and multistoried forests reaching a height of more than 40 metres with giant trees supported by huge buttresses. These forests are confined to the narrow valleys. There is a wide species diversification under the four main storeys which are the top, secondary, under storey and undergrowth.

The dry season is not so long and even then, there is some precipitation during this period. The dominant species are eleocarpus, wild durian, black dammer and a large number of epiphytes, ferns, tree-ferns, mosses, rattans, etc. The main NTFPs are wild nutmeg, cinnamum, cane, piper longum, honey and herbal plants.

The following stages are degradations of the above mentioned climax type.

Semi Evergreen Forests

These forests are moist and occur as a transition zone between the Evergreen Forest and the Moist Deciduous Forest. The trees are slightly lower in height as compared to the Evergreen Forests. They are usually found in the lower or more accessible regions of the Evergreen Forest. Buttressed trees are quite common, lianas are also abundant.

There are two possible transition zones for these forests - either they are secondary forests moving towards the evergreen climax or they are the degraded forms of the Evergreen Forests. In some degraded areas around habitations, *Bambusa arundinacea* and *Santalum album* are also found.

Lagerstroemia lanceolata is the predominant deciduous specie. The other main species are *Bischofia javanica, Calophyllum polyanthum, Tetrameles nudiflora, Dalbergia sissoo, Elaeocarpus tuberculatus, Terminalia paniculata, T. bellerica, Myristica malabarica, Miliusa tomentosa, Palaquium ellipticum, Artocarpus hirsuta, Calophyllum tomentosum, Canarium strictum, Cinnamomum zeylancium, Cullenia excelsa, Dipterocarpus spp., Dysoxylum malabaricum, Michelia champaca, Mesua ferrea, etc.*

Moist Deciduous Forests

They are more widespread as compared to the previous forest types and are found in most of the parts of Kerala within the Biosphere Reserve. They are also in the upper reaches of the Bolampatti Hills in Coimbatore district and Nilgiri South Division. Natural teak is absent because of the soil type (laterite) but found in plantations. Some species include *Ficus glomerata, Kydia calycina, Lagerstroemia lanceolata, Pterocarpus marsupium, Tectona grandis, Terminalia* Spp. etc.

Open Forests

As the name suggests, the trees are not as dense as the former types and the crowns usually do not touch. The height of the trees also does not go beyond 15 m. The soil is lateritic. The trees found here include *Careya arborea, Hopea wightiana, Phylanthus emblica* with *Terminalia paniculata* and *Lagerstroemia lanceolata* found in better communities.

Secondary Thickets

These are patches of Evergreen Forest on hillocks among rice fields. They are in a high state of degradation because of their accessibility. Species like *Macaranga indica, Mallotus philippensis, Trema orientalis* and *Grewia tiliaefolia* form thickets. *Bambusa arundinacea* is also common.

Clump Savannah

These are patches of low, stunted trees ranging between 7 m and 13 m, separated by glades of grasses. These areas are formed as a result of previous shifting cultivation, over laterite soil and very heavy rainfall areas. The trees include *Macaranga indica, Mallotus philippensis, Vateria indica, Allophylus serratus, Olea dioica.* Other species include *Chrysopogon fulvus, Wendlandia notoniana, Pteridium aquilinum* etc.

Shrub Savannah

This landscape forms due to a high degree of degradation. Fire is common and as a result of which there is maximum profusion of fire hardy species. They form after the felling of Evergreen Forest on the plateau.

Medium Elevation Evergreen Forests

These forests are extensive in the reserve and spread over a relatively large area. They are located in the western part of the reserve in Kerala and Tamil Nadu, Silent Valley, Attapadi Reserve Forest, New Amarambalam, Nilambur Special Division and small pockets of Coimbatore Division in Tamil Nadu.The main species association is *Cullenia –Mesua–Palaquium* series. They occur under very moist conditions of rainfall more than 3000 mm and a very short dry season of less than 4 months. The soils are mostly loamy laterite.

The series is classified into the Moist Evergreen Forest (climax) and a number of degraded stages.

Moist Evergreen Forests

These forests include luxuriant vegetation, multi-storeyed levels, with giant tall trees reaching a height of more than 35 mts. Climbers and epiphytes are very common. Due to the closed canopy, grass is not common and the ground carries only poor shrubby vegetation. These forests had earlier tracts of the Western and South Western zones but a lot of it got gradually converted into tea plantations

Semi Evergreen *Forests*

This is again a moist and dense forest type very similar in physiognomy to the wet evergreen except for the presence of some deciduous and heliophilous species. It is found in the margins of the Wet Evergreen Forests. Its ecology is that of the *Cullenia-Mesua-Palaquium* series.

Riparian /Low Level Sholas

They are found on the hill slopes and sometimes called Sholas of low or medium altitude. They are considered to be relic forests. Their composition differs in different places as they are Semi-Evergreen or Evergreen on the western side and Moist Deciduous at a height of 800-100 m, thereafter Semi Evergreen at an altitude of 1500-2000 m on the eastern side.

Savannah

This is the last stage of degradation and is maintained at this stage by continuous annual fires.

High Elevation Evergreen Forests

Commonly called the Sholas, they are found intensively in the Nilgiri South Division and adjacent area of Kerala in the upper reaches of Silent Valley, Attapadi and New Amarambalam. They are highly concentrated in the Western Catchment area, forming part of the Mukurthi National Park. They are accompanied by grasslands and are frequently the origin of most of the rivers of the zone. The trees are short to medium height (7-20 mts), have small dense leaves and make a thick canopy. There is a thick concentration of mosses and ferns. They have a high water retention capacity. They are also classified as the Shola Montane Forest type. Due to their slow growth, high susceptibility and confined geographical area – they are referred to as "Living Fossils". The average rainfall is around 1000-1200 m with a maximum dry season of not more than one month.

The main trees in this forest are *Michelia nilagirica, Bischofia javanica, Calophyllum tomentosum, Toona ciliata, Eugenia* Spp., *Ficus racemosa, Mallotus philippensis, Rhododendron nilagiricum, Persea macrantha and* Lauraceous trees.

Grasslands

They exist alongside the Sholas at high altitudes. The grasses are generally less than 80 cm in length. Some species are *Cymbopogon polyneuros, Eragrostis nigra,* etc.

II. Climax Moist Deciduous Forests

These forests are restricted to parts of Nilambur valley, and even here they have been mostly converted to teak plantations. Wynaad plateau, south western part of Nagarhole National Park, and western part of Mudumalai Wildlife Sanctuary also contain remnants of this type. Rainfall is around 3000-4000 mm with a dry season of 3-4 months. The soil is generally red lateritic loam. They are also classified as moist deciduous teak type and under this, the *Tectona- Dillenia- Lagerstroemia lanceolata- Terminalia paniculata* series.

Moist Deciduous Forest

This is the climax vegetation of the Deciduous Forest type. It is a highly moist forest with upto three storeys. Most species are deciduous in the top and second storeys.The undergrowth includes many evergreen shrubs and small trees. The trees reach a height of 25-30 mts. Buttresses, lianas and dense undergrowth are common. Some species are common to the Dry Deciduous Forest type also.

Open Forest With Bamboo Facies

In this type *Bambusa arundinacea* forms large clumps with large trees like Terminalia, Lagerstroemia, Dillenia and Tectona. They also occur as almost a pure crop. Some clumps contain more than 200 culms and some culms attain a height of 20-30 mts.

Lateritic Facies

On soils that are highly lateritic, many large trees like *Terminalia bellerica, Adina cordifolia* and *Tectona grandis* disappear.

III. Dry Deciduous Forests

These forests are found along the interstate boundaries of the three states, falling partly within Wynaad Sanctuary, Bandipur Tiger Reserve and Mudumalai Sanctuary. The main species include *Acacia* Spp., *Anogeissus latifolia, Tectona grandis, Azadirachta indica, Butea frondosa, Hardwickia binnata Cassia fistula, Dalbergia paniculata, Sterculia urens*, etc. Being protected and located within the sanctuary area, the zone

has a rich faunal population and has several species like *Axis axis, Cervus unicolor, Muntiacus muntax, Bos gaurua, Panthera tigris, Panthera pardus, Elphas maximus* and so on.

The Dry Deciduous Forests in the reserve come under two main series namely *Terminalia-Anogeissus latifolia-Tectona grandis* series and *Anogeissus latifolia-Hardwickia binnata* series. The *Terminalia-Anogeissus latifolia-Tectona grandis* series is found in the sanctuaries of Nagarhole, Bandipur and Mudumalai. The annual rainfall lies between 800-1800 mm with a dry season of upto 8 months. The mean temperature does not go below 15^0C at any time. Teak grows abundantly in regions where the soil is slightly acidic in nature. There are upto three storeys of trees. These forests are subject to intense biotic pressure from both fire as well as grazing. Quite often these forests are found to be highly degraded and are then referred to as Open Forest. In such a scenario, the species density decreases.

Scrub woodland consists of groups of trees separated by thickets either derived from a dense forest by exploitation of the upper tree stratum, or from an open forest by the invasion of bushy species. The tree stratum can reach a height of upto 12 m.

Savannah Woodland and Tree Savannah

Savannah woodlands are also found in fire prone areas with wide spacing of trees. It is found along the northern part of the reserve with a high proportion of fire resistant species. *Phylanthus emblica , Diospyros melanoxylon* and *Bridelia retusa* are found.

Tree savannah is formed as a result of shifting cultivation and there is a greater spacing of trees in this type than savannah woodland.

Closed thickets and Discontinuous Thickets

Thorny shrubs are predominant reaching a height of upto 5 m. They are subject to excessive grazing and indiscriminate felling. Some thorny species are *Acacia catechu, Ziziphus jujuba* etc. The stunted trees include *Tectona grandis, Anogeissus latifolia, Cassia fistula* etc. Besides *Acacia nilotica, Acacia leucophloea, Butea monosperma* and *Bauhinia racemosa* are also found.

Low Scattered Shrubs

This is the final stage of degradation, with substantial exposure on parent rock and area littered with boulders and pebbles.

The shrubs do not exceed more than 1.5 m in height and often the spacing between the shrubs reach between 3-6 m. *Cactiform Euphorbia* with *Cassia auriculata*, *Dodonaea angustifolia, Maytenus emarginata* and dwarf phoenix species are found frequently here.

The *Anogeissus latifolia- Hardwickia binnata* series is found in discontinuous patches in the northeast and southwest oriented hills of the Eastern Ghats. The Hasanur Plateau and Satyamangalam Division contains this series of dry deciduous forest. The rainfall ranges from 500-1200 mm with upto six months of dry season.

The degraded stages are either savannahs or thickets. A large number of fire resistant species like *Phyllanthus emblica , Diospyros melanoxylon, Wrightia tinctoria, Miliusa tomentosa, Bridelia retusa* and *Phoenix humilis* are found. *Acacia sundra*, *Cassia auriculata* and *Dodonaea angustifolia* are also found.

Annexure IV

Major NTFPS

Local Name	Botanical Name	Parts used	Uses
COMMERCIAL			
Mungil, Periya mungil (T), *Mulla, Illi,* (M), *Dongi, Bidungalu, Hebbidru* (K)	*Bambusa arundinacea*	Poles	Construction
Inji, Malai-icham (T), *Icham* (M)	*Phoenix loureirii*	Leaves	Cleaning
Karapu kangiliam, Karang - kunthrikam (T), *Kunthirikka payin, Thall* (M), *Manga dhup* (K)	*Canarium strictum*	Resin	To give aroma
Madana-kaman, Katu-thuvai (T), *Kalanga, Intha* (M), *Goddu-ichel* (K)	*Cycas circinalis*	Leaves	Construction
Then (T, M)	Honey		Food
Pala, (T) *Pilavu* (M), Alasa (K)	*Artocarpus heterophyllus*	Fruit	Food
Kadukai (T), *Kadukka* (M),	*Terminalia chebula*	Fruit	Tannin indusm
Konnei (T), *Konna* (M), *Kakke* (K)	*Cassia fistula*	Bark	Liquor
Kodakkapuli (T), *Kodapuli*, *Pinaru* (M), *Upaigai* (K)	*Garcinia gummigutta*	Fruit	Food
Maa (T), *Mavu* (M, K)	*Mangifera indica*	Fruit	Food
Maahaali Kizhanku, Mavillinga Kizhanku (T)	*Decalepis hamiltonii*	Roots	Pickle
Nannari (T, M)	*Hemidesmus indicus*	Rhizome	Coolent
Naval (T), *Naga, Naval* (M), *Narala* (K)	*Syzygium cumini*	Fruit	Food
Nelli (T, M)	*Phyllanthus emblica*	Fruit	Edible
Pounanga (T), *Aratala* (K)	*Sapindus emarginatus*	Fruit	Washing soaps
Punga (T) *Pungu* (M), *Honge* (K)	*Pongamia pinnata*	Seeds	*Medicine*
Seenga Pattai (T),	*Acacia instia*	Bark	Shampoo
Shikak-ai (T) *Chinikai* (M), *Sige* (K)	*Acacia sinuata*	Fruit	Shampoo
Lichen	Whole plant	Food	
Puli (T), *Amlam* (M), *Hunesegida* (K)	*Tamarindus indica*	Fruit	Food

CONSUMPTION

Sita (T)	*Annona squamosa*	Fruit	Food
Vellainaga (T), *Marukinchiram* (M), *Dinguga* (K)	*Anogeissus latifolia*	Bark	Medicine
Atthi (T, M, K)	*Ficus racemosa*	Fruit	Edible
Mungil, Periya mungil (T), *Mulla, Illi* (M), *Dongi, Bidungalu, Hebbidru* (K)	*Bambusa arundinacea*	Grains Leaves with rhizome	Food
Vila (T), *Vila* (M), *Belavu* (K)	*Feronia elephantum*	Fruit	Edible
Biscuit kodi (Ir)	*Derris benthamii*	Whole plant	Ladder
Manathakallie keerai (T)	*Solanum nigrum*	Leaves	Food
Madana-kaman, Katu-thuvai (T), *Kalanga, Intha* (M), *Goddu-ichel* (K)	*Cycas circinalis*	Fruit	Food
Madana-kaman, Katu-thuvai (T), *Kalanga, Intha* (M), *Goddu-ichel* (K)	*Cycas circinalis*	Tender shoot	Food
Segapu, Koyya (T), *Pela* (M)	*Psidium guajava*	Fruit	Food
Vallaikodi, Chedhukkandhi (T), *Nuran, Chaval, Koran-pidan* (M), *Nurai genusu* (K)	*Dioscorea tomentosa*	Tuber	Food
Kal vaalai	*Musa acuminata*	Fruit	Food
Kalakay (T), *Kare kagi* (K)	*Carissa carandas*	Fruit	Food
Kodakkapuli (T), *Kodapuli, Pinaru* (M), *Upaigai* (K)	*Garcinia gummigutta*	Fruit	Food
Kolga (T)	*Elaeagnus kologa*	Fruit	Food
Koogai kilangu (T)	*Canna edulis*	Rhizome	Food
Kattilandai, Suduthoratti (T), *Thodali* (M)	*Ziziphus rugosa*	Fruit	Food
Loquat (T)	*Eriobotrya japonica*	Fruit	Food
Tekil (T)	*Derris scandens*	Fruit	Food
Maahaali Kizhanku, Mavillinga Kizhanku (T)	*Decalepis hamiltonii*	Tuber	Food, pickles
Minigai kodi (Ir)	*Argyreia nervosa*	Fruit	Food
Thorupattaankaai, Malai kovai (T)	*Passiflora subpeltata*	Fruit	Food
Mullu keerai	*Amaranthus spinosus*	Leaves	Food
Pacchai muruli, Manjithi (T),	*Rubia cordifolia*	Rhizome, Fruit	Food

Naval (T), *Naga, Naval* (M), *Narala* (K)	*Syzygium cumini*	Fruit	Food
Nelli (T, M, K)	*Phyllanthus emblica*	Fruit	Food
Nalvaelikkizhangu, Shaval kilangu (T), *Inthi kachchil, Nuli, Chavu pindi* (M)	*Dioscorea tomentosa*	Tuber	Fruit
Pal kodi (Ir)	*Secamone emetica*	Leaves	Food
Parangikai	*Cucurbita maxima*	Fruit	Food
Verrolai valli, Kavvala kodi, Thavai kachchu (T), *Kanji* (M), *Bellarai* (K)	*Dioscorea oppositifolia*	Rhizome	Food
Puli (T) (M), *Hunesegida* (K)	*Tamarindus indica*	Fruit	Food
Thandan keerai (T)	*Amaranthus caudatus*	Leaves	Food
Thavatai (T)	*Rhodomyrtus tomentosa*	Fruit	Food
Kattunochi (T) *Keppasi* (M)	*Debregeasia longifolia*	Bark	Rope
Vallarei (T)	*Centella asiatica*	Leaves	Food
Vasalai keerai (T)	*Basella alba*	Leaves	Food
Vikki (T), *Katta kara* (M)	*Elaeocarpus variabilis*	Fruit	Food
Alangi (T), *Ankola* (K)	*Alangium salviifolium*	Leaves	Food
Pila, Pilavu (T, M), *Alasa* (K)	*Artocarpus heterophyllus*	Fruit	Food
Sundai (T), *Kaatuchunla* (M), *Kadusunde, Sundekkayi* (K)	*Solanum torvum*	Fruit	Food
MEDICINAL			
Vel velam (T), *Pattacharayamaram* (M), *Bilinjali* (K)	*Acacia leucophloea*	Bark	Constipation
Chirukuttali (T), *Kumari* (M), *Lolisara* (K)	*Aloe vera*	Leaves	Coolant
Vellainaga (T), *Marukinchiram* (M), *Dinguga* (K)	*Anogeissus latifolia*	Bark	Fever
Aruvathanthalai (T)	*Ruta graveolens*	Leaves	Fever
Vasambu (T, M) *Bajegida* (K)	*Acorus calamus*	Root	Snake bite
Athi (T, M, K)	*Ficus* Spp.	Fruit	Reduce swelling
Vazhai (T), *Vazha* (M)	*Musa paradisiaca*	Flower	Food
Pacchai muruli, Manjithi (T),	*Rubia cordifolia*	Leaves	Fever
Chedichi (Ir)	*Murraya paniculata*	Leaves	Stomach pain

Kavalam (T), *Kithondi* (M)	*Sterculia guttata*	Leaves, Root	Reduce heat, Fever
Kaapi (T, M, K)	*Coffea arabica*	Bark	Fever
Eetti, Karundorviral (T), *Itti* (M), *Bite* (K)	*Dalbergia latifolia*	Bark	Tire ness. Bath, Stomach pain
Madana-kaman, Katu-thuvai (T), *Kalanga, Intha* (M), *Goddu-ichel* (K)	*Cycas circinalis*	Fruit	Edible
Gumadi (T), *Kumbil* (M), *Shivani* (K)	*Gmelina arborea*	Bark	Stomach pain
Gurkathi kodi	*Hiptage benghalensis*	Leaves	Cough
Pila, Pilavu (T, M), *Alasa* (K)	*Artocarpus heterophyllus*	Bark	psorosis
Jakkai tree bark	*Berberis tinctoria*	Bark	Pain
Paachi (T)	*Cyclea peltata*	Leaves	Juice to drink
Paravalli, Udarkodi (T), *Paalvally* (M), *Karechambu, Gorwiballi* (K)	*Ichnocarpus frutescens*	Leaves	Back pain
Kadakai (T), *Kadukka* (M),	*Terminalia chebula*	Fruit	Cough
Konnei (T), *Konna* (M), *Kakke* (K)	*Cassia fistula*	Bark, leaves	Liquor, fever
Karu oomathai (T)	*Datura metel*	Fruit	Fever
Kizhaa nelli (T)	*Phyllanthus amarus*	Leaves	Jaundice
Kaasa nangai, Vellachedi, Thanni kodi (T), *Noorvan valli* (M), *Indrapushpaballi* (K)	*Thunbergia fragrans*	Leaves	Food
Mulu maruthu (T), *Mukkayini* (M), *Asana* (K)	*Bridelia retusa*	Leaves	Headache
Kattilandai, Suduthoratti (T), *Thodali* (M)	*Ziziphus rugosa*	Fruit	Hip pain
Unnichedi (T)	*Lantana camara*	Leaves	Pain relief
Maligai chedi (T)	*Jasminum Spp.*	Leaves	Strength
Maa (T), *Mavu* (M, K)	*Mangifera indica*	Bark	Warm killer
Maahaali Kizhanku, Mavillinga Kizhanku (T)	*Decalepis hamiltonii*	Rhizome	Food
Thorupattaankaai, Malai kovai (T)	*Passiflora subpeltata*	Leaves	Fever
Vengai (T), *Venga* (M), *Honne* (K)	*Pterocarpus marsupium*	Bark	To cure insects bite, stomach pain

Nekkini, Irambaranthan, Naluvai, Navugu (T)	*Canthium dicoccum*	Bark	Cooling
Orange leaves	*Citrus aurantium*	Leaves	Headache
Kadalamanakku, Kallamanakku (T), *Kadalavanaka, Kattavanakka* (M), *Adaluharalu, Bettadaharalu* (K)	*Jatropha curcas*	Fruit	Oil
Kurinji (T, M)	*Strobilanthes Spp.*	Root	Food
Tagarai, Seemai agathi (T)	*Cassia tora*	Leaves	Cooling, agent
Pounanga (T), *Aratala* (K)	*Sapindus emarginatus*	Root	Pain
Punga (T) *Pungu* (M), *Honge* (K)	*Pongamia pinnata*	Bark, Root	Snake bite, pain
Seengai (T)	*Acacia intsia*	Bark	Cooling
Shikakai (T) *Chinikai* (M), *Sige* (K)	*Acacia sinuata*	Fruit	Dandruff
Lichen		Plant	Headache
Sadachi, Unnu (T), *Chadicha* (M), *Tadasal* (K)	*Grewia tiliaefolia*	Bark	Astringent
Thulsi (T), *Trillavu* (M), *Vishnuthulasi, Srithulasi* (K)	*Ocimum sanctum*	Leaves	Cooling
Thumba (T, M, K)	*Leucas aspera*	Leaves, Flowers	Cold, cough
Wrang, seengai	*Zanthoxylum limonella*	Root	Food

Annexure V

Bee Preferred Plants

Botanical names	Family	Habit	Common name	Vernacular names	Flowering	Fruiting	Source
WILD							
Bidens pilosa	Asteraceae	Herb	Spanish needle	*Paimulu* (T)	Jan-Dec	Jan-Feb	N3P2
Opuntia stricta	Cactaceae	Shrub	Prickly pear	*Chappathikalli* (T)	Jan-Dec	Jan-Dec	N2P2
Pterolobium hexapetalum	Caesalpiniaceae	Staggler	Bhoca	*Indu* (T)	Apr-Jun	May-	N2P2
Albizia lebbeck	Mimosaceae	Tree	Woman's tongue	*Vagai* (T), *Vaga* (M),	Feb-Apr	Apr-Oct	N3P3
Azadirachta indica	Meliaceae	Tree	Margosa	*Vempa, Vempu* (T,M), *Bevu* (K)	Mar-Apr	ripening by jun	N1P3
Bauhinia racemosa	Caesalpiniaceae	Tree		*Archi, Atti* (T)	Mar-Jun	Jan-Dec	N3P3
Butea monosperma	Fabaceae	Tree	Flame of the Forest	*Porasu* (T), *Palsin samatha* (M)	Feb-Apr	Mar	N1P3
Canthium dicoccum	Rubiaceae	Tree		*Irambaratthan* (T)	Jan-Mar	Feb-.	N2P3
Cardiospermum halicacabum	Sapindaceae	Tree	Balloon vine	*Modakathan* (T)	Jul-Feb	Aug-Mar	N2P4
Strychnos potatorum	Loganiaceae	Tree	Cleaning nut tree	*Tattan kottei, Kal kottei* (T)	Apr-Jun	Jul	N2P1
Syzygium cumini	Myrtaceae	Tree	Jambolan	*Naaval* (T), *Narala* (K)	Mar-Apr (hills), Jul-Aug(plains)	Jun-Jul hills),	N1P1
Mimosa pudica	Mimosaceae	Tree	Touch me not	*Thottavadi* (T),	Jan-Dec	Jan-Dec	NP1
Pongamia pinnata	Fabaceae	Tree	Pungam	*Ponga maram* (T),	Feb-Jun	Apr-Oct	N2P2
Flueggea leucopyrus	Euphorbiaceae	Tree		*Madupulanthi* (T)	Feb-May	Apr-Nov	N1P2
Tamarindus indica	Caesalpiniaceae	Tree	Tamarind	*Puli* (T), *Amlam* (M), *Hunesegida* (K)	Apr-Aug	Oct-Feb	N2P3
Pterocarpus marsupium	Fabaceae	Tree	Indian Kino	*Vengai* (T), *Venga* (M), *Honne* (K)	Jun-Aug	Jul-Mar	NP2
Sapindus emarginatus	Sapindaceae	Tree	Soapnut	*Pounanga* (T), *Aratala* (K)	Feb-Apr (lower alt) Aug-Dec (higher alt)	Jan-Dec	N1P1
Ziziphus jujuba	Rhamnaceae	Tree	Jujuba	*Elanthai* (T), *Elantha* (M)	Jul-Nov	Oct-Dec	N1P3
Schleichera oleosa	Sapindaceae	Tree	Lac tree, ceylon oak	*Poovan* (T), *Poovam* (M)	Mar-Apr	Mar-, ripening by Jul-Aug	N2P5

CULTIVATED

Sechium edule	Cucurbitaceae	Climber	Chow Chow	*Maerakai* (T,M)			N2P
Cucurbita maxima	Cucurbitaceae	Climber	Pumpkin	*Parangi kai*			N1P1
Momordica charantia	Cucurbitaceae	Climber	Bittergourd	*Pavakai* (T)	Jan-Dec	Jan-Dec	N3P3
Luffa cylindrica	Cucurbitaceae	Climber	Luffa	*Pearkangai* (T)			N3P3
Cosmos Spp.	Asteraceae	Herb	Cosmos		Jan-Dec	Jan-Dec	N2P2
Coriandrum sativum	Apiaceae	Herb	Coriander	*Kothamali, Dhania* (T)	Nov-Jan	Dec-Mar	N3P3
Guizotia abyssinica	Asteraceae	Herb	Niger	*Yellu* (T)	Nov-Mar		N2P2
Helianthus annuus	Asteraceae	Herb	Sunflower	*Suryakanthi* (T,M)			N1P1
Musa Spp.	Musaceae	Herb	Banana	*Vazhai* (T), *Vazha* (M)			N2P3
Tagetus eretus	Asteraceae	Herb	Marigold	*Chendummalli* (T)	Jan-Dec		N3P3
Zea mays	Poaceae	Herb	Maize	*Makka cholam* (T)			P1
Coffea arabica	Rubiaceae	Shrub	Coffee	*Kaapi* (T,M)	Mar-May	ripe by Oct	N2P1
Jatropha curcas	Euphorbiaceae	Shrub	Purging nut, Jatropha	*kadalamanakku, kattamanakku* (T)	Apr-Jul	Apr	N3P3
Psidium guajava	Myrtaceae	Tree	Guava	*Koya, Segapu* (T), *Pela* (M), *Sebe* (K)			N1P1
Eucalyptus Spp.	Myrtaceae	Tree	Eucalyptus				N1P1
Mangifera indica	Anacardiaceae	Tree	Mango	*Maa* (T), *Mavu* (M)	Jan-Mar	ripening by Jul-Aug	N2P3
Grevillea robusta	Proteaceae	Tree	Silver oak	*Savukkumaram* (T)	Mar-May	Jun	N1P1
Ceiba pentandra	Bombacaceae	Tree	Silk cotton	*Ilavum, Illavam-panju* (T)	Jan-Apr	Mar-Apr	N2P2
Cocus nucifera	Araceae	Tree	Coconut	*Tenga, Thennai* (T), *Tenga* (M), *Tengina* (K)	Jan-Dec	Jan-Dec	N1P1
Delonix regia	Caesalpiniaceae	Tree	Flamboyant	*Mayarum, Mayirkonrai, Panjadi* (T)	Apr-Jun	May-	N2P2

N.B.

N1	Major source of nectar	P1	Major source of pollen
N2	Medium source of nectar	P2	Medium source of pollen
N3	Minor source of nectar	P3	Minor source of pollen

Annexure VI

The Traditional Relationship of the Todas with Honey

Honey and its gathering can be found mentioned in all aspects of Toda life: in mythological stories, in ancient songs, in prayers, in various life-time rituals, in personal and clan names, in pre-historic rock art, in names of sacred rivers, plants, birds, animals and in embroidery patterns.

Toda Sacred Rivers

The upper Nilgiris have two major river systems that originate in their catchments. Given the position of sanctity that honey occupies to the Todas, little wonder that the origins of both these rivers are mythologically rooted in honey! The most sacred river to the Todas is the Mukurti-Pykara system that has different names at specific sites, but is generally called *kawlykeen*. Let us look at the myth of creation of this river, rendered interesting from the honey aspect.

The most sacred of all dairy temple grades were the *Ti* temple complexes that all *Tawrrta(r)sh awll(zh)* moiety clans once owned. Each of these clans had their own herds of sacred *Ti* buffaloes that were to be milked only by the priest of that specific *Ti* temple complex. Only the priest –called *pollawll(zh)* and his boy assistant – called *koltmokh*, both of whom had to be from the other moiety, *Taihhfill(zh)y awll(zh)*, inhabited these complexes. They would migrate from one complex to another during different seasons of the year and each *Ti* had a complicated array of associated rituals. Then came modern man with all the trappings of 'civilised' society. *Ti* complexes were either overrun by tea or hydroelectric reservoirs and plantations of exotic trees like pine, eucalyptus or wattle obstructed sacred migratory routes.

In ancient times, the *pollawll(zh)* (belonging to the *Teihhfakh* clan) of the *Mojawdr Ti* along with the *koltmokh* (of the *Omgaa(r)sh* clan) who happened to be his mother's brother's son (*mochiny*) went honey hunting in separate directions during the dry season (*pyool vehn*). This *Ti* was situated in the *Mukurti* area and close to the hill *Kaadry*. The priest crossed the *Nawttymehn* hill close to the *Mukurti* peak and went towards the *Tehdhykeihhn* hill now called Pichalbetta, and found a tree hive (*pehhrr*) within a dense shola (*twaarsh*) brimming with honey. Sholas are the montane evergreen thickets that lie interspersed in the hollows between grass hills. He however, did not harvest the honey nor did he tell his assistant of his find. Meanwhile, the boy assistant went in another direction and located a new tree hive en route to *Ponaarr*

vehll – this is a path beyond a hillock that leads to another rattan cane forest. Unfortunately, the hive had only a small quantity of honey which the assistant collected in a leaf vessel being careful not to cause any impurity or *ichil* to the near by *Ti* dairy. *Ichil* is a term used to denote an impurity that has been incurred due to some reason. For example, a person who has incurred *ichil* after attending a funeral would not be allowed to participate in any temple related activities until after the next new moon. In this case however, to avoid the *ichil* related with harvesting honey, the boy first applied the initially harvested honey onto his forehead in reverence, he was also careful not to tread upon the honey, he did not blow into the hive nor spit in any direction, he also was careful not to lick his fingers that were dripping with honey and indeed, he could not even let his fingers accidentally touch upon his lips. He delivered the honey to the priest and consumed the left over only after the priest had done so. At this stage, he could eat the honey in any manner without incurring *ichil*. Secondly, even amongst lay *mochini*, there would be a specific ritual related to honey. After harvesting the same, they would have to ask each other permission before starting to eat i.e.: *Awn taihhn tehnginaa?* (Should I start to eat the honey?)

The next morning, the priest sending the boy assistant on some errand, set out towards his hive seen the previous day. He planned to quietly harvest the honey and perhaps send the excess to his hamlet. Soon, he had a large *pehn* (a bamboo vessel of 10-15cm.diameter and up to 60 –70 cm. in length, usually obtained from the lower Nilgiri slope, full of delicious honey. He cut some lengths of the creeper called *kwehdry* from within the shola and fabricated a handle and support out of it. Then, holding the handle in front, with the bamboo vessel resting on his back, he started to descend out of this shola situated on the slope of the *Tehdhykeihhn* hill. Unfortunately however, in his haste he had not fastened the creeper properly and he had descended only a short distance when the bamboo vessel slipped out, fell to the ground and broke open. The bamboo vessel, on breaking, became a snake. The honey that started to leak out of the vessel and flow downwards became a stream of water also flowing downhill.

The snake then looked menacingly at the priest who became terrified and started to run away in fear. The snake gave chase to the errant priest and this continued over a short distance of just over one kilometre. Just then, the priest noticed a hare (*mheersh*) crossing his path, and instinctively threw his sacred black loincloth (*thinny*), atop the hare. The snake thinking that to be the priest continued chasing the cloth covered hare for a long distance, but was unable to catch hold of the hare that was too fast. Hence the priest was saved.

The stream that flowed from the spilled honey became the original source of the Mukurti-Pykara rivers and if one visits the same shola at the slopes of the *Tehdhykeihhn* hill (Pichalbetta), there indeed, lies the source of this sacred river. The route that was taken by the snake and the priest initially, followed by the snake and the covered hare, went on to form the course of this river. Hence at the origin, this river is called *koylkwehhdr paw* from which the general name of the entire river- *kawlykeen* is derived. *Koyl* means bamboo and refers to the bamboo vessel that fell and from which the sacred honey started to leak out. The hare was chased up to a point near the Glenmorgan area and hence believed to be the area where the river loses its sanctity and flows down the slopes. The hare escaped at this point and the river is called *kadrtashpaw* at the end.

In the past, this river was held exceptionally sacred and a Toda crossing it could not be in a state of impurity and had to follow certain rules and guidelines while doing so. For example, they could cross only on certain days of the week and whilst doing so, had to have their right shoulders kept uncovered (*kefehnaarr*). There is a well known song composed less than a couple of centuries ago at the funeral of a man named *Marvoy* who after engaging in coitus, crossed this river and went to collect honey at *Mudhmarr* hill, thus violating both the sanctity of the river as well as of the sacred act of honey gathering. It is a true story and only when vultures (vultures sadly, have disappeared from the upper Nilgiris since many decades) were seen some days later in that area did his relatives set out to search for him. A tiger had killed him and the song composed at his funeral describes his life and end in detail. Todas can still point out the steep rock where he searched for the hive before the Tiger meted out justice. Importantly, there were certain specified crossing points, different for the people and for the priest – especially the *pollawll(zh)* of the *Ti* temples.

Not surprisingly then, that the other major river system of the western Nilgiris also had its roots in honey gathering. This is the Avalanche – Emerald reservoir of today. There is a dense shola forest situated in the centre of *Peell(zh)n* hill situated beyond Avalanche area and towards the Western catchment area. In ancient times, a Kurumba couple who were roaming in this area happened to see a tree hive (*pehhrr*) located at the foot of this shola that was apparently brimming with honey. The Kurumba (*Kurub* in Toda) man then told his wife (a *Kurubich* in Toda) “Let us first have coitus before harvesting that honey”. They did so and then later went on to collect the honey, some of which was eaten and the rest wrapped in a leaf vessel to be taken back to *Pawny*. This (coitus) was the most serious transgression of sacred honey hunting rules. As

they were descending to come out of the shola, a Tiger suddenly (lit.*wehddyvehk*) pounced upon the Kurub and took him away. Justice had been meted. The lady Kurubich got paralysed with fear initially, but soon sneaked out and ran away. In her haste, she left behind some leaves of the betel that she had been chewing, at the foot of the tree with the hive. These betel leaves are called as *pakh e(r)sh* in Toda and *pokhyellai* in Tamil. In time, from the site where left the betel nut and leaves, rose a unique species of tree, appropriately called *pakh meihhn* in Toda as it rose from the site of the *pakh* leaves and fruit. This is a unique species that went on to spread within adjacent sholas and can today be seen in many western Nilgiri sholas. This new tree species was fairly huge many years later, when miraculously, water started to spring out from near the foot of this tree. After a period of time, this being joined by other streams became a major river and was given the name, *Kinatthill(zh)y*. Remembering the story associated with the origin of this river, the Todas gave it the name of *Pakh paw*, generally for the river and especially at the origin. This became one of the major river systems of the upper Nilgiri plateau and one of the two most sacred rivers to the Todas.

In prayers, this river is called: *Kinatthill(zh)y / Sotyawdr paw //* *Kin* could be translated as 'deep' and *Sotyawdr paw* means the mighty river. This river too, could only be crossed on certain days and in a condition of purity. Here too, there were specific crossing points different for the lay people and the migrating priests.

There is another mythological story of the God *Korattaihh* who is said to have ordered that a nearby *maw(r)sh* (*Michelia nilagirica*) tree that was over eighty feet high, should attract some bees so that honey could be collected. This tree is one of the most sacred species and often mentioned in prayers when referring to specific sacred *maw(r)sh* trees in the vicinity of the dairy temple. It belongs to the Magnolia (champak) family and has large white, wonderfully fragrant flowers. When these begin to mass flower in the sholas around September, Todas elders can predict the impending end of the southwest monsoon with unerring accuracy. Expectedly, swarms of *pezhtaihhn* bees (Apis dorsata) started to congregate around and on this tree. After some time, almost three hundred hives were formed on this huge tree, making it bend under their weight. One day, the Todas, Kurumbas and Irulas decided to jointly harvest all this honey since there was so much work involved. While the Todas lit the fire at the ground level to smoke the hives, the Kurumbas and Irulas climbed upon the tree and started to gather the honey. This went on for most of the day and each hive was cut open and the honey along with the comb collected onto a basket below. Unfortunately, when most of the honey had been harvested, this tree that had been bent under the weight of the hives, straightened up and the Kurumba and Irulas were catapulted off and hurt.

They were so shaken that they ran away in fear. The Todas gleefully went back home with all the honey! This incident is an indicator that all the indigenous groups of the Nilgiris collaborated in honey gathering activities from ancient times until fairly recently. It is likely that the Todas played the major role in the upper plateau, whereas the others dominated on the slopes. Even today, the Kurumbas who are feared for their sorcery are believed to come up to the upper areas in search of traditional Toda tree hives. Sometimes a Kurumba, after harvesting honey from a tree hive, might place a root of a special plant charged with 'black magic' at the entrance of the hive. A Toda who later comes to his traditional hive in search of honey would find that the honey has been extracted and looking at the root understands that misfortune would befall him if he were to look here for honey even during the next season. Such instances are still reported to occur. There are several other stories that relate to honey and it's gathering, but the above stories go back to the 'dream time', when the Toda Gods and Goddesses dwelled in the Nilgiris.

Toda prayers consist of an introduction, then the main portion that consists of sacred chant words called *kwa(r)shm* relating to various sacred natural landmarks around the vicinity of the temple, and finally, the ending of the prayer. Each of the fifteen patrilineal clans has *kwa(r)shm* of the clan. One of these, the *Maihhdr* clan, has a clan *kwa(r)shm* called: *peihntawwrr / pezhtoofymokh //*. The latter is possibly derived from *pezhtaihhn* or the rock bee. Similarly, a hill near the hamlet *Pan* also belonging to the same clan is called *pezhtwehhdhy*, again perhaps related to the rock bees. Since male Toda personal names derive from these *kwa(r)shm*, there are instances where these too relate to honey. There used to be a man of yore, called *Pezhtwehhdhy* after the above-mentioned hill near the hamlet *Pan*, with an apparent 'rock bee' origin. There is a large flat rock in the swamp *Timehkhdherr* in 'Sandy Nullah' area (now inundated by the Kamaraj Sagar reservoir) called *pezhtaihhn ka(r)sh* or 'rock bee' stone , after the 'Apis dorsata' bees that built hives there. This is the stone that *Kwatteihhn* spent the night on, while his wife froze in the swamp. *Kwatteihhn* also used a thorny plant called *pezhteihhry mhill(zh)* to beat his wife in those days. The name of this plant is perhaps derived from the word for the 'rock bees'. Interestingly, there is a plant that is called as *taihhn kwehdry* or 'honey creeper'. The endings of prayers are more general and invoke the Gods to provide the essentials that are needed in everyday lives. Some prayers could end like this:

Peersh odrk mawhh/ moorsh odrk mawhh// May the sun's heat be reduced; may the fierce dry wind be reduced.

Mo(d)z edd mawhh/ maw unn mawhh// May the mist rise; may the rain fall.

Neer oor mawhh/ korr voof mawhh// May the water flow; may the fresh grass sprout.

Taihhn faw mawhh/ pum bozh mawhh// May the honey flow; may the fruits ripen.

Ton ehnn mawhh. May the God shower blessings.

In various rituals too, honey expectedly plays an important role. The funeral ceremonies along with the mandatory lifetime rituals are performed with the aim of ensuring a safe passage of the departed and the departing spirit to the after world, *amunawdr*. Therefore, many essential items that the just departed would require en route are placed along with the corpse. Honey and grain are often mixed by the spouse of the departed inside a metal bowl and placed by the side of the corpse to be consumed on the route to the realm of the dead.

In the past, large quantities of honey would be placed in a bamboo vessel for consumption by the departing spirit. During the paternity rites, the man ceremonially gives an imitation bow and arrow to his wife symbolising his commitment to protect the child to be born (the lady is in the seventh month of pregnancy). At the end of this ceremony, the bride is expected to place some foodstuff at the base of the *kaihh(r)sh* (*Eugenia arnottiana*) tree, that includes a piece of honey comb (now done subject to availability). When the *Ti* temple complexes were still vibrant, an important ceremony would be the lighting of fire by the priest at the foot of some deity hills. This was done by the *pollawll(zh)* to commence the dry season, using the fire sticks (*Litsea wightiana*). The priest would then chant the specific prayer of his *Ti* temple and end with a prayer for rain, pasture, honey and fruits. By setting the grassland on fire, they were able to maintain the health of the eco-system and consequently have better pasture (and therefore, milk) and honey the next season. Even though this ritual of setting fire is now disallowed by the forest service, the Todas still believe that the grasslands that nowadays catch fire ensure better pasture and more honey in the adjacent sholas. Nowadays, with the *Ti* temple complexes no more present, a ceremony is held at the *Nawsh* conical temple where a prayer ceremony is held at the onset of the dry season on behalf of all Todas. The ceremony of giving salt to the sacred and secular buffaloes is performed at least once a year by every clan. This is believed to ensure better pasture, milk, rain and honey subsequently. Senior Todas still believe that a period of hoar frost during the dry winter months is most essential to better and more plentiful harvests of honey in later months.

The Todas are one of the very few indigenous people who have remained generally vegetarian out of choice. This is exceptional, as even today, hunting or trapping remains an easy option as wild animals like deer abound around their hamlets. Not surprisingly then, honey- which is now acknowledged to be the ultimate food that requires hardly any digestive activity from the body- and of course, dairy produce, formed important constituents of their diet. Most traditional fare served at sacred temple ceremonies should ideally be served with some honey (now subject to availability). At migratory hamlets even today, honey is harvested and eaten plentifully.

Since Toda songs are related to their prayers and myths, not surprisingly, they too mention honey profusely. There are ancient songs that describe different aspects of honey gathering and how transgression of its sanctity could lead to serious consequences. There are stories sung about honey hunting trips and others of the specific pollinators that different wildflowers attract and the kinds of hives and honey produced thereof. Look at this song that mentions seven species of pollinating bees that favour certain specific wild flower species that are blooming and this gives the honey harvested from that area a distinct flavour and medicinal properties. It gives an indication of the traditional knowledge that they have of the intricate relationship between pollinators, plants and honey.

Tehrverry oy poodh kwehhtin/ Twoodrntaihhn oy kwehskwehhtin// Behold!

The *tehrverry katt* (six year cyclic flowering *Strobilanthes* Spp.) flowers are in profusion. Look! The *twoodrntaihhn* (*Apis cerana*) bees are sipping deep their nectar.

Pyoofkatt oy poodh kwehhtin/ Pezhtaihhn oy kwehskwehhtin//

Behold! The pyoof katt (eighteen year cyclic flowering Strobilanthes Spp.) flowers are in profusion. Look! The pezhtaihhn (*Apis dorsata*) bees are swarming towards these flowers.

Pel(zh)ilykatt oy poodh kwehhtin/ Pettaihhn oy kwehskwehhtin//

Behold! The *pel(zh)ily katt* flowers (twelve year cyclic flowering *Strobilanthes* Spp.) are in profusion. Look! The *pettaihhn* bees are attracted towards these flowers. The Strobilanthes family has several species, some of which are endemic, in the upper Nilgiris. When they mass flower in cycles, entire grassy hillsides are covered and present a grand sight to behold. The Todas have recognised several of these species and not only recognised their specific pollinators, but also used these cycles to calculate a man's

age and wisdom. Although the twelve year flowering cycle is well known, science is yet to relate each of the different species of this family with their cycles of flowering, leave alone understanding why this phenomenon occurs. For example, the eighteen-year periodic flowering species mentioned above has not been recognised. These are known to produce honey having exceptional medicinal properties –albeit slightly bitter – when harvested in their environs. The generic name for this family is *Kurinji* in Tamil and *Katt* in Toda.

Peh(r)shk oy poodh kwehhtin/ Tibytaihhn oy kwehskwehhtin//

Behold! The crimson *peh(r)shk* flowers (*Rhododendron arboreum* ssp. *nilagiricum*) are aflame on countless trees. Look! The *tibytaihhn* (the large black 'carpenter bees') bees are being drawn towards these blooms. This Rhododendron dominates the landscape during the dry winter months when honey-gathering activity is at its peak. Of course, these flowers also attract the other species of bees. The 'carpenter bees' are amazing in that they make openings into wooden logs or branches, where they deposit their cocoons. They then close up the opening that they have created, leaving some honey for the emerging brood to consume. This is once again opened when the broods are mature enough to fly out. These bees seem to prefer Rhododendron, as its wood is softer than the other hardwood trees of the sholas.

Kakhwehdry oy poodh kwehhtin/ Kadhtaihhn oy kwehskwehhtin//

Behold! The *kakhwehdry* flowers are seen everywhere. Look! The *kadhtaihhn* bees are alighting on these blooms. *Kakhwehdry* is a creeper (*Dregea volubili*s) with small flowers seen around most hamlets.

Kaihh(r)sh oy poodh kwehhtin/ Keptaihhn oy kwehskwehhtin//

Behold! The *kaihh(r)sh* flowers are covering the trees. Look! The *keptaihhn* bees are flying towards these blooms. The *kaihh(r)sh* tree (*Eugenia arnottiana*) is a sacred tree to the Todas and not only are the flowers important for the bees that swarm to them, but the fruits produced thereafter are one of the most delicious of Nilgiri wild fruits. This is also the same species used in the paternity rites ceremony.

Kwehh(r)shy oy poodh kwehhtin/ Kwehh(r)shntaihhn oy kwehskwehhtin//

Behold! The *kwehh(r)shy* flowers have lit up the thickets. Look! The *kwehh(r)shntaihn* bees are sucking their sweet nectar. This tree – *Ligustrum per.var.neilgherrense* - mass flowers during April and with its white and extremely fragrant flowers, entire trees sometime appear white. Although these flowers attract all kinds of bees, the above mentioned bees are said to favour this tree and also build curious shaped small hives (called 'kombutaihn' by other groups) that hang from these trees. Today, when climatic changes cause some tree species not to mass flower at the correct time, the Todas realise that something is profoundly wrong with their ecosystem and that honey is not going to be available that season. It should be noted that that the above song could also be modified suitably to suit a situation. For example, the person at the centre of a song could be mentioned not by name, but in the form of the bees that sucks nectar from different flowers — with the flowers as his lover.

The ancient name for the honey bee in general is *ehrrpraan* and very few are today aware of this. This word was mostly used in the prayers and is worth some linguistic investigation. The name for the queen bee for all species is *kehhmzeihhn* and can be seen used in old songs relating to honey.

One question that comes to mind is, how did they collect the honey in the past when no metal vessels were with them or indeed, even in more recent times when coming by a hive out of the blue? Of course, a bamboo vessel could be fabricated if available and bamboo baskets would also have been used as they are still utilised by the Kurumbas. Since bamboos of this dimension are seen only on the slopes, they chose another plant that is not surprisingly called *Taihhne(r)sh* -which literally means 'honey leaves'- by the Todas! These terrestrial orchids (*Calanthe triplicata*) are found in many shola thickets. They have large perennial leaves that can be joined together and fabricated in such a way so as to hold harvested honey when no other container is at hand and hence the name.

We know of people in some parts of Africa who have used certain birds to show them the location of hives. Not to be left out, the Todas too have a bird with a similar function that they call *Taihhnuny*, which literally means 'honey drinker'! This bird otherwise called Common Kestrel (*Falco tinnunculus*) is a common large bird of the Nilgiri highlands. There are interesting stories of how this bird locates hives of rock bees and in turn leads the Todas to these hives hidden in steep and often deep rocky crevices.

Since this bird often builds its nest in steep rocky surfaces where it is safe from predators, it is likely that it also feeds on nearby hives for honey. Amongst animals, there are stories of people encountering sloth bears who were busy feeding on honey especially in traditional and unknown tree hives that were overflowing with honey, where the bear (*Kaadr* in Toda) could smell and even taste the honey from outside.

The main art of these people is their unique embroidery. Not surprisingly then, one of the oldest motifs is the *Kwudrkorr pukhoor* or the 'honey comb' pattern. This depicts the inside of the honeycomb and is sometimes even embroidered with the brood shown within (*korr* is 'young')! Quite often, this forms the central portion between other motifs. Its importance lies in the fact that this was done traditionally only on the cloak of the departed so as to ensure a safe passage to the after world.

As is to be expected from the earlier stories, honey hunting in everyday life even nowadays is to be undertaken only on a premise of purity. Some of these being, refraining from physical contact with ones wife a day prior, bathing in a sacred stream, chanting a special prayer just before removing the cap stone, placing the first obtained honey on ones forehead in reverence, not treading on the harvested honey that overflows, Although down the ages, they have harvested honey from different species of bees and locations, today it is mostly collected from tree cavity sites. These hives are of *Apis cerana* and are located within hollows in branches or trunks of ancient shola forest trees. These should however be protected from rain and also wind to some extent. This is done by covering the orifice of the tree hive with a cap stone(s), leaving enough space for the bees to go in and out in their search for flowers. Since shola trees could be many centuries old, the hives themselves could be of considerable antiquity and many Todas know of several such hives that are shown to them from one generation to another. They have an incredible knack of not only walking long distances to find the exact thicket, but also locating the tree hive with unerring accuracy. Every year, during the dry season, he visits these tree hives often located in remote areas. He removes the capstone, puts his hand up into the hollow and draws only the outer portion of the honeycombs. The brood portion is left untouched. No smoke or other irritants are used. It is thus a very eco-friendly way of honey gathering. After harvesting and performing some rituals, he replaces the capstone of the tree hive orifice and will only return the following year. Nowadays, especially in areas where tea plantations are nearby, other people who notice a tree orifice covered with a cap stone just hack open the hive and collect the honey (being scared to collect it the conventional way as they believe that a snake could be present within the hollow and putting their hands into a blind space could be dangerous). They do not care that by

doing so, not only are they destroying the sanctity of the process, but are also destroying the ancient hive for all time. I have see Toda elders in tears on seeing their favourite tree hive hacked open.

New hives- without capstones- in the hollows of tree trunks or branches can also be detected and established. This is done usually by looking for *pekk* or droppings of pollen onto leaves of trees like Rhododendron, where the pollen markings stand out distinctly even from a distance. These *pekk* pollen markings are dropped by over flying bees that are returning to their hives. A Toda would trace the route of the bees by following these pollen droppings (one has to distinguish between the pollen droppings of different dates) from tree to tree and leaf to leaf until they suddenly disappeared. He would then assiduously begin looking for the flying bees themselves and on locating them, would follow them to their hive. It is indeed fascinating to see Todas discovering 'new' hives in this manner. Once such a hive has been discovered and harvested, he finds a stone that will fit the orifice and then puts it in place. Soon, this will become another traditional hive. Alternatively, a man could find a suitable natural hollow within a tree and go on to place a well fitting stone in its orifice in the hope that a colony of bees would inhabit it soon. Quite often, he would come back after some months or a year to find this hollow that he capped, now turned into a full fledged hive. In time, this too would become a traditional hive.

Very close to the ancient funeral site of the Bikkapathimund (*Kerrir*) clansmen, there are some magnificent pre-historic rock paintings done on sheer rock faces. Some of the sequences here depict honey-gathering scenes where a hand, honeybee and hive are portrayed. How these have withstood all the elements of nature for perhaps, thousands of years (according to experts) is another story. But we do know that if indeed, the Todas were the creators of this ancient rock art, then honey hunting is certainly embedded in their genes.

Not surprisingly, we find that honey has been a vital and very sacred component of ancient Indian culture. In the Brihadaranyaka Upanishad, which is one of the oldest and most sacred of epics to Indians even today, there is an entire chapter on honey called Madhu Brahmana, which means the chapter on honey. We shall conclude with a timeless verse from this immortal text:

Ayam Aatma Sarveshaam Bhootaanaam Madhu;
Asyaatmanaha Sarvaanni Bhootaani Madhu.
This Self (Soul) is honey (Madhu) for all beings,
All beings are honey for this Self.

Note: In the Toda language called *Awll(zh) vawzh* by them, 'p', 'b', 'f' and 'v', can be used interchangeably. Hence, *pakh* could be pronounced as *bakh* and quite often, *paw* would be pronounced as *vaw*. *Paw* is pronounced like pahh with the 'a' as in another. *Terr* (swamp) would often be pronounced as *derr*. Also, whenever a (zh) follows an l or ll in parenthesis, it indicates a retroflexed 'l' and the following (zh) is not be pronounced separately. Similarly, a 'dr' represents a retroflexed 'r' and the 'd' is not to be pronounced separately.

- Tarun Chhabra

P. S. The Toda phonetic transcription followed in the above article, is that of the writer. - Keystone

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