Nallamalais, one of the Centres of Plant Diversity (CPD) (Davis et al., 1995), represent a group of moderately steep hills located in the Central Eastern Ghats between latitudes 15°20' - 16 - 30' N and longitudes 78°30' - 80°10' E in Andhra Pradesh State (Plate-1). They are extended to an area of 7640 sq.km. running North-South over a length about 130km with some precipitous cliffs. The name Nallamala in local language, Telugu means black hills (nalla=black, mala=hills). One wild guess regarding the name is that these hill ranges are infested with black water fever.

Nallamalais encompass mainly the districts of Kurnool, Mahaboobnagar and Prakasam and small patches in Guntur and Nalgonda of Andhra Pradesh. The highest point is Virannakonda peak (939m above MSL). The hills cluster near Gundlabrahmeswaram is the nucleus of the Nallamalais appearing as plateau. The central Nallamalais varies in altitude from 300 to 800m. The prominent peaks are Durgappa konda (907), Saleswaram (879), Katalakonda (863m), Gundlakonda (850m), Mannanur (839), Naramamula konda (810m) and Amadala konda (770m). The lowest elevation recorded from Mutukula (157) of Prakasam district. The hills are abode of significant Hindu shrines like Srisailam in the north and Ahobilam and Mahanandi in the south.

Climate

January, February and March months are usually pleasant with moderate winds from southeast with an average temperature varies from 24° to 28° C. April and May are the hottest months of the year with an average temperature of 32°C-34°C. The maximum temperature ranges during this season is 40°C and minimum is 26°C. During the succeeding four months, the wind blows from western side and brings fairly good rainfall. By the end of September, the wind is light and pleasant forecasting the onset of north-east monsoon. In November and December, the rainfall is scarce. From November to February the temperature falls as low as 8°C. It is interesting to note that the rain fall due to the activities of both the monsoons is heavier along the western side of Nallamalais than along the eastern side. The average rainfall for whole of Nallamalais
PLATE-1: LOCATION MAP OF NALLAMALAIS

Conservation Ecology Division (Botany), SKU
is about 100cm and is mostly due to south-west monsoon. The Gundlabrahmeswaram plateau receives about 127cm of rainfall.

**Drainage**

Rivers of major importance in Nallamalais are the Krishna and Gundlakamma. The Krishna River forms the northern boundary of Nallamalais. It is joined by Banavasi River near Nivartisangam, it flows through uninhibited tract of the Nallamalais. The other river is Gundlakamma taken its origin near Gundlabrahmeswaram and flows through Cumbum. All its tributaries viz. the Rollavagu, Tigaleru, Kundleru and Duvvaleru arise in the Nallamalais. There are many waterfalls, seasonal streams and natural perennial springs in Nallamalais, the most significant being the Mahanandi perennial spring and Mallelattheertham waterfall. Other springs of due importance are at Rudrakodu, Onkaram and Ahobilam.

**Geology and soils**

The Nallamalais comprise two principal geological formations the Kurnool and Cuddapah. The Kurnool formation dates from the upper Precambrian period and is mainly in the central basin of the Nallamalais, extending by the Krishna on the north and by the Yerramalais on the west. The Cuddapah formation is seen in the Prakasam division. The Srissailam quartzite’s in the north forms a rugged plateau. The terrain consists of the oldest geological formation known as the Archeans dated 2000, million years ago. There are mainly three types of soils red, black and mixed varieties. The red and mixed varieties occur at foot hills. The interior forest soils are red with calcareous shales. The black soil occurs in plains where cultivation in practiced.

**Forests and vegetation**

The forests of the Nallamalais can be broadly categorized into three types: moist deciduous, dry deciduous and scrub type. Moist deciduous type of vegetation confined to Gundlabrahmeswaram area, the area between lower and upper Ahobilam, Mantralakanuma, and Istakameswari – Srissailam, some portions of Peccheruvu forest range; in and around Appapur, Saleswaram of Mannanur forest range, Mahaboobnagar district. The flora of these regions is remarkable for rich floristic diversity and luxuriant forest growth. The forest type is dominated by *Aglaia elaeagnoidea*, *Careya arborea*, *Dillenia pentagyna*, *Glochidion velutinum*, *Macaranga peltata*, *Mangifera indica*, *Terminalia arjuna* and *Trema orientalis*. Large number of herbaceous species inhabits the moist deciduous forests. A variety of orchids, tuberous and cormous herbs are seen as undergrowth including *Actiniopteris radiata*, *Adiantum lunulatum*, *Costus speciosus*, *Curcuma pseudomontana* and *Zingiber roseum*. *Selaginella bryopteris*, *S. repanda* are
common along the streams in these forests. The presence of wild species of rice, *Oryza meyeriana* ssp. *granulata*, *O. officinalis* ssp. *melampuzhaensis* and *O. rufipogon* denotes the rich diversity of grasses. *Bauhinia vahlii* and *Entada pursaetha* are common lianas in these forests.

Dry deciduous forests are dominated by *Anogeissus latifolia*, *Dalbergia lanceolaria*, *Gardenia gummifera*, *Gyrocarpus americanus*, *Pterocarpus marsupium*, *Pterospermum xylocarpum* and *Soymida febrifuga*. *Hardwickia binata* type of forest is also seen in the hill slopes near Krishna valley. The associate species includes *Lannea coromandelica*, *Carissa spinarum*, *Chloroxylon swietenia*, *Dalbergia lanceolaria*, *Diospyros chloroxylon*, *Dolichandrone atrovirens* and *Euphorbia antiquorum*. Bamboo type of forests is confined to Gundlabrahmeswaram, Rollapenta and Pecheruvu plateau. *Bambusa arundinacea* is abundant along the streams and *Dendrocalamus strictus* is found abundant throughout.

Interestingly several evergreen plants are seen intermixed with dry deciduous forest of Srisailam, Diguvametta, Ahobilam, Rollapenta, Rudrakodu, Mahanandi etc. These are confined to perennial water courses. Some of these are *Manilkara hexandra*, *Memecylon umbellatum*, *Santalum album*, *Suregada angustifolia* and others. Tropical Riparian forests are interspersed amidst the forest of Nallamalais wherever streams and river flow. Some of the evergreen plant like *Cleistanthus patulus*, *Glochidion zeylanicum*, *Mangifera indica*, *Terminalia arjuna* is common throughout Nallamalais.

Scrub is usually confined to the base of hills, bordering villages, and generally in the peripheries of much disturbed and degraded dry deciduous forests. On the eastern side of Nallamalais, scrub predominates and seen with species like *Acacia catechu*, *Atalantia monophylla*, *Dichrostachys cinerea*, *Diospyros chloroxylon*, *Maytenus emarginata* etc.

**Faunal resources**

Nallamalais harbours endangered species like tiger and panther. Other common wild animals of Nallamalais are bears, wolves, wild dogs, deers, wild boars, sambaras, star tortoise, gaint squirrels, owls, peacocks and hens, langoors, different varieties of snakes, scorpions, spiders (including poisonous ones), butter flies, moths and insects. The fresh pug marks of tigers, panthers are commonly seen near Gundlabrahmeswaram, Pecheruvu, Mogilutla and Bairlooty soon after the rains during August-September.
Protected areas in Nallamalais

There are two wildlife sanctuaries namely, Nagarjunasagar-Srisailam Tiger Reserve and Gundlabrahmeswaram in the Nallamalais mainly for tiger conservation. Nagarjuna Sagar - Srisailam Tiger Reserve (Wild life) with an area of 3,568 sq.km covering Kurnool, Mahboobnagar, Prakasam, Nalgonda and Guntur lies between 15°53' N - 16° - 43' N & 78°30' E - 79°-28' E ; Gundlabrahmeswaram with an area of 1,194 sq.km. covering Kurnool, Prakasam districts lies between 15°40' N - 15° - 89' N & 78°06' E - 78° - 09' E (Gopal, 1997). Of the 8 Medicinal Plant Conservation Centres established by State Forest department & FRLHT, one is Pecheruvu with an area of 220 ha.

Ethnology

Most primitive tribes, chenchus and the non-aboriginal and migrated lambadis, migrated yerukula and yanadi live in Nalamalais. Chenchus and Sugalis being the conservative tribe groups are not much adapted to modern lifestyle.

The Chenchus

From times immemorial, the forests of Nallamalais have been inhabited by chenchus an aboriginal and oldest tribe of south India. The chenchus live in groups in an interior hill rangers and in nearby villages. The population is about 39,000 representing 10,000 families in five districts, and 50% of them confined to Mahaboobnagar and Prakasam districts. The mythological version traces their origin to a story of Lord Narasimha of Ahobilam who married a local tribal girl called Chenchitha and their progeny proliferated into chenchus (Pratap, 1975). They speak Telugu language with an intonation of their own. They prepare arrack from flowers of Mohwa. They are experts in collection of honey, wild fruits and plant crude drugs. They market the forest products to Girijan Co-operative Corporation (GCC) and sell in nearby villages.

The Sugalis

The sugalis are, in fact, the single largest tribal group and constitute about 40 per cent of the ST population in Andhra Pradesh. Sugalis also known as lambadis and Banjaras are largely found in the Nallamalais forest. There is a general belief that these people migrated to south India along with Moghul army during their invasion in 17th century. They speak lambadi language which has no script. Lambadas live in exclusive settlements of their own called Tandas, usually away from the main village, tenaciously maintaining their cultural and ethnic identity. They worship Lord Krishna and also local deities known as Peddamma and Poleramma. They most depend on herbs and roots for curing their diseases.