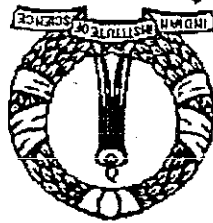


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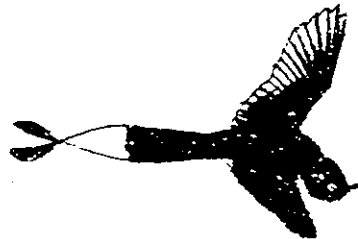
TECHNICAL REPORT NO. 64

OCTOBER 1999



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FLORA OF MUDUMALAI WILDLIFE
SANCTUARY, NILGIRIS, TAMIL NADU



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FLORA OF MUDUMALAI WILDLIFE SANCTUARY

Mudumalai Wildlife Sanctuary (11°32' and 11°43' N lat and 76°22' and 76°43' E long), covering a forested area of 321 km², is situated to the northwest of the Nilgiri mountains in Tamilnadu state. It is part of a contiguous stretch of forest with Bandipur National Park to the north, Segur Reserve Forest to the east, Wyanad Wildlife Sanctuary to the west and Gudalur Forest Division to the south. Mudumalai has been the site for several ecological research studies. The subjects covered include floristics (Sharma et al 1977, Suresh et al 1996), vegetation ecology (Sukumar et al 1992, 1996), phenology (Murali and Sukumar 1993, 1994), non-timber forest products and human impacts on the forest (Balachander 1993), climate change impacts (Ravindranath et al 1997), wildlife ecology (Desai, 1991 Baskaran et al 1995, Varman and Sukumar 1995, Venkataraman et al 1995), and animal behavior (Venkataraman et al 1998). While this is not an exhaustive list of research at Mudumalai, it offers an idea of the diverse research studies in this forested tract.

During the 19th century, the Mudumalai forests were the property of Tirumalpad of Nilambur. This forest tract was acquired by the government in 1927 and subsequently, a part declared as a Wildlife Sanctuary in 1940. These forests have been indiscriminately exploited for timber during the 19th century and early 20th century and later selectively felled for timber under various forest working plans. Several parts of the sanctuary including the northern and eastern parts had been under human occupation in the past but have since reverted to stunted forest. A detailed account of the history of the Mudumalai forests is given in the working plan of Ranganathan (1939).

Topography:

MWLS has an undulating terrain with altitude varying from about 500 meters ASL (in the Moyar Gorge) to over 1250 meters ASL (Margan Dorai betta 1266 meters being the peak). The greater part of the sanctuary lies at an altitude of 900-1100 m. Mudumalai has geological formations characteristic of the Deccan plateau. Geologically, they belong to archian continental land mass of the Indian peninsula and composed of Precambrian, mainly metamorphic rocks such as Gneisses, Charnokites and crystalline Schists. Soils are generally loamy with red or black in color. Swamps have rich clayey soils.

A major river that drains the sanctuary is the Moyar, a tributary of the Cauvery. Perennial streams include the Bidarhalla and the Narathi, while an important seasonal stream is the Kekkanhalla. There are several swamps to the west of the sanctuary, the important among them being Hambetta and Gambehut swamps (most of the rest being under cultivation).

Climate and rainfall:

Mudumalai lies in the rain shadow belt of the Nilgiris. Climate is of the monsoonal type with no harsh seasons. Mean maximum temperature recorded at CES weather station at Kargudi is 31.0 °C during March and mean

Tropical dry thorn forest: This forest type is confined to the eastern part of the sanctuary attached to vast Sigur reserve forest, extended up to Moyar valley. Nilgiri Mountains along Southwest direction blocks the rain clouds make this flat area fall under rain shadow area. Mean annual rainfall in this region is 800 ± 265 mm mostly due to retreating Northeast monsoon. There are two peaks in the rainfall, one peak is between April and June and the other is in the August. The lowest rainfall recorded in this region is 550 mm per annum. Champion and Seth (1968) describe species association of this forest community as *Acacia - Ziziphus* series. Four one-hectare plots were established in this forest type. Floristically these forests have following characteristics: family density (16 ± 4.9 /ha), generic richness (26.8 ± 8.1 /ha), species richness (32 ± 9.6 /ha).

on the long term dynamics of tropical forests. the data collected from nineteen one-hectare plots established along rainfall gradient as a part of our study semi-evergreen forest type. An attempt is made to describe the characteristics of each forest type based on They are Tropical dry thorn forest, Tropical moist deciduous forest and tropical study, four main vegetation types were identified and described in brief.

the total sanctuary area. Based on the published literature (Shetty et al 1977, Suresh et al 1996) and our own and the Semi ever-green forest together occupies about 8945 (27.86%) hectares out of 32100 hectares of (47.1%) hectares area, the scrub vegetation is about 8035 (25.03%) hectare, the Moist deciduous forest et al 1988). The landscape of the sanctuary is dominated by Dry deciduous forests occupying about 15112 a continuum of vegetation patterns that is believed to be created by gradients in the physical factors (George characterizing the tropical moist deciduous forest community. The vegetation of the study area (MWLS) exhibit association describing the tropical dry deciduous forest community and "*Lagerstroemia-Terminalia-Tectona*" characterizing tropical thorn community, "*Anogeissus-Tectona*" and "*Anogeissus-Terminalia-Tectona*" main vegetation associations along the moisture gradient in peninsular India "*Acacia - Ziziphus*" association (Champion & Seth, 1968) Puri and Sharma (1983) while classifying forest vegetation of India identified three vegetation cover in the study area has been broadly described as tropical dry deciduous teak bearing forest which receives highest rainfall through dry deciduous type in the intermediate rainfall zone. Most of the As rainfall progressively increases, the vegetation also changes to moist deciduous type in the western part, to wet formations. Eastern part which is the driest part of the sanctuary hosts tropical thorn scrub community. There is a distinct rainfall gradient along east-west direction resulting in the continuum of vegetation from dry

Vegetation

(side) to 1800 mm per annum (western side) eastern side during October and November. Rainfall ranges from an average of 500 mm per annum (eastern monsoon during June to September. The retreating monsoon is also active and brings rainfall mostly on the - November), winter (December - February) and summer (March - May). Rainfall is mainly from southwest minimum temperature is 13.8°C recorded during January. There are three distinct seasons i.e. rainy (June

The ground layer is dominated by tall perennial rhizomatous grasses such as *Themeda cymbaria*, *crenulata* (9.08% of stand), *Grewia tilifolia* (1.14% of stand) and *Dalbergia latifolia* of the abundance. Other important canopy tree species include *Tectona grandis* (11.3% of stand), *Terminalia* (stand) dominates the floristics accounting for 50% of the stand composition. Top ten species constitutes 86% of *Anogeissus latifolia* (1629 individuals, 30.5% of stand) and *Shorea roxburghii* (1089 individuals, 20.43% of stand). There were 5330 individuals in five one-hectare plots.

of the sanctuary is poor in species richness. There were 71 woody species over belonging to 27 families. The decline in the family H' (2.8 ± 0.7) and species diversity H' (2.7 ± 0.2) also shows that the deciduous belt (3.6/ha), genera ($23.2 \pm 7/ha$), and species richness ($25.5 \pm 7/ha$) are low compared to thorny scrub forest established in this region. Floristically these forest plots have following features. The density of family ($15 \pm$ September. Rainy month is July. The length of dry season is 6 months. Five one-hectare plots were The mean annual rainfall is 1200 mm. The rainfall is mainly from southwest monsoon from June to

Savanna woodlands with dense undergrowth of *Themeda* and *Cymbopogon* grass and northwest part and *Anogeissus-Terminalia-Shorea* series in the northern side. These areas are typical and Sharma, 1983). Major association of these forests is *Anogeissus-Tectona-Terminalia* series in the central Kerala. This forest type is described as Southern tropical deciduous teak forest and savanna-woodland (Puri North-west portion is contiguous with Bandipur National park of Karnataka and Wyanaad wildlife sanctuary of This community occupies major part of the sanctuary. The vast area of Northern and

Fabaceae as most speciose family

stand composition. Floristic assemblage of dry thorn forest conforms to the pantropical floristics by having one species each. *Erythroxylaceae* is represented by one species (*Erythroxylon monogynum*) has 8.57% of represented by 3 species each. Families like *Santalaceae*, *Sapindaceae* and *Rhamnaceae* are represented by *Euphorbiaceae* and *Tiliaceae* (5 species) each. Families like *Verbenaceae*, *Moraceae* and *Boraginaceae* are *Rubiaceae* (8 species) but accounts for 39.41% of individuals. Other dominant families include *Rutaceae*, Most speciose family is *Fabaceae* (12 species) but accounts only 12.32% of individuals. Next in the rank is *amara* and *Diospyros montana* important timber tree *Santalum alba* is found in this forest type.

species include *Acacia ferruginea*, *Premna tomentosa*, *Acacia leucophloea*, *Chloroxylon swietenia*, *Albizia* (stand), *Acacia chundra* (2.62% of stand) and *Commiphora caudata* (2.26% of stand). Other important individual important tree species like *Anogeissus latifolia* (6.77% of stand), *Ziziphus xylopyrus* (2.89% of abundance. Top ten species accounts for 75% of total stand composition. There are 13 species with one *Gardenia turgida* (431 individuals) and *Fluggea leucopyrus* (230 individuals) account for 30% of stem species over 1.0 cm dbh belonging to 24 families.

$\pm 9.3/ha$), family diversity ($4 \pm 0.3/ha$) and species diversity ($2.8 \pm 0.2/ha$). There were 66 species of woody density ($1704 \pm 304/ha$), family density ($19 \pm 1.2/ha$), generic density ($46.3 \pm 10.1/ha$), species density (48.8 family diversity ($3.5 \pm 1.1/ha$) and Species diversity (2.4 ± 0.7). The non-woody species have following features

Cymbopogon flexuosus and *Imperata cylindrica* Many other grasses and sedges like *Themeda tremula*, *Ischaemum indicum*, *Rottboellia exaltata*, *Fimbristylis woodrowii*, *Kyllinga melanospema*, *Fimbristylis dichotoma* are common plants Other herbs are *Leucas vestita*, *Elephantopus scaber*, *Desmodium heterocarpum*, *Sida rhomboides*, *Leucas montana*, *Justicia simplex*, *Blumea lacera*, *Costus speciosus*, *Biophytum sensitivum*, *Curculigo orchoides*, and *Chlorophytum laxum* appears immediately after fire and a first shower Dense mat of *Selaginella minutifolia* is common in wet places Ferns such as *Nephrolepis tuberosa*, *Adiantum lunatum* are present as an indicator of moisture *Spatholobus parviflorus* of *Fabaceae* family, which is a rhizomatic creeper, occupies entire ground after fire and progressively taken over by grass Weeds such as *Chromolaena odorata*, *Lantana camara* and *Desmodium triquetrum* are present in abundance Detailed structure and dynamics of the forest is documented in Sukumar et al, (1992, 1997) Grazing by livestock is banned in this zone recently and Man-made fire is a common feature in this area This zone is the tourism zone of the sanctuary and supports good wildlife (Surenra varman and Sukumar R. 1995)

Tropical moist deciduous forest: This forest type occupies a narrow belt from Southern to North - Eastern part flanking, dry deciduous forest in the northern and semi evergreen forest in the southern side of the sanctuary Association of species like *Lagerstroemia microcarpa*-*Tectona-Terminalia*-*Dalbergia* characterizes this community

Mean annual rainfall recorded here is 1429 3±202 4 mm with July and August as the rainy months Length of dry season (< 100 mm rainfall/month) is 5 months Mean number of species was 46 25±9 2 per hectare Other floristic parameters are species diversity (H') was 2 73±0 41 Familial diversity (4 5±0 5), number of genera (40±7 2), number of families (23 8±5 1) and number of tree species along is 35 2±5 9 Structural parameters include number of stem (944±560), mean canopy height (17±0 96) and mean canopy cover is 73% Basal area of this community was found to be 32 94±1 64 m² per hectare Important tree species in the canopy include *Lagerstroemia microcarpa*, *Tectona grandis*, *Dalbergia latifolia*, *Persia macrantha* and *Meliosma simplicifolia* Understory tree includes *Phyllanthus emblica*, *Kydia calycina* and *Cassia fistula* Ground flora is dominated with perennial grass species like *Themeda cymbaria* and *Cymbopogon flexuosus* Weeds like *Chromolaena odoratum* and *Lantana camara* is also present Dense cover of *Zingiberaceae* members in the ground layer indicates high moisture levels

The enumeration of 4 hectares in this forest type yielded 3769 individuals over 1 0 cm dbh belonging to 90 species An understory shrub *Helicteres isora* dominated the species list with 645 stems accounting for 17 11% of abundance Next dominant species is understory tree *Kydia calycina* (404 individuals, 10 72% stand) The canopy tree species like *Lagerstroemia microcarpa* (272 individuals, 7 72% abundance) and *Tectona grandis* (115 individuals, 3 05% stand) Top ten species accounts for 72% of cumulative abundance Dominant species of dry deciduous forest type *Anogeissus latifolia* has 140 stems and accounts for 3 71% of relative abundance Trees of evergreen nature like *Olea dioica* (62 individuals, 1 64% stand), *Persia*

Enumeration of five one-hectare plots in this vegetation type resulted in 10251 individuals over 1.0 cm dbh belonging to 135 species. The most abundant species are *Olea dioica* (1257 individuals, 12.26% of stand), *Casearia ovoides* (1208 individuals, 11.78% of stand) and *Ardisia solanacea* (1125 individuals, 10.97% of stand). Three species alonge contributes to 35% of total abundance. Top ten species contributes 65.5% of total abundance. Some huge trees like *Anthocephalus chinensis*, *Elaeocarpus tuberculatus*, *Salix tetrasperma*, *Aphananixis polystachya*, *Celtis tetrandra*, *Cinnamomum malabatum*, *Meliosma simplicifolia*, shows less than 1% density. The big climbers like *Watakaka volubilis*, *Todalia asiatica* var, *asiatica*, *Gnetum ula*, *Enteda*

diversity (5.2±0.4) and species diversity (2.95±0.35) is richest among all other habitat of the sanctuary (30.8±4.1), genus (57.6±8.9) and species density (66±10.62) is greater than all other forest types. The family of the forest is 32.95±4.07 sq mts. The floristic diversity increases in this community. The number of family parameters are mean height of canopy is 20±4.77 meters, mean canopy cover is 84±4.10%. Mean basal area *Olea dioica*. This community is one of densely packed with 2049±1359 stems per hectare. Other structural regeneration of evergreen species like *Casearia ovoides*, *Litsea mysorensis*, *Cinnamomum malabatum* and *dioica* series. These forests are selectively logged up to 1985; most of these patches are showing high deciduous species (*Terminalia*, *Lagerstroemia*, and *Grewia tillifolia*). The major association is *Lagerstroemia macrocarpa*, *Pearsea macrantha-Olea dioica* series and *Lagerstroemia macrocarpa-Casearia ovoides-Olea dioica* series. These forests are rich in species diversity with evergreen species belonging to family like *Lauraceae* mixed with few forests from April and attains maximum in June and decreases from August. Mean annual rainfall is 1751.2±117.86 mm with 5 months of dry season (<100 mm rainfall / month). Floristically these patches of of the sanctuary. These areas receive highest rainfall in the sanctuary from Southwest monsoon. The rainfall

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Semi-evergreen forest: This community is confined to a small belt along the Southwest and Western border of the sanctuary. This community is rich in species diversity from dry deciduous to moist deciduous type. the richness and diversity from dry deciduous to moist deciduous type. decreases (338 ± 138) is an indicator of canopy cover increase. There is not much variation or increase in increases in density as an indicator of moisture and shade. The overall density of non-woody species species like *Chlorophytum laxum* (3.42%), *Desmodium triquetrum* (1.77%), and *Selaginella minutifolia* (6.07%) (1.95%), *Themeda cymbaria* (3.82%) and sedges like *Fimbristylis woodrowii* (3.07%) are important. The other species grasses like *Bothriochloa pertusa* (8.77%), *Optismenus compositus* (9.2%), *Cymbopogon flexuosus* (5.6%), and *Zingiberaceae* (4.05%). Shows increase in shade and water loving plants. Among Among non-woody species the poaceae leads the table with 39.9% density followed by *Pteridophyta* (16.93%), composition)

Other dominant families include *Combretaceae* (5.55% of composition) and *Verbenaceae* (4.4% of Next family is *Euphorbiaceae* with 9 species and 10% of composition. There were 36 families in the floristics presence in the stand. *Fabaceae* was the most splose family with 10 species and 11.11% of composition *macrantha* (39 individuals, 1.03% stand) and *Meliosma simplicifolia* (27 individuals, 0.72% stand) has

Present work on the flora of Mudumalai: This inventory of the flora is a part of our long-term research in Mudumalai in trying to understand the dynamics of plant and animal populations (Sukumar et al 1992, Varman and Sukumar 1995) Both systematic and random collections of plants were undertaken for the inventory. Woody plants were enumerated in 19 one-hectare plots that were established as a part of our long-term research in vegetation ecology. This enumeration yielded a comprehensive list of tree and shrub species. Herbaceous species were enumerated by laying 1 X 1 meter quadrat (13 quadrats/ha) in 19 one-hectare permanent vegetation plots established along a rainfall gradient. We have enumerated all herbaceous plants in these quadrats and also we have made random collections. We also have consulted previous published works on the floristics of the sanctuary. The voucher specimens are deposited in the herbarium (JCB) at Center for Ecological Sciences, Indian

Fauna Mudumalai has relatively high abundances of the large mammals characteristic of the dry tracts of peninsular India. These include chital (*Axis axis*), sambar (*Cervus unicolor*), and smaller ungulates such as barking deer (*Muntiacus muntjak*), four-horned antelope (*Tetracerus quadricornis*) and mouse deer (*Tragulus memnis*). Densities of megaherbivores like the Asian elephant (*Elephas maximus*) and the gaur (*Bos gaurus*) at Mudumalai are amongst the highest seen in the range of these species. Predator population includes large cats like Tiger (*Panthera tigris*) and Leopard (*Panthera pardus*), and the pack-hunting dhole (**Cuon alpinus**). Omnivores include sloth bear (*Melursus ursinus*) and wild boar (*Sus scrofa*). There are about 250 species of birds recorded in the reserve.

communities and *Cryptococcum oxypHYllum* (3.68%), shows that species which are shade loving will represent in this these forest dominates with (21.06%), grass *Optismenus compositus* (11.66%), *Cyathula prostata* (5.45%) low density (1.2%). Among herb species, fern like *Selaginella minutifolia* forms a green carpet on the floor of The families like *Orchidaceae*, which is, absent in all other communities are present in this community with Among flowering herbs *Amaranthaceae* (7.8%), *Asteraceae* (6.24%) and *Zingiberaceae* (4.76%) are common. Among non-woody species, *Pteridophytes* dominates with 37.84% dominance and next is poaceae (26%) and *Oleaceae* (3.7%) contributed to the species richness include *Flacourtiaceae* (5.18%), *Rubiaceae* (5.92%), *Moraceae* (4.44%), *Fabaceae* (7.4% of species) and *Lauraceae* (7.4% of species) were the speciose families. Other families forms dense undergrowth of these forest types. Among families *Euphorbiaceae* (10.37% of species), *Viburnum punctatum* and saplings of *Casearia ovoides*, *Olea dioica*, *Olea glandulifera*, and *Litsea mysorensis scandans* are also present to give dense rich vegetation community. The species like *Ardesia solanacea*,

Organization of the flora

This flora is organized in a simple manner. No natural system of classification is followed here. Families are arranged alphabetically, while within-family genera and species are also arranged alphabetically. This is done for the convenience of readers. A brief note on the ecology of the species. The flowering and fruiting period is given. Wherever data are available, notes on the phylogeographical affinities are also given. In total, 638 species belonging to 90 families were encountered during the inventory. Four dominant families of flowering plants are Fabaceae (84 species), Poaceae (67 species), Asteraceae (31 species) and Euphorbiaceae (31 species)

ACANTHACEAE

Andrographis serpyllifolia (Vahl) Wt

A prostrate herb with stout root stock, branching radially from the densely hairy stem. Leaves orbicular or reniform, glabrous. Raceme axillary, slender. Flowers subsessile, mostly solitary with small bracts. Calyx glandular and hairy. Corolla white, hairy, 1 to 2 cm; lower lip with violet blotch. Fruit is a capsule, elliptic, acute below, shortly acuminate above. Seeds 1 mm across; retinacula spoon-shaped.

Fls. June - Sept and **Fru.** December-Jan.

Frequently seen in the open, dry areas. Native of peninsula.

Asystasia chelonoides Nees

A shrub. Leaves elliptic-ovate, acuminate, thin, 8-10 x 3-5 cm. Racemes solitary, slender and drooping. Calyx lobes pubescent. Corolla pinkish-violet, 2-3 cm. Capsule 1 x 6 cm, thinly pubescent; seeds angular.

Fls. December- March and **Fru.** Jan - March

An armed hispid, rigid, undershrub. Stem and branches terete. Leaves subsessile, elliptic or obovate, acute or obtuse, hairy, base acute. Flowers axillary and solitary. Bracts in the axils of the leaves reduced to sharp straight spines. Calyx hairy, divided almost to the base. Corolla 1 - 1½ inch long, rose coloured or sometimes white, lobes broadly obovate, obtuse, veined. Capsule ellipsoid, 4 seeded, seeds broadly ovoid, silky - hairy.

Fls : October - November

Seen commonly in the scrub jungle and wastelands. Native of Indian peninsula.

Barleria buxifolia L

A large herb or subshrub. Stem slightly hairy. Leaves 2 - 4 by 1 - 1½ inch, elliptic, oblong to lanceolate, acute or acuminate. Hairy on both sides, 6 - 7 pairs of nerves. Flowers in axillary and terminal short ovate dense spikes, bracts lanceolate, scabrous, one ribbed. Calyx lobes scarious when dry, outer sepals membranous, whitish; outer 2 obovate, spinous, ciliate, inner ones lanceolate. Corolla purplish - pink, violet or white, upper part of tube widely infundibuliform. Capsule ellipsoid, acute at both ends.

Seen in gardens and in open. Native of Indomalayan region.

Fls. December-Feb. and **Fru.** Jan - Mar.

Barleria cristata L

ACANTHACEAE

Andrographis serpyllifolia (Vahl) Wt

A prostrate herb with stout root stock, branching radially from the densely hairy stem. Leaves orbicular or reniform, glabrous. Raceme axillary, slender. Flowers subsessile, mostly solitary with small bracts. Calyx glandular and hairy. Corolla white, hairy, 1 to 2 cm; lower lip with violet blotch. Fruit is a capsule, acute below, shortly acuminate above. Seeds 1 mm across; retinacula spoon-shaped.

Frequently seen in the open, dry areas. Native of peninsula

Fis. June - Sept and Fru. December-Jan

Asystasia chelonoides Nees

A shrub. Leaves elliptic-ovate, acuminate, thin, 8-10 x 3-5 cm. Racemes solitary, slender and drooping. Calyx lobes pubescent. Corolla pinkish-violet, 2-3 cm. Capsule 1 x 6 cm, thinly pubescent; seeds angular.

Seen frequently in the undergrowth of a deciduous forest. Native of India and Sri Lanka

Fis. December-March and Fru. Jan - March

Barteria buxifolia L.

An armed hispid, rigid, undershrub. Stem and branches terete. Leaves subsessile, elliptic or obovate, acute or obtuse, hairy, base acute. Flowers axillary and solitary. Bracts in the axils of the leaves reduced to sharp straight spines. Calyx hairy, divided almost to the base. Corolla 1 - 1½ inch long, rose coloured or sometimes white, lobes broadly obovate, obtuse, veined. Capsule ellipsoid, 4 seeded, seeds broadly ovoid silky - hairy.

Seen commonly in the scrub jungle and wastelands. Native of Indian peninsula

Fis. : October - November

Barteria cristata L.

A large herb or subshrub. Stem slightly hairy. Leaves 2 - 4 by 1 - 1½ inch, elliptic, oblong to lanceolate, acute or acuminate, hairy on both sides, 6 - 7 pairs of nerves. Flowers in axillary and terminal short ovate dense spikes, bracts lanceolate, scabrous, one ribbed. Calyx lobes scarious when dry, outer sepals membranous, whitish; outer 2 obovate, spinous, ciliate, inner ones lanceolate. Corolla purplish - pink, violet or white, upper part of tube widely infundibuliform. Capsule ellipsoid, acute at both ends.

Seen in gardens and in open. Native of Indomalayan region

Fis. December- Feb. and Fru. Jan - Mar

Barteria mysorensis Heyne

A small prickly and hairy shrub. Prickles are usually long. Leaves elliptic or obovate and hairy. Leaf tip mucronate. Flowers blue or purple. Calyx lobes ovate and spiny. Corolla is long tubular. Fruit is a capsule.

Hygrophila salicifolia (Vahl) Nees
 Profusely branched unarmed herbs. Rooting at nodes. Leaves linear-elliptic or oblong. Flowers in axillary clusters. Bracts and bracteoles oblong - acute. Calyx lobes unequal, connate below. Corolla 2 cm long, pale purple to blue with pink lines. Fruit a capsule. Seeds 8 - 12 with retinacula long and curved. Gregarious herbs occasionally seen in marshy places and in water puddles. Native of Indomalayan region.

Fis and Fru Nov - March

Commonly seen along roadsides and along edges of deciduous forest. Native of Indian peninsula.
 Capsules with a stalk, compressed, obovoid, blunt at the apex.
 pubescent Calyx segments linear-subulate. Corolla pink, pubescent outside. Ovary glandular-pubescent. Inflorescence in axillary clusters. Floral bracts 2, unequal, obovate and hairy. Bracteoles linear, acute, Much branched herb. Stem quadrangular and hairy. Leaves ovate or elliptic, acuminate and glabrous. Stem quadrangular and hairy. Leaves ovate or elliptic, acuminate and glabrous.

Dicliptera cuneata Nees

Fis and Fru June - Jan

Occasionally seen in thickets of scrub jungle and often planted. Native of India and Sri Lanka.
 compressed.
 orange-yellow, pubescent outside, tube long and slender. Capsules oblong, subacute, glabrous. Seeds pubescent. Bracteoles narrowly linear, glandular and pubescent. Calyx 5, partite to the base. Corolla pedunculate quadrangular spike with numerous flowers. Bracts imbricate, elliptic-lanceolate, glandular lanceolate, acute, glabrous, shining, base cuneate; petals often obscure. Flowers in axillary long. An undershrub with glabrous and terete branches. Leaves 4 in a whorl, decussate pairs close to one another, **Crossandra infundibuliformis**(Linn.) Nees

Fis. and Fru. Oct - Feb

Distributed widely in old tropics.
 Seen commonly in wastelands and along road sides in dry places. Sometimes planted as hedge plant.
 staminalodes. Capsule ovoid with a long tapering strong beak, 2-seeded.
 or orange, slightly pubescent outside, somewhat bilipped; upper lip 4-lobed. Stamens 4, 2 fertile and 2 in the lower axis. Bracts foliaceous, oblong and bristle tipped. Calyx divided almost to the base. Corolla yellow glabrous above and base tapering into the petiole. Main nerves about 5 pairs. Flowers sessile, often solitary. A branched prickly shrub with quadrangular stems. Leaves 5 x 3cm, elliptic, acuminate, bristle tipped, entire, **Barleria prionitis** Linn.

Fis and Fru Aug - Oct

seen occasionally in dry places. Native of Indian peninsula

Fis and Fru. Oct - March

Justicia betonica L.

Shrubs to 2-3 meters. Stem cylindrical, striate with swollen nodes often tinged with purple above the nodes. Leaves ovate - lanceolate, 2 - 4 by 1/2 - 1 1/2 inch, acute or acuminate, glabrous, main nerves 6 pairs. Flowers in terminal spikes. The spikes simple or paniculately branched, 1 - 5 inch long. Bracts ovate, acute, mucronate, membranous, white with green veins. Calyx pubescent, 5 - partite; segments linear - lanceolate, very acute. Corolla 1/2 inch long, pubescent outside, dull - white or pale pink. Capsule 1.5 x 0.5 cm, softly pubescent.

Seen in moist places of deciduous forest and along water courses. Distributed widely in old tropics
Fis. and Fru. Jan. December

Justicia simplex D. Don

A slender branched herb, variable under differing conditions of soil and climate, branches zig-zag, quadrangular, strigose. Leaves 1 - 2 by 1/2 - 1 inch, ovate or elliptic lanceolate, usually acute, dry pale green, glabrous or hairy. Flowers in dense terminal and axillary, spikes 1 - 4 inch long, bracts ovate; bracteoles narrower. Calyx - lobes 4. Corolla pink, pubescent outside; lower lip suborbicular, dark pink spots. Capsule oblong, obtuse.

Commonly seen in undergrowth of deciduous forest, open places, along roadsides and in damp places. Native of old world tropics

Fis and Fru. Throughout the year

Lepidagathis incurva D. Don

var. **mucronata** (Nees) C. B. Clarke

A small erect much branched herb. Leaves obovate, pubescent beneath. Flowers in axillary or terminal spikes. Bracts ovate - acute, 3- nerved, spinose, bracteoles lanceolate, finely spinose. Calyx lobes 4-partite. Corolla white with pink dots on the lower lip. Stamens 4, filaments glabrous; anther cells bearded. Ovary pubescent at the tip. Capsules oblong-lanceolate, acute, 4-seeded. Seeds broadly ovoid.

Seen frequently in the edges of moist deciduous forest and in the damp places. Native to Indian peninsula
Fis and Fru. December - March

Nilgiritanthus heyneanus (Nees) Bremek

A small shrub. Stem hirsute upwards. Leaves ovate, unequal below, acuminate, crenate-serrate, hairy above, base tapering. Petioles 1-2 in long. Flowers in axillary glabrous capitate spikes. Bracts pink, orbicular-rounded, concave, glabrous. Calyx lobes linear-oblong, segments subequal, linear and obtuse. Corolla pale blue or purple, lobes acute. Stamens 4, filaments of the longer stamens bearded. Ovary glabrous;

Thunbergia fragans Roxb
A twining perennial. Stem long and slender. Leaves broadly elliptic to ovate, acute or obtuse, base cordate

Fis. Aug - Sept

Seen along the road side in a deciduous forest

depressed - globose, pubescent

2, axillary. Bracts hastate. Corolla orangish yellow with deep purple coloured throat, 3 x 2 cm. Capsule
A slender climber. Leaves hastate or sagitate, 4 - 9 x 3 - 7 cm, 5 nerved and petiole is winged. Flowers 1 or

Thunbergia alata Bojer ex Sims

Fis. October - November

Seen along the edges of a deciduous forest. Native of Indian peninsula

Bracts oblong cuspidate. Calyx lobes unequal. Corolla bluish. Capsule 1 x 0.4 cm

A shrub. Leaves obovate - ovate, 6 - 10 x 4 - 7 cm. Flowers in spikes condensed, stalked, densely strigose

Strobilanthus perrottetiana Nees

Fis. and Fru. Oct - Jan

Occasionally seen in the thickets. Native of Peninsula

except at their insertion. Ovary glabrous. Capsule shortly pointed, oblong

pubescent outside; lower lip slightly longer than the upper lip, slightly 3-lobed. Stamens 2, filaments glabrous
acuminate, bracteoles similar but narrower. Calyx 4-partite, lanceolate, acute, unequal. Corolla pink, slightly
acuminate, glabrous. Flowers in axillary or terminal narrow spikes. Bracts shorter than the calyx, ovate,
Erect herbs with woody base. Stem grooved and subquadranular. Leaves ovate-elliptic, oblong, acute or

Rostellularia diffusa (Willd.) Nees

Fis. and Fru. Oct - Jan

Frequently seen along roadsides, open places and forest edges. Has wide distribution in the old world tropics
with 3 acute lobes. Stamens 2, filaments hairy. Capsule narrowed into a cylindrical stalk, pointed, pubescent
lobes linear, hairy. Corolla pink, hairy outside, bilipped, elliptic-oblong, obtuse; lower lip slightly longer, oblong,
of cymes. Bracts linear-spatulate, opposite, often unequal. Bracteoles 4, shorter, scarious-margined. Calyx
Herbs to 3-4 feet tall. Stems 4-6 angled and hairy. Leaves ovate, acuminate and hairy. Flowers in panicles

Peristrophe bicalyculata (Retz.) Nees

Fis. It interestingly flowers in mass once in 4 years during October-January

Occasionally seen in the moist deciduous forest of the sanctuary. Native of Indian peninsula

style slightly pubescent. Capsules oblong, 4-seeded.

Achyranthes aspera Linn
 Erect, 1-3 ft high. Stem stiff. Braches terete or quadrangular. Leaves usually thick, 1½-2½ by 1-1½ inch, elliptic or obovate, usually rounded at the apex, softly pubescent on both sides and entire. Flowers greenish white, numerous, stiffly deflexed against the rachis, in elongate terminal spike reaching upto 20 inches long. Perianth glabrous and shining, sepals subequal, ovate-oblong, with narrow white membranous margins. Stamens 5; staminalodes truncate, fimbriate. Utricle oblong-cylindric, truncate at the apex. Common herbs along roadsides and open places. Native of old tropical world. Fls and Fru. Sept - April

AMARANTHACEAE

Mollugo pentaphylla L
 Diffuse and glabrous herb. Stem slender and many. Leaves in whorls of 2-9, linear-lanceolate to obovate, obtuse or acute, narrowed at the base. Flowers white, numerous in lax corymbose cymes. Peduncles and pedicel filiform. Calyx glabrous, white. Capsule oblong, seeds 15 - 20, dark brown, prominently glandular. Commonly seen in the scrub jungle, exposed and rocky soil. Distributed widely in the old world tropics. Fls and Fru. Jan - Dec

AIZOACEAE

Furcraea foetida (L.) Haworth
 A stout perennial shrub with rhizomatous stem. Leaves lanceolate, glaucous, fleshy, crowded along the short stem. Floral buds are often transformed into bulbils. Flowers bisexual and greenish. Fruit is a loculicidal capsules (rarely seen). Gregarious in open and bare slopes and often planted as hedge plant introduced from South America. Fls and Fru. July-Jan

AGAVACEAE

Very common twiner in the undergrowth of a deciduous forest. Native to India. Fls and Fru. July - Oct.
 or hastate. Flowers axillary, solitary with long pedicel. Bracteoles ovate, hairy. Calyx deeply divided, pubescent, 12-15 fld, linear-lanceolate, acute. Corolla pure white, lobes spreading and pubescent outside. Stamens 4, didynamous, anthers shortly spurred below, bearded. Fruit is a glabrous capsule.

Aerva lanata (L.) Juss

Erect or prostrate herb. Branches many, terate, pubescent or woolly tomentose. Leaves alternate, elliptic to obovate or sub-orbicular, obtuse or acute, entire, pubescent above, white with cottony hairs beneath. Flowers greenish-white, very small, often bisexual, crowded in small dense subsessile axillary spikes. Sepals oblong, obtuse, silky-hairy on the back. Utricle broadly ovoid, acute.

Common in scrub jungles, dry lands and waste places. Wide distribution in old world tropics. Used in festivities for decoration.

Fls and Fru: October-April

Allmania nodiflora (Linn.) R. Br.

A much branched herb. Branches slender, angular, hairy. Leaves alternate, linear-lanceolate, acute, base tapering. Inflorescence of terminal or leaf-opposed, sessile or stalked heads. Bracteoles exceeding the tepals, linear-lanceolate. Flowers bisexual. Perianth of 5, free, subequal tepals, oblong-lanceolate, acuminate, with a strong midnerve. Stamens 5, filaments fused at the base into a short cup, staminalodes 0. Ovary compressed with solitary erect ovule, style short, stigma capitate. Capsules membranous, subglobose.

Commonly seen in wastelands and along roadsides. Native of Indomalayan region.

Fls: October to November.

Alternanthera sessilis (L.) R. Br. ex DC.

Prostrate, branched herb, often rooting at the lower nodes. Leaves some what fleshy, linear-oblong, lanceolate or elliptic, obtuse or acute. Flowers sessile, white, in small axillary heads. Tepals 5, ovate, acute, scarious, 1 nerved, stamens 3, staminalodes 2, utricles obcordate, compressed with thickened margins.

Common in moist and marshy places. Planted in garden as ornamental plant. Used as green vegetable by local people. Native of old world tropics.

Fls. and Fru.: Throughout the year.

Cyathula prostrata Blume

Prostrate or erect herbs. Stem rooting at nodes. Leaves 1-2½ by ½-1 inch, elliptic-rhomboid or ovate, subacute, hairy on both sides, sometimes with a pink tinge beneath. Flowers pale violet, in terminal spikes, first dense and later elongated and lax. Tepals oblong, shortly apiculate, pubescent. Utricle thinly membranous, ovoid, enclosed in the perianth.

Common in moist shaded places. Native of old world tropics.

Fls. and Fru: July-November.



Fis. Feb-May, Fru. May-June

Indomalayan

Frequently seen in Mudumalai with varying structural form depending on the forest type. Native of present Stamens inserted on the disc. Fruit a fleshy drupe
glabrous with age. Flowers in terminal stellate-hairy racemes. Flowers polygamo-dioecious, yellow, disc
Large monoecious or dioecious tree. Leaves compound, odd pinnate, clustered at tip. Hairy but becomes

Lanea coromandelica (Houttugn.) Merrill

Fis. Jan-Apr, Fru. Apr-May

Occasional in dry areas and scrub forest. Native of India and Burma

drupe, black, edible.

Medium sized tree. Bark thick, black, tessellate. Leaves simple, with swollen petiole, hairy and glaucous
below. Flowers greenish, bisexual, in terminal panicles. Petals white. Disc present, fleshy and hairy. Fruit a

Buchanania lanzan Sprengel

Fis. Dec-Jan, Fru. Feb-June

Seen in cultivation around Masinagudi. A native of South America now cultivated elsewhere
from this tree.

Small sized tree seen only in cultivation. Leaves obovate, obtuse tipped, cuneate base, glaucous. Flowers in
panicles. Fruits crimson red or bright yellow, edible. Cashewnut, a commercially valued product is obtained

Anacardium occidentale L.

ANACARDIACEAE

Fis. and Fru. August to November.

Pakistan and Africa.

Commonly seen in open areas, scrub lands and in the deciduous forest floor. It has distribution in Sri Lanka,

Utricel membranous.

A straggling shrub with hairy branches. Leaves elliptic, acute, tomentose on both sides. Flowers in close
clusters forming terminal spikes. Rachis tomentose, with a number of ovate acuminate pungent bracts, which
remains on the rachis after the flowers fall. Imperfect flowers reduced to a number of hooked awns. Perianth
segments of perfect flowers 5, sepals lanceolate, aristate, 3-nerved, densely clothed with white tomentum

Pupalia lappacea (L.) Juss

Mangifera indica L

Evergreen trees Bark rough, greyish black Leaves simple, long, lanceolate, reddish when young. Flowers in terminal panicles, hairy and large. Flowers polygamo-dioecious, disc present and lobbed. Fruit a 1-seeded drupe, edible.

Frequently seen along the water courses of the sanctuary and sometimes cultivated. Wood is used in making furniture. Widely distributed in tropics

Fis Feb-May, Fru Apr-June

Rhus myorensis G Don

Spinescent shrubs Bark brownish. Leaves 3-foliolate with large terminal leaflet, lateral leaflets are smaller and serrate. Flowers in terminal panicles, polygamous. Calyx small and partite. Petals 5 and yellow, disk present.

Stamens 5, styles 3. Fruit a pea sized drupe, small compressed.

Common in dry scrub forests of the sanctuary. Native of Indian peninsula.

Fis Sept-Dec, Fru Apr-July

Semecarpus anacardium L f

Moderate sized tree Bark dark brown flaking. Leaves obovate rounded at tip. Glabrous above and silky pubescent beneath. Flowers in terminal or axillary panicles. Flowers unisexual and yellowish. Fruit a drupe, purplish-black.

Frequently seen in deciduous forests of the sanctuary. Used as marking nut.

Fis Feb-May, Fru Nov-Dec

APIACEAE**Hydrocotyle javanica Thunb**

Prostrate herb. Stems long and succulent. Leaves simple, suborbicular, broader than long, subentire or palmately 7 - 9 lobed, coarsely crenate, shining on both sides. Flowers in simple umbels. Small and pale green. Calyx minute, petals greenish-white and acute. Fruit orbicular or subquadrate, mericarps with acute primary but not secondary ridges.

Frequently seen in moist places, along stream banks in deciduous forest. Native of old world tropics (Africa-Indomalaya)

Fis and Fru. August-Jan

Fis. and Fru. January - May

Occasional in the moist forest. Native of Indomalayan region
 base within Corolla large, salver shaped; lobes broadly rounded, cuneate. Stamens included. Fruit is a follicle
 cordate at base, tomentose beneath. Flowers in terminal lax cymes. Calyx lobes oblong, ciliate, glandular at
 A scandent shrub climbing over high trees with copious milky juice. Leaves opposite, large, broadly oblong,
Chonemorpha fragrans(Moon) Alston

Fis. Mar-Apr, Fru May-June

Common spinescent shrubs in scrub jungle. Confined to peninsular India
 Petals white with rose tinge and fragrant. Fruit is fleshy berry and edible
 A small thorny shrub with milky latex. Spine straight. Leaves elliptic-lanceolate. Flowers in terminal cymes
Carissa carandas L

Not so frequent in the sanctuary. Native of Indomalayan region. Fis. Nov-Dec, Fru. Jan & Apr-May

rounded lobes. Fruit a pendulous follicle
 green above and pale below. Flowers in axillary clusters and unpleasent smell. Petals greenish white with
 Large evergreen tree, often with buttress and milky latex. Bark greyish-brown. Leaves in whorls of 5-10, bright

Astonia scholaris (L.) R Br

APOCYNACEAE

Fis. and Fru. August-January

Frequent in the undergrowth of a deciduous forest. Distribution confined to peninsula
 cauline leaves segmented. Umbels to 6 cm; rays 4-6, 10-15 flowers per ray. Petals 5, white. Fruit ovoid.
 Tall herbs upto 1 m. Radical leaves simple, broadly ovate, 3-angular. Lower cauline leaves trifoliate; upper
Pimpinella wallichiana (Miq.) Gandh.

Fis. and Fru. November-January

Common in the undergrowth of the deciduous forest. It has distribution in India, Sri Lanka and Burma
 ovoid
 Erect herbs. Leaves cauline, trifoliate; leaflets serrate and glabrescent. Flowers in compound umbels,
 involucre bracts absent. Flowers small, bisexual and approximately 15 per ray. Petals 5, white. Fruit glabrous,
Pimpinella heyneana (DC.) Kurz

Nerium indicum Mill

An evergreen shrub seen only in cultivation. Cultivated mainly for flowers
Probably native of Himalayas, now cultivated throughout Asian tropics
Fls. Throughout the year

Plumaria alba L

A small deciduous tree cultivated for white fragrant flowers. Introduced
Native of tropical America, now cultivated throughout tropics
Fls Apr-Sept

Plumaria rubra L

A small deciduous tree seen only in cultivation. Introduced. Flowers yellow and crimson coloured.
Fls Apr-Sept

Rauwolfia serpentina(L.) Benth ex Kurz

A small erect glabrous shrub. Leaves in whorls of 3, thin, broadly oblanceolate, acute, often unequal. Flowers
white, often tinged with violet, in corymbose cymes. Calyx lobes 5, each with 2 marginal glands, glabrous,
bright red. Corolla elliptic oblong, rounded at the apex. Stigma calyptriform. Drupes purplish-black when ripe.
Found in the undergrowth of deciduous forest. This species is found in the Indomalayan region
Fls March to May

Thevetia peruviana (Pers.) K Schum.

A small tree cultivated for fragrant yellow flowers. Introduced. Fruit a drupe.
Fls. & Fru Throughout the year.

Wrightia tinctoria R. Br.

A small deciduous tree with dense foliage and milky latex. Leaves opposite and decussate, shining green.
Flowers in terminal spike. Petals white and salver shaped. Stamens exerted. Fruit is a follicle and horn like;
tip of the follicles often joining
Frequently seen in the deciduous forest of sanctuary. Native of Indomalayan region
Fls Mar-July, Fru Aug-Sept

Asclepias curassavica L
 Plants erect with milky latex and tuberous roots. Leaves decussate/whorled, lanceolate, base acute, apex acute to acuminate. Cymes umbellate, lateral. Calyx lobes lanceolate. Corolla red, tubular lobes attached to the top of gynostegium stipe. Gynostegium long, stipate. Pollinia pendent from dark horny corpuscula, 2 per anther, waxy. Corona single. Stigma columnar. Fruit is a follicle with numerous seeds embedded in silky wool. Commonly seen in marshy places and along river banks. Weed from tropical America but now naturalised. Fls All seasons

ASCLEPIADACEAE

Colocasia esculenta (L) Schott
 Perennial herbs often stoloniferous. Leaf simple, petiole to 1m, ovate, petiole, cordate-sagittate, acute upper elongate, yellow and deciduous. Spadix in four parts: lower pistillate with scattered sterile flowers, an inflorescence peduncle shorter than the petiole. Spathe in two parts; the lower green and accrescent, the interstice with sterile flowers at the spathe constriction, staminate portion often elongated. Berry ovoid. Frequent in marshy places. Origin in tropical Asia but now pantropically cultivated. Fls May - October. Fru Rare or not seen

Arisema tortuosum (Wall) Schott
 Cormous and deciduous herb. Leaves compound and palmately lobed. Flowers in spadix inflorescence. Spathe greenish to fading white. They are paradioecious with pistillate and staminate flowers seperated on the inflorescence axis. Fruits are berries with globose seeds. Frequently seen in the undergrowth of a deciduous forest in the moist places. It has distribution in Himalayas and Western ghats. Fls and Fru. June-November. Then on dormant condition

ARACEAE

Ilex malabarica Bedd
 A large dioecious tree. Leaves simple, elliptic, acute and entire. Flowers small in axillary clusters. fruit is drupe, red when mature. Not so frequent in the sanctuary. Distributed in India and Srilanka. Wood is used as a timber and in handicraft. Fls Feb-Mar, Fru Mar-May.

AQUIFOLIACEAE

Gymnema sylvestre (Retz) R. Br. ex Roemer & Schultes
 Straggler with milky latex. Leaves ovate to oblong, pubescent, base rounded to cordate, apex shortly acuminate. Inflorescence is corymbose cymes. Flowers dull yellow. Calyx lobes obovate. Corolla

Fls and Fru July-December

Occasionally seen along the forest border. Distributed in Indomalayan region.

Seeds many and coma silky-white

Woody twiners with milky latex. Leaves elliptic, glabrous. Inflorescence an axillary raceme. Corolla shortly tubular and greenish-yellow. Lobes oblong-lanceolate. Translators oblong. Follies paired, cylindrical and stout

Cryptolepis buchananii Roemer & Schultes

Fls and Fru July-October

Frequent on the bushes of deciduous forest. It has distribution in India

paired, cylindrical follicle. Seeds many and coma silky

Rhizomatous herbs. Stems twining. Branchlets hirsute. Leaves variable, elliptic-lanceolate, apex acute to obtuse. Cymes few flowered. Corolla light green to yellowish, with purplish stripes near the throat, deep purple within, mouth dilated; lobes 5, ovate, broad and folded back, ciliate on the margins and midrib. Outer corona lobes deltoid with cleft apex; inner lobes linear and hooked at the tips. Gynostegium short stipate. Fruit is a

Cerpegia hirsuta Wight & Arn.

Fls and Fru. March-August

Gregarious herbs on exposed rocks in dry areas. It has distribution in India, Sri Lanka and Nepal

recurved. Ovaries 2. Follicle cylindrical. Seeds embedded in silky-white comatose hairs.

A well branched succulent herb with stems to 30cm, often brown. Leaf scars spine like. Leaves caducous. Umbel terminal. Flower 8 cm across, peduncle stout, flowers 1 or 2. Corolla purplish with yellow bands, entire,

Caralluma umbellata Haw

Fls May to January.

India, Sri Lanka and Myanmar

Frequent in scrub and dry areas found in the thickets that are protected from grazing. Has distribution in

long thin horns. Follicle cylindrical, apically beaked

Succulent, much branched herb with erect quadrangular stems. Leaves reduced and caducous. Flowers mostly single on upper stems. Calyx glabrous. Corolla dark purple with yellow cross bands, campanulate, lobes linear-deltoid, apex folded back. Corona subequal, outer corona lobes meeting and arching apart as

Caralluma adscendens Haworth

Hemidesmus indicus (L.) R. Br.
 Straggler with milky latex. Stem strong. Leaves decussate, narrow or broadly oblong, 3 - 8 x 0.5 - 1 cm glabrous above, often streaked with white lines. Flowers crowded in subsessile cymes. Calyx lobes 5, ovate, acute. Corolla, lobes 5, greenish outside, purple inside, tube very short. Stamens 5, pollinia suberect, pollinial bags spherical. Follicles terete, coma brownish-white.
 Common in the undergrowth of a deciduous forest. It has distribution in India and Sri Lanka.
 Fls. and Fru. July-January
 Fls. All seasons

***Holostemma annulare* (Roxb.)**

Stragglers with milky latex. Leaves ovate to oblong, base cordate, apex acuminate. Flowers in axillary clusters. Calyx lobes equal. Corolla deep purple in the center, lobes equal, ovate. Pollinia pendulous. Corona single. Follicles turgid and boat shaped.

Frequently seen in the scrub and dry areas of the sanctuary. It has distribution in India, Sri Lanka, Myanmar and SE Asia.
 Fls. and Fru. June to February

***Marsdenia brunoniana* Wight & Arn**

Liane upto 12m, on trees. Leaves broadly ovate to cordate, acute, glaucous, 8 - 15 x 4 - 10cm. Flowers in umbellate racemes. Calyx lobes ovate. Corolla tubular, campanulate, lobes 5, oblong spreading. Corona with 2 laterally compressed processes, adnate to staminal column. Follicles paired and winged on four sides. Coma brownish-white.

Occasional in moist deciduous forest. Distributed in peninsular India.
 Fls. and Fru. November-January

***Pergularia daemia* (Forsk.) Chiov.**

A straggler with milky latex. Leaves ovate, base deeply cordate, apex acuminate. Inflorescence in umbelliform racemes. Calyx lobes subequal. Corolla lobes greenish white, foetid, campanulate, tube slightly inflated. Pollinia pendulous. Corona double. Follicles paired, curved and echinate all over.
 Frequently seen on fences and trailing in dry deciduous forests. It has wide distribution in old world tropics.
 Fls. and Fru. July - January

Fls and Fru March-November.

Frequently seen on the bushes in dry area. Native of Indomalayan region.

coma

A large twining shrub. Leaves broadly ovate or suborbicular, acuminate, base rounded or cordate. Flowers numerous, yellowish green, in lateral drooping umbellate cymes. Calyx divided nearly to the base. Corolla deeply divided; corona lobes large, fleshy. Staminal column arising from the base of the corolla. Style apex dome-shaped. Follicles 3-4 in long, slightly tapering to a blunt point. Seeds along with dull white and soft.

Wattakaka volubilis T. Cooke

Fls October to February

Occasionally seen in the moist deciduous forest. Has restricted distribution in peninsular India.

Twiners with slightly milky sap. Leaves linear-ovate, glabrous, base rounded, apex acute. Inflorescence in lateral cymes. Calyx lobes deltoid. Corolla lobes pale purple. Corona lobes globose. Fruit is a follicle.

Tylophora pauciflora Wight & Arn.

Fls and Fru July - January

Commonly seen in the dry area and occasionally on the bushes. It has wide distribution in Indomalayan region.

Follicle cylindrical.

Twiners with watery sap. Leaves simple, opposite, elliptic to ovate, base rounded to cordate. Inflorescence a compound umbellate lateral cymes. Calyx lobes spreading. Corolla greenish yellow outside, purplish inside.

Tylophora indica (N. Burman) Merrill

Fls July to January

Commonly seen on other thorny bushes in scrub jungle. It has distribution in India and Sri Lanka.

staminal, beaked. Follicles paired and cylindrical. Coma dull white and silky. Profusely branched straggler with milky latex. Leaves lanceolate, slightly oblique, glabrous. Inflorescence in lateral cymes. Calyx cupular. Corolla yellowish, campanulate, lobes oblong. Pollinia erect. Corona single.

Secamone emetica (Retz) R. Br. ex Schultes

Fls and Fru January to May

Occasionally found in the scrub jungles climbing other plants. Distributed in India and Sri Lanka.

fleshy. Follicles paired.

Leafless stragglers; branchlets succulent. Inflorescence terminal umbellate cymes. Calyx lobes acute. Corolla lobes campanulate, cream coloured, fragrant, margins revolute. Outer corona 5 lobed; inner corona 5 lobed.

Sarcostemma brunonianum Wight & Arn.

ASTERACEAE

Acanthospermum hispidum DC

Herb. Leaves opposite with margin coarsely serrate. Capitulum yellow, solitary, heterogamous and at the axis. Pappus 0, achenes compressed, smooth and echinate.

A gregarious weed of the waste lands and disturbed sites. An aggressive coloniser. Native of S. America and widely introduced in the tropics.

Flr. and Fru. Jan - July

Ageratum conyzoides L

Highly variable herb. Leaves opposite, ovate, crenate, palmately 3-nerved from the base. Heads in panicles, bracts sometimes glandular hairy. Flowers white or purple. Achenes sparsely scabrous.

A common weed in wastelands, an aggressive coloniser. A native of neotropics and now pantropical in distribution.

Fls and Fru. December - June

Anaphalis aristata DC

An erect white cottony or woolly herb. Leaves alternate and basally clustered. Inflorescence a capitula crowded in dense panicles. Florets pink and small. Achenes terete and papillose.

A common herb in open places. Native of peninsula

Fls and Fru. November - Feb.

Bidens biternata (Lour) Merril and Sherriff

An annual herb. Stem grooved and hairy. Leaves opposite and 3-5 foliate. Heads in panicles, heterogamous and white. Achenes black, small and ending in awns.

A gregarious weed of the waste lands and an aggressive coloniser. Pantropical in distribution

Fls and Fru. generally all seasons but predominantly during October - May

Blainvillaea acmella (L.) Phillipson

An annual stout herb. Stem grooved. Leaves opposite/alternate, crenate and palmately veined. Heads solitary, axillary or terminal, heterogamous, florets white turning yellow. Achenes either trigonous or flat, pappus 0 or few bristles

A common weed in open country or waste places. Pantropical in distribution

Fls and Fru. November - April

Blepharispermum subsessile DC

Erect herbs to undershrubs. Leaves simple and alternate, ovate, entire and glabrous. Heads 5-10 flowered, in large terminal clusters with a leafy bract. Petals white. Fruit is an achene with pappus. Occasional in the sanctuary. Native of Indian peninsula. Fls and Fru. August-September

Blumea lacera (Burm. f.) DC

A strongly aromatic herb with glandular hairs. Leaves alternate, elliptic - oblanceolate. Capitula shortly stalked in dense corymbose panicles. Florets yellow. Achenes terete, slightly ribbed and sparsely hairy. A commonly seen herb in open moist places and waste lands. Distributed in paleotropical regions. Fls and Fru. September - June.

Blumea mollis (D Don) Merrill

An aromatic herb with stem grooved and hairy. Leaves subsessile, obovate and white-hairy beneath. Heads in panicles, bisexual and glabrous. Florets purple. Achenes angled and glabrous. Common weed in open and shaded places. Distributed in paleotropical regions. Fls and Fru. All seasons.

Blumea virens DC.

An erect glabrescent herb. Tips of stem and leaves have stalked glands. Leaves obovate, dentate and glandular beneath. Florets white to creamish. Achenes ribbed and glabrous. Commonly seen along the edges of the deciduous forest. Indomalayan. Fls and Fru. December - January.

Centratherum anthelminticum (L.) O Kuntz

Annual herb. Stem grooved and hairy. Leaves alternate, elliptic-lanceolate and hairy. Head solitary and bracteate. Petals purple. Achenes ribbed and hairy.

Occasional in fallow lands and waste places. Native of India, Pakistan and Afghanistan.

Fls and Fru. December-January

Chromolaena odorata (L.) King and Robinson.

An aromatic erect undershrub. Stem and branches glandular pubescent. Leaves opposite and palmately veined. Heads in corymbose panicles, stalked and homogamous. Florets white to purple, bisexual. Achenes scaly, angular. Pappus hairs one serrate.

A common weed in the understory of the forest. Introduced and now naturalised in many parts of the tropics. Fls. and Fru. November - April.

Emilia scabra DC
Erect hairy herbs. Leaves both radical and cauline. Upper leaves lanceolate and fleshy. Lower ones cordate.

Fis and Fru. September - December.
Common herbs in light shade. has pantropical distribution
of 5 stiff hairs
foliaceous bract and homogamous. Florets purple, 3-5 and bisexual. Achenes ribbed and pappus 1-seriate.
A scapigerous, strigose perennial herb. Leaves radical and alternate. Heads clustered at apex, has a
Elephantopus scaber L.

Fis and Fru. Jan - April
A fairly common herb in open country, along road side. Has distribution in Afghanistan and India
tipped by bristley deciduous hairs
congregation of heads in globose head. Heads densely bearded, florets white. Achenes elongate, angled and
Armed woody annuals, white-wooly. Leaves alternate, pinnatifid and coriaceous. Inflorescence is a
Echinopsis echinatus Roxb

Fis and Fru. December-May.
Frequent in the shaded places, along roadsides of a deciduous forest. Native of old-world tropics.
minutely hairy.
in axillary or terminal short panicles. Involucre broadly campanulate. Flowers yellow. Achenes obovoid and
Erect/prostrate herb. Leaves alternate, simple/pinnatifid and ovate. Heads few-many flowered, heterogamous,
Dichrocephala integrifolia (L.f.) Kuntze

Fis and Fru. September-October.
Common in the undergrowth of a forest. Running wild as an escape from the gardens. Native tropical America.
Ligules orange-red to yellow. Disc florets yellow. Achenes curved, ending with awns black on maturity.
Tall annual herbs. Leaves opposite and pinnatisect, lobes entire and glabrous. Head solitary with a long stalk
Cosmos sulphureus Cav

Fis and Fru. September - January.
Common in the undergrowth of deciduous forest and in waste lands. Native of Indomalayan region.
a lax terminal corymbose panicle. Flowers yellow. Achenes compressed and glabrous.
Herbs/subshrubs. Stems glabrous with age. Leaves alternate, obovate-spathulate and strigose. Inflorescence
Conyza leucantha (D Don) Ludlow & Raven

Fls and Fru September-October.

Occasional in the deciduous forest. Native of India

A slender herb. Leaves long, narrow, entire or distantly toothed, glabrous or sometimes cottony beneath. Heads corymbose, radiate, heterogamous. Petals yellow. Achenes ribbed and minutely scabrid on the ribs.

Senecio zeylanicus DC.

Fls and Fru. September-November.

Occasional in drier parts of the sanctuary. Native of India and Sri Lanka

A glabrous herb or undershrub. Stem fleshy with leafscar. Leaves simple, fleshy, elliptic-lanceolate and entire. Heads few-many flowered, corymbose. Petals pale-yellow. Pappus-hairs copious. Achenes glabrous.

Notonia grandiflora DC.

Fls and Fru. December - August.

Locally common in open places. Has distribution in paleotropics

particles with glandular involucre of bracts. Florets purplish. Achenes ribbed, pappus villous

An erect pubescent herb. Stem broadly winged. Leaves sessile, dentate and glandular. Heads in racemose

Laggera alata (D Don) Schultz-Bip ex Oliver

Fls and Fru. March - September

a ready coloniser. Native of tropical America and now becoming pantropical

bisexual. Achenes black and angled. Pappus of a firmbriate cup. A weed of open and distributed places and

1 flowered aggregated into one compact head, homogamous, subtended by foliar bracts. Florets white and

An erect annual procumbent pubescent herbs. Leaves generally opposite, crenate, palmately veined. Heads

Lagasca mollis Cav.

Fls and Fru. Feb - May.

A weed of waste lands. Native of Mexico and introduced in India.

with fading pink. Achenes minutely pubescent and pappus filiform

upper ones entire. Head solitary, stalked and heterogamous. Disc florets yellow and ray florets opening white

An annual herb with radiating branches from the woody base. Leaves alternate, lower ones pinnatifid and

Erigeron karvinskianus DC.

Fls and Fru. December-April

Common along roadsides and in wastelands. Native of India

Inflorescence a lax corymb. Long peduncled and homogamous. Petals pink. Achenes hairy along the margins

- Stigesbeckia orientalis** L.
An annual viscid-pubescent herb. Leaves opposite, palmately 3-nerved. Heads many peduncled in panicles, heterogamous. Florets yellow. Achenes angled and curved. Pappus 0.
Seen in waste lands and in open country. Distributed in warmer regions of both tropics.
Fls. and Fru. November - March
- Splianthes paniculata** Wall. ex DC
Annual stout herb. Leaves broadly ovate and entire. Heads in axillary or terminal panicles. Florets white. Achenes are thickened on the margin and ciliate along the margin.
Frequent in the deciduous forest. Native of Indomalayan region.
Fls. and Fru. November-December
- Synedrella nodiflora** (L.) Gaertner.
An erect annual herb. Leaves opposite, elliptic and palmately veined. Heads many sessile, axillary and heterogamous. Florets yellow. Achenes black. Pappus is of 2-3 bristley awns.
Weed of forest floor. Introduced from the tropical America.
Fls and Fru. July - December
- Vernonia albicans** DC.
White silky herbs. Leaves alternate, ovate and dentate. Heads in lax terminal panicles. Capitula stalked. Petals purple. Achenes 2-3 angled, pappus biseriate.
Locally abundant in deciduous forest. Native of Indian peninsula.
Fls and Fru. July-September
- Vernonia divergens** (Roxb.) Edgew.
A large undershrub. Leaves alternate, obovate. Head a many flowered panicle. Florets pink/purple. Achenes angled and minutely pubescent. Pappus one-seriate.
Commonly seen in open places and a ready coloniser. Native of Central and Peninsular India and has distribution upto Malayan peninsula.
Fls. and Fru. December - May
- Xanthium strumarium** L.
Annual erect herbs. Leaves alternate, lobed, crenate and palmately veined. Heads monoecious. Male heads in the upper axils and female heads in the lower. Petals absent. Achenes enclosed in the spinescent involucre.
Pappus absent

Spathodea campanulata Beauv.
A medium sized tree. Leaves odd-pinnate. Flower red, in terminal clusters. Fruit a capsule and pointed.
Planted as avenue tree for its showy flowers. Native of Tropical America but now cultivated throughout tropics

Radermachera xylocarpa (Roxb.) K Schum
A medium sized tree. Bark grey and flaky. Leaves 2-3 pinnate, rachis long. leaflets 7-11, elliptic. Flowers in terminal corymbose panicles. Calyx 5-toothed. Petals white, funnel shaped. Fruit a capsule, long with hard tubercles. Seeds compressed and winged.
Frequent tree in deciduous forests. Native of peninsula.
Fis. Mar-May, Fru. Nov-Jan.

Jacaranda mimosifolia D Don
A small tree. Introduced. Cultivated as ornamental. Flowers mauve or light blue. Fruit a woody capsule.
Introduced from Argentina. Now commonly seen in all south Indian hill stations as an avenue tree.
Fis. Apr-May, Fru. May-June.

Dolichandrone falcata Seem
A small deciduous tree. Leaves 1-pinnate, leaflets 5-7, obovate. Flowers in terminal panicles. Calyx spathe emarginate. Petals white. Fruit is a capsule without speckles. Seeds many with wings.
Occasional in drier parts. Native of peninsula.
Fis. May-June, Fru. July.

BIGNONIACEAE

Impatiens chinensis L.,
Annual herbs. Leaves obovate-linear and glabrous. Flowers usually solitary, white to pink. Lips with a long incurving spur. Fruit is a capsule and glabrous.
A rare herb in open marshy grounds in wetter areas. Distributed in India, China and Burma.
Fis. and Fru. August - October.

BALASAMINACEAE

Locally abundant in wastelands and drier parts. Native of tropics.
Fis. and Fru. January-December.

Fis. Jan-Mar, Fru. Sept-Oct

Seen only in the cultivation. Native of Indoamayan region.
A tall deciduous tree. Branches horizontal armed with prickles. Bark green when young. Leaves compound, digitate, 5-8 leaflets. Flowers creamy white in axillary fascicles. Fruit a capsule, long, cylindrical.

Ceiba pentandra (L.) Gaertn

Fis. Dec-Feb, Fru. Apr-May

Occasional tree in the deciduous forest. Flowers when all leaves are shed. Distributed in the Indoamalyan region.
embedded in silky cotton.

A tall deciduous tree armed with prickles. Bark greyish-white. Branches whorled. Leaves digitate, terminal clusters of palmately compound leaves. Flowers large showy and red. Fruit a long, smooth capsule, seeds

Bombax ceiba L.

BOMBACACEAE

Fis. Jan onwards

Seen only in cultivation. Introduced from tropical America now cultivated everywhere.
A gregarious shrub. Leaves pinnately compound, leaflets with serrate margin. Inflorescence is a panicle with yellow flowers. Fruit a capsule.

Tecoma stans (L.) H B K

Fis. Apr-June, Fru. Nov-Dec

Frequent canopy tree in deciduous forest. Native of Indomalayan region.
A large deciduous tree with dense compound foliage. Bark pale brown. Leaves one-pinnate. Flowers yellow with red tinge in racemes, terminal. Fruit a capsule, spirally twisted.

Stereospermum personatum (Hassk.) Chatterjee

Fis. Apr-June, Fru. Nov-Dec

Rarely seen in drier parts of the sanctuary. Native of peninsula.
A small tree. Leaves pinnately compound. Flowers in terminal panicles. Petals white. Fruit a capsule.

Stereospermum angustifolium Haines

Fis. Feb-Apr, Fru. Aug-Sept

BORAGINACEAE

Coldenia procumbens L.

Prostrate annual, scabrid herb. Leaves elliptic ovate, oblique, cuneate. Flowers small. Calyx lobes 5, ovate. Corolla 5, white. Stamens 5, included. Ovary shallowly 4 lobed. Style short, bifid. Fruit dry, 2 seeded halves. Common in moist places, fallow fields.

Distributed in India, West Asia, Himalaya, Sri Lanka, East Asia, Malasia.

Fis. November to May.

Cordia obliqua Willd.

Medium sized tree with drooping branches. Bark greyish brown. Leaves broadly ovate and elliptic. Inflorescence is a corymbose cyme. Flowers polygamous and white, fragrant. Fruits yellow with mucilaginous pulp, edible.

Frequently seen in the deciduous forests. It has distribution from Africa to India.

Fis. Mar-Apr, Fru. May-July.

Cordia wallichii G. Don.

Moderate sized deciduous tree. Bark brownish. Leaves simple, ovate orbicular with softly villous-tomentose. Flowers in lax racemes. Calyx hairy. Petals white. Fruits fleshy, edible drupe.

Frequently seen in the deciduous forests. Native of Indian peninsula.

Fis. Mar-Apr, Fru. May-July.

Cynoglossum zeylanicum (Homem.) Thunb. ex Lehm.

Annual, erect, branched herb upto 2 feet. Stem and branches more or less angular, the older clothed with spreading, young branches with appressed hairs. Leaves broadly lanceolate, acute, clothed with short stiff hairs, margins subdentulate, base narrowed and decurrent. Flowers distant in terminal and axillary panicle. 1 sided racemes upto 15 cm long. Calyx lobes 5, ovate, oblong, obtuse. Corolla lobes 5, oblong or suborbicular, bluish white, campanulate, glands 5. Fruit depressed pyramid of 4, rounded nutlets.

Common along the road sides, stream banks and waste places. It has wide distribution in Indomalayan region.

Fis. and Fr. January-November.

Ehretia canariensis Miq.

A small tree with brownish branches. Bark greyish. Leaves broadly ovate, hirsute. Flowers in cymose inflorescence. Calyx thinly pubescent. Petals white, fragrant. Fruit a globose drupe, turning black on maturity.

Commiphora berryi (Arn) Engl
 A small thorny tree branchlets spine-tipped. Leaves trifoliate, aromatic. Leaflets ovate. Flowers in fascicles. Fruit a drupe. Often cultivated as hedge plant in the drier regions of the sanctuary. Native of peninsula.
 Fls Feb-Mar, Fru Apr-May

Boswellia serrata Roxb
 A moderate sized resiniferous and gregarious tree. Bark ash coloured and papery. Leaves compound and crowded at the tip. Leaflets deeply crenate. Flowers in axillary or terminal fascicles. Disc present. Calyx persistent. Petals white, shortly clawed. Fruit a green and smooth capsule, three valved. Seeds 3.
 Gregariously clumped tree in drier parts of the sanctuary. Gum is used in many ways. Native of India.
 Fls Apr-May, Fru July-Aug

BURSERAEEAE

Trichodesma sedgwickianum S. P. Banerjee
 Herb upto 50 cm. Leaves broadly oblong - lanceolate, 4 - 6 x 1.5 - 2 cm, base cordate. Flowers at the axils. Calyx 3 ribbed, scabrous without, hastate, cordate. Corolla pinkish white, salver - form, throat with 4 unequal spots towards one side; lobes obtuse, shortly acuminate. Stamens included. Nutlets smooth on the outer side verrucose on the inner side.
 Occasional in scrub jungle. Native of India.
 Fls and Fru. August - November

Trichodesma indicum (L) R. Br.
 Rugous herb upto 75 cm, much branched, very hispid. Leaves $1\frac{1}{2}$ - 4 by $\frac{1}{2}$ - 2 inch, variable, sessile, ovate or oblong, obtuse or subacute, clothed with stiff hairs springing from circular tubercles, base auriculate, subsessile. Flowers pale violet blue, solitary and leaf opposed or in terminal few flowered cymes; pedicels $\frac{1}{2}$ inch long. Calyx deeply divided, hispid with long hairs, segments lanceolate, acute, cordate or hastate at the base. Corolla $\frac{1}{2}$ inch long, limb oblique, infundibuliform, ovate, deltoid, suddenly acuminate. Cone of anthers large and pointed. Ovary ovoid, acute. Fruit pyramidal, subtruncate at apex. Nutlets smooth on the outer face, rugosely pitted on the inner side.
 Common weed on the wastelands, scrub jungle. Native of Asian tropics.
 Fls and Fru. August - December

Common in drier parts of the park. Native of Indomalayan region.
 Fls Sept. Fru May-June

Cassia auriculata Linn
A tall, much branched shrub. Stipules large, foliaceous, reflexed, reniform. Leaves 3-4 in. long, with an erect gland between each pair of leaflets. Leaflets 8-12 pairs, slightly overlapping, oblong-obovate. Flowers large, in terminal or axillary corymbose racemes. Calyx glabrous, the outer 2 much smaller than the other 3. Corolla

Fis. and Fru: October to February.

Occasionally seen on the bushes in moist forest in the sanctuary. Native of India and Sri Lanka
turgid.

Caesalpinia mimosoides Lamk.
A climbing shrub with stem and branches armed with short sharp prickles. Leaves compound, about 1 to 2 ft long, main rachis reddish, armed with curved prickles. Leaflets oblong, thin, glabrous above. Flowers in terminal racemes. Calyx reddish, lobes obtuse, gland dotted. Corolla yellow. Pods oblong-obovoid, more

CAESALPINACEAE

Opuntia dilenii (Ker Gawler) Haw
Erect shrubs with stems jointed. Stems fleshy flattened and areoles densely tufted bearing yellow spines. Flowers large and bright yellow. Fruit is a globose and fleshy berry.
Common in dry and wastelands. Introduced from America and running wild as a weed.
Fis. and Fru January - August

CACTACEAE

Garuga pinnata Roxb
A large deciduous tree. Bark thick, red inside, grey outside and flakes off irregularly. Leaves compound and crowded at tips. Flowers in terminal panicles. Petals creamish-white. Fruit a globose drupe, fleshy.
Occasional in deciduous forest. Native of Indomalayan region. Bark oozes white gum used in tanning.
Fis. Apr-May, Fru. Oct-Nov

Commiphora caudata (Wt & Arn) Engl
A moderate sized aromatic tree. Bark and leaves smells like mango when crushed. Bark peels off as papery flakes. Leaves compound, leaflets 3-7, acuminate, glabrous. Flowers in panicles and polygamous. Petals pink.
Fruit a globose drupe with a persistent calyx.
Frequent in dry forests. Native of India and Sri Lanka.
Fis. Mar-Apr, Fru. Apr-May

Lobelia nicotinaefolia Roth. ex Roem & Schultes
An undershrub. Leaves simple and spiralled. Flowers in terminal racemes. petals long, white. Fruit is a dehiscent capsule.
Frequent shrubs along the wet forest edges. Native of Indomalayan region.
Fls and Fru: October - April

Lobelia heyneana Roemer & Schultes
Erect herb with leaves ovate. Flowers in racemes pinkish white with dark pink throat. Fruit is a cupular capsule.
Frequent herbs on exposed slopes, edges and crevices of rocks and on footpaths during the advent of monsoon. Has distribution in Indomalayan region.
Fls and Fru: November - March

CAMPUNALACEAE

Cassia sophora Linn
Shrubs. Leaves 10-15 cm long. Petiole with conical gland near the base. Leaflets 6-10 pairs, opposite, lanceolate. Flowers in axillary, short, few flowered, corymbose racemes. Calyx divided to the base. Corolla 5, subequal, yellow. Stamens 10, of which the 3 upper are reduced to staminodes. Pods thick, slightly recurved, somewhat turgid.
Frequent in drier areas. Native of tropical Asia.
Fls: November to January

Cassia hirsuta Linn
Softly pubescent herb. Leaves with a gland at the base of the petiole. Leaflets elliptic-ovate, acuminate. Corymbs in terminal panicle. Corolla yellow. Pods sessile, turgid.
Seen as a weed in wild. Native of Tropical America now running wild in tropics.
Fls and Fru: January - December

with long claws, crisped on the margin, bright yellow. Stamens 10, of which the 3 upper are reduced to staminodes. Pods flat, thin, papery, oblong.
Gregarious shrub in open, waste lands and along edge of the forest. Native of Indomalayan region.
Fls and Fru: January to December

CAPPARACEAE

Capparis grandiflora Wall ex J Hooker & Thoms

A straggling shrub with zigzag branches. Stems spinescent with spines recurved. Flowers solitary and axillary. Petals bright yellow. Stamens free and exerted. Gynophore present. Fruit an ellipsoid berry with a beak and red while ripened.

Frequent in the scrub and dry open areas. Native of Indian peninsula.

Fis and Fru. February - September.

Capparis septaria L.

An erect or climbing shrubs. Pubescent or glabrescent. Spines recurved. Leaves suborbicular. Flowers in terminal umbellate inflorescences. Petals white and hairy. Gynophore present. Fruit a globose berry and dark blue.

Common in dry thorn forests. Has a wide distribution in old tropics.

Fis. and Fru. April - September.

Cleome felina L.

Prostrate strigose herbs. Leaves apically simple and basally trifoliate. Flowers solitary and axillary, pink. Fruit a silique which is flattened at ends.

Frequent in dry areas with poor soils. Native of peninsular India.

Fis. and Fru. August - November.

Cleome monophylla L.

An erect annual herb with glandular hairs. Leaves simple ovate to lanceolate. Flowers in a leafy racemes.

purple and clawed. Fruit a silique on a short gynophore.

Common weed of open places in dry areas. has wide distribution in old tropics.

Fis and Fru. May - November.

CAPRIFOLIACEAE

Viburnum punctatum Ham ex D Don.

Small evergreen tree. Leaves simple and opposite. Inflorescence is a compound umbel with bracts and bracteoles persistent. Flowers white and small. Fruit a drupe, purplish on maturity.

Occasional along the water courses and marshy area in semi evergreen forest. Native of Indomalayan region.

Fis & Fru. Oct-Apr.

CASUARINACEAE

Casuarina equisetifolia L.

A large pine like evergreen tree. Leaves reduced, seen only in cultivation.
Fls. Sept-Oct & Mar-Apr, Fru. Dec-June.

CELASTRACEAE

Cassine glauca (Rottb.) Kuntze

Moderate sized tree, nearly evergreen. Leaves simple opposite and ovate. Inflorescence is a corymbose cyme. Flowers small, greenish white. Disc present. Fruit a one seeded drupe, yellowish-green.
Frequent in deciduous and scrub jungle. Native of India and Sri Lanka.
Fls. Apr-July, Fru. Oct-Dec.

Cassine paniculata (Wt & Arn.) Raman.

Large tree. Leaves simple, opposite, ovate-lanceolate and crenate. Flowers in cymose inflorescence with one flower at the dichotomies. Flower greenish white, relatively larger than *Cassine glauca*. Fruit a capsule, yellow, 2-seeded.
Rarely seen in the sanctuary towards drier part. Confined to western ghats.
Fls. Mar-July, Fru. Dec-Feb.

Celastrus paniculatus Willd.

Unarmed deciduous shrubby climber. Leaves alternate, ovate and crenulate. Flowers in terminal polygamous panicles. Petals greenish-white. Disc present. Fruit an obovoid capsule.
Rare in moist forests of the sanctuary. Native of Australia and Indoamalayan region.
Fls. and Fru. April - October.

Maytenus emarginata (Willd.) Ding Hoi.

Large spiny shrub, spines bearing leaves and flowers. Leaves simple, opposite, serrate, glaucous beneath. Flowers in cymose, axillary, extra axillary or at the tip of spines. Flowers small, greenish yellow. Disc present. Fruit a dehiscent capsule.
Common in the scrub jungle. Native of Indoamalayan region.
Fls. & Fru. Various periods.

Pleurostylis wightii Wt & Arn.

Small evergreen tree. Leaves simple, opposite and decussate. Flowers in subsessile cymes. Petals 5, green.

Terminalia bellirica (Gaertner) Roxb
 A tall deciduous tree. Boie straight with terminal cluster of leaves. When young gives out honey-like scent. Easily recognised by its bark and spreading crown. Flower pale white or greenish yellow. Fruit globose, hard. Frequently distributed in the sanctuary.

Terminalia arjuna Wt & Arn.
 A large nearly evergreen tree. This tree has white to nearly grey bark often buttressed. Leaves alternate/sub-opposite with glands at the base. Spikes in panicles. Flowers light yellow, fragrant. Fruits winged. Frequently seen along the water course in the sanctuary. Native of India and Sri Lanka. Fls Apr-May, Fru Nov-Jan.

Combretum ovalifolium Roxb
 Deciduous stragglers. Leaves opposite and decussate. Flowers in panicles and polygamo-dioecious. Petals greenish-yellow. Disc present. Fruit an angled reddish capsule. Frequent along river banks and other water courses. Has wide distribution in old tropics. Fls and Fru. March - June.

Anogeissus latifolia (DC.) Wall. ex Bedd.
 A deciduous tree with white bark. Leaves simple, alternate and oblong. Flowers aggregated in axillary clusters. Calyx 5, persistent. Petals 0. Stamens 10, exerted. Fruit a drupe, compressed, narrowly two winged. Common tree in deciduous forests. Native of India, Sri Lanka and west Asia. Fls Dec-Jan & June-July, Fru Jan-Feb & July-Aug.

COMBRETACEAE

Garcinia gummi-gutta (L.) Robson.
 Tall, dioecious tree with yellow latex. Leaves coriaceous, simple and decussate. Flowers in axillary fascicles. Flowers are yellowish white. Fruits are fleshy & sour. They are edible. Rare in the wetter parts of the sanctuary. Restricted to western ghats. Fls Feb-Mar, Fru July-Aug.

CLUSIACEAE

Disc present. Stamens 5, present below the disc. Fruit a one seeded drupe. Frequently seen in drier parts of the sanctuary. Native of old-world tropics. Fls July, Fru Sept-Oct.



Fis Feb-Apr, Fru Oct-Nov

***Terminalia chebula* (Gaertner) Retz**

A moderate sized to large tree with young parts hairy. Leaves simple, alternate or sub-opposite with sessile glands at the base. Flowers in short and simple spikes. Petals pale yellow or white. Fruit is ovoid. Frequent tree in deciduous forest. Native of India and Myanmar. Fruits are of medicinal value.

Fis. Mar-Apr, Fru. Nov-Jan

***Terminalia crenulata* Roth**

A large deciduous tree. Bark blackish-grey, fissured like crocodile back. Leaves simple, alternate, have glands at base of leaves. Flowers small and many in spikes. Petals white. Fruit is a winged capsule. A common tree in the deciduous forest of peninsula. Native of India, Himalyas and south-east Asia.

Fis. May-June, Fru. Nov-Jan

COMMELINACEAE

***Commelina benghalensis* L.**

Subscandent herb with branches diffuse, creeping and rooting below. Leaves ovate or oblong, obtuse, villous on both surfaces, base unequal sided, nerves 7-11 pairs. Spathes clustered, funnel shaped, auricled on one side. Upper branches of cyme 2-3 flowered. Sepals small, oblong, pubescent. Petals blue, larger petals orbicular, ovary 3-celled. Fruit a pyriform capsule, membranaceous and 5-seeded.

Common on the wet grounds in the sanctuary. It has wide distribution in old-tropics.

Flowering: August-December.

***Commelina ensifolia* R. Br.**

Rhizomatous slender herb. Leaves linear-lanceolate, acute and entire. Flowers violet-blue, small. Fruit a capsule with three seeds.

Frequent herbs in perennially moist places. Native of Indomalayan region.

Flowering: September-November.

***Cyanotis cristata* (L.) D. Don**

Glabrous herbs. Leaves with sheathing base, ovate-lanceolate. Inflorescence solitary cyme, greenish-pink with bract and bracteoles. Flowers rose-purple. Fruit a capsule, seeds trigonous.

Common in moist places. Native of old-world tropics.

Fis and Fru. July-November.

- Cyanotis fasciculata** (Roth) Schultes and Schultes f.
A small branched silky woolly herb. Leaves sessile, linear-lanceolate, acute or acuminate, woolly on both sides. Gynae axillary and terminal, bracts lanceolate, falcately recurved. Sepals elliptic-lanceolate, acute, woolly, corolla pink and lobes ovate. Filaments of anthers bearded with blue and white coloured hairs. Capsule oblong, trigonous and roughly six seeded.
- Frequent on the rocky soil. Native of India and Sri Lanka
- Fls and Fru: August-October
- Floscopa scandens** Lour
Sub-scandent herb. Stem slender, rooting below, internodes long, branches ascending, leafy above. Leaves 2-4 by ½-1 inch, elliptic-lanceolate, acuminate, sheaths loose, short, glabrous or villous. Flowers in terminal, sessile or shortly pedunculate villous or hirsute panicles, the flowers racemose arranged along the long many flowered branches of the panicle. Sepals rounded-ellipsoid, concave, villous. Petals broadly obovate, white or lilac. Filaments of anthers purplish. Capsule suborbicular, abruptly subacute at both ends.
- Occasional in marshy places. Native of Indomalayan region
- Fls and Fru: October-November
- Murdannia elata** (Vahl) Brueckn.
Robust herb with erect, branching, leafy stem. Roots tuberous. Leaves oblong-lanceolate, acute. Flowers in dichotomously branched panicle. Sepals brown. Petals white. Staminal filaments bearded. Capsules oblong.
- Occasional in marshy places and near water logged areas in the sanctuary. Native of Indoamalayan region.
- Fls June-September
- Murdannia spirata** (Linn.) Brueckn.
Branched herbs with fibrous roots. Leaves oblong, semi-amplexicaul at base. Flowers in short, slender panicles. Calyx lobes oblong. Petals blue. Filaments bearded. Capsule hairy.
- Frequent in wet places. Native of Indomalayan region.
- Fls and Fru: August-November
- Murdannia zeylanica** (C. B. Cl.) Brueckn.
Slender herbs. Leaves lanceolate, acuminate, base cuneate. Flowers in terminal sessile panicles or corymbose panicles. Petals white. Capsules ellipsoid. Seeds smooth.
- Rare in marshy or wet places. Native of Indian sub-continent.
- Fls July

CONVOLVULACEAE

Argyrea cuneata Ker - Gawl

A shrub. Stems softly silky pubescent. Leaves ovate - oblong, obtuse, sometimes emarginate, glabrous or nearly so above, silky beneath, base cuneate. Flowers in few flowered cymes. Sepals orbicular - ovate, obtuse, thick, pubescent outside. Corolla purple, 2 inch long, tubular - infundibuliform. Fruit an ellipsoid capsule, pointed, shining. Seeds one per locule. Common in the undergrowth of a deciduous forest. Mostly towards dry areas. Native of Indian peninsula. Fls and Fru: July - September.

Argyrea pomacea (Roxb.) Choisy

Hispid climbers. Leaves simple, ovate and rounded at base. Inflorescence corymbose, many flowered and bracteate. Petals villet and campanulate. Fruit is a berry, yellowish-brown. Rare in the sanctuary. Native of peninsular India. Fls and Fru. September-November.

Evolvulus alsinoides Linn

A prostrate herb with small woody branched root stock. Stems numerous, spreading, slender, usually clothed with long spreading hairs. Leaves numerous, elliptic-oblong, obtuse, densely clothed with appressed silky hairs, petioles very short. Flowers light-blue, solitary, peduncles long, filiform. Calyx densely silky, corolla blue, rotate. Capsule globose, thin, 4 valved. Common in the undergrowth of a deciduous and thorn scrub forest. Has wide distribution in old-world tropics. Fls and Fru. July - November.

Ipomoea alba L

A stout climber on trees. Leaves entire and heart shaped. Flowers solitary or in few flowered cymes. Flowers large, petals white and salver-form. Stamens exserted. Fruit a capsule, globose or ovoid and glabrous. A weed in the sanctuary. Introduced from trop. America now pantropical. Fls and Fru. October-December.

Ipomoea hederifolia L

A well branched slender twiner with hairy branches. Leaves either lobed or entire, cordate. Flowers in cymose inflorescence. Sepals distinctly awned. Petals scarlet-red and salver-form. Stamens exserted, glandular-hairy. Fruit a globose capsule. Seen in disturbed areas. Introduced from tropical America now running wild. Fls and Fru. September-December.

Rivea hypocrateriformis (Desr.) Choisy
Grey hairy climbing shrubs. Leaves heart shaped, hairy beneath. Flowers in cymose inflorescence. Petals

Fis and Fru. August - December

Frequently seen in the scrub forest. Native of old-world tropics

globose

long acuminate. Corolla pale creamy - yellow with dark brownish at the centre. Capsules depressed -
glabrous, coarsely dentate auricles at the base. Flowers in axillary, 1 - 3 flowered cymes. Sepals lanceolate,
A biennial diffuse twining herb. Stems slender, long, angular. Leaves subsessile, hastate, oblong, acute,

Merremia hastata Hallier f.

Flowering: September to December.

Distributed throughout India, China

appressedly strigose. Corolla rose coloured. Stamens included. Fruit long, ovoid, red coloured.
peduncles. Bracts broadly ovate, obtuse, appressedly strigose. Sepals subequal, thick, orbicular, densely
when old. Base usually cordate with rounded lobes. Flowers in densely hairy corymbose cymes with long stout
A large climber with terete, thick stems. Leaves ovate, acute, sparsely hairy on both surfaces, nearly glabrous

Lettsomia setosa Roxb.

Fis and Fru. November-December

A bushy climber seen in many parts of the sanctuary. Native of India

and funnel shaped. Fruit a capsule and orange coloured.
Climbing shrub. Leaves rounded, cordate at base. Flowers in axillary corymbose cymes. Petals pale purple

Lettsomia elliptica Wt.

and Fru. December- March.

A gregarious climber on the thicket in drier areas of the sanctuary. Native of India, Sri Lanka and China. Fis
Petals pink with purplish tube and funnel-shaped. Fruit a ovoid capsule

Extensive liane. Leaves entire, ovate and deltoid. Inflorescence a panicle cyme. Calyx lobes are not equal

Ipomoea staphyllina Roemer & Schultes

Fis and Fru. July-December.

Seen in the deciduous forest. Has wide distribution in the tropics

Sepals awned. Petals violet and salver-formed. Fruit is a capsule with short beak.

A slender and glabrescent climber. Leaf cordate, ovate and entire. Inflorescence is few-flowered cyme

Ipomoea muricata (L.) Jacq

Fis. and Fru. May - September.

China and Japan.

Frequent in scrub, deciduous forest, in fallow lands and disturbed places. Has wide distribution covering India,

Petals white. Fruit a berry, red when ripe and globose.

Robust climber. Leaves polymorphous, palmately lobed. Flowers males in racemes and Females solitary.

Trichosanthes tricuspidata Lour.

Fis. and Fru. November-March.

Frequent in the thickets, scrub jungle and along river courses. Native of old-world tropics.

rounded pedo, red with white lines when ripe. Seeds few.

in fascicles, small and green. Petals ovate and campanulate. Stamens inserted on the calyx tube. Fruit a

Tuberous slender monoecious herbs. Leaves membranous, palmately lobed, lobes distantly toothed. Flowers

Diplocyctos palmatus (L.) Jeffrey.

Fis. and Fru. June-July.

Frequent in the scrub jungles of the sanctuary. Native of old-world tropics.

small. Petals yellow. Fruit a berry rounded or ellipsoid with greenish stripes. Yellow when ripe.

Perennial prostrate monoecious herbs. Leaves palmately 3-7 lobed and cordate at base. Flowers solitary and

Cucumis melo L.

Fis. and Fru. April-October.

west Indies also

Common in the thickets in the drier parts of the sanctuary. Native of old-world tropics but now introduced into

filaments forming a tube. Fruit a berry, cylindrical or oblong, rounded at both ends, deep red when ripe.

denticulate. Flowers solitary. Petals white and campanulate. Stamens inserted at the base of calyx tube,

Dioecious slender climber. Stem angular and rugose. Tendrils simple. Leaves lobed or angled, glandular and

Coccinia grandis (L.) Voigt.

CUCURBITACEAE

Fis. and Fru. December-March.

Frequently seen in the dry areas of the sanctuary. Native of India and Sri Lanka.

white and salver-form. Fruit an indehiscent capsule enclosed by accrescent calyx lobes.

CYPERACEAE

Carex filicina Nees

Stem sparsely tufted, rigid. Leaves linear long. Panicles distant, pyramidal, involucre bracts, overlapping. Spikelets linear, glumes imbricate, 3-5 nerved, stamens 3, utricles trigonous, many nerved, prominent, scabrid, beak fairly 2 fid. Nut ellipsoid, trigonous, yellow coloured. Found in Hills above 1200 m, sholas, stream bank, etc. Distributed in Himalaya, E India, E Asia, South to Malasia, Srilanka. Flowering: October-November.

Carex glauca Boeckeler

Stem erect. Leaves as long as stem, linear, panicles oblong, distant, 2 or 3 at a node, unequal, involucre bracts overlapping. Glumes imbricate, ovate, keel yellow, 3 nerved, utricles trigonous, ribbed, pubescent, beak 2-fid. Occasionally found on the rocky outcrops and other open areas in the forest. Distributed in the Western ghats, Peninsula, Mauritius. Flowering: October-December.

Courtoisia cyperoides (Roxb) Nees

Glabrous annuals. Stems of 60cm, bearing 1-2 basal leaves. Inflorescence 1-3 x antelate; bracts much exceeding rays. Spikes globose, congested. Spikelets broadly elliptical, flattened, 1-2 flowered. Glumes elliptical with a strong, winged keel excurrent in a short recurved mucro. Nut linear oblong, chestnut brown, strongly punctulate. Distributed in India (Sikkim, Assam, Bengal, West Peninsula), Tropical Africa, Indomalaysia. Flowering: November to January.

Cyperus distans L f

Perennial with about 50 cm long trigonous stem which is not tufted. Leaves are few and long with purplish sheath. Inflorescence compound with 7-9 primary rays. Bracts spreading. Spikes ovate, branched, with a few distant sessile purplish spikelets. Glumes overlapping slightly, elliptical, reddish brown, 3-5 nerved. Stamens 3, apiculate. Stigmas 3. Nut ellipsoid, trigonous. Occurs in wet places and paddy fields. Tropical and subtropical in distribution. Flowering: October-November.

- Cyperus iria** L.
Tall tufted annual. Leaves few, 15 cm, scabrid, with papery sheath. Inflorescence decomposed, primary rays 5-7. Bracts leaf-like, exceeding the rays. Spikes ovoid, lax. Spikelets 15-20, compressed, oblong, golden yellow. Glumes obovate. Keel 3-5 nerved. Nut obovate.
Commonly seen in paddy fields and other wet places. Distributed in tropical, subtropical and temperate regions.
Flowering: September to November
- Cyperus panicus** (Marsch.) Vahl
var. **roxburghiana** C. B. Clarke
Perennial with 2 feet long, trigonous stem. Leaves long and narrow. Inflorescence simple umbel. Spikes cylindrical. Bracts 5-7, leaf-like. Spikelets lanceolate. Stamens 3. Nut slightly curved, oblong ellipsoid, trigonous, pale brown.
Distributed in India, Ceylon, Java.
- Cyperus teneriffae** Poir.
A glabrous annual with tufted stems. Leaves usually shorter than the stem, broad, linear, acute with reddish sheath. Inflorescence head-like with 3-20 sessile spikelets. Bracts 2, linear, acute, leaf-like. Spikelets much compressed, reddish brown. Glumes broad, boat-shaped. Stamens 3. Nut obovate, obtuse, dark brown.
Distributed in India, Tenerife, Africa.
Flowering: September
- Cyperus tenuiculmis** Boeckeler
Perennial with slender rhizomes. Stem 20-45 cm, inquetrous. Leaves as long as stem, rigid, sheath brownish. Inflorescence compound. Bracts 3-4, erect with filiform tips. Primary rays 3-5. Spikes 2-10. Spikelets elliptic acute, golden-yellow, compressed. Glumes imbricate. Nuts ellipsoid, reddish brown.
Mostly found in marshy places. Distributed in Old World tropics and East Asia.
Flowering: August
- Cyperus tenuispica** Steudal
Stem tufted, finely ribbed, small, leaves upto 20cm, 3.5mm wide. Inflorescence decomposed, primary rays 7-10, secondary rays 5-7. Spikelets 3-5, narrowly linear, pale brown, glumes ovate membranous, often purplish, keel 3-nerved. Nut ovoid to subglobose, white.
Found in the plains from the coast up to 900 m on hills. Distributed in India, Tropical and subtropical Africa and Asia.

Flowering: October-January

Fimbristylis dichotoma Vahl

Annual. Root-fibres slender. Stems 2-10 inch long, tufted, filiform, strate. Leaves very narrow, tapering to a fine point, smooth. Umbel laxly compound or decomposed, bracts filiform, spikelets somewhat angular, ellipsoid, many flowered. Glumes loosely imbricate, ovate, reddish-brown, 1-3 nerved on the back. Stamens 1-3, anthers small, obtuse.

Common in open damp marshy places or streams. Distributed from India to Malasia.

Flowering: June to November.

Fimbristylis woodrowii C. B. Clarke

Glabrous slender herb, stem 5-angled below the umbel. Leaves shorter than the stem, prominently nerved, acute, flat. Umbel subcompound, with 8-18 short rays, bracts 2-3 the longest leaf-like, exceeding the umbel. Glumes ovate, boat-shaped, spirally arranged, closely imbricate, rusty-brown, stamen 1. Nut ovate to obovoid. Found in wet places in the upper ghats above 1200 m.

Flowering: September to November.

Kyllinga melanosperma Nees

Rhizome dark purple-red, horizontally obliquely creeping. Stems upto 50cm, sharply triangular with only 1 or 2 bladed leaves. Bracts longer than the inflorescence. Head globose to oblong, yellow to golden. Nut strongly flattened, narrowly to broadly elliptical, not beaked.

Common in paddy fields, moist places. Distributed in India, tropical and subtropical Africa, South Asia, Fiji, Malasia

Kyllinga nemoralis (Forster) Dandy ex Hutchinson

Rhizome slender, flexuose, creeping. Stem leafy, head oblong, solid, white. Nut brown. Occasionally in wet places, on the roadsides. Panropical and subtropical in distribution.

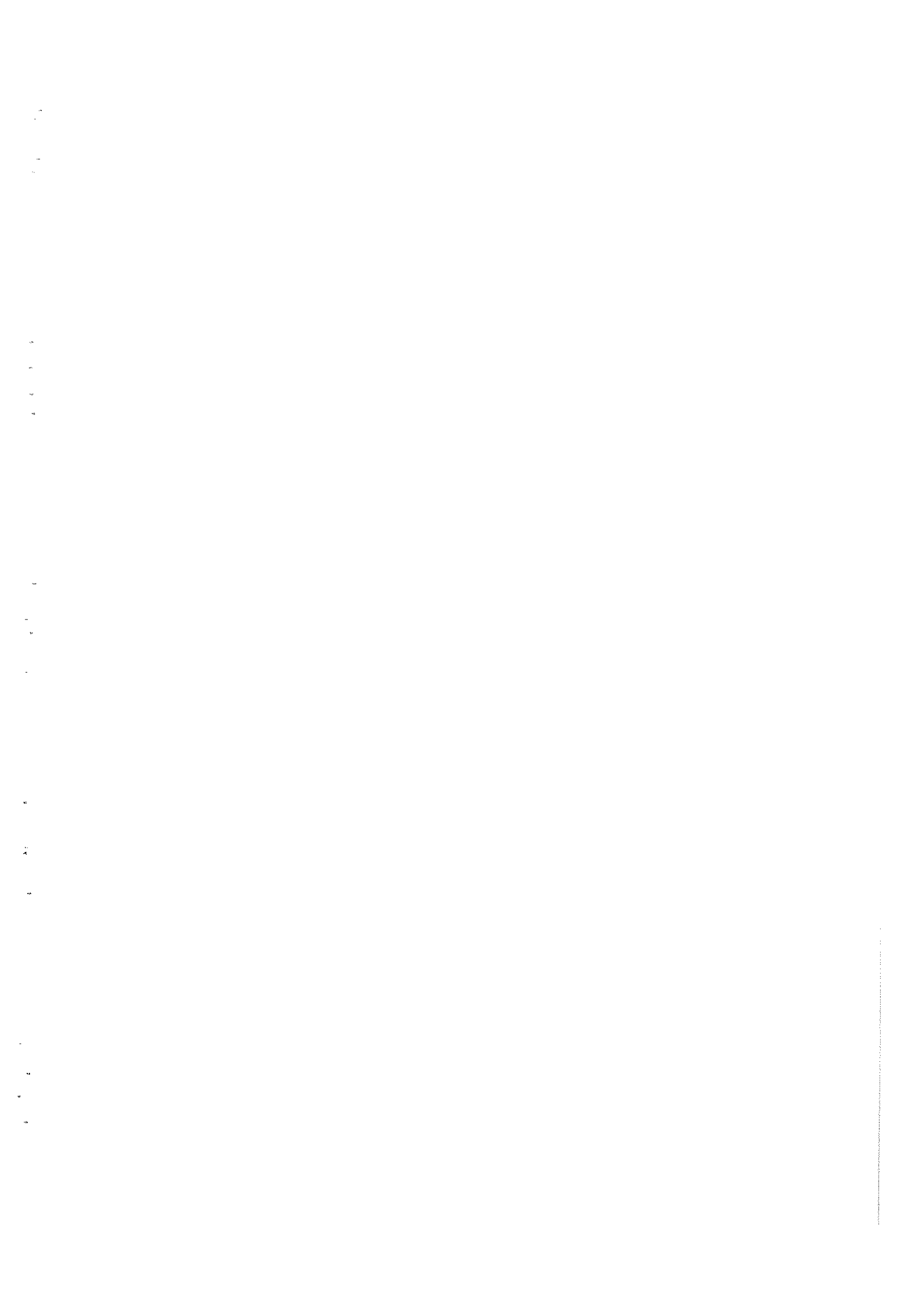
Flowering: July to November.

Lipocarpus sphacelata (Vahl.) Kunth

Annual, stem 10-40cm. Leaves shorter than stem. Bracts spreading, inflorescence lobes 2-5. Stamens 2, stigma 3. Nut ellipsoid, beaked.

Common in plains, grassland, open areas. Distributed in India, Central America eastward to Thailand.

Flowering: September to November.



DIOSCOREACEAE

Dioscorea bulbifera L.

Perennial dioecious climber with tuberous root stock. Leaves cordate. Bulbils common in leaf axils. Male spikes in slender axillary panicles. Perianth lobes linear, stamens 6, capsule quadrately oblong. Seeds winged at base.

Rare in the deciduous forest and cultivated for edible tubers elsewhere. Native of old-world tropics. Fru and Fru September-December.

Dioscorea hispida Dennstedt, Schluss

Perennial herb. Roots tuberous. Stem twining to left and hirsute. Leaves 3-foliate. Leaflets obovate, pubescent, venation subpalmate. Male spikes solitary or clustered on pubescent rachis, petals white. Stamens 6. Female flowers we have not seen.

Rare in deciduous forest. Native of Indomalayan region.

Fru September

Dioscorea oppositifolia L.

Perennial climbers. Rhizome branched. Stem twining to right. Leaves opposite and alternate, very variable in shape, ovate-orbicular, acuminate, acute at base, 5-ribbed, male spikes brownish pubescent. Perianth lobes white. Stamens 6, female raceme solitary. Capsule obovoid.

Occasional in the deciduous forest. Valued as a source of food by tribal (rhizomes). Native of India and

Sri Lanka.

Fru and Fru July-January.

Dioscorea pentaphylla L.

Perennial climber. Stems twining to left. leaves 3-5 foliate. Bulbils sometimes present in the leaf axils. Male spikes in axillary or terminal panicles. Female spikes paired. Perianth lobes white. Stamens 3. Fruit a capsule.

Seeds winged at base.

Frequent in moist and semi-evergreen patches in the sanctuary. Native of old-world tropics.

Fru and Fru July-January.

Dioscorea tomentosa J. Koenig ex Sprengel

Perennial climber. Branchlets twining to left. Leaves 3-5 foliate, ovate-broadly, elliptic-lanceolate; laterals oblique at base. Spikes axillary or terminal. Perianth lobes 3+3, stamens 3; staminodes 3. Perianth lobes

ovate. Capsule oblong.

Occasional along the border of deciduous forest. Native of India and Sri Lanka.

Fis. and Fru. July - October

DIPTEROCARPACEAE

Shorea roxburghii G. Don

A large evergreen resiniferous tree. Bark grey with fissures. Leaves alternate, coriaceous and elliptic-oblong. Inflorescence axillary, paniculate. Petals white, hairy outside and fragrant. Fruit is nut-like enclosed in accrescent calyx.

Common tree in deciduous forest and some times gregarious. Native of Indian peninsula
Fis. Dec.-Feb., Fru. Mar.-Apr.

EBENACEAE

Diospyros assimilis Bedd

A large evergreen tree. Bark black and cracked. Leaves alternate, oblong, bright green and chartaceous. Flowers male clustered, pale yellow and many stamens. Female solitary and large. Fruit is a globose berry. Frequently seen along river bank in the sanctuary. Native of Indian peninsula.

Fis. Feb.-Apr., Fru. July-Aug.

Diospyros ebenum Koenig

A large evergreen tree with dark grey bark with fine vertical cracks. Flowers yellow. Male flowers in cluster, female solitary. Fruit is a berry seated on a ring at base.

Occasional along moyar river bank. Native of peninsular India and Srilanka

Fis. Mar., Fru. Jan

Diospyros malabarica (Desrousseaux) Kostelecky

A much branched tree and bark black with greenish tinge. Leaves alternate, oblong and coriaceous. Inflorescence is a cyme. Flowers are pale yellow, fragrant. Fruit globose, yellowish-red when ripe with accrescent calyx. Pulp of the fruit is black when mature.

Occasional along moyar river bank. Native of India and Srilanka
Fis. June-Aug., Fru. Apr.-May

Erythroxylum monogynum Roxb.
A small tree or large shrub. Leaves alternate, sometimes fasciated, obovate and glaucous beneath. Flowers solitary or fascicles. Petals white. Stamens monadelphous. Fruit is a drupe with one seed and bright red when ripe. Common in scrub jungles. Native of Indian peninsula.
Fls. & Fru. Throughout the year.

ERYTHROXYLACEAE

Eriocaulon quinqueangulare L.
A robust marshy herb. Leaves linear, reddish to pink. Head globose, white, involucral bract obovate, glabrous. Floral bracts hyaline, obovate-cuneate. Male: Calyx spathaceous, 3-partite. Petals subequal, ciliate. Female: Sepals 3. Petals 3, subequal, pilose. Seed oblong-ellipsoid, brown.
Frequent in the marshy areas, wet rocks. Native of India, Myanmar and Sri Lanka.
Fls. and Fru. November-January.

ERIOCAULACEAE

Elaeocarpus tuberculatus Roxb.
A large buttressed evergreen tree. Leaves clustered at the tips, obovate and glabrous. Flowers in racemes at the axils of fallen leaves just below the terminal leaves. Flowers are white and fragrant. Petals hairy outside. Fruits are drupe, stone compressed, tuberculate.
Frequent along the water courses in the wetter parts of the sanctuary.
Fls. Dec-Jan, Fru. July-Aug.

ELAEOCARPACEAE

Diospyros montana Roxb.
A medium sized deciduous tree. Bark greyish exfoliating in small scales. Leaves simple, alternate, ovate and dark green. Hairy when young and glabrous when mature. Flowers are pale green in axillary clusters. Female flowers solitary. Fruits are yellowish-red when ripe with persistent calyx.
Frequent in the deciduous and scrub forest. Native of Indomalayan region.
Fls. Apr-May, Fru. Aug-Nov.

EUPHORBIACEAE

Acalypha fruticosa Forsk.

Gregarious, monoecious bushy shrub. Leaves ovate and acuminate. Inflorescence a spike. Male flowers at the upper portion and female flowers at the lower portion. Tepals hairy and glandular outside. Fruit a capsule of 3 bivalved cocci.

An aggressive coloniser in scrub jungle. Native of African tropics.

Fls. and Fru. July-December.

Acalypha indica L.

A monoecious subshrub. Leaves broadly ovate. Flowers in axillary spikes. Male flowers at the upper portion and all of them are allomorphic, long stalked, with two narrow tubular whorls. Female flowers below. Fruit a bivalved cocci.

Common in dry and waste lands of the sanctuary. Native of old-world tropics.

Fls. and Fru. July-December.

Acalypha malabarica Muell.

A stout leafy somewhat flaccid branched annual. Stem pubescent. Leaves rather rigid, elliptic or elliptic lanceolate, subacute, subserrate, 5 nerved. Flowers in axillary androgynous spikes $\frac{1}{2}$ inch long. The male flowers few, terminal, minute and the female flowers numerous. Capsule nearly glabrous.

Fairly common in scrub and waste places. Native of Indian peninsula.

Fls. and Fru. August-November.

Acalypha racemosa Bailion

A slender herb. Leaves broadly ovate. Inflorescence male flowers in slender spike usually terminating with sterile female flowers. Female flowers in panicles. Fruit a capsule of 3-bivalved cocci.

Frequently seen in moist places and in wastelands. Native of old-world tropics.

Fls. and Fru. January - December.

Antidesma dianthrum Roth.

A small deciduous tree or shrub with low spreading branches. Leaves simple, alternate and obovate. Leaves are sour. Flowers in slender catkin-like spikes, greenish-yellow. Fruits are drupes and edible. Seeds small.

Occasional shrubs in the understorey of deciduous forest. Native of Indomalayan region.

Fls. May-June, Fru. Dec-Jan.

Drypetes roxburghii (Wall.) Airy Shaw
A moderate sized evergreen tree. Branches generally hanging. Leaves lanceolate. Flowers dioecious, small.

Fls. Apr-May, Fru. Oct-Dec.

Often gregarious, in drier parts of the sanctuary. Native of India and Burma. or in fascicles at the axils. Flowers small and pale yellow. Fruit is a capsule.

Croton oblongifolius Roxb.
A small tree. Young shoots with silvery scales. Leaves crowded at tips and alternate. Flowers either solitary.

Flowering: October-November.

Abundant in waste places. Weed from temperate region naturalised elsewhere.

lamina. Racemes 8-15cm. Tepals 10 inch male and 5 in female. Capsule of 3, bivalved cocci.

Croton bonplendianus Bailon
Monoecious subshrub. Branches white warty. Leaves alternate, ovate-lanceolate, 2 glandular at the base of

Fls. June-Sept, Fru. Nov-Jan.

Common in deciduous forest. Native of Indian peninsula.

Fruits are small, purplish when ripe.

Medium sized tree. Bark grey or brown. Leaves simple, alternate or subopposite with prominent parallel secondary nerves. Flowers dioecious, in the axils. They are small and yellow. Disc reddish. Fruit a globose

Bridelia retusa Roxb.

Fls. Feb-Mar, Fru. Oct-Jan.

Occasional trees in deciduous forest usually along streams. Native of Indoamalyan region.

berry, brown when ripe.

3-foliate. Flowers dioecious and in panicles. Flowers minute, perianth lobes white or greenish. Fruit a globose. A large evergreen tree. Bark brown and exfoliating in older trees. Exudes red juice when cut. Leaves alternate,

Bischofia javanica Bl.

Fls. Apr-June, Fru. Dec.

Native of peninsula probably endemic.

the sanctuary in wetter parts and along water courses.

A small deciduous tree. Twigs pubescent. Leaves oblong, shining green. Stipules large. Flowers in catkin-like spikes. Flowers dioecious, yellow. Petals 0, disk fleshy. Fruit is a red drupe and one seeded. Rarely seen in

Antidesma menasu Miq. ex Tul.

yellow and dense around branchlets. Fruit is a drupe, glaucous turning yellow and ellipsoid.

Frequent along mojar bank. Native of Indomalayan region.

Fis. Apr-May, Fru Oct-Dec

***Embilca officinalis* Gaertn**

A medium sized tree. Bark grey exfoliating in regular flakes. Leaves compound with small leaflets. Leaflets acute, overlapping on branchlets. Flowers in axillary clusters. Uni-sexual. Fruit fleshy, yellowish, acidic.

It is a characteristic tree of disturbed area, common understory tree of a deciduous forest. Native of

Indomalayan region. An important NTFP species

Fis Feb-Mar, Fru Nov-Dec

***Euphorbia cristata* Heyne ex Roth**

A procumbent herb. Leaves opposite, reddish, broadly ovate-oblong. Flowers congregated in cyathia which

is either terminal or axillary. Fruit is a capsule and pubescent. Seeds white, 4-angled and prominently furrowed.

Frequent in open places, exposed rocks and among grasses. Distributed in India and Sri Lanka.

Fis and Fru. December - April

***Euphorbia hirta* L.**

Hispid herb. Stem reddish brown with milky latex. Leaves broadly oblong to elliptic-lanceolate, 3 nerved, entire,

slightly oblique. Cyathia aggregated in single or paired, axillary clusters. Involucre campanulate, glands 5,

minute, red. Male florets 4-6, ebracteolate, capsule pubescent, seeds 4 angled

An aggressive herb on the wastelands, scrub forest floor. Pantropical in distribution.

Fis and Fru. January - December

***Euphorbia hypericifolia* Linn**

Hispid and erect or spreading herb. Leaves opposite decussate, elliptic-oblong, obtuse, serrulate, base

rounded, usually unequal sided, 3 nerved. Involucres in axillary and terminal usually pendunculate and many

flowered cymes, limb of gland usually white. Capsules subglobose, hairy, seeds 4 angled, minutely furrowed.

A weed in waste places. It is a pantropical weed

Fis and Fru. January - December

***Euphorbia nivulia* Buch-Ham**

Tall armed succulent tree, with many close branches forming a hemispherical crown. Bark deeply fissured.

Spines paired. Leaves caducous, obovate, fleshy. Cyathia usually paired, in lax cymes. Involucre cupular

Glands 5, oblong. Seeds angular, smooth

Found in rocky areas or sometimes along the hedges. Distributed in India, Burma.

Fis. and Fru. January - July.

Euphorbia rosemeriana

Givotia rotteriformis Griff.
A moderate sized tree confined to the drier parts. Branchlets, inflorescence and under side of the leaves are conspicuously white tomentose. Flowers in axillary cymes, small. Fruit a drupe, globose.
Common tree in scrub jungle. Characteristic in its appearance. Native of Peninsula and Srilanka.
Fis. Apr.-July, Fru. Dec.-Feb.

Glochidion velutinum Wt.

A small tomentose tree. Branchlets zig-zag. Leaves elliptic-lanceolate, hairy along nerves on above and densely below. Female flowers in axillary fascicles, male flowers in long slender branches. Fruit a capsule, deeply lobed.

Occasional tree in moist area and bogs in the sanctuary. Native of Indo-malayan region.
Fis. Feb.-Apr., Fru. June-Aug.

Glochidion zeylanicum A. Juss.

Small tree. Leaves broadly oblong. Flowers yellow in axillary clusters. Fruit a capsule.
Usually in moist places or along streams. Native of Indomalayan region. Fis. & Fru. Feb.-May.

Homonolia riparia Lour.

An evergreen shrub or small tree. Leaves linear-lanceolate. Spikes axillary. Flowers dioecious and subsessile. Fruit is a subglobose capsule of 3 bivalved cocci.

Found along Moyar river bank as a didcrete clumps. Native of Indomalayan region.
Fis. and Fru. Feb.-May.

Jatropa heterophylla Heyne

A small glabrous shrub with a tuberous root stock. Leaves without glands, 3-lobed to below the middle, sometimes simple, or sometimes 5-lobed, lobes long and narrow. Stipules capillary. Flowers monoecious, in terminal cymes. Calyx 5. Petals greenish coloured, free. Capsule often pustulate.
Common on dry stony region. Native of Indian peninsula.

Fis. and Fru. January - December.

Kirganelia reticulata (Poir.) Bailion

A straggling shrub with pubescent slender branches. Leaves small, elliptic-orbicular, thin, glabrescent.

Phyllanthus maderaspatensis L
Annual herb with glabrous decumbent stems. Leaves obovate, glabrous, cuneate based. Stipules peltate, lanceolate. Flowers axillary, solitary. Perianth lobes 6, obovate, obtuse, green with white margins. Stamens 3. Styles 3, distinct. Capsule smooth.

Fis and Fru. January - December
Common in waste places, fallow lands and along roadsides. Pan-tropical in distribution.
parallel ribs on the back.
of male minute glands; of female annular, lobed. Capsule depressed, globose, smooth, with longitudinal yellowish, numerous, axillary. Tepals 5, ovate, rounded. Stamens 3, anthers sessile on a short column. Disc A glabrous herb. Leaves numerous, subsessile, distichous, elliptic to obovate, obtuse. Flowers small, pale.

Phyllanthus amarus Schum & Thonn.
Fis & Fru. Aug-Nov.
Frequent in moist deciduous forest. Native of India and Burma.
smooth

Mallotus tetraococcus (Roxb) Kurz
Medium sized tree. Young branches densely grey or tawny tomentose. Leaves large with long petiole and palmately lobed, drying brown beneath. Flowers yellow in pubescent spikes. Fruit a capsule. Seeds black and

Fis. Aug-Sept, Fru. Jan-Mar
Indomalayan region.
Frequent in moist areas of deciduous forest and also along stream banks. Has wide distribution in
cymes. Fruit a capsule, lobed, crimson coloured.
A small evergreen tree. Young branches rusty tomentose. Leaves prominently trinerved. Flowers in brick red
Mallotus philippensis Muell-Arg.

Fis & Fru. May-Oct
Occasional tree along river bank. Native of peninsular India.
Stamens many, pistillate flowers remote. Fruit a capsule, covered with many echinate process.
A small tree. Leaves opposite decussate. Leaf blade large, pinnately veined. Flowers dioecious, pale green.
Mallotus intermidus (Ballon) Balak

Fis and Fru. September - April
Common in scrub jungle. It has wide distribution in old world tropics.
Inflorescence of axillary fascicles. Disc present, fleshy with large glands. Fruit is a capsule

Common in moist open places, fallow fields. Distributed in India, Tropical Africa, Sri Lanka, Malasia, Australia. Frs. and Fru. January - December.

Phyllanthus pinnatus (Wight) Webster

A subshrub. Branchlets glaucous. Leaves pinnately arranged on slender branches. Flowers small; male flowers in dense axillary fascicles, female flowers on long pedicels. Disk present and flattened. Fruit a 3-celled papery capsule.

It is more a gregarious plant in open scrub jungles. Native of Indian peninsula. Frs. and Fru. January - December.

Phyllanthus rheedii Wt.

A slender branching erect herb. Leaves alternate, glabrous, elliptic or ovate and acute. Flowers monoecious, male flowers in clusters and minute. Female flowers solitary. Fruit a capsule with thin bi-valved cocci. Frequent in the undergrowth of a forest. Native of Indian peninsula. Frs. and Fru. January - December.

Phyllanthus simplex Retz.

A glabrous herb or an undershrub. Branches compressed. Leaves distichous, numerous, subsessile, often overlapping, linear-oblong, obtuse, apiculate, often reddish. Flowers usually solitary, on slender axillary pedicels, the female larger than the male. Tepals 6, oblong, obtuse, stamens 3, distinct, anthers subsessile, dehiscence transverse, capsule globose, slightly 3 lobed, crustaceous, slightly rough with minute prominences.

Frequent along roadside and in the undergrowth of deciduous forest. Native of Indomalayan region. Frs. and Fru. June - December.

Tragia involucrata L.

A slender climber with densely stinging hairs. Leaves simple, alternate and elliptic. Flowers monoecious, in axillary slender spikes. Stamens 3, free. Fruit is a capsule.

Frequent in the undergrowth of a deciduous forest. Native of Indomalayan region. Frs. and Fru. January - December.

Trewia nudiflora L.

A dioecious deciduous tree. Leaves mostly opposite, cordate and palmately veined. Flowers in racemose panicle. Males in larger panicles and female flowers in more compact panicles. Fruit is ellipsoid to round drupe with dry epicarp.

Occasional in wet deciduous forest. Native of Indomalayan region.

Fis. Feb-Mar, Fru. June-July

FABACEAE

Acacia auriculiformis A. Cunn. ex Benth.

An introduced plant with adaptation to xeric condition. Seen only in cultivation. Extensively planted under social forestry plantations.

Native of Australia.

Fis. Feb-Mar, Fru. Apr-June

Acacia chundra (Rottler) Willd.

Moderate sized tree. Branches with red curved prickles. Leaves alternate and pinnately compound, glands present on the rachis. Flowers small, pale yellow in terminal spikes. Pods dark brown.

Common in drier parts and an association species of thorn scrub forest. Native of Indomalayan region.

Fis. May-Oct, Fru. Feb-Mar.

Acacia ferruginea DC.

Moderate sized tree. Prickles few & small. Bark thick, fissured. Leaves pinnately compound, many small leaflets. Glands present at the middle of the rachis. Flowers small, yellow, in spikes. Fruit a pod dehiscent.

Frequent tree in thorn scrub forest. Native of Indian peninsula and Sri Lanka. Tree is considered to be sacred.

Fis. Aug-Sept, Fru. Dec-Feb.

Acacia leucophloea (Roxb.) Willd.

A large sized tree, armed. Bark yellow to brown. Leaves alternate or clustered, pinnately compound. Gland present on the rachis. Flowers in terminal globose panicles. Petals cream to yellow. Pod brown, densely hairy.

Frequent tree in scrub jungles. Native of Indomalayan region.

Fis. Aug-Nov, Fru. Dec-Jan.

Acacia pennata (L.) Willd.

A glabrescent, prickly woody climber. Leaves compound, large and has glands both on the middle of petiole and on the rachis at upper 1-3 pairs of pinnae. Inflorescence is panicle of heads. Petals white. Fruit is a pod, flat and stalked.

Common in the thorn scrub jungle. Native of oldworld tropics. Much preferred by elephants.

Fis. April - September. Fru. August-September.

- Acacia polycantha** Willd
A moderate sized tree. Bark white peeling off in small papery flakes. Leaves compound with cup shaped gland above the base. Flowers white or creamish in terminal spikes. Pods thick
Gregariously seen along stream courses and water logged areas. Native of peninsula
Fls. Apr-May, Fru. Dec-Jan
- Albizia amara** (Roxb.) Boivin
A medium sized tree. Young parts are pubescent. Leaves pinnately compound, glands present. Flowers in globose heads. Heads few to fascicles. Petals creamish-white and fragrant. Fruit a pod greyish-brown, thin
Frequent tree in thorn scrub jungle. Native of old world tropics
Fls. Apr-Aug, Fru. Nov-Jan
- Albizia lebbeck** (L.) Bentham
Large deciduous tree. Bark with irregular cracks, brittle. Leaves pinnately compound with pinnae usually two pairs. Glands present. Leaflets large. Flowers in aggregated into heads in corymbose racemes. Corolla white. Pod thin straw coloured. Occasional in drier areas of the sanctuary and often cultivated as timber tree. Native of old world tropics
Fls. Mar-Apr, Fru. Sept-Oct
- Albizia odoratissima** (L.f.) Bentham
Large deciduous tree. Bark yellowish-grey, irregularly cracked. Leaves pinnately compound with glands both on rachis and petiole. Flowers in globose heads forming panicles. Panicles large and downy. Petals white. Fruit a flat brown pod
Occasional in thorn scrub forest and in deciduous forest. Native of Indomalayan region
Fls. Mar-June, Fru. Sept-Dec
- Alysicarpus bupleuroides** (L.) DC
Prostrate herb. Leaves 1-foliate. Upper leaves linear-oblong. Lower leaves elliptic. Flowers in racemose inflorescences, upto 10cm. Calyx lobes imbricate in fruit. Corolla pink to violetish. Pod subterete, glabrous, 1cm, slightly moniliform, joints 4-6
Frequent in shady places and moist places, grassy patch. Native of Indomalayan region
Fls. and Fru.: July to December
- Alysicarpus monilifer** (L.) DC
Prostrate herb. Leaves oblong, obtuse. Racemes 2-4 cm. Calyx lobes ciliate, valvate in fruit. Corolla pink. Pod moniliform, 1 cm long, joints 4-5, subglobose, with hooked hairs.

Crotalaria calycina Schrank
An erect hairy herbs. Leaves variable. Flowers yellow in terminal lax racemes. Calyx densely hairy, corolla yellow. Fruit is a pod with many seeds.

Cassia siamea Lam
Medium sized tree. Cultivated. Flowers yellow, showy in terminal panicles. Fruit a pod long flat. Introduced from South-east Asia. Fis. Feb-Mar, Fru. July-Feb.

Cassia fistula L.
A small deciduous tree. Branches glabrous. Bark creamish with black or brown flakes. Leaves compound and has no glands. Flowers large showy, yellow in long drooping racemes. Fruits long cylindrical and indehiscent. Common in the understorey of deciduous forest. Native of Indomalayan region. Fis. Feb-Apr, Fru. July-Feb.

Butea monosperma (Lam.) Taubert.
Medium sized deciduous tree. Tree exudes red gum when cut. Leaves trifoliately compound and hairy. Flowers orange-red, showy on densely fasciated cymes. Fruit a pod. Frequent in the deciduous and dry thorn forest of the sanctuary. Native of Indomalayan region. Fis. Feb-Mar, Fru. Apr-May.

Bauhinia racemosa Lam.
A small deciduous tree with wide spreading branches. Bark rough and black. Leaves slightly cordate, broader than long. Flowers in lax terminal, leaf-opposed racemes. Petals white. Fruit a pod, long and rigid. Frequent tree in deciduous forest and scrub forest of the sanctuary. Native of Indomalayan region and China. Fis. Mar-Apr, Fru. Nov-Jan.

Bauhinia malabarica Roxb.
Medium sized tree. Bark dark brown. Leaves slightly cordate, glabrous, broader than long. Flowers in axillary sessile racemes. Petals spatulate and cream coloured. Fruit a long pod and beaked. Occasional in deciduous forest. Has distribution in India and Burma. Fis. Aug-Oct, Fru. Mar-Apr.

Common on rocky places, open areas. Distributed in India, Burma, central east Africa. Flowering: August to October.

Seen commonly in the open areas and in scrub habitat. Distributed in old world tropics.
Fls and Fru. All seasons.

Crotalaria dubia Grah.

Annual herb. Stems and branches covered with appressed silky hairs. Leaves membranous, obovate, sub-acute, mucronate, densely silky beneath. Stipules minute, setaceous. Flowers in dense, silky-villos, terminal heads. Bract and bracteoles ovate-lanceolate. Calyx densely silky outside. Corolla as long as calyx. Pods sessile, as long as calyx, glabrous, oblong. Seeds 6-8, pale brown.

Common near moist places, river banks

Distributed throughout India

Flowering: November to December

Crotalaria evolvioides Wight ex Wight & Arnott

A prostrate annual herb with long root stock. Leaves variable and hairy beneath. Flowers in racemes of one or two. Petals yellow and slightly exerted. Fruit is a pod and hairy.

Occasionally seen in scrub and dry places. Native of South India and Sri Lanka

Fls and Fru. September - January.

Crotalaria juncea L.

Erect, stiff and shining undershrubs. Stems and branches furrowed. Leaves compound. Flowers in axillary or terminal racemes. Petals yellow and exerted. Pod velvety and many seeded.

Often cultivated for fodder and fibre, seen also in wild as an escape. Native of India and Southeast Asia

Fls and Fru. October-May

Crotalaria medicaginea Lam.

Prostrate, much branched herb. Leaves trifoliate. Flowers 2-3, in terminal racemes. Petals yellow. Fruit is a hairy pod and 2 seeded.

Rare plant seen in open areas. Native of India and South East Asia.

Fls and Fru. October-January.

Crotalaria mysorensis Roth

Erect herb. Leaves simple, oblong. Racemes to 15 cm. Corolla slightly exerted, yellow. Ovary stipitate, glabrous. Pod oblong, terete, twice as long as calyx, black when matured.

Common in moist places, fields.

Distributed in South East Asia, Malaysia.

- Crotalaria pallida* Aiton**
 Glabrescent undershrubs. Leaves trifoliate. Leaflets petiolate, elliptic, acute, minutely pubescent beneath, membranous. Racemes many flowered. Calyx to 1 cm long. Corolla twice as long as calyx, exserted, yellow, glabrous. Pod oblong, glabrescent, much exceeding the calyx.
 Common in plains. Introduced.
 Distributed in Central and Tropical America, introduced in tropical Africa, Asia, Malasia, Queensland.
 Flowering: September to April.
- Crotalaria prostrata* Rottl.**
 A small suberect herb. Branches hairy. Leaves compound. Flowers in leaf-opposed racemes. Petals yellow. Fruit is a pod, exserted and has 20 seeds.
 Fairly commonly seen among grasses in deciduous forests. Native of India and Java.
 Fls. and Fru. October-April.
- Crotalaria retusa* L.**
 Erect herbs with simple leaves. Branches furrowed and white pubescent. Flowers in terminal racemes. Petals yellow. Fruit is a pod, exserted and glabrous.
 Frequently seen in dry deciduous, scrub and waste places. Has a distribution in tropics.
 Fls. and Fru. All seasons.
- Crotalaria spectabilis* Roth**
 Erect undershrubs with branches glabrous. Flowers in racemes with foliaceous bracts. Petals yellow and exserted. Fruit is a pod, glabrous and many seeded.
 Commonly seen in moist and dry deciduous forest. Native of peninsular India.
 Fls. and Fru. November-December.
- Crotalaria verrucosa* L.**
 Subshrub with acutely angled stems. Leaves simple, ovate-rhomboid, nerves prominent. Stipules large, semilunate, foliaceous, persistent. Racemes terminal or lateral. Calyx membranous. Corolla twice as long as calyx, bluish purple and white. Pod oblong, densely villous when young, exceeding the calyx.
 Common in plains, roadside, open places. Distributed in India, Tropical Africa, Sri Lanka, China, Tropical America.
 Flowering: October to November.
- Crotalaria walkeri* Arn.**
 Glabrescent undershrub. Leaves simple, subsessile. Stipules semilunate. Calyx 1 cm. Corolla exserted. Pod

pubescent Common in moist shady places
Distributed in South West India
Flowering: June to October

Crotalaria willdenoviana DC

A subshrub Leaves trifoliate Flowers in racemes and yellow. Fruit is a pod and pubescent
Frequently seen in waste places, stream banks and scrub. Native of peninsular India
Fis. and Fru. November-March.

Dalbergia lanceolaria L.f.

A medium sized deciduous tree. Occasional. Leaves compound. Flowers in dense panicles, white with mild
fragrance. Fruit a pod with 1-2 seeds. Seen in drier parts
Fis. Mar-Apr, Fru. Oct-Jan

Dalbergia latifolia Roxb

A large deciduous tree. Crown dense and spreading. Bark deep brownish. Leaves compound. Flowers white,
in dense panicles. Fruits a pod. Wood is highly priced timber
Frequent tree in the deciduous forest and along the river Moyar. Native of Indiomalayan region.
Fis. Jan-Mar, Fru. Nov-Jan

Dalbergia paniculata Roxb

A medium sized tree. Bark is greyish white. Leaves compound and glabrescent. Flowers bluish-white, in
terminal panicles. Fruit a pod.
Occasional. Mostly seen in drier parts of the sanctuary. Native of Indian peninsula
Fis. Mar-Apr, Fru. Oct-Jan

Delonix regia (W. Hooker.) Raf

A medium sized tree. Crown spreading. Leaves compound. Flowers orange-red and showy. Fruit a long pod
Seen only in cultivation.
Fis. Mar-Apr, Fru. Aug-Mar.

Dichrostachys cinerea (L.) Wt. & Arn.

A small thorny tree or shrub. Leaves small, compound with glands between pinnae. Flowers in cylindrical
spikes, lower pink or purple and upper yellow. Pod is indehiscent
Frequent. Seen only in drier parts of the sanctuary. Has a wide distribution in old-world tropics.
Fis. June-Nov, Fru. Different parts of the year.

Desmodium pulchellum (L.) Bentham
 Undershrubs. Leaves trifoliolate and tomentose beneath. Flowers small hidden in a orbicular bracts on long racemes. Petals yellow. Fruit is a pod with 1-3 round and reticulate joints.
 Common in the undergrowth of deciduous forest. Has a wide distribution in China, India and South-East Asia.
 Fls. and Fru. August - December.

Desmodium motorium (Houtt.) Merrill
 Erect herbs. Leaves trifoliolate. Terminal leaflet ovate-oblong, obtuse. Lateral leaves small, often showing slow movement laterally. Flowers solitary in the axil of the bract. Corolla pink. Pod oblong, pubescent, joints not separating.
 Occasional. Found in moist shady places. Indomalaysian in distribution.
 Fls. and Fru.: October to December.

Desmodium laxiflorum DC.
 Undershrubs with quadrangular and hairy branches. Leaves trifoliolate and silky pubescent. Flowers in long racemes with 4-5 flowers clustered in a bract. Petals blue. Calyx hairy. Fruit is a pod, linear and reticulate.
 Frequently seen in shaded areas in a deciduous forest. Native of India and South-East Asia.
 Fls. and Fru. September - December.

Desmodium heterocarpon (L.) DC.
 Scandent undershrubs. Leaves trifoliolate. Branches hairy. Flowers in cone like racemes. Flowers blue. Fruit is a pod, linear with 6-8 reticulate joints.
 Frequently seen in open in deciduous forest. Has wide distribution in old tropics.
 Fls. and Fru. September - January.

Desmodium ferrugineum Wallich ex Thwaites
 A medium shrub to 4-5 meters. Leaves trifoliolate. Flowers in racemes, corolla purple to mauve. Fruit is a pod with articles 5-8 and pubescent.
 Seen along the borders of moist forest and along stream bank. Native of Peninsular and Sri Lanka.
 Fls. and Fru. January - April.

Desmodium alysicarpoides van Meeuwen
 An erect sparsely pubescent herb. Leaves 1 or 3 foliate. Flowers many in lax racemes, petals pink. Fruit is a pod and linear.
 Commonly seen among the grasses in deciduous forest. Native of India and South-east Asia.
 Fls. and Fru. September - January.

Desmodium trianguolare (Retz) Merrill var gongestum (Wight and Arn.)

An erect undershrub with triquetrous stem. Leaves trifoliate. Leaflets elliptic-oblong, acuminate, shining above, silky beneath. Flowers in crowded dense axillary, sessile umbel. Calyx campanulate, densely silky. Corolla creamy white. Pods oblong, slightly curved, indented on both sutures, joints 3-6, slightly pubescent. Found in undergrowth of a deciduous forest. Distributed throughout in India, Sri Lanka, China. Fls. and Fru : September to July.

Desmodium triflorum (L.) DC

Wiry, spreading herb. Has roots on basal nodes. Leaves trifoliate and hairy beneath. Flowers small in clusters. Petals bluish-purple. Fruit is a pod and linear. Commonly seen in undergrowth of deciduous forest. Has a wide distribution in tropics. Fls. and Fru. September - December.

Desmodium triquetrum (L.) DC

A large undershrub, branches triquetrous and pubescent. Leaf one foliate with winged petiole. Racemes long, 50 - 80 flowered. Petals bluish - purple. Fruit is a pubescent pod with 5 - 8 squarish joints.

Commonly seen in the shade of a deciduous forest. Has wide distribution in India, China and South-East Asia.

Fls. and Fru. September - February.

Desmodium velutinum (Willd.) DC.

Erect undershrub with terete spreading branches. Leaves 1-foliate, ovate, obtuse, densely ciliate with fulvous hairs, cordate based. Flowers in panicles. Calyx 4-lobed, densely hairy. Corolla rose coloured. Pod straight, slightly on the upper, more deeply on the lower suture, joints 4-6, densely clothed with hooked hairs.

Found in the moist places, forest under cover. Distributed in India, Sri Lanka, Africa, East and South East Asia, Malasia.

Fls. and Fru : July to September.

Dichrostachys cinerea Wight and Arn.

A much branched thorny small tree with light coloured furrowed bark. Branchlets ending in spines. Leaves 2-pinnate. Main rachis softly pubescent, with a small erect gland in between each pair of pinnae. Leaflets minute, sessile, linear, oblique, subacute. Flowers numerous, crowded in dense axillary spikes. The upper half of the spike yellow, the lower half pink coloured. Calyx membranous. Corolla 5-lobed, pink coloured. Pod linear, flat, to 4 cm, coiled, indehiscent.

Found in the scrub jungles, rocky places. Distributed in India, Sri Lanka, Malay Island, North Australia. Fls. and Fru : October to February.

- Dunbaria ferruginea** Wight and Arn.
A twining herb. Leaves trifoliate. Terminal leaflet ovate-rhomboid. Lateral leaflets ovate. Inflorescence axillary peduncled raceme. Corolla more or less exserted, yellow coloured, standard orbicular, auricled at base, wings obliquely obovate. Pod oblong, compressed, apically beaked.
Common in thickets and disturbed forests. Distributed in Peninsula, Sri Lanka
Fls and Fru : November – April.
- Erythrina variegata** L. Var **Oreintalis** (L.) Merrill.
Large sized deciduous tree. Bark armed with prickles. Leaves tri-foliate, glabrescent, ovate-rhomboid and acute. Flowers Red and showy. Fruit a long pod.
Occasional in the deciduous forest. Native of tropics.
Fls. Jan-Apr, Fru July-Aug.
- Flemingia macrophylla** (Willd) Prain ex Merrill.
Undershrubs. Leaves trifoliate, elliptic-lanceolate and gland dotted. Flowers on a congested, hairy racemes. Petals purplish-yellow. Fruit is a pod, pubescent and glandular. 2 seeds.
Seen frequently in cleared places in a deciduous forest. Native of India and South-East Asia
Fls. and Fru. January - April.
- Flemingia strobilifera** (L.) Brown.
Shrubs. Leaves one foliate, ovate-lanceolate. Flowers small on either simple or branched racemes with zig-zag axis. Petals exserted and white. Fruit is a pod of 2 seeds.
Frequently seen in clearings in a deciduous forest. Native of India and South-East Asia
Fls and Fru. November - March.
- Gilircidia sepium** (Jacq) Kunth ex Walp.
A small deciduous shrub. Leaves compound. Flowers whitish-pink in axillary racemes. Fruit a pod, thick and indehiscent. Leaves used as green manure.
Often cultivated as hedge plant. Introduced from Central America.
Fls Feb-Apr, Fru. Apr-May.
- Glycine wightii** (Wight and Arn) Verdcourt.
Climbing pubescent herb. Leaves trifoliate. Terminal leaflet slightly larger than the lateral, broadly ovate. Lateral lobes ovate, oblique. Flowers in axillary racemes. Calyx densely silky, teeth longer than the tube. Corolla white. Pod linear, hairy, compressed.
Frequently seen in the undergrowth of a deciduous forest. Distributed in India, Sri Lanka, Tropical Africa.

Indigofera spicata Forskal.

Erect or straggling herb. Leaves odd-pinnate with minute leaflets. Flowers many on racemose inflorescence.

Fls and Fru: September – January.

Common in wastelands and moist places. Distributed in India, Africa, North Australia

curved at the tip.

Annual shrub with slender, grooved stem. Leaves odd-pinnate. Leaflets 3 pairs, linear-oblong. Flowers in short, 3-6 flowered raceme. Calyx hairy, teeth longer than the tube. Corolla pink. Pod linear, pubescent,

Indigofera parviflora Heyne ex Wight and Arn

Fls and Fru: July - September.

Common in the undergrowth of a dry deciduous forest. Distributed in peninsular India

subcylindrical and villous with 2-4 seeds

Erect undershrubs with odd-pinnate leaves. Flowers small in a leafy panicle. Petals dark pink. Pod is

Indigofera mysorensis Rottler ex DC

Fls and Fru: July - November.

Frequent in dry, open and scrub jungles. It has a wider distribution in Africa, India and South-East Asia. Trailing, profusely branched and grey-pubescent herb. Leaves compound with 7-9 leaflets. Flowers clustered in a small raceme of 10 - 15 flowers. Petals pink. Fruit is a small pod, thinly hairy, subovoid and 2 seeded.

Indigofera linnaei All.

Fls and Fru: August to December.

Found in open places. Distributed in India, Africa, Malasia, North Australia

bright coloured. Pods cylindrical, oblong, pubescent, beaked.

Prostrate herb clothed with long white hairs. Leaves simple, subsessile, broadly ovate-cordate, hairy on both sides. Flowers in dense subsessile 4-8 flowered heads. Calyx hairy outside, tube very short. Corolla exserted,

Indigofera cordifolia Heyne ex Roth

Fls & Fru: Oct-Apr.

Frequent in the undergrowth of a deciduous forest. Native of India.

Deciduous, grey-pubescent shrubs. Leaves compound with a long rachis. Leaflets many, opposite or alternate. Flowers in spreading racemes, purple. Pod straight and cylindrical. Seeds many.

Indigofera cassioides Rottler ex DC

Fls and Fru: October – February.

Rhynchosia hirta (Andrews) Meikle & Verdcourt
Woody lianas with brown hairs. Leaves trifoliate. Racemes long with many flowers. Petals scarlet. Pod is

Fis May-Oct, Fru July-Feb

Frequent in the deciduous forest. It has distribution in peninsular India and Sri Lanka
Flowers orange-red, in dense panicles. Fragrant. Fruit a samara
A large deciduous tree. Leaves compound. Leaflets elliptic-ovate and coriaceous. Sparsely hairy beneath.

Pterocarpus marsupium Roxb.

Fis Apr-May, Fru May-June

Common along water courses. Native of Old-world tropics
Fruit a woody, beaked pod. Seeds used in extraction of oil
A medium sized evergreen tree. Leaves imparipinnate and leaflets opposite. Flowers whitish-pink in panicles.

Pongamia pinata (L.) Pierre

Fis and Fru July-December

Occasional in deciduous forest. Native of peninsular India
Petals violet. Pod is subcompressed and sparsely pubescent
Glabrous twining herbs. Leaves trifoliate with leaflets shortly acuminate. Flowers 6-10 in a racemes of 15 cm

Phaseolus adenanthus G F W. Meyers

Fis Feb-Apr, Fru May-June

Occasional in the deciduous forest. Native of India
tri-foliolate and broadly ovate. Flowers white in dense panicles. Fruit is a jointed pod
A medium sized tree. Bark with regular transverse and vertical fissures, exudes red gum when cut. Leaves

Ougeinia oofeinsis (Roxb.) Hocher

Fis and Fru. December - May

Occasional in scrub and wastelands. Has a wide distribution in old tropics
Petals pink. Fruit is a tetragonus, grey-pubescent pod
Subshrubs to 1-1.5 m tall. Branches grey-pubescent. Leaves trifoliate. Flowers are clustered in small racemes.

Indigofera trita L.

Fis and Fru. August - February

Petals red. Fruit is a tetragonus pubescent pod
Frequently seen in deciduous forest under a light shade. Has a wide distribution in old tropics

- grey-tomentose with two seeds
Seen in the moist areas of deciduous forest. It has distribution in peninsular India, Sri Lanka and Africa
Fis. and Fru. October - February
- Rhynchosia minima (L.) DC.**
A twining annual with slender stem. Leaves trifoliate. Leaflets rhomboid-ovate, obtuse. Flowers in axillary 6-12 flowered lax racemes. Calyx pubescent, lobes lanceolate. Corolla yellow. Pod pubescent, slightly recurved. Common in thickets, plains. Distributed in India, Africa, West Asia, Himalaya, Sri Lanka, Malaysia.
Fis. and Fru. : September - January
- Rhynchosia rufescens (Willd.) DC.**
Twining or trailing herb with slender, pubescent branches. Leaves trifoliate. Leaflets elliptic-ovate. Racemes few flowered with indistinct bracts. Calyx tube accrescent, lobes lanceolate. Corolla yellow. Pod, ovoid, pubescent.
Common in plains, shady places. Distributed in India, Sri Lanka, South East Asia, Malaysia.
Fis. and Fru. : July - March
- Rothia indica (L.) Druce**
Annual herbs, densely hairy and prostrate. Leaves trifoliate. Flowers either solitary or few in short racemes. Petals yellow and long clawed. Pod is linear and compressed.
A common weed of moist places. Has distribution in peninsular India, Sri Lanka and Australia.
Fis. and Fru. August - April
- Smithia conferta J. E. Sm.**
Annual diffuse herbs. Leaves small, nearly sessile. Leaflets 4-6 pairs, linear-oblong, obtuse, densely bristly on the margins and on the midrib beneath. Flowers 1 or 2 in the axis. Calyx lobes subequal, oblong, acute. Corolla yellow. Pod 3-6 jointed, papillose.
Common in plains. Distributed in India, Sri Lanka, Java, North Australia
Fis. and Fru. : November - March
- Sophora glauca Leschen. ex DC.**
A shrub. Branches clothed with velvety hairs. Leaflets 10-12 pairs, oblong-lanceolate, acuminate. Flowers in dense racemes. Corolla pink coloured. Stamens 10 free. Pod moniliform, glabrous.
Found in open places. Distributed in India, Nepal, East Asia
Fis. and Fru. : April - October

Uraria rufescens (DC.) Schindler
A straggler. Leaves trifoliate. Leaflets oblong or broadly elliptic. Inflorescence an elongated raceme. Calyx-tube bilipped, lobes slightly longer than the tube. Corolla rose to purple. Pod with 4-6 joints.

Fls. and Fru.: August - October

Commonly found in shady places in deciduous forests. Distributed in South India, Sri Lanka. times mottled

Tephrosia tinctoria Pers
A scandent subshrub. Leaflets 1-13, terminal one longest, oblong-elliptic, golden brown to silvery pubescent beneath. Flowers clustered at the top of peduncle. Corolla orange to red. Pod pubescent. Seeds oblong, some

Fls. and Fru. All seasons

Common herbs in wastelands and scrub jungles. It has wide distribution in tropics.

Fruit is a pod which is slightly curved.

Tephrosia purpurea (L.) Persoon
Glabrescent erect undershrubs. Leaves even pinnate. Inflorescence is many flowered raceme. Petals pink.

Fls. and Fru. July - November.

Occasionally seen dry areas and scrub. Native of tropics.

hairy

Tephrosia pumilla (Lam) Persoon
Prostrate herbs, pilose. Leaves even pinnate. Flowers 1-3 in axillary clusters. Petals white. Pods linear and

Fls. Apr-May, Fru. Feb-Mar.

Occasionally cultivated. It has a wide distribution in tropics.

Fruit a pod with fleshy pulp, edible.

Tamarindus indica L.
A large spreading evergreen tree. Sometimes escape in wild. Flowers yellow with pink streaks, in lax racemes.

Fls. and Fru. September-March (rare)

A common herb in the undergrowth of forest. Native of India and Burma

which is laterally compressed

Spatholobus parviflorus (Roxb.) O Kuntze
A rhizomatous prostrate herbs. Leaves trifoliate. Inflorescence is rarely seen with violet flowers. Fruit is a pod

Scoloplia crenata Clos

Fis. Nov-Mar, Fru Apr-June

Common. Confined to drier parts of the sanctuary. It has wide distribution in tropics.

smooth Flowers small, dioecious, greenish-yellow, in racemes. Fruit a globose berry.

A small, thorny deciduous tree. Sometimes it bears leaf and flowers on thorns. Leaves obovate, serrate or

Flacourtia indica (N Burman) Merrill

Fis. Nov-Mar, Fru. Dec-May

Frequent. Confined to wetter parts of the sanctuary. Has distribution in India and Sri Lanka.

Fruit a three valved succulent ellipsoid capsule. Seeds with scarlet aril

A medium sized tree. Bark smooth. Leaves ovate, glabrous and entire. Flowers greenish in axillary clusters.

Casaria esculenta Roxb.**FLACOURTIACEAE**

Fis and Fru December - February

Seen among the grasses of deciduous forest. Native of peninsular India and Sri Lanka.

Pod is a prickly lomentum with several joints

Ascending or prostrate herb. Leaves digitately 2 foliate. Flowers in a 5-13 flowered racemes. Petals yellow.

Zornia diphylla (L.) Persoon

Fis and Fru May - December

Commonly seen among the grasses in a deciduous forest. A native of old tropics.

yellow. Fruit is a pod, linear and hairy.

Twining herbs with slender stems. Leaves pinnately trifoliate. Flowers in racemose inflorescences. Petals

Vigna radiata var **subulata** (Roxb.) Verdcourt

Fis and Fru : June - December

Occasionally seen in deciduous forests. Distributed in India, Burma

a dense, cylindrical raceme. Calyx lobes much longer than the tube. Corolla blue. Pod with 2 joints, glabrous.

Herb. Leaves trifoliate. Leaflets ovate to elliptic, glabrescent above, finely pubescent beneath. Inflorescence

Urtaria lagopodioides Desvauz

Fis and Fru: September - May

Common in deciduous forests. Distributed in India, Sri Lanka, East and South East Asia, Malasia

Curculigo orchoides Gaertner
 Herb Rootstock stout, with copious fleshy root fibres, leaves linear-lanceolate, membranous, plicate, glabrous, acute, entire, nerves prominent Scape very short, clavate, flattened, with the pedicels, bracts, and ovary hidden among the leaf-sheaths Flowers bright-yellow, bisexual, sessile Perianth segments elliptic-oblong, acute, very slender. Stamens 6, small, filaments very short Ovary lanceolate, capsule ½ inch

HYPOXIDACEAE

Swertia angustifolia var **Pulchella** Burkill
 Erect annual herb. Leaves sessile. Inflorescence terminal panicle. Flowers regular, 4-5 merous and white. Fruit is a globose, many seeded capsule.
 Rare in the sanctuary. Native of India.
 Fls and Fru : August – December.

Exacum bicolor Roxb
 Erect herb reaching 2 feet high, stem quadrangular, scarcely branched. Leaves very variable in size and form, sessile, ovate or elliptic or lanceolate, acute or obtuse, 5 nerved, glabrous. Flowers showy in terminal glabrous cymes, bracts lanceolate, acute. Calyx deeply 4 partite, segments ovate, acute, the lower half white, upper half bluish purple. Capsule ellipsoid.
 Fls and Fru : August - November.

Canscora diffusa (Vahl) R. Br.
 A much branched slender erect herb to 12 inch high, stems obtusely quadrangular, obscurely winged. Leaves membranous 3-nerved, the upper broadly ovate, acute, rounded at base, sessile, the lower elliptic, acute, much narrowed at base, petiolate. Flowers numerous, in lax diffuse paniculate cymes; pedicels filiform. Calyx equal winged, 4 toothed, lanceolate. Corolla rose to bright pink, lobes unequal, ovate obtuse. Stamens 4, one longer than the rest. Capsule oblong compressed.
 Frequent in open and in undergrowth of deciduous forest. It has wide distribution in old-world tropics.
 Fls and Fru : October - January.

GENTIANACEAE

A medium sized tree. Spiny at the base. Bark rufous grey. Leaves dark green, acuminate and crenate. Flowers white, axillary racemes. Fruit a berry, green, globose.
 Occasional along the streams and in wet deciduous forest. Native of Indomalayan region.
 Fls Jan-Apr, Fru July-Aug.

Hyptis suaveolens (L.) Poit.
 Aromatic herbs. Leaves simple, opposite and ovate. Densely hirsute beneath. Flowers in cymes or verticils. Petals blue and bilipped. Fruit is a nutlet usually 2.
 Frequent weed along edges and wastelands. Introduced from tropical America and now naturalised.
 Fls. and Fru. Novmber - April

Gomphostemma heyneanum Wall ex Bentham.
 Hairy shrubs. Leaves opposite, ovate and woolly beneath. Flowers in axillary racemes. Petals yellow. Stamens exerted with hairy filaments. Fruits a smooth nutlets.
 Common in the undergrowth of a deciduous forest. Native of peninsular India.
 Fls. and Fru : August – November

Coelus barbatus Benth.
 Herbs. Leaves opposite. Flowers in racemes. Whorls densely packed. Petals white. Fruit a nutlet.
 Common in open places. Native of India.
 Fls. and Fru: August – January

Anisomeles indica (L.) O Kuntze
 Perennial bushy undershrubs. Stem tetragonus and hairy. Leaves ovate. Flowers in sessile spike. Petals pink-violet. Stamens 4, didymous and exerted. Fruit a nutlet.
 Common in open and waste lands of the sanctuary. It has distribution in Indomalayan region.
 Fls. and Fru : January – December

Acrocephalus indicus (N Burman) O Kuntze
 Hairy herbs. leaves opposite, distantly serrate. Inflorescence is usually capitate with two foliar bracts. Petals white and sparsely hairy at the tip. Fruit of 4 one seeded nutlets.
 Common among the grasses in the deciduous forest specially along the edges. It has a wide distribution in China, India and South-East Asia.
 Fls. and Fru. September - December

LAMIACEAE

long, 1-4 seeded
 Common in the undergrowth of deciduous forest. Usually early bloomers after fire. Native of Indomalayan region.
 Fls. and Fru : August-November

- Leucas aspera** (Willd.) Link
 A scabrid, diffuse or erect herb. Leaves opposite and linear-lanceolate. Flowers in axillary verticels. Petals white. Fruit is a nutlet
 Common herbs in open degraded lands, wastelands and scrub jungle. This species has wide distribution in India, South-east Asia and Mauritius
 Fls. and Fru. November - March
- Leucas hirta** (Roth) Sprengel
 A hairy perennial subshrubs with woody base. Leaves oblong. Flowers in verticels which are either terminal or axillary. Calyx tubular and hairy. Petals white and bilipped. Stamens didynamous. Fruit is a nutlet
 Frequent in the open places and bare slopes. Native of Indian peninsula
 Fls. and Fru. : All seasons
- Leucas javandulaefolia** Rees
 A herb with spreading hairs. Leaves linear to lanceolate with distant serrations. Flowers in many flowered terminal verticelasters. Calyx tubular and hairy. Corolla white, bilipped with upper lip shorter than lower lip
 Fruit is a nutlet
 Locally abundant in wastelands and open places. It has distribution in Indomalayan region.
 Fls. and Fru. : All seasons
- Leucas marruboides** Desf.
 A hairy, erect, stout herb. Leaves ovate, serrate, subcordate at base and silvery hairy beneath. Flowers in axillary or terminal verticelasters. Calyx tubular. Corolla white, upper lip with white hairs. Fruit is a nutlet.
 Frequent herb in wetter parts of the sanctuary. Native of Indomalayan region
 Fls. and Fru. : All seasons
- Leucas martinicensis** (Jacq.) R. Br.
 A hairy subshrub. Leaves oblong, blade serrate. Flowers in either terminal or axillary verticelasters. Calyx tubular and sigmoidly curved. Corolla white with both lips equal. Fruit is a nutlet.
 Frequent weed in open places usually in drier areas. Panropical in distribution
 Fls. and Fru. : All seasons
- Leucas nutans** Sprengel
 A hirsute herb. Leaves simple, opposite and obovate-lanceolate. Flowers axillary verticels. Petals white. Fruit is a nutlet

Orthosiphon viscosus Benth

Fis and Fru : May – July

Frequent herb in dry thorn forest Native of India and Myanmar

tubular and lobed Stamens 4, slightly exerted from corolla tube. Fruit is a nutlet

Hairy herbs Leaves ovate and cuneate. Flowers in terminal long racemes. Calyx tubular. Corolla white,

Orthosiphon rubicundus (D Don) Benth

Fis. and Fru : All seasons

distribution in Indomalayan region

Frequent herb along roadside in drier parts of the sanctuary and is a ready coloniser in open places. It has

enlarged and persistent calyx

Calyx tubular. Corolla white to purple and lobed. Stamens 4. Disc present. Fruit is a nutlet enclosed in

Slightly aromatic subshrub. Leaves elliptic to ovate. Flowers in whorls of 6 in a terminal racemes called thysis.

Orthosiphon glabratus Benth

Fis and Fru. December - January.

Commonly seen in open areas and near habitations. Pantropical in distribution.

15 cm Petals white. Nutlets 4, usually one aborted. Calyx enlarged in fruits.

Profusely branched aromatic subshrubs. Leaves large, obovate. Flowers in a raceme which measures upto

Occimum gratissimum L

Fis and Fru. December - January

A common weed in wastelands and Scrub jungles. Distributed in old world tropics

Calyx not enlarged in fruit

Aromatic herbs. Leaves elliptic-oblong. Racemes to 15 cm long and branched. Petals white. Fruit is a nutlet

Occimum americanum L

Fis and Fru. All seasons

Common among the grasses in a deciduous forest. Distributed in peninsular India.

Petals white. Fruit is a nutlet.

Hispid herbs with spreading hairs. Leaves opposite and obovate-lanceolate. Flowers in terminal verticils

Leucas vestita Benth

Fis and Fru. October - December.

Frequently seen in scrub jungles. Distributed in India and Burma



- An erect, glandular and hairy herbs. Leaves ovate, rounded or cordate at base. Slightly glandular hairy. Flowers in terminal racemes. Corolla pale purple. Fruit is a nutlet. Occasional herb in open and forest edge. Native of Indian subcontinent. Fls. and Fru. : August – December.
- Plectranthus mollis** (Alton) Sprengel
Succulent and hairy herbs. Leaves ovate and cordate at base. Inflorescence is a terminal raceme. Calyx tubular. Corolla bi-lipped and purplish. Lower lip boat shaped. Stamens included. Fruit is a nutlet. Locally abundant in wastelands and in shaded places. Native of India. Fls. and Fru. : July – October.
- Plectranthus wightii** Benth
Gregarious herbs with branchlets hirsute. Inflorescence is diffuse panicles. Flowers small and pinkish-white. Stamens free and exerted. Fruit is a nutlet. Commonly seen in the understorey of a deciduous forest and along the stream banks. Native of Indian peninsula. Fls. and Fru. December - February.
- Pogostemon auricularius** (L.) Hassk
Decumbent, foetid and densely hispid herb. Leaves elliptic-lanceolate and crenate. Flowers in terminal racemes. Calyx tubular. Corolla violet with equal lobes. Stamens subequal. Fruit is an erect nutlets. Gregarious in marshy areas. It has distribution in Indomalayan region. Fls. and Fru. : All seasons.
- Pogostemon paniculatus** (Willd.) Benth
Aromatic subshrubs to 1 meter. Leaves unequal and irregularly serrate. Inflorescence a panicle. Flowers violet and supported by foliar bracts. Fruit is a nutlet. Commonly seen in the understorey of deciduous forest. Native of peninsular India. Fls. and Fru. October - December.
- Salvia coccinea** Buch'hoz ex Etlinger
A subshrub. Stem and branches sparsely hairy. Leaves ovate and hairy. Inflorescence a terminal panicle with whorls many flowered. Petals orange-red and bi lipped. Fruit is a nutlet. Cultivated in garden and runs as escape in the wild. Native of Tropical America. Fls. and Fru. All Seasons.

LAURACEAE

Actinodaphne angustifolia (Blume) Nees

Large evergreen tree. Branchlets softly tomentose. Leaves hairy, whorled, glaucous. Flowers unisexual, in umbels. Perianth lobes 6, hairy outside. Fruit a globose berry.
Seen only in few pockets in wetter parts. Occasional. Probably endemic to western ghats.
Fls and Fru: March - November.

Cinnamomum malabattrum (N. Burman) Blume

Large evergreen tree. Bark and leaves aromatic. Leaves tri-nerved, elliptic to oblong lanceolate, acute or acuminate. Flowers in panicle. Flowers bisexual, perianth funnel shaped with short persistent and crescent tube. Fruit a dark purple berry.
Occasional. Confined to wetter parts. Probably endemic to western ghats.
Fls and Fru: January - June.

Litsea decanensis Gamble

A moderate sized evergreen tree. Leaves alternate, tawny pubescent and glaucous beneath. Flowers in umbels. Perianth pale yellow, bracts present. Fruit is a globose berry.
Occasional. Seen in wetter parts of the sanctuary. Probably endemic to western ghats.
Fls. Jan-Mar, Fru. Sept-Oct.

Litsea mysorensis Gamble

Small to medium sized tree. Leaves elliptic lanceolate, acuminate and glaucous beneath. Flowers in sessile umbels. Perianth silky hairy. Fruit a globose berry, seated in perianth.
Rare. Confined to wetter parts. Probably endemic to western ghats.
Fls and Fru: October - February.

Persea macrantha (Nees) Kostermans

A large evergreen tree. Bark aromatic. Leaves alternate and crowded at the tip. Flowers yellowish in terminal panicles. Fruit a berry, black on maturity.
Frequent. Confined to wetter parts and water courses. Distributed in India and Sri Lanka.
Fls. Dec-Jan, Fru. Apr-May.

LECTYHIDACEAE

Careya arborea Roxb.

A large deciduous tree. Leaves obovate, cuneate at base and usually clustered at the tips. Flowers white in sessile-spike with an unpleasant smell. Disc present. Fruit is a globose and green berry.
Frequent trees in deciduous forest. Elephants feed on the bark. It has distribution in India and Sri Lanka.
Fls Feb-Mar, Fru June-July.

LEEACEAE

Leea crispa van Royen ex L.

Shrubs. Leaves alternate 1-pinnate with large stipules. Leaflets long, acute-acuminate. Flowers in terminal leaf-opposed cymes. Petals greenish-white shortly tubular. Fruit is a berry.
Occasional in moist deciduous forest usually along streams. Has wide distribution in Indomalayan region.
Fls and Fru: July – August.

LILIACEAE

Asparagus racemosus Willd.

Armed climbers; spines erect, leaves scaly, triangular. Cladodes linear. Racemes in a cluster. Flowers bisexual. Perianth lobes 6, white, stamens 6, adnate to the base of perianth, anthers black. Ovary obovoid, 3 celled. Berry globose.
Common climbers in the forest. It has wide distribution in old world tropics.
Fls and Fru: August – January.

Chlorophytum laxum R. Br.

A perennial scapigerous plant. Leaves 6-12, grass-like, usually spreading and recurved, longer than the scape, narrowly linear, acute, glabrous. Flowers few, greenish-white, very distant, in lax very slender simple raceme; perianth segments, oblong, obtuse, obscurely 3-nerved. Fruit is a capsule, broadly obcordate, 3-winged.
Common in the understorey of deciduous forest. It has wide distribution in old world tropics.
Fls and Fru: May – October.

Chlorophytum tuberosum (Roxb.) Baker

Perennial herb. Roots tuberous and cylindrical. Leaves ensiform, flat. Scape 1; racemes to 25cm, branched. Perianth lobes white, oblong-ovate. Stamens 6. Fruit a capsule oblong, triquetrous.

Frequent in the understorey of deciduous forest. It has distribution in Indomalayan region.
Fis. and Fru : August – October

Dracaena termitiflora Roxb

A slightly branched straggling shrub. Leaves some what crowded, lanceolate, acute, thinly coriaceous. Flowers white, often 2-3 together on the rachis of a simple raceme. Perianth divided to about the middle, lobes linear, obtuse. Fruit a red globose berry.

Occasional in the undergrowth. Native of Indomalayan region.

Fis. and Fru : All seasons

Gloriosa superba L

Herbaceous climber with tuberous roots. Leaves oblong to ovate-lanceolate, flat, apex tendrilled. Flowers bisexual, axillary. Pedicels reflexed at the tip. Perianth lobes - 6, oblong lanceolate, reflexed, subequal, margin wavy, reddish orange with yellow margin, stamens 6. Capsule ellipsoid-oblong.

Frequent in the undergrowth of deciduous and scrub forest. It has wide distribution in old world tropics.

Fis. and Fru : August – September

Scilla hyacinthina (Roth) J. F. Macbr

Herbs with tunicate ovoid or globose bulb. Leaves radical, linear, oblong, often with purple blotches. Flowers in racemes on a simple leafless scape. Perianth 6 lobed, lobes linear-oblong, obtuse, greenish purple. Stamens 6, adnate to the base of perianth. Fruit is a globose capsule.

Occasional herb in understorey and on rocks. Distributed in India and Africa

Fis. and Fru : May - July

LOGANIACEAE

Strychnos potatorum L.

Medium sized deciduous trees. Bark brownish-black and corky with vertical cracks. Leaves simple, opposite, ovate or ovate-lanceolate, glabrous, shining and 3-5 nerved from the base. Flowers on cymes. Corolla tubular and white. Fruit is a berry turning black on maturity. Seeds yellowish and rounded.

Frequent trees in the drier parts of the sanctuary. Native Myanmar, India and Sri Lanka

Fis. February – April. And Fru. November – March

LORANTHACEAE

Dendrophthoe falcata (L. f.) Eting

A hemi-parasitic woody plants. Bark grey smooth. Leaves simple, elliptic oblong, acute and coriaceous. Flowers in axillary racemes. Petals yellow or red and tubular. Fruit is a berry smooth, pink and crowned with cup shaped calyx.
Extremely polymorphic species. Common in the sanctuary. Has wide distribution in Indomalayan region.
Fls and Fru: All seasons

Dendrophthoe trigona (Wight & Arn) Danser ex Sant

A large thick and fleshy parasitic shrub with trigonous stem. Leaves simple, broadly obovoid and coriaceous. Flowers in racemes with cup shaped bracts. Corolla tube brown. Fruit is a berry.
Occasional in the sanctuary. This species mimics the host plant by having broad leaves. Native of peninsula.
Fls and Fru: October – March

Helixanthera intermedia (J. Hooker) Danser

A much branched parasite. Leaves alternate, shortly petioled, elliptic and narrow at both ends. Flowers in axillary racemes. Petals pink, linear, spatulate and free to base. Fruit is a berry.
Rare and confined to wetter parts of the sanctuary. Native of Peninsula.
Fls and Fru: April – June

Macrosolen capitellatus (Wight & Arn) Danser

A parasitic shrub. Leaves simple, ovate and acuminate. Flowers in racemes. Petals red with green limb. Corolla lobes spatulate. Fruit a berry.
Rare in the deciduous forest. Native of India and Sri Lanka.
Fls and Fru: March – June

Macrosolen parasiticus (L.) Danser

A large parasitic shrub. Leaves simple, ovate and acuminate. Flowers in racemes. Corolla usually variegated, tube scarlet or pink changing to yellow. Fruit a berry, tipped green with cylindrical calyx limb.
Frequent parasite in the deciduous forest. Native of India and Sri Lanka.
Fls and Fru: May – August

Scurrula cordifolia (Wall.) G. Don

A large parasitic shrub. Leaves simple covered with tawny tomentum on either sides. Flowers in racemes

Viscum capitellatum Sm.
A dwarf much branched shrub. Branches tufted, angular or compressed and yellowish – green. Branchlets short and opposite. Leaves sessile, obovate, spatulate, rounded and often lobed at apex. Leaves very thick, fleshy and venation obscure. Flowers minute and clustered at the nodes. Fruit is a globose berry.

Fis. and Fru: March – September
Very common parasite found in the sanctuary. Has wide distribution in Indomalayan region.
clusters.

Viscum angulatum Heyne ex DC
A much branched leafless shrub. Stem terete, and four angled neither swollen nor jointed at nodes. Flowers sessile, minute, solitary or whorled at nodes. Perianth lobes 3-4 and minute. Fruit is a small berry found in

Fis. and Fru: November – May
Common parasite found in the sanctuary. Native of peninsula
has an appearance of grape seed.

Taxillus tomentosus (Roth) Van Tieghem
Much branched shrub with pendent and hairy branches. Leaves simple, alternate, ovate, rounded at tip and coriaceous. Flowers in axillary fascicles. Flowers densely hairy. Stamens exerted. Fruit a berry ovoid and pink

Fis. and Fru: April – May
Occasional in drier parts of the sanctuary. Native of peninsular India and Srilanka
oblong, crimson and minutely warted

Taxillus cuneatus (Roth) Danser.
A large parasitic shrub with long pendulous branches. Leaves obovate, rounded at apex. Flowers in fascicles, subtended by a bract. Petal tubular, slender, greenish-yellow outside and orange within. Fruit is a berry,

Fis. and Fru: October – March
Indomalayan region
This plant shows morphological variations. Rarely seen in the deciduous forest. Has a wide distribution in

Scurrula parasitica L.
A much branched shrub forming tufts on the host. Leaves simple, tomentose, elliptic and rounded at tip. Inflorescence is simple racemes. Flowers irregular and subtended by a bract. Petal is red. Fruit a berry.

Fis. and Fru: July – October
Rare seen in deciduous forest. Native of Nepal, India and Srilanka
mostly in the axils of fallen leaves. Flowers irregular and subtended by a bract. Petals red. Fruit clavate.

Rotala indica (Willd.) Koehne
Erect slender herbs. Leaves decussate, obovate. Flowers small, either single or in spikes. Calyx campanulate and 5 lobed. Corolla pink and usually notched at apex. Stamens included. Fruit is a capsule.
Frequent herbs in moist places. Native of Indomalayan region but naturalised in Europe and USA.

Lagerstroemia parviflora Roxb
A medium sized tree. Young parts hairy. Bark grey, peeling off in thin long flakes. Leaves opposite, oblong, acute to acuminate with round base. Flowers white, fragrant, in panicles. Fruit a capsule seated on a woody accrescent calyx. Seeds winged with terminal beak.
Frequent tree in deciduous forest. Distributed in India and Myanmar.
Fls Apr-June, Fru Feb-Dec.

Lagerstroemia microcarpa Wt
Large deciduous tree. Bark white, smooth, peeling off in flakes. Leaves opposite, bluish-white beneath. Flowers white, fragrant, in a terminal panicle. Fruit a capsule. Seeds many and winged.
Common tree in moister areas of the forest. Native of peninsular India.
Fls Mar-May, Fru June-Aug.

LYTHRACEAE

Viscum trilobatum Talbot
A large much branched shrub. Branches terete, drying yellow, swollen at nodes and drying yellow. Leaves triangular, obovate, trilobate at the apex, thinly coriaceous, glabrous and drying black. Flowers solitary or in pairs seated on the concave, boat-shaped, yellow, shining bracteoles. Fruit is a subglobose berry. Commonly seen as a hemi-parasite on other loranthaceous parasites. Native of India.
Fls and Fru: March – September.

Viscum nepalense Spreng
A leafless dichotomously branched shrub. Branches pendulous with linear, flattened, striate or furrowed internodes, pale green turning yellowish on drying. Flowers minute in fascicles at nodes. Each flower is supported by a cup shaped bract. Fruit is a smooth and globose berry.
Commonly seen in the sanctuary. Native of Indomalayan region.
Fls and Fru: January – August.

Rare in the sanctuary as a hemi-parasite on other loranthaceous parasites. Native of India.
Fls and Fru: March – September.

Fis. and Fru : December – April

MALPHIGIACEAE

Hiptage benghalensis (L.) Kurz

Climbing shrubs. Leaves decussate, elliptic-lanceolate and has glands at base. Flowers in racemes which are either axillary or terminal. Calyx has a gland. Petals white with yellow tinge. Disc present and is small. Fruit is a samara which has wings

Occasional stragglers in drier parts of the sanctuary. Native of Indomalayan region

Fis and Fru : September – March

MALVACEAE

Abelmoschus angulosus Wallich ex Wight & Arn

Erect stout herbs. Either bristly or hairy. Leaves orbicular, cordate at base and palmately lobed. Flowers axillary. Epicalyx present. Petals white to pink turning purple. Fruit is a capsule, bristly and included in the calyx

Frequently seen along forest edges. Native of Asian tropics

Fis. and Fru : September – November

Abutilon crispum (L.) Medikus

Shrubs with branchlets densely stellate - pubescent. Leaves ovate, cordate, acuminate, crenate-toothed; petioles $\frac{1}{2}$ - $1\frac{1}{2}$ inch long. Flowers solitary, smaller. Petals pale yellow, broadly obovate - orbicular. Fruit $\frac{1}{2}$ inch in diameter, globose, wrinkled; carpels 10 - 12, awnless, when ripe sparsely hairy with a silky lustre on the sides. Seeds reniform

Commonly seen in wastelands and open places usually in dry areas. Pantropical in distribution

Fis. and Fru : October - November

Decaschistia crotonifolia Wight & Arn

Undershrubs. Branchlets hairy. Leaves ovate, acute and palmately nerved. Flowers generally solitary and axillary. Petals yellow. Stamens united to form a staminal column. Fruit is a capsule

Frequent in the undergrowth of a deciduous forest. Native of India.

Fis and Fru : All seasons

Hibiscus lobatus (J. A. Murray) O. Kuntze

Erect annuals with simple elongate hairs. Leaves ovate or lanceolate and serrate. Flowers in axillary or

Pavonia zeylanica (L.) Cav.
 Undershrub; 2 - 4 feet; branchlets slender, viscid and stellately pubescent. Leaves $\frac{1}{2}$ - 1 inch in diameter cordate at base, 3 - lobed, the mid-lobe the longest, dentate, stellately hairy; viscid hairy. Pedicels 1 - $1\frac{1}{4}$ inch long, slender, axillary, solitary. Flowers 1.5 cm across, petals bright pink/white. Ripe carpels rounded on

Fis and Fru : May - August
 Frequent in scrub and waste places of the sanctuary. Pan-tropical in distribution.
 truncate. Ovary globose. Schizocarp not exceeding calyx; mericarp reniform.
 axillary or in terminal clusters. Epicalyx 3, petals yellow, obliquely obovate, emarginate. Staminal column
 Subshrub; branchlets appressed stellate-tomentose. Leaves entire, ovate-lanceolate, 2.4 X 1.5-3cm. Flowers
Malvastrum coromandelianum (L.) Garcke

Fis July-Oct, Fru Dec-Mar.
 Burma.

Common in the understorey of deciduous forest. One of the elephant favoured plant. Native of India and
 panicles. Fruit a capsule subtended by strong accrescent calyx.
 A small understorey tree. Bark grey fibrous. Leaves cordate, lobed, hairy. Flowers white, in polygamous
Kydia calycina Roxb

Fis. and Fru : All seasons
 Common in the undergrowth of scrub and Deciduous forest. Distributed in India and Africa.
 column. Fruit is a capsule.
 and axillary. Epicalyx present. Calyx divided into lobes. Petals white turning to pink. Stamens united to form a
 Herbs with stellate hairs. Leaves ovate, serrate or dentate, shallowly lobed and with nectaries. Flowers solitary
Hibiscus ovalifolius (Forsk.) Vahl

Fis. and Fru : October - January
 Occasional in the sanctuary on barren area and rock crevices. It has wide distribution in old world tropics.
 capsule, hairy and beaked. Seeds many.
 in axils or in terminal racemes. Epicalyx present. Petals yellow. Stamens united into a column. Fruit is a
 Large herbs with dense hairs. Leaves often lobed, ovate-orbicular, acute or acuminate. Flowers either solitary
Hibiscus lunarifolius Willd.

Fis and Fru : August - November
 Common in the undergrowth of a deciduous forest. Native of tropical Africa.
 terminal racemes. Flowers white, calyx deeply lobed. Fruit is a capsule, beaked and pubescent.

Sida rhombifolia L
Shrub; branches minutely stellately hairy. Leaves variable, ovate-elliptic or rhomboid, truncate, sometimes

Fls and Fru : January - December

Occasional in the undergrowth of scrub forest. Native of Tropical America and introduced elsewhere
- 6, smooth, grey-puberulous, not reticulated; beak consisting of 2 rounded lobes
oblong-lanceolate above, 3-4.5 x 2-3cm. Flowers 1cm across, 1 or more flowered. Petals yellow, carpels 5
Subshrub; branchlets stellate-tomentose and glutinous-hairy, leaves ovate or cordate at base,
Sida glutinosa Comm. ex Cav.

Fls. and Fru. : June - December

Frequent in the undergrowth of deciduous forest. Pantropical in distribution

margins, awns 2.

Shrub, branched, softly hairy with much stellate hairs. Leaves 1 - 2 inch long, cordate, ovate-oblong, crenate,
obtusate or subacute, not acuminate. Flowers 1cm across, solitary or few together. Petals yellow,
oblique-rhomboid, slightly exceeding the sepals. Carpels 7 - 10, strongly reticulated, ciliate on the upper
margins, awns 2.

Sida cordifolia Linn.

Fls. and Fru : July - February

Frequent in the undergrowth of deciduous and scrub forest. Pantropical in distribution.

ovoid or trigonous, brown, glabrous

exceeding the sepals. Carpels 5, smooth, not reticulated, sparsely hairy at apex, beakshort, 2-dentate. Seeds
serrate, sparsely clothed with stellate hairs. Flowers 1 cm across. Petals yellow, oblique-obovate; slightly
Much branched herb; branches prostrate, more or less hairy. Leaves ½ - 2 inch long, cordate, ovate acute,
Sida cordata (Burm. f.) Borssum Waalkes

Fls and Fru : August - November

Common weed in the forest. Pantropical in distribution

obliquely ovate. Carpels 5 - 9, puberulous, strongly reticulated, toothed on the dorsal margin, awns - 2.
serrate, glabrous on both sides; petioles shorter than the stipules. Flowers 1.5 cm across. Petals pale yellow,
Undershrub; grey-tomentose with stellate hairs. Leaves ½ - 1 inch long, oblong-lanceolate, rounded base,
Sida acuta Burm. f.

Fls and Fru : All seasons

Common in the undergrowth of a deciduous forest. Distributed in the Asian and African tropics.
the back, wedge shaped, winged at the edges; seeds pubescent

Memeylon umbellatum N. Burman
 A small tree. Leaves opposite, ovate, acuminate, emarginate and cuneate. Flowers small, blue in axillary cymes. Petals acute. Fruit a globose, black, edible berry.
 Occasional. Seen only in the wetter parts of the sanctuary and along water courses. It has distribution in India and Sri Lanka.
 Fls. Mar-May, Fru. June-July.

Memeylon gracile Bedd
 A tall shrub. Leaves opposite, ovate – lanceolate and acuminate. Flowers small on slender axillary cymes. Calyx cup shaped. Corolla pale blue. Fruits a globose berry.
 Occasional. Confined to wetter parts. Native of Indian peninsula.
 Fls. Mar-Apr, Fru. May-June.

MELASTOMATACEAE

Urena lobata L.
 Shrub; up to 3 feet high; branches stellate-tomentose. Leaves broader than long, cordate, serrate or toothed, stellately hairy on both surfaces, shallowly lobed; lobes generally acute or acuminate varying in size and number, not exceeding half way down, nerves 5 - 7, prominent beneath. Flowers axillary, 2 or 3 in a cluster or 1. Epicalyx 4 segmented. Petals obovate, light pink. Staminal column as long as petals, dentate at apex, capsules pubescent, covered with blunt spines, each spine with 2 bristles. Seeds reniform.
 Common along roadsides and in undergrowth of a deciduous forest. Pantropical in distribution.
 Fls. and Fru. : October - February

Thespesia lampas (Cav.) Dalz. Dalz ex Gibson
 Shubs with stellate hairs. Leaves orbicular and often tri-lobed. Flowers in axillary racemes. Epicalyx 6 lobes shorter than calyx. Petals yellow with a purple throat. Stamens united to form a column. Fruit a loculicidal capsule.
 Occasional in the understorey wet forest in the sanctuary. It has distribution in old-world tropics.
 Fls. and Fru. : October – February

Thespesia (Cav.) Dalz. Dalz ex Gibson
 Common in the understorey of deciduous forest. Pantropical in distribution.
 Fls. and Fru. : January – December
 short awns
 flowered in cymose clusters. Petals yellow to orange, oblique-rhomboid. Carpels 9 - 10, reticulated, with 2 reflex, cuneate at base, often coarsely toothed at the tip, petioles very short, Flowers 2 cm, 1 or many

Fis. Mar-May, Fru. July-Aug

Nativity is uncertain

Occasional. Seen only in drier parts of the sanctuary. Sometimes cultivated. Widely cultivated in tropics

Stamens united to form a tube. Fruit a greenish-yellow berry. Seed one.

A large tree. Leaves compound. Leaflets serrate and oblique. Flowers white, fragrant on axillary panicles

Azadirachta indica A. Juss

Fis. April - May, Fru. February - March

Occasional in the wet deciduous forest of the sanctuary. It has wide distribution in Asian tropics

with stamens at the base. Fruit a smooth reddish capsule.

opposite. Flowers in panicles of both bisexual and polygamo-dioecious in nature. Petals white. Staminal tube

An evergreen tree with spreading canopy. Bark grey and thin. Leaves pinnately compound. Leaflets entire and

Aphanamixis polystachya (Wallich) Parker

Fis. Nov-Dec, Fru. July-Aug

Occasional along Moyar river. Native of Indomalayan region.

globose and ferruginous.

lanceolate, drying brown beneath. Flowers yellow in panicles and polygamodioecious. Disc present. Berry

A large evergreen tree. Bark thin, green blotched with yellow. Leaves odd pinnate, leaflets 7, oblong

Aglaia elaeagnoides (Juss.) Benham

MELIACEAE

Fis. and Fru. : August - November

Rare in the sanctuary. Native of India

capsule

Erect herbs. Leaves opposite, membranous, serrulate and ovate. Flowers very small. Petals pink. Fruit is a

Sonneria tenra Royle

Fis. and Fru. : September - January

Occasional in the wetter parts of the sanctuary. Native of India

and curved.

Calyx tube is with thin pectinate scales. Petals purple. Fruit a capsule, with opening at the apex. Seeds many

A slender erect undershrub. Leaves long petioled, 5 ribbed, lanceolate and scabrous. Flowers in corymbs

Osbeckia wynaadensis C. B. Clarke

Toona ciliolata Roemer
 A large deciduous tree. Bark thin, peeling off in large flakes. Leaves compound. Leaflets about 7-9 pairs, sub-opposite and lanceolate. Flowers white, fragrant, in dense panicles. Disc present. Stamens inserted on the disc. Fruit a capsule. Seeds oblong and winged at both ends.
 Occasional. Confined only to wetter areas. It has wide distribution in Asian tropics.
 Fls Jan-Apr, Fru May-Oct

Soyimida febrifuga A Juss.
 A lofty deciduous tree. Bark brown or grey. Leaves compound. Leaflets ovate-oblong and opposite. Flowers greenish-white in panicles. Disc present and flat. Staminal tube cupular. Fruit a woody capsule. Seeds oblong and winged at both ends.
 Rare in the wetter parts of the sanctuary. Distributed in India and Srilanka.
 Fls Apr-May, Fru July-Aug

Melia dubia Cav
 Large deciduous tree. Leaves compound, 2-3 pinnate. Leaflets opposite and crenate. Flowers and younger parts are clothed with hairs. Flowers white in panicles. Sepals hairy. Petals white. Fruit a drupe.
 Rare. Has wide distribution in Asian tropics.
 Fls Jan-Mar, Fru Oct-Jan

Cipadessa bacifera Miq
 A small gregarious shrub. Leaves compound. Leaflets coarsely serrate. Flowers white in panicles, hairy. Fruit a drupe.
 Occasional along water course. Has wide distribution in Indomalayan region.
 Fls Jan-Feb, Fru Feb-Mar

Chukrasia tabularis A Juss.
 Large deciduous tree. Bark thick, dark brown deeply cracked. Leaves compound. Leaflets ovate, glabrous above, dark green and pubescent beneath. Flowers yellowish-white. Disc absent. Staminal tube cylindrical. Fruit a capsule.
 Occasional in the wetter parts of the sanctuary. Distributed in Indomalayan region.
 Fls Apr-May, Fru Dec-Jan

MENISPERMACAE

Cissampelos pareira L. var **hirsuta** (DC) Forman
 A hairy twining herb. Leaves ovate or reniformed, slightly peltate, cordate at base. Flowers unisexual. Male flowers in cymose panicles. Female flowers clustered in the axils of foliar bract. Petals greenish. Fruit is a scarlet hairy drupe
 Common herb in the undergrowth of a deciduous forest. Widely distributed in tropics.
 Fls. and Fru : May – September

Cyclea peltata (Lam.) J. Hooker & Thoms
 A hairy twining herb. Leaves peltate, acute and reticulation prominent. Flowers unisexual in racemes. Petals greenish. Fruit is a drupe.
 Common herb in the undergrowth. Probably endemic species of Western Ghats
 Fls. and Fru : All seasons

Tinospora cordifolia (Willd.) J. Hooker & Thoms
 Climbing shrubs with corky thinly peeling bark. Leaves membranous, cordate and glabrous. Flowers unisexual in racemes. Petals 6 and green. Stamens 6 and free. Stamines are present in female flowers.
 Fruit is a globose drupe, green turning orange to red.
 Common in the undergrowth and on the thickets. Distributed in India and Sri Lanka.
 Fls. and Fru : September – April.

MORACEAE

Artocarpus gomezianus Wall. ex Trece & Ssp. **zeylanicus** Jarrett.
 A medium sized tree. Stem with latex milky. Leaves dark green and shiny above. Flowers unisexual, yellow, in globose heads. Fruit a syncarp.
 Rare in the deciduous forest. Native of Indian peninsula and Sri Lanka.
 Fls. Jan.-Feb., Fru. Apr.-May.

Artocarpus heterophyllus Lam.
 A large evergreen tree with dense crown. Stem with white milky latex. Flowers yellowish-green. Fruit a large sorosis with echinate processes and edible.
 Occasional. Seen in cultivation and also in wild in moist areas. Native of Indian peninsula.
 Fls. Feb.-Mar., Fru. Apr.-June

- Ficus benghalensis L**
A large tree with spreading crown supported by prop roots. Leaves thick, elliptic-ovate and pubescent. Fruits in axillary pairs, sessile, hairy, red when ripe.
Occasional. Sometimes planted. It has distribution in Pakistan, India and Sri Lanka.
Fis & Fru Various time of the year.
- Ficus drupacea Thumb var. pubescens (Roth) Corner**
Lofy deciduous tree. Leaves and fruits densely tomentose. Leaves elliptic ovate and acuminate at apex. Fruits sub-sessile, axillary pair, red when ripe.
Rare. Often stranglers in deciduous forest. Has wide distribution in Indomalayan region.
Fru Dec-May
- Ficus hispida L.f.**
A small tree. All parts are hispid. Leaves opposite, obovate to elliptic – oblong and acuminate. Fruits clustered on separate leafless stalk, yellowish when ripe.
Occasional. Usually along stream in wetter parts. Has distribution in Indomalayan and Australian region.
Fru Dec-Oct
- Ficus mollis Vahl.**
A deciduous tree. Young parts tomentose. Leaves often ovate, acute to acuminate at apex. Fruits sessile, globose, tomentose.
Rare in deciduous forest. Distributed in India.
Fru Mar-Sept
- Ficus racemosa L.**
A large tree. Bark grey to reddish brown. Leaves alternate, petiole long, leaf blade elliptic – lanceolate, acute and glabrous. Fruits on small leafless branches, reddish when ripe, edible.
Frequent. Sometimes along streams. Distributed from Pakistan to Australia.
Fru Various times of the year
- Ficus religiosa L.**
A large tree without aerial roots. Bark grey. Leaves cordate, long, acuminate, very characteristic of the species. Fruits sessile, globose in pair.
Frequent. Seen both in cultivation and in wild (deciduous forest). It has wide distribution from Pakistan to Vietnam.
Fis July-Sept, Fru Sept-Nov

Embelia tsjeriam - cottam (Roemer & Schites) DC.
 Shrubs. Leaves elliptic - obovate, acute and subentire. Flowers in a panicle or raceme on a new branchlet.
 Petals white and hairy inside. Fruit is a subglobose drupe.

Fls. and Fru.: February - December.

Frequent in the undergrowth of a deciduous forest. Native of peninsular India.
 either corymbose or umbellate. Peduncle long. Petals ovate and pink. Fruit is a berry and black when ripe.
 Shrub or a small tree. Leaves alternate, elliptic-lanceolate, either acute or acuminate. Flowers in racemes.
Ardisia solanacea Roxb

MYRSINACEAE

Moringa oleifera Lamk.
 A medium sized tree. Leaves compound. Flowers creamish-white. Fruit a capsule. Seeds winged.
 Common. Seen only in cultivation. Cultivated throughout tropics.
 Fls. Jan-Apr, Fru. May-June.

Moringa concanensis Nimmo.
 A medium sized deciduous tree. Leaves pinnately compound. Inflorescence a panicle. Flowers yellow. Fruit a capsule. Seeds winged.
 Occasional in dry thorn forest. Distributed in India and Pakistan.
 Fls. & Fru. Various periods of year.

MORINGACEAE

Ficus virens Aiton.
 A large tree. Often strangling. Bark white, smooth. Leaves alternate, elliptic to ovate-lanceolate, acuminate.
 Fruits usually axillary, sub-sessile, globose.
 Frequent in the sanctuary. Indomalayan in distribution.
 Fru. Oct-Aug.

Ficus tsjahela N. Burman.
 A large deciduous tree. Bark black. Leaves in terminal whorls. Fruits 2-6 fasciated at the axil of leaves, pale yellow when ripe.
 Frequent tree in deciduous forest. It has distribution in peninsular India and Sri Lanka.
 Fru. Feb-May.

Fis and Fru: May – July

Common herb in dry places. A pantropical weed.

bluntly 5 ribbed, very glandular

panicles. Perianth contracted above the ovary, limb shaped, dark pink. Stamens 2 or 3. Fruit clavate, rounded, or subcordate. Flowers very small, 4-10 together, in small umbels arranged in slender axillary and terminal at each node in unequal parts, broadly ovate, rounded at the apex, the margins entire, undulate, base rounded. Diffuse herb, rooting at the lower nodes. Stem prostrate, branched, slender, thickened at the nodes. Leaves

Boerhaavia diffusa Linn

NYCTAGINACEAE

Fis: March – May, Fru: June – August

Frequently seen in cultivation and also as escape in the wild. Introduced from neotropics.

Fruit is an edible berry. Seeds many.

A small sized tree. Bark creamish to brown and flakes off in regular pieces. Leaves opposite, decussate, elliptic – lanceolate. Flowers solitary or in pairs at the axils. Petals white. Disc present. Stamens many exerted.

Psidium guajava L

Fis: March – May, Fru: June – August

Frequent tree in the deciduous forest. Distributed widely in Indomalayan region.

Edible

Flowers in terminal panicle of cymes. Flowers creamish. Fruit is a green berry, turning purple on maturity. A large evergreen tree. Bark dark brownish and flakes off in pieces. Leaves opposite, elliptic – lanceolate.

Syzygium cumini (L.) Skeels

Fis: Mar-Apr, Fru: May-Aug

Introduced from Australia.

Leaves aromatic. Flowers differ in size. Fruit a capsule.

A lofty tree, tall, seen only in cultivation. Forest department has taken extensive planting for various purposes.

Eucalyptus spp

MYRTACEAE

Fis and Fru: All seasons

Frequent shrubs in the deciduous forest. Native of India, Myanmar and Sri Lanka.

Ligustrum perrottetii DC.
A large shrub or small tree. Bark smooth and brown. Leaves ovate – lanceolate and tapering at both ends.

Fls. and Fru: June – September.

Common in the thickets. Native of peninsular India and Srilanka

Stamens included. Fruit a berry.

Jasminum ritchei C. B. Clarke
Climbing shrubs. Leaves simple, ovate-elliptic and acute. Flowers in cymes. Petals white and tubular.

Fls. and Fru: January – July.

Frequent climbers in wet deciduous forest. Native of Peninsula.

linear. Corolla white, fragrant and tubular. Fruit is a berry turning black when dry.

Climbing shrubs. Leaves simple, broadly ovate or cordiform. Flowers in tri-chotomous cymes. Calyx lobes 7.

Jasminum malabaricum Wight

Fls. and Fru: All seasons.

Common climbers in the scrub and deciduous forest. Native of peninsular India and Srilanka.

and tubular. Fruit is a globose berry.

Climbing shrubs. Leaves simple, elliptic, acute at both ends. Flowers in corymboid cymes. Petals large, white.

Jasminum cuspidatum Rottler

Fls. and Fru: July – December.

Common climbers on the thickets of dry areas. Native of India and Srilanka.

Petals tubular and white. Stamens inserted. Fruit is a berry, globose and clustered.

Climbing shrubs. Leaves tri-foliate, deltoid with reduced lateral leaflets. Flowers in tri-chotomous cymes.

Jasminum auriculatum Vahl.

OLEACEAE

Fls. and Fru: March – August.

Occasional in scrub jungle. Has distribution in Indomalayan region.

Stamens present. Fruit is a globose berry which is enclosed in calyx.

Armed stragglers. Leaves oblong lanceolate. Flowers small in cymes. Calyx cupular. Petals 6, creamish.

Olea scandens Roxb.

OLACACEAE

Ludwigia hyssopifolia (Don) Exell
Herbs or subshrubs. Leaves elliptic – oblong. Flowers at the axils and 4-merous. Petals 4, yellow and obovate. Stamens 8. Fruit is a thin walled capsule.
Frequent in perennially moist places and along water courses. It has wide distribution in old-world tropics.
Fls. and Fru : January – December

ONAGRACEAE

Schrebera swietenoides Roxb.
A moderate sized tree. Bark grey and exfoliating in irregular scales. Leaves compound, opposite leaflets, fleshy. Flowers yellowish-brown, fragrant, terminal cymes. Fruit a capsule.
Frequent in the deciduous forest. Probably pantropical in distribution.
Fls Feb-May, Fru Sept-Nov

Olea glandulifera Wallich ex Don
A small tree. Leaves opposite, ovate with entire margin. Flowers in axillary or terminal panicles. Petals greenish to cream and 4 lobes. Stamens 2, exerted. Fruit is a drupe.
Frequent understorey tree in wet deciduous forest. Native of India and Nepal.
Fls March – April, and Fru: January – December

Olea dioica Roxb.
A moderate to a large sized tree. Stem dark brown. Leaves opposite, elliptic with serrated margin. Flowers small creamy white in panicles. Fruit a drupe, blue when ripe.
Frequent in wetter parts. Native of India.
Fls Jan-Mar, Fru Apr-June

Linnociera malabarica Wall ex G Don.
Small trees with young parts hairy. Leaves elliptic – lanceolate acute at both ends. Flowers sessile and in fascicles. Petals white and linear. Fruit is an ovoid 1-seeded drupe.
Frequent in the outskirts of moist deciduous forest. Native of Indian peninsula.
Fls. and Fru: November – March

Flowers in stout dense glabrous terminal panicles. Petals white and tubular. Fruit is an ellipsoid drupe turning purple on maturity.
Occasional in the deciduous forest. Native of Indian peninsula.
Fls. and Fru: January – May

Habenaria plantaginea Lindley
 Terrestrial tuberous herbs. Leaves basal, generally flat on the ground. Flowers white; petals entire. Lip much longer than sepals with narrow midlobe and oblique broader lateral lobes; spur green, longer than ovary. Fruit is a capsule.
 Occasional in the undergrowth of deciduous forest. Distributed in India and Sri Lanka.
 Fls and Fru: October – December.

ORCHIDACEAE

Opilia amentacea Roxb
 Climbing shrubs. Leaves ovate-lanceolate. Flowers small in axillary racemes, pentamerous. Petals 5, free and greenish-yellow. Glandular disc present. Stamens exserted. Fruit a globose drupe.
 Frequent climbers in dry forests. Has wide distribution in Old world tropics.
 Fls and Fru: January – December.

Cansjera rheedii J. Gmelin
 Climbing shrubs with occasional thorns. Leaves ovate-lanceolate. Flowers in spikes which are pubescent. Flowers small and 4-merous. Petals yellowish and hairy. Glandular disc present. Fruit is ovoid, one-seeded drupe.
 Frequent climbers in dry scrub jungle. Has wide distribution in Indomalayan region.
 Fls and Fru: January – December.

OPILIACEAE

Ludwigia perennis L.
 An erect herb 6 - 20 inch high; stem more or less angular, much branched, glabrous. Leaves lanceolate or linear-lanceolate, glabrous. Flowers small, solitary, axillary, calyx tube subcylindric, lobes 4, ovate, acute. Petals 4, yellow, elliptic. Stamens 4, ovary 4-celled, absolutely 4 angled. Seeds very numerous in several rows in each cell.
 Flowering: May - June.

Ludwigia peruviana (L.) H. Hara
 A subshrub with hirsute branches. Leaves simple and broadly oblong. Flowers in the axils. Petals 4, golden yellow. Stamens 8, ovary 4-celled. Fruit is a oblong 4 angled, ribbed capsule.
 Frequent shrubs along water courses. Introduced and naturalised now.
 Fls and Fru: January – December.

- Hebenaria viridiflora** (Swartz) R.Br.
Tuberous herbs about 25-30 cm tall. Leaves narrowly elliptic-lanceolate, crowded near the base. Flowers several, greenish. Fruit is a capsule.
Seen frequently among the grasses in a deciduous forest especially after rain. Has distribution in India, Sri Lanka and South-East Asia.
Fls and Fru: November - January.
- Liparis prazeri** King & Pantling
Terrestrial herbs. Pseudobulb present. Leaves ovate, flat on the ground. Flowers greenish-yellow. Fruit is a capsule.
Rare in wet areas. Native of India and Burma.
Fls and Fru: August.
- Nerilla aratoana** Gaudichaud
Terrestrial orchid with perennating tuber. Leaf long petiolate, cordate-hastate at base, acute at tip, with undulating margin. Inflorescence 5-flowered. Flower greenish yellow. Lip shortly three lobed; lateral lobes short, midlobe subacute, nerves fleshy, purple.
Frequent on the wet grounds. Flowers are seen first and later the leaf. Indomalayan in distribution.
Fls: May.
- Peristylus goodyeroides** (D. Don) Lindl.
Robust tuberous terrestrial herbs. Leaves 3-5, spirally arranged at about middle of the stem. Flowers spicate, greenish to cream, generally addressed to the axis. Lip 1-3 lobed, capsules generally fusiform, slightly beaked.
Common orchid in the undergrowth of deciduous forest. Indomalayan in distribution.
Fls and Fru: August - September.
- Polystachya flavescens** (Blume) J.J. Smith
Epiphytic orchid with pseudobulb. Leaves 3-4. Inflorescence simple or branched. Flowers yellow, lateral sepals broadly and obliquely ovate-triangular. Lateral lobes of lip small, narrow; midlobe broadly oblong.
Frequent herbs in the deciduous forest. Indomalayan in distribution.
Fls and Fru: July - August.
- Vanda testacea** (Lindl.) Reichb.f.
Epiphytes. Flowers small, yellow, lip spotted with pink, with conical pointed spur. Disc of midlobe with fleshy ridges.
Common epiphytes in deciduous forest. Distributed in India and Sri Lanka.

Fis. April

OXALIDACEAE

Biophytum sensitivum (L.) DC

Herb. Leaves sensitive, crowded into a rosette on the top of the stem $1\frac{1}{2}$ - 3 inch long. Leaflets 7 - 15 pairs, terminal pair largest, obovate, curved; upper ones oblong, basal ones ovate. Umbels 5 - 10, each 7 - 10 folds. Petals yellow, oblong, much exceeding the sepals; lobes rounded and spreading. Capsule glandular - pubescent along septa; seeds 2 - 4 per cell.

Common herb in the undergrowth of deciduous forest. Native of India and Sri Lanka.

Fis. and Fru. : May - January

Oxalis corniculata L

Diffuse herb. Leaves palmately 3 foliate, petiole $1\frac{1}{2}$ - $3\frac{1}{2}$ inch long, very slender, pubescent, leaflets $\frac{1}{2}$ - 1 inch long, obcordate, cuneate at the base, subsessile. Flowers axillary, subumbellate, petals yellow, oblanceolate, rounded at the apex, emarginate. Capsule oblong, abruptly tapering above, puberulous. Seeds numerous. Common weed in wet places. Pan-tropical in distribution.

Fis. and Fru. : All seasons

PASSIFLORACEAE

Passiflora subpeltata Ortega

Glabrescent climbers with axillary tendrils. Leaves palmately tri-lobed with leafy stipules. Flowers solitary, axillary and showy. Petals and corona are white. Fruit is an elliptic, smooth, edible berry.

Occasional climbers on the thickets in dry areas. Native of tropical America, now introduced and naturalised in India.

Fis. and Fru. : All seasons

PIPERACEAE

Peperomia dindigulensis Miq

Perennial succulent herb. Stems and leaves are hairy. Leaves simple, decussate and spatulate. Flowers in spikes, bracteate and bisexual. Fruit is reddish - black berry.

Occasional herb in deciduous forest. Probably endemic to peninsula.

Fis. and Fru. August - November.

Alloteropsis cimicina (L) Stapf
 Annuals with tufted culms. Leaf blades lanceolate. Sheath and ligule hairy. Spikelet 1, dorsally compressed, 2 flowered. Glumes unequal, Anthers 3.
 Common in waste places and scrub jungles and grassy patches

Arthaxon depressus Stapf ex C. Fischer
 Culms glabrous. Blades to 3.5*1.5cm, tuberculate-pilose. Racemes 2-4, to 5cm. Sessile spikelets to 6 5mm, base cuneate. Glumes unequal; lemmas pilose on margin. Anthers 3.
 Found abundant on slopes
 Distributed in Peninsula

POACEAE

Plumbago zeylanica L.
 Shrub subscedent. Stems spreading, terete, striate, glabrous. Leaves thin, elliptic - ovate, subacute, entire, glabrous, petiole narrow, amplexicaul at the base. Flowers in elongate spikes, rachis glandular. Calyx narrowly tubular, persistent, densely covered with stalked glands, sticky. Corolla white, slender, tubular, lobes obovate, acute. Capsule oblong, pointed.
 Common in the undergrowth of deciduous forest. Pantropical in distribution.
 Fls : August - September

PLUMBAGINACEAE

Pitiosporum floribundum Wt & Arn.
 A small tree. Crown spreading. Bark greenish-grey with lenticels. Leaves loosely crowded at tip, thinly coriaceous, shiny above. Flowers yellowish, in corymbose inflorescence. Fruit a capsule, yellow when ripe.
 Rare tree in deciduous forest. Native of India.
 Fls Jan-June, Fru Apr-Nov.

PITIOSPORACEAE

Piper longum Linn.
 Stems prostrate or ascending. Leaves cordate, glabrous, the lower with long petioles, the upper sessile and stem clasping. Flowers minute, spicate; perianth zero. Fruit small, blackish green.
 Occasional climbers in wet deciduous forest. Native of India.
 Fls: October-November

- Axonopus compressus** (Sw) P Beauv.
Culms matty, to 20cm. Nodes bearded. Leaf sheath to 10cm. Blade oblong, to 5.5 cm, rounded at tip. Spikelets softly hairy. Anthers 3. Caryopsis ellipsoid.
- Arundinella purpurea** Hochst ex Steudel
Perennial with tufted culms. Blade 12 cm, oblong. Panicle contracted, spikelets paired, axis and branches scabrid. Glumes unequal membranous. Anthers 3. Caryopsis ellipsoid.
Common in grassy patch and grasslands.
Distributed in South West India. Flowering: October to November.
- Aristida setacea** Retz
Tufted stout, robust. Blades oblong, involute. Panicle contracted. Glumes linear, convolute, long-awned. Setae-3.
Common in plains.
Distributed in South East Asia, India, Sri Lanka to Mascarene Isls.
Flowering: All seasons.
- Aristida adscensionis** L.
Perennial with densely tufted culms. Leaves linear. Panicles contracted. Spikelets linear, greenish purple. Glumes linear. Lemma elliptic, awn sessile. Setae 3, unequal. Ovary linear.
Commonly found in plains.
Distributed throughout tropics.
Flowering: All seasons.
- Apuda mutica** Linn.
Annuals or Perennials. Culms creeping or erect. Nodes glabrous. Leaves lanceolate, attenuate, petiolate. Ligules 1-3mm, membranous. Racemes solitary from a peduncled spatheole, glabrous. Spatheole broadly elliptic or ovate, acuminate or cordate. Sessile spikelets laterally compressed, awned. Lower glume lanceolate, shortly bifid, keel ciliate or glabrous. Anthers 3; Caryopsis ellipsoid. Pedicelled spikelets, bisexual awnless.
Commonly seen in the open areas of the forest and on plains.
Distributed in West Asia, Tropical Asia, India, New Caledonia.
Flowering: September to December.
- Paleotropic in distribution.
Flowering: June to September.

- Very common along the roadsides
 Introduced from Neotropics to many warmer countries. Distributed in Southern USA, Mexico to Brazil.
 Flowering: July to September
- Bothriochloa pertusa** (L.) A. Camus.
 Culms tufted, erect. Blades aggregated at base, oblong, to 20 cm, flat, apex acuminate. Racemes 2-5, slender to 5 cm long, purplish. Sessile spikelets ellipsoid, to 3 mm. Lower glume 1(2)-pitted above middle, obtuse. Pedicelled spikelets narrowly ellipsoid, pitted or not. Anthers yellow.
 Found in plains
 Distributed in West and South East Asia, India, Tropical Africa
 Flowering: November to April
- Bracharia eruciformis** (Smith) Griseb
 Annuals with erect culms. Leaves lanceolate, glabrous with acuminate apex. Sheath hairy. Racemes erect, oblong, usually appressed to rachis, winged. Spikelets ellipsoid densely pubescent. Caryopsis ovoid.
 Commonly found in the moist places, road side, paddy fields.]
 Distributed from India to Mediterranean.
 Flowering: November to April
- Bracharia distachya** (L.) Stapf.
 Culms to 30cm, linear to narrowly lanceolate. Raceme with 2 or 3 branches, rachis ribbon like, narrowly winged. Spikelets ellipsoid, glabrous. Glumes dissimilar. Caryopsis, ovoid, compressed.
 Common on plains, river banks and sand dunes.
 Distributed in West Asia, India to Sri Lanka, South East Asia, introduced in Africa.
- Bracharia ramosa** (L.) Stapf
 Culms to 60 cm. Leaves linear. Rachis triquetrous, narrowly winged. Spikelets broadly ellipsoid, paired.
 Glumes membranous, acuminate.
 Commonly seen as a weed.
 Distributed in India, southwards to Malawi and South Africa, West Asia, Tropical Asia.
- Bracharia semundulata** (Hochst.) Stapf
 Culms to 30cm. Blades ovate, to 3-5-1cm. Racemes to 4cm. Spikelets ovoid, paired, secund, densely villous.
 Glumes hyaline, acute.
 Found on exposed slopes.

Flowering: July to August

Distributed in Tropics of Asia and Africa

Common in plains

than sessile one

hairy, without on the keel, awn to 8mm Upper lemma with awn to 2.5 cm. Pedicelled spikelet: spikelet shorter than sessile one. Sessile spikelet: lower glume folded, apically hispid without. Upper glume densely stiff, rugous ovate, to 7cm. Culms base thickened with white hairs. Leaves to 20 cm, hairy towards base. Panicles tufted perennial. Culms base thickened with white hairs. Leaves to 20 cm, hairy towards base. Panicles

Chrysopogon fulvus (Sprengel) Chiov

Flowering: August to October

Distributed in India, Sri Lanka, Tropical, South East and East Asia, Malaysia, Polynesia, Australia.

Common in plains and grassy areas. It can withstand fire and grazing very successfully.

compressed

folded, scabrid at the back. Lower lemma sparsely pilose. Upper lemma awned. Caryopsis laterally ciliate. Sessile spikelets: lower glume flat & stiff-hispid at the back on flaps, apex 2-dentate. Upper glume Rhizome subterranean, creeping. Leaves mostly basal, oblong, rounded at tip, glabrous, sheath margin

Chrysopogon aciculatus (Retz) Trin

Distributed in India, West, East and South East Asia, and Australia

Found on plains

oblong-lanceolate, 3 nerved. Caryopsis 3 mm.

Culms to 1.5 m. Spikes 4, drooping. Spikelets oblong, 2 flowered, 2 awned. Glumes aristate, fertile lemma

Chloris dolichostachya Lagasca

Flowering: October to January.

Distributed in South East and East Asia, Polynesia and Tropical Africa

Common in shady places in the forested areas

flowers and one sterile floret. Glumes persistent, unequal, distant at the insertions. Caryopsis obovoid-oblong veined, asymmetrical at base. Panicles lax to 10cm. Spikelets secund, alternately compressed, with 2 bisexual tufted perennials. Culms decumbent, to 60cm, glabrous at nodes. Blades flat, broad, to 10 cm, tessellately

Centotheca lapacca (L.) Desv.

Distributed in Tropical Africa, West Asia, India

Culms to 40 cm, ascending, glabrous at nodes. Blades oblong, to 10cm. Panicles to 8cm. Involucre turbinate, bristles rigid, apex retrorsely barbellate, spikelets 3, to 4mm. Lower glume 0. Caryopsis oblong, apex beaked

Cenchrus biflorus Roxb

- Cymbopogon coloratus** (Nees) Stapf
 Culms to 2m, erect. Nodes bearded. Blades to 40cm. Spathe to 2cm. Spatheoles to 1.5cm. Raceme-bases unequal, stout, shortly pilose along margins. Sessile spikelet oblong, to 6mm. Lower glume shortly 2-dentate. Upper glume aristate. Pedicelled spikelet to 5mm.
 Common in open areas and grassy patch.
 Distributed in India (central and peninsula).
- Cymbopogon flexuosus** (Stuedel) Watson
 Culms stout. Blade lanceolate, glaucous. Sheath hairy. Inflorescence congested with raceme pairs in masses. Common in open grassy areas and grassland.
 Indomalaysian in distribution.
 Flowering: August to December.
- Cymbopogon nardus** (L.) Rendle
 A stout tall perennial. Blade lanceolate, acuminate. Panicle often turning purplish under dry conditions.
 Common on grassy patches, slopes.
 Distributed in South India, Sri Lanka.
 Flowering: July to September.
- Cynodon dactylon** (L.) Pers
 Stoloniferous herb. Blade flat, lanceolate, acuminate, margin scarberulose. Sheath glabrous, ligulate membranous, sometimes shortly ciliate. Spikes 3 or 4, digitate, 1 sided, oblong to 5cm. Spikelets to 2.5mm, sessile, laterally compressed, alternately 2-serrate, imbricate. Caryopsis linear.
 Very common in all open places, more near moist areas.
 Distributed in Tropical and warm temperate regions of the world.
 Flowering: July.
- Cyrtococcum oxyphyllum** (Stuedel) Stapf
 Perennials. Culms to 40cm, nodes glabrous/bearded. Blades oblong. Panicle contracted, pilose at point of branching. Pedicel shorter than the spikelet. Spikelets obliquely obovate, laterally compressed. Anther 3. Caryopsis obovoid.
 Common in moist places, forest clearings.
 Distributed in India, Sri Lanka, South East and East Asia, Malasia.
 Flowering: July to October.

Eragrostiella bifaria (Vahl) Bor
 Perennials, Culms tufted, to 80cm. Blades linear, involute, sparsely hairy. Spikelets straw coloured, laterally compressed, linear to ovate-oblong. Caryopsis globose. Common in plains and rocky region. Distributed in India, Burma, Sri Lanka. Flowering: July to January.

Digitaria ciliaris (Retz.) Koeler
 Annual with 60 cm culms. Leaves oblong. Racemes sub-digitate, alternate, whorled. Spikelets oblong, binate, pubescent. Lower glume scaly. Upper glume linear-lanceolate. Commonly found on plains, road sides, open places. Distributed in India, West Asia. Flowering: July to October.

Digitaria bicornis (Lam.) Roemer & Schultes
 Culms tufted, 40cm. Nodes sparsely bearded to glabrescent. Blades oblong, flat. Racemes 2-8, to 15cm, digitate or in 1 or 2 whorls on a common axis, to 1.5cm long. Rachis serrulate. Spikelets binate, oblong, heteromorphic. Sessile ones glabrous/sparsely pubescent. Pedicelled ones pubescent. Lower glume scaly. Upper glume overtopping. Stamens 3. Styles 2, apical. Stigma plumose. Caryopsis ellipsoid oblong. Common in open areas, in plains. Distributed in Tropical and subtropical countries.

Digitaria abudens (Roemer & Schultes)
 Annuals with erect or creeping culms and flat blades. Leaf sheath usually separating from culm. Inflorescence of subdigitate, spaced racemes. Spikelets unequally pedicelled with clavate hairs. Stigmas plumose. Common in plains, in shady areas. Distributed in Tropical Asia. Flowering: July to October.

Dactyloctenium aegyptium (L.) P. Beauv.
 Annual with erect culm, blade flat, pilose or glabrous with bulbous based hairs towards base. Spikelets 2-3 fld, sessile, broadly ovate, laterally compressed, densely imbricate in two rows, rachis produced as a sharp point above. Very common in plains and open areas. Distributed widely in Tropical and warm temperate regions of the Old World. Flowering: July to November.

Eragrostis minor Host
 Culms tufted, to 30cm. Blades oblong. Primary rachis with prominent glandular bands. Pedicel with prominent glandular bands. Spikelets oblong, pale yellow to greenish grey. Caryopsis globose.
 Distributed in India, West Asia, Subtropics of the Old World.
 Flowering: November

Eragrostis tenuifolia (A Rich) Hochst ex Steudel
 Culms loosely tufted. Blades oblong, inrolled. Panicles ovate, primary and secondary rachis with glandular bands and crateriform glands, pedicel with glandular bands about the middle. Spikelets oblong, olive green to blackish. Caryopsis oblong subquadrate.
 Common in open places, on the bunds of the paddy fields.
 Distributed in South India, Tropical Africa.
 Flowering: July to October

Eragrostis unioloides (Retz.) Nees ex Steudel
 Tufted annuals, culms to 80cm. Blades oblong, flat/inrolled, sub amplexicaul at base. Panicles spreading, narrowly oblong. Spikelets ovoid to oblong, straw coloured, tinged with pinkish purple, breaking up from base.
 Common in plains, often in moist open places.
 Distributed in India, Africa, Nepal, South East Asia.
 Flowering: July to October

Hackelochia granularis (L.) Kunze
 Branching culms to 60 cm. leaves lanceolate, cordate at base, flat. Sheath keeled on the back. Racemes spiciform, to 2cm. Pedicel fused with the rachis, enclosing the sessile spikelet falling entire.
 Lower glume crustaceous, upper glume broadly ovate, concave. Anthers 3. Caryopsis ovoid.
 Common in plains and fallow land.
 Distributed throughout tropical countries.
 Flowering: July to September

Heteropogon contortus (L.) Pal-Beauv. ex Roemer & Schultes
 Annuals or perennials with culms strongly tufted. Nodes glabrous. Blades lanceolate, scaberulous. Inflorescence a solitary, spiciform raceme terminating culm, awns forming a twist spike, lower 4-6 pairs of spikelets homogamous, awnless; upper ones awned, heterogamous. Callus of fertile spikelets densely hairy. Stamens

Common in open areas, grassy patches, grassland.
 Distributed in Tropical and warm temperate regions.

Perennials. Culms to 2m, base woody. Nodes glabrous blades lanceolate to 12 x 2 cm, 10-12 nerved, appressed, pilose. Panicles open, branches alternate, spreading apex capillary, rachis smooth. Spikelets ovoid-ellipsoid, pubescent, acute. Ovary linear.

Panicum notatum Retz.

Flowering: September to October.

Found in the open areas, not so frequent

triquetrous, hairy.

1-2 in long. Spikelets secund on the lower side of the branches, hairy with bulbous based hairs; pedicels short. Stems creeping, stout, leafy. Leaves recurved, thin, oblong lanceolate, acute, ciliate on the margins. Panicles

Isachne lisboae Hook f.

Flowering: August to January.

Distributed in Peninsula, South East Asia

Common in plains and grassy patches, grassland

Spikelet oblong. Pedicelled spikelet to 4mm.

Culms to 50cm. Nodes bearded. Blades to 25 x 1cm. Racemes 2-3. Sessile spikelet. Callus densely villous.

Ischaemum indicum (Houtt.) Merr.

Flowering: August.

Distributed in India, Nepal, South East and East Asia, Australia.

Found occasionally in hilly areas, moist places

shaped, tuberculate scabrid. Caryopsis ellipsoid

globose, to 2mm, florets unequal, of different texture. Pedicels white gland banded. Glumes ovate, boat. Culms to 25cm, sparsely villous at nodes. Blades lanceolate, to 4.5 cm, flat. Panicles to 8cm. Spikelets

Isachne globosa (Thunb.) O. Kuntze

Flowering: July to September.

Distributed in India, West Asia, Throughout the Old World Tropics

Found in plains, sometimes as a troublesome weed.

glume with apex fringed. Anthers 3

elliptic, 2 flowered, enveloped in long silky, white hairs. Lower glumes sparsely ciliate, apex 2-dentate. Upper Culms to 50 cm. Nodes bearded. Leaves lanceolate. Panicles oblong. Rachis flexuous, jointed. Spikelets

Imperata cylindrica (L.) Raensch

Flowering: July to November.

Pennisetum hohenackeri Hochts ex Steudel
 Perennial with densely tufted culms. Leaves convolute and narrow, linear, rigid. Panicle compact, solitary. Spikelets purple, narrowly lanceolate. Glumes small, hyaline. Lower glume suborbicular. Upper glume ovate. Common in open places and on the bunds of paddy fields. Distributed in West India, Tropical Africa, Madagascar, West Asia. Flowering: August to October.

Paspalum scrobiculatum L.
 Perennial with culms up to 60 cm. Leaves lanceolate, flat, involute. Racemes 2 or 3. Spikelets 30 - 70 per raceme, ovoid-orbicular. Upper glume ovate, glabrous. Upper lemma crustaceous. A cultivated annual grass in plains and hilly areas. Distributed in India, West Asia, throughout Old World tropics.

Paspalum conjugatum Bergius
 Perennial with stolon. Leaves lanceolate with acuminate tips. Spikelet white, ciliate along the margin. Commonly found in shady places. Distributed pantropically. Flowering: August to November.

Paspalum compactum Roth
 Terrestrial annuals. Culms to 30cm. Blades ovate-acute, hairy. Inflorescence of spiciform; racemes 5-15, distant, spreading on a common axis. Spikelets 1 or paired, ovoid, turgidly plano-convex. Caryopsis plano-convex, enclosed by lemma & palea. Found on stream banks, moist places inside the shola forest. Distributed in Hills in India except Himalayas.

Paspalum flavidum (Retz) A Camus
 Annuals. Culms tufted, to 90cm, decumbent, branched. Blades lanceolate, flat, prominently nerved below, often rounded at apex. Inflorescence of alternate, spiciform racemes on common rachis; spikelets 15-20 per raceme, globose. Caryopsis ovoid. Common in plains and moist areas. Distributed in Tropical Asia. Flowering: July to August.

Found in moist open places, hilly areas. Distributed in South East Asia.

Rottboellia exaltata L. f
Culms to 1m, erect; nodes glabrous. Blades 20 cm, flat. Raceme to 12cm, spathe clasping racemes at base.

Flowering: October to November

Distributed throughout India

Common in openings, plains, grassy patch

3

Pseudanthistiria hispida Hook. f
Annuals or perennials. Culms 30-100cm high, tufted. Nodes glabrous. Leaves lanceolate, acuminate, rounded at base, midrib prominent, hirsute. Panicles 10-25cm long, narrow, congested, leaty. Sessile spikelets 1-2 in a raceme, linear-oblong, awned. Pedicelled spikelets 2-3 in a raceme elliptic, awnless, softly hairy. Stamens

Flowering: January to April

Distributed in India, Burma, Sri Lanka

Common on road sides near ghats

Pogonatherum panicum (Lam.) Hackel
Perennial with densely tufted culms to 20 cm, branching near the apex. Leaves flat, lanceolate. Raceme spiciform. Rachis slender and hairy. Spikelet sessile. Glumes membranous, dissimilar. Stamens 1-2.

Flowering: August to October

Indomalaysia in distribution

Commonly found in scrub, open areas, grassy patches

linear, terete

Perotis indica (L.) Kunze
Perennials with tufted culms, to 40cm. Blades imbricate at base, ovate, acute, amplexicaul at base. Spike slender, to 12cm. Spikelets purple, linear, awned, spiral on rachis; callus prominent. Stamens 3. Caryopsis

Flowering: December

Distributed in India, Tropical Africa and America

Found frequently in open areas, grassy patches, hedges

Stigmas golden yellow

Pennisetum polystachyon (Linn.) Schult
Annuals or perennials. Culms 2-3 feet high, densely tufted, erect. Nodes glabrous. Leaves linear-lanceolate, rounded or shallowly cordate at base, tubercle-based hairy or glabrous. Panicles spiciform 8-20cm long, cream yellow or purplish. Rachis angular with sharp-edged document wings. Involucre enclosed one sessile spikelet. Bristles, atleast inner ones plumose in the lower half. Spikelets lanceolate. Stamens 3. Ovary oblong

- to 9cm. Internodes clavate, fused to adjacent pedicel. Sessile spikelets ovoid. Caryopsis ellipsoid. Found in plains and hilly region. Distributed throughout the Old World tropics.
- Sacciolepis indica** (L.) Chase
 Culms tufted, decumbent. Blades lanceolate. Panicles spiciform, to 7cm. Spikelets ovoid-ellipsoid dorsally compressed. Ovary ellipsoid. Common in moist places and on the bunds of paddy fields, open areas. Distributed in tropical Asia, Polynesia, Australia. Flowering: August to October.
- Setaria italica** (L.) P. Beauv.
 Annuals or perennials; culms to 1cm, stout. Blades linear-lanceolate. Inflorescence a pseudospike, contracted; involucrel bristles 3-5 per whorl, antrorsely barked. Spikelets ovoid, compressed. Caryopsis fusiform to ellipsoid. Widely cultivated and also found as an escape in wild near moist openings. Flowering: July to November.
- Setaria pallide-fusca** (Schumacher) Stapf & C Hubbard
 Annuals. Culms to 50cm, geniculate. Blades lanceolate. Inflorescence of spikes, compact; involucrel bristles 9-11 per whorl, antrorsely barbed. Spikelets 3 in a cluster¹, ovoid. Caryopsis ellipsoid. Found commonly in plains, roadsides. Paletropic in distribution. Flowering: July to November.
- Setaria palmifolia** (J Koenig) Stapf
 Culms stout, grooved. Leaves lanceolate, flat. Panicles pyramidal. Rachis continuing as a bristle. Spikelets ellipsoid. Lower glume ovate, 5-7 nerved. Upper glume 7-9 nerved. Occasional near water, open areas, hilly region. Distributed in India, Old World Tropics.
- Setaria tomentosa** (Roxb.) Kunth
 Culms decumbent, to 60 cm. Leaves linear-lanceolate. Panicles contracted, oblong. Involucrel bristles 5-7 per whorl. Spikelet ellipsoid. Lower glume obovate, 3 nerved. Upper glume boat shaped, 7 nerved. Caryopsis ellipsoid. Common along road sides, plains, shady areas.

Distributed in India, Sri Lanka, West and South East Asia
Flowering: July to November

Setaria verticillata (L.) Beauv

Culms stout, to 2m. Blades lanceolate. Panicles spiciform, to 12cm; involucre bristles retrorsely barked
Spikelets somewhat paired with sterile and fertile ones ovoid

Found in plains.

Distributed in India, West Asia, tropical regions.

Sorghum halepense (L.) Pers

Culms to 3m. Leaves to 90 cm. Panicles effuse, primary branches whorled. Sessile spikelet lanceolate
Glumes subequal. Lower glume oblong. Upper glume convex. Caryopsis subglobose. Pedicelled spikelet
awnless.

Widely cultivated

Distributed in India and most warm countries

Sporobolus fertilis (Steudel)

Perennial. Leaves with slight infolding margin. Panicles contracted. Stamens 3. Caryopsis truncate above.

Commonly found on the bunds of paddy fields.

Indomalaysian distribution.

Flowering: July to August

Sporobolus wallichii Munro ex Trin

Culms tufted, to 70cm. Blades oblong. Panicles oblong, very effuse; primary branches slender, flexuous,
devoid of spikelets at base. Spikelets ellipsoid, 20mm. Caryopsis oblong\ ovoid, not beaked

Found in rocky region, plains, forest openings

Distributed in India, Sri Lanka, South East Asia.

Themeda cymbaria Hackel

Culms stout, to 1.5m. Leaves lanceolate. Raceme 5 in a cluster, to 1.5cm; spatheoles to 1.5cm, glabrous
Involucral spikelet lanceolate, 6mm. Caryopsis to 2mm, linear, grooved.

Frequently found growing gregariously in grassy patches, Hill slopes, Grassland, ground cover in deciduous

forest.

Distributed in West Peninsula, Sri Lanka

Flowering: August to January

- Themeda quadrivalvis** (L.) Kunze
Annual. Leaves narrow. Spathe not bristly. Involucral spikelet 5mm. The lowest set of spikelets persistent, nearly sessile, forming an involucre. The following spikelets 2-3 nate, one sessile. Lemmas epaleate, empty. Common in dry areas, plains
Flowering: September to December
- Themeda tremula** (Steudel) Hackel
Perennials. Spathe tubercle bristly. Fascicle with 2 sessile spikelets. Involucral spikelets superposed. Common on grassy slopes
Distributed in south India, Sri Lanka
Flowering: August to December
- Themeda triandra** Forsk.
Culms to 2m. Blades lanceolate. Panicles dense, elongate. Racemes 7x4cm. Spatheoles to 8cm; spikelets nodding. Involucral spikelets lanceolate, 7mm. Pedicelled spikelets 6-5mm. Ovary 1-5mm.
Commonly found in plains and grassy patches
Distributed in all warm and tropical regions of the Old World
Flowering: September to December
- Triopogon bromoides** Roemer & Schultes
Perennial tufted herb. Blades linear, convolute. Spike solitary, subsecund. Spikelets 2-seriate, sessile, lanceolate
Commonly found on rocky surfaces
Distributed in South India, Nepal, Sri Lanka
Flowering: September to January
- Urochloa panicoides** Beauv var **panicoides**
Culms to 30 cm. Leaves linear, subcordate, clasping stem. Raceme lax. Spikelet 1, ovoid. Lower glume broadly ovate. Upper glume ovate, margins clasping lemmas, membranous. Lower lemma membranous. Upper lemma ovate, crustaceous, warty, aristate
Found in plains and grassy patches
Distributed in India, Africa
Flowering: July to September

Polygonum chinensis Linn.
A large undershrub, semi-scandent over bushes. Stems cylindrical, glabrous, striate, older ones dark brown, younger red. Leaves elliptic-ovate, shortly acuminate, glabrous above, margins entire, often red, base usually truncate and sometimes very shortly cuneate; petioles enlarged and auricled at the base. Flowers sessile, in cymosely paniculate head, white. Perianth lobes 5, ovate-oblong, subobtuse, nutlets trigonous, black. Common in wetter areas and along streams and rivers. Indo-malayan in distribution.
Fls. and Fru : All seasons

Polygonum barbatum L.
Large herbs with sparse hair on stems. Leaves alternate, entire, linear-lanceolate and hairy along nerves. Flowers in terminal paniced racemes with hairy bracts. Perianth 5-lobes. Stamens 6. Fruit is trigonous nut. Common in marshy places and river courses. Has wide distribution in old-world tropics.
Fls. and Fru : All seasons

POLYGONACEAE

Polygala rosmarinifolia Wight & Arn.
Herb. Leaves alternate elliptic, oblong, linear or oblanceolate, Racemes upto 1.5cm. flowers small, petals yellow, laterals suborbicular, subequal to keels; crests with forked appendages. Filaments subconnate. Capsule rhomboid or oblong, seeds - 2. Frequent in various habitats. Native of India and Sri Lanka.
Fls. and Fru : January – December

Polygala elongata Klein ex Willd.
Erect herbs. Leaves linear, elliptic – lanceolate and hairy. Flowers usually in terminal racemes. Petals yellow. Sepals winged. Fruit a rhomboid capsule. Frequent herbs in various habitats. Has wide distribution in Indo-malayan region.
Fls. and Fru : August – November

Polygala arvensis Willd.
An erect or spreading herb with woody rootstock. Leaves sessile, elliptic or oblanceolate. Flowers in axillary racemes. Outer sepals winged. Petals yellow and 3. Fruit a two seeded capsule. Very common herb in undergrowth of various kinds of habitat. Has a wide distribution in continental Asia.
Fls. and Fru : June – December

POLYGALACEAE

drupe

Armed straggler with recurved spines. Leaves alternate, obovate-orbicular and shining green. Flowers small in umbellate clusters. Petals greenish-white and shortly clawed. Disc present. Fruit is dark blue, globose

Scutia myrtina (Burm. f.) Kurz

RHAMNACEAE

Fis. & Fru. Mar-May

Native of Australia and now widely cultivated

orange coloured. Fruit a follicle

A tall tree. Seen in cultivation. Young shoots brownish, tomentose. Leaves act, deeply pinnatifid. Flowers

Grevillea robusta A. Cunn.

PROTEACEAE

Fis. and Fru.: November – April

tropics

Occasional herb in still waters in wet deciduous forest. Has wide distribution in Himalayan region and Asian

the base of perianth, one stamen larger than the other. Ovary 3 celled, capsule oblong.

hollow sheath of petiole. Perianth campanulate, deeply lobed; lobes 3+3, deep blue. Stamens 6, inserted at

Rooted, aquatic herb. Stem stout, short. Leaves ovate, raceme 1, terminal, 6-10 flowered, inserted at the

Monochoria vaginalis (N. Burman) Presl

PONTEDERIACEAE

Fis. and Fru.: August – February

Common in marshy places. Native of Indomalayan region

in terminal paniculate racemes with distantly placed bracts. Perianth lobes 5, gland-dotted. Fruit is a nut

Large glabrous herbs. Leaves alternate, ovate-lanceolate, acuminate, gland-dotted and hairy beneath. Flowers

Polygonum hydropiper L. var. *fascidium*

Fis. and Fru.: All seasons

Common in marshy places usually along ponds. Has wide distribution in old-world tropics.

panicled raceme with glabrous bracts. Perianth lobes 5. Stamens 8. Fruit is a nut

Erect and stout herbs. Leaves alternate, ovate to lanceolate, acuminate and gland dotted. Flowers in terminal

Polygonum glabrum Willd.

Frequent stragglers in thorn forest. Widely distributed in old-world tropics.
Fis and Fru: November – August

Ziziphus mauritiana Lam.

A small much branched thorny tree. Bark dark grey with vertical cracks. Leaves variable with prominent three nerves. Flowers greenish yellow in axillary clusters. Fruits a drupe, edible. Common. Confined to the drier parts of the sanctuary. Native of India and Sri Lanka but cultivated elsewhere for the fruits

Fis Sept-Nov, Fru Dec-Feb

Ziziphus oenoplia (L.) Miller

A ferruginous prickly shrub with recurved prickles. Climbing. Leaves ovate, 3-4 nerved, with tomentum. Flowers axillary, sessile and with 10 lobed disc. Petals greenish. Fruit a drupe, black on maturity. Frequent in deciduous and scrub forest. Distributed widely in Asian tropics and Australia.

Fis Apr-June, Fru Dec-Mar

Ziziphus rugosa Lam.

A much branched shrub, straggling with recurved and stout thorns. Leaves tri-nerved, pubescent. Flowers in cymose inflorescence. Petals absent and disc 5 lobed. Fruit a drupe white, edible. Frequent in deciduous forest. Has distribution in India, Sri Lanka and Myanmar.

Fis & Fru Jan-Apr

Ziziphus xylopyrus (Retz.) Willd.

A small tree, armed. Young parts rusty tomentose. Leaves tri-nerved, white woolly when young. Flowers in axillary clusters. Petals greenish and spatulate. Fruit a hard drupe.

Common. Usually seen in drier parts. Distributed in India and Sri Lanka.

Fis Apr-June, Fru Sept-Feb

RUBIACEAE

(There are several problems regarding nomenclature of species. We have followed Saldanha C.J.)

Anthocephalus chinensis (Lam.) Rich. ex Walp.

A large deciduous tree. Branches spreading horizontally. Bark dark grey with vertical fissures. Leaves opposite, shining above. Flowers orange on large heads. Fruit a pseudocarp of capsules, embedded in yellow fleshy receptacle.

Rare. Confined to wetter parts and along water courses. Native of India.

Frs. May-July, Fru. Aug-Sept

Borrelia articularis (L.F.) F. N. Williams

A hispid procumbent herb with long branches. Leaves elliptic - lanceolate, nerves prominent, acute. Stipules bristled. Flowers pale pink, usually long tubed. Petals 4, acute. Fruit of 2 mericarps dehiscing vertically. Frequent herb in the undergrowth of thorn forest. Has wide distribution in Indomalayan region.

Frs and Fru : June - December.

Borrelia ocymoides (Burm F.) DC

Erect herbs. Leaves elliptic-ovate. Inflorescence is axillary fascicles with many bracteoles which are bristly. Flowers white. Fruit is mericarp, each covered by septum.

Rare in the undergrowth of a deciduous forest. Pantropical in distribution.

Frs. and Fru : July - October

Borrelia pusilla (Wall) DC

An erect herb with long internodes, brownish black stem. Leaves variable, ovate-elliptic, acute. Flowers white, tube short, petals 4, acute. Fruit a mericarp separating from septum and hairy.

Scattered in the undergrowth of scrub forest. Has wide distribution in old-world tropics.

Frs. and Fru : All seasons.

Canthium dicoccum (Gaertner) Tey & Binn. Var *umbellatum* (Wight) Sant & March

An unarmed tree. Bark dark grey. Leaves ovate, shortly acuminate, bright green above. Flowers in axillary umbels, white. Fruit a drupe.

Frequent in the understorey of deciduous forest. Native India and Myanmar.

Frs. Apr-Aug, Fru July-Oct

Canthium parviflorum Lam.

A thorny shrub with conspicuous spines. Leaves opposite, ovate and shining. Flowers in many flowered cymes, yellowish. Fruit a drupe, edible, yellow when mature.

Common. Confined to drier parts. Native of peninsular India.

Frs. June-Aug, Fru Nov.

Gardenia gummifera L.

A small tree. Bark greyish brown and smooth. Branches twisted. Leaves opposite, sessile, obovate and slightly cordate at base. Flowers white in fascicles. Fruit an ellipsoid berry.

Occasional in drier parts of the sanctuary. Native of peninsular India.

Mitragyna parvifolia (Roxb) Kuntz

Large deciduous tree Usually with buttressed stem. Bark brownish or greenish grey. Leaves simple, opposite.

Fis. and Fru.: All seasons.

Frequent in the undergrowth of a deciduous forest. Has wide distribution in Indomalayan region.

mericarp

Flowers 4-merous. Petals funnel shaped, purplish-blue with hairy throat. Fruit is 1-seeded indehiscent. Pubescent herbs. Leaves linear – lanceolate with stipules split into bristles. Flowers in corymbose cymes.

Knoxia sumatrensis (Retz) DC

Fis. & Fru. Jan - May.

Rare in drier parts of the sanctuary. Distributed in Indomalayan region.

corymbiform cymes. Petals white and shortly lobed. Fruit a drupe, dark brownish black with age.

Large shrub. Bark brown. Leaves simple, oblong-ovate, dark green, drying black. Flowers white in

Ixora nigricans R Br

Fis. & Fru. Jan-May.

Occasional. Confined to the drier parts of the sanctuary. Native of India, Myanmar and Sri Lanka.

above. Flowers white or pink and fragrant in dense panicles. Fruit is a black berry.

A small evergreen tree. Bark dark brown. Leaves simple, elliptic or obovate, leathery, glabrous and shining

Ixora arborea Roxb ex J E Smith

Fis. June-July, Fru. Mar-Apr.

Frequent in the deciduous forest. Distributed in Indomalayan region.

capsule. Seeds winged.

Flowers in drooping panicles with large leafy, red bract. Petals greenish and elongate. Fruit a flat, elliptic

A medium sized tree. Bark greyish-brown. Leaves decussate, broadly ovate and turns yellowish on maturity.

Hymenodictyon orixense (Roxb) Mab

Fis. Mar-June, Fru. Aug-Nov.

Occasional in drier parts of the sanctuary. Has wide distribution in Indomalayan region.

solitary, white and tubular. Fruit a berry with thick endocarp.

A large shrub with yellow resin. Bark greenish grey. Leaves elliptic, shining. Flowers either in fascicles or

Gardenia resinifera Roth

Fis. May-June, Fru. June-July.

- Flowers creamy white, fragrant in globose heads. Fruit a capsule in globose heads. Frequent tree in the deciduous forest. Has wide distribution in Indomalayan region. Fls June-July, Fru Sept-Oct.
- Morinda coreia** Buch – Ham.
Small tree or a large shrub. Bark pale brown and corky. Leaves opposite, elliptic and dull green. Flowers in simple heads. Petals white and funnel shaped. Fruit is a syncarpium of pyrenes. Occasional in drier parts of the sanctuary. Has wide distribution in Indomalayan region. Fls and Fru: March – Sept.
- Neanotis indica** (DC.) Lewis
Gregarious slender herbs. Leaves decussate, obovate or elliptic-ovate. Inflorescence is terminal corymbose cyme. Petals purplish, funnel shaped with recurved lobes. Fruit a loculicidal capsule. Locally abundant herbs in marshy places. Native of peninsula. Fls and Fru: March – December
- Oidemia auricularia** (L.) K Schum
Diffuse herb with four-angled stem. Leaves ovate-lanceolate with distinct veins beneath. Inflorescence is axillary sessile cyme. Petals white and valvate. Stamens partially exerted. Fruit is an indehiscent loculicidal capsule. Very common herb in undergrowth of a deciduous forest. Has wide distribution in Indomalayan region. Fls and Fru: April – October
- Oidemia affinis** (Roem & Schult) DC
Gregarious slender erect herbs. Leaves decussate, linear with revolute margin. Flowers in lax, slender panicles. Flowers pinkish-white and tubular. Fruit is a loculicidal capsule. Frequent herbs in the drier parts (undergrowth of scrub forest) of the sanctuary. Has wide distribution in Indomalayan region. Fls and Fru: August – March.
- Oidemia corymbosa** Linn.
Small annual. Stems terete, numerous, slender, erect, ascending or spreading. Leaves subsessile, linear-lanceolate, acute, often with recurved and scabrous margins; stipules short. Flowers small, on filiform pedicels, usually 2 - 3 on the top of slender solitary peduncle. Calyx pubescent; teeth triangular. Petals 4, white, lobes acute. Capsules globose. Occasional herbs in undergrowth of scrub forest. Pantropical in distribution.

Fls. and Fru : April – September

***Oldenlandia nitida* Gamble**

A prostrate or ascending herb. Branches numerous, 4 angled, rough on the angles. Leaves subsessile, lanceolate or ovate lanceolate, acute, stiff, glabrous and shining above, scabrous towards much recurved margins. Stipules with numerous long bristles. Flowers solitary or few, axillary, sessile. Calyx glabrous; teeth rigid, triangular. Petals 4, white. Capsules long, dehiscent at the top.

Occasional herb in deciduous forest. Native of peninsular India and Sri Lanka

Fls. and Fru : May – October

***Oldenlandia pumila* (Linn. F.) DC**

Diffuse annual herb. Leaves elliptic or lanceolate. Flowers in cymes. Petals pinkish – white. Fruit is a loculicidal indehiscent capsule

Occasional herb in scrub forest. Native of India and Sri Lanka

Fls. and Fru : April – September

***Oldenlandia umbellata* Linn**

Erect herb. Leaves linear-lanceolate with revolute margins. Flowers dimorphic, in lax umbels. Corolla pinkish-white, stamens either included or exerted. Fruit is a loculicidal capsule

Occasional herb in undergrowth or along the stream bank in deciduous forest. Native of India, Myanmar and Sri Lanka

Fls. and Fru : All seasons

***Oldenlandia wightii* Hook. f**

Scabrid, ascending herb. Leaves linear and margine revolute. Flowers 3 - 12 in clusters. Calyx truncate. Petals 4, white, stamens 4, exerted. Fruit is a loculicidal capsule

Occasional herb in dry forest. Native of peninsula

Fls. and Fru : April – September

***Ophiorrhiza mungos* Linn**

Erect undershrubs. Leaves opposite, elliptic or elliptic-lanceolate and acuminate. Flowers in umbellate cymes

Flowers white and tubular. Fruit a capsule

Frequent undershrubs in moist deciduous forest. Native of India and Sri Lanka

Fls. and Fru : April – September

- Pavetta indica L.**
A large shrub Branchlets quadrangular, tomentose Leaves simple, opposite. Flowers white, fragrant in terminal cymes with exerted stigma. Fruit a berry
Occasional in the undergrowth of deciduous forest Native of India
Fls. & Fru Feb-May
- Randia candolleana Wt & Arn.**
Small tree. Young shoot pubescent Leaves opposite, orbicular or obovate and glabrous Flowers in cymes
Petals white and spreading. Fruit a berry
Occasional in dry scrub forest Native of India
Fls & Fru Mar-June
- Randia malabarica Lamk.**
A small erect spinous shrub. Leaves glabrous and leathery. Flowers in cymes, fragrant & white. Fruit a berry,
dark red or black.
Occasional. Confined to drier parts. Native of India.
Fls & Fru Feb-Aug
- Rubia cordifolia Linn.**
Profusely branched climber. Branches tetragonus. Leaves whorled, 5-nerved from the base and scabrid.
Flowers in lax cymes Petals greenish-white. Fruit a deep purple berry
Occasional climbers in the deciduous forest Has wide distribution in old-world tropics
Fls and Fru : August – January
- Tarenna asiatica (L.) Kuntze.**
Small shrubs. Young parts are resinous Leaves opposite, elliptic-lanceolate and shortly acuminate
Inflorescence is terminal cymes Calyx persistent Petals white and tubular. Fruit is a globose berry.
Frequent shrubs in scrub forests. Has wide distribution in Indomalayan region.
Fls and Fru : All seasons
- Xeromphis spinosa (Thunb) Keay**
A small deciduous armed understorey tree. Bark white or grey. Leaves opposite, simple and elliptic - ovate
Flowers large, white turning yellow, fragrant, solitary. Fruit a berry, globose or ovoid
Common in the understorey of a deciduous forest. Has wide distribution in old-world tropics
Fls Apr-June, Fru July-Aug

RUTACEAE

Attantia monophylla Correa

A small thorny tree. Leaves 1-foliate, elliptic-lanceolate, bright green. Flowers white, fragrant in axillary cymes. Fruit a berry, fleshy, greenish.
Rare in dry parts of the sanctuary. Native of India and Sri Lanka.
Fls Aug-Sept, Fru Feb-Apr.

Atlantia racemosa Wt & Arn.

A small spinose tree. Leaves ovate-oblong, glabrous and divided at the tip. Flowers in axillary racemes, white. Sepals regularly lobed, petals white. Fruit a globose berry, greenish-yellow and pointed.
Occasional. Confined to drier parts. Native of India and Sri Lanka.
Fls Nov-Jan, Fru Apr-May

Chloroxylon swietenia DC

Small trees. Eriations sparsely white pubescent. Leaves compound, even-pinnate, always clustered towards apex; leaflets lanceolate. Flowers in terminal panicles. Flowers bisexual, 5-merous. Petals white and clawed. Fruit a loculicidal capsule.
Common. Confined to drier parts. Native of peninsular India and Sri Lanka.
Fls Mar-May, Fru Apr-July

Clausena indica (Dalz.) Oliver

A small tree, unarmed. Leaves aromatic, odd-pinnate, ovate, oblique and crenate. Flowers small, pale green in terminal panicles. Fruit a smooth cream coloured, edible berry.
Occasional. Confined to drier parts. Native of India and Sri Lanka.
Fls Jan-Mar, Fru Apr-June

Evodia lunu-ankenda (Gaertner.) Merrill

Medium sized tree. Bark smooth and grey. Leaves tri-foliate and opposite. Flowers in cymes, greenish, unisexual. Fruits of four cocci, brown.
Rare. Confined to wetter parts. Indomalayan in distribution.
Fls June-July, Fru Oct-Dec

Feronia elephantum Corr.

A medium sized tree, armed. Bark deep grey. Leaves winged. Flowers dull red in polygamous cymes. Fruit globose, woody containing edible pulp.

Santalum album L.
A small evergreen tree. Root parasite. Bark nearly black. Wood aromatic. Leaves opposite, ovate, shining.

SANTALACEAE

Salix tetrasperma Roxb.
Small tree. Young parts and leaves are silky pubescent. Leaves ovate-lanceolate, acute, glaucous below and serrulate. Male flowers yellowish in catkins. Female flowers greenish also in catkins. Fruit a capsule.
Frequent. Along water courses. Has wide distribution in Indomalayan region.
Fls Dec-Oct, Fru Apr-May.

SALICACEAE

Meliosma simplicifolia ssp. *simplicifolia* Beusekom.
Medium sized tree. Bark pale brown. Leaves simple, oblong, acute, entire or distantly toothed. Flowers subsessile in lax crowded raceme yellowish-white and small. Fruit a drupe globose.
Rare. Seen only in wetter parts. Has wide distribution in Indomalayan region.
Fls Dec-Mar, Fru May-June.

SABIACEAE

Toddalia asiatica (Linn.) Lamk var *asiatica*
Small spinous tree. Bark light brown. Leaves compound, imparipinnate, rachis winged. Flowers white, fragrant in short axillary racemes. Fruit a berry, globose, black.
Seen only in drier parts. Occasional. Indomalayan in distribution.
Fls Apr-May, Fru Nov-Dec.
is a berry globose and black when ripe.
Commonly seen in drier parts of the sanctuary. Native of India.
Fls and Fru: All seasons.

Naringi crenulata (Roxb.) Nicolson.
Small spinous tree. Bark light brown. Leaves compound, imparipinnate, rachis winged. Flowers white, fragrant in short axillary racemes. Fruit a berry, globose, black.
Seen only in drier parts. Occasional. Indomalayan in distribution.
Fls Apr-May, Fru Nov-Dec.

Occasional. Seen only in drier parts. Native of India.
Fls Feb-Mar, Fru Oct.

above and glaucous below. Flowers purplish in panicles. Perianth segments 4. Fruit a drupe, globose purple
Often gregarious. Seen towards the dry parts of the sanctuary. Native of peninsular India
Fis. May-June, Fru. Oct-Dec.

SAPINDACEAE

Allophylus cobbe (L.) Raensch
Small ferruginous tomentose shrub. Bark and branches yellowish-brown. Leaves tri-foliate, leaflets ovate,
serrate. Flowers small, greenish in slender racemes and ploygamo-dioecious. Fruit a red, shining, indehiscent
capsule.
Occasional along the stream bank in a deciduous forest. Native of Indomalayan region
Fis. Apr-June, Fru. May-July

Allophylus serratus (Roxb.) Kurz
A small tree, tomentose. Bark of young branches brown. Leaves trifoliate, leaflets oblong-lanceolate,
tomentose. Flowers small in slender racemes and irregular. Fruit a capsule.
Rare in deciduous forest. Native of India and Sri Lanka
Fis. Apr-June, Fru. May-July

Cardiospermum hallicabum Linn.
Climbing tendrill bearing herbs with wiry stems. Leaves deltoid, 2 - ternate; ultimate segments of the leaves
lanceolate, very acute at the apex and narrowed at the base. Flowers white, in few flowered umbellate cymes;
peduncles slender. Outer sepals rounded, obovate; inner sepals larger than the outer, membranous. Petals
rounded at the apex. Capsule shortly stalked, subglobose, depressed-pyriform, trigonous, truncate at top,
winged at the angles, bladderly. Seeds globose, with heart shaped aril.
Common climbers in scrub forest. Pantropical in distribution.
Fis. and Fru.: July-December

Filicium deciens Thw.
A medium sized evergreen tree. Bark rough, blackish. Leaves compound with tricho winged. Flowers
greenish-white in axillary panicles. Flowers 5 merous, regular and disc present. Fruit a drupe.
Rare tree in dry parts of the sanctuary. Native of India and Sri Lanka
Fis. Dec-Feb, Fru. Mar-Apr.

Manilkara roxburghiana (Wight) Duband
A large deciduous tree with latex. Leaves elliptic-oblong, rounded or acute at base and glabrous. Flowers white in axillary fascicles. Sepals lanceolate and hairy outside. Petaloid appendages lanceolate. Fruit globose.

Fis. Mar-Apr, Fru. Sept-Nov

Occasional in deciduous forest. Native of India and Sri Lanka.
densely tomentose, cream coloured, fleshy. Fruit a berry, fleshy.
A large deciduous tree. Young parts pubescent. Leaves clustered at apex usually acute at apex. Flowers densely tomentose, pale yellow. Fruit a berry, ovoid.

Madhuca longifolia var. **latifolia** (Roxb.) Chavali

Fis. Feb-May, Fru. Sept-Oct

Occasional. Along streams. Native of India and Myanmar.
A large deciduous tree. Leaves clustered at apex, tapering at both ends, linear stipules. Flowers densely tomentose, pale yellow. Fruit a berry, ovoid.

Madhuca longifolia (L.) Macbride var. **longifolia**

SAPOTACEAE

Fis. Feb-Mar, Fru. May

Frequent tree in deciduous forest. Has wide distribution in Indomalayan region.
with fleshy aril.
oblong-elliptic. Flowers yellow, slender racemes. Sepals 5, yellowish. Petals 0. Fruit dry crustaceans. Seeds.

A large deciduous tree. Younger parts are bright red. Leaves compound of even leaflets of four, leaflets with fleshy aril.

Schleichera oleosa (Lour.) Oken

Fis. Nov-Dec, Fru. Mar-Apr

Occasional in scrub forest. Native of India and Sri Lanka.
ferruginous completely combined.
A small tree. Leaves compound, bipinnate. Flowers axillary in panicles, soft woolly. Fruit a drupe.

Sapindus laurifolia Vahl

Fis. Nov-Dec, Fru. Mar-Apr

Occasional. Confined to drier parts. Has distribution in India, Sri Lanka and Myanmar.
regular, 5 merous, white and having disc. Fruit is a drupe.
A medium sized tree. Leaves even-pinnate, leaflets 3 pairs and oblanceolate. Flowers in panicles. Flowers

Sapindus emarginatus Vahl

Erect much branched hemiparasitic herb. Leaves pinnatisect, filiform. Flowers white to pinkish at the axils.

Sopubia delphinifolia (Roxb.) G Don

Fis. and Fru. May - November

Common herb in wastelands and in open. Introduced from neotropics and now naturalised.

axillary clusters. Fruit is a globose capsule enclosed in calyx.

Erect and much branched herb. Leaves opposite or whorled, elliptic and serrate. Flowers small, white in

Scoparia dulcis Linn.

Fis. and Fru. May - October.

Common in marshy places. Has wide distribution in Indomalayan region.

capsule

obovate-lanceolate. Flowers either solitary or in racemes, pink-violet colour and bracteate. Fruit is a cylindrical

Prostrate and soft herb with rooting at nodes. Branches ascending. Leaves simple, opposite and

Lindernia antipoda (Linn.) Alston

Fis. and Fru. July - August

Rarely seen in Mudumalai. Native of India and Sri Lanka.

globose

An undershrub. Leaves opposite and serrate. Flowers violet - purple in racemes with foliaceous bracts. Fruits

Artanema longifolia (Linn.) Vatke

SCROPHULARIACEAE

Fis. Mar-Apr, Fru. Aug-Sept.

region.

Occasional. Along water courses. Seen in dry parts of the sanctuary. Has wide distribution in Indomalayan

clusters. Sepals ovate, tomentose and petals white. Fruit is a orange-yellow, ovoid berry.

Medium sized tree. Leaves simple, shiny, alternate and elliptic-oblong. Flowers white, fragrant in axillary

Mimsoops elengi L.

Fis. Mar-Apr, Fru. May

Occasional in deciduous forest. Native of peninsular India.

berry

* Some authors include this family in Liliaceae, but we have maintained it as a separate family

Fis. and Fru. : July – January

Occasional climbers in deciduous forest. Has a wide distribution in Indomalayan region.

Panicle lobes 6, free, stamens 6. Ovary globose, berry globose.

conspicuously sheathed to half its length, with 2 apical caducous tendrils. Umbels axillary, flowers unisexual. Climber with few prickles. Leaves broadly ovate or elliptic-lanceolate, retuse or shortly apiculate. Petioles

Smilax perfoliata Lour

SMILACACEAE*

Fis. Feb-Mar, Fru. Apr-May

Occasional. Confined mostly to drier areas. Native of India and Sri Lanka

copper red in colour.

Moderate sized tree. Bark greyish brown. Leaves compound, glandular, hairy. Leaflets subopposite, and coarsely toothed. Flowers yellowish in polygamous panicles with fetid smell. Fruit a samara, twisted and

Ailanthus excelsa Roxb.

SIMARUBACEAE

Fis. and Fru. May - October

Frequent in bare and pasture lands. Distributed in Old world tropics

calyx ribbed. Fruit is a capsule.

A hemiparasitic herb. Leaves green and linear. Flowers in spikes. Corolla white to yellow and sometimes pink,

Striga asiatica (Linn.) Kuntze

Fis. and Fru. August - December

Frequent in open and in grassy patches. Has wide distribution in Indomalayan region.

Fruit is a oblong capsule.

Parasitic herb. Leaves linear, green and scabrid. Flowers in axillary spikes. Flowers white with calyx ribbed

Striga angustifolia (D. Don) Sald

Fis. and Fru. August - December

Frequent in grassy patches. Native of India and Sri Lanka

Corolla obscurely bilipped. Stamens didynamous. Fruit is a oblong capsule.

SOLANACEAE

Datura metel Linn.

Large undershrubs. Leaves simple, alternate elliptic, toothed or entire or rarely shallowly lobed, minutely pubescent. Flowers in axil. Corolla white and trumpet shaped. Calyx tubular and hairy. Fruit is an armed capsule with a distinct calyx base.
Common in disturbed areas, a weed. Has wide distribution in old-world tropics.
Fls. and Fru. Throughout the year.

Datura stramonium Linn.

A large undershrub. Leaves simple, alternate and leaf margin entire and sparsely hairy. Flowers axillary. Calyx membranous and tubular. Corolla white, 5-lobed and funnel shaped. Fruit is a globose, spinous capsule with a calyx base.
Common in wastelands and along roadside. Introduced from Mexico.
Fls and Fru. April - November.

Solanum erianthum D Don

A large densely hairy shrub. Unarmed. Leaves large, ovate-lanceolate and entire. Flowers in corymbose cymes. Petals white and hairy. Fruit is a globose berry turning yellow when ripe.
Common in open and shaded areas. Has a wide distribution in tropics.
Fls. and Fru. December-September.

Solanum giganteum Jacq.

A prickly shrub or small tree, densely tomentose. Leaves large, oblong-lanceolate, densely hairy beneath. Flowers white or violet in corymbose cymes. Fruit a berry, red, glabrous. Seeds many.
Occasional shrubs along forest edges in clumps. Native of peninsular India and Srilanka.
Fls. Mar-Apr, Fru. May.

Solanum melongena Linn. var *insanum* Prain.

Armed subshrub. Leaves alternate, angulate, hairy and prickly along the nerves. Flowers extra-axillary. Petals purple to violet, lobes triangular. Fruit is a globose berry, green with white dots. Yellow when ripe.
Frequent in wastelands and in open. May be pantropical in distribution.
Fls. and Fru. Throughout the year.

Solanum nigrum Linn.

Unarmed herb. Leaves broadly ovate, entire or slightly lobed. Flowers in axillary or lateral umbellate cymes,

Byttneria herbacea Roxb.
 Creeping herb with ascending branches. Leaves sub-opposite, ovate, serrate with linear glands at the base on the lower side of the midrib. Flowers in axillary cymes. Petals purple. Fruits a shortly prickled capsule with apical horn.
 Frequently seen on dry sandy-rocky terrain, thickets and scrub. Native of Indian peninsula.
 Fls and Fru. January-December.

STERCULIACEAE

Solanum melongena L (Brinjal) and **Solanum tuberosum** L (Potato) are cultivated in and around the
 Cultivated species like **Capsicum annuum** (Chillies), **Lycopersicon lycopersicum** (L) (Karsten) (Tomato),
 sancaury.
 Fls. and Fru. October-May.

Solanum viarum Dunal.
 A hairy, armed shrub with zigzag branchlets. Leaves ovate-lanceolate and sometimes spiny along the midrib. Flowers in a lateral cymes. Calyx cup shaped and corolla is creamish. Fruit a green berry with white stripes and yellow when ripened.
 Occasionally seen in dry areas. Native of South America but naturalised in parts of Asia and Africa.

Solanum violaceum Ortega.
 Armed hairy shrub covered with powdery yellow indumentum. Leaves shallowly lobed and prickly along the nerves. Flowers in short cymes. Petals blue and slightly hairy. Fruit an orange globose berry.
 Common shrubs in scrub and dry lands. Distributed from tropical Africa to India.
 Fls. and Fru. All seasons.

Solanum torvum Sw.
 Large hairy shrub with prickles on the stem and along the petiole. Leaves ovate-lanceolate, hairy and shallowly lobed. Flowers in corymbose cymes. Petals white with lobes hairy. Fruit is a globose berry and green.
 Common in wastelands and along roadside. Native of West Indies but naturalised elsewhere.
 Fls and Fru. Throughout the year.

4-8 flowered. Petals white. Fruit is a black berry.
 Common in open and along water courses. Cosmopolitan in distribution.
 Fls. and Fru. Throughout the year.

Grewia abutilifolia Vent ex Juss.
A straggling shrub; young parts stellately hairy. Leaves rhomboid, roundish ovate, acute or acuminate, often more or less lobed, irregularly serrate, base sub cordate, 3-nerved. Flowers in short umbellate cymes. Petals white, fading yellow, oblong, rounded at the apex, entire; gland a little more than half the length of the petal.

TILIACEAE

Waltheria indica Linn
Fruicose branching subshrubs. Leaves alternate, crenate-serrate with stipules. Flowers in axillary or terminal fascicles, bisexual and regular. Petals yellow and spatulate. Fruit a capsule.
Common in open and among grasses as a weed. Pantropical in distribution.
Fis. and Fru. August-December.

Sterculia villosa Roxb. ex DC
A moderate sized deciduous tree. Leaves crowded at tip, lobed. Flowers cream coloured in drooping panicles. Fruit a follicle, downy.
Occasional in moist deciduous forest. Native of India.
Fis. Mar-Apr., Fru. June-July.

Sterculia urens Roxb
Medium sized trees. Bark white, exfoliating in large papery flakes. Leaves palmately lobed, broad. Flowers greenish yellow in panicles. Panicles covered with dense tomentum. Fruit a follicle, sessile, reddish yellow.
Occasional. Confined to drier parts. Distributed in Indomalayan region.
Fis. Dec-Jan., Fru. Apr-May.

Helicteres isora L
A medium sized shrub. Leaves elliptic-obovate, oblique and serrate. Flowers large red in axillary clusters. Petals red turning grey with age. Fruit a follicle and spirally twisted.
Common. Usually in marshy or wet places. Has wide distribution in old-world tropics.
Fis. & Fru. Apr-Dec.

Eriolaena quinquelocularis (Wt & Arn.) Cleghorn.
A small tree. Leave grey, orbicular-ovate, irregularly crenate, young leaves and shoots densely pubescent. Flowers yellow in panicles. Fruit a capsule, valved.
Frequent in the deciduous forest. Native of Indian peninsula.
Fis. July-Aug., Fru. Jan-Feb.

A large branched perennial herb; branches clothed with soft stellate hairs. Leaves ovate, acute, irregularly serrate, stellately hairy above, rounded at base, 5-nerved. Flowers in fasciated axillary and leaf opposed cymes; petals yellow, oblong-obovate, notched at the apex, retuse, ciliate. Ovary 4 or 5 celled. Capsule globose; prickles hispid, apically glabrous; seeds ovoid.

Triumfetta pilosa Roth

Fis. Feb-Apr, Fru. May-June

Frequent in the deciduous forest. Distributed from Africa to Sri Lanka

Flowers yellow in axillary fascicles. Fruit drupe, lobed

A moderate sized tree. Bark blackish-brown. Leaves ovate, obliquely cordate at base, serrate and hairy.

Grewia tiliifolia Vahl

Fis. August - November

Rare in the sanctuary. Native of peninsular India and Sri Lanka

Ovary 4 celled. Drupe obscurely 4 lobed, velvety

Shrub upto 3m. Leaves ovate to lanceolate. Cymes 3 fold. Petals lanceolate. Gynandrophore grooved, woolly.

Grewia rhamnifolia Heyne ex Roth

Fis. & Fru. May-July

Occasional. Confined mostly to drier parts. Native of peninsular India

Small trees greyish-brown tomentose. Leaves elliptic to orbiculate, glaucous beneath and palmately veined. Flowers in axillary clusters, orange-yellow. Fruit a drupe, grooved to two lobes or globose, grey tomentose.

Grewia orbiculata Rottler

Fis. and Fru.: June - December

Common in the undergrowth of a deciduous forest. Native of India and Sri Lanka.

A branched shrub; young parts softly pubescent. Leaves oblong, ovate or lanceolate, acute, serrate, upper surface glabrous, lower usually densely villous, base rounded, oblique, 3 nerved. Flowers polygamous, in axillary umbellate cymes. Petals white, oblong. Male: Stamens numerous, intermixed with hairs. Bisexual; ovary 4 celled, densely villous, stigma 5 lobed. Fruit is a fleshy drupe, wrinkled, slightly 4 lobed

Grewia hirsuta Vahl

Fis. and Fru.: March - February

Frequent shrubs in the deciduous forest, usually along the forest edges. Distributed in Indomalayan region

margin villous. Carpels 2 celled, drupe obscurely 4-lobed, wrinkled.

Flerya interrupta Gaud
Erect herb, flesuous, branched, furrowed, whole plant sparsely clothed with scattered stinging hairs. Leaves 1-5 by 1/2-1/4 inch, broadly ovate, acuminate, crenate-serrate, rough, veins prominent. Flowers greenish on

URTICACEAE

Tréma orientalis (L.) Blume.
Small, fast growing tree. Rare. Bark greyish or bluish green. Leaves scabrid, pubescent beneath. Flowers greenish in clusters. Fruit a drupe, black
Fis. Feb-Mar, Fru. Apr-May

Holoptelea integrifolia (Roxb.) Planchon.
Large tree. Rare. Twigs and leaves gives an offensive smell when crushed. Bark whitish grey. Leaves cordate. Flowers brown pubescent. Fruit a samara, crowded with persistent stigma.
Fis. Jan-Mar, Fru. May-June

Celtis timorensis Span.
Small trees. Rare. Leaves conspicuously tri-nerved. Flowers pale yellow or creamish. Fruit a drupe, strongly beaked.
Fis. Jan-Mar, Fru. Mar-June

Celtis tetrandra Roxb.
A medium sized tree. Occasional. Bark grey most. Young leaves conspicuously bright pink. Leaves tri-nerved. Flowers pale yellow. Male in clusters and female in pairs on peduncles. Fruit a drupe.
Fis. Jan-Mar, Fru. May-June

ULMACEAE

Triumfetta rhomboidea Jacq.
Suffruticose 2 - 5 feet shrub; branches slender more or less pubescent with simple hairs. Leaves variable, lower leaves 2 - 3 inch in diameter, usually 3 lobed, irregularly serrate, clothed with simple and stellate hairs on both surfaces, base cordate or cuneate, upper ones rhomboid to narrow-lanceolate, 2.5 x 0.7 cm. Petals yellow, obovate/oblong, ciliate at the base; claw very long. Stamens 10, ovary 4 celled. Capsule stellate - tomentose; prickles glabrous, apically transparent.
Fis. September - December

Fis. November

Gmelina arborea Roxb
Medium sized deciduous tree. Bark white or whitish grey, smooth. Leaves fulvous tomentose, cordate. Flowers yellow-tinged brown in terminal paniced cymes. Fruit a berry, ovoid, yellow.
Frequent in the deciduous forest. Indomalayan in distribution.

Clerodendrum viscosum Vent
A large shrub, gregarious and hairy. Leaves simple or whorled, ovate or orbicular, acuminate, entire and hairy. Flowers bluish white tinged with pink in terminal panice. Fruit a drupe, black enclosed in leathery calyx. Occasional but in gregarious clumps. Mostly in damp places. Indomalayan in distribution.
Fis. May-Aug, Fru. Sept-Nov.

Clerodendron serratum (L.) Moon
A shrub. Stems bluntly quadrangular. Leaves opposite, oblong or elliptic, acute, serrate, glabrous. Flowers numerous, showy, in terminal panice; pedicels often twisted. Calyx cupshaped, not enlarged in fruit. Corolla pale blue, the larger lower lobe dark bluish - purple. Drupe some what succulent, broadly obovoid, 4 lobed. Frequent in the edge of the moist deciduous forest. Has distribution in India and Sri Lanka.
Fis. Aug - Sept.

CalliCARPA tomentosa (L.) Murray
Small trees. Underside of leaves, branches, inflorescence densely soft pubescent. Bark brown, rough. Leaves simple. Flowers purple in branched axillary cymes. Fruit is a black, shining drupe. Occasional in the wet deciduous forest. Native of Indian peninsula.
Fis & Fru. Through out the year.

VERBENACEAE

Pouzolzia auriculata Wt
Gregarious scabrid undershrub. Tender parts white-hairy. Leaves elliptic and alternate. Flowers in clusters, pale green. Tepals and stamens 5. Fruits achenes enclosed in perianth. May or may not be winged. Occasional on rocky slopes.
Fis and Fru. October-November.

solitary interrupted axillary racemes, arranged in distant paniculate cymes. Tepals 4, stamens 4, Achenes nearly as broad as long, much compressed, with 3 keels round the margin; style subulate, curved towards the base of the achene.
Fis August.

Fis Mar-May, Fru Nov-Dec

Gmelina asiatica L

A large armed shrub Bark brownish white. Leaves ovate. Flowers bright yellow in racemes. Petals golden yellow and tubular. Fruit a drupe, ovoid, yellow when ripe.

Rare. Confined to drier parts. Distributed in India and Srilanka

Fis. & Fru Throughout the year

Lantana camera Linn

A straggling shrub with numerous recurved prickles on the branches. Leaves ovate to elliptic ovate, 8 - 10 x 5 - 6 cm, scabrid. Flowers sessile, in pedunculate heads. Calyx bilabiate. Corolla yellow, red or scarlet, 1 cm across, lobes 5. Drupe dark blue

Common weed in the deciduous forest. Native of tropical America but widely naturalized in tropics and subtropics.

Fis. and Fru Throughout the year

Lantana indica Roxb

A shrub. Branches quadrangular, strigosely hairy. Leaves elliptic - oblong or ovate, opposite or in whorls of 3, acute, crenate - serrate, rugose and finely pubescent above, softly white pubescent beneath. Flowers odourless, sessile, in axillary pedunculate ovoid heads. Calyx truncate, membranous, very hairy. Corolla light purple with a yellowish tube or white, hairy outside. Drupe purple

Frequent in the undergrowth of deciduous forest. Native of India and SE Asia

Fis : Sept - Jan

Premna tomentosa Willd.

Moderate sized tree. Young parts densely clothed with hair. Leaves simple opposite ovate and acuminate. Flowers small greenish yellow on terminal panicles. Fruit a drupe, ovoid, small black

Common in drier parts. Native of India and Srilanka

Fis. Mar-Apr, Fru June

Stachytarpheta indica Vahl

Annuals. Stems erect, dichotomously branched. Leaves elliptic, obtuse or acute, coarsely serrate, glabrous. Flowers sessile, in long slender spikes. Calyx membranous, 4 toothed, corolla deep-blue, 5 lobed, tube slightly curved. Fruit oblong, ribbed.

Common weed in the undergrowth in scrub and wastelands. Pan tropical weed

Fis. August - November

Ampelocissus araneosa (Dalz & Gibson) Planchon
Climbing shrub Leaves tri-lobate Glabrous above with lateral leaves elliptic lanceolate and terminal leaflet

VITACEAE

Hybanthus enneaspermus (Linn) F. Muell
Fruticose branching herb. Leaves linear-lanceolate and shallowly crenate. Flowers axillary, 5-merous, zygomorphic, bilipped and pink. Fruit is a capsule.
Common herb in wastelands, scrub jungles and pasture lands. Distributed in old-world tropics.
Fis and Fru. July - December

VIOLACEAE

Vitex pedunculata Wall.
A moderate sized tree. Leaflets three, membranous. Flowers in lax cymes, yellow or greenish white. Fruit a drupe, ovoid.
Rare. Usually along stream banks. Distributed widely in Indomalayan region.
Fis Mar-June, Fru May-July

Vitex leucoxylon L. f.
A small tree. Crown spreading. Bark grey, smooth. Leaves compound with 5-7 leaflets. Flowers in cymes purplish. Fruit a drupe, purple, smooth.
Rare. Usually along stream banks. Distributed in India and Sri Lanka.
Fis. Feb - Mar, Fru June

Vitex altissima L. f.
Large trees. Bark greyish brown. Leaves tri-lobate, rachis winged. Flowers pale violet, in terminal panicles. Fruit a drupe, purplish black and globose.
Occasional. Sometimes along river courses. Native of Indian peninsula.
Fis Apr-Aug, Fru June-Sept

Tectona grandis L. f.
Large deciduous trees. Bark yellowish brown. Young leaves gives deep red stain when crushed. Leaves simple large. Flowers in terminal panicles, white. Fruit a nut densely hairy covered with accrescent calyx.
Common in the deciduous forest. Indomalayan in distribution.
Fis June-Aug, Fru Nov-Jan

cordate. Flowers on hairy cymose inflorescence. Fruit is a globose berry.
Occasional in deciduous forest. Native of Indian peninsula
Fis. and Fru. : July – August

Cissus discolor Blume.
Slender climbers. Branches not wrinkled, deep red. Leaves with red petiole, serrate and red beneath. Flowers in umbellate cymes. Petals red outside. Fruit a globose berry.
Common climbers in wetter parts of the sanctuary. Distributed in Indomalayan region
Fis. and Fru. August-November

Cissus gigantea (Bedd.) Planchon
Climbers with glabrous branchlets. Leaves cordate and hairy below. Flowers in umbellate cymes. Fruit is a berry.
Rare in the sanctuary. Native of Indian peninsula
Fis. and Fru. August-November

Cissus glauca Roxb
Stout shrub. Leaves cordate with serrate margin. Flowers in leaf-opposed cymes. Petals yellow. Fruit is a berry.
Frequent in deciduous forest. Native of Indian peninsula
Fis. and Fru. May - October

Cissus pallida (Wt. and Arn.) Planch
Erect shrubs with glaucous stems. Leaves cordate, acuminate, serrate and glandular. Flowers in umbellate cymes. Petals white and deciduous. Fruit is a globose berry.
Common in deciduous forest. Distributed in Africa and upto India.
Fis. and Fru. September - October

Cissus quadrangularis L.
Rambling shrub. Stem quadrangular, glabrous, winged, contracted at nodes. Leaves simple, caducous, ovate-suborbicular, thick - coriaceous. Cymes umbellate, calyx cupshaped, truncate. Petals greenish yellow, red-tipped, ovate. Berry globose, apiculate.
Common on the thickets in scrub jungle. Distributed in Africa and upto India
Fis. and Fru.: All seasons

ZINGIBERACEAE

Costus speciosus

An erect plant with tuberous rootstock. Leaves subsessile, spirally arranged, oblong or oblanceolate, acute or acuminate, often cuspidate, sheaths coriaceous. Flowers white, numerous in very dense spikes, bracts oblong-ovate, reddish, bracteoles oblong, red. Calyx $\frac{1}{2}$ inch long; deltoid-ovate, cuspidate. Corolla tube as long as calyx, lobes ovate-oblong. Lip suborbicular, white with a yellow centre. Stamens $1\frac{1}{2}$ inch long, with a tuft of hairs at the base of the filament. Capsule globose 3-gonous, red.

Common in the understory of deciduous forest. Profusely flowers after fire. Distributed in Indomalayan region. Fls and Fru.: June-September.

Curcuma longa Linn.

A tall herb, rhizome branched. Leaves oblong-lanceolate. Flowers in spikes 4-6 by 2 inch; floral bracts pale green; bracts of the coma tinged with pink. Flowers 4cm long. Labellum obovate, subentire.

Frequent in the undergrowth of a deciduous forest. Probably native of India but extensively cultivated in tropics.

Fls August-September

Curcuma oligantha

Whole plant with leaves rarely reaching 15 inch high, root stock small. Leaves 6-10 by $1\frac{1}{2}$ -2 $\frac{1}{2}$ inch, shortly petiolate, lanceolate or oblong-lanceolate, acuminate, glabrous, narrowed at the base. Flowers bright yellow, in dense spike, flowering bracts $1\frac{1}{2}$ inch long, oblong-lanceolate, pale yellowish green. Calyx 3 toothed. Corolla lobes oblong. Capsules glabrous, globose.

Rare in the undergrowth of a deciduous forest. Native of India.

Fls July-September.

Globba bulbifera Roxb

Rhizome creeping; roots fleshy. Leaves distichous, oblong-lanceolate, acuminate, rounded at base. Spikes terminal, flowers yellow. Calyx funnel shaped; lobes 3, ciliate, ovary globose.

Occasional in the moist and shaded places in deciduous forest. Distributed in Indomalayan region.

Fls and Fru.: August – September

Hedychium coronarium J. Koenig

Stem 3-5ft high, erect, rootstock stout. Leaves sessile, 9-14 by $1\frac{1}{2}$ -2 $\frac{1}{2}$ inch, lanceolate, acuminate, glabrous, sheath smooth, ligule $1\frac{1}{2}$ inch long, membranous. Flowers fragrant, pure white, in dense oblong spikes, bracts closely imbricate, 3-4 flowered. Bracteoles 3 membranous. Calyx $1\frac{1}{2}$ inch, cylindrical, shorter than

bracts closely imbricate, 3-4 flowered, bracteoles 3 membranous. Calyx 1-1½ inch, cylindrical, shorter than bracts. Corolla tube 3 inch long, white, tube 6cm long, lobes linear, reflexed. Labelium broadly obovate, clawed. Ovary globose, 3 celled. Frequent along the stream and water bodies. Native of India and widely cultivated in the tropics. Fls and Fru. August-September.

Zingiber officinale Roscoe
Herb with slender leafy stems 3-4 feet high. Leaves linear-oblong, entire, 1-1½ feet long, acuminate. Flowers smaller. Corolla white with purplish striations on the labelium. Commonly cultivated for the edible rhizomes. Fls and Fru. July-September.

ZYGOPHYLLACEAE

Tribulus terrestris Linn.
Prostrate herbs. Leaves compound with 4-5 pairs of leaflets. Leaflets hairy. Flowers at the axils. Petals golden yellow. Disk present. Fruit is a schizocarp with five woody cocci and spine on each of them. Very common in scrub forest and wastelands. This has wide distribution in tropics. Fls and Fru. December - April.

Acknowledgements.
We thank Forest Department, Tamilnadu, for the permission to work in Mudumalai. We would like to thank Mr C M Bharanaiah for his assistance during the inventory. We also would like to thank Mr. Shivaji, Mr Boman, Mr C M Annadurai, Mr Siddan for their help during the field work. We thank Mr R. Mohan for his assistance. We thank Ms. Indu and Ms. Mary Sunitha for editorial assistance. We would gratefully acknowledge the financial support from Ministry of Environment and Forests, Govt. of India.

- Balachander, G. (1993) Extraction of non-timber forest products, including fodder and fuelwood in Mudumalai, India *Economic Botany* 47 (3): 268-274.
- Bhaskaran, N., M. Balasubramanian, S. Swaminathan and A. Desai (1995) Home range of elephants and its implications for the management of Nilgiri Biosphere Reserve, India, in Daniel, J. C. and H. S. Dattye (1995) (eds) A week with elephants: Proceedings of the international seminar on the conservation of Asian elephant. Bombay Natural History Society, Bombay. pp 296-313.
- Daniel, J. C. and H. S. Dattye (1995) (eds) A week with elephants: Proceedings of the international seminar on the conservation of Asian elephant. Bombay Natural History Society, Bombay.
- Dattaraja, H. S. and H. S. Suresh (1994) *Misttoes of Mudumalai sanctuary*. Blackbuck 10 (1) 9-15.
- Desai, A. A. (1991) The home range of elephants and its implications for the management of the Mudumalai Wildlife Sanctuary, Tamilnadu. *J. Bombay Nat. Hist. Soc.* 88: 145-156.
- Gamble, J. S. (1935) *Flora of the Presidency of Madras* 3 Vols (1979 edn) Bishen Singh Mahendra Pal Singh, Dehra Dun, India.
- Mathew, K. M. (1995) *An excursion flora of Central Tamilnadu, India*. Oxford & IBH Pub. Co. New Delhi.
- Murali, K. S. and R. Sukumar (1994) Reproductive phenology of a tropical dry forest in Mudumalai, southern India. *Journal of Ecology* 82: 759-767.
- Ravindranath, N. H., R. Sukumar and Priya Deshingkar. (1997) Climate Change and Forests: Impacts and Adaptation. A Regional Assessment for the Western Ghats, India. Stockholm Environment Institute.
- Saldanha, C. J. & D. H. Nicolson (1976) *Flora of Hassan District, Karnataka, India*. Amerind Pub. Co. New Delhi.
- Saldanha, C. J. (1985, 1995) *Flora of Karnataka*. Vol 1 & 2. Oxford & IBH Pub. Co. New Delhi.
- Sharma, B. D., B. V. Shetty, K. Vivekanathan and N. C. Rathakrishnan (1977) *Flora of Mudumalai wildlife sanctuary, Tamilnadu*. Jour. Bom. Nat. Hist. Soc. Vol. 75, 1. Pp 13-42.
- Somasundaram, T. R. (1963) *A Hand Book on the identification and description of trees, shrubs and some important herbs of the forests of the southern states for the use of the southern forest rangers college, Coimbatore*. Govt. of India. Calcutta.
- Sukumar, R., Dattaraja, H. S., Suresh, H. S., Radhakrishnan, J., Vasudeva, R., Nirmala, S. and Joshi, N. V. (1992) Long term monitoring of vegetation in a tropical deciduous forest in Mudumalai, southern India. *Current Science* 62: 608-616.
- Sukumar, R., Suresh, H. S., Dattaraja, H. S. and Joshi, N. V. (1998) Dynamics of a tropical deciduous forest: Population changes (1988 through 1993) in a 50-hectare plot at Mudumalai, southern India. In: F. Dallmeier and J. A. Comiskey (eds) Forest Biodiversity Research, Monitoring and Modelling: Conceptual Background and Old World Case Studies. UNESCO, Paris and The Parthenon Publishing Group, Man and The Biosphere Series, Volume 20, Chapter 28, Pp 495-506.

- Sukumar, R., H. S. Suresh, H. S. Dattaraja, and R. John. 1999. Patterns of mortality, recruitment and population changes in a tropical deciduous forest plot at Mudumalai, southern India. *Submitted to the proceeding of the symposium of the Global Network of large demographic plots. Smithsonian Institution, July 1998.*
- Suresh, H. S., H. S. Dattaraja and R. Sukumar (1996) *Tree flora of Mudumalai sanctuary, Tamilnadu Indian Forester*, 507 – 519.
- Varma, K. S. and Sukumar, R. (1995). The line transect method for estimating densities of large mammals in a tropical deciduous forest: An evaluation of models and field experiments. *Journal of Biosciences* 20: 273-287.
- Venkataraman, A. B., Arumugam, R. and Sukumar, R. (1995). The foraging ecology of dhole (*Canon alpinus*) in Mudumalai Sanctuary, southern India. *Journal of Zoology* 237: 543-561.
- Venkataraman, A. B. (1998) Male-biased Adult Sex Ratios and their Significance for Cooperative Breeding in Dhole, *Canon alpinus*, Packs. *Ethology* 104, 671-684.

