

TREES OF SIKKIM

S. S. Dash and P. Singh

ABSTRACT

Sikkim has long been an ecologically conscious state with initiatives such as a comprehensive ban on plastic, bio-medical and chemical waste in 1997, and initiation of programmes such as the Smriti Van and the Green Mission Plan in 2006. Sikkim is part of the eastern Himalaya hotspot. Wide range of topography, varied climatic condition and high annual precipitation makes this region one of the richest phyto-geographic regions of Himalaya. 47.59% of the geographical area is covered with forest and tree cover. The present paper provides updated list of trees belonging to the known 717 species, 320 genera and 95 families in Sikkim with their correct name, average height, flowering and fruiting period and altitudinal range of distribution. The most dominating family is Lauraceae followed by Euphorbiaceae while the most dominating genus is *Ficus* with 30 species followed by *Sorbus* and *Rhododendron* with 15 species each. The first ten dominating families contribute 45% of the total species and 35% of the total genera recorded from this region while the first ten dominating genera contribute 19% of the total species. The paper also discusses the phytogeography of tree species recorded from this region. The Government of Sikkim has launched a unique and innovative programme called “State Green Mission” with the view to raising avenue plantation and beautification of all vacant and waste lands to further reinforce wide spread recognition of Sikkim being a Green State. A few indigenous trees are suggested in this paper for avenue plantation and reclamation of wastelands. The multifunction of tree diversity is also discussed emphasizing on the potential of sustained livelihood generation for the rural population of the state.

KEYWORDS: *Tree diversity, Sikkim, Phytogeography*



Ficus racemosa (Neebara) - the Cluster Fig or Indian Goolar



Leucosceptrum canum (Ghurpis) - an important shade tree for cardamom plantations in Sikkim

INTRODUCTION

Sikkim is one of the richest treasure houses of plant diversity in our country. (Rao 1974; Hajra et al. 1996, Singh & Chauhan 1997). All the representative forest-types of eastern Himalaya like sub-Himalayan wet mixed forests, sub-tropical pine forests, wet temperate forests, mixed coniferous forests, eastern oak-Hemlock forests, Oak-fir forests, moist alpine scrubs and dry alpine scrubs are represented in Sikkim (Champion and Seth 1968, Mehra et al. 1985). Being a part of the Himalaya-East Himalaya biogeographic zone (Rodger and Panwar 1988) and confluence point of three biogeographic realms viz. the Afro-tropic, the Indo-Malayan and the Indo-Chinese (Takhtajan 1969) this region of Himalaya harbours a quite unique composition of different plant communities which is influenced by various factors including rainfall, temperature, humidity and altitude (Biswas 1967). All these forests are rich in tree components and play an important role in maintaining forest ecosystem structure and function. Besides, in regard to commercial and subsistence benefits, tree biomass is intuitively associated with the socio-economic-ecological life profile of a rural community (Dash 1997). Tree diversity is an important resource base in Sikkim. About 80% of the rural population is dependent on tree diversity for many of the subsistence needs for providing timber, fuel wood, fodder, animal litter and compost (Webb & Sah 2003, Singh & Dash 2002). The rich natural resources of Sikkim are under anthropogenic pressure. As information on diversity and composition is absolutely essential in understanding the ecosystems dynamics and help in resource management (Hartshon 1990), the present paper provides an updated information on the tree resources of Sikkim, so that, necessary conservation measures can be taken.

Cowan & Cowan (1929) enumerated around 558 trees, 453 shrubs, 206 climbers, 22 bamboos and 15 ferns in their work "Trees of Northern Bengal". It included trees from the Sikkim also. Rai & Rai (1994) estimated around 400 species of trees from this region but described only 80 species and appended another 178 species in their work. Singh & Dash (2002) documented 663 species of trees from this region belonging to 290 genera and 97 families. In the present work an up to date information of the tree diversity of Sikkim has been provided with all the 717 known species of trees belonging to 320 genera and 95 families. In the present circumscription, all those shrubs growing above 4 m in height are considered as trees (Small) and have been included in this enumeration. Keeping view of economic importance of bamboos, those growing above 4m in height are also considered in the list, though they are not trees in the true sense. The genera and species are arranged alphabetically within a family; the arrangement of families has been followed as in most of Indian Herbaria (Bentham & Hooker's system) with some of the split families recognized.

The Physical Landscape & Topography

The topography of Sikkim is characterized by great variation in elevation. The range of elevation is enormous. At places it is as low as 250 m while at the other extreme it is as high as 8500 m by virtue of its location in the Lesser Himalayan Zone, the topography is out and out mountainous. The region is girdled by high ridges on the North, East and West and thus looks like an amphitheatre. To the North the convex arc of the Greater Himalaya separates the State from Tibetan Highland. A number of peaks built up of crystalline rocks accentuate the demarcation between Tibet and Sikkim. The longitudinal Chola range separates the State from Tibet in the eastern side while the Singalila range, another longitudinal offshoot of the Himalayan arc, marks the boundary between Sikkim and Nepal in the west. The girdling ridges on the three sides of the State contain some imposing peaks and high altitude passes. The exalted peaks of Kanchenjunga (8595 m), Pandim (6706m), and high altitude passes like Nathu La (4728 m) Jelep la (4040m), etc.

The Climate

Sikkim is a land of great climatic contrasts within very short distances. Latitudinally, the region is located within the sub-tropical climatic regime. But due to the presence of high mountains, here one can experience climates as varied as temperate, alpine and even arctic type. Elevation plays the prime role in fashioning the climatic types of the State. The differences in the climatic types can be imagined from the fact that the altitude of Sikkim ranges from a mere 300 m above msl to more than 8000 m above msl. The diversity is not only due to the differences in altitude but also to the configuration of the neighbouring mountain ranges which largely affects air movement, rainfall and temperature. Sikkim is the most humid region in the whole range of Himalaya due to its proximity to Bay of Bengal. This region comes under the influence of South-west monsoon from first week of June and rain last upto middle of October. The region receives heavy to moderate rainfall from both South-East and South-West monsoon. The annual rainfall of the state varies from 3000mm in the southern parts to 500mm in the Northern part of the Sikkim. Some of the inner valleys of North Sikkim i.e. Llonakh, Cholamau, receive scanty rainfall. The lower hills below 1500m msl enjoy sub-tropical humid type climate with a hot humid summer day temperature 35°C and cool winter minimum temperature 4°C. Mean summer temperature reaches as high as 38°C in hot valleys and mean winter temperature goes down to - 30°C in higher altitudes. Mean relative humidity ranges between 80-100% in rainy reason and for the rest of the year remains above 70% depending upon other climatic conditions.

VERTICAL DISTRIBUTION OF TREES

The distribution of the trees in the Himalaya greatly varies with regard to the different altitude. An elevational transect includes vegetation from tropical monsoon forest to alpine meadow and scrub, constituting an unusually extensive elevational and vegetational gradient (Singh and Singh 1992). The most visible changes of community composition are directly related to the climatic conditions viz. rainfall, temperature, humidity and altitude. Bases on the altitude itself the vegetation of the Sikkim can be grouped under various forest types with respect to six altitudinal zones, viz., Tropical (up to 900 m); Subtropical (900-1800 m); Temperate-broad-leaved (1800-2800 m); Temperate conifers (2800-3500 m), sub-alpine (3500-4000 m) and sub-Alpine (4000-5500 m). Each vegetation zone has an intermixing ecotone extent of about 50 to 200 m (Behera et al.2001).

Table I. District wise Forest Cover in the Sikkim (in sq. km.)

District	Geographical area	Very Dense Forest	Moderately Dense Forest	Open Forest	Total Forest	%	Scrub
East Sikkim	954	162	411	126	699	73.27	70
North Sikkim	4226	135	890	290	1315	31.12	202
South Sikkim	750	93	371	107	571	76.13	3
West Sikkim	1166	110	489	173	772	66.21	81
Total Sikkim	7096	500	2161	696	3357	47.31	356

Source : India : The state of Forest Report 2009 : Forest survey of India, Government of India, Dehradun.

Tropical and subtropical forests of Sikkim show a rich concentration of tree species. **The Tropical forests** occur at low altitude bordering with West Bengal in Tista and Rangit Valleys. Maximum diversity is exhibited by *Shorea robusta* Gaertn. along with species such as *Aglaia lawii* (Wight) Ramamurthy, *Amoora spectabilis* (Miq.) Jain & Bennet, *Alstonia neriifolia* D.Don, *A. scholaris* (L.) R.Br., *Bombax ceiba* L., *Chukrasia tabularis* Juss., *Duabanga grandiflora* (DC.) Walp., *Ficus spp.*, *Mangifera sylvatica* Roxb., *Pterospermum acerifolium* (L.) Wall., *Sterculia villosa* Sm., *Syzygium kurzii* (Duthie) N.P.Balacr., *Tetrameles nudiflora* R. Br. Interestingly at some places in dry valley of south Sikkim e.g., at Chitam, Chir Pine (*Pinus roxburghii*) forests – which are generally found in subtropical to temperate regions elsewhere- are thriving well. The second storey tree species such as *Ficus semicordata* Sm., *Grewia sepiaria* G.Don, *Meizotropis buteiformis* Voigt, *Oroxylum indicum* (L.) Vent., *Phoenix sylvestris* (L.) Roxb., *Rhus succedanea* L., *Archidendron spp.* are common along the river banks.



Terminalia catappa : The tropical almond, a potential plant for income generation

The subtropical forests are confined along the Tista and Rangnet rivers and their tributaries at elevation from 800 to 1500m. The composition of the tree species are characterized by mixed nature; as such no single species can be said to be dominant in these forests. The commonest species encountered in this zone are *Alangium chinense* (Lour) Hams, *Bischofia javanica* Blume, *Callicarpa arborea* Roxb., *Castanopsis tribuloides* (Sm.) DC., *Castanopsis indica* (Roxb.) A. DC., *Eurya cerasifolia* (D. Don) Kobuski, *Fraxinus floribunda* Wall., *Gynocardia odorata* R.Br., *Haldinia cordifolia* (Roxb.) Ridsdale, *Macaranga denticulata* (Blume) Muell-Arg., *Magnolia hodgsonii* (Hook.f. & Thomson) Keng, *Michelia velutina* DC., *Mangifera sylvatica* Roxb., *Phoebe hainesiana* Brandis, *Saurauia nepaulensis* DC., *Schima wallichii* (DC.) Korth, *Vernonia volkammeriaefolia* DC. etc. These tree species show profuse growth, reaching up to a height of 30m. Dense thickets of *Musa* spp., *bamboo*, and *Pandanus* form dense patches in humid and exposed areas.



Castanopsis indica (Kattus) - Indian chestnut tree, is an important shade plant tree



Gynocardia odorata (Bandrey) - the evergreen tree of eastern Himalaya, Myanmar and China, seed oil has been confused with true chalmogra oil



Schima wallichii (Chilauni) - the chinese guger tree, potential timber yielding tree

Temperate forests occur between 1500 and 3500m altitude viz., Lachen and Lachung valley. These forests can be mainly classified into Broad leaved forests and Coniferous forests depending on the predominance of dicot trees or coniferous trees. In the broad leaved forests Laurel and Oak spp. constitute the top canopy, while the moist deciduous species are found in low proportion. The trees are characterized by a growth up to 20 m of height. *Quercus lineata* Blume, *Quercus lanata* Sm., *Quercus lamellosa* Sm., *Quercus oxydon* Miq., *Quercus glauca* Thunb. constitute the greater part of the top canopy, while laurels such as *Lithocarpus pachyphylla* (Kurz) Rehder, *Lithocarpus elegans* (Blume) Hatus. ex Soep., *Cinnamomum bejolghota* (Ham.) Sweet, *Cinnamomum impressinervium* Meisn., *Litsea elongata* (Nees) Hook., *Litsea kingii* Hook.f., *Litsea sericea* (Nees) Hook., *Litsea sikkimensis* (Meisn.) D.G.Long, *Neolitsea foliosa* (Nees) Gamble, *Persea clarkeana* (Hook.) Kosterm. constitute the second storey of tree species. The other main components of broad leaved tree species are *Alnus nepalensis* D.Don, *Acer campbellii* Hook.f. & Thomson, *Betula utilis* D.Don, *Engelhardia spicata* Blume, *Exbucklandia populnea* (R.Br. ex Griff.) R. Br., *Ilex dipyrena* Wall., *Juglans regia* L., *Populus ciliata* Royle, *Prunus nepalensis* Koch., *Malus sikkimensis* (Wenz.) Koenhe, The general composition of temperate forests is quite uniform over the zone, however, a few species are characteristic to each zone.

The predominant trees in **coniferous forests** are *Abies densa* Griff., (Common in Kyangnosla and Changu area) *Larix griffithiana* Carr. (Common in the Lachung and Domyang valley), *Picea spinulosa* (Griff.) Henry (Common in Lachen-Thangu and Lachung-Yumthang area); *Tsuga dumosa* (D.Don) Eichler (Common in the Zemu valley, Lachen and Lachung valley and Chhoka valley). At some palces of North Sikkim and West Sikkim, pure strands of *Taxus wallichiana* (Zucc.)Pilger are found. Trees of coniferous forests are characterized by not forming pristine patches but mixed with other broadleaved species such as *Acer caudatum* Hook.f. & Thomson, *Betula utilis* D.Don, *Mangnolia campbellii* Hook.f. & Thomson, *Enkianthus deflexus* (Griff.)Schn. The rhododendron species which are found mixed with the coniferous trees are *Rhododendron barbatum* Wall. ex G. Don, *Rhododendron campanulatum* D. Don, *Rhododendron falconeri* Hook. f., *Rhododendron griffithianum* Wight, *Rhododendron thomsonii* Hook. f., *Rhododendron kendrikii* Nuttal, etc. **Alpine vegetation** occur in between 3500 -4500m. As one ascends gradually, with increase in altitude at about 4000m msl, the vegetation characterized by stunted tree growth becomes apparent. The slopes are covered with *Rhododendron*, *Sorbus*, *Tamarix*, *Cotoneaster* and *Berberis* spp.



Abies densa (Gobrey salla) - Silver fir is the most extensive conifer found in the sub-alpine zone

ANALYSIS OF TREE DIVERSITY

Sikkim, with varied climatic and altitudinal zones, is a major resource centre for tree species. Of the known 1421 wild species of trees in India (Brandis 1906) Sikkim alone represents 717 tree species under 320 genera and 95 families.

	Gymnosperms	Dicotyledons	Monocotyledons	Total
Families	5	87	3	95
Genera	12	293	15	320
Species	17	677	23	717

The dicotyledons are represented by 677 species under 293 genera belonging to 87 families, gymnosperms are represented by 5 families, 12 genera and 17 species, while the monocotyledons are represented by 3 families, 15 genera and 23 species. *Lauraceae* is the most dominating family represented by 58 species under 14 genera followed by *Euphorbiaceae* with 51 species under 23 genera. *Fabaceae* is represented by 37 species and 16 genera, while 27 families are represented by single species. *Ficus* is the most dominating genus represented by 30 species followed by *Sorbus* (15), as well as *Rhododendron* with 15 species each and *Litsea* with 14 species. The ten dominating families altogether constitute ca 45% of the total tree species present in this region; while the first ten dominating genera constitute only 19% of the total species recorded from this region.

Table II. Ten dominant families of trees in Sikkim

	Name of Family	No. of genera	No. of species
1	Lauraceae	14	58
2	Euphorbiaceae	23	51
3	Rosaceae	8	39
4	Moraceae	5	37
5	Fabaceae	16	37
6	Rubiaceae	16	26
7	Verbenaceae	6	23
8	Ericaceae	4	19
9	Meliaceae	12	19
10	Rutaceae	9	17
		113 (35.3%)	326 (45.7%)

Table III. Ten dominant genera of trees in Sikkim

	Name of Genera	No. of species	Altitudinal range of distribution
1	Ficus	30	Tropical to lower temperate zone (100-2400 m)
2	Sorbus	15	Sub-tropical to sub-alpine zone (1500-4100 m)
3	Rhododendron	15	Temperate to Alpine (1500-4000)
4	Litsea	14	Tropical to temperate zone (200-3700 m)
5	Prunus	13	Tropical to sub-alpine zone (200 - 4000 m)
6	Symplocos	12	Tropical to temperate zone (200-3500 m)
7	Acer	12	Sub-tropical to alpine zone (1000-4800 m)
8	Syzygium	12	Tropical to sub-tropical zone (150-1500)
9	Persea	10	Tropical to lower temperate zone (150 - 1500 m)
10	Elaeocarpus	8	Subtropical lower temperate zone (1000-2200 m)
		141 (19.7%)	

PHYTOGEOGRAPHY

Sikkim, is a part of the eastern Asian (Sino-Japanese) region of Boreal sub-kingdom under Holarctic kingdom of World (Takhtajan 1969). This region is considered as the confluence point of three biogeographic realms viz. the Afro-

tropic, the Indo-Malayan and the Indo-Chinese (Takhtajan 1969). The floristic elements of Sikkim show a great affinity with the neighbouring phytogeographical regions or country.

A careful analysis of the distribution pattern of trees of Sikkim reveals that, the tropical Asiatic elements of the Sikkim trees have largely Indo-Chinese and Malayan affinities. These type of elements are represented by *Acrocarpus fraxinifolius* Arn., *Michelia cathcartii* Hook.f.& Thomson, *Bauhinia purpurea* L., *Bischofia javanica* Blume, *Brassaiopsis glomerulata* (Blume) Regel, *Brassaiopsis hainla* (D. Don) Seem., *Careya arborea* Roxb., *Boehmeria longifolia* (Burm. f.) Wedd., *Duabanga grandiflora* (DC.) Walp., *Engelhardia spicata* Blume, *Lithocarpus elegans* (Blume) Hatus ex Soep., *Mangifera indica* L., *Oreocnide frutescens* (Thunb.) Miq., *Oroxylum indicum* (L.) Vent., *Radermachera sinica* (Hance) Hemsley, *Magnolia hodgsonii* (Hook. f. & Thomson) Keng, *Toona ciliata* Roem. etc., occurring in Sri Lanka, Myanmar, Malay Peninsular, Thailand, Indonesia, Taiwan, Philippines and South India. Many tree species such as *Acer oblongum* Wall. ex DC., *Alnus nepalensis* D.Don, *Ilex dipyrena* Wall., *Prunus cerasoides* D. Don, *Prunus napaulensis* (Ser.) Steud., *Quercus griffithii* Miq., *Saurauia nepaulensis* DC., found in Sikkim Himalaya are also distributed from Northwest Himalaya to China including Nepal and Bhutan. While *Betula alnoides* D.Don, *Callicarpa* spp., *Cinnamomum impressinervium* Meisn., *Ilex fragilis* Hook. f., *Itea macrophylla* Roxb., *Litsea cubeba* (Lour.) Pers., *Litsea kingii* Hook. f., *Magnolia campbelli* Hook. f. & Thomson, *Michelia doltsopa* Buch. - Ham. ex DC., *Osmanthus fragrans* Lour. var. *longifolius* (DC.) Hara, *Rhododendron falconeri* Hook. f. etc., are distributed towards east up to South China, but absent from Western Himalaya and Japan. *Abies densa* D. Don, *Betula utilis* D.Don, *Larix griffithiana* Car. *Lindera heterophylla* Meisn., *Rhododendron falconeri* Hook. f., *Rhododendron grande* Wight are restricted their distribution in the Eastern Himalaya only. Several species such as *Dalbergia sericea* G. Don, *Acer sterculiaceum* Wall., *Dodecadenia grandiflora* Nees, *Lindera pulcherrima* (Nees) Hook. f., *Pandanus furcatus* Roxb.,



Magnolia hodgsonii: the Hodgson's Magnolia, A native tree of Himalaya

Rhododendron campanulatum D.Don, *Choerospondias axillaris* (Roxb.) Burt & Hill are distributed from Northwest Himalaya to Sikkim, but absent in China and Japan.

Studies made by Janaki Ammal in genera viz., *Magnolia*, *Camellia*, *Lonicera*, *Rhododendron* and *Viburnum* represented by many species in this region (Eastern Himalayas) as a region of active speciation. The occurrence of many families and genera of primitive flowering plants such as *Magnolia*, *Michelia*, *Talauma*, *Miliusa*, *Myristica*, *Horsfieldia*, *Knema*, *Exbucklandia*, *Myrica*, *Maesa*, *Myrsine*, *Beilschmiedia*, *Actinodaphne*, *Cinnomomum*, *Lindera*, *Litsea*, *Alnus* and *Betula* has led Takhtajan to consider this region (Eastern Himalaya) as the Cradle of flowering plants.

UTILITY OF SOME IMPORTANT SPECIES

In traditional societies people are generally dependent on available natural resources for sustenance, and trees play an important role in maintaining self-sufficiency of local population, by providing all basic requirements like food, fodder, timber, medicines and other minor produces on sustained basis.

The traditional house construction pattern of Sikkim utilizes wooden planks and bamboos. Some of the important timber yielding tree species are *Abies densa* (Gobra Salla) *Albizia chinensis*(Siris), *Alnus nepalensis* (Utis), *Betula alnoides* (Saur), *Boehmeria rugulosa* (Daar), *Castanopsis indica* (Dalne Katus) *C. tribuloides* (Patle Katus), *Cryptomeria japonica* (Duphi), *Juglans regia* (Okhar), *Michelia cathcartii* (Teatey champ), *Michelia doltsola* (Champ), *Shorea robusta* (Sakhna), *Tectona grandis* (Sagoon), *Toona ciliata* (Tooni) and *Terminalia myriocarpa* (Pani-Saj). Demand for the wood of various species of *Michelia* and *Magnolia* locally known as 'Champ' is ever increasing as wood is excellent for furniture making and traditional carving works.

In this region stall feeding is not a common practice. Thus cattle are left free to the nearby forest for grazing. In absence of sufficient rangeland the forest tree species play an important role in solving the fodder problem. The principal fodder plants are *Albizia chinensis*, *A. lebbeck*, *Artocarpus heterophyllus*, *A. lokocha*, *Bauhinia purpurea*, *B. variegata*, *Dalbergia sissoo*, *Ficus auriculata*, *F. hirta*, *F. hispida*, *F. oligodon*, *Flacourtia indica*, *Grewia optiva*, *Litsea polyantha*, *Lagerstroemia parviflora*, *Mitragyna parviflora*, *Syzygium cumini* and *Saurauia nepalensis*, *Terminalia alata* etc.

Wild fruits, leaves and flowers are used as food. The tree diversity in immediate vicinity of the villages provides a constant source of food, which are used and sometimes sold in the weekly markets. The important trees yield sources of food are *Alangium chinensis*, flowers of *Bauhinia purpurea*, *B. variegata*, fruits of *Diploknema butyracea*, *Machilus edulis*, *Melia dubia*, *Prunus* spp., *Morus macroura*, *Moringa oliefera*, *Syzygium cumini*, *Psidium guava* and *Zanthoxylum acanthopodium*.

The bulk of fuel energy upon which the rural folk depends for domestic activities such as cooking, heating, campfire and festive fires comes from tree biomass resources. Although all the woody plants generally serve as a fire wood, yet the important fuel wood yielding species are *Acer campbelli*, *Alnus nepalensis*, *Betula utilis*, *Castanopsis indica*, *Cryptomeria japonica*, *Engelhardia spicata*, *Toona ciliata*, *Schima wallichii*. At higher elevation *Abies densa*, *Tsuga dumosa*, *Picea spinulosa*, *Rhododendron* spp., *Larix griffithiana* are also used,

From horticultural point of view tree species of this region also play an important role. The important horticultural plants are *Rhododendron anthopogon*, *R. barbatum*, *R. arboreum*, *R. hodgsonii*, *Betula utilis*, *Dendrocalamus* spp. *Caryota urens*, *Areca catechu*, *Cedrus deodara*, *Magnolia campbelli*, *Pinus wallichiana* etc. Several tree species of importance in horticulture and silviculture have been introduced in this region. Some of the examples are *Acacia auriculaeformis*, *Areca catechu*, *Citrus* spp., *Cocos nucifera*, *Cryptomeria japonica*, *Cunninghamia lanceolata*, *Eucalyptus tereticornis*, *Gingko biloba*, *Grevillea robusta*, *Persia americana*, *Psidium guajava*, *Saraca asoca*, *Spathodea campanulata*, *Tectona grandis* etc.

Some of the tallest native trees of this region that grow above 40 m in height are *Abies densa*, *Lithocarpus pachyphylla*, *Picea spinulosa*, *Pinus wallichiana*, *Psuga dumosa*, *Shorea robusta*, *Terminalia myriocarpa* and *Tetrameles nudiflora*.



Saraca asoca : The Indian Ashok tree: An important tree for avenue plantation in tropical and subtropical region

Trees recommended for Avenue, Roadside Plantation:

600- 1700 m

Aesculus assamica

Aesculus indica

Cassia fistula

Erythrina suberosa

Lagerstroemia flos-reginae

Emblica officinalis

Bauhinia spps.

Alstonia scholaris

Syzygium cuminii

Duabanga grandiflora

Michelia spp

Magnolia spp.

Schima wallichii

Terminalia myriocarpa

1700-3300 m

Alnus nepalensis

Rhododendron arboreum

Quercus spp.

Lithocarpus pachyphylla

Cinnamomum bejolghota

Cinnamomum impressinervium

Litsea elongata

Litsea kingii

Neolitsea foliosa

Persea clarkeana

Acer campbelii

Betula utilis

Engelhardia spicata

Exbucklandia populnea

Ilex dipyrena

Juglans regia

Populus ciliata

Prunus nepalensis

Malus sikkimensis

CONCLUSION

The timber valued trees species such as *Alnus nepalensis*, *Albizia odoratissima*, *Albizia procera*, *Castanopsis indica*, *Castanopsis lanceifolia*, *Castanopsis tribuloides*, *Engelhardia spicata*, *Persea fructifera*, *Michelia cathcartii*, *Michelia doltsopa*, *Michelia velutina*, *Schima wallichii* etc., are under threat due to excessive demand for furniture and other uses. For conservation of tree diversity in the region, it is imperative to protect the remnants of virgin forests in various pockets of the region in the form of protected areas, sacred forests or wildlife sanctuaries, and include the local tree species in social forestry programmes, by encouraging development of nurseries by local people. Various native species of *Michelia*, *Magnolia*, *Acer*, and *Rhododendrons* can be taken up in the first phase. Establishing of *Tendong Biodiversity park* in West Sikkim in one of its kinds in the Sikkim. Some of the areas which are rich in tree biodiversity may be declared "priority areas" for tree species conservation. The Government of Sikkim has launched a unique and innovative programme called "**State Green Mission**" with the view to raising avenue plantation and beautification of all vacant and waste lands to further reinforce wide spread recognition of Sikkim being a Green State. Sikkim has long been an ecologically conscious state with initiatives such as a comprehensive ban on plastic, bio-medical and chemical waste.

ACKNOWLEDGMENTS

Authors are thankful to Director, Botanical Survey of India, Kolkata for encouragement and facilities.

ENUMERATION OF THE TREE & BAMBOO SPECIES

	Family, Genus & Species	Height (in m)	Fl.*	Fr.*	Altitude (in mt)
	DILLENACEAE				
1.	<i>Dillenia indica</i> L.	10-13	09	03-04	150-600
2.	<i>Dillenia pentagyna</i> Roxb.	13-18	04	05-06	150-1500
	MAGNOLIACEAE				
3.	<i>Magnolia campbelli</i> Hook. f. & Thomson	15-25	02-04	09-11	1000-2700
4.	<i>Magnolia globosa</i> Hook. f. & Thomson	06-12	06-07	10-11	2300-3500
5.	<i>Magnolia hodgsonii</i> (Hook. f. & Thomson)H. Keng	08-12	04-06	08-09	1000
6.	<i>Magnolia insignis</i> Wall.	25-30	05-07	09-01	400-1500
7.	<i>Magnolia pterocarpa</i> Roxb.	18-30	04-05	10-11	500
8.	<i>Michelia cathcartii</i> Hook. f. & Thomson	15-25	03-06	08-11	1500-2000
9.	<i>Michelia champaca</i> L.	03-05	06-08	600	
10.	<i>Michelia doltsopa</i> Buch. - Ham. ex DC.	16-25	02-04	10-11	1000-2500
11.	<i>Michelia glabra</i> P.Parm.	10-15	08-09	10-11	900
12.	<i>Michelia kisopa</i> Buch.-Ham. ex DC.	10-20	07-09	10-01	1400-1800
13.	<i>Michelia punduana</i> Hook. f. & Thomson	12-03			1000-1600
14.	<i>Michelia velutina</i> DC.	20-30	07-09	12-01	1200-2000
	TETRACENTRACEAE				
15.	<i>Tetracentron sinense</i> Oliver	05-25	04	06	2200-3300
	ANNONACEAE				
16.	<i>Milium globosa</i> (DC.) Pan gr. i & S.C. Mishra	03-12	12-05	08-09	800
17.	<i>Milium longiflora</i> (Hook. f. & Thomson) Finet & Gagnep.	06-10	04-05	05-09	900
18.	<i>Milium macrocarpa</i> Hook. f. & Thomson	06-10	04-05	08-11	1200-1700
	BERBERIDACEAE				
19.	<i>Mahonia acanthifolia</i> G.Don	05-07	04-07	05-09	2000-3000
20.	<i>Mahonia sikkimensis</i> Takeda	05-07	04-07	05-09	2500
	LARDIZABALACEAE				
21.	<i>Decaisnea insignia</i> (Griffith) Hook. f. & Thomson	03-05	04-05	06-08	2400-2700
	CAPPARACEAE				
22.	<i>Capparis cantoniensis</i> Lour.	02-20	02-03	11-12	1800
23.	<i>Capparis multiflora</i> Hook. f. & Thomson	03-06	02-06	09-12	500-1800
24.	<i>Capparis olacifolia</i> Hook. f. & Thomson	03-05	02-06	08-12	300-1300
25.	<i>Crateva religiosa</i> Forster f.	03-15	03-04	10	up to 1000
26.	<i>Crateva unilocularis</i> Buch.-Ham.	08-13	01-04	07-11	up to 1500

	VIOLACEAE				
27.	<i>Rinorea bengalensis</i> (Wall.) O. Kuntze	05-20	02-07	6-12	1200-1800
	BIXACEAE				
28.	<i>Bixa orellana</i> L.	02-04	07-10	10-12	300-1500
	FLACOURTIACEAE				
29.	<i>Casearia glomerata</i> Roxb. ex DC.	03-10	04-05	07-08	1000-3000
30.	<i>Casearia graveolens</i> Dalz.	03-12	03-04	04-07	up to 1800
31.	<i>Casearia kurzii</i> C.B. Clarke	05-15	09-10	—	700 - 1200
32.	<i>Casearia tomentosa</i> Roxb.	10-12	02-04	04-08	300- 900
33.	<i>Flacourtia jangomas</i> (Lour.) Raeusch.	03-10	03-04	04-07	300-500
34.	<i>Gynocardia odorata</i> R. Br.	07-12	05-06	07-08	300-1200
35.	<i>Homalium zeylanicum</i> (Gard.) Bentham	10-15	04-06	—	300-1200
	PITTOSPORACEAE				
36.	<i>Pittosporum napaulense</i> (DC.) Rehder & E.H. Wilson	02-08	02-05	11-12	1000-2300
	POLYGALACEAE				
37.	<i>Polygala arillata</i> D. Don	04-05	03-05	06-08	1000-2300
	CLUSIACEAE				
38.	<i>Calophyllum polyanthum</i> Wall.	07-15	01-05	02-07	up to 1800
39.	<i>Garcinia anomala</i> Planch. & Triana	10-15	11	08	900-1800
40.	<i>Garcinia cowa</i> Roxb. ex DC.	09-18	02-05	06-09	800-1200
41.	<i>Garcinia stipulata</i> T. Anderson	12-20	08-09	04-07	900-1550
42.	<i>Garcinia xanthochymus</i> Hook. f.	15-20	01-12	03-04	up to 1400
43.	<i>Mesua ferrea</i> L.	10-20	01-03	05-10	up to 1500
44.	<i>Mesua floribunda</i> (Wall.) Kosterm.	10-12	03-05	06-08	100-1000
	THEACEAE				
45.	<i>Camellia kissi</i> Wall.	04-06	01-02	10-11	900-2100
46.	<i>Eurya acuminata</i> DC.	05-10	05-08	10-12	1300-2500
47.	<i>Eurya cavinervis</i> Vesque	10-15	07-08	11-12	900-2500
48.	<i>Eurya cerasifolia</i> (D. Don) Kobuski	08-12	07	11-12	900-2300
49.	<i>Eurya iaponica</i> Thunb.	10-15	7-8	10-12	1000-2000
50.	<i>Gordonia excelsa</i> Blume	08-10	11-12	03-05	900-1500
51.	<i>Schima wallichii</i> (DC.) Korth.	20-30	04-05	11-12	600-2000
52.	<i>Ternstroemia gymnanthera</i> (Wight & Arn.) Sprague	05-08	04-06	09-11	2100-2600
	ACTINIDIACEAE				
53.	<i>Saurauia fasciculata</i> Wall.	03-06	05	06	500-1500
54.	<i>Saurauia griffithii</i> Dyer	03-06	06-08	08-12	600-1500

55.	<i>Saurauia macrotricha</i> Kurz ex Dyer	03-05	04-06	06-08	450-1500
56.	<i>Saurauia napaulensis</i> DC.	05-10	03-04	09-10	750-2150
57.	<i>Saurauia punduana</i> Wall.	03-06	04-06.	09-11	600-1800
58.	<i>Saurauia roxburghii</i> Wall.	05-10	03-05	09-02	300-1200
	STACHYURACEAE				
59.	<i>Stachyurus himalaicus</i> Hook. f. & Thomson	03-08	03-04	04-07	1500-2800
	DIPTEROCARPACEAE				
60.	<i>Shorea robusta</i> Gaertn.	25-45	02-05	05-07	100-1500
	MALVACEAE				
61.	<i>Kydia calycina</i> Roxb.	10-20	09-10	12-01	600-1200
62.	<i>Nayariophyton ziziphifolium</i> (Griff.) D.G.Long & A.G. Miller	05-15	05^06	10	300-2200
63.	<i>Thespesia lampas</i> (Cav.) Dalzell & Gibson	3-5	10-12	12-03	100-400
	BOMBACACEAE				
64.	<i>Bombax ceiba</i> L.	30-40	02-03	04-05	up to 1500
65.	<i>Ceiba pentandra</i> (L.) Gaertn.	15-20	12-02	02-04	1500
	STERCULIACEAE				
66.	<i>Abroma augusta</i> (L.) L.f.	03-05	06-09	06-02	500- 900
67.	<i>Eriolaena hookeriana</i> Wright & Arn.	6-10	03-06	11-01	500- 900
68.	<i>Eriolaena wallichii</i> DC.	6-10	04-05	05-06	300-600
69.	<i>Firmiana colorata</i> (Roxb.) R. Br.	20-25	02-04	04-06	300- 900
70.	<i>Firmiana fulgens</i> (Wall. ex Master) Corner	20	03-05	05-06	400-1500
71.	<i>Pterospermum acerifolium</i> (L.) Willd.	12-15	03-11	07-12	400-900
72.	<i>Pterygota alata</i> (Roxb.) R.Br.	20-35	12-03	07-03	up to 700
73.	<i>Reevesia pubescens</i> Master	10-15	05-08	08-10	700-900
74.	<i>Reevesia wallichii</i> R. Br.	10-15	05-08	08-10	700-900
75.	<i>Sterculia hamiltonii</i> (Kuntze) Adelbert	04-06	08-10	03-05	up to 900
76.	<i>Sterculia kingii</i> Prain	5-7	04-05	05-06	900-1800
77.	<i>Sterculia roxburghii</i> Wall.	6-8	02-05	03-06	up to 900
78.	<i>Sterculia villosa</i> Roxb. ex W.W.Smith	10-15	12-04	03-09	100-900
	TILIACEAE				
79.	<i>Grewia abutilifolia</i> Vent.	05-10	01-12	01-12	up to 900
80.	<i>Grewia eriocarpa</i> A. Juss.	03-05	02-08	05-11	400-1500
81.	<i>Grewia optiva</i> Burret	05-10	04-07	06-11	400-900
82.	<i>Grewia rothii</i> DC.	04-06	04-10	06-12	up to 900
83.	<i>Grewia sepiaria</i> G.Don	04-06	07-09	08-11	300-1500
84.	<i>Grewia serrulata</i> DC.	04-06	04-12	06-03	up to 900
85.	<i>Microcos paniculata</i> L.	02-05	03-06	—	600-1500

	ELAEOCARPACEAE				
86.	<i>Elaeocarpus aristatus</i> Roxb.	20-40	04-06	07-11	1500-2000
87.	<i>Elaeocarpus floribundus</i> Blume	15-25	03-08	10-12	1000-1500
88.	<i>Elaeocarpus lanceifolius</i> Roxb.	20	03-08	10-12	1500-2200
89.	<i>Elaeocarpus serratus</i> L.	25-30	03-06	07-10	up to 1500
90.	<i>Elaeocarpus sikkimensis</i> Masters	10-20	01-03	07-08	1500-2000
91.	<i>Elaeocarpus sphaericus</i> (Gaertn.) K.Schum.	20-40	01-03	04-07	1500-2000
92.	<i>Elaeocarpus tectorius</i> (Lour.) Poiret	15-35	05-06	08-10	1500-2000
93.	<i>Elaeocarpus varunus</i> Buch.-Ham. ex Master	10-25	02-04	07-10	1000-1500
94.	<i>Sloanea dasycarpa</i> (Benth.) Hemsl.	12-25	07-11	01-03	1500-2000
95.	<i>Sloanea sterculiacea</i> (Benth.) Rehder & Wilson var. <i>assamaica</i> (Benth.) Coode	15-25	10-11	01-04	800-1000
96.	<i>Sloanea sterculiacea</i> (Benth.) Rehder & Wilson var. <i>sterculiacea</i>	15-25	10-11	01-04	600-1000
97.	<i>Sloanea tomentosa</i> (Benth.) Rehder & Wilson	20-25	07-09	10-12	1500-2000
	RUTACEAE				
98.	<i>Acronychia pedunculata</i> (L.) Miq.	15-20	08	12-03	600-1500
99.	<i>Aegle marmelos</i> (L) Correa	06-10	02-02	10-02	300-900
100.	<i>Citrus reticulata</i> Blanco	04-05	01-02	03-04	650-2500
101.	<i>Micromelum integerrimum</i> (Colebr.) Roemer	05-07	02-03	10-02	300-1000
102.	<i>Melicope lunu-ankenda</i> (Gaertn.) Hartley	04-10	05	05-06	600-900
103.	<i>Murraya koenigii</i> (L.) Spreng.	04-05	02-03	03-04	200-1000
104.	<i>Murraya paniculata</i> (L.) Jack	03-04	03-04	10-02	200-1250
105.	<i>Skimmia arborescens</i> Gamble	02-10	03-05	06-08	1500-2500
106.	<i>Skimmia laureola</i> (DC.) Walp. subsp. <i>multinervia</i> (Huang) Taylor & Airy Shaw	03-08	04-05	06-07	2400-2800
107.	<i>Tetradium fraxinifolium</i> (Hook.) Hartley	09-12	06	06-09	250-3500
108.	<i>Tetradium glabrifolium</i> (Benth.) Hartley	10-12	05	06-08	250-500
109.	<i>Tetradium ruticarpum</i> (Juss.) Hartley	08-10	06 -07	06-09	1800-2500
110.	<i>Zanthoxylum acanthopodium</i> DC.	06-07	10-02	01-02	1240-2440
111.	<i>Zanthoxylum armatum</i> DC.	05-07	04-05	05-06	250-3500
112.	<i>Zanthoxylum myriacanthum</i> Hook. f.	14-30	03-06	06-08	1800- 3500
113.	<i>Zanthoxylum ovalifolium</i> Wight	06-08	05-06	09-10	1000-1500
114.	<i>Zanthoxylum rhesta</i> (Roxb.) DC.	10-21	03-05	09-11	300- 600
	SIMAROUBACEAE				
115.	<i>Ailanthus integrifolia</i> Lam.	30-45	06-11	12-06	460-650
116.	<i>Brucea mollis</i> Wall. ex Kurz.	02-04	04-05	12-01	1000-3000
117.	<i>Picrasma javanica</i> Blume	10-20	04-05	07	600-1000

	BURSERACEAE				
118.	<i>Canarium strictum</i> Roxb.	25-45	07-08	03-04	600-900
119.	<i>Garuga floribunda</i> Decne.	15-18	04-05	08-11	300-1500
120.	<i>Garuga pinnata</i> Roxb.	15-20	04-05	08-09	300-1500
	MELIACEAE				
121.	<i>Aglaia perviridis</i> Hiern	15 - 18	06-07	03-06	700-1800
122.	<i>Aglaia spectabilis</i> (Miq.) Jain & Bennet	15-25	08-10	06-07	. 300-1000
123.	<i>Aphanamixis polystachya</i> (Wall.) Parker	6-12	04-06	05-10	600-1800
124.	<i>Azadirachta indica</i> Juss.	8-25	04-05	05-06	up to 1200
125.	<i>Chisocheton cumingianus</i> (C.DC.)Harms	08-12	05-06	05-06	380-550
126.	<i>Chukrasia tabularis</i> Juss.	20	05	12	up to 900
127.	<i>Cipadessa baccifera</i> (Roth) Miq.	2-4	04-05	05	900
128.	<i>Dysoxylum binectariferum</i> (Roxb.) Beddome	12-15	05-08	08-10	400-600
129.	<i>Dysoxylum excelsum</i> Blume	10-12	10-11	11-01	500--1600
130.	<i>Dysoxylum mollissimum</i> Blume	08-10	12	03-04	300-600
131.	<i>Dysoxylum reticulatum</i> King	12-15	09	10	600-1400
132.	<i>Heynea trijuga</i> Roxb.	02-06	02-05	07-01	500-1500
133.	<i>Melia azedarach</i> L.	06-15	03-04	04-05	300-2320
134.	<i>Sphaerosacme decandra</i> (Wall.) Penn.	12-15	06-07	07	300-1800
135.	<i>Toona ciliata</i> Roem.	20-30	02-04	03-06	300-1800
136.	<i>Toona microcarpa</i> (C. DC) Harms	10-20	12	02	300-1800
137.	<i>Toona sureni</i> (Blume) Merr.	20-27	07	11-12	600- 900
138.	<i>Walsura tubulata</i> Hiern	10-20	03-04	04-05	600-900
139.	<i>Walsura robusta</i> Roxb.	10-20	03-04	04-05	600-900
	OLACEAE				
140.	<i>Olox acuminata</i> Wall. ex Benth.	06-10	03-06	-	1000-1500
	ICACINACEAE				
141.	<i>Platea latifolia</i> Blume	15-25	08-09	10	500-1500
142.	<i>Nothapodytes foetida</i> (Wright) Sleumer	5-10	07-08	08-09	900-1800
	OPILIACEAE				
143.	<i>Lepionurus sylvestris</i> Blume	04-06	03-05	09-01	500-1800
	AQUIFOLIACEAE				
144.	<i>Ilex dipyrena</i> Wall.	09-12	02-03	11-12	1800-2500
145.	<i>Ilex fragilis</i> Hook. f.	08-10	04-05	09-02	1800-2500
146.	<i>Ilex godajam</i> (Colebr.) Hook.f.	05-08	03-04	06	200-600
147.	<i>Ilex hookeri</i> King	08-10	04-05	08-09	2500-3500

148.	<i>Ilex kingiana</i> Cockerell	08-10	02-05	08-04	1800-2500
149.	<i>Ilex sikkimensis</i> Kurz	10-15	05	10	2500-3500
	CELASTRACEAE				
150.	<i>Bhesha robusta</i> (Roxb.) Ding	15-30	07-09	08-10	300-1500
151.	<i>Cassine glauca</i> (Rottb.) Kuntze	10-13	07	12	900-1300
152.	<i>Euonymus hamiltonianus</i> Wall.	08-10	05-07	09-12	1800-2500
153.	<i>Lophopetalum wightianum</i> Arn.	17-25	03-04	07	900
154.	<i>Maytenus hookeri</i> Loes.	03-06	05-06	01-12	1000-1200
155.	<i>Maytenus kurzii</i> Bennet & Sahni	04-06	04-05	12-02	900-1800
156.	<i>Maytenus rufa</i> (Wall.) Kara	06-08	04-05	05-06	900-2500
157.	<i>Maytenus sikkimensis</i> (Prain) Raju & Babu	06-08	05-08	10-11	900
158.	<i>Microtropis discolor</i> (Wall.) Wall.	03-10	10-11	11-12	1000-1500
159.	<i>Siphonodon celastrineus</i> Griff.	10-15	05	03	900
	RHAMNACEAE				
160.	<i>Hovenia acerba</i> Lindley	10-25	06	08-02	200-1800
161.	<i>Ziziphus incurva</i> Roxb.	04-20	03-04	09-10	1000-1800
162.	<i>Ziziphus mauritiana</i> Lam.	07-10	08-09	12-02	200-800
	SAPINDACEAE				
163.	<i>Lepisanthes rubiginosa</i> (Roxb.) Leenh.	12-16	03-04	05-08	300-700
164.	<i>Sapindus detergens</i> Wall.	05-15	03-04	05	800-900
	HIPPOCASTANACEAE				
165.	<i>Aesculus assamica</i> Wall.	06-15	02-03	05	900
166.	<i>Aesculus indica</i> (Cambess.) Hook.f.	06-10	-	-	1800
	ACERACEAE				
167.	<i>Acer cappadocicum</i> Gled.	10-15	04-05	09-10	2300-2700
168.	<i>Acer campbellii</i> Hook. f. & Thomson ex Hiern	13-20	04-05	09-10	2000-3050
169.	<i>Acer caudatum</i> Wall.	07-10	05-07	07-12	3000-4800
170.	<i>Acer oblongum</i> Wall. ex DC.	12-17	10-11	01-04	1500-2500
171.	<i>Acer osmastonii</i> Gamble	20-25	04-05	05-06	2000-3000
172.	<i>Acer hookeri</i> Miq.	07-10	04-05	08-09	1000-2140
173.	<i>Acer laevigatum</i> Wall.	12-20	04-05	08-09	1600-2130
174.	<i>Acer pectinatum</i> Wall. ex Pax	08-15	03-06	08-11	2750-3500
175.	<i>Acer sikkimense</i> Miq.	08-10	04-05	08-09	1000-2140
176.	<i>Acer stachyophyllum</i> Hiern	06-10	04-05	05-06	2700-3500
177.	<i>Acer sterculiaceum</i> Wall.	07-15	04-05	08-12	2300-2900
178.	<i>Acer thomsonii</i> Miq.	20-25	06-08	10-12	1000-2000

	STAPHYLEACEAE				
179.	<i>Turpinia nepalensis</i> Wight & Arn.	10-20	04-05	09-12	1200-2100
180.	<i>Turpinia pomifera</i> (Roxb.) DC.	10-18	02-05	09-12	500-1200
	SABIACEAE				
181.	<i>Meliosma dilleniifolia</i> (Wight & Arn.) Walp.	10-20	05	09	1800-3000
182.	<i>Meliosma pinnata</i> (Roxb.) Maxim.	06-15	06-07	11-12	1800-2500
183.	<i>Meliosma simplicifolia</i> (Roxb.) Walp. var. <i>thomsonii</i> (Brandis) Beuseicon	09-15	01-02	05	450-2000
	ANACARDIACEAE				
184.	<i>Choerospondias axillaris</i> (Roxb.) Burtt & Hill	10-15	04	12	300-1500
185.	<i>Drimycarpus racemosus</i> (Roxb.) Hook. f.	15-30	03-04	04-06	400-1500
186.	<i>Lannea coromandelica</i> (Houtt.) Merr.	12-20	03-05	06	200- 600
187.	<i>Mangifera indica</i> L.	15-20	02-04	05-06	200-900
188.	<i>Mangifera sylvatica</i> Roxb.	10-30	02-03	04-06	900-1370
189.	<i>Rhus griffithii</i> Hook. f.	09-13	07-08	08-09	600
190.	<i>Rhus hookeri</i> Sahni & Bahadur	08-13	07	12	900-2500
191.	<i>Rhus chinensis</i> Mill.	07-10	06-10	10-12	900-3000
192.	<i>Rhus succedanea</i> L.	07-10	02-06	06-07	900-3000
193.	<i>Semecarpus anacardium</i> L.f.	09-15	06-08	12-01	up to 1000
194.	<i>Spondias pinnata</i> (L.f.) Kurz	15-40	04	12	300-1500
	MORINGACEAE				
195.	<i>Moringa oleifera</i> Lam.	08-15	01-02	02-04	900
	FABACEAE (s.l.)			•	
196.	<i>Acacia auriculiformis</i> A. Cunn. & Benth.	03-05	10-12	01-02	200-500
197.	<i>Acacia catechu</i> (L.f.) Willd.	02-07	08-10	12-02	200-700
198.	<i>Acacia decurrens</i> Willd.	07-10	04-05	09-11	1500-2000
199.	<i>Acacia farnesiana</i> (L.) Willd.	05-07	03	05	700
200.	<i>Acacia lenticularis</i> Benth.	15-20	02-03	03-04	3009- 700
201.	<i>Acacia melanoxylum</i> R.Br.	05-15	10-11	12-01	2000
202.	<i>Acrocarpus fraxinifolius</i> Arn.	20-40	02-03	03-05	220-1500
203.	<i>Adenanthera pavonina</i> L.	04-20	05-06	06	1200
204.	<i>Albizia chinensis</i> (Osbeck.) Merr.	05-10	04-07	05-07	450-1500
205.	<i>Albizia gamblei</i> Prain	07-15	06-07	10-12	200-1100
206.	<i>Albizia julibrissin</i> Durazz.	03-10	04-06	05-06	1500-3000
207.	<i>Albizia lebbeck</i> (L.) Benth.	10-30	04-05	05-06	300-900
208.	<i>Albizia lucidior</i> (Steud.) Hara	07-15	04-05	08-02	300-900
209.	<i>Albizia odoratissima</i> (L.f.) Benth.	10-25	05-07	06-07	300-900

210.	<i>Albizia procera</i> (Roxb.) Benth.	10-15	08-09	02-03	400-1200
211.	<i>Archidendron monadelphum</i> (Roxb.) I.C. Nielsen	08-10	03-06	05-07	850-1200
212.	<i>Archidendron clypearia</i> (Jack) I.C.Nielsen	08-12	04	06-07	600-1200
213.	<i>Bauhinia malabarica</i> Roxb.	04-15	09	01-02	200-500
214.	<i>Bauhinia purpurea</i> L.	02-12	11-01	01-04	200-1500
215.	<i>Bauhinia variegata</i> L.	02-12	02-04	05-06	250-1200
216.	<i>Butea monosperma</i> (Lam.) Kuntze	08-12	02-03	12	200-400
217.	<i>Cassia fistula</i> L.	10-20	08	07-08	900-1200
218.	<i>Dalbergia assamica</i> Benth.	15-20	01-05	11-12	500-1500
219.	<i>Dalbergia latifolia</i> Roxb.	10-25	08-10	04-05	300-600
220.	<i>Dalbergia rimosa</i> Roxb.	10-25	03-04	07-08	300-600
221.	<i>Dalbergia sericea</i> G. Don	15-20	04-05	04-11	500-1500
222.	<i>Dalbergia sissoo</i> DC.	10-25	03-04	06-07	300-600
223.	<i>Delonix regia</i> (Hook.) Raf.	10-15	05-06	11	200-1500
224.	<i>Erythrina stricta</i> Roxb.	06-20	01-04	10-01	200-1450
225.	<i>Erythrina arborescens</i> Roxb.	05-15	08-09	11	1500-2400
226.	<i>Erythrina variegata</i> L.	30-40	01-04	0405	200-1500
227.	<i>Leucaena leucocephala</i> (Lam.) de Wit	09-12	03-04	06	500
228.	<i>Ormosia glauca</i> Wall.	08-10	05	04-06	400-750
229.	<i>Pongamia pinnata</i> (L.) Pierre	12-20	02-04	05-06	500-900
230.	<i>Ougeinia oojeinensis</i> Hochr.	08-15	03-04	04-07	1000-1500
231.	<i>Samanea saman</i> (Jacq.) Merr.	20-50	03-06	07-08	300
232.	<i>Tamarindus indicus</i> L.	05-25	04-06	07-08	200-500
	ROSACEAE				
233.	<i>Cotoneaster bacillaris</i> Lindl.	03-07	05-06	06	1620-3000
234.	<i>Cotoneaster frigidus</i> Lindl.	03-07	04-05	05	2000-2800
235.	<i>Docynia indica</i> (Wall.) Decne.	04-10	03-05	04-05	1300-2440
236.	<i>Eriobotrya hookeriana</i> Decne.	08-10	11-12	06	1500-2300
237.	<i>Eriobotrya dubia</i> (Lindley) Decne.	07-10	10-11	07	1200-2100
238.	<i>Eriobotrya petiolata</i> Hook. f.	08-15	04-05	08-09	1700-2200
239.	<i>Mallus pumila</i> Mill.	08-10	04-05	09-10	2500
240.	<i>Mallus sikkimensis</i> (Wenz.) Koehne	03-05	03-04	04-05	1800-3000
241.	<i>Photinia integrifolia</i> Lindl.	10-12	04-05	11-12	1500-2300
242.	<i>Prunus arborea</i> (Blume) Kalkman	12-20	09-10	10-11	350-600
243.	<i>Prunus armeniaca</i> L.	04-10	04-05	05	1800-2500
244.	<i>Prunus carmesina</i> Hara	15-30	03-04	04-05	1900-2600

244.	<i>Prunus carmesina</i> Hara	15-30	03-04	04-05	1900-2600
245.	<i>Prunus cerasoides</i> D. Don	05-15	03	10-11	1000-2000
246.	<i>Prunus cerasus</i> L.	02-07	04-05	05-06	2500
247.	<i>Prunus ceylanica</i> (Wight) Miq.	04-05	08-10	10-11	350-500
248.	<i>Prunus cornuta</i> (Royle) Steud.	05-15	04-05	05-06	1600-2500
249.	<i>Prunus domestica</i> L.	02-07	04-05	05-06	1800- 2500
250.	<i>Prunus napaulensis</i> (Ser.) Steud.	05-15	04	04-05	1700-2100
251.	<i>Prunus persica</i> (L.) Batsch	04-10	02-04	03-04	200-2800
252.	<i>Prunus rufa</i> Hook. f.	02-12	04-05	5	2500-4000
253.	<i>Prunus undulata</i> D. Don	02-12	09-11	10-11	900-1900
254.	<i>Prunus venosa</i> Koehne	05-15	04-05	05-06	1800-2000
255.	<i>Pyrus pashia</i> D. Don	07-10	04	04-05	2100-3000
256.	<i>Pyrus communis</i> L.	08-10	04	04-05	2100-3000
257.	<i>Sorbus arachnoidea</i> Koehne	05-10	03-04	09-10	3000-4100
258.	<i>Sorbus ferruginea</i> (Wenz.) Rehder	12-15	05-06	11	2500-3200
259.	<i>Sorbus foliolosa</i> (Wall.) Spach	05-10	04-05	10-11	3000-3500
260.	<i>Sorbus griffithii</i> (Decne.) Rehder	10-15	05	09-01	2000-3000
261.	<i>Sorbus hedlundii</i> A.Schneid.	04-12	03-04	08-09	2500-2860
262.	<i>Sorbus insignis</i> (Hook, f.) Hedl.	08-10	04-05	10-11	2750-3350
263.	<i>Sorbus kurzii</i> (Prain) A.Schneid.	07-10	05	10-11	3350-3650
264.	<i>Sorbus microphylla</i> Wenz.	07-10	03-04	09-10	3000-4100
265.	<i>Sorbus pratti</i> Koehne	05-10	03-04	09-10	3000-4100
266.	<i>Sorbus rhamnoides</i> (Decne.) Rehder	09-15	05-06	08-10	2400-3050
267.	<i>Sorbus rufopilosa</i> A.Schneid.	05-10	03-04	09-19	3000-4100
268.	<i>Sorbus thibetica</i> (Cardot) Hand-Mazz.	04-10	05-06	05-06	2740-3340
269.	<i>Sorbus thomsonii</i> (Hook, f.) Rehder	12-15	05-06	11	2400-3050
270.	<i>Sorbus vestita</i> (G. Don) Lodd.	10-15	04-05	10-11	2300-3000
271.	<i>Sorbus wallichii</i> (Hook. f.) Yu	05-10	04-05	10-11	2000-2800
	HYDRANGEACEAE				
272.	<i>Hydrangea heteromala</i> D. Don	06-09	07-08	10-11	2300-3200
273.	<i>Hydrangea robusta</i> Hook. f. & Thomson	06-09	08-11	12-03	1500-2200
	ITEACEAE				
274.	<i>Itea macrophylla</i> Roxb.	09-12	05-07	10-02	700-1300
	HAMAMELIDACEAE				
275.	<i>Exbucklandia populnea</i> (R. Br. ex. Griff.) R. Br.	15-33	01-12	01-12	1260-2200
	RHIZOPHORACEAE				
276.	<i>Carallia brachiata</i> (Lour.) Merr.	10-20	02-03	02-03	150-900

	COMBRETACEAE				
277.	<i>Anogeissus acuminata</i> (DC.) Guill. & Perr.	10-20	03-05	04-09	200-600
278.	<i>Terminalia alata</i> Roth	18-30	07-08	02	270-1000
279.	<i>Terminalia bellirica</i> (Gaertn.) Roxb.	12-20	04-05	12-01	200-1400
280.	<i>Terminalia catappa</i> L.	12-25	04-05	12-01	600
281.	<i>Terminalia chebula</i> Retz.	12-25	04-05	12-01	200-1300
282.	<i>Terminalia crinata</i> (Gaertn.) Roxb.	10-25	04-05	12-01	270-1000
283.	<i>Terminalia myriocarpa</i> van Heurck & A. Muell.	20-45	10-11	05	270-1000
	MYRTACEAE				
284.	<i>Calloistemon citrinus</i> (Curtis) Skeel	04-10	04-07	05-08	300-600
285.	<i>Eucalyptus tereticornis</i> W.W.Smith	10-30	03-04	04-05	300-1700
286.	<i>Eugenia bracteata</i> (Willd.) Roxb.	10-16	03-04	04-05	500-900
287.	<i>Psidium guajava</i> L.	04-6	04-07	07-10	up to 600
288.	<i>Syzygium balsameum</i> (Wight)Cowan & Cowan	05-06	-	-	500-700
289.	<i>Syzygium claviflorum</i> (Roxb.) Cowan & Cowan	08-12	03-04	04	300-1000
290.	<i>Syzygium cumini</i> (L.) Skeel	15-25	02-05	05-08	300-1500
291.	<i>Syzygium formosum</i> (Wall.) Masam.	07-12	02-03	06-07	150-700
292.	<i>Syzygium jambos</i> (L.) Alston	08-12	02-03	06-07	360-700
293.	<i>Syzygium kurzii</i> (Duthie) N.P. Balakr.	10-11	10-12	02-03	150-700
294.	<i>Syzygium leptantha</i> Benth.	10-20	03-05	05-07	up to 400
295.	<i>Syzygium operculatum</i> (Roxb.) Neidenzu	10-20	02-05	05-06	300-1500
296.	<i>Syzygium praecox</i> (Roxb.) Rathakr. & Nair	08-10	02-04	06-07	1500-700
297.	<i>Syzygium ramosissimum</i> (Blume) N.P. Balakr.	10-15	02-04	06-07	150-700
298.	<i>Syzygium tetragonum</i> (Wight) Walp.	20-25	10-12	01-02	600-15000
299.	<i>Syzygium venosum</i> DC.	06-25	06-09	09-11	300-1500
	LECYTHIDACEAE				
300.	<i>Careya arborea</i> Roxb.	10-20	04-05	06-07	300- 900
301.	<i>Careya herbacea</i> Roxb.	8-15	04-06	04-07	150-300
	LYTHRACEAE				
302.	<i>Lagerstroemia minuticarpa</i> Debb. ex P.C. Kanjilal	20-35	08-10	12-03	1200-1500
303.	<i>Lagerstroemia parviflora</i> Roxb.	12-20	04-06	06-07	200-900
304.	<i>Lagerstroemia reginae</i> Roxb.	06-20	05	06-07	300-900
	SONNERATIACEAE				
305.	<i>Duabanga grandiflora</i> (DC.) Walp.	20-30	01-03	04-07	up to 900

	DATISCEAE				
306.	<i>Tetrameles nudiflora</i> R. Br.	25-45	03-04	05-06	200-900
	ARALIACEAE				
307.	<i>Aralia foliosa</i> Seem.	03-05	12-01	01-02	500-1500
308.	<i>Brassaiopsis glomerulata</i> (Blume) Regel	03-06	09-10	10-11	900-2150
309.	<i>Brassaiopsis hainla</i> (D. Don) Seem.	03-12	01-03	03-04	900-2000
310.	<i>Brassaiopsis hispida</i> Seem.	03-05	.09-10	10-11	1500-2133
311.	<i>Brassaiopsis mitis</i> C.B.Clarke	04-6	05-07	08-10	1800-2500
312.	<i>Gamblea ciliata</i> C.B.Clarke	10-12	06-07	10m	2740-3660
313.	<i>Heteropanax fragrans</i> Seem.	03-20	12-02	03-04	450-1200
314.	<i>Macropanax dispermus</i> (Blume) Kuntze	08-10	08-10	01-02	1000-2000
315.	<i>Macropanax undulatus</i> (G.Don) Seem.	10-15	09-10	10-11	700-1800
316.	<i>Merrillioanax alpinus</i> (C.B.Clarke) Shang	03-08	05-07	09-10	1800-2800
317.	<i>Pentapanax fragrans</i> (D. Don) Ha	08-12	12-02	03-04	2000-3500
318.	<i>Pentapanax leschenaultii</i> Seem.	10-15	05-06	12-01	2000-3000
319.	<i>Pentapanax racemosus</i> Seem.	08-12	06-07	07-08	2500
320.	<i>Schefflera eleta</i> (D. Don) Harms	06-12	03-04	09-11	1500-2200
321.	<i>Schefflera impressa</i> (C.B.Clarke) Harms	09-12	05-08	09-12	2000-3000
322.	<i>Trevesia palmata</i> (Roxb.) Vis.	03-14	05-06	05-06	500-1657
	CORNACEAE	\			
323.	<i>Benthamidia capitata</i> (Wall.) Kara	10-25	05-06	10-11	1700-2400
324.	<i>Mastixia arborea</i> C.B. Clarke	15-20	05-07	08-09	up to 600 m
325.	<i>Mastixia pentandra</i> Blume subsp. <i>chinensis</i> (Merr.) Mathews	10-20	05-06	08-09	305-1070
326.	<i>Swida controversa</i> (Hemsl.) Sojak	10-18	04-05	05-06	900-1800 m
327.	<i>Swida macrophylla</i> (Wall.) Sojak	06-08	04-95	05-06	
	TORICELLIACEAE				
328.	<i>Toricellia tillifolia</i> DC.	03-06	04-05	06-08	ca2200
	ALANGIACEAE				
329.	<i>Alangium alpinium</i> (C.B.Clarke) W.W. Smith & Cave	08-15	05	09-11	600-2400
330.	<i>Alangium chinense</i> (Lour.) Harms	10-15	05	08-09	240-2000
331.	<i>Alangium salviifolium</i> (L.f.) Wangerin	06-10	05	09-10	900-1200
	NYSSACEAE				
332.	<i>Nyssa javanica</i> Wangerin	10-12	04-05	09-11	1000-2000
	CAPRIFOLIACEAE				
333.	<i>Viburnum coriaceum</i> Blume	06-10	07-08	11-12	1200-2300
334.	<i>Viburnum erubescens</i> DC.	04-06	06-08	10-12	1500-2000

335.	<i>Viburnum grandiflorum</i> DC.	03-06	03-05	07-09	2000-3500
336.	<i>Viburnum mullaha</i> D.Don	04-06	07	09-11	1700-2300
	SAMBUCACEAE				
337.	<i>Sambucus javanica</i> Reinw. ex Blume	04-06	04-06	06-10	600-2100
	RUBIACEAE				
338.	<i>Canthium glabrum</i> Blume	06-09	03-04	04-05	500-1000
339.	<i>Catunaregam longispina</i> (Link) Tirveng.	05-06	03-05	01-02	900-1800
340.	<i>Cephalanthus tetrandra</i> (Roxb.)Ridsdale ex Bakh. f.	8-10	03-05	04-05	600-900
341.	<i>Gardenia turgida</i> Roxb.	7- 10	1-5	1-5	1000- 1200
342.	<i>Haldinia flaccidum</i> Wall.	05-06	06	12-01	900-1700
343.	<i>Haldinia cordifolia</i> (Roxb.)Ridsdale	06-20	08	11-02	900-1300
344.	<i>Hymenodictyon orixense</i> (Roxb.) Mabberley	10-18	05-06	12-01	700-900
345.	<i>Hyptianthera stricta</i> (W.W.Smith) Wight & Arn.	04-07	04-06	12-02	250-1500
346.	<i>Khasiaclunea oligocephala</i> (Havil.) Ridsdale	04-06	10-11	11-12	1500-1800
347.	<i>Meyna spinosa</i> Roxb. ex Link	03-05	04-06	10-11	900-1500
348.	<i>Mitragyna rotundifolia</i> (Roxb.) Kuntze	5-15	05-06	03-04	900- 1500
349.	<i>Morinda angustifolia</i> Roxb.	2-6	03-04	04-07	300-800
350	<i>Neolamarckia cadamba</i> (Roxb.) Bosser	18-25	05-08	07-09	300-900
351	<i>Neonauclea griffithii</i> Hook. f.	05-07	08-09	12-02	800-1300
352	<i>Pavetta tomentosa</i> Roxb. ex Sm.	2-6	03-04	04-07	300-1000
353	<i>Psydrax kingii</i> (Hook.f.) D.M. Bridson & L.S. Springate	03-04	03-04	05	1500-3000
354	<i>Tamilnadia uliginosa</i> (Retz.) Tirveng. & Sastre	05-20	05-06	12-02	100-1200
355	<i>Tarrenoidea wallichii</i> (Hook. f.) Tirveng. & Sastre	05-08	03-05	01-02	700-1500
356	<i>Wendlandia grandis</i> (Hook, f.) Cowan	06-09	02-03	04-05	ca 300
357	<i>Wendlandia heynei</i> (A.Roem. & Schultes) Santapau & Merchant	04-06	03-04	03-05	300-1400
358	<i>Wendlandia pendula</i> (Roxb.) DC.	04-07	03-04	04-06	ca 1200
359	<i>Wendlandia puberula</i> DC.	04-08	05-06	06-07	1800-2500
360	<i>Wendlandia sikkimensis</i> Cowan	04-06	01-03	02-03	300-400
361	<i>Wendlandia tinctoria</i> (Roxb.) DC.	06-10	02-04	04-05	300-900
362	<i>Wendlandia wallichii</i> Wight & Arn.	03-06	12-03	02-04	900
363	<i>Wendlandia coriacea</i> (Wall.) DC.	06-10	02-05	04-05	200-1900
	ASTERACEAE (COMPOSITAE)				
364	<i>Vernonia talaumifolia</i> Hook. f. & Thomson	03-07	12-01	02-03	300-900
365	<i>V. volkameriifolia</i> DC.	03-07	02-03	06-07	400-2000

	ERICACEAE				
366	<i>Enkianthus deflexus</i> (Griff.) C.K.Schneid	03-06	05-07	08-10	2300-3600
367	<i>Lyonia ovalifolia</i> (Wall.) Drude	05-10	07-10	08-12	600-3500
368	<i>Lyonia villosa</i> (Hook. f. ex C.B. Clarke) Hand-Mazz.	02-06	06-07	11	2500-4000
369	<i>Pieris formosa</i> (Wall.) D.Don	02-05	03-06	11	2000-3500
370	<i>Rhododendron arboreum</i> Sm.	15	03-05	10-12	1200-3000
371	<i>Rhododendron arboreum</i> Sm. subsp. <i>cinnamomeum</i> (G. Don) Tagg	10-15	03-05	04-07	2500-3500
372	<i>Rhododendron arboreum</i> Sm. subsp. <i>cinnamomeum</i> (G. Don) Tagg var. <i>roseum</i> Lindl.	8-15	03-05	04-07	1300-3500
373	<i>Rhododendron arboreum</i> Sm. subsp. <i>delavayi</i> (Franch.) D.F.Chamberlain	10-15	03-05	04-06	1700-3500
374	<i>Rhododendron barbatum</i> Wall. ex G.Don	02-06	03-06	10	2000-3600
375.	<i>Rhododendron argipeplum</i> Balfour f. & Cooper	02-06	03-06	04-08	2500-3500
376.	<i>Rhododendron campanulatum</i> D.Don	02-06	05-06	08-10	3000-3800
377.	<i>Rhododendron falconeri</i> Hook. f.	05-15	04-06	10-12	2500-3200
378.	<i>Rhododendron cinnabarinum</i> Hook. f. subsp. <i>cinnabarinum</i>	05-15	04-06	10-12	2500-3200
379.	<i>Rhododendron grande</i> Wight	08-15	02-05	12-01	1800-3000
380.	<i>Rhododendron griffithianum</i> Wight	02-10	04-05	10-11	1800-2500
381.	<i>Rhododendron hodgsonii</i> Hook. f.	05-10	05-06	10-01	2900-3600
382.	<i>Rhododendron kendrikii</i> Nuttall	03-06	03-05	03-05	2000-2800
383.	<i>Rhododendron niveum</i> Hook. f	8-12	03-05	10-12	2900-4000
384.	<i>Rhododendron thomsonii</i> Hook. f.	03-06	03-05	04-07	2000-3400
	MYRSINACEAE				
385.	<i>Embelia tsjeriam-cottam</i> A. DC.	10-15	06-08	09-11	300-900
386.	<i>Maesa argentea</i> (Wall.) A. DC.	06-08	04	06	2100-2500
387.	<i>Maesa chisia</i> D.Don	03-06	01-04	04-08	1800-2500
388.	<i>Maesa macrophylla</i> (Wall.) A. DC.	03-05	02-05	05-08	600-1700
389.	<i>Maesa montana</i> A. DC.	02-05	02-03	03-05	300-500
390.	<i>Myrsine semiserrata</i> Wall.	06-10	12-01	02-03	1800-2500
391.	<i>Rapanea capitellata</i> (Wall.) Mez.	06-15	11-12	01-02	1200-1900
	SAPOTACEAE				
392.	<i>Diploknema butyracea</i> (Roxb.) H.J.Lam	10-15	12-01	05-06	800-1500
393.	<i>Mimusops elengi</i> L.	15-20	10-12	12-01	180-500
394.	<i>Sacrosperma arboreum</i> Hook. f.	10-20	12-01	05-06	300-1300
395.	<i>Xantolis hookeri</i> (C.B. Clarke) Royen	03-10	03-04	10-02	1000-2000

	EBENACEAE				
396.	<i>Diospyros lanceifolia</i> Roxb.	05-15	04-05	12-01	600-1200
397.	<i>Diospyros lotus</i> L.	6-12	03-04	05-06	300-2500
398.	<i>Diospyros malabarica</i> (Desr.) Kostel.	07-12	03-04	04	500-1500
3.99	<i>Diospyros montana</i> Roxb.	03-05	09-11	12	500-800
	STYRACACEAE				
400.	<i>Styrax grandiflorus</i> Griff.	04-12	05-06	08-09	900-1800
401.	<i>Styrax serrulatus</i> Roxb.	05-15	03-05	06-07	300-1200
	SYMPLOCACEAE				
402.	<i>Symplocos caudata</i> Wall.	03-18	03-04	07-09	1000-2500
403.	<i>Symplocos cochinchinensis</i> (Lour.) S. Moore	05-10	05-06	08-10	500-1500
404.	<i>Symplocos dryophila</i> C.B. Clarke	06-10	05-07	09-11	2000-2600
405.	<i>Symplocos glomerata</i> King ex C.B. Clarke	05-08	03-05	07-11	2000-2500
406.	<i>Symplocos lucida</i> (Thunb.) Siebold & Zucc.	04-20	12-03	04-05	1200-3500
407.	<i>Symplocos paniculata</i> (Thunb.) Miq.	02-06	03-04	04-06	1000-2400
408.	<i>Symplocos pyrifolia</i> Wall. ex G. Don	03-07	06	06-07	1000-2700
409.	<i>Symplocos racemosa</i> Roxb.	05-08	11-12	01-02	200-2500
410.	<i>Symplocos ramosissima</i> Wall. ex G. Don	03-07	05-07	06-10	1400-2700
411.	<i>Symplocos spicata</i> Roxb.	06-10	04-08	09-11	500-2300
412.	<i>Symplocos sumuntia</i> Buch.-Ham. ex D. Don	03-08	10-03	05-06	1400-2700
413.	<i>Symplocos theifolia</i> D. Don	06-15	11-01	01-04	2000-3500
	OLEACEAE				
414.	<i>Chionanthus ramiflorus</i> Roxb.	02-06	02-03	03-04	500-900
415.	<i>Fraxinus floribunda</i> Wall.	15-20	05-07	11-02	1200-2000
416.	<i>Fraxinus paxiana</i> Lingelsh. var. <i>sikkimense</i> Lingelsh.	12-16	04-05	07	300-1000
417.	<i>Ligustrum compactum</i> (Wall. ex DC.) Hook. f. & Thorn ex Brandis	03-10	05-06	07-08	1800-2400
418.	<i>Ligustrum confusum</i> Decne.	04-08	06-07	10-12	900-3000
419.	<i>Ligustrum robustum</i> (Roxb.) Blume	08-12	05-07	12-04	upto 1600
420.	<i>Nyctanthes arbor-tristis</i> L.	03-10	09-01	02-05	200-600
421.	<i>Olea dioica</i> Roxb.	08-13	02-04	10	200-1000
422.	<i>Olea gamblei</i> C.B. Clarke	08-13	08-09		300-1500
423.	<i>Osmanthus fragrans</i> Lour. var. <i>longifolius</i> (DC.) Hara	03-07	08-11	10-11	2000-2500
424.	<i>Osmanthus suavis</i> King ex C.B. Clarke	05-09	04-05	10-11	2000-3000
	APOCYNACEAE				
425.	<i>Alstonia neriifolia</i> D. Don	10-20	05-07	12	500-900

426.	<i>Alstonia scholaris</i> (L.) R.Br.	12-25	11-01	01-04	200-1500
427.	<i>Cerbera manghas</i> L.	8-10	10-01	01-04	900-1500
428.	<i>Holarrhena pubescens</i> (Buch.-Ham.) Wall, ex G.Don	08-13	04-05	08-11	up to 600
429.	<i>Nerium oleander</i> L.	04-06	01-12	01-12	600-1500
430.	<i>Plumeria rubra</i> L.	05-07	01-12	01-12	300-1200
431.	<i>Thevetia peruviana</i> (Pers.) Schum.	7-10	04-06		
432.	<i>Wrightia arborea</i> (Dennst.) Mabberly	06-13	05-06	12-04	400-1000
433.	<i>Wrightia coccinea</i> (Roxb.) Sims	03-07	05	06-07	300-1800
434.	<i>Wrightia sikkimensis</i> Gamble	03-10	04-05	11-12	400-1200
	BUDDLEJACEAE				
435.	<i>Buddleja colvilei</i> Hook. f. & Thomson	03-07	06-07	11-12	2500-3500
436.	<i>Buddleja paniculata</i> Wall.	02-06	03-04	04-06	1000-2400
437.	<i>Buddleja macrostachya</i> Benth.	04-07	07-10	08-11	1800-2500
	GENTIANACEAE				
438.	<i>Fagraea obovata</i> Wall.	7-10	05-06	8-10	200-600
	EHRETIACEAE				
439.	<i>Cordia grandis</i> Roxb.	06-15	09-10	01	300-900
440.	<i>Cordia obliqua</i> Willd.	06-14	03-04	05-06	300-1200
441.	<i>Ehretia serrata</i> Roxb.	05-10	03-04	05-06	300-1900
442.	<i>Ehretia laevis</i> Roxb.	05-10	01-04	—	200-1000
443.	<i>Ehretia macrophylla</i> Wall.	03-10	04-05	—	1500-2400
444.	<i>Ehretia psilosiphon</i> Mill.	03-05	03-04	—	300-1900
445.	<i>Ehretia wallichiana</i> Hook. f. & Thomson	12-20	02-05	06-10	500-2000
	SOLANACEAE				
446.	<i>Solanum erianthum</i> D.Don	03-06	09-10	11-12	200-1500
	SCROPHULARIACEAE				
447.	<i>Wightia speciosissima</i> (D.Don) Merr.	05-10	10-11		1000-2500
	GESNERIACEAE				
448.	<i>Rhynchochum ellipticum</i> (Wall. ex. D. Dietr.) A.DC.	02-04	09-11	12-06	200-500
	BIGNONIACEAE				
449.	<i>Jacaranda mimosifolia</i> D.Don	04-08	04-05	04-06	200-250
450.	<i>Oroxylum indicum</i> (L.) Vent.	06-10	05-06	12-01	400-1500
451.	<i>Radermachera sinica</i> (Hance) Hemsley	04-07	05	05-07	500-750
452.	<i>Streospermum colais</i> (Dillwyn) Mabberley	20-30	04	11-02	200-700
453.	<i>Streospermum chelonoides</i> (L.f.) DC.	20-30	04-05	05-08	300-700

	ACANTHACEAE				
454.	<i>Phlogacanthus thyrsoiflorus</i> (Roxb.) Nees	04-05	,01-03	04	200-1000
	VERBENACEAE				
455.	<i>Callicarpa lobata</i> C.B. Clarke	06-15	05-06		3000-3700
456.	<i>Callicarpa longifolia</i> Lam.	03-06	08-12	12-01	300-600
457.	<i>Callicarpa macrophylla</i> Vahl	03-06	05-07		300-600
458.	<i>Callicarpa vestita</i> Wall. ex C.B. Clarke	06-15	07	08-09	500-2000
459.	<i>Callicarpa arborea</i> Roxb.	06-10	02-03	04-0	3000-1800
460.	<i>Clerodendrum bracteatum</i> Walp.	03-06	05-10	09-12	300-1700
461.	<i>Clerodendrum serratum</i> (L.) Moon	04-05	04-07	04-11	300-1500
462.	<i>Clerodendrum colebrookeanum</i> Walp.	03-06	08-11	11-01	700-1700
463.	<i>Gmelina arborea</i> Roxb.	15-20	02-04	04-05	200-1000
464.	<i>Premna coriacea</i> C.B. Clarke var. <i>oblonga</i> C.B. Clarke	03-05	04-05	11-02	200-600
465.	<i>Premna flavescens</i> Buch.- Ham. ex C.B. Clarke	03-08	06-07	06-08	300-900
466.	<i>Premna interrupta</i> Wall. ex Schauer	03-06	05-07	05-08	1000-2400
467.	<i>Premna latifolia</i> Roxb.	10-18	05-06	12-01	900
468.	<i>Premna lucidula</i> Miq.	07-15	05-06	06-07	500-900
469.	<i>Premna barbata</i> Schauer	06-09	03-04	04-05	200-700
470.	<i>Premna benghalensis</i> C. B. Clarke	05-10	03-05	04-06	200-600
471.	<i>Premna bracteata</i> Wall. ex C.B. Clarke	5-10	04-05	05-06	up to 900
472.	<i>Tectona grandis</i> L.f.	20-35	07-08	09-11	100-600
473.	<i>Vitex negundo</i> L.	02-10	05-11	09-12	300-1700
474.	<i>Vitex pinnata</i> L.	10-15	-	-	up to 1200m
475.	<i>Vitex quinata</i> (Lour.) Williams	06-01	04-06	05-07	300-1200
476.	<i>Vitex heterophylla</i> Roxb.	10-15	06-07	09-12	500-1500
477.	<i>Vitex peduncularis</i> Schauer	15-20	-	-	up to 700
	LAMIACEAE (LABIATAE)				
478.	<i>Leucosceptum canum</i> Sm.	<10	01-02	04-05	4000-8000
	MYRISTICACEAE				
479.	<i>Horsfieldia kingii</i> (Hook. f.) Warb.	10-12	06-07	01-03	200-800
480.	<i>Knema tenuinervia</i> W.J.J.O. de Willd.	10-20	04-07		300-800
481.	<i>Knema erratica</i> (Hook. f. & Thomson) Sinclair	10-20	04-07		200-400
482.	<i>Knema linifolia</i> Warb.	06-10	07	02	up to 900
	LAURACEAE				
483.	<i>Actinodaphne angustifolia</i> (Blume) Nees	14-20	10-04	07-08	400-1000
484.	<i>Actinodaphne longipes</i> Kosterm.	06-08	10		1700-2000

485.	<i>Actinodaphne obovata</i> (Nees) Blume	15-20	03-04	05	300-1400
486.	<i>Actinodaphne sikkimensis</i> Meisn.	04-06	11-12	05-06	1500-2000
487.	<i>Alseodaphne owdenii</i> Parker	10-18	05	07-09	800
488.	<i>Beilschmiedia assamica</i> Meisn.	10-15	12	2-3	300-1000
489.	<i>Beilschmiedia clarkei</i> Hook. f.	12-20	05	09-12	1400-1700
490.	<i>Beilschmiedia dalzellii</i> (Meisn.) Kosterm.	12-20	03		200-1200
491.	<i>Beilschmiedia gammieana</i> Hook. f.	05-10	05	09-01	1700-1200
492.	<i>Beilschmiedia roxburghiana</i> Nees	20-30	03	04-05	200-400
493.	<i>Beilschmiedia sikkimensis</i> Hook. f.	15-20	05-06	11	300-1500
494.	<i>Cinnadenia paniculata</i> (Hook. f.) Kosterm.	03-10	10	01-02	1200-1600
495.	<i>Cinnamomum bejolghota</i> (Ham.) Sweet	15-20	03-07	09-11	400-2000
496.	<i>Cinnamomum cecidodaphne</i> Meisn.	15-20	1-2	3-4	1000-1500
497.	<i>Cinnamomum glanduliferum</i> (Wall.) Meisn.	12-15	04-05	05-06	1900-2400
498.	<i>Cinnamomum glaucescens</i> (Nees.) Hand-Mazz	10-15	01-02		200-1200
499.	<i>Cinnamomum impressinervium</i> Meisn.	12-15	05-08	12	1800-2500
500.	<i>Cinnamomum tamala</i> (Buch. -Ham.) Nees & Eberm.	10-15	07-08	11-13	300-1500
501.	<i>Cinnamomum tenuipilis</i> Kosterm.	06-10	03	10-02	1200-1600
502.	<i>Cryptocarya amygdalina</i> Nees	10-13	03-04	05	350-1000
503.	<i>Dodecadenia grandiflora</i> Nees	10-15	03-04	04-05	2400-2600
504.	<i>Lindera assamica</i> (Meisn.) Kurz	08-10	10-12	08-10	2100-2400
505.	<i>Lindera hamiltonii</i> Kosterm.	06-10	-	-	1500-2000
506.	<i>Lindera heterophylla</i> Meisn.	06-12	04-05	07-08	2500-3200
507.	<i>Lindera latifolia</i> Hook. f.	10-15	02-04	07-10	1600-1700
508.	<i>Lindera neesiana</i> (Wall. ex Nees) Kurz	05-09	10-02	08-03	1900-2500
509.	<i>Lindera pulcherrima</i> (Nees) Hook. f.	05-08	04-05	09-10	2100-2600
510.	<i>Litsea albescens</i> (Hook. f.) D.G.Long	15-25	10-11	11-02	1200-2100
511.	<i>Litsea chartacea</i> (Nees) Hook. f.	08-10	05-06	10-11	1500-1800
512.	<i>Litsea citrata</i> Blume	12-20	12-02	06-07	1700-2000
513.	<i>Litsea cubeba</i> (Lour.) Pers.	05-06	12-02	11-05	300-1500
514.	<i>Litsea elongata</i> (Nees) Hook. f.	10-20	09-10	04-05	1800-2600
515.	<i>Litsea glutinosa</i> (Lour.) Robins.	10-15	05-06	07-10	900-1700
516.	<i>Litsea hookeri</i> (Meisn.) D.G.Long	08-12	05	08-12	600-900 m
517.	<i>Litsea kingii</i> Hook. f.	02-04	03-04	03-07	2100-2900
518.	<i>Litsea laeta</i> (Nees) Hook. f.	08-09	11-02	-	300-700
519.	<i>Litsea monopetala</i> (Roxb.) Pers.	08-12	03-04	-	200-900
520.	<i>Litsea panananja</i> (Nees) Hook. f.	18-25	03-05	05-06	

521.	<i>Litsea polyantha</i> Juss.	10-15	02-03	06	1100
522.	<i>Litsea salicifolia</i> (Nees) Hook. f.	05-09	02-04	05-06	300-1050
523.	<i>Litsea sikkimensis</i> (Meisn.) D.G.Long	10-15	05-06	-	3300-3700
524.	<i>Machilus edulis</i> King	10-15	10-01	02-04	1500-2500
525.	<i>Neocinnamomum caudatum</i> (Nees) Merr.	08-12	06-09	11-03	200-1500
526.	<i>Neolitsea cuipala</i> (D.Don) Kosterm.	08-20	02-03		1750-1850
527.	<i>Neolitsea foliosa</i> (Nees) Gamble	10-20	11-02	12-01	1600-2100
528.	<i>Persia americana</i> Mill.	15-18	3-4/11-12	7-9/5-6	500-1500
529.	<i>Persia clarkeana</i> (Hook, f.) Kosterm.	10-12	05-06	-	2100-2400
530.	<i>Persia duthiei</i> (Hook. f.) Kosterm.	14-25	02-05	-	600-2100
531.	<i>Persia fructifera</i> Kosterm.	10-12	05-07	08-12	900-2000
532.	<i>Persia gamblei</i> (Hook, f.) Kosterm.	09-15	02-03	04-07	400-1000
533.	<i>Persia glaucercens</i> (Nees) D.G.Long	10-24	03-04	-	500-650
534.	<i>Persia kurzii</i> (Hook, f.) Kosterm.	12-15	05-06	-	1500-2000
535.	<i>Persia minutiflora</i> Kosterm.	10-15	01-03	:	700-1200
536.	<i>Persia odoratissima</i> (Nees) Kosterm.	07-10	03-05		1200
537.	<i>Persia robusta</i> (Sm.) Kosterm.	08-15	03	05-07	400-1300
538.	<i>Phobe attenuata</i> (Nees) Nees	10-20	03-04	11-12	200-500
539.	<i>Phobe halnesiana</i> Brandis	10-25	05	05-09	300-1500
540.	<i>Phobe lanceolata</i> (Nees) Nees	14-15	04-05	06-09	500-1000
	PROTEACEAE				
541.	<i>Helicia nilagirica</i> Beddome	06-10	06-08	02-05	600-1800
	SANTALACEAE				
542.	<i>Pyrularia edulis</i> (Wall.) A. DC.	06-10	03-04	07-10	600-2000
	EUPHORBIACEAE				
543.	<i>Alchornea mollis</i> Muell.	02-08	07		600-1800
544.	<i>Alchornea tiliifolia</i> (Benth.) Muell.	02-08	05-07	10-11	600-1200
545.	<i>Antidesma acidum</i> Retz.	<10	05-06	07-08	270-1520
546.	<i>Antidesma acuminatum</i> Wight	03-10	08-09	12-01	300-1000
547.	<i>Antidesma buniis</i> (L.) Spreng.	03-10	05-06	09-10	600-1000
548.	<i>Antidesma ghaesembila</i> Gaertn.	03-10	04-05	07-08	200-600
549.	<i>Aporosa octandra</i> (D.Don) Vickery	10-12	02-03	04-07	300-600
550.	<i>Baccaurea ramiflora</i> Lour.	05-15	04-05	05-06	300-1000
551.	<i>Bischofia javanica</i> Blume	15-30	03-04	12-03	200-1500
552.	<i>Bridelia tomentosa</i> Blume	05-10	10-11	12-01	150-600
553.	<i>Bridelia pubescens</i> Kurz	10-15	05-07		300-1200
554.	<i>Bridelia retusa</i> (L.) Spreng.	06-12	08-09	10-12	400-1650
555.	<i>Cleidion spiciflorum</i> (Burm. f.) Merr.	10-20	01-02	05-06	300-1300

556.	<i>Croton caudatus</i> Geiseler	05-08	04-05		200-1500
557.	<i>Croton himalaicus</i> D.G.Long	03-06	05-06	08-11	600-1600
558.	<i>Croton roxburghii</i> N.P.Balacr.	05-08	01-02	02-03	300-600
559.	<i>Croton tiglium</i> L.	05-07	10-12	01	200-800
560.	<i>Drypetes assamica</i> (Hook, f.) Pax & Hoffman	10-15	12-01	02-04	500-600
561.	<i>Drypetes indica</i> (Muell.) Pax & Hoffman	06-13	12-01	02-04	160-1500
562.	<i>Drypetes subsessilis</i> (Kurz) Pax & Hoffman	10-15	04-05	11	500-600
563.	<i>Endospermum chinense</i> Benth.	15-20	04-05	07-08	up to 900
564.	<i>Flueggea virosa</i> Willd.	04-08	04-06	06-10	300-1400
565.	<i>Flueggea acuminatum</i> Muell.	05-10	04-06	08-10	1500-2100
566.	<i>Flueggea assamicum</i> (Muell.) Hook, f .	03-05	10-01	01-03	150-600
567.	<i>Flueggea daltonii</i> (Muell.) Kurz	06-08	08-11	12-03	600-1000 '
568.	<i>Glochidion hirsutum</i> (Roxb.) Voigt	07-15	04-06	06-07	600-1000
569.	<i>Glochidion lanceolarium</i> (Roxb.) Voigt	03-05	12	02-03	600-1500
570.	<i>Glochidion nubigenum</i> Hook. f.	06-12	04-06	06	150-1500
571.	<i>Glochidion sphaerogynum</i> (Muell.) Kurz	06-08	03-06		300-1000
572.	<i>Glochidion thomsoni</i> Hook. f.	03-08	04-07	09-10	300-1000
573.	<i>Glochidion uelutinum</i> Wight	05-12	05-07	07-10	150-1500
574.	<i>Lasiococca symphyllifolia</i> (Gamble) Hook. f.	06-12	04-05	10-11	up to 900
575.	<i>Macaranga denticulata</i> (Blume) Muell.	03-10	03-04	04-06	550-1000
576.	<i>Macaranga gamblei</i> Hook. f.	08-12	04-06	07-09	900
577.	<i>Macaranga indica</i> Wight	08-10	03-04	04-06	900-1800
578.	<i>Macaranga pustulata</i> Hook. f.	05-12	10-12	02-04	1400-2200
579.	<i>Mallotus nepalensis</i> Muell.	04-10	05-07	08-09	1900-2500
580.	<i>Mallotus oreophilus</i> Muell.	05-10	07-08	09-10	1200-2100
581.	<i>Mallotus philippensis</i> (Lam.) Muell.	05-20	07-11	01-05	300-1600
582.	<i>Mallotus repandus</i> (Willd.) Muell.	05-20	07-11	01-05	300-1600
583.	<i>Mallotus roxburghianus</i> Muell.	07-8	05-07	08	300-600
584.	<i>Mallotus tetracoccus</i> (Roxb.) Kurz	04-10	05-06	06-07	300-1500
585.	<i>Ostodes paniculata</i> Blume	08-15	04-06	10-11	' 300-1800
586.	<i>Phyllanthus acidus</i> (L.) Skeel	06-15	03-04	04-05	400-1650
587.	<i>Phyllanthus emblica</i> L.	03-10	03-04	10-03	400-1650
588.	<i>Sapium baccatum</i> Roxb.	08-12	04-05	07-08	300-600
589.	<i>Sapium eugeniaefolium</i> Buch.-Ham. ex Hook. f.	08-12	05-06	—	600-1000
590.	<i>Sapium insigne</i> (Royle) Benth. ex Hook. f.	07-02	01-03	03-04	400-1400
591.	<i>Suregada multiflora</i> (Juss.) Baillon	10-12	02-03	03-04	900-1800

592.	<i>Trewia nudiflora</i> L.	10-15	02-03	05-07	300-400
593.	<i>Vernicia cordata</i> (Thunb.) Airy Shaw	05-10	04-05		300-500
	DAPHNIPHYLLACEAE				
594.	<i>Daphniphyllum himalense</i> (Benth.) Mull.-Arg. var. <i>chartaceum</i> (Rosenthal) Huang	05-12	04-06	05-10	2000-3000
	URTICACEAE				
595.	<i>Boehmeria rugulosa</i> Wedd.	06-10	09-12	10-12	300-1200
596.	<i>Boehmeria longifolia</i> (Burm. f.) Wedd.	08-11	04-09	10-11	300-1500
597.	<i>Debregeasia wallichiana</i> Wedd.	06-10	08	09-11	1000-2000
598.	<i>Dendrocnide sinuata</i> (Blume) Chew.	06-10	05-06	07-08	600-1200
599.	<i>Oreocnide frutescens</i> (Thunb.) Miq.	04-06	06-07	10-01	300-1500
600.	<i>Oreocnide rubescens</i> (Blume) Miq.	03-10	02-08	03-09	1400-2300
	ULMACEAE				
601.	<i>Celtis tetrandra</i> Roxb.	15-25	10-02	04	1500-3000
602.	<i>Celtis timorensis</i> Span.	15-20	03	04	300-600
603.	<i>Gironniera cupsidata</i> (Blume) Kurz	15-30	03	06	300-1200
604.	<i>Gironniera reticulata</i> Thw.	15-25	06	07-09	1700-2500
605.	<i>Gironniera thomsoni</i> King	10-20	04-05	05-10	900-1500
606.	<i>Trema orientalis</i> (L.) Blume	10-12	04-05	06-08	up to 900
607.	<i>Trema politoria</i> (Planch.) Blume	02-07	06-07	09-05	1200-1800
608.	<i>Ulmus lancelfolia</i> Roxb. ex Wall.	30-45	10-12	01-03	650-1500
	MORACEAE				
609.	<i>Artocarpus chama</i> Ham.	15-40	05-07	07-09	300-1500
610.	<i>Artocarpus heterophyllum</i> Lam.	15-40	02-04	07-08	200-500
611.	<i>Artocarpus lacucha</i> Ham.	15-40	03-04	06-08	1200
612.	<i>Broussonetia papyrifera</i> Vent.	04-5	03-06	06-06	up to 1800
613.	<i>Ficus altissima</i> Blume	20-30	12-02	04-05	400
614.	<i>Ficus auriculata</i> Lour.	03-10		04	900-2000
615.	<i>Ficus benghalensis</i> L.	20-30		03-07	200-1200
616.	<i>Ficus benjamina</i> L.	10-20	10-11	03-04	1000
617.	<i>Ficus concinna</i> Miq.	15-25			1300-1400
618.	<i>Ficus conglobata</i> King	08-10	11-12	08	300-1200
619.	<i>Ficus curtipes</i> Corner	10-20		1	250-700
620.	<i>Ficus cyrtophylla</i> Miq.	06-20		02-05	600-1100
621.	<i>Ficus drupacea</i> Thunb.	05-07			1000
622.	<i>Ficus elastica</i> Hornem.	10-25	05-08	09-10	1300-1500
623.	<i>Ficus geniculata</i> Kurz	04-06			2000-1000
624.	<i>Ficus glaberrima</i> Blume	10-25		09	900-1400

625.	<i>Ficus glabrata</i> H.B. & K.	06-10		05-06	100-500
626.	<i>Ficus hirta</i> Vahl	10-13	02-04	05	300-1200
627.	<i>Ficus hispida</i> L.f.	05-07	11-12	08	300-1200
628.	<i>Ficus hookeriana</i> Corner	10-25		11	300-1400
629.	<i>Ficus laevis</i> Blume	04-06			900-1500
630.	<i>Ficus maclellandii</i> King var. <i>rhododendrifolia</i> (Miq.) Corner.	15-20		04	1000
631.	<i>Ficus microcarpa</i> L.f.	10-20		06	
632.	<i>Ficus neriifolia</i> J.E. Smith	03-10		06	1500-2400
633.	<i>Ficus oligodon</i> Miq.	03-10		11	1100-1800
634.	<i>Ficus prostrata</i> Miq.	04-08			600
635.	<i>Ficus racemosa</i> L.	08-12		05-06	foothills -900
636.	<i>Ficus religiosa</i> L.	10-25	02-04	03-06	300-500
637.	<i>Ficus rumphii</i> Blume	10-25		03	200-600
638.	<i>Ficus semicordata</i> J.E. Smith	06-12		05-06	600-1500
639.	<i>Ficus subincisa</i> J.E. Smith	10-13	01-04	01-04	1000-1500
640.	<i>Ficus subulata</i> Blume	03-10		05	1100-1500
641.	<i>Ficus tinctoria</i> A.Forst. subsp. <i>parasitica</i> (Willd) Corner	08-12	-	-	300-900
642.	<i>Ficus virens</i> Aiton var. <i>sublanceolata</i> (Miq.) Corner	08-12	01-05	03-05	300-1000
643.	<i>Morus australis</i> Poir.	10-15		06	300-1000
644.	<i>Morus macroura</i> Miq.	06-10	02-03	03-04	200-2000
645.	<i>Streblus asper</i> Lour.	12-20	03	05-06	900-2000
	JUGLANDACEAE				
646.	<i>Engelhardia spicata</i> Blume	20-30	03-04	09-11	1500-2500
647.	<i>Juglans regia</i> L.	8-20	12	03-04	500-2100
	BETULACEAE				
648.	<i>Alnus nepalensis</i> D.Don	20-25	10-12	04-05	up to 3300
649.	<i>Betula alnoides</i> D.Don	10-15	03-04	05-06	800-2500
650.	<i>Betula utilis</i> D.Don	08-15	04-06	09-10	3000-4200
651.	<i>Carpinus viminea</i> Lindl.	08-12	04	05	1500-2200
652.	<i>Corylus ferox</i> Wall.	05-10	04	07-11	2000-2500
	FAGACEAE				
653.	<i>Castanea sativa</i> Mill.	05-10	05-07	08-10	900-1500
654.	<i>Castanopsis clarkei</i> King	04-08	04	05	1500-2000
655.	<i>Castanopsis armata</i> Spach	5-10	05-07	08-09	600-1000
656.	<i>Castanopsis indica</i> Roxb. ex A.DC.	03-20	10-12	09-10	900-1500
657.	<i>Castanopsis hystrix</i> A. DC.	05-20	04-06	09-10	2000-2300

658.	<i>Castanopsis lanceifolia</i> (Roxb.) Hickel et A. Camus	10-13	04-05	09-11	300-1500
659.	<i>Castanopsis tribuloides</i> (Sm.) A.DC.	05-15	04-05	09	1200-2400
660.	<i>Lithocarpus elegans</i> (Blume) Hatus ex Soepadmo	10-20	03-04	09-10	900-2200
661.	<i>Lithocarpus fenestratus</i> (Roxb.) Rehder.	10-26	03	12-01	1000-1800
662.	<i>Lithocarpus pachyphyllus</i> (Kurz) Rehder	25-40	06-07	09-11	1800-2500
663.	<i>Quercus glauca</i> Thunb.	07-20	03-06	09-01	1100-2000
664.	<i>Quercus griffithii</i> Miq.	10-25	04-05		1300-2500
665.	<i>Quercus lamellosa</i> Sm.	07-20	04-05	11	1500-2500
666.	<i>Quercus leucotrichophora</i> Camus	10-22	02-04	05	1800
667.	<i>Quercus semiserrata</i> Roxb.	10-18	05-07	07-08	2000-2700
668.	<i>Quercus thomsoniana</i> A.DC.	10-20	04-05	09-10	2000-3000
	SALICACEAE				
669.	<i>Populus ciliata</i> Royle	20-25	04-06	05-06	1500-3500
670.	<i>Populus gamblei</i> Dode	20-25	04	06	800-1200
671.	<i>Populus glauca</i> Haines	20-25	04-06	06-07	2500-3000
672.	<i>Salix babylonica</i> L.	04-20	04		2700-3800(cultivated)
673.	<i>Salix longifolia</i> Anderson	02-06	04	04-05	2500-3100
674.	<i>Salix myrtilleacea</i> Anderson	02-05	05	07	3000-4000
675.	<i>Salix obscura</i> Anderson	01-06	04	07	300
676.	<i>Salix tetrasperma</i> Roxb.	06-15	03	04	300-900
677.	<i>Salix wallichiana</i> Anderson	02-10	04		2300-2700
	GYMNOSPERMAE				
	PINACEAE				
678.	<i>Abies densa</i> Griff.	15-40	04-05	07-09	3000
679.	<i>Cunninghamia lanceolata</i> (Lamb.) Hook.f.	15-25	04-05	11-02	1400-1600
680.	<i>Cedrus deodara</i>	35-50	-	-	Cultivated
681.	<i>Larix griffithiana</i> Carriere	10-20	04	05	2400-3600
682.	<i>Picea spinulosa</i> (Griff.) Henry	20-60	04-05	05-06	2400-3600
683.	<i>Pinus kesiya</i> Gorton	10-30	03	04-05	900-2000
684.	<i>Pinus roxburghii</i> Sarg.	10-35	03	04-05	1000-2500
685.	<i>Pinus wallichiana</i> A.B. Jacks.	12-45	04	05	1700-3300
686.	<i>Tsuga dumosa</i> (D.Don) Eichler	12-40	05-07	06-07	2400-3600
	TAXODIACEAE				
687.	<i>Cryptomeria japonica</i> (L.) D.Don	18-40	03-04		1500-2500, cultivated
688.	<i>Taxodium distichum</i> (L.) Rich	03-10	-	-	1200-1600, cultivated

	CUPRESSACEAE				
689.	<i>Juniperus pseudosabina</i> Fischer & Meyer.	10-20	05-07	06-07	3500-4700
690.	<i>Juniperus recurva</i> D. Don	10-20	04-06	06-08	2900-4200
691.	<i>Juniperus squamata</i> D. Don	10-20	05-06		3200-4700
692.	<i>Thuja orientalis</i> L.	5-10	-	-	Cultivated
	PODOCARPACEAE				
693.	<i>Podocarpus neriifolius</i> D. Don	15-30	06-09	12-03	900-1400
	TAXACEAE				
694.	<i>Taxus wallichiana</i> (Zucc.) Pilger	05-12	03-04		1800-3500
	MONOCOTYLEDONS				
	ARECACEAE				
695.	<i>Areca catechu</i> L.	10-15	05-07	08-12	100-400
696.	<i>Caryota urens</i> L.	10-20	02-04	06-09	200-500
697.	<i>Cocos nucifera</i> L.	10-12	02-05	05-08	200-800
698.	<i>Livistona chinensis</i> (Jacquin) Mart.	6-8	-	-	1500
699.	<i>Livistona jenkinsiana</i> Griff.	6-9	-	-	900-1000
700.	<i>Phoenix sylvestris</i> (L.) Roxb.	08-15	-	-	700-1200
701.	<i>Trachycarpus fortunei</i> (Hook.) H. Wendland	08-15	-	-	800-1000
	PANDANACEAE				
702.	<i>Pandanus furcatus</i> Roxb.	06-10	08-05	05-07	200-1500
	POACEAE (GRAMINAE)		-	-	
703.	<i>Bambusa bambos</i> (L.) Voss	02-12	-	-	300-900
704.	<i>Bambusa balcooa</i> Roxb.	15-25	--	-	200-400
705.	<i>Bambusa nutans</i> Wall. ex Munro subsp. <i>cupulata</i> Stapleton	10-23	-	-	300-1500
706.	<i>Bambusa pallida</i> Munro	10-20	-	-	1500-1800
707.	<i>Bambusa tulda</i> Roxb.	12-20	-	-	800-1500
708.	<i>Himalayacalamus hookerianus</i> (Munro) Stapleton	05-07	-	-	700-1800
709.	<i>Cephalostachyum capitatum</i> Murno	5-12	-	-	1200-1800
710.	<i>Cephalostachyum latifolium</i> Murno	10-15	-	-	1500-1800
711.	<i>Dendrocalamus hamitonii</i> Monro	10-30	-	-	700-1800
712.	<i>Dendrocalamus hookeri</i> Munro	20-35	-	-	600-1500
713.	<i>Dendrocalamus patellaris</i> Gamble	20-35	-	-	1000-1200

714.	<i>Dendrocalamus sikkimensis</i> Gamble	15-35	-	-	700-2000
715.	<i>Melocanna baccifera</i> (Roxb) Kurz.	10-12	-	-	300
716.	<i>Phyllostachys assamica</i> Gamble ex Brandis	05-15	-	-	1200-1700
717.	<i>Yushania pantlingii</i> (Gamble) R.B.Majumdar	04-10	-	-	2300-3000

*Numbers in the flowering and fruiting column represent the corresponding number of month in Calendar year viz. 01: January; 12: December

AUTHORS

Sudhansu Sekhar Dash

Scientist C
Botanical Survey of India
Arunachal Pradesh Regional Centre
Senkie View, ITANAGAR-791111
Arunachal Pradesh, India
Email: ssdash2002@yahoo.co.in
Phone : +91 9436636138

Paramjit Singh

Scientist E
Publication Section,
Botanical Survey of India,
C.G.O.Complex,Block E & F,
Salt Lake City, Kolkata
Email: pchanna@gmail.com
Phone: +91 9432227944
(corresponding author)



Rhododendron hodgsonii



Rhododendron barbatum

REFERENCES

- Behera, M.D., Kushwaha, S.P.S. and Roy, P.S. 2001. Forest vegetation characterization and mapping using IRS-1C satellite images in Eastern Himalayan region. *Geocarto Int.* 16:53–62.
- Brandis, D. 1906. *Indian trees*. London.
- Biswas, K. 1976. *Plants of Darjeeling and the Sikkim Himalayas*, Government Press, West Bengal.
- Champion, H. G. and Seth, S. K. 1968. *A Revised Survey of Forest Types of India*, Manager of Publications, India.
- Cowan, A. M. and Cowan, J. M. 1929. *The Trees of Northern Bengal*, Bengal Secretariat Book Depot, Calcutta,
- Dash S.S. 1997. *Studies on Floristics, Biomass and Energetics in the Tribal village Ecosystems of Eastern Ghats of Orissa*". Ph. D thesis Submitted to Berhampur University, Berhampur, Orissa.
- Rao, R.R. 1974. Vegetation and phytogeography of Assam–Burma. In: Mani MS (ed) *Ecology and biogeography of India*. Dr. W. Junk B.V. Publishers, The Hague, pp 204–246.
- Hartshon, G.S. 1990. An overview of neo-tropical forest dynamics in Gentry A.H. (ed.). *Four neo-tropical rainforests*, Yale University Press, New Haven. Connecticut. USA, pp. 585-599.
- Hajra, P.K., Verma, D.M., and Giri, G.S. (eds) 1996. *Materials for the Flora of Arunachal Pradesh*, vol I. Botanical Survey of India, Calcutta
- Mehra, P.N., K.S. Bawa, P.K. Khosla and A.S. Hans (1985). Floristic account of some forest types of the Eastern Himalayas. *Bull. Bot. Surv. India* 25: 1-18.
- Rai, T. and Rai, L. 1994. *Trees of the Sikkim Himalaya*. Indus Publishing Company, New Delhi
- Singh, P. & A. S. Chauhan. 1997. Plant Diversity in Sikkim Himalaya. in: Hajra, P.K. and V. Mudgal (ed.), *Plant diversity Hotspots of India, An Overview*. pp. 137-158. Botanical Survey of India, Kolkata.
- Rodgers, W.A., and Panwar, S.H., 1988. *Biogeographical classification of India*. New Forest, DehraDun
- Singh, P., and & S.S. Dash. 2002. Database on Trees of Sikkim Himalaya. *J. Econ. Taxon. Bot.* 26(2): 285-310.
- Singh, J.,S., and Singh, S.P. 1992. *Forests of Himalaya: structure, functioning and impact of man*. Gyanodaya Prakashan, Naini Tal, India.
- Takhtajan, A. 1969. Flowering plants, origin and dispersal. Tr. Jeffrey, Edinburgh.
- Webb, E. L., and Sah, R. N. 2003. Structure and diversity of natural and managed sal (*Shorea robusta* Gaertn.f.) forest in the Terai of Nepal. *Forest Ecology and Management*, 176: 337-353.