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Forest Types of Tamil Nadu

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FOREST TYPES OF TAMIL NADU

Tamil Nadu has a total extent of 22,520 sq.km of forests, which is present in 9 major forest types according to the Champion and Seth's classification of forest types of the country. Tamil Nadu's forests are largely deciduous and thorn types and these two major types account for 87.30 % of the total forest area. According to Champion and Seth, forest type may be defined as a unit of vegetation, which possesses (broad) characteristics in physiognomy and structure sufficiently pronounced to permit of its differentiation from other such units. This is irrespective of physiographic, edaphic or biotic factors. It is selected in the first place subjectively from the every-varying cover of vegetation, with boundaries arbitrarily imposed on where are in fact gradual changes (clines or continua). Since these forest types have a bearing on the practice of scientific forestry, and practical utility is indeed the main reason for distinguishing them, necessarily greater importance is placed on the main tree layers or on the most emergent vegetation. Distinctions based on shrub and ground flora, characteristic of much recent ecological work on the vegetation of India, have necessarily been given a subordinate place.

The major type-groups area subdivided into types on a geographic basis since a recognizable type-group varies somewhat with locality owing to differences in floristics and minor variations in climate and site occurring within the range associated with each group-type as a whole.

I- Tropical Forest

A- Moist Tropical Forests

Group – 1: Tropical Wet Evergreen Forests

Southern Hilltop Evergreen Forests:

This is an inferior condition of the tropical evergreen forests occurring on the upper slopes and tops of hills exposed to winds. The area under this type is not much. This forest is an edaphic climax type 1A/C3 and is found between 1,200 and 1,500 m. Unfavorable conditions on upper slopes and top of hills and steep slopes lower down under strong winds, shallow soils stunt the growth to not more than 10 m though the rainfall is over 4,500 mm. This type is found in Muthukuzhivayal of Kalkkadu-Mundanthurai Tiger Reserve (KMTR). This forest type occurs with grasslands as shola grassland type similar what we see in Nilgiris. There is no record of felling in this

Forest Type groups in India and Tamil Nadu

S.No.	Forest type	India		Tamil Nadu	
		Area (lakh ha)	%	Area (lakh ha)	%
1	Tropical wet evergreen forest	45	5.8	0.60	2.67
2	Tropical semi- evergreen forest	19	2.5	0.23	1.01
3	Tropical moist deciduous forest	233	30.3	2.60	11.10
4	Littoral and swamp forest	07	0.9	0.23	1.01
5	Tropical dry deciduous forest	294	38.2	12.23	54.30
6	Tropical thorn forest	52	6.7	5.00	22.20
7	Tropical dry evergreen forest	01	0.1	0.26	1.16
8	Sub tropical broad leaved hill forest	03	0.4	1.14	5.04
9	Sub tropical pine forest	37	5.0	NIL	NIL
10	Sub tropical dry evergreen forest	02	0.2	NIL	NIL
11	Montane wet temperate forest	16	2.0	0.34	1.51
12	Himalayan moist temperate forests	26	3.4	NIL	NIL
13	Himalayan dry temperate forests	02	0.2	NIL	NIL
14	Sub-alpine forests	33	4.3	NIL	NIL
15	Moist alpine-scrub			NIL	NIL
16	Alpine scrub			NIL	NIL
	Total	770	100	22.52	100

Source: R. Annamalai, 2004. Tamil Nadu Biodiversity Strategy and Action Plan, Forest Biodiversity, Tamil Nadu Forest Depart..

forest in past system of management. Vast stretches of these forests must have been submerged in the Upper Kodayar Reservoir during construction.



Species found: *Hopea parviflora*, *Calophyllum elatum*, *Dysoxylum malabaricum*, *Cullenia exarillata*, *Artocarpus hirsuta*, *Lophopetalum wightianum*, *Tetrameles nudiflora*, *Syzygium cumini*, *Cinnamomum zeylanicum*, *Elaeocarpus serratus*, *Macaranga roxburghiana* etc.

West Coast Tropical Evergreen Forests:

Wet evergreen forests are confined to Western Ghats, where rainfall is generally above 2000 mm. Considering the distribution pattern of certain characteristic species that reflect the climatic variations, especially temperature, the forests are further subdivided into low (<800 m) and medium (800-1450m) elevation.

Species found: Floristically, *Dipterocarpus indicus*, *Kingiodendron pinnatum* and *Strombosia ceylanica* are characteristic canopy species in these forests. Other common canopy species include *Vateria indica*, *Hopea parviflora*, *Artocarpus gomezianus*, *Otonophelium stipulaceum*, *Holigarna nigra*, *Cynometra sp.* and *Ficus beddomei*.

Group-2: Tropical Semi - Evergreen Forests

Sub-group: Southern Tropical Semi-Evergreen Forests

West Coast Semi Evergreen Forests:

This type occurs in Kodaikanal plateau in moist protected valleys (sholas) between 100 and 1900 m in Tiger shola, Picnic shola etc. The annual rainfall received varies from 1000 to 1500 mm. This type of forests occurs in transition zone between west coast tropical evergreen forests and dry deciduous forests with even mixture of both types. This type of forests are represented in Pambar R.F., part of Sengalvarayar

R.F., part of Kodaikanal Range, Gundar valley part, Amphill down R.F., Bombay Shola, and Vandaravu and to narrow width on either side along Pulavahiar and Konalar etc in Kodaikanal division.

Species found: Top Canopy: *Machilus macrantha*, *Syzygium cumini*, *Bischofia javonica*, *Cederlla toona*, *Elaeocarpus serratus*, *Symplocos cochinchinensis sub.spp.laurina*, *Mangifera indica*, *Celtis tetrandra*, *Melia dubia*, *Albizzia odoratissima*, *Chukrasia tabularis*, *Dalbergia latifolia*, *Mesua ferrea*, *Actinodaphne hookeri*, *Engenia mantana*, *Calophyllum elatum* etc.

Tirunelveli Semi Evergreen Forests:

They are ecotones, as they are found between evergreen and dry deciduous forests. They are also described as transitional forests. The steep decrease in rainfall and rapid increase in the dry months towards the east of the reserve drastically changes the nature of the vegetation from wet type to dry type. However, a narrow strip between the two types along the eastern slope, which receives rainfall between 1500 and 2000 mm, serves as a transition zone with some typical species. The forest type is unique to KMTR and occurs relatively in a narrow strip on the Papanasam hills between moist deciduous forests and southern tropical wet evergreen forest in the Papanasam R.F, Kalakad R.F and Thalaidai. The elements are a mix of evergreen and deciduous.



The elevation ranges sometimes up to 1,000 m.

Species found: Dominant trees are *A. elaeagnoidea var. courtallensis*, *Antidesma alexiteria*, *Dalbergia latifolia*, and *Pterospermum canescens*. Lianas such as *Ancistrocladus heyneanus*, *Gnetum ula*, etc. are also present.

West Coast Secondary Evergreen Dipterocarp Forest:

Nearly pure forest of evergreen Dipterocarpaceae of relatively poor development, but

with an even and typically dense canopy, without a definite middle storey, but with undergrowth of evergreen shrubs are encountered on the coastal plain below the Western Ghats. Locality factors include a high rainfall of over 2,500 mm and a hot equable climate typified stiff red tropical soils often lateritic on fairly level country intersected by network of eroded depressions.

Species found: *Hopea parviflora*, *H.wightiana*, *Vateria indica*, *Diospyros microphylla*, *Aporosa lindleyana*, *Olea dioica*, *Memecylon sp.*, *Syzygium caryophyllatum*.

Group-3 Tropical Moist Deciduous Forests

Sub-group: South Indian Moist Deciduous Forests:

Moist Teak Bearing Forest:

This is a small isolated forest and supports only one type of forests viz., the “slightly moist teak forests”. Typical rainfall 1,600 to 2,500 mm.; deep loamy soils fair to medium (10 to 25) percentage of teak; dense undergrowth; fair, but patchy natural regeneration; fires rare; light grazing.

Species found: *Tectona grandis* is predominant in the top canopy. Associated with it can be seen *Terminalia paniculata*, *Terminalia bellerica*, *Anogeissus latifolia*, *Pterocarpus marsupium*, *Bridelia retusa*, *Grewia tiliacfolia*, *Dalbargia latifolia* and *Albizia lebback*, *Terminalia alata* is rare.

Southern Moist Mixed Deciduous Forests:

These forests occur on the outer slopes up to an elevation of about 500 m. The main species are



deciduous, though some evergreen species are also present. Natural teak forms a very low proportion. This type occupies damp valleys, in cooler patches in the lower hills and on high ground with shallow or porous soils.

Species found: This forest type is present up to an elevation of 500 m on the Papanasam hills. Some of the dominant trees are *Albizia procera*, *Bombax ceiba*, *Chloroxylon swietenia*, *Gyrocarpus asiaticus*, *Hardwickia binata*, *Pterocarpus marsupium*, *Schleichera oleosa*, *Terminalia bellerica*, *T. chebula*, *T. paniculata* and *Vitex altissima*, whereas at *Singampatti Anogeissus latifolia* is common.

Southern Secondary Moist Mixed Deciduous Forests:

The chief feature of the moist deciduous forests is a leafless period in the dry season, when the upper canopy is almost entirely leafless though there is a good sprouting of evergreens in the under wood. This type of forests is restricted between elevations of 500 And 1000m in RF part below. Oothu, Pambar R.F., Amburuvi R.F. of Periyakulam range, in parts of Kodaikanal range, southern portions of Gundar valley R.F., and Gundar valley extension R.F. In these forests, Calamus canes are restricted to wet ground. Epiphytes and climbers are abundant and large.

Species found: *Terminalia chebula*, *T.bellerica*, *tomentosa*, *Grewia tiliacfolia*, *Buchnanian lanzan*, *nogeissus latifolia*, *Pterocarpus marsupium*, *Embllica officinalis*, *Dillenia pentagyna*, *Lannea coromandelica*, *Careya arborea*, *Gmelina arborea* etc. *Desmodium motorium*, *Calycopteris floribunda* etc.

Group-4: Littoral and Swamp Forests

Sub-Group- Littoral Forests:

Littoral Forest:

Termed also as beach and dune forest, it is located all round the coast, wherever a fair width of sandy beach occurs, including sandy bars on the sea face of the river deltas. The most characteristic species is the tall evergreen, but very light foliaged Casuarina, which often forms an almost pure fringe on sandy beaches and dune along the sea face. Scattered smaller evergreen trees occur with fewer deciduous trees and these in the absence of Casuarina from the dominant canopy. There are numerous

shrubs, and where the undergrowth is light, maritime grasses (*Spinifex* etc.) and surface creepers are conspicuous, binding the sand.

Species found: Top storey: *Borassus flabellifer*, *Anacardium occidentale*, *Lannea coromandelica*, *Ficus species*, *Cassia fistula*, *Barringtonia acutangula*, *Syzygium cumini*, *Calophyllum inophyllum*, *Premna latifolia* etc.

Sub-group -Tidal Swamp Forests :

“Tidal Forests” vary so much in such short distances that a general description is difficult. The finest forest is found on the ground, which is flooded at every high tide with only moderately blackish water and is an evergreen forest. There may be an under wood of younger trees closed high such as *Ceriops*, two storied forests being of common occurrence owing to the prevalence of trees whose maximum height is only 5 to 10 m mixed with others capable of further development. *Rhizophoraceae* are almost confined to these areas and are most typical. Their special habit is the newly deposited mud banks submerged by tides everyday. In addition, there are a few genera, each usually with several species belonging to a considerable number of families, which are specially adopted to the unusual conditions, like *Lythraceae* (*Sonneratia*), *Verbenaceae* (*Avicennia*) *Eupubiaceae* (*Excoecaria*) *Leguminosae* (*Cynometra*).

Mangrove Scrub :

This type is found in portions of Killai R.F., Pitchavaram R.F., and Pitchavaram Extension R.F. in Villupuram division, towards the interior, away from the fringes of lagoons, which is subject to inundation only occasionally. This is more or less a dense forest of low height (2 to 5 m tall) often reduced by biotic factors. The species are few and markedly gregarious; all evergreen with entire leathery leaves. Vivipary is very common.

Species found: *Avicennia marina*, *Lumnitzera racemosa*, *Excoecaria agallocha*, *Bruguiera cylindrical*, *Ceriopsis roxburghiana*, *Acanthus ilicifolius*, *Suaeda maritime*, *Suaeda monoica*, *Suaedanudiflora*, *Sesuvium portulacastrum*, *Fimbristylis polytrichoides* etc.

Mangrove Forests:

This is typically a closed evergreen forest of moderate height (up to 10 m) consisting of trees specially adopted to survive on tidal mud which is permanently wet with salt water and submerged at every tide, stilt roots are very typical, notably in *Rhizophora*;



so also leathery and entire leaves and vivipary. This type occurs all along the fringes of lagoons and islands. This type is found in portions of Killai R.F., Pitchavaram R.F., and Pitchavaram Extension R.F., along the bank of lagoons, maze of tidal creeks, and in the small islands around the estuary in Villupuram division.

Species found: *Rhizophora annamalaina*, *R. mucronata*, *R. candelaria*, *Sonneratia apetala*, *Avicennia marina*, *Derris trifoliata* etc.

Sub-Montane Hill Valley Swamp Forest :

Irregular forests of a limited number of mainly evergreen species, able to withstand the wetness of the sites occupied, the trees here are usually low-crowned and branchy and there is often a dense growth of *Calamus*, whilst *Ficus* and monocotyledons such as *Alpinia* often form the undergrowth. They occur in narrow strips of Gudalur valley of the Nilgiris in Tamil Nadu.

Species found: *Eugenia spp.*, *Mallotus alba*, *Pandanus sp.*, *Alpinia spp.* *Pandanus* and *Alpinia* are very typical of the narrow swampy hollows in the Western Ghats.

Sub-group: Tropical Riparian Fringing Forests

Riparian Fringing Forests:

This type occurs on either side of all the rivers and natural drainage lines. This is an edaphic formation. They are strips and islands of evergreen forests in the midst of dry deciduous forests. They contain the elements of wet evergreen forests as can be seen

near Thalaiyanai in Kalakad. Riparian fringing forests are distinct and easily identifiable in the setting of dry deciduous and moist deciduous forests. Riparian fringing forests are also called as Gallery forests. Most of the amphibians are confined to this zone. Many reptiles like *Dasia halianus* is confined to this



zone in the Mundanthurai plateau along S e r v a l a r River. Nilgiri Langur prefer this habitat along the Servalar river.

Species found: Some of the characteristics species includes *Terminalia arjuna*, *Syzygium cumini*, *Mangifera indica*, *Terminalia bellerica*, *Bischofia javonica*, *Pongamia pinata*, *Strychnos potatorum*, *Olea glandulifera*, *Bambusa arundinacea* (scattered), *Vitex negundo* etc.

B. Dry Tropical Forests:

Group-5: Tropical Dry Deciduous Forests:

Sub-group: Southern Tropical Dry Deciduous Forests:

Dry Teak Bearing Forest:

Termed as dry teak forest and dry mixed forest with teak poles, canopy in this type is fairly complete and the trees are sufficiently large, tall and well grown to yield sawn teak timber of 3rd and 4th site quality.

Majority of the tree species, occurring in this type coppice freely when felled. It is met with



widely in South India extending a few degrees north of the tropic, where rainfall of 1,000 to 1,250 mm is recorded.

Species found: Some of the characteristics species includes *Tectona grandis*, *Embllica officinalis*, *Bridelia retusa*, *Terminalia paniculata* etc.

Dry red sanders bearing forests:

This forest type is mostly found in Cuddappah, Kurnoolm, Chittoor and Nellore divisions of Andhra Pradesh. However, in Chennai, Vellore, Dharmapuri circles vast extent of red sanders plantations have been raised. In Tiruvallur and Chengalpattu districts, this speices might have existed in the past in the natural conditions. Description of typical type is given below:

Species found: *Pterocarpus santalinus*, *Anogeissus latifolia*, *Hardwickia binata*, *Terminalia chebula*, *T.tomentosa*, *Chloroxylon swietenia*, *Erythroxyton monogynum*, *Randia dumetorum*, *Dolichandrone atrovirens*, *Gardenia latifolia*, *G.gummifera* (dry slopes), *Buchanania lanzan*, *Grewia spp.*, *Croton cabiosus*.

The Southern Tropical Dry mixed Deciduous Forests:

This forest of this type is found at elevations of 600 to 1200 m, with precipitation varying from 800 to 1500 mm; confined in Ayyakudi Ex-zamin forests, S.S.R.F. Mulayar R.F., Perumalmalai R.F, Shengaivarayar R.F, Adukkam, Varattarkanal R.F, all of Kodaikanal division. This type of forests is confined in shallow soil, well-drained hillside or undulating ground. Both topcanopy and lower canopy are deciduous. Bamboos are often absent and usually of poor quality when present. The forests are burnt annually.

Species found: *Albizzia amara*, *A. lebbeck*, *A. odoratissima*, *Acacia planifrons*, *A. latronum*, *A. ferruginea*, *A. leucophloea*, *Chloroxylon swietenia*, *Canthium didyminum*, *Atlantia monophylla*, *Wrightia tinctoria*, *Cassia fistula*, *C.marginata*, *Hemicyclia sepiaria*, *Morinda tinctoria*, *Hardwickia binata* etc.

Group-6 :Tropical Thorn Forests:

Sub-group: Southern Tropical Thorn Forests:

This is a degraded type of forest found distributed in drier parts of Tamil Nadu like Chengalpattu, parts of North Arcot, South Arcot, Tiruchirapalli and Madurai. This is an extremely xerophytic type of vegetation found in the plains and

low hills. The rainfall is around 500 to 700 mm, with the bulk coming in October – November.



Being closest to cultivation, this type of forest suffered most from overgrazing and injuries by man. The surface soil is hard and of low permeability, and what little rainfall is there runs off the surface of the sloppy grounds rapidly, with the result that although coppice regeneration is fair, natural regeneration is absent.

Species found: Dominant trees are *Acacia chundra*, *A. horrida*, *A. planifrons*, *Albizia amara*, *Commiphora berryi*, *Dalbergia sympathetic*, *Zizyphus mauritiana* and *Z. xylopyrus*.

Group-7: Tropical Dry Evergreen Forests:

Tropical Dry Evergreen Forest:

The thickest forests are located on a series of low sand dunes in the western part of the point calimere sanctuary. Towards the east, these forests gradually thin out to a scrubland interspersed with open grasslands. *Manilkara hexandra*, locally called Palai, is the dominant Dry Evergreen species in the sanctuary. It grows to a height of 40 feet or more and is an important source of food for the fruit eating birds. Other important top canopy trees include species such as *Syzygium cumini*, *Pongamia pinnata*, *Ficus benghalensis*, *Ficus infectoria* and *Ficus microcarpa*.

Tropical Dry Evergreen Scrub:

This type of forest is the result of climax forest degradation causing disappearance of the trees; the remnants are thorny scrubs. This type of forest is unique in Tamil Nadu and found to occur only in Chengalpattu district in the forest of Vandalur and



Navalur. The main species are *M e m e c y l o n e d u l e*, *Zizyphus g l a b r a t a*, *Dichrostachys cinerea* etc.

II. Montane Subtropical Forests:

Group-8: Sub-Tropical Broad Leaved Hill Forests

Nilgiri Sub-Tropical Hill Forest:

This type occurs below the frost line in the lower levels of the plateau and on the upper reaches of the slopes between 1000 and 1800 meters altitude. The average height ranges from 29 meters to 30 meters and these increases progressively towards the lower elevations especially on the southwestern and wester face of the plateau in the tract cover looking the Nilgiris-Wynad (presently in Gudalur division).

Species found: *Syzygium arnottianum*, *Syzygium montanum*, *Syzygium wightianum*, *Syzygium cumini*, *Microtropis ovalifolia* etc.

III. Montane Temperate Forests:

Group-11: Montane Wet Temperate Forests

Southern Montane Wet Temperate Forests:

This forest type occurs above 1,524 m as continuous expanses of the evergreen forests at sheltered faces and moist depressions of peaks. Common ones here are shola tree species not exceeding 6 m with densely clothed lichens, mosses and ferns such as *Byrsophyllum tetrandrum*, *Canthium neilgherrense*, *Clausena heptaphylla*, *Eugenia mabaeoides*, *Euphorbia santapau*, *Olea polygama*, *Polyscias acuminata* and *Rapanaea wightiana* This type of forest occurs in the upper Palanis Plateau from 1700-2450 m. elevation where the rainfall is 1200 mm.



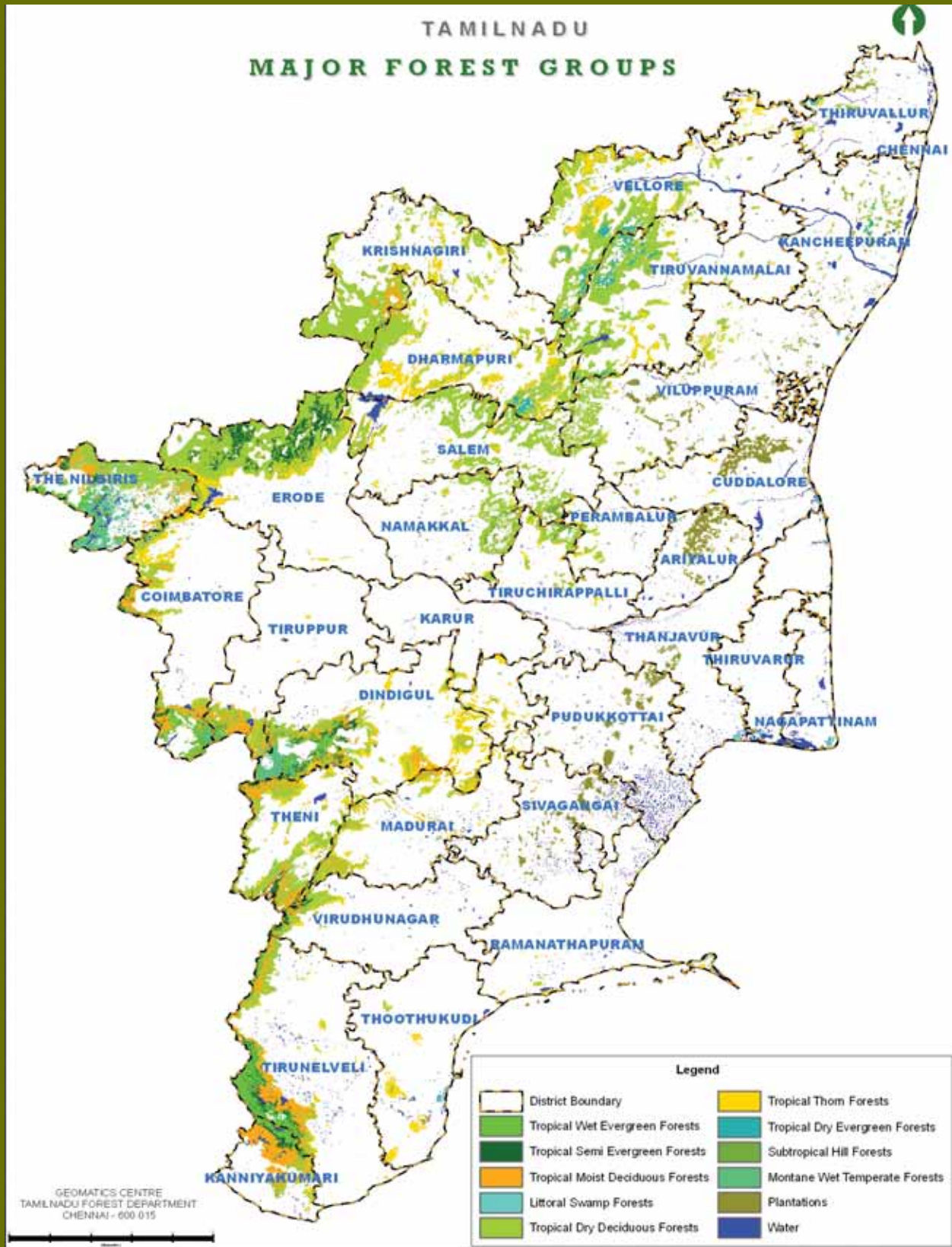
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