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Forest classification:

India has 23 Percent of its geographical area under forest. Concentrations of forest are highest incentral and eastern India. Least forest area is in Haryana3.84% of geographical area) and maximum forest area in Arunachal Pradesh (62% of geographical area). Among the union Territories, Andaman and Nicobar Island has the highest percentage of forest. (87%).

India has a diverse range of forest from the rainforest of Kerala in the south of the alpine Pasture of Ladakh in the north from the deserts of Rajasthan in the west to the evergreen forest in the north-east. Climate, soil type, topography, and elevation are the main factors that determine the forest type of forest. Forests are classified according to their nature and composition, the type of climate in which. They thrive, and their relationship with the surroundings environment.

Forest classification is defined as the grouping and arrangement of forest based as defined criteriasuch as composition, age, climatic elements, Structure habitat etc. "The object of forest classification is to study and characterized to different forest types better management silviculture practices for different forests, and avoid to wastage of resources. Forest are classified on the basis of Age, method of regeneration, composition, ownership, growing stock and management.

(1) **Classification of forest on the basis of age :**

(A) Even-aged forest or regular forest:- regular forest are those forest consisting of even-aged woods, even aged wood means approximately the same age. True even aged forest can be only man-made forests. In case of forests, which generate naturally, same age difference is often allowed. Differences up to 25% of the rotation are usually allowed in case where forest is not harvested for 100 years or more.

(B) Un even aged forests: A forest is called irregular when trees vary widely in age. The age variation should be more than 25% of the rotation in case of long rotation or 20% of rotations for short rotation.

(2) **Classification of forest on the basis of Regeneration:**

(A) High forest - when regeneration of forest through seeds.

(B) Coppice forest - when regeneration of forest through coppice or same vegetative part of tree.

(a) Natural forest - when regeneration is obtained naturally the forest are called natural forest.

(b) Man-made forest – when it is obtained artificially, the forest are called man-made forests or plantations.

(3) **Classification of forest on the basis of composition :**

(A) Pure forest – which is mostly composed of one single species or proportion of main species, Should not be less than 80 percent.

(B) Mixed forest: as forest composed of trees of two or more species intermingled in the same canopy.

(4) **Classifications of Forest on the basis of management**–

(A) **Production forest -** Production forest are those which are managed primarily for their produce.

(B) **Protection Forests:** Protection forests are thosewhich are managed primarily for amelioratingclimate, checking soil erosion and floods, Conserving Soil and water, regulating streamflow and increasing water yields and exertingother beneficial influences.

(C) **Social forest:** social forest where the produce is utilized by community / neighboring Society.

(5) **Classification of Forest on the basis of ownership:-**

(A) **Government forests-** on the basis of legal status, Government forest are classified into.

(1) **Reserved forest -** A Reserved forest is an area with complete protection by constitution according to chapter II of the Indian forest act 1927.

(2) **Protected forest-** A protected forest is an area subject to limited degree of protection constituted under the Provisions of chapter IV of the Indian forest act 1927.

(3) **Village forest-** A village forest in a state forest assigned to a village community under the Provision of chapter III of Indian forest act.

(B) Private forest-

(C) Forest owned by corporation, Panchayat, societies and other agencies.

(6) **Classification of forest on the basis of Growing stock-**

(A) Normal forest-Is a forest which has a normal age gradation, growing stock and increments. It will give Sustained yield and most Ideal ones.

(B) Abnormal forest - Is a forest which do not have a normal age gradation growing stock and increment it gives irregular field and not ideal one.

Forest Type of India:-

According to this system of classifications, forest in India area classified into a five major groups. These major groups are further divided in to sixteen groups based on climatic data and vegetation. The major determinate factors for forest type differentiation are climate and soil moisture. Quantum of rainfall and its distribution plays important role in forest type differentiation. The monumental work, forest type of India (Champion and Seth 1968) deals with

Indian forest types in great detail. Indian forests have been divided in sixteen major groups.

(A)**Tropical forest**–

(1) **Tropical wet evergreen forest -** These are also called tropical rainforests in India such forest are found in very wet region receiving more than 250 cm average annual rainfall. These are climatic forests having luxuriantly growing lofty trees, which are more than 45 meters in height. These forest are found in Andaman and Nicobar, western coasts and part of Karnataka, kerala, Assam, and Bengal. The forest species are *Depterocarpus, mesua, Hopea Artocorpus, syzygium etc*.

(2) **Tropical moist semi evergreen forest**- These forest are found along with western coasts eastern Orissa, and upper Assam, where annual rain fall 200 and 250 cm. The important plants in these forest are the species of *Terminalia, Bambusa, IxoraDipterocarpus, Garcinia, Sterculia, mallotus, Calamus,Albizzia, Elettarià, vitis, Sorea, Bauhinà etc.*

(3) **Tropical moist deciduous forest** -These forests are cover on extensive area of the country receiving sufficiently high rainfall (100-200 cm) spread over most of the year. The forest are found along the wet western side of the Deccan Plateau.i.e Mumbai, North east Andhra, Gangetic plain and some Himalayan tracts extending from Punjab in west to Assam valley in the east. The forest of southern India are dominated by teak *(tectona grandis) , Terminalia paniculata, Grewia tlliaefolia, Dalberzia latipholia, Adina cardifolia etc.And in north india they are dominated by Shal (Shorea robusta)* some other common associates of *shal are Terminalia tomentosa, Dellenia species, Eugenia species, Mallotusphilippensis.* These forest are Produce some of the most important timber of India.

(4) **Tropical Dry deciduous forest** -These forest are distributed in the areas when annual rainfall is usually low, ranging between 70 and 100 cm. and mean Average Temperature 23-29 °c , such as UP, Bihar HP, MP, Orissa, Panjab etc. The longest area of one country forest land is occupied by Tropical dry deciduous forests. These forest plant species are *Dalbergia, Terminalia, Dillenia, Acacia , Pterospermum, Diospyros, Boswellia, Gymnosporia, Dendrocalamus etc.*

(5) **Littoral and swam forest** - The litoral and swampy forest includes Beach forest, Tidal forest or mangrove forest and fresh water swam forest. The annual rainfall varies from 75 cm to 500 cm depending upon the area. The Temperature is moderate (26-29℃). The comman plants of these forest are *casuarinas equestifalia, callophyllum, Pandanus, Pongomia, Manilkara littoralis, cocosnucifera, Syzygium, TerminaliaArjuna etc.*

(6) **Tropical thorn forest**–These forest occur in the area where annual rainfall is between 20 to 70cm. dry season is hot and very long. They are found in South Punjab, most of Rajasthan, and part of Gujarat etc. The vegetation is open type consisting of small trees and thorny or spiny shrubs of stunted growth. The forests remain leafless for most part of the year and are same times called Thorn scrub or Scrub Jungles. The Species of *Acacia, cassia, Calotropis randia, Albbizzia, Zyzyphus, Euphorbia, cardia, Prosopis, Atriplex, Grewia, Asparagus, Beriberi, Butea, etc.*

(7) **Tropical dry evergreen forest**-These forests are found in the areas where rainfall is in plenty but dry season is comparatively longer. The trees are dense evergreen and short (about 10-15 meter high).These forests are found in eastern part of Tamil nadu coastal belt from

Tirunelveli to Nellore. The common plant trees Species are *Azadirachta Indiaca ,manilkara hexandara, canthium, syzygium, calotropis etc.*

(B) **Sub Tropical Montane forest**–

(8) **Sub-Tropical broad leaved hill forest**- The forest are found in the region of fairly high rainfall (2000-6600mm), but where temperature differences between winter and summer are less marked. They are found up to the altitude of about 1500 meter in south and up to 1800 meter in north. They are found in Mahabaleshwar, coorg, Karnataka, Part of Assam, etc., the important Plants species *of Eugenia, Randia, Terminalia, Eleganus, murraya, Ficus, calamusAlnus Quercus,Betula,schima, Cedrella, Gorcinia, Populus etc.*

(9) **Sub-tropical pine forest-** They are found mostly in western and central Himalayas and in Assam hills, the forests are dominated by species of *Pinus roxburghii, pinuskhasya, Quercus, Beriberis, carissa, Bauhinia* etc They are found fairly high rainfall (150-300 cm), and average mean Temperature are(15 -20**°c**).

(10) **Subtropical day evergreen forest**- These are occupies the foot-hill area of Himalayas. The Common constituents of vegetation are *Acacia modesta ,oleacuspidula etc.*

(C) **Temperate forest**–

*(11)***Montane wet temperate forests-**These forests are found Himalayas extending from Nepal to Assam, at the altitudes from 1800 - 3000 meter as well as same part of south India. These forest are found maximum Rainfall areas. (Up to 600 cm), the forest are dense with closed canapy and the trees may be 15 to 20 meter high. important plants species are

Hopea, michela, Balano corpus, Hordwikia, myristica, salmelia, Dioscoria Rhododendrans, etc

(12) **Himalayan moist temperate forest-** These forest are found when annual Average rainfall 150-330cm. The trees are high. Sometimes up to 45 meter tall. The dominant elements of vegetation are oak and conifers underground is shrubby and consist of deciduous species of *Barberis, Spiraea etc.*

(13) **Himalayan dry temperate forest-**These forests dominated by Rhododendrons, oaks, and conifers from a narrow belt at the altitude from 3000-4000 meter in the western Himalayan extending from a part of Uttaranchal through Himanchal Pradesh and Punjab to Kashmir. The commonly species are found *Pinus gerardiana, Blue pine, deodar etc.*

(D) **Sub Alpine forest**–

(14) **Sub Alpine forest**– The sub alpine forest is found throughout Himalayas from Ladakh is the west to Arunanchal in the east at the altitude from 2800 to 3800 meter. Annual rainfall less than 65cm but snowfall occurs for several weeks in a year. Strong winds and below **0°c** temperature prevails for greater part of the year, the trees species are found *Abies spectabilis, Abiesdensa, Juniperus spruce etc.*

(E) **Alpine Scrub**–

(15) **Moist-alpine scrub forest**- This type of vegetation is distributed extensively throughout the Himalayas above 3000 meters. It is most often dense and composed of evergreen dwarf forest. The trees species are Rhododendron, birch, and other deciduous trees.

(16) **Dry alpine scrub-** These are open xerophytic formations spread in Up, Himanchal Pradesh, Punjab and Kashmir, the species belonging to

Artemisia Potentilla, kochia, Juniperus predominate in the vegetation which develops generally on lime stone rocks.

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