

- Moisture & temperature - most imp. factors in Terrestrial Ecosystem.

3.1 - Tundra (Barren Land).

(a) Arctic Tundra, below polar icecap & above tree line. cotton grass, sedges, willow, birches, lichens. animals - reindeer, musk ox, Arctic hare, Caribou, Lemmings, squirrel. insects have short life cycle.

(b) Alpine Tundra - high mts. above tree line.

3.2: Forest Ecosystem

(A) Coniferous forest: (Boreal forest)

- High rainfall cold regions, long winters & short summers.
- Evergreen plant species - spruce, fir, pine trees, larch, wolf bear, red fox, porcupine, squirrel, amphibians like tiger, Rana etc.

Soil of Boreal forest: (1) Acidic and mineral deficient.

→ Thin podzolic soil. (because weathering in soil so its leaching)

→ The productivity and community stability of Boreal forest is "Lowest"

(B) Temperate deciduous forest.

Moderate climate, broad leaved, soil podzolic and fairly deep.

(C) - Temperate Evergreen forest: (Mediterranean)

- Warm dry summers, cool moist winters.
- Low-broad leaved evergreen trees.

(d) Temperate Rain forest.

Biodiversity is high as compared to other temperate forest but lower than equatorial Rain forest.

(e) Tropical Rain forest: (Equatorial)

- Most diverse and rich communities on earth.
- Forest remains vertically stratified tall trees often covered with vines, creepers, lianes, epiphytic orchids, bromeliads.
- Soil is red Latosols. very thick. but leaching makes them unsuitable for agriculture.

Tropical Seasonal forests (Monsoon forest)

- S.E. Asia, Central & South America, Northern Australia, Western Africa & tropical islands.
- Subtropical Rain forests
- Epiphytes are common here.
- Broad leaved evergreen. fairly high rainfall but less temperature differences between winters and summers.

Indian forest types

Champion and Sethi has classified Indian forest into 16 types

① Tropical Wet Evergreen forests

- Western Ghats, N.E. Regions, Andaman and Nicobar Islands.
- Jackfruit, betel, wild palm, Jamun, Mango and halbet.
- ferns and orchids are common. Three layers structure.

② Tropical Semi-Evergreen forest

- Western Ghats (low shaded part), Andaman & Nicobar, Eastern Himalaya.
- mixture of wet evergreen trees and moist deciduous trees.

③ Tropical Moist deciduous forest

- Found throughout India except in the western and the North-western regions.
- sal, Teak, Bamboo, Mango, Rosewood.

④ Littoral and Swamp forest

Marsly delta of Ganga & Brahmaputra. Andaman & Nicobar.

⑤ Tropical dry deciduous forest

- North India, MP, Gujrat, Andhra, Karnataka, Tamil Nadu.
- Canopy does not exceed 25 mts.
- Acacia, sal, Baobab.

⑥ Tropical Thorn forest

Found in areas of black soil - NW & Central India, Spurge, Caper & Cactus. Trees does not grow beyond 10 mts.

⑦ Tropical Dry Evergreen forest

Hard leaved Evergreen with fragrant flowers, Tamil Nadu, Andhra Pradesh, Karnataka coast.

⑧ Sub-tropical Broad leaved forest

Eastern Himalayas, western Ghats along Sikkim valley. Pongamia, Cinnamom, oak, alder, chestnut, cherry trees.

⑨ Sub-tropical Pine

Steep dry slopes of Shivalik hills, western and Central Himalayas, Khasi, Mizo and Manipur hills, chir, oak, Rhododendron, sal etc.

⑩ Sub-tropical Dry Evergreen forest

Found in the Shivalik hills and foot hills of Himalayas upto height of 1000 metres.

⑪ Montane Wet temperate forests

North-East of Nepal to Assam hills - there are three layers of forests - the higher layer has mainly Coniferous, the middle deciduous (oak) and lowest layer is covered by Rhododendron and champa.

In south: Nilgiri hills

⑫ Himalayan Moist temperate forest

In Eastern Himalayas rainfall is much heavier so plants are lush green & dense. Oak, brown, walnut etc.

⑬ Himalayan Dry temperate forest

Lahul, Kinnaur, Sikkim, etc. Broad-leaved deciduous.

⑭ Sub-alpine forest

⑮ Moist Alpine scrub

⑯ Dry Alpine scrub

6 types of Grasslands are found in Indian Subcontinent

(i) Dry-subt humid zone (The Stelma-dichanthum type)

Except Nilgiri whole peninsular India.

(ii) Semi-Arid zone (The Dichanthum-Coenichrum type)

North Gujarat, Rajasthan, Delhi, W.U.P. Punjab

(iii) Wet subt humid zone (The Phragmites Saccharum-imperata type)

Ganga plain in North India.

(iv) The Themeda - Arundinella type

Assam, Manipur, West Bengal, U.P.

- Indian Grassland and Fodder Research Institute, Thanjavur

- Central Arid Zone Research Institute - Jodhpur

Desert Ecosystems } Low precipitation

Cold desert fauna (Animals) - Tibetan wild Ass Chiang Tibetan

Antelope (Caracal) Serotie Ibea etc

India is Signatory to United Nations Convention to Combat Desertification