FOREST ECOSYSTEM

NILGIRI BIOSPHERE RESERVE(NBR)

- Area = 5520 km^2
- Included in UNESCO's Man and the Biosphere Programme in 2000.
- NBR contains
  - Dry scrub, dry and moist deciduous
  - Semi-evergreen and wet evergreen forests
  - Two endangered species- the niligiri tahr and the lion-tailed Macaque

Why do different regions have different biomes?

- Major reasons:-

1. Temperature
2. Precipitation

The mean value of temperature and precipitation determines the kind of biomes in an area.

- Climate, plants and animal species of region varies with latitude and longitude.
- The unique thing is that every species has adapted to the climate and has found its niche in the community.

WORLD LAND USE PATTERN

BIOME TYPE	% OF LAND
FOREST	32
RANGELAND& PASTURE	26
DESERT	20
CROPLAND	11
TUNDRA & WETLANDS	09
URBAN AREAS	02
TOTAL	100

Types of forests

- Tropical rainforests – hot & humid region

–Annual rainfall– 2000 to 4500 mm.

– Found in south and central America, Western & Central Africa, South East Asia, and some islands of Indian & Pacific Oceans.

– Tropical forests are considered important because it helps in recycling water.

personal.monm.edu/.../tropical-rainforest.jpg

Temperate forests

- Cold in winter and warm & humid in summer.
- Annual rainfall is 750–2000 mm
- Soil is rich
- Found in western and Central Europe, eastern Asia and eastern North America.

ewww.davidsuzuki.org/files/Forests/rivermeand

Coniferous forests

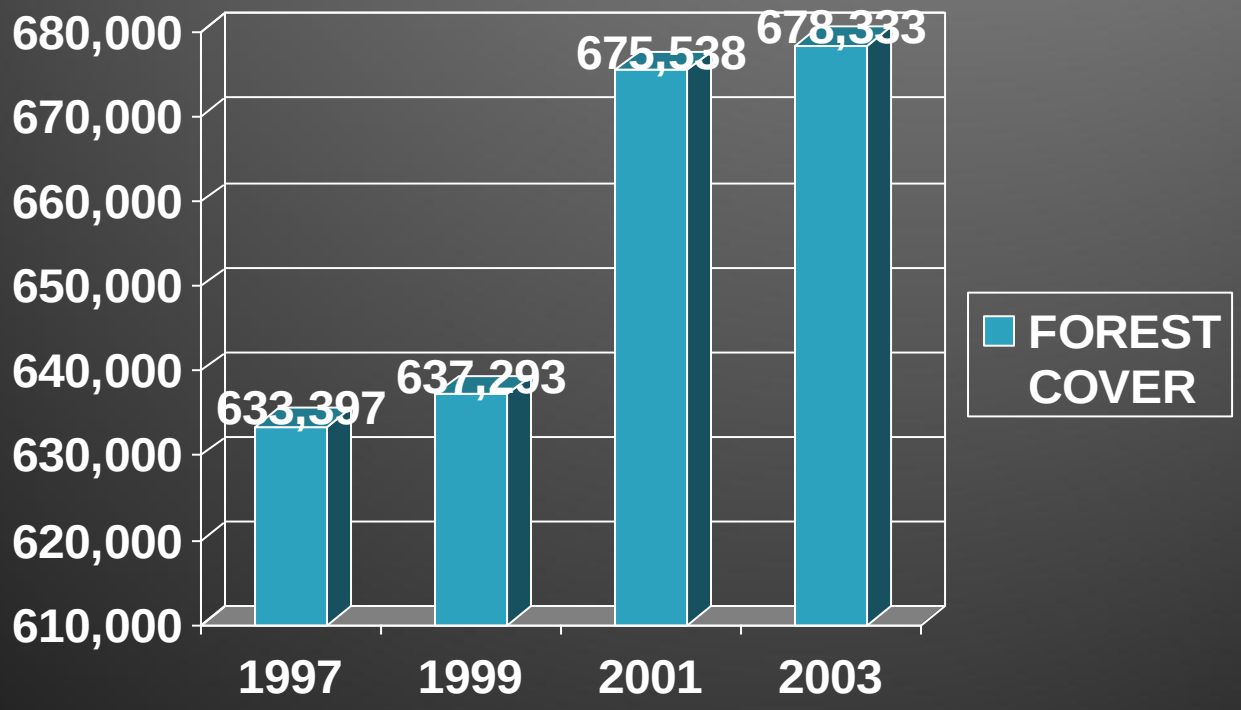
- Many coniferous trees are found in this region like spruce, fir, pine etc.
- Found in northern parts of Northern America, Europe and Asia.
- The soil in these forests is acidic and humus-rich.

www.idiotica.com/.../images/coniferous.jpg

STATE OF FORESTS IN INDIA

- As per report 2003 of Forest survey of India ,Dehradun the forest cover in the country is 678,333 sq.km & constitutes 20.63% of its geographical area.
- Dense forest contributes 390,564sq.km(11.88%) & open forest 287,769(8.75%).
- In India M.P with 76429 sq.km of forest cover has the maximum forest among all States/UT's followed by AP & Chandigarh.

TREND ANALYSIS OF FOREST GROWTH IN INDIA (ALL FIGURES IN Sq. km)



- AS per ministry of Environment and forest, the total area covered under forest is 757010 Sq.km which is 23.03% of total geographical area of the country.

- As per 10th plan Government has targeted to enlarge the forest cover to 25% of geographical area by 2012 and 33% by 2020.

TYPES OF FORESTS IN INDIA

- 80% of Indian forest is of four types.

Forest type	Area in India	Place
Tropical moist deci.	37%	MP,GUJRAT,MAHA.
TROPICAL DRY DECI.	28%	HIMALAYA TO KANYAKUMARI
SUBTROPICAL PINE	7%	HIMALAYAS

INDIAN FOREST SURVEY

Impact of human activities and natural forces on the forest of India

- Clearing and burning of the forests for agriculture,cattle rearing and timber extraction.
- Clear cutting and conversion of forest land in hilly areas for agriculture,plantation and housing.
- Forests affected by acid deposition originating from industries.
- Pesticides spraying to control insects in forest plantation leads to poisoning all the way up the food chain and unintended loss of species.

Contd…

- Dams build in forest areas for hydropower and water drown huge areas ,destroying species and depriving people of their land.
- In wilderness areas like the Arctic ,oil exploration and military activities disrupt the ecosystem ,contaminating areas and lead to decline of species.
- The harvesting of old growth forests destroys crucial habitat for endangered species.

GRASSLANDS

- Grasslands are regions where average precipitation is high(250-1500mm) for grass and for trees to grow.
- Rainfall are erratic and uncertain in these regions.
- Regions found is central &south America,sub equitorial Africa &south Australia ,South India.
- Soils rich and deep ideal for grasses.

Contd…

- Used as grasslands for grazing livestock.
- Savanas are tropical grasslands with widely scattered clumps of low trees.
- Large scale conversion of grasslands into croplands as they are well suited to agriculture.

DESERT

A desert is a landscape form or region that receives very little precipitation.

<250 mm per annum.

- It covers 1/5th of earth's land surface.
- Most of the deserts are composed of sand (ergs) and rocky surface (reg).
- Other deserts known as cold desert is fully covered by ice and almost no vegetation.
- Temperature ranges from 50 degree C to nearly zero level within a single day.
- These have high biodiversity. Plants and animals have different morphological and anatomical modifications to reduce water loss from the body.

Water budget $= P - PE(+/-)S$

where P = precipitation

PE = potential evaporation

S = amount of surface storage of water

If PE exceeds enormously from P then a dry condition prevails and if it continues then deserts get formed.

Types of deserts

Hot desert

- Formed of ergs or regs
- Water is very scarce.
- Temperature is very high during day and very low at night.
- Vegetations known as ‘xerophytes’ have modifications like pulpy stem to store water and wax covered thorny leaves to reduce transpiration. The roots are very long to reach the water table.
- Animals such as reptiles, rodents, wolves etc hide themselves in daylight and come out at night.

Contd…

Cold deserts

- Commonly known as ‘tundra’
- Land is covered by a thick layer of ice.
- Whatever falls remain frozen.
- Vegetation is very low on the surface.
- The leaves are covered by wax.
- Animals have thick layer of fat under the skin and a fur coating above it.

The Thar desert

- Third largest desert in the world.
- Most populous desert.
- Spread over four states in India and two in Pakistan.
- Annual rainfall is 100-500mm
- The only river in the region is Ghaggar.
- shrubs and grasses like *babul*, *khejra* and trees like *ber* are found.
- Many reptiles and snakes are endemic to the region also.

Importance for man

We think desert as a non arable waste land but it contains lot of minerals which can be harvested by making judicial use of it.

The top soil is fertile but very susceptible to erosion. It can be saved by afforestation.

Minerals like silica, gypsum, borates are very commonly found.

It's a very big area which should be converted into arable.

MOUNTAINS

Mountain is a landform that extends above the surrounding terrain in a limited area.

Characteristics

- Mountains cover 20% of the land area.
- Going up the mountain is similar to moving from equator to north pole.
- Mountain are the reservoirs of water.
- A big bank of biodiversity.

HIMALAYA

- It is the highest mountain range.
- Flora fauna of himalayas varies with the altitudes. Like lowland forests to alpine trees.
- It is the energy bank in terms of wind energy and hydro energy almost all rivers of north india originates from himalayas.

Babul Tree (Acacia)

Ergs

Regs

Khejri Tree (*Prosopis cineraria)*

Ber Plant (*Ziziphus mauritiana)*

source

- www.google.com
- www.wikipedia.org
- Forest survey of India