9 Natural Vegetation and Wildlife

Lesson Plan

Contents

- An overview of the natural vegetation and wildlife on Earth
- To understand the factors influencing natural vegetation and, consequently, the wildlife of a region

Objectives

- To understand natural vegetation and the factors affecting it
- To learn about the wildlife sustained in a region with a particular kind of natural vegetation
- To know about the inter-relation between the latitude, climate, natural vegetation and wildlife of a particular region
- To appreciate the interdependence of all living and non-living things on Earth

▍ Teacher's Aids

- Globe
- Pictures, atlas and wall maps
- Blackboard
- Internet

▍ Tips for Teacher

- Explain the factors affecting natural vegetation and the different types of natural vegetation.
- Explain the interdependence of natural vegetation and wildlife.
- You can divide the class into groups, and each group can make a small model in a tray, of a particular region, using moulding clay, paper, colours, toy animals and birds, etc.
- Students should be encouraged to know places, locations and their placement on the maps.

▍ Background and Reading

- Read the lesson aloud and explain, sharing the aids, etc., pausing to examine and explain the data in the boxes.

▸ Particularly focus on the factors affecting the growth of natural vegetation and the interdependence of natural vegetation and wildlife.

What is natural vegetation?

▸ It refers to plants which grow naturally without any human interference, either directly or indirectly.

What is wildlife?

▸ It refers to all non-domesticated animals, birds, reptiles, etc., which live in a natural habitat. Wildlife is intimately linked with the natural vegetation of its habitat.

Factors affecting natural vegetation

▸ Latitude of the place, the relief and height of land above sea level, climatic conditions [especially temperature and precipitation], the slope of land and the type of soil. The amount and distribution of rainfall is more important than temperature, except in the mountains.

▸ Factors, especially rainfall and topography, affect the natural vegetation.

▸ Classified into: (i) Forests–dense cover of trees–normally hot humid climate

  (ii) Grasslands–grasses and grass-like plants–regions of moderate rainfall

  (iii) Thorny shrubs–scrub and thorny plants–low woody perennials in dry desert areas

Forests

▸ Evergreens that do not shed their leaves and deciduous that shed them in dry season to conserve water.

  (i) Tropical Evergreen Forests

  Found in Orinoco and Amazon basins, South America; Congo River Basin, Africa; South-east Asia like Indonesia, Malaysia, Sri Lanka, etc.; and the west African coast. India–along the western slopes of the Western Ghats in Kerala and Karnataka.

  Factors: Both sides of Equator in tropical zone; hot, humid climate throughout the year with no dry season; annual rainfall over 200 cm; temperature 15-30° C [°].

  Features: Lush, green, thick, multi-layered forests; denser near Equator, known as selvas in South America; closely spaced trees forming a canopy not letting sunlight; 40-50 metres high; broad leaves; high rate of transpiration.

  Plants: Hundreds of species of trees; no pure stands, so less commercial value; hardwood trees: rosewood, ebony, mahogany, ivorywood, bamboos, reeds, etc.

  Wildlife: Large variety of species–monkeys, gorillas, hippopotamus, jaguars, leopards, elephants, sloths, etc.–parrots, hummingbirds, etc.–pythons, [largest python–anacondas], cobras, pit vipers, kraits, etc., crocodiles, lizards, bats, turtles, pumas, squirrels, and a rich insect life.

  (ii) Tropical Deciduous Forests [also called Monsoon Forests]

  Found in India, South China, Bangladesh, Thailand, Laos, Vietnam, Myanmar, Central America, Southeast USA, East Africa, Northeast Australia, Peru, Brazil, etc.

Factors: Seasonal changes in temperature and rainfall; annual rainfall 150 cm; temperature 20-45° C; distinct dry season when leaves are shed.

Features: Different trees shed leaves at different times, so forest is never bare. Shed for 6-8 weeks to prevent moisture loss.

Plants: Hardwood trees—teak [most valuable timber], sal, sheesham, deodar, bamboo, sandalwood, neem, etc. Timber used for making furniture, transport, building material, etc. Over-utilisation depleting forests rapidly.

Wildlife: Tigers, lions, elephants, leopards, bears, rhinoceros, monkeys, langurs, gaurs, foxes, sloth bears, deer, hornbills, and a variety of snakes and crocodiles.

(iii) Temperate Evergreen Forests

Found in Mid-latitudes; eastern coastal margins of continents: Southeastern USA, Southeast Brazil, Uruguay, Southeast Australia, South China, eastern coast of South Africa, South Japan and parts of New Zealand.

Factors: Warm temperate belts of the mid-latitudes.

Features: Evergreen trees.

Plants: Mixed variety of hardwood and softwood [pine] trees; oak, pine, wattle, eucalyptus, camphor, mulberry, bamboo, walnut, acacia, etc. Timber from these has good commercial value.

Wildlife: Antelopes, giant pandas, deer, monkeys, wolves, a variety of birds, rodents like beavers [known for the dams they build across streams to trap food], rats, squirrels, porcupines, etc., and marsupials like kangaroos in Australia.

(iv) Temperate Deciduous Forests

Found in: Cool temperate regions in higher latitudes: Northeastern USA, Northeastern China, Western Europe, Southern Chile, Japan, the Koreas and New Zealand.

Factors: Annual rainfall about 75 cm; average temperature about 20° C.

Features: Trees of moderate height, thick trunks, broad leaves, winters [normally dry]; trees shed leaves and are almost bare.

Plants: Oak, ash, beech, chestnut, cherry, walnut, maple, redwood, poplar, firs, etc. Climate suitable for settlement and also cleared for growing crops; hence, forests depleted.

Wildlife: Deer, foxes, wolves, pandas, racoons, bears, bisons, beavers, wild cats, etc., large variety of birds like pheasants and monals.

 (v) Mediterranean Forests

Found along the west and southwest margins of continents: around Mediterranean Sea in Europe, Africa and Asia; California state in the USA, Southwest Africa, Southwest South America [Central Chile], Southern Australia.

Factors: Hot, dry summers and mild rainy winters.

Features: Trees with thick bark, long roots, stiff and hard leaves; widely spaced with shrubs in between.

Plants: Most forests cleared–replaced by large-scale fruit orchards, citrus fruits like oranges, figs, olives, and pines, beeches, cedar and cypress.

Wildlife: Not much except squirrels, wood rats, rabbits, leopards, foxes and snakes; birds like falcons, kites and hawks.

(vi) Coniferous Forests [Taiga or Boreal Forests]

Found in Northern Hemisphere, sub-polar belt [50-70° N]; Northern parts of Canada, Europe and Asia; also at high altitudes.

Factors: Sub-polar weather conditions.

Features: In pure stands of single species in large areas; mostly tall, straight, evergreen softwood with sharp needle-like leaves; light easy to cut.

Plants: Pines, spruce, larch, silver fir, birch, cedar, etc. Widely used for making pulp, used for making paper and newsprint; also matchboxes, packing boxes, furniture, plywood and sports goods.

Wildlife: Animals with thick furs to protect them from the cold–mink, silver fox, reindeer, polar bear and grizzly bear.

Grasslands

▶ Mostly in areas where rainfall is not enough for growth of trees–two types of grasslands:

(i) The Tropical Grasslands [Savanna]

Found: Savanna on either side of Equator in Tropical zone; in transitional zone between the Equatorial and desert regions; Africa: A belt in both hemisphere around tropical evergreen forests; South America: Called Llanos in Northern Hemisphere and Campos in Southern Hemisphere; and Australia: Northern part of Queensland and Northern Territory.

Factors: High temperature throughout the year; frost-free conditions; most rainfall in summer, heavy towards the Equator and decreases towards the hot deserts; annual rainfall about 100 cm near Equator and about 25 cm near desert margins.

Features: Grasses generally tall and coarse, about 3-4 metres high; some parts used for grazing or farming.

Wildlife: Known as the world's gameland or Nature's Zoo; rich wildlife: Herbivores–zebra, giraffe, deer, gazelle, antelope, elephant, rhinoceros, okapi, etc.; carnivores–lions, leopards, wolves, panthers, jaguars, puma, etc. Hunting mostly banned.

(ii) The Temperate Grasslands [Steppes]

Found in mid-latitude zones in the interiors of continents roughly between 40-55° latitudes in both hemispheres: North America [Prairies], South America [Pampas], South Australia [Downs], Central Eurasia [Steppes], Africa [Velds], etc.

Factors: Cool climate with low annual precipitation.

Features: Extensive grasslands, mostly short grasses, nutritious for cattle and sheep rearing; extensive cultivation–main crops wheat and corn.

Wildlife: Mostly herbivorous–antelope, horse, wild ass, wild buffalo, bison, hyena, etc. In Australia–kangaroo and emu.

Desert Vegetation

▶ Deserts are either very hot or very cold and both are dry.

(i) <u>Hot Deserts</u>

Found: Located mostly in tropical or sub-tropical areas—usually on the western side of continents: Sahara and Kalahari in Africa; Atacama in South America; Mexican Desert in North America; Thar Desert and Arabian Desert in Asia; the Great Australian Desert in Australia.

Factors: Very high temperatures and very low temperatures; dry.

Vegetation: Sandy, with thorny bushes, cacti, a few short trees with long roots, thick stems, waxy leaves and thorns; help them survive in the harsh climate; date palms in oases.

Wildlife: Conditions not conducive for wildlife: Camels [ship of the desert—very important animal adjusting to hot dry conditions], moles, vultures, parakeets, hedgehogs, lizards, and snakes.

(ii) <u>Cold Deserts [Tundra]</u>

Found: Polar regions or on high mountains; Northern Hemisphere; Northern Alaska, the Northern coastal belt of Canada, Southern Greenland, Northern fringe of Scandinavia and Siberia.

Factors: Extremely low temperatures; annual precipitation less than 15 cm; extremely cold and dry throughout the year.

Vegetation: Extreme cold, dry climate, does not allow growth of vegetation; mosses and lichens, and a few bushes during a short summer.

Wildlife: Reindeer survive on mosses; birds migrate to prey on marsh insects; polar bears, wolves, musk oxen, foxes, lemmings, etc.

Assessment Corner

Oral Assignment

A. Ask for answers at random from the students. Confirm the right answers. Let them write down the correct answers if they like in their books.

Written Assignment

B–G. The teacher has two options—(i) Either do these exercises orally first and then ask the students to write them down. OR (ii) Ask the students to write the answers on their own. Then the teacher can announce the correct answers and students can ask their partners to cross-check them.

In either case, the answers can be written as homework and the teacher can check them in the class.

Think Tank

H. HOTS questions: Discuss the questions in the class and let the students write the answers to H and I as homework. Teacher should assess individual work.