



## Competitive Exams: World Biomes (Flora and Fauna)

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### Knowing Ecology and Biomes

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### Tropical Evergreen Rainforest Biome

Also called optimum biome (optimum condition for development of plants and animals). It has largest number of plant species.

Trees are the most significant members.

Animal life: Vertical stratification of the floral biome has largely affected the life forms of animals. Even animal life shows stratification. Upper air animal community Birds like Asian Falconets, swifts, seviftlet, curassows, tinamous, opossum, kinkajous and armadillos etc. Main canopy animal community: Toucans, parakeet, barbets, contingas, and bill birds etc.

Middle zone flying animal community. Mostly flying birds and insectivorous bats. Middle zone climbing animal community Squirrels and civets.

Large ground animal community, Mouse deer, cassowaries and members of pig family. Small ground animal community, Insectivorous such as Argus, pheasant, peacocks and fowls such as Guinea fowl.

Creepers or climbers: Belong to the category of Vines. Long woody climbers are known as Lianas. Another type of climbers is Epiphytes which do not have their roots on the ground surface. The epiphytes provide certain habitats to micro organisms such as planarians, earthworms, snails, woodlice, millipedes, centipedes, termites, ants, grasshoppers, earwigs, scorpions, snakes, tree frogs, lizards and a host of insect larvae. Micro epiphytes include moss, lichens, algae etc.

Vertical stratification: There are five layers of strata from the ground surface to the uppermost canopy of the tropical evergreen rainforest biome:

1. Top layer (or dominant layer) Tallest trees (3090 m)
2. Second layer (or codominant layer) Tress (25 -30 m)
3. Third layer Small trees

4. Fourth layer Herbaceous and shrub layer

5. Fifth layer Herbaceous plants and ferns.

### **Monsoon Deciduous Forests**

Trees have large hydromorphic leaves or small, hard xeromorphic leaves. (The large hydromorphic leaves enable the trees to trap more and more rainfall during wet seasons, but these large leaves are shed in dry periods to conserve moisture. Whereas small and hard xeromorphic leaves enable the trees to withstand dry weather and water deficiencies.) There are numerous lianas and epiphytes but they are less in number than the rain forest biome.

Animal life there are comparatively less number of animal species than the rain forest biome.

Very small animals' microorganisms to very large bodied animals like elephants, horses, hippopotamus, rhinos, lions etc.

The biome represents the largest number of domesticated mammals because of the development of agriculture. (The lions of Gir forest of Gujarat, together with other animals like leopards, spotted deer, sambhar deer, Indian gazelle, Nilgai antelope, wild boar etc. are now endangered species because of enormous destruction of the Gir forest Ecosystem.)

There are number of plant species is less in the tropical deciduous biome than the tropical evergreen rain forest biome. There are four strata or layers in the vertical structure of the tropical deciduous forests:

1. Uppermost Trees
2. Second layer Trees
3. Third layer Shrubs
4. Herbaceous plants. Most trees are deciduous. Shrubs of the third stratum are evergreen.

### **Savanna Biome**

Animals African Savanna has the largest number and greatest variety of grazing vertebrate mammals in the world. African Buffalo, Zebra, Giraffe, Elephants, Antelopes, Hippopotamus etc. South American and Australian Savanna do not have large number of grazing mammals similar to the African savanna is invariably found.

Marsupials. Around 50 species of Kangaroo are found in Australia varying from the Red Kangaroo to the small species of Wallaby. South America Large grazing mammals including deer and guanaco. Toucans, parrots, night kingfishers, parakeets, wood peckers are also found.

Savanna Birds Courses, bustards, game birds, ostrich, gazelle and emu.

Trees have in built mechanism to reduce evapotranspiration reduced size of leaves, sunken stomata and thickened cuticles etc.

Tress may have very deep roots which can penetrate deeper into soil for water. Some trees are fire resistant (pyrophytic) as they have thick bark and thick budscales. The savanna biome is characterized by the monotony of tree species as there are very few tree species per unit area. Acacia, Baobab, Isoberlinia, Pom palm (African Savanna). Eucalyptus such as Eucalyptus Marginata and Eucalyptus calophylla (Australia), Pine trees (Honduras).

Savanna Biome Vegetation has three distinct layers:

1. Ground strata Grasses and herbs.
2. Middle layer Shrubs and woody plants.
- 3 Top or canopy layer Trees Savanna grasses Hyparrhenia (elephant grass), Panicum, Pennisetum, Aridropogen and African.

### **Mediterranean Biome**

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### **Population Theories**

Find this video at: <https://www.youtube.com/watch?v=-lZr0fm3uUE>

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Mediterranean Biome Vegetation has sclerophyll characteristic as they are stiff and hard and the stems have thick barks.

Range from Mediterranean mixed evergreen forests to woodland, dwarf forest and shrubs.

Shrubs are differently named: Maquis or Garrigue S. Europe

Chaparral California Fybos or Fynbosch Africa Malle Scrub Australia. To withstand dry conditions, they have some Xeromorphic structure thickened cuticles, glandular hairs, sunken stomata etc.

Trees Evergreen Oak, Deciduous Oak, Jarrah (Australia) and shrubs like Arbutus, Pistacia, Rhammus, Ceratania etc.

Animals Mule deer , Chilean Guanaco, Squirrels, Wood rats, Wolf, Mountain lion , Grizzly bear, Rabbits, Coyote, Chilean Fox, Lizards, Snakes, birds(kites, falcons, hawks), Quagga (a type of antelope), Bontebok(a type of antelope)

### **Temperate grassland Biome Vegetation**

In this biome comprises perennial grasses (family Gramineae).

Grass steppes. Tussock forming species of Steppe. Semi arid Xerophytic Steppe which is associated with Chestnut soil.

North American Pampas humid and sub humid Pampas. Important grasses of Pampas include Briza, Lolium, Paspalum, Panicum and Bromus etc.

Velds of S. Africa: This may be classified into Themada, Veld (having red grasses), Sour Veld (having grasses like Aristida, Eragrostis and Llyparrhenia etc.) and Alpine Veld(having Festuca and Bromus along with Themada veld) Animals Buffalo, pronghorn, antelope, wild horse, saiga antelope, guanaco, wolf, coyote. Kangaroo and wallaroos are found in Australia. Rhea is a bird found in Pampas. Bisons are found in N. America

### **The Boreal Forest Biome or Taiga biome**

Adapted to the extreme environmental conditions of the Siberian type of climate of this Biome.

Richest source of softwood in the world.

Important trees include Pine (white, red, scots, and jack), Fir (Douglas, Balsam), Spruce, and larch, Birch, Poplar and Alder.

Animals Caribou, Moose, Timber wolf, Lynx, Red Squirrels, Owls and Hawks.

### **Tundra Biome**

Lithosols in this region only supports vegetation like mosses and lichens. Animals Musk Ox, Arctic Foxes and Stoat, Reindeer and Caribau.

Birds Waterfowl. Ducks. Swans, Geese and Ptarmigan.

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