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ZOOLOGY	PAPER No.: VI (Principles of Ecology)
	MODULE No. 2 (Terrestrial Ecosystem)

TABLE OF CONTENTS

- 1. Learning Outcomes**
- 2. Introduction**
- 3. Major Types of Terrestrial Ecosystems**
- 4. Summery**

1. Learning Outcomes:

In this module,

- You shall learn about the information regarding the concept of terrestrial ecosystems.
- You shall learn about morphological characters, classification and behaviour of members of terrestrial animals.
- You shall learn about habit and habitat of animals in different phyla.
- You can comparative different animals in different habitats.

2. INTRODUCTION:

A terrestrial ecosystem is a land-based community of organisms and the interactions of biotic and abiotic components in a given area. Examples of terrestrial ecosystems include the tundra, taigas, temperate deciduous forests, tropical rainforests, grasslands, and deserts. The type of terrestrial ecosystem found in a particular place is dependent on the temperature range, the average amount of precipitation received, the soil type, and amount of light it receives. Use these resources to spark student curiosity in terrestrial ecosystems and discover how different abiotic and biotic factors determine the plants and animals found in a particular place.

3. Major Types of Terrestrial Ecosystems:

These ecosystems can only be found on land. Different landforms will have different ecosystems based on the climate, temperature, types of organisms residing, the food chain, energy flow, and other factors. This Ecosystem has a relative scarcity of water percentage than the aquatic Ecosystem, and also there is better availability of sunlight as the major source of energy. Types of terrestrial ecosystems are:

while the five major terrestrial ecosystems are desert, forest, grassland, taiga and tundra.

- Desert Ecosystems: The amount of rainfall is the primary abiotic determining factor of a desert ecosystem.
- Forest Ecosystems: About one third of the Earth's land is covered in forest.
- Taiga Ecosystems
- Grassland Ecosystems
- Tundra Ecosystems





1. Desert Ecosystems:

The amount of rainfall is the primary abiotic determining factor of a desert ecosystem. Deserts receive less than 25 centimetres (about 10 inches) of rain per year. Large fluctuations between day and night temperature characterize a desert's terrestrial environment. The soils contain high mineral content with little organic matter.

The vegetation ranges from non-existent to including large numbers of highly adapted plants. The Sonora Desert ecosystem contains a variety of succulents or cactus as well as trees and shrubs. They have adapted their leaf structures to prevent water loss. For instance, the Creosote shrub has a thick layer covering its leaves to prevent water loss due to transpiration.

One of the most famous desert ecosystems is the Sahara Desert, which takes up the entire top area of the African continent. The size is comparable to that of the entire United States and is known as the largest hot desert in the world with temperatures reaching over 122 degrees Fahrenheit.

Deserts are defined as ecosystems that receive rainfall of less than 25cm indicating extreme climate. Even in harsh temperatures, there are organisms that have resistance towards

high temperatures and plants that require very little water to survive, having modified their leaves and stem to conserve water. Camels, rattlesnake, cactus are a few examples.

2. Forest Ecosystem:

About one third of the Earth's land is covered in forest. The primary plant in this ecosystem is trees. Forest ecosystems are subdivided by the type of tree they contain and the amount of precipitation they receive.

Some examples of forests are temperate deciduous, temperate rainforest, tropical rainforest, tropical dry forest and northern coniferous forests. Tropical dry forests have wet and dry seasons, while tropical rain forests have rain year-round. Both of these forests suffer from human pressure, such as trees being cleared to make room for farms. Because of the copious amounts of rain and favourable temperatures, rainforests have high biodiversity. These ecosystems are a densely packed environment of various flora and fauna. It has the highest number of organisms living per square km. It is important to conserve this ecosystem as many rare species of the earth are found here. Most of the oxygen in the world is supplied by the forests.

3. Taiga Systems:

Another type of forest ecosystem is the taiga, also known as northern coniferous forest or boreal forest. It covers a large range of land stretching around the northern hemisphere. It is lacking in biodiversity, having only a few species. Taiga ecosystems are characterized by short growing seasons, cold temperatures, and poor soil. This terrestrial environment has long summer days and very short winter days. Animals found in the taiga include lynx, moose, wolves, bears and burrowing rodents.

4. Grassland Ecosystems:

Temperate grasslands include prairies and steppes. They have seasonal changes, but don't get enough rainfall to support large forests. Savannas are tropical grasslands. Savannas have seasonal precipitation differences, but temperatures remain constant. Grasslands around the world have been converted to farms, decreasing the amount of biodiversity in these areas. The prominent animals in grassland ecosystems are grazers such as gazelle and antelope.

It mainly includes shrubs, herbs, and few trees which are not as dense as the forests. These basically include grazing animals, insectivores, herbivores. The temperatures are not too extreme in these ecosystems. There are two main forms: The savannas and prairies. The savannas are the tropical grasslands. It dries seasonally with many predators and grazers. The prairies are temperate grassland, which lack large shrubs and trees.

5. Tundra Ecosystems:

Two types of tundra exist: arctic and alpine. The Arctic tundra is located in the Arctic Circle, north of the boreal forests. Alpine tundras occur on mountain tops. Both types experience cold temperatures throughout the year. Because the temperatures are so cold, only the top layer of soil in this terrestrial environment thaws during the summer; the rest of it remains frozen year-round, a condition known as permafrost. Plants in the tundra are primarily lichens, shrubs, and brush. Tundras do not have trees. Most animals that live in the tundra migrate south or down the mountain for the winter.

6. Summary: Terrestrial ecosystems are ecosystems which are found on land. Examples include tundra, taiga, temperate deciduous forest, tropical rain forest, grassland, deserts. Mountains are regions of the high altitude above sea level with scattered vegetation. It also has an extreme climate, and animals of these regions have developed thick fur on the skin to survive the cold climate.

A terrestrial ecosystem is a land-based community of organisms and the interactions of biotic and abiotic components in a given area. Examples of terrestrial ecosystems include the tundra, taigas, temperate deciduous forests, tropical rainforests, grasslands, and deserts.

Video:

https://drive.google.com/file/d/1by6Uuw5AZuoFpxj_2JnKpG5fLZeXAY/view?usp=sharing

Assignment:

https://docs.google.com/forms/d/e/1FAIpQLScZ7mpgMCgpZw9nFZvgBRA7XzNOcP-OQrSaOhDQqumHkZuhJQ/viewform?usp=sf_link

Know more:

Suggested readings, web links:

1. <https://en.wikipedia.org/wiki/Arthropod>
2. <https://www.britannica.com/animal/arthropod>
3. <https://www.vedantu.com/biology/phylum-arthropoda>
4. Text book of Invertebrates Dhami Dhami
5. Invertebrates by R.L.Kotpal
6. Text book of Non chordates by S.N.Prasad

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