

## THE MAJOR ATTRIBUTES OF ECOSYSTEMS

The term ecosystem is a concept with six major attributes:

1. The attribute of **STRUCTURE**. Ecosystems are made up of biotic and abiotic sub-components. At the very least, a terrestrial ecosystem must have green plants, a substrate, and an atmosphere, and in most ecosystems there must be an appropriate mixture of plants, animals and microbes if the ecosystem is to function. Terrestrial ecosystems normally of a complex biotic community together with soil and atmosphere, a source of energy (generally the sun), and a supply of water.
2. The attribute of **FUNCTION**. The constant exchange of matter and energy between the physical environment and the living community. Because living and non-living things are both composed of energy and matter, and because it is often difficult to define when organic material is alive and when it is dead, there are *considerable* advantages in looking at an ecosystem in terms of physical-chemical entity. Within this entity there is a constant exchange of matter and energy between different components, some of which have the characteristics of life and some of which do not. This way of looking at ecosystems in no way denies the importance of the more traditional genetic view of life; it is complementary to it.
3. The attribute of **COMPLEXITY**. This results from high level of biological integration that is inherent in an ecosystem. All events and conditions in ecosystems are multiply determined. They are therefore difficult to predict without a considerable knowledge of the structure and functional processes of the system.
4. The attribute of **INTERACTION AND INTERDEPENDENCY**. So complete is the interconnectedness of the various living and non-living components of the ecosystem that a change in any one will result in a subsequent change in almost all the others.
5. **NO INHERENT DEFINITION OF SPATIAL DIMENSIONS**. The term ecosystem focuses on the structure, the complexity of organization, the interaction and interdependency, and the functioning of the system, and not on the geographical boundaries of the system.
6. **TEMPORAL CHANGE**. Ecosystems are not static, unchanging systems. In addition to the continuous exchanges of matter and energy, the entire structure and function of an ecosystem undergoes change over time.

## THE MAJOR ECOSYSTEMS

In the broadest sense, there are **three** major types of ecosystems; namely,

1. Terrestrial Ecosystems,

2. Aquatic Ecosystems,
3. Underground Ecosystems.

In turn, in each type; subdivisions can be recognized. For example, there are freshwater, estuarine and marine aquatic ecosystems and several major types of terrestrial ecosystems, such as grassland, forest and tundra. The aquatic ecosystems are distinguished on the basis of a major chemical difference ( i. e. salt content), the terrestrial ones on the other hand; are generally distinguished on the basis of the predominant type of vegetation (grass, trees etc.).

## **I. TERRESTRIAL ECOSYSTEMS**

### **A) Natural Terrestrial Ecosystems**

1. Wet Coastal Ecosystems,
2. Dry Coastal Ecosystems,
3. Polar and Alpine Tundra,
4. Mires: Swamp, Bog, Fen and Moor,
5. Temperate Deserts and Semi-Deserts,
6. Coniferous Forest,
7. Temperate Deciduous Forests,
8. Natural Grasslands,
9. Heathlands and related shrublands,
10. Temperate Broadleaved Evergreen Forests,
11. Mediterranean –Type Shrublands,
12. Hot Deserts and Arid Shrublands,
13. Tropical Savannas,
14. Tropical Rain Forest Ecosystems,
15. Forested Wetlands,
16. Ecosystems of disturbed Ground.

### **B) Managed Terrestrial Ecosystems**

1. Managed Grasslands,
2. Field crops Ecosystems,
3. Tree crop Ecosystems,
4. Greenhouse Ecosystems,
5. Bioindustrial Ecosystems.

## **II. AQUATIC ECOSYSTEMS**

### **A) Inland Aquatic Ecosystems**

1. River and Stream Ecosystems,

2. Lakes and reservoirs

**B) Marine Ecosystems**

1. Intertidal and littoral Ecosystems,

2. Coral Reefs,

3. Estuaries and enclosed seas,

4. Continental Shelves,

5. Ecosystems of the Deep Oceans.

**C) Managed aquatic Ecosystems**

1. Managed Aquatic Ecosystems

**III UNDERGROUND ECOSYSTEMS**

Subterranean Biota