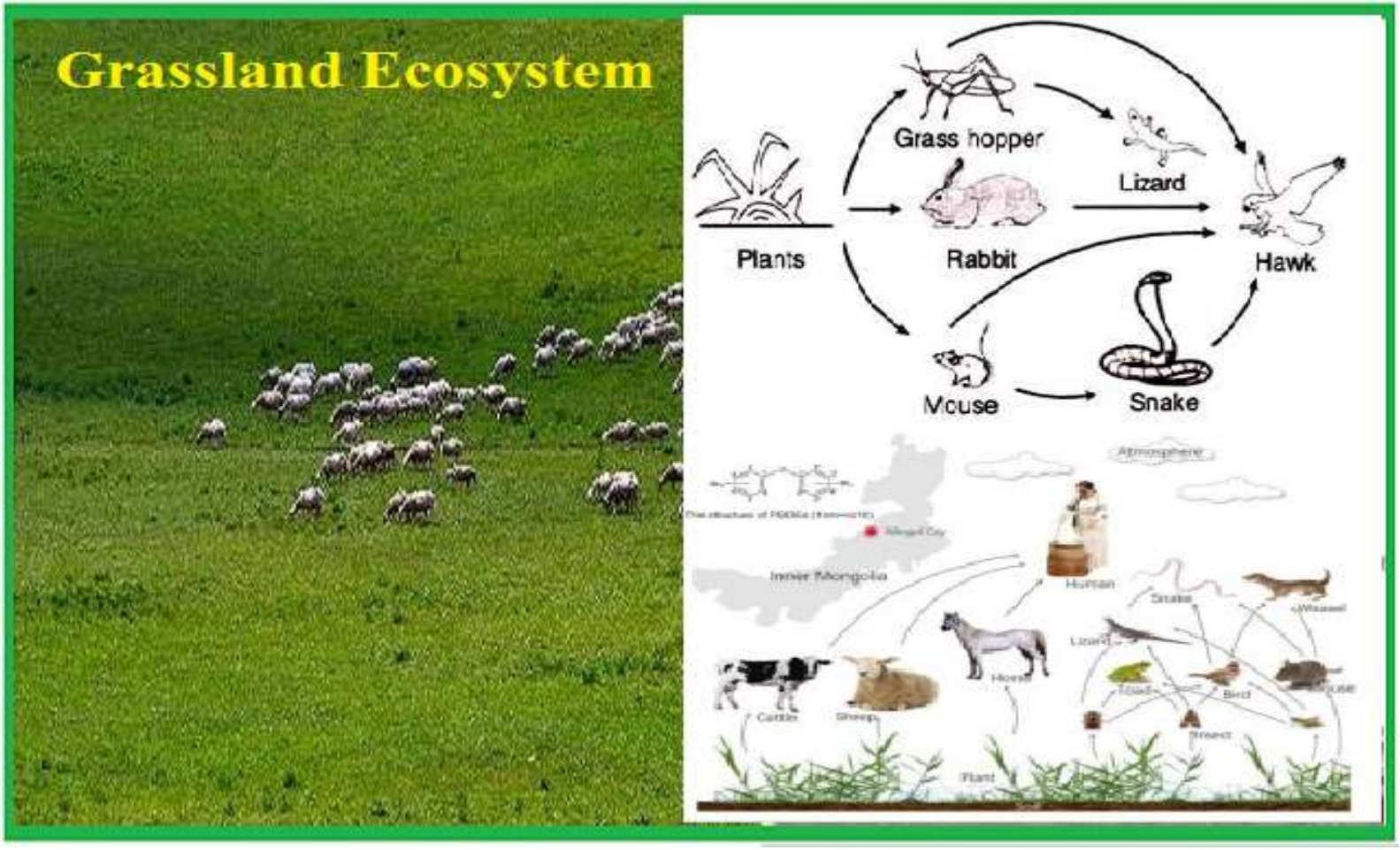
Grassland Ecosystem

Grassland Ecosystem: It is also known as a transitional landscape and is also known by different names in different regions of the world.



What is Grassland Ecosystem?

Grassland Ecosystem is an area where the vegetation is dominated by grasses and other herbaceous (non-woody) plants. It is also called transitional landscape because grassland ecosystems are dominated by the grass with few or no trees in the area where there is not enough for a forest and too much of a forest.

Components of Grassland Ecosystem

The components of the Grassland Ecosystem are discussed below:

1. **Abiotic Components:** These are non-living thing components consist of carbon, hydrogen, sulphur, nitrogen and phosphorous etc.

2. **Biotic Components:** These are living components and their sub-components are discussed below-

   (I) Producers: The primary producers of food are the grasses such as *Aristida*, *Cynodon*, *Digitaria*, *Desmodium*, *Setaria* etc. If herbs and shrubs are present, they also contribute to the primary production of food.

(II) Consumers: The consumers in a grassland ecosystem are of three levels.

(a)Primary consumers: These feed directly from the grasses (grazing) and include herbivores such as Cows, Buffaloes, Goats, Rabbits, Mouse etc. and also insects, termites, centipede, millipedes etc.

(b) Secondary consumers: These consumers are the carnivorous animals such as snakes, lizard, jackal, foxes, frogs etc. which feed on the primary consumers.

(c) Tertiary consumers: Hawk, Eagles and vultures constitute the tertiary consumer in the grassland ecosystem which preys upon the secondary and primary consumer.

(III) Decomposers: The organic matter of the grassland is decomposed by the microbes like actinomycetes, fungi (Mucor, Aspergillus, Rhizopus, Penicillium, and Cladosporium), aerobic and anaerobic soil bacteria etc. They release the minerals back into the soil thus making the soil fertile.

Functions of the Grassland Ecosystem:

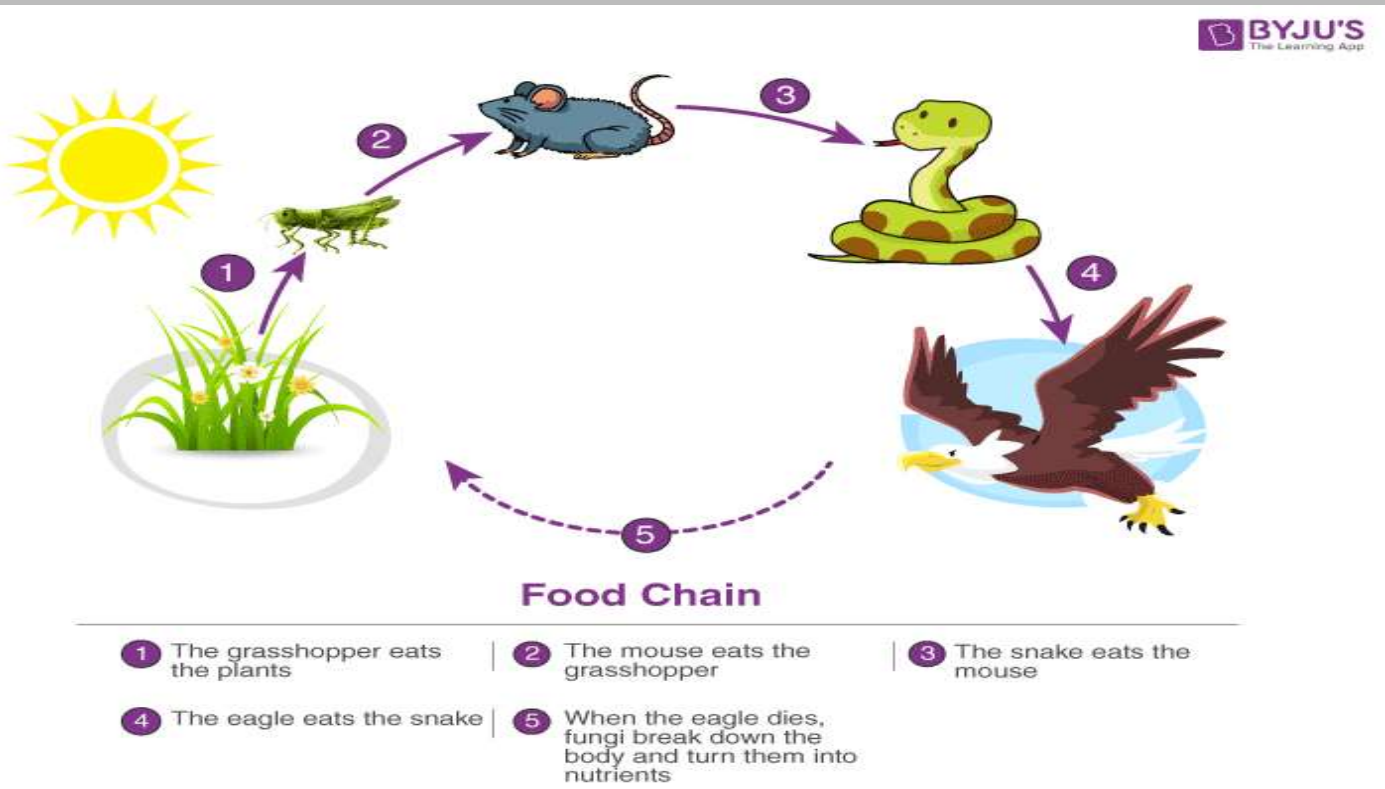
The primary function of an ecosystem is productivity. The producers fix the solar energy and produce the complex organic matter with the help of minerals. It provides forage for livestock, protection and conservation of soil and water resources, furnishing a habitat for wildlife, both flora and fauna and (contribution to the attractiveness of the landscape. The functional aspects of the Grassland can be studied by two means:

1. Food Chain in an ecosystem: There is an important feature of the ecosystem that one level of an organism serves as food for another level of the organism. A series is formed which is known as Food Chain. In an ecosystem, the food chain does not follow the linear pattern, but an organism may feed upon more than one organism in the same food chain or upon organisms of different food chains. Thus interconnected food chain system is formed known as a food web.

2. Nutrient cycle in an ecosystem: For any ecosystem to be successful, it is important that the constituent materials move in a cyclic manner. The producers (green plant) takes up the mineral elements from the soil and air, convert them into organic form and after passing through the different trophic levels, are again returned to the soil and air.

Food Chain

A food chain explains which organism eats another organism in the environment. The food chain is a linear sequence of organisms where nutrients and energy is transferred from one organism to the other. This occurs when one organism consumes another organism. It begins with the producer organism, follows the chain and ends with the decomposer organism. After understanding the food chain, we realise how one organism is dependent upon another organism for survival.



What is a Food Chain?

A food chain refers to the order of events in an ecosystem, where one living organism eats another organism, and later that organism is consumed by another larger organism. The flow of nutrients and energy from one organism to another at different trophic levels forms a food chain.

The food chain also explains the feeding pattern or relationship between living organisms. Trophic level refers to the sequential stages in a food chain, starting with producers at the bottom, followed by primary, secondary and tertiary consumers. Every level in a food chain is known as a trophic level. The food chain consists of four major parts, namely:

The Sun: The sun is the initial source of energy, which provides energy for everything on the planet.

Producers: The producers in a food chain include all autotrophs such as phytoplankton, cyanobacteria, algae, and green plants. This is the first stage in a food chain. The producers make up the first level of a food chain. The producers utilise the energy from the sun to make food. Producers are also known as autotrophs as they make their own food. Producers are any plant or other organisms that produce their own nutrients through photosynthesis.

Consumers: Consumers are all organisms that are dependent on plants or other organisms for food. This is the largest part of a food web, as it contains almost all living organisms. It includes herbivores which are animals that eat plants, carnivores which are animals that eat other animals, parasites that live on other organisms by harming them and lastly the scavengers, which are animals that eat dead animals' carcasses. Here, herbivores are known as primary consumers and carnivores are secondary consumers. The second trophic level includes organisms that eat producers. Therefore, primary consumers or herbivores are organisms in the second trophic level.

Decomposers: Decomposers are organisms that get energy from dead or waste organic material. This is the last stage in a food chain. Decomposers are an integral part of a food chain, as they convert organic waste materials into inorganic materials, which enriches the soil or land with nutrients.
Decomposers complete a life cycle. They help in recycling the nutrients as they provide nutrients to soil or oceans, that can be utilised by autotrophs or producers. Thus, starting a whole new food chain