Ecosystem Organization

Ecology
Ecology is the branch of biology that studies the interactions between organisms and their environments.

Ecosystem
An ecosystem is all living things in an area and the environment in which they live.

Biotic Factors
Biotic factors are all living or once living components of an environment.

Abiotic Factors
Abiotic factors are all the nonliving components of an environment.

Level 1: Organism

Definition
An organism is any living thing. It could be a plant, an animal, a bacteria, or many other things.

Simplest Level
A single organism is the simplest level of ecosystem organization.

Level 2: Population

Definition
A population is made up of all the members of a given species that live in the same area at the same time.

Competition
Competition occurs in a population as members struggle to obtain the resources needed for survival and reproduction. Competition increases with population size as more members fight for the same resources. It is most intense between individuals of the same species since they compete for the same resources, but it can also exist between different species. Competition limits population size since limited resources support a limited number of individuals.

Limiting Factor
A limiting factor is any biotic or abiotic factor that restricts the number of individuals in a population. A single limiting factor can affect multiple populations in an area.

Level 3: Community

Definition
A community is made of all the populations of interacting species in a given area. They may rely on each other for food, shelter, and other resources. Community size can vary a lot.

Level 4: Ecosystem

Definition
An ecosystem is made up of all the communities in an area and the abiotic factors that affect them. When we study ecosystems, we look at the way living and nonliving parts interact and affect each other.

Carrying Capacity
The carrying capacity of an ecosystem is the number of individuals in a species it can support over time. If a population grows beyond the ecosystem's carrying capacity, some individuals will not have enough resources to survive. They will either die or find a new place to live.

Level 5: Biome

Definition
A biome is a large region containing plants and animals adapted to its soil and climate. Biomes contain many ecosystems. Major biomes include deserts, grasslands, tundra, forests, and aquatic environments. Each of these can be further broken down based on temperature, soil type, and the organisms that live there.

Biosphere
The biosphere is the part of Earth that supports life, including all the biomes, ecosystems, communities, and populations.