

LEVELS OF ECOLOGICAL ORGANISATION

Ecology deals with studying the relationship of individual organisms with their environment and the study of populations, communities, ecosystems, biomes, and the biosphere as a whole.

Individual, Species, Organism: An individual is any living thing or organism. Individuals do not breed with individuals from other groups. Animals, unlike plants, tend to be very definite with this term because some plants can cross-breed with other fertile plants.

Population: Considered the smallest ecological unit, it refers to a group of individuals belonging to the same species and is inter-breeding. Population ecologists study the size, density, and structure of populations and how they change over time.

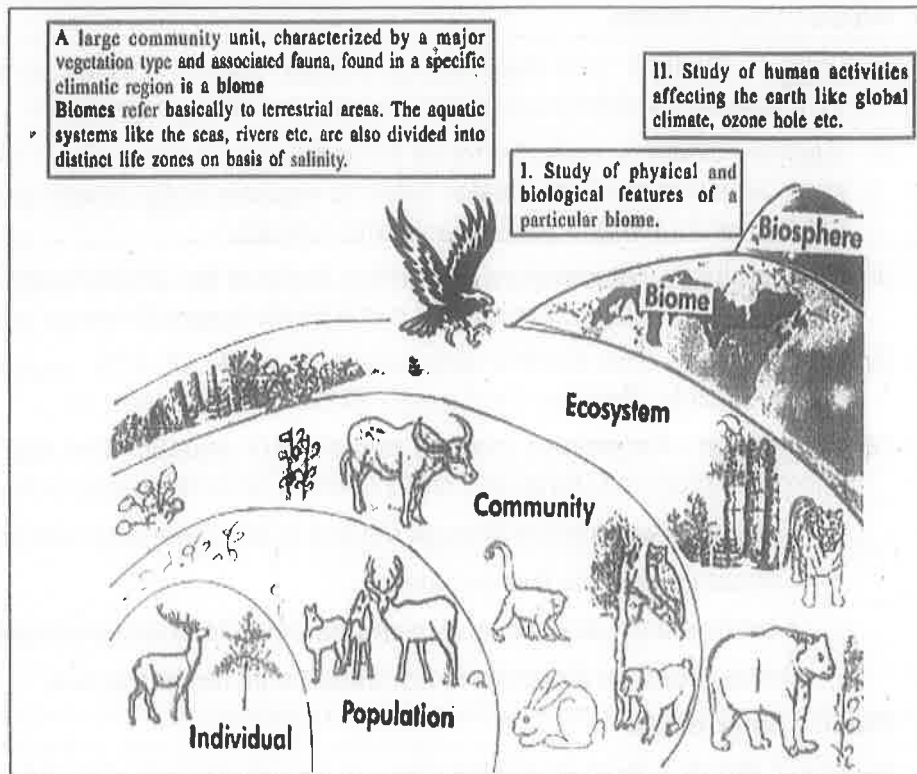
Community: It refers to all the population in a specific area at a particular time. A complex community (having a high diversity of population) is more stable than one with relatively lower diversity. This is precise because food webs of high diversity communities are more interconnected, and the greater inter-connectivity makes it more resilient to disturbance. If one species is removed, the other species which depend on it for food have other options to switch.

Ecosystem: As explained in the pages earlier, ecosystems include more than a community of living organisms (biotic) interacting with the environment (abiotic). At this level note how they depend on other abiotic factors such as rocks, water, air and temperature.

Biome: A biome is a set of ecosystems

sharing similar characteristics with their abiotic factors adapted to their environments. In simple terms, biomes are the terrestrial part of a biosphere divided into regions based on climate, vegetation etc.

Biosphere: When we consider all the different biomes, each blending into the other, with all humans living in many different geographic areas, we form a huge community of humans, animals and plants, and microorganisms in their defined habitats. A biosphere is the sum of all the ecosystems established on planet earth. It is the living (and decaying) component of the earth system.



Ecosystem Level	Question
Individual	How do zebras keep water in their bodies?
Population	What causes the growth of zebra populations?
Community	How does a disturbance, like a fire or predator, affect the number of mammal species in African grasslands?
Ecosystem	How does fire affect the amount of food available in grassland ecosystems?
Biome	In what type of climates do we find large zebra populations?
Biosphere	How does carbon dioxide in the air affect global temperature?