

CSIR NET UNIT 10 SYLLABUS

ECOLOGICAL PRINCIPLES

CSIR NET UNIT 10 includes these topics: environmental topics, including habitat and niche concepts, population ecology, species interactions, community ecology, ecological succession, ecosystem ecology, biogeography, applied ecology, and conservation biology. Subjects include population growth, community structure, and biodiversity management.

CSIR NET UNIT 10

Topics

The Environment	<ul style="list-style-type: none">- Physical environment- Biotic environment- Biotic and abiotic interactions
Habitat and Niche	<ul style="list-style-type: none">- Concept of habitat and niche- Niche width and overlap- Fundamental and realized niche- Resource partitioning- Character displacement
Population Ecology	<ul style="list-style-type: none">- Characteristics of a population- Population growth curves- Population regulation- Life history strategies (r and K selection)- Concept of metapopulation – demes and dispersal, interdemec extinctions, age-structured populations
Species Interactions	<ul style="list-style-type: none">- Types of interactions- Interspecific competition- Herbivory- Carnivory- Pollination- Symbiosis
Community Ecology	<ul style="list-style-type: none">- Nature of communities- Community structure and attributes- Levels of species diversity and its measurement- Edges and ecotones

Ecological Succession	<ul style="list-style-type: none"> - Types - Mechanisms - Changes involved in succession - Concept of climax
Ecosystem Ecology	<ul style="list-style-type: none"> - Ecosystem structure - Ecosystem function - Energy flow and mineral cycling (C, N, P) - Primary production and decomposition - Structure and function of some Indian ecosystems: terrestrial (forest, grassland) and aquatic (freshwater, marine, estuarine)
Biogeography	<ul style="list-style-type: none"> - Major terrestrial biomes - Theory of island biogeography - Biogeographical zones of India
Applied Ecology	<ul style="list-style-type: none"> - Environmental pollution - Global environmental change - Biodiversity: status, monitoring, and documentation - Major drivers of biodiversity change - Biodiversity management approaches
Conservation Biology	<ul style="list-style-type: none"> - Principles of conservation - Major approaches to management - Indian case studies on conservation/management strategy (Project Tiger, Biosphere reserves)

Study tips for CSIR NET UNIT 10: Develop a clear understanding of ecological concepts, use case studies for applied ecology, and create visual aids for ecosystem structures. Practice analyzing population growth curves and understanding the dynamics of ecological succession. Stay informed on environmental issues for a holistic approach to the topics.