

ECOLOGY

HABITAT AND NICHE

I MSc Zoology

MIDHILA MOHAN Associate professor on contract

HABITAT AND NICHE

CONCEPT OF HABITAT AND NICHE:

HABITAT:

The kind of place under which an individual or species is biologically adapted to live. Each habitat provides numerous niches. Competitors can coexist in the same habitat, but have separate niches.

MICROHABITAT:

Small area of intensive use within the habitat of an organisms ,
Eg Dead logs for salamanders, nest sites for birds.

NICHE:

Role or function of an organisms in the biotic community, includes
the kind of food (functional role) for an organism (functional role) and the

By analogy, the habitat is the organism's "address" and the niche is its profession.

Ecologically , nature tends to fill all niches with communities.

NICHE:

- ❖ The term niche was used for the first time by Grinnel(1971).
- ❖ The ecological niche of an organism is the position it fills in its environment. Comprising the conditions(the biotic and abiotic factors) under which it is found, the resources it utilizes and the time it occurs there , thus is the sum of all adaptations, use of resources and lifestyle for a positive population growth.
- ❖ The Eltonian Niche :

- Niches are very tough to define due to high dimensionality.
- Species have evolved to occupy their own ecological niche.
- Organisms that have evolved together for very long periods of time seem to reduce competition fill other niches.
- The three aspects of *ecological* niche are:
 - *Spatial / Habitat niche*: physical space occupied by an organism.
 - *Trophic niche*: functional role i.e. trophic position.
 - *Multidimensional / hypervolume niche*: position in environmental gradients.

. Multifactor/ Hypervolume/ Hutchinsonian niche.

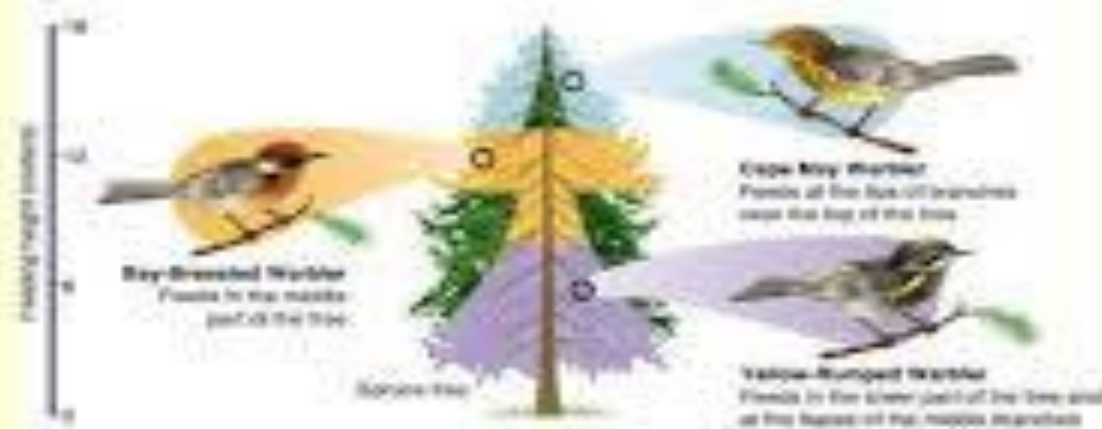
- Developed by G. Evelyn Hutchinson (1965)
- An N -dimensional hypervolume of suitable resources and conditions.
- The niche is the set of biotic and abiotic parameters that determine where a species can and cannot exist.
It is a fundamental niche

Multidimensional niche space:

Each condition or resource which defines the niche of an organism contributes one dimension to the space in which the organisms can occur. Considering all dimensions together defines fully the organism's niche and the multidimensional niche space.

Niche

- Each species occupies a niche in the community. A niche is the role the species plays, and includes the type of food it eats, where it lives, where it reproduces, and its relationships with other species.



Spatial Niche Partitioning



Closely related
bird species
occupy different
foraging locations
on a single tree
species

