Biogeography. Lecture 11

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Outline

Basics of ecology

Ecosystems and biosphere

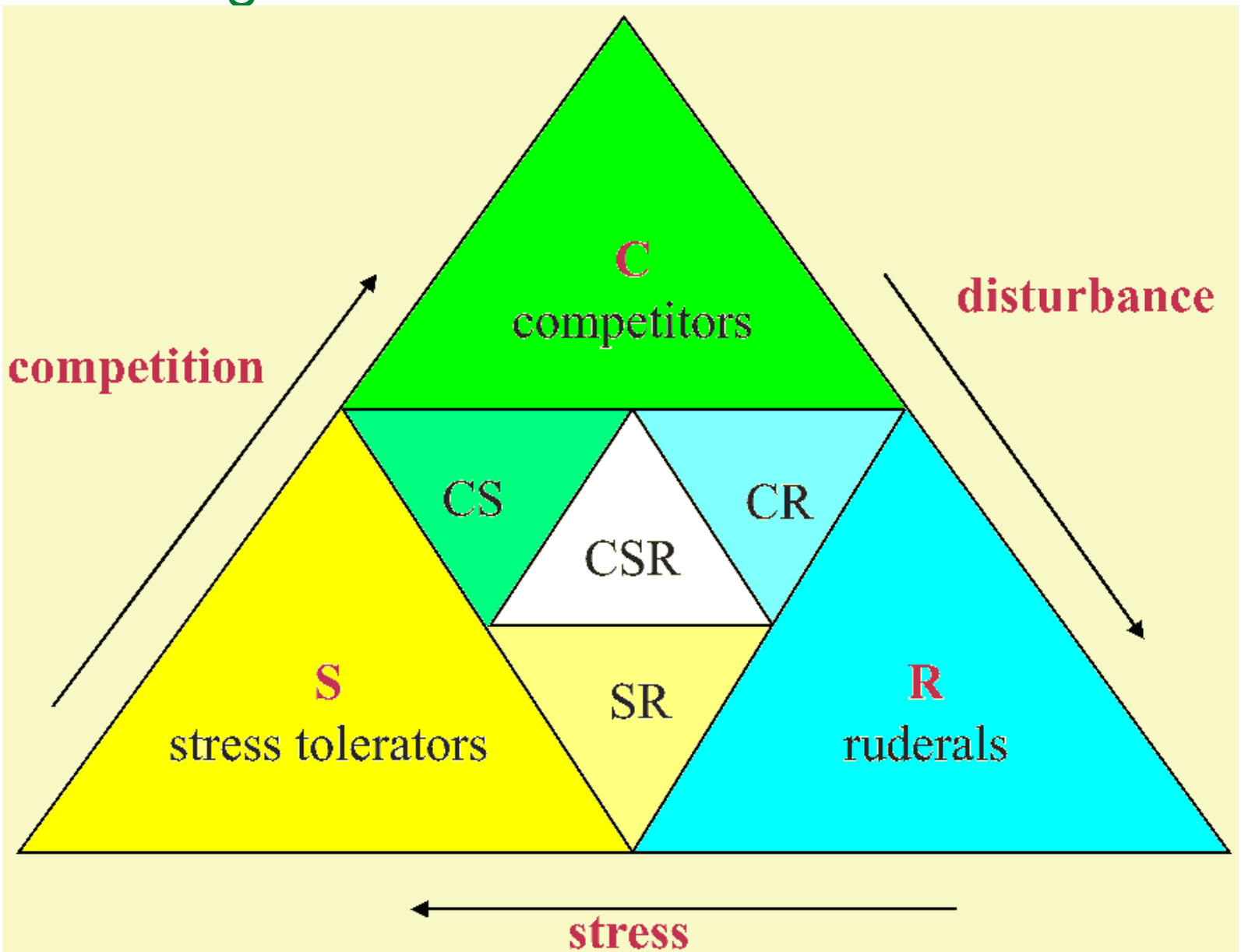
Basics of ecology

Ecosystems and biosphere

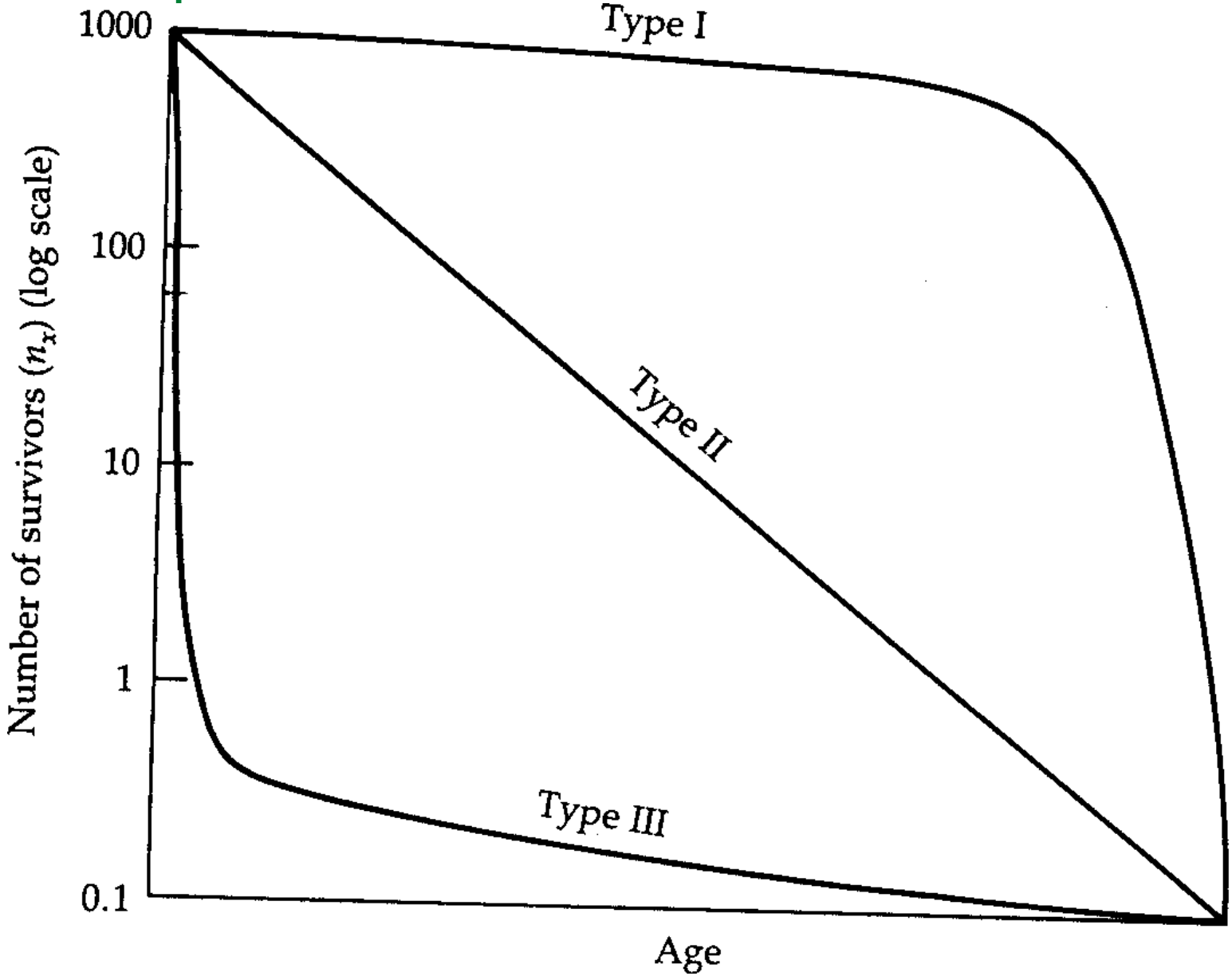
Populations

- Plant strategies: C (competitive), S (stress tolerant) and R (ruderal, or rapid propagation).
- Survivorship curves, population growth curves, r- and K-strategy

Grime's triangle



Survivorship curves



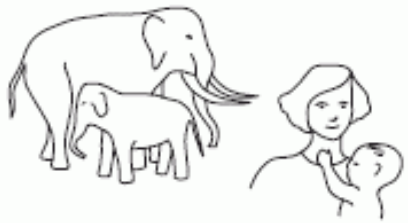
Strategies

r strategy

- Precarious equilibrium with the environment
- High rates of increase
- Violent and in some cases regular cycles of growth and decline

K strategy

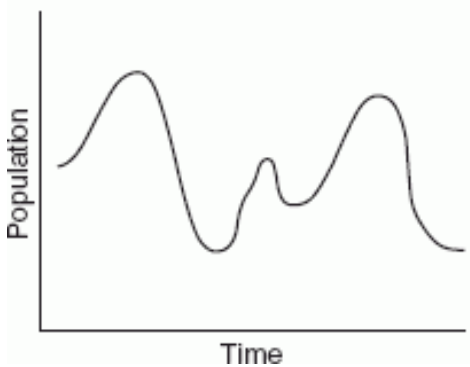
- Stable equilibrium with the environment
- Rates of increase compatible with environment
- Slow and irregular cycles

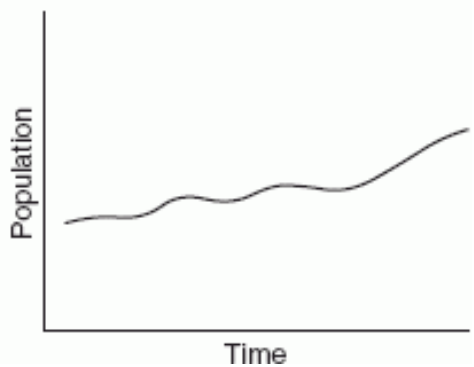


Bioreproductive characteristics

- Small bodies
- Short lives
- Short gestation
- Large litters
- Short intervals between births
- Short length of generation
- High potential rates of growth

- Large bodies
- Long lives
- Long gestation
- Single births
- Long intervals between births
- Long generations
- Low potential rates of growth

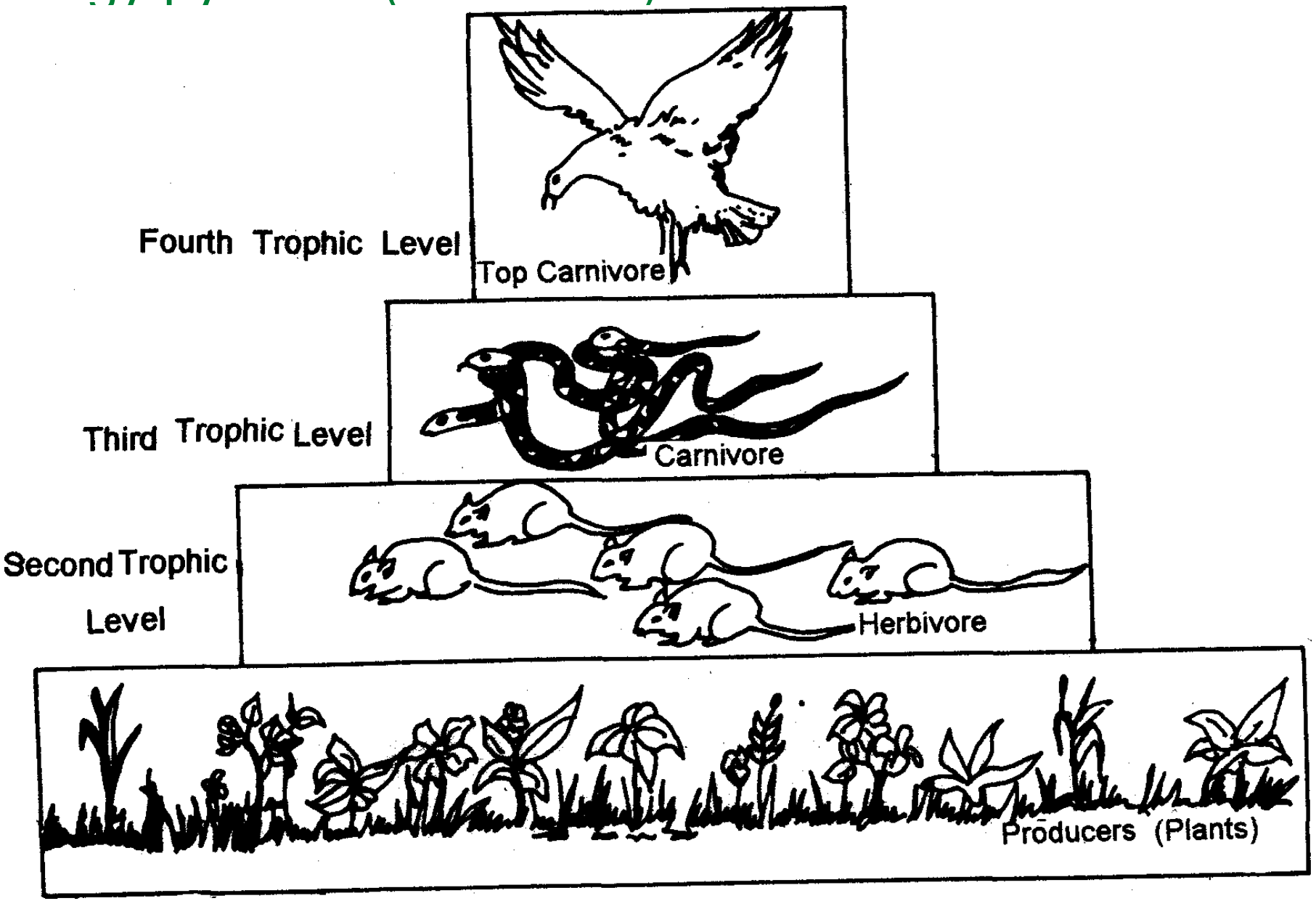




Food webs

- Plant-based: producer – herbivore (consumer I) – carnivore (consumer II) etc.
- Detritus-based: decomposer – detritivore – carnivore (consumer II) etc.

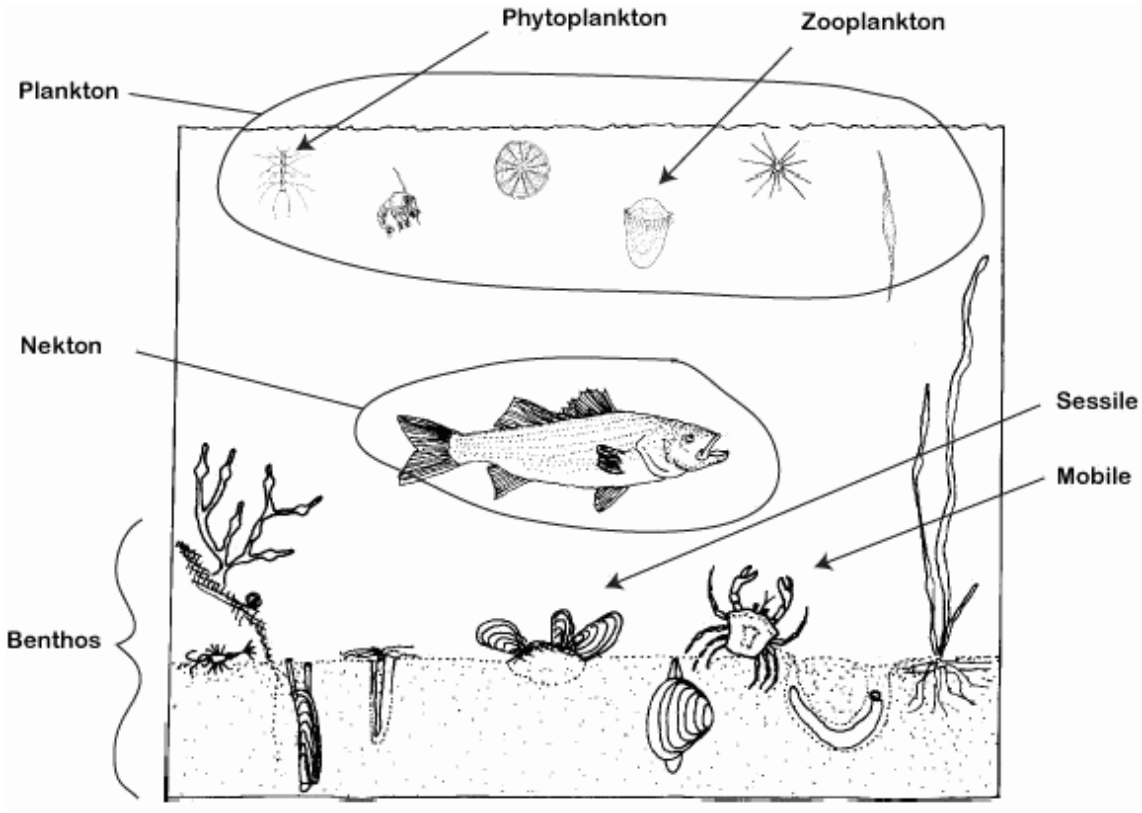
Energy pyramid (terrestrial)



Examples of ecosystems' structures

- Pond: phytoplankton, zooplankton, nekton, bentos
- Ocean: pelagic and litoral zones
- Forest: layers

Plankton, nekton and bentos



Succession

- Temporal chain of ecosystems
- Primary or secondary
- May start on bare minerals, river deposits, water
- May end with “climax”

Summary

- Ecosystems are self-reproduced and self-regulated units

For Further Reading

A. Shipunov.
Biogeography [Electronic resource].
2014—onwards.
Mode of access:
http://ashipunov.info/shipunov/school/biol_330

Ecology.
http://en.wikipedia.org/wiki/Ecology