

Biogeography

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Lecture 8

Outline

History of Life

The Really Short History of Life

Very Basics of Ecology

Ways of life

Ecological factors

Biotic ecological factors: ecological interactions

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History of Life

- The Really Short History of Life

Very Basics of Ecology

- Ways of life

- Ecological factors

- Biotic ecological factors: ecological interactions

History of Life

The Really Short History of Life

Introduction to Biogeography and Tropical Biology

http://ashipunov.info/shipunov/school/biol_330/intr_biogeogr_trop_biol/intr_biogeogr_trop_biol.pdf

Questions?

Very Basics of Ecology

Ways of life

Ways of life

- ▶ How to obtain energy?
 1. From sun light: **phototrophy**
 2. From chemical reactions with inorganic matter (“rocks”):
lithotrophy
 3. From breaking organic molecules into inorganic (typically, carbon dioxide and water): **organotrophy**
- ▶ How to obtain building blocks?
 1. From assimilation of carbon dioxide: **autotrophy**
 2. From other living beings: **heterotrophy**

Six life styles

	Phototrophs	Lithotrophs	Organotrophs
Autotrophs	Plants	Bacteria	Bacteria
Heterotrophs	Bacteria	Bacteria	Animals

Very Basics of Ecology

Ecological factors

Ecological factors

- ▶ Everything what surrounds organism
- ▶ Types of ecological factors:
 - ▶ Abiotic
 - ▶ Biotic
 - ▶ Anthropogenic

Abiotic: classification A

- ▶ Resources
- ▶ Conditions

Abiotic: classification B

- ▶ General (seasonal)
 - ▶ Temperature
 - ▶ Solar radiation
 - ▶ Content of environment (humidity etc.)
- ▶ Particular
 - ▶ Environment pressure (atmosphere pressure, gravitation etc.)
 - ▶ Environment movement (wind, currents)
 - ▶ Relief

Very Basics of Ecology

Biotic ecological factors: ecological interactions

Two-species model

- ▶ Species I and species II may influence each other differently
- ▶ For example, species I may facilitate the increase the number of species II individuals (+ interaction)
- ▶ At the same time, species II could be neutral to species I (0 interaction)

Six basic ecological interactions

	+	0	—
+	mutualism	commensalism ¹	exploitation ²
0	...	neutralism	amensalism
—	interference ³

¹ Includes phoresy (transportation), inquilinism (housing) and metabiosis (“sponging” like in sucker fishes)

² Includes predation, parasitism and phytophagy

³ Includes competition, allelopathy and aggression

Summary

- Ecology studies relation between organisms and environment

For Further Reading



A. Shipunov.

Biogeography [Electronic resource].

2014—onwards.

Mode of access:

http://ashipunov.info/shipunov/school/biol_330



A. Shipunov.

Introduction to Biogeography and Tropical Biology [Electronic resource].

2017—onwards.

Mode of access: [http:](http://ashipunov.info/shipunov/school/biol_330/intr_biogeogr_trop_biol/intr_biogeogr_trop_biol.pdf)

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