

# PARASITES – INCONVENIENT ELEMENT IN THE STRUCTURE OF ECOSYSTEM FOOD WEB

## Summary

One of the fundamental aspects of ecological investigation is to describe the flow of mass and energy in an ecosystem, that is to define the trophic relations among the co-occurrent organisms. These relations form the complicate web of trophic chains, in which the subsequent links indicate “who eats whom”. In handbooks of ecology the role of parasites in ecosystem functioning is often underestimated or even ignored, probably because that is rather difficult to find them in or on the other living creatures, and because they do not fit to some fundamental theoretical concepts of ecology. The examples: 1) consumer is bigger than its prey – parasites are always smaller than their host; 2) the higher trophic level the weaker vulnerability to predators – parasites may increase the vulnerability of their hosts to predators, and parasites which are at the top of the trophic chain may be in some circumstances a prey of the predators; 3) the number of organisms being eaten is higher than the number of eating organisms (more preys than predators) – generally one animal hosted several parasites, therefore the number of eating organisms is higher than the number of individuals being eaten.

The inclusion of parasites greatly complicates the food webs by increasing the number of trophic chains. The case of digeneans – with their complex life cycle – is the a remarkable example of such complications, especially because of the fact, that one parasite connects the hosts from at least two (or more) trophic levels. According to one of the concepts of classical ecology, the quantitative changes in one level of the trophic pyramid produce an ecological cascade of changes (often also qualitative) in all trophic levels. This is the case in the presence of parasites, which can play an important role in the regulation of the abundance of host populations. They may directly kill their host, decrease their physical condition, or by manipulation of their behavior make them more susceptible to predators; they may also reduce their reproductive success (fitness). The manipulation of host behavior may also have an impact on some physical characteristics of the environment, and, consequently, on the abiotic and biotic features of biocenosis. In a natural environment, the parasites should be regarded equally to free-living organisms, influencing both the structure and functioning of every ecosystem.