

Some Remarks Regarding the Hierarchy of Living Systems

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Abstract. *The hierarchy of living systems comprises three categories of systems with distinct structures and functions: the individual, the multiindividual and the multicoenotic ones. Individual systems are: the prokaryotic unicellular organism, the eukaryotic unicellular system and the pluricellular one. Multiindividual systems are the species and the biocenosis. Species, being differentiated regarding their ecological adaptations, can exist only associated in biocenoses (through their populations), never independently; this is why the biocenosis is the only natural multiindividual, ecological system, consisting of other multiindividual systems – species. Multicoenotic systems are: the biolandscape, the bioregion, the biozone (biome) and the biosphere. These systems comprise ensembles of different types of biocenoses and look like living covers of various sizes.*

Key words: hierarchy of living systems, organisms, biocenoses, species, living covers.

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1. Introduction

Since they started thinking and comparing, human beings became more and more aware of the diversity of the surrounding living world, of plants and animals (some similar, others different), of the communities they formed – on land or in the water – as well as of the way these communities were changing over time.

Data regarding these ascertainments are found in ancient writings, but they became the object of scientific research mainly during the last three centuries, when organisms, species, biocenoses and Earth's living covers were defined and thoroughly studied.

Some opinions regarding living world as a whole also emerged [43, 15] but the way this whole is actually made up became clear only after the theory of systems was postulated by Bertalanffy [2, 3, 4, 5] who developed this theory starting precisely from biological data.

A considerable amount of literature on the way systems theory was understood and applied has been written. Many hierarchies of these systems have also been advanced – quite different from one another (see tab. 1 and 2).

In Romanian scientific literature, these problems were diligently dealt with by professor Nicolae Botnariuc [6, 7, 8, 9, 10, 11, 12], who put emphasis on aspects which are essential for correctly understanding of the way the theory of systems should be applied in the living world; he also submitted some hierarchies of the living systems. A more detailed analysis of these topics can be found in his works „Evolutionism – at an