

THE EFFECT OF LANDSCAPE STRUCTURE ON BIODIVERSITY

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Landscape ecology is a new and continuously developing field of spatial ecology. Its primary focus is to understand the spatial and temporal heterogeneity of the environment. Nowadays it is very attractive to animal ecologists too, especially because of its applicability in nature conservation. The aim of the presentation is to present the dominant spatial models used in ecology and their efficiency to predict species distribution and spatial variation of community structure. The classical and actually used models are basically fragment based; this means, that they consider the ecological space as the sum of many clearly delimitable elements, patches. The spatial elements positively influencing population size and community richness are generally regarded as habitats. But if some spatial elements negatively affect organisms, they are regarded as matrix (or non habitats). This model is rooted in the theory of island biogeography, where the islands are regarded as habitats and the sea is inhospitable for terrestrial organisms. The fragment based spatial models had a huge impact on nature conservation strategies too. For example, delineating protected areas tacitly assumes that it is surrounded by an inhospitable matrix. Therefore many laws, directives and policies promote and restrict various management ways within and outside of protected areas. This model works to a certain extent in intensively managed landscapes (where land sparing for nature strategy dominates), however, it does not work in environmentally friendly managed landscapes. This is because in environmentally friendly managed landscapes the habitat-matrix character of ecological space is not obvious. In this presentation I present the new developments to approach ecological space in a way that includes agricultural production as well. These alternative approaches allow (i) the understanding of the role of traditional local knowledge in biodiversity conservation, (ii) the understanding of the dynamic of natural systems at various spatial and temporal scales and its links to land management and global changes and (iii) to understand the type and quality of ecosystem services and their links to management regime. These alternative approaches should not replace the existing approaches but complement them for the development of a more efficient conservation strategy of the biodiversity of Romania.