DESCRIPTION FOR GENERAL PUBLIC

Tree species growing even in the same forest differ in their allometric and architectural properties. These differences may be a one of mechanisms contributing to species coexistence. A famous hypothesis relates species coexistence of shade-tolerants to difference in their architectural properties. It says that there may be a trade-off between vertical growth, which enables species to attain a better lit position in the future, and horizontal growth, which enables species for more efficient assimilation even under shaded conditions. We would like to check if similar mechanism occurs in temperate forests of Poland. In our studies we will focus not on mature trees, but on young tree generation, i.e. saplings. We chose four tree species, which have a natural distribution range in Poland and can grow in shade, i.e. beech, fir, spruce and hornbeam. We would like to check if saplings of these species differ in their architectural and allometric properties when they grow in the same community. Do these variations contribute to species coexistence or maybe a particular strategy in architecture supports competitive superiority of a species? In addition, we would like to analyze how the same species differ in allometry and architecture when they grow in ecological gradients (in different elevation, forest types or light availability). Interspecific differences are expected to be more pronounced in deep shade, in low nutrient content sites and near altitudinal limit of a species. We assume that a one environmental factor can interact with other factors and compensates their deficiencies, for example better light availability can balance low nutrient content and architectural differences may be less pronounced. However, we need to verify our assumption with empirical data collected in the field. Our motivation to conduct this research is mainly curiosity. Moreover, the effect of stand vertical structure heterogeneity on species coexistence is still a poorly understood issue. Thus, our research is one of the dynamically developing current research topics in community ecology.