



## **Heterogeneity of hemiboreal forests related to ecosystems functioning.**

Dmitrii Krasnov, Steffen M. Noe, Alisa Krasnova, and Ülo Niinemets  
Estonian University of Life Sciences, Tartu, Estonia (dmitrii.krasnov@emu.ee)

Heterogeneity is one of the key components of sustainable development of every living system. Boreal and hemiboreal terrestrial systems have less biodiversity compared to tropical (or more southern). Heterogeneity provides the source for restocking of ecosystem living components, irregular distribution of nutrients, places for living (medium for living). Main components of forest horizontal heterogeneity are related to: horizontal distribution of dominant species, soil properties, topography and as natural as human disturbances. Soil as a main source for nutrient supply plays important role in the functioning of terrestrial ecosystems. The understanding of principles (regularity) of spatial distribution of such soil properties as soil acidity, available for living organisms nutrients, soil moisture and temperature, soil density and the role of tree dominant and co-dominant species can give deeper knowledge about ecosystem functioning. The models based on this knowledge can be more precise and give possibilities to predict behavior of ecosystem in terms of global climate change. The aim of the project is to assess spatial distribution and changing of soil properties related to spatial distribution of vegetation, microtopography and landscape position. The project was done in the frame of SMEAR Estonia.