



Heterogeneity of hemiboreal forests in relation to ecosystems functioning.

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Heterogeneity is one of the key components of sustainable development of every living system. It provides the source for restocking of ecosystem living components, irregular distribution of nutrients and habitats. Main components of forest horizontal heterogeneity are related with horizontal distribution of dominant species, soil properties, topography and as natural as human disturbances. Soil as the main source for nutrients supply plays essential role in functioning terrestrial ecosystems. The understanding of spatial distribution principles of such soil properties as soil acidity, nutrients available for living organisms, soil moisture and temperature, soil density and the role of tree dominant and co-dominant species can give deeper knowledge about ecosystem functioning. Models based on this knowledge can be more precise and give possibilities to predict more exactly the behavior of ecosystem in terms of global climate changing.

The aim of the project is to assess spatial distribution and changes in soil properties related to spatial distribution of vegetation, microtopography and landscape position. For this purpose we used 3D modelling of sample plots and soil profiles using photogrammetry. PhotoModelerScanner software from EOS System Inc. was used to create 3D models from photogrammetric images and GIS technology was used for soil mapping. The project was done in the frame of SMEAR Estonia.