



The sustainable management of ameliorated peatlands on changed land use conditions; scenarios of constrains and possibilities

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The utilization of organic soils for forestry or agriculture requires the land amelioration that could result on the peat losses from 15 to 20 t ha⁻¹ in a year on following five years. After five years, the peat losses will be 5 – 15 t ha⁻¹ in a year. The agricultural land resource on different types of organic soils (including ameliorated bogs) in Estonia is 360 000 ha that comprises 41% of total agricultural land area.

The landscape itself is a valuable resource that considered to be a set of characteristics that satisfy needs of people using the landscape: economical or non-economical value; ecological, social, recreational, aesthetical, educational, scientific or even protective value. More diverse landscapes have higher biodiversity and yield more services to public, they are also seen as more sustainable and resilient to short-term changes. In order to maintain landscape diversity, sustainable maintenance is important.

The purpose of current study was to estimate the land use potential on three different ameliorated peat areas and to develop the methodology for the further sustainable utilization in order to secure the best ecological functioning of soil while taking into account maintaining and increasing landscape value. Therefore, site specific soil sampling (n=77) was carried out on predetermined eight study sites. Soil samples were analyzed for main agrochemical parameters (n=17; pH_{KCl}, P, K, C%, N%, S%, ash, main anions and cations). This enables determining site-specific best suitable crops and land use scenarios.

For the land resource description (soils type, topology) the digital soil map (1: 10,000) and field study based database were used for describing the model areas. For more specific identification of the field layers the Agricultural Registers and Information Board (ARIB) and databases of the Common Agricultural Policy (CAP) payments were used for subsidy schemes checkout. Estonian Nature Information System map tool was used to specify the restrictions on study sites by nature conservation on the maps data about nature protected objects and buffer zones or forming restricted areas around those objects.

The results will indicate the utilization possibility and most sustainable scenarios for different land use cases. Moreover, the possible changes in soil functioning accordingly to site specific soil conditions will be discussed and presented.