



## **Revegetation processes and environmental conditions in abandoned peat production fields in Estonia**

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As a result of peat extraction, peat production has been finished in Estonia at different times in 154 peat production areas and 9,500 ha (1% of peatlands) are abandoned, although the peat reserves are not exhausted yet; besides, several areas are not properly recultivated. In addition 12,000 ha of fens (oligotrophic peat layers) are drained and used as grasslands.

If the abandoned and non-recultivated peat production areas are not vegetated, their CO<sub>2</sub> emission is considerable and peat mineralises in such areas. The aim of the study was to find out specific ecological and geological factors, which affect recovering of peatlands and influence the recultivation. During the revision the amount and quality of the remained reserves, as well as the state of water regime, drainage network and revegetation was assessed in all 154 abandoned peat production areas.

The study showed that the state of them is very variable. Some of them are covered with forest, prevalently with birches at former drainage ditches, later supplemented by pine trees. In the others predominate grasses among plants, and various species of moss (*Cladonia rei*, *Bryum caespiticum*, *Sphagnum riparium*, *Sphagnum squarrosum*) occur as well. Besides, some abandoned areas are completely overgrown with cotton grass. Open abandoned peat areas, which are not covered by vegetation, are much rarer.

We found out, that water regime among the factors plays most important role. Moreover abandoned peat production fields, where the environmental conditions have changed – are appropriate for growth of several moss species, which cannot inhabit the areas already occupied by other species. The most interesting discovers were: second growing site of *Polia elongata* in West-Estonia and *Ephemerum serratum*, last found in Estonia in the middle of the 19th century, was identified in central Estonia. Also *Campylopus introflexus*, what was unknown in Estonia.

However, the changes in environmental conditions influence the peat layers structure and technical characteristics of organic soils that affect the vegetation of peatlands.