REVEGETATION PROCESSES AND ENVIRONMENTAL CONDITIONS IN ABANDONED PEAT PRODUCTION FIELDS IN ESTONIA

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Peat extraction has long time in Estonia. At the end of 18th century, when the area of forests had decreased essentially due to excess cutting of trees, peat started to be used more extensively as fuel for industrial enterprises and households. Around the middle of the 19th century the use as litter widened.

For this purpose 14 thousand hectares of mires were rented out to cooperatives and farms before World War II. In the 1950s the peat milling was introduced. After that the area of peat milling fields grew rapidly, reaching about 25 thousand hectares in 1971. Afterwards the peat fields became exhausted gradually and by the beginning of the 1990s the area of exploited milling fields stabilized at about 15 thousand hectares.

As a result of the processes described above, peat production has been finished in Estonia at different times in 154 peat production areas and 9500 hectares are abandoned, although the peat reserves are not exhausted yet; besides, several areas are not properly recultivated. 12000 hectares of fens (oligotrophic peat layers) are drained and used as grasslands.

If the abandoned and non-recultivated peat production areas are not naturally vegetated, their CO₂ emission is considerable and peat mineralises in such areas.

The Ministry of Environment in Estonia initiated the revision of all 154 abandoned peat production areas; recently it is completed in all of them. The aim is 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 was assessed, as well as the state of water regime, drainage network and revegetation.

As the study covered such a great amount of abandoned peat production areas, it showed that the state of them is very variable. Some of them are covered with forest, prevalingly 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 find out, that water regime among the factors plays most important role.

Abandoned peat production fields, where the environmental conditions are changed, that are sparsely suit for growth of several moss species, which cannot inhabit the areas already occupied by other species. This is evidenced by several interesting and new finds made first during the revision.

This discovers are: second growing site of Polia elongata in West-Estonia, Ephemerum serratum, last found in Estonia in the middle of the 19th century, was identified in central Estonia.

Campylopus introflexus, unknown in Estonia, was identified in the material collected from two localities. So we see, if changes the environmental conditions, changes the plant species and peat layers structure and technical characteristics.

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