

Experimental preparation of raised bog rehabilitation in the process of peat-cutting.

Romas Pakalnis, Jūratė Sendžikaitė, Dalia Avižienė

Institute of Botany, Laboratory of Landscape Ecology; Žaliųjų Ežerų str. 49, LT-08406, Lithuania; romas.pakalnis@botanika.lt

The raised bog of Aukštumala occurs in the western part of Lithuania, the Nemunas River Delta. It is a *locus classicus* of peat land science because it is the first raised bog in the world described in the monograph (Weber C. A., 1902). At the beginning of the 20th century, extensive commercial peat-cutting started. In Soviet times, intensive peat-cutting covered two thirds of the total bog area (3018 ha). After the restoration of Lithuania's independence, Lithuanian Government established Nemunas Delta Regional Park (1992) with the Aukštumala Telmological Nature Reserve on the unexploited western part of the bog. Due to rare and protected plant species, communities and a large number of very different hollow-pools, this territory was included into a list of NATURA 2000. Nowadays peat-cutting in the eastern part of Aukštumala raised bog provokes draining of the neighbouring zone of the Aukštumala Telmological Nature Reserve and gives rise to negative changes in hydrological regime and protected vegetation cover. Unfortunately, Lithuanian peat-cutting enterprises haven't got enough experience in rehabilitation of exploited raised bog. Main objective of our project is to work out and implement by means of specific management the program of sustainable development for protection of Aukštumala Telmological Nature Reserve during peat-cutting in the neighbouring zone. Our proposal of technical and technological solutions for installation of original water level maintenance measures was implemented last year (2006). Hydrological monitoring of the telmological nature reserve shows high effectiveness of implemented measures. The second important part of the project on sustainable development of the Aukštumala Telmological Nature Reserve includes the measures on ecological restoration in the peat exploited fields. During peat-cutting process specific management measures, implemented in periphery of fields, will help to create slopes for future raised bog coastal zones. These slopes will be used in combination with water level maintenance measures. Our preference is spontaneous *Sphagnum-cover* and raised bog plant communities' reestablishment in a specially prepared peat extracted part of the raised bog. Scientific and experimental research data will form the basis of the further implementation of the project in the environment of the Aukštumala reserve, whereas the suggested recommendations may be applied in other peat extraction enterprises, which work in contact or buffering zones of protected natural complexes.