

Abstract No: A-137

PEATLANDS ON PERMAFROST: OPTIONS FOR MANAGEMENT AND RESTORATION FROM ARCTIC TO STEPPE

Tatiana Minayeva^{1,2}, Andrey Sirin¹, Marcel Silvius², Jozef Bednar², Jan Peters³, Hans Joosten⁴, Irina Kamennova⁵, Gennady Suvorov¹, Aleksandr Maslov¹, Maria Medvedeva¹, Anastasiya Markina¹, Dmitry Makarov¹, Natalya Valyaeva¹, Olga Tsyganova¹, Tamara Glukhova¹, Anna Vozbrannaya^{1,6}, John Couwenberg⁴, Arina Schrier², Inga Gummert⁴, Vladimir Panov⁷, Igor Semenov⁸ and Elena Lobanova⁹

¹*Institute of Forest Science Russian Academy of Sciences, Russian Federation*

²*Wetlands International, The Netherlands*

³*Michael Succow Foundation, Germany*

⁴*Greifswald University and Greifswald Mire Centre, Germany*

⁵*Wetlands International Russian Programme, Russian Federation*

⁶*Meschera National Park, Russian Federation*

⁷*Tver State Technical University, Russian Federation*

⁸*EthnoExpert, Latvia*

⁹*Agency of System Development, Russian Federation*

**Corresponding author: Tatiana.minaeva@wetlands.org*

Considerable areas of peatlands worldwide are represented by mire types whose origin and existence depend on permafrost. Currently the size of their area is underestimated. Mire ecosystems in some regions depend on permafrost as a source of water. On the other hand – the peat cover is protecting permafrost from thawing. These types of peatlands can be found in the tundra, the forest tundra and in northern taiga zones of Eurasia, in North America as well as in many highlands worldwide including semiarid and arid areas. Climate change and anthropogenic impact are equally responsible for permafrost thaw in most of the cases, accompanied by carbon loss and GHG emissions, both from degraded peat and permafrost itself. The paper presents cases from the Russian Arctic (Nenets Autonomous okrug) and Mongolia (Solongate Davaa and Orkhon valey) of dramatic changes in permafrost depth, followed by changes in mire vegetation, carbon losses and GHG emissions. Management and restoration options tested in the field or planned for implementation are described. A system of indicating the status of permafrost, organic matter content and prediction of emission factors by vascular plant species composition is developed for Arctic habitats. Also plant successions following the changes are described for the Mongolian sites mentioned above. The study is aimed to develop clear recommendations for planning, implementation, monitoring and assessment for management and restoration practices in peatlands on permafrost.

Keywords: *restoration, integrated approach, rewetting, mitigation, GHGs, boreal zone*