



Genesis and properties of forest semi-hydromorphic soils developed in lithologically discontinuous deposits in North-East of European Russia

D. Kaverin, E. Zhangurov

Institute of Biology, Syktyvkar, Russia (dkav@mail.ru / Fax: +7 8212-240163)

Lithologically-discontinued deposits (sands and loamy sands underlain by moraine loams) are one of the most widespread types of quaternary sediments in the North-East of Europe. Extensive distribution of these sediments causes the progress of swamping and gley processes and formation of semi-hydromorphic boggy-podzolic soils.

The profile-genetic method in study of soil properties allows revealing a diagnostic sign, on basis of which we can classify soils on lithologically-discontinued deposits at high taxonomic level. This feature is presence a texture (clay-illuvial) horizon BT within the soil profile. The semi-hydromorphic soils having this horizon following to principles of new soil classification of Russia are identified as the type of peaty-podzolic soils of department of texture-differentiated soils.

The semi-hydromorphic podzolic soils having distinct signs of Al-Fe-humus differentiation and no texture horizon, related to the type of peaty-gleyic podzols of the department of Al-Fe-humus soils. At the same time, formation of peaty-podzols in lithologically discontinued deposits with fine-textured bottom layer, approaches them morphologically to peaty-podzolic soils. Pedogenetic structuring of soil material similar to that in typical podzolic soils but less expressed.

The soils lacking genetic middle profile horizons (texture, Al-Fe-humus and others) referred to the type of peaty-podzol-eluvozems of the department of eluvial soils.

Soil formation on loose silicate rocks in hemi-hydromorphic positions within the taiga zone of European Russia is represented by two different pedogenetic processes: a) Al-Fe-humus differentiation (pedogenic differentiation of sesquioxides and organic matter according to the eluvial-illuvial pattern) and b) textural differentiation of the

soil profile owing to the selective destruction of clay in the eluvial horizon and the removal of clay from the eluvial horizon (lessivage). Characteristic features of these two major processes are seen in the profiles of peaty-gley-humus podzols developing from thick quartz sands and texturally-differentiated podzolic soils developing from homogeneous mantle loams. Soils developing in lithologically discontinued deposits can be considered as a transitional group between texturally differentiated podzolic and Al-Fe-humus soils.