Original article

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Soil Organic Matter and Carbon Stocks in Soils of Technogenic Landscapes in the Middle Taiga Subzone of the European North-East of Russia

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Abstract. *The article deals with the soils being formed during the restoration of forest ecosystems on post-technogenic territories in the middle taiga subzone of the European North-East of Russia (Komi Republic). The targets of research were quarries for the extraction of minerals (construction sand) and background areas in the vicinity of quarries. The work describes soils developed on different materials (fluvioglacial sands and sandy loams, moraine loams and ancient alluvial sands). The soil formation process is functionally related to the vegetation cover formation process. The study discovered the principles of soil organic matter accumulation during artificial and natural reforestation. In the middle taiga zone, the biogenic accumulation rates of organic matter are slow. Under automorphic conditions, the accumulation rate of Corg. in sand reached 0.07, in sand-sandy loam – 0.30, and in loam – 0.61 t/ha/year. By the end of the second restoration decade, the upper 20-cm soil layer accumulates 5.4 t organic carbon/ha in sand-sandy loam and 10.9 t organic carbon/ha in loam. The sandy soil accumulates 3.5 t organic carbon/ha by the end of the fourth restoration decade. The content of Corg. in young soils is by 2–5 times less than that in background podzolic soils.*

Key words: *middle taiga, forest restoration, primary soil formation, soil carbon*

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