

NEEDLE BIOMASS ACROSS A POLLUTION GRADIENT IN ESTONIA

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The research was carried out in the region of oil shale industry (Kohtla-Järve) and a cement factory (Kunda) in Northeast Estonia in 1996–1999. Large amounts of solid wastes emitted into the atmosphere in this region for decades have brought about alkalinisation of the environment, especially in the vicinity of Kunda. Needle biomass analysis of 75–85-year-old Scots pine and Norway spruce growing on sample plots in the polluted area and in the control area showed that air pollution has had variable effect on the parameters characterising the state of trees: fresh and dry mass of needles and dry matter content. Changes in the fresh and dry mass of the needles of conifers revealed a clear negative trend in sample plots closer to emission sources. With the fallen total air pollution load, some improvement of the state of conifers was estimated in recent years. A significant difference in the dry matter content of needles from the control was observed only in a few cases.