

VARIATIONS OF ELEMENT CONCENTRATIONS IN TREE RINGS OF SCOTS PINE (*Pinus sylvestris* L.) IN THE VICINITY OF AN OIL SHALE-FIRED POWER PLANT

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Temporal distributions of chemical elements in the growth rings of Scots pine and underlying relationships among xylem element concentrations and anthropogenic air pollution exposures on a territory influenced by an oil shale-fired power plant were studied. The study site is located at Narva-Jõesuu, approximately 11 km northwest from the oil shale fired Baltic Power Plant. Alkalinization of the soils caused by intensive industrial alkaline pollution has been detected. No relationships between the radial growth of trees and oil shale fly ash emissions of directly preceding years were detected. Significant positive relationships between radial growth and oil shale fly ash were detected if emissions older than 5 years were compared with the present growth. Concentrations of P, K, Zn, Cu, and Pb exhibited increasing general trends while the time trends for Ca, Mn, and Mg were decreasing. Considerable horizontal variation in the concentrations of Cr and Ni occurs but no general trend was observed. The results obtained for P, K, Zn, Cu, and Cr suggest strong relationships between the time trends in the concentrations of these elements and the amount of air pollutants deposited on the stand.