

Dissertation abstract

Traffic-related trace element accumulation in undergrowth plants and tree sti layers along the expressway

The study evaluated the impact of the S7 expressway on nearby forest ecosystems that were disturbed by an investment made 9 and 36 years ago. Various components of the forest ecosystems were analyzed to determine the concentrations of trace elements and sodium resulting from traffic effects. These elements included Cd, Cr, Cu, Ni, Pb, and Zn. Among the components tested, mosses exhibited the highest capacity for bioindication. The contamination of trace elements was also observed in pine needles. Additionally, tree bark was found to effectively capture pollutant deposits. The shape of the forest edge, characterized by a transition zone with a prominent shrub layer, played a significant role in the migration of contaminants into the stand. Notable zonal effects of contamination were observed in forest ecosystems adjacent to the road, particularly in relation to increased sodium deposition caused by the use of salt (NaCl) for road de-icing purposes.

Keywords: traffic, trace metals, sodium, bioindication