

Publication

Epidemiological estimate of growth reduction by ozone in *Fagus sylvatica* L. and *Picea abies* karst.: sensitivity analysis and comparison with experimental results**JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)**

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The critical level of ozone flux for forest trees is based entirely on biomass data from fumigation experiments with saplings, mostly in open-top chambers. Extrapolation to mature forests asks, therefore, for validation, which may be performed by epidemiological data analysis. This requires a multivariable regression analysis with a number of covariates to account for potential confounding factors. The present paper analyses the ozone sensitivity of volume increments of mature European beech (*Fagus sylvatica*) and Norway spruce (*Picea abies*), with the addition, or removal, of covariates. The comparison of the epidemiological dose-response relationship with experimental data shows very good agreement in beech and a more sensitive relationship in the epidemiological analysis of Norway spruce compared to the experiments. In Norway spruce, there was also a strong interaction between the effects of ozone and temperature; at high July temperatures, the ozone effect was stronger. This interaction may explain the disagreement between the epidemiological study and the experiments, of which the majority were performed in Sweden.

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