

## Observations on wind damage in permanent forest plots

Sabine Braun and Walter Flückiger  
Institute for Applied Plant Biology, 4124 Schönenbuch, Switzerland

In a network of permanent observation plots in Switzerland, the storm "Lothar" uprooted 18.7% of *Fagus sylvatica* and 14.8% of *Picea abies*. The percentage of uprooting was tested against various site and tree factors in a multivariate approach. The highest damages were observed in plots with medium age and slenderness coefficients. There was also neither a relation with seasonal ozone dose nor with crown transparency, crown size, social position and position within the stand. However, uprooting was significantly enhanced on soils with actual soil base saturation ( $\text{NH}_4\text{Cl}$ -extract of  $\leq 40\%$  (calculated as an average over 0-40cm depth) by a factor of 4.8 in beech and by a factor of 3.6 in Norway spruce compared to less acidic soils. In beech, the percentage of uprooted trees was also significantly correlated with nitrogen concentration in the leaves (positively) and with coarse pore volume in the soil (negatively). The proportion of broken stems which was observed only in Norway spruce did not show any relationships with the tested factors. The results suggest that anthropogenic stress factors play an important role in the extent of the "Lothar" damages in Switzerland.