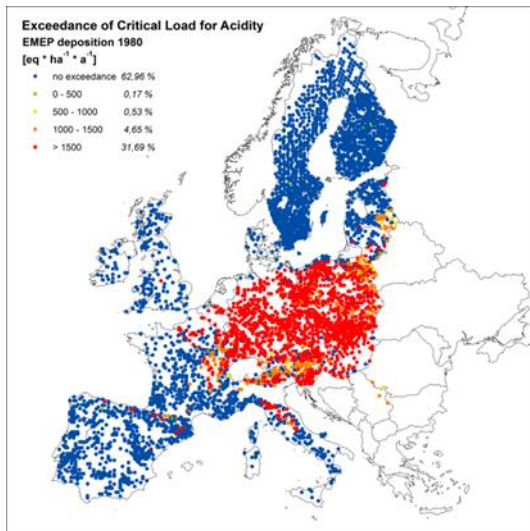


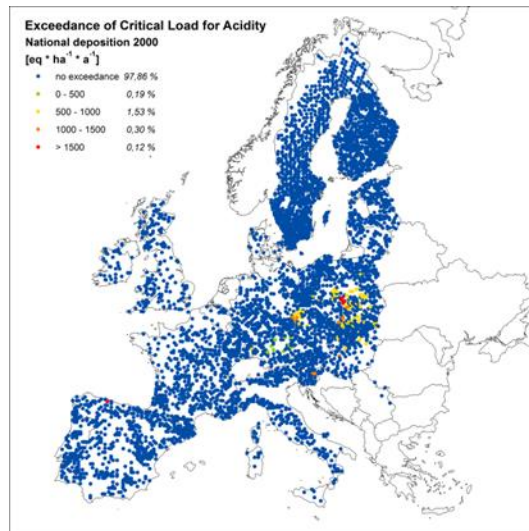
Exceedance of critical loads under different emission scenarios

For forest health and sustainable forest management the knowledge of stresses caused by atmospheric deposition is essential. Effect based thresholds are defined as critical loads and critical load exceedances indicate a risk of acidification and eutrophication. Applying this approach to about 4,600 forest monitoring sites the success of clean air policies is shown, starting in the 1980s with a clear reduction of sulphur emissions. For acidifying inputs the situation will considerably improve. In 2020, nearly all of the forest sites will be protected from acidification. For nitrogen inputs, however, the share of plots with exceedances decreased by 10% only between 1980 and 2000. The future scenarios show a further increase in the number of protected sites, but still would not protect all from risks through eutrophication. Studies including non-forest vegetation indicate that the total risk values are twice as high compared with risk for forest only. Dynamic modelling at forest monitoring plots allows taking into account the reaction and development of the system for the assessment of soil chemical changes over time. An integrated interpretation of base saturation, pH and C:N ratio in soil solution shows (i) a decreasing C:N ratio is the dominant trend after about 1970; (ii) a full recovery of pH values to preindustrial times after 2010; (iii) a slight tendency towards low base saturation classes between 1960 and 2000, without a tendency of recovery after 2010.

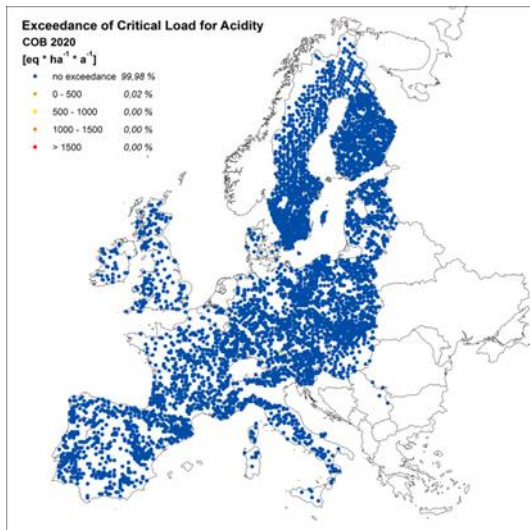
Further information and discussion of results are available in [FutMon Scientific Report](#)



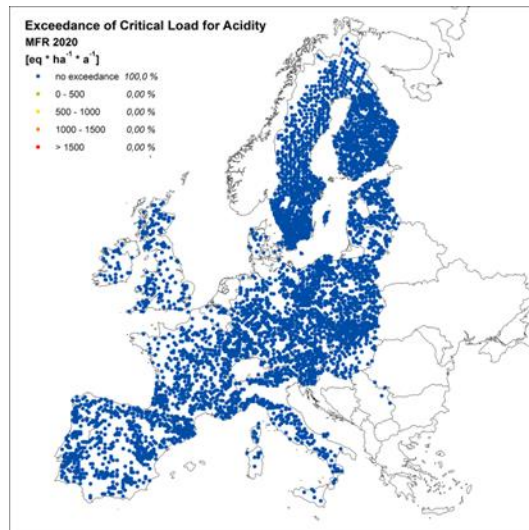
a



b

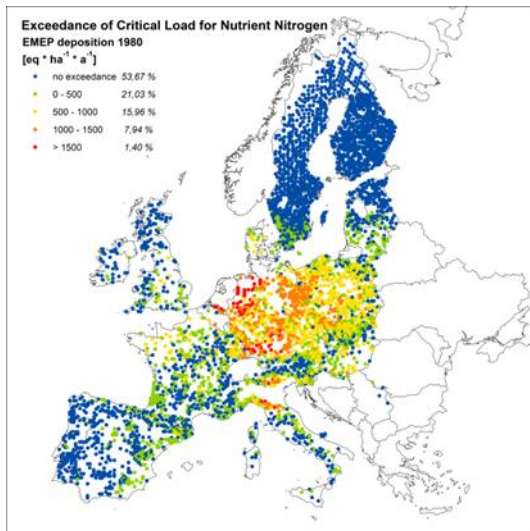


c

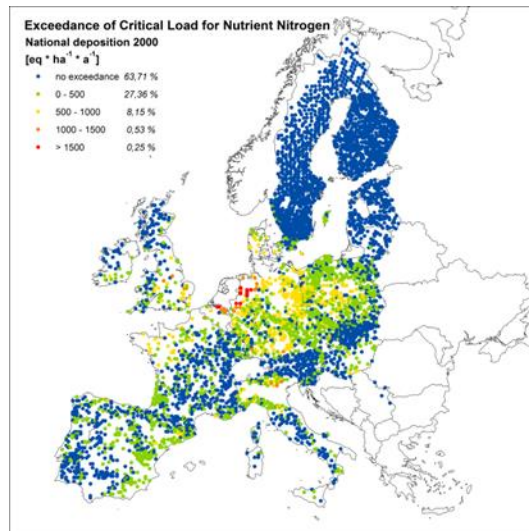


d

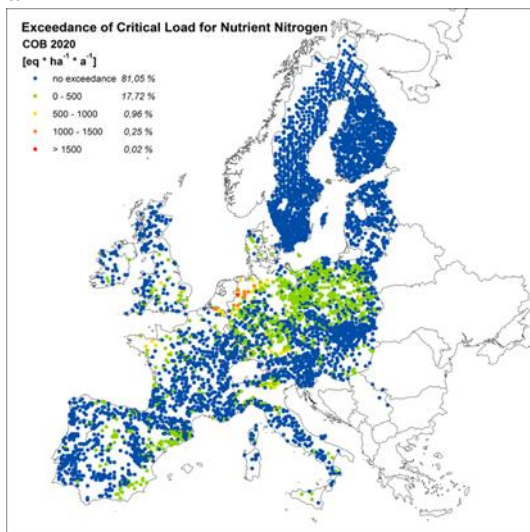
Exceedances of critical loads for acidity at Level I plots by the acid deposition resulting from the scenario a) EMEP1980, b) NAT2000, c) COB2020, d) MFR. - Results are calculated for the plots and not to be confused with the area related maps calculated by ICP Modelling and Mapping.



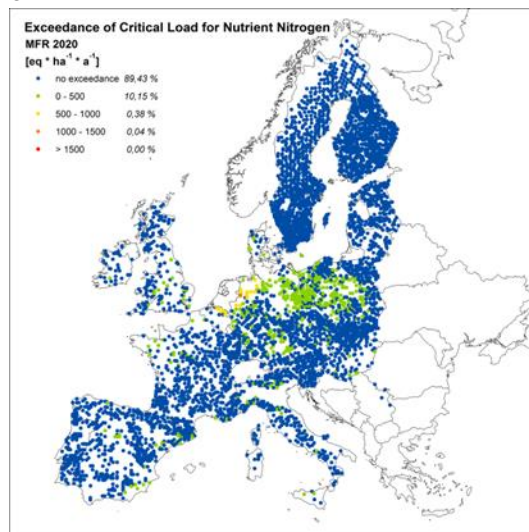
a



b

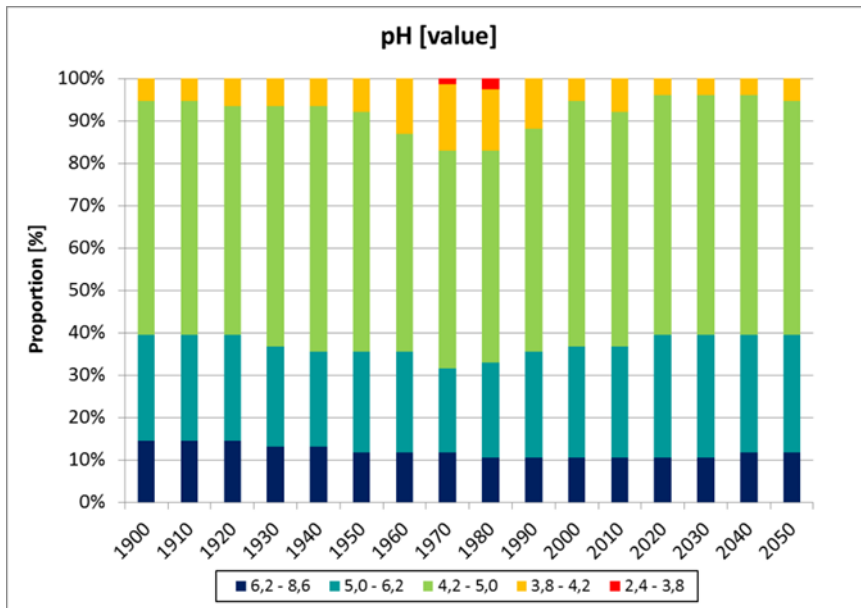


c

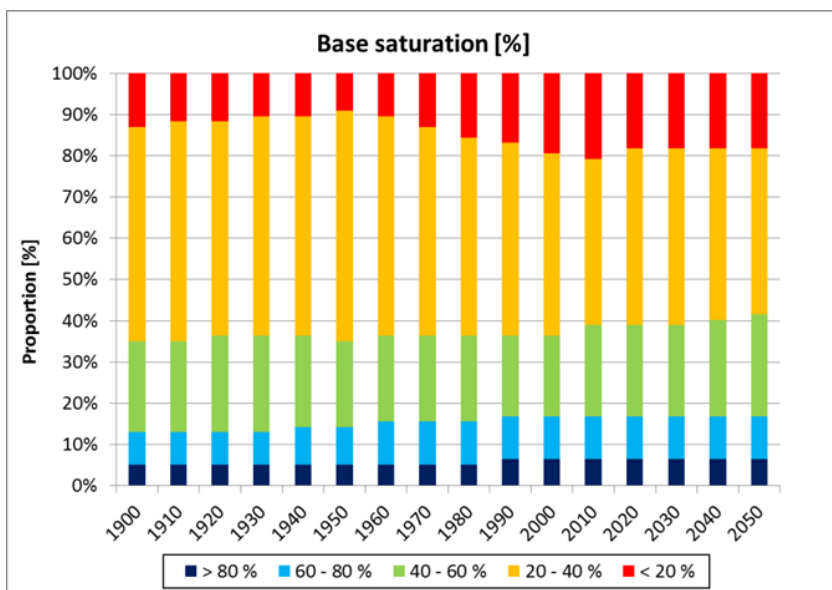


d

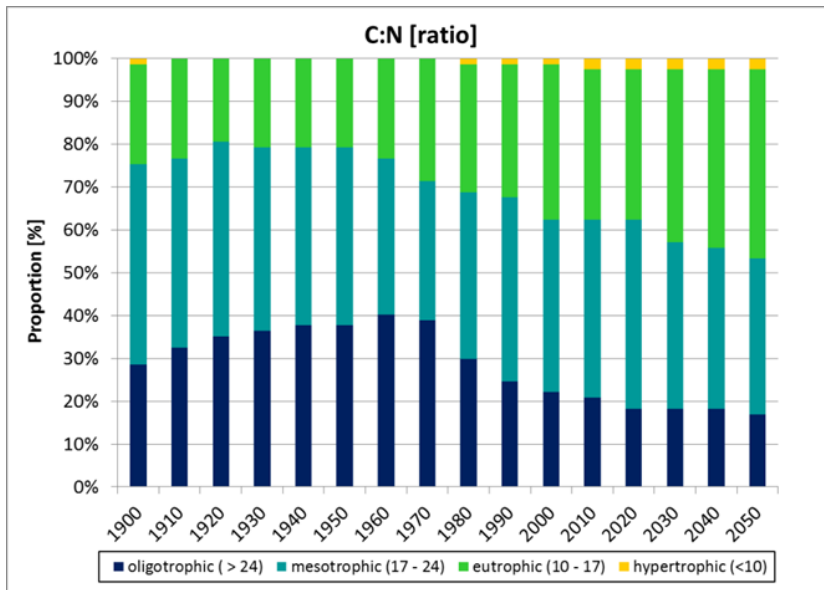
Exceedances of critical loads for nutrient nitrogen at Level I plots by the deposition resulting from the scenario a) EMEP1980, b) NAT2000, c) COB2020, d) MFR. – Results are calculated for the plots and not to be confused with the area related maps calculated by ICP Modelling and Mapping.



Overall trend modelled by VSD+ for pH values classified by buffering classes



Overall trend modelled by VSD+ for base saturation classes



Overall trend modelled by VSD+ for C:N ratio, classified by nutrient levels