

Advice on the changes in trends in nutrient nitrogen critical load exceedances.

Critical loads of nutrient nitrogen are applied to UK habitats sensitive to eutrophication. For managed (productive) woodland habitats a “mass balance” method is used which balances inputs of nitrogen to the habitat system with outputs of nitrogen from the habitat. For other semi-natural and natural habitats “empirical” critical loads are used; these are based on experimental and field evidence and are published as ranges of values agreed at international workshops under the UN Convention on Long-Range Transboundary Air Pollution (<http://www.unece.org/env/lrtap/WorkingGroups/wge/welcome.html>). The UK sets the critical load “mapping value” for each habitat mapped nationally using one or more values from within the range, based in most cases on UK evidence on the impacts of nitrogen deposition on the habitat (http://cldm.defra.gov.uk/Status_Reports.htm).

The ranges of critical loads were reviewed and updated at a workshop in the Netherlands in June 2010 (<http://www.rivm.nl/en/themasites/cce/workshops/index/index.html>). Based on the results of this workshop the UK critical load mapping values have also been reviewed. Critical loads of nutrient nitrogen are now mapped nationally for 13 habitats; three more than previously, including additional unmanaged (non-productive) woodland categories. Critical load values were lowered for five habitat types based on new UK evidence of the impacts of nitrogen.

To assess the trends in nitrogen critical load exceedance over time, the exceedance statistics have been updated for all years presented using the new critical load mapping values for the UK. However, the differences in deposition estimates between the years remain; these are:

- Deposition before 2002 excludes nitric acid and aerosol deposition.
- Deposition since 2002 additionally includes nitric acid (network not in operation prior to this).
- Deposition since 2003 additionally includes aerosol deposition of NH₄, NO₃ and SO₂.

The changes to the critical load mapping values result in an increase in the area of habitats where critical loads are exceeded by nitrogen deposition. Due to the lower critical loads for some habitats, the magnitude of the critical load exceedance has also increased (ie, the amount by which the critical load is exceeded by nitrogen deposition).

The area of UK habitats with nitrogen critical load exceedance (based on nitrogen deposition for 2006-08) increased from 58.4% using the earlier (2003) critical loads, to 71.2 using the updated (2010) mapping values. Overall the updated trends in critical load exceedances are similar to those based on the earlier (2003) critical loads, with only a small decline in the area exceeded between 1995-97 and 2006-08: this being a 7% reduction in the area exceeded using the earlier (2003) critical loads, and a 4% reduction over the same time period using the updated (2010) critical loads.

The results for acidity critical load exceedance remain unchanged.