FFH 4

EXCEEDANCE OF CRITICAL LOADS OF ACIDIFYING AND EUTROPHYING POLLUTANTS

Atmospheric deposition of sulphur and nitrogen pollutants, if in excess, is a major cause of ecosystem degradation (acidification and eutrophication). In particular, they can induce nutritional imbalances leading to the regression and disappearance of certain plant species.

A cross-border problem

The impacts of deposits of acidifying and eutrophying air pollutants (SO_x, NO_x, NH_3 and their derivatives) depend, on the one hand, on the quantities deposited on soils and vegetation (related closely to the quantities of pollutants released into the atmosphere) and, on the other hand, on the sensitivity of ecosystems. This is expressed by the critical load, which is defined as the maximum amount of atmospheric deposition of pollutants that an ecosystem can tolerate without long-term adverse effects. Sulphur and nitrogen pollution primarily comes from the combustion of fossil fuels by the transport and industry sectors and, for NH_3, from agricultural activity (volatilisation from livestock manure). The dispersion of pollutants is not restricted by national borders. Around 87% of the quantities of sulphur deposited on Walloon territory could be derived from discharges emitted by neighbouring regions and countries. For nitrogen, this figure would be around 78%[1].

Acidification: major progress. Eutrophication: the most fragile ecosystems still affected

Estimates[2] show that in 2013, less than 1% of Walloon forest areas were still affected by atmospheric deposition exceeding the acceptable critical load of acidifying compounds; other semi-natural ecosystems no longer showed an area exceeding the critical load for these pollutants. As regards eutrophying nitrogen, the situation for forest ecosystems has improved considerably: since 1990, the area of forest affected by critical load exceedances has gradually fallen, to 1.3% in 2010, although it rose again to 8% in 2013 (mainly due to the decrease in water flow in the soil[3] over the period 2009-2013).

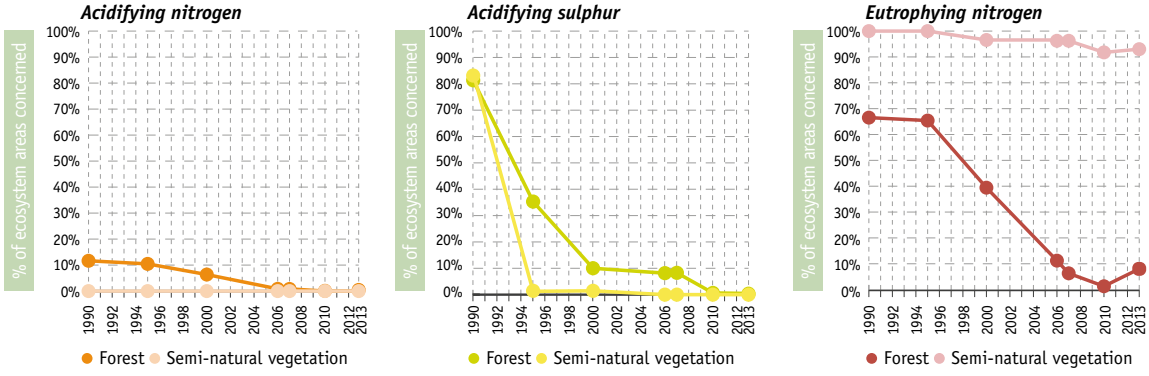
For other semi-natural ecosystems, particularly oligotrophic environments[4] which cannot tolerate excess nitrogen (even in small quantities), the situation has remained problematic: 93% of these open environments (heaths, fens, bogs, etc.)[5] were still affected by exceedances of critical loads of eutrophying nitrogen in 2013. Significant exceedances (≥ 3.5 kg N/(ha.year)) were still recorded, particularly in the northern part of the Sambre-et-Meuse line[6].

Continuing to reduce emissions of NH_3

The improvements observed demonstrate the positive impact of the measures implemented under Directive 2001/81/EC, which sets national emission ceilings for acidifying and eutrophying pollutants[7]. These measures have made it possible to limit atmospheric emissions of sulphur and nitrogenous pollutants in Wallonia[8]: between 1990 and 2014, a 91% reduction in SO_x emissions and a 53% reduction in NO_x emissions[9]. As for NH_3 emissions, they have been moderately reduced (-14%)[9]. The Air Climate Energy Plan 2016-2022 (*Plan air climat énergie 2016-2022 - PACE*)[10] lays down new measures to be implemented by 2022.

[1] Estimated on the basis of SITEREM *et al.* (2006) | [2] SITEREM *et al.*, 2016 | [3] And therefore the reduction in the amount of nitrogen leached out of the ecosystem | [4] Environments which are naturally nutrient-poor | [5] These ecosystems of high biological interest covered an area of almost 12,000 ha in 2012, or 0.7% of the regional territory | [6] → Map 43 | [7] This directive will be repealed on 01/07/2018 by Directive (EU) 2016/2284, which sets new and more ambitious targets from 2020 onwards. | [8] → AIR 2 & AIR 3 | [9] In line with the European trend | [10] www.awac.be ; → AIR Focus 3

Fig. FFH 4-1 Areas affected by exceedances of critical loads of nitrogen and sulphur in Wallonia*



Data generated from VSD and EMEP models

SOERW 2017 – Sources: ISSeP; SITEREM; SPW - AwAC; SPW - DGO3 - DEMNA