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Continued dry periods and nitrogen input are hazardous to biological diversity

Agriculture must reduce nitrogen deposition

Over the past four decades the volume of nitrogen released into the environment worldwide has tripled—and this trend is set to continue, posing a long-term risk to biological diversity. “Plants that thrive on nitrogen, e.g. nettles and boysenberries, are crowding out other species. Grassland is growing over entire habitat types adapted to conditions where few nutrients are present (e.g. raised bog and heath) and are at risk of being lost”, said Prof. Dr. Andreas Troge, President of the Federal Environment Agency (UBA). There are also problems occurring as a result of continued dry periods—as is presently the case in many regions in eastern Germany. The spread of nitrogen-loving grasses is a threat to water availability for forest trees during dry periods.

The excessively high nitrogen depositions owe to mass animal husbandry, the use of commercial fertilisers, and combustion of fossil fuels, which have an adverse impact on 98 percent of Germany’s sensitive natural habitats. Nitrogen causes acidification and eutrophication; that is, it over-fertilises soil. The resulting imbalance of nutrients and high acidity does damage to many plants and organisms living in soil. Adaptation to the conditions in an increasingly acidified and eutrophic environment reduces biological diversity. Plant species which have adapted to low-nutrient and less acidic conditions on poor soil -many types of lichen and orchids, for example- are already on the Red List of Threatened Species.

The National Emissions Ceiling Directive as well as the Geneva Convention on Long-range Transboundary Air Pollution stipulate that the Member States of the European Union must make significant cuts in eutrophication and acidification by the year 2010, as compared to 1990. In addition, the UN Convention on Biological Diversity (CBD) recognises the problem and identifies nitrogen pollution as a risk to biodiversity.

Achieving the required reduction of nitrogen deposition will require considerable efforts, especially in the agricultural sector. “95 percent of nitrogen in the form of ammonia comes from agriculture, which is why there is much to be done to reduce nitrogen deposition from this industry”, said Troge. “Farmers can cut nitrogen depositions by optimising feed and using less nitrogen-based fertiliser on crops. Liquid manure should first ferment in biogas systems

and then be spread as fertiliser on fields. This will reduce nitrogen input and produce climate-friendly energy at the same time.”

Further information on the strains placed on ecosystems by nitrogen deposition is on the UBA web pages about Germany's environmental data (*Umweltdaten für Deutschland*) at

<http://www.umweltbundesamt-umwelt-deutschland.de/umweltdaten/public/theme.do?nodeId=3596>.

A study done by the European Environment Agency (EEA) on indicators for monitoring loss of biodiversity can be downloaded free of charge from:

http://reports.eea.europa.eu/technical_report_2007_11/en/Tech_report_11_2007_SEBI.pdf.

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