Preface

This volume describes the fruits of the International Expert Workshop on Nitrogen Deposition, Critical Loads and Biodiversity that was held on 16-18th November 2009, in Edinburgh, UK. The need for the workshop emerged as a result of discussion within the International Nitrogen Initiative (INI)—a joint project of the International Geosphere Biosphere Programme (IGBP) and the Scientific Committee on Problems of the Environment (SCOPE). The INI highlighted that, while there was a wealth of evidence on the magnitude, components and effects of atmospheric nitrogen deposition on floral biodiversity in Europe and North America, there was an obvious lack of information on impacts on above- and below-ground fauna and all impacts in other parts of the world, with no clear overview of how the different strands of evidence fitted together.

Building on underpinning funds from the Packard Foundation, INI therefore joined forces with several other initiatives—the COST 729 and Nitrogen in Europe (NinE) programmes of the European Science Foundation (ESF) and the European Union Integrated Project NitroEurope, together with the US Environmental Protection Agency, the Ministry of Infrastructure and the Environment (Minienm; formerly VROM), the Netherlands, the Stockholm Environment Institute (SEI), and the Centre for Ecology and Hydrology (CEH). The result was the basis to invite the world’s leading experts on nitrogen deposition and its effects to Edinburgh to share experience and debate the future challenges.

It is important to recognize, however, that this could not be a purely academic endeavour. As has been shown by the Expert Workshop, atmospheric nitrogen deposition represents a major threat to the biodiversity of many of the world’s most precious ecosystems. With this in mind, it was essential to place the workshop in the context of international actions to manage air pollution and biodiversity. The leading agreements of the United Nations in this regard are the Long-Range Transboundary Air Pollution (LRTAP) Convention, under the United Nations Economic Commission for Europe (UNECE), and the Convention on Biological Diversity (CBD), which has a global coverage. Although each Convention is highly relevant, they have very different ways of working, and, until the Edinburgh meeting, there had been insufficient working contacts between them. The Workshop therefore included a specific objective to bring together leading experts from both Conventions as a ba-
sis for improving cooperation and mutual understanding. At the same time, the policy drive of the Conventions would feed back to inform the future scientific agenda.

The outcome was a joint workshop between experts from both the LRTAP Convention and the CBD, together with many other leading experts globally. In total, 140 experts from 30 countries participated, representing most continents and regions of the world. The proceedings and conclusions of the Expert Workshop are reported in this volume, while selected papers (see Appendix) are further developed in a Special Section of the journal Environmental Pollution (Goodale et al. 2011). In parallel the outcomes have been reported to the LRTAP and CBD processes (UNECE 2009).

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References
