PREFACE

BIOGEOCHEMICAL CYCLES IN TEMPERATE FOREST ECOSYSTEMS

This volume of *Gayana Botanica* contains most of the papers presented at a workshop held at the Universidad Austral de Chile, Valdivia, from 11 to 13 November 2002. The workshop was organised as part of a research project titled "Comparison of ecosystem functioning and biogeochemical cycles in temperate forests in southern Chile and Flanders" supported by the Science, Innovation and Media Department of the Ministry of the Flemish Community (Flanders), and the Universidad Austral de Chile (Chile).

The main aim of this project was to improve knowledge of the relationships between hydrological processes and biogeochemical cycles in temperate forests in two regions with contrasting levels of atmospheric pollution. Whereas Flemish forests have been subject to high pollution levels for many decades, those of southern Chile can be considered as among the pristine remaining on the planet.

Several Chilean and Flemish research groups were involved:

- Instituto de Geociencias, Facultad de Ciencias, Universidad Austral de Chile.
- Instituto de Botánica, Facultad de Ciencias, Universidad Austral de Chile.
- Laboratory of Forestry, Department of Forest and Water Management, Ghent University.
- Laboratory of Physical Chemistry, Department of Applied Analytical and Physical Chemistry, Ghent University.
- Laboratory of Hydrology, Department of Forest and Water Management, Ghent University.
- Laboratory of Soil Fertility and Soil Biology, Catholic University of Leuven.

The papers presented in the workshop proceedings cover diverse aspects of ecosystem nutrient dynamics. Gene Likens summarises

approaches and key findings of work carried out at the Hubbard Brook Experimental Forest. J. Staelens *et al.* compare dry deposition and canopy exchange of base cations in temperate hardwood forests in Flanders and Chile. The other seven papers address aspects of phosphorous and nitrogen dynamics. C.H. Lusk *et al.* report evidence of seasonal variation in N & P fluxes in litterfall in a Chilean evergreen rainforest. F. Borie & R. Rubio review data on phosphorus availability in Chilean volcanic soils, whereas M. Drouillon and R. Merckx examine P-mobilization mechanisms in soils of this type from several regions of the world. A new method for the determination of phosphatase activity in ectomycorrhizae is presented by M. Alvarez *et al.*, using material from *Nothofagus* forest in southern Chile. R. Godoy *et al.* present a review of atmospheric nitrogen deposition in Chile, while C. Oyarzún & A. Huber report the effects of landuse changes on N export from watersheds in southern Chile. And, neither last nor least, C. Perez *et al.* report on nitrogen fluxes (N mineralization, non-symbiotic N fixation and denitrification) in the evergreen forests of Chiloé island, and compare their data with those from other regions.

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