



## Restoration of *Sphagnum* dominated peatlands

Research on the restoration of *Sphagnum* dominated peatlands has emerged as a new scientific field in the last fifteen years. The need to restore peatlands was partly induced by the wider recognition of wetland values in the landscape and the recent extensive commercial uses of peatlands for horticultural products, cranberry production, energy fuels, etc. The first attempts to restore peatlands were broadly empirical. In the last few years, several studies focused on identifying the barriers to rapid primary/secondary succession of *Sphagnum* species and trying to restore (or measure the return of) different ecosystem functions of a peatland. Consequently, we decided to organize a symposium under the sponsorship of the International Peat Society during their 11th International Peat Congress (*Sustaining Our Peatlands*) in August 2000, Québec City, Canada. This congress was held under the umbrella of *The Millennium Wetland Event* in collaboration with the Society of Wetland Scientists, the International Association of Ecology and the International Mire Conservation Group.

This symposium was divided into two general themes reflecting 1) regional issues, and 2) process approaches. Likewise we are reporting the speakers' manuscripts in this special issue in the following order:

### Regional issues:

1. L. Rochefort, F. Quinty, S. Campeau, K. Johnson and T. Malterer – *North American approach to the restoration of Sphagnum dominated peatlands.*
2. C.A. Farrell and G.J. Doyle – *Rehabilitation of industrial cutaway Atlantic Blanket Bog in County Mayo, North-West Ireland.*
3. J. Whinam, G.S. Hope, B.R. Clarkson, R.P. Buxton, P. Alspach and P. Adam – *Sphagnum in peatlands of Australasia: Their distribution, utilisation and management.*
4. H. Vasander, E.-S. Tuittila, E. Lode, L. Lundin, M. Ilomets, T. Sallantausta, R. Heikkilä, M.-L. Pitkänen and J. Laine – *Status and restoration of peatlands in northern Europe.*

### Process approaches:

5. J.S. Price, A.L. Heathwaite and A.J. Baird – *Hydrological processes in abandoned and restored peatlands: an overview of management approaches.*
6. J.M. Waddington, L. Rochefort and S. Campeau – *Sphagnum production and decomposition in a restored cutover peatland.*
7. C. Lavoie, P. Grosvernier, M. Girard and K. Marcoux – *Spontaneous revegetation of mined peatlands: A useful restoration tool?*
8. E. Gorham and L. Rochefort – *Peatland restoration: A brief assessment with special reference to Sphagnum bogs.*

Peat has long been used as a fuel, but since the 19<sup>th</sup> century commercial use has caused larger scale degradation, especially in Europe (Farrell and Doyle, this issue; Vasander et al., this issue), but increasingly so in other parts of the globe including North America (Rochefort et al., this issue) and Australasia (Whinam et al., this issue). In Europe, up to 90% of the original peat surface has been drained, used for peat extraction or converted to agricultural land. Today, there exist many highly fragmented peatlands that either continue to be modified or disrupted by human activities, or are simply abandoned (Lavoie et al. this issue). Land managers are confronted with complex situations which require them to: a) evaluate the possibility of regenerating peatlands that have small surface areas and disrupted hydrology; b) prioritize the protection of habitats and species while recognizing that degraded peatlands may also have nature conservation value; c) balance conflicts of interest occurring within the social economic aspect of land use (Gorham and Rochefort, this issue).

The primary aim of most restoration measures after industrial peat cutting is the establishment of *Sphagnum*-rich vegetation that within a few years, begins to reestablish the hydrological (Price et al., this

issue), carbon fixation (Waddington et al., this issue) and ecological processes common to these type of peatlands. The restoration process can be significantly accelerated by passive or managed rewetting (Price et al., this issue), sowing and planting of both pioneer and target species then fertilization and mulching (Rocheffort et al., this issue).

It is our hope that the content of this special issue will truly be useful for researchers to further seek the scientific tenets of reliable ecosystem restoration and

to practitioners to achieve successful peatland restoration. We would like to end with special thanks to the Canadian Sphagnum Peat Moss Association and its members who have generously helped with the sponsorship of several speakers participating in our symposium.

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