

# **Forest Ecosystem Management in the 21<sup>st</sup> Century**

## **Proceedings of the Scientific Seminar of the Annual Conference of the European Forest Institute**

**Dublin, September 2009**

### **Foreword**

The Annual Conference of the European Forest Institute (EFI) was held in Dublin Castle, in September 2009. The European Forest Institute is the leading forest research network in Europe. It is an international organisation established by European States; currently, 22 countries, including Ireland are members of EFI. It has an extensive network of 125 Associate Members, universities and research institutes, including four from Ireland, Coillte, UCD, COFORD<sup>1</sup> and IFIC.

The Annual Conference is the annual business meeting of the Institute. A Scientific Seminar is held in conjunction with the Annual Conference. The theme of the Dublin seminar was forest ecosystem management in the 21<sup>st</sup> century.

Scientific forest management has until recently, been directed at one product of the forest only, wood. This involved regulation of the harvest so as to ensure a constant supply of timber, in perpetuity. The forest, in particular the plantation forest, was seen as a wood factory.

This view of the forest has changed within the past three decades. The forest is now valued for the wide range of goods and services it offers. The need to manage the forest in order to produce multiple benefits is now recognised. In effect, forest managers are being called upon to act as ecosystem managers. This can be difficult because in many cases, forests established with the single objective of wood production are now expected to deliver wider benefits. In addition, foresters trained within the narrow constraints of traditional forest management, are being called upon to deal with the broader issues of multifunctional management. The proceedings of the seminar address the 21<sup>st</sup> century view of the forest.

Climate change is one of the great issues of our generation. Kremer, in his paper, considers the evolutionary response of naturally occurring tree species to climate change. The rapidity of changes in climate gives rise to concern about the ability of trees to adapt to this change. While the potential of species to migrate to more favourable climates is limited, natural selection may allow sufficient local adaptation for the survival of a species. It is recommended that managers consider introducing

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<sup>1</sup> COFORD (National Council for Forest Research and Development) is now an agency within the Department of Agriculture, Fisheries and Food.

non-local seed or plant material into native populations in order to increase genetic diversity and adaptive capacity.

Black and his co-authors address the impact of climate change on the potential productivity of our forest estate, consisting as it does, almost entirely, of introduced species. Understanding the potential impact of future climate change is key to developing adaptation and mitigation strategies. Adaptive strategies should be based on empirical and processed-based approaches using ecological site classification as the spatial framework.

Climate change is closely associated with the global carbon cycle. Forests can make a significant contribution to the mitigation of greenhouse gas emissions. Ireland's plantation forests are a net sink for carbon and contribute significantly to national greenhouse gas reduction targets under the Kyoto Protocol. However, as pointed out by Byrne in his paper, "The role of plantation forestry in Ireland in the mitigation of greenhouse gas emissions", it is essential that we maintain our afforestation rate at 15,000 ha yr<sup>-1</sup> for the next two decades. Failure to do so may lead to Kyoto forests becoming a carbon source in the future as carbon removals through harvesting are not compensated by carbon sequestration.

The importance of forests, including plantations, for outdoor recreation and human health is being increasingly emphasized in numerous policy and research documents. Hahn et al. discuss the contribution of urban forests (and afforestation in general) to human health and well-being. They anticipate that, in the future, we will see an increasing need for developing some plantation forests specifically to serve the public health and welfare sector. There is a growing recognition too, that outdoor education makes an important contribution to the physical, personal and social education of young people. There is a need for strategic planning on how to manage the growing need for sporting activities (mountain-biking, gps/geocaching, tree-climbing, off-road (motorized) skateboards etc.), reconciling them with the aspirations of those who go to the forest in search of peace and tranquillity.

The development of the ideas and recommendations put forward in the seminar must be underpinned by well-resourced and long-term research programmes. This is a central theme of Hendrick's paper, "Forest research for 21<sup>st</sup> century Ireland". Forest research is needed to provide guidance to policy makers and practitioners through scientifically-based, timely and well-communicated information. His comprehensive treatment of the topic covers the purpose of forest research, the contribution of research to forest policy, development of research priorities, research funding and dissemination of research findings.

The Conference was a fitting celebration of Ireland's accession to membership of the European Forest Institute. The vision of forestry presented at the seminar was enlightening and can serve as a guide to forest management in the future and to the education which must underpin it.

**Edward P. Farrell**