

Management for biodiversity in Ireland's contemporary forests

Dr Sandra Irwin reports that a better understanding of existing biota will help foster greater diversity in Irish forests.

Today less than one tenth of Ireland's total geographical area is covered in forest, the lowest proportion of all EU member states. Clearance of Ireland's native forest resulted in a reduction from 80 per cent forest cover at the end of the last ice age to less than 1 per cent at the beginning of the 20th century. Because of the biologically diverse nature of our native forests, their felling brought with it the loss of associated flora and fauna. Although little native woodland remains in Ireland today, the total forest cover has once again increased through afforestation programmes supported by the Irish government, whose strategic plan aims to increase forest cover to 17 per cent by 2030. These new plantations are managed principally for timber production, and dominated by non-native trees, particularly North American conifers such as Sitka spruce (*Picea sitchensis*) and lodgepole pine (*Pinus contorta*) although in recent years there has been an increase in planting of broadleaved species such as oak (*Quercus* spp) and ash (*Fraxinus excelsior*). Despite a recent surge in the establishment of privately-owned plantations the majority remain in public ownership. Careful management of Ireland's forests is essential to ensure that the biodiversity they support is not threatened. While this goal is achievable, in order to promote forest biodiversity and fully practice sustainable forest management, it is necessary that we first have a comprehensive understanding of the biota associated with our forest plantations.

To this end COFORD, together with the EPA (Environmental Protection Agency), funded the BIOFOREST research project aimed at gathering much-needed, basic information on biodiversity in Irish plantation forests. This project ran from 2001 to 2006 and brought together researchers from UCC, TCD and Coillte Teoranta in a multi-disciplinary study of biodiversity in Irish plantations forests during their first rotation. The focus of that research was to illustrate the effects of different aspects of management on biodiversity within forests, from the planning stage through to the mature forest.



Above, Orange Tip Butterfly, *Anthocharis cardamines*, (*Oisin Sweeney*).

Right: UCC Post-doc, Mark Wilson, on fieldwork. (*Oisin Sweeney*).
 Plantforbio researchers, Linda Cooe and Karen Moore at Kilmacreea, Co Wicklow (*Frazer Mitchell*)



sites has commenced. The programme will also include comparisons with native semi-natural woodland and will assess the diversity of birds, invertebrates and plants will be investigated both on the ground and in the forest canopy to capture the three dimensional aspect of forest biodiversity. The team that successfully worked together on the BIOFOREST project has once again come together to conduct this research and is joined now by experts from WIT. The team comprises full time academic staff, post-doctoral and post-graduate researchers and a number of research assistants. Through an array of integrated research investigations this work will build on BIOFOREST and will ultimately lead to recommendations on ways to manage different forest types for biodiversity conservation and enhancement.

The new PLANFORBIO research programme also includes individual studies of two species of conservation interest. Rhododendron is a non-native shrub which is invasive in several Annex 1 habitats in Ireland listed under the EU Habitats Directive. Although Rhododendron thickets provide cover for birds and other animals the overall impact on diversity in affected habitats is strongly negative as the deep litter and dense canopy enable Rhododendron to shade out ground vegetation and prevent regeneration of trees in native forests. Quantification of risk and development of improved control measures for Rhododendron are therefore required and form the core of the work in this project. The second species-specific project focuses on conservation of the Hen Harrier (*Circus cyaneus*) in Ireland in relation to land use and land use change. The Hen Harrier

is listed in Annex 1 of the European Union Birds Directive, and Ireland is obliged to designate Special Protection Areas for the species, and to specify appropriate land use and management within the SPAs. Dedicated research under the PLANFORBIO programme aims to inform these decisions and increase our knowledge of Hen Harrier habitat usage and breeding biology at landscape level.

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The results of the project were encouraging and it concluded that the promotion of biodiversity in forestry requires the support of good policies and practices. Recommendations arising from the project addressed many aspects of forestry from strategic planning to localised planning and practice.

Following on from the success of the BIOFOREST project, COFORD has recently pledged over €3 million to support the six year PLANFORBIO research programme. This will focus on plantation forests in their second rotation which represent the future of much of the state's forest estate now that the first crop from many such forests is being harvested and the replanting of