woodlands
OF IRELAND
Coillearnacha Dúchasacha

IRELAND'S NATIVE WOODLANDS



Abstracts of Conference Papers

Galway, 8th - 11th September 2004

Editor Cara Doyle

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GMIT

Forest Service

ACKNOWLEDGEMENTS

Woodlands of Ireland gratefully acknowledges the funding provided by the Forest Service (Department of Agriculture and Food), the National Parks and Wildlife Service (Department of the Environment, Heritage and Local Government) and the Heritage Council.

We would also like to thank the members of the organisational committee for their support in co-ordinating Ireland's first major conference on native woodlands including: Dr Orla Fahy and Kevin Collins (Forest Service), Cara Doyle and Dr Declan Little (Woodlands of Ireland), Dr John Cross (National Parks and Wildlife Service) and Dr Sasha van der Sleesen (Sylvan Consulting Ecologists and GMIT). We extend a special thanks to our hosts at the Galway-Mayo Institute of Technology (GMIT), particularly Dr Paddy Walsh, Director of the Forest Management Group and the staff at GMIT for their help in the organisation and running of the conference.

Thanks are also due to the conference chairpersons including Diarmuid McAree (Forest Service), Michael Starrett (Heritage Council), Dr Alan Craig (National Parks and Wildlife Service), Dr Eugene Hendrick (COFORD), Dr Philip Mc Ginnity (Marine Institute), Dr Fiona Mulholland (Environment and Heritage Service Northern Ireland) and Kevin Collins (Forest Service).

Woodlands of Ireland furthermore wish to convey our gratitude to all those who contributed to the success of the conference including: Joe Gowran, Eoin Donnelly and Niall Millar (Muintir na Coille) for providing a demonstration on traditional wood products using small diameter timber. The Furniture College Letterfrack for providing pieces for exhibition. Andrew St Ledger for providing samples of handcarved furniture. Jerry Hawe and Andy Bryning (Sylviron Consulting Ltd.) and Tim Roderick (NPWS) for their help in the organisation of the conference field trip to Union Wood in County Sligo, which is owned by the National Parks and Wildlife Service. Coillte Teoranta for allowing the use of their adjacent property for a demonstration on traditional wood products. Martine Blaix and Michael Moran (GMIT) for their assistance in preparations for the conference. Paddy and Peter Cunningham (Dangan House Nurseries) for supplying decorative native trees and plants for the conference theatre. Fáilte Ireland for donating conference bags for delegate packs. Photographs were provided by Kevin Collins, Sasha van der Sleesen, Coillte, COFORD, the Forest Service, Dan Collins, the Tree Council of Ireland and a number of conference speakers.

Finally, Woodlands of Ireland expresses sincere appreciation to all the conference speakers who gave so generously of their time and expertise on the various aspects of native woodland management and conservation explored at the conference. Their names and contact details are provided in the text.

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FOREWORD

Diarmuid Mc Aree
Chairman, Woodlands of Ireland.

The outstanding success of the 2004 Native Woodland Conference has provided a major step forward for native woodland conservation in Ireland and as Chairman of Woodlands of Ireland – Coillearnacha Dúchasacha, I wish to congratulate all those involved in its accomplishment and in particular Cara Doyle the Project Co-ordinator. The conference has raised the profile of native woodlands as a valuable part of our culture, heritage and landscape and highlights the fact that these woodlands need active management to ensure their rejuvenation and sustainability thereby providing a lasting legacy for future generations. Such habitats serve as a vital refuge for flora and fauna, with many constituting special areas of conservation (SACs), which are protected by national and European legislation.

Since the formation of the Woodlands of Ireland Group in 1998, native woodland conservation has progressively gained momentum. The organisation has taken a partnership approach towards the restoration and expansion of Ireland's native woodland resource through initiatives such as the People's Millennium Forest Project and the development of the Forest Service Native Woodland Scheme. This innovative partnership is an excellent example of co-operation between the Forest Service, the Heritage Council and the National Parks and Wildlife Service. Woodlands of Ireland offers an essential platform where foresters and ecologists work towards a common goal resulting in a balanced approach to native woodland conservation and development.

The sheer volume and broad spectrum of interest groups who participated in the conference offers incontrovertible evidence of the current unprecedented support for this particular conservation movement. This exclusive event assembled over thirty experts versed in all aspects of native woodland history, ecology, conservation and management to share their knowledge and experience while simultaneously providing a forum for discussion over four days.

Many of the issues raised at the Native Woodland Conference have provided useful information to the ongoing review of the Native Woodland Scheme by the Forest Service. The Forest Service of the Department of Agriculture and Food has demonstrated its commitment to native woodland restoration and development by offering comprehensive funding for the scheme in 2005. This pledge has come at a crucial juncture in the progression of the scheme, creating a turning point for native woodland conservation and establishment in Ireland. For the first time in decades the decline in native woodland is being reversed and we can now optimistically look forward to their restoration and regeneration throughout the Irish countryside.

Diarmuid Mc Aree
Chairman, Woodlands of Ireland – Coillearnacha Dúchasacha

Cara Doyle
Project Co-ordinator
Woodlands of Ireland

INTRODUCTION

Ireland's Native Woodland Conference was officially opened on 8th September 2004 by Minister Noel Treacy T.D. at Galway-Mayo Institute of Technology. This unique event represented a major initiative at raising awareness and highlighting the importance of conserving and expanding Ireland's native woodland resource. Drawing an enthusiastic audience from landowners, foresters, ecologists, researchers, policy makers, students and forest stakeholders; the conference reviewed the background to native woodland development in Ireland, examined its current status and explored opportunities for its future. The abstracts in this publication give an insight into the papers presented at the conference by a broad range of leading experts in the field of native woodland conservation from Ireland, the UK and mainland Europe. Dr Oliver Rackham, the leading British expert on natural woodlands summarised the history of Irelands woodlands in his keynote address.

Two and a half days of presentations were characterised by a series of interesting and informative lectures, punctuated by a succession of lively discussion sessions. The final day concluded with a field trip to Union Wood in Co. Sligo, which is a site owned by the National Parks and Wildlife Service, currently being managed under the Forest Service Native Woodland Scheme. The fact that 270 people attended the conference over four days serves as a clear indicator that native woodland conservation is high on the agenda of a wide range of interest groups. Although certain presentations evoked the spiritual sense and history of our past vis-à-vis native woodlands, conference delegates and speakers were additionally informed about the practical aspects of conservation such as management of invasive plant species and the control of deer and grey squirrel. Of the delegates attending 110 work in related professions, with a further 104 delegates drawn from students, members of the public or NGO representatives. The remaining 56 participants represented a total of 24 EU countries and attended the conference field trip to Union Wood as delegates of a European COST Action (E27) meeting on Protected Forest Areas in Europe. Dr Georg Frank, from the Austrian Forest Research Institute and Chairman of Cost Action (E27) also presented a paper on protected forest areas in Europe, setting the scene from the European perspective.

Landowners spoke candidly about their personal experiences of native woodland conservation, including David Hutton Bury the owner of Charleville Estate and Liam Byrne, a forestry contractor and small woodland owner who recollected his experience of the Native Woodland Scheme and the challenges he encountered at ground level. The conference seemed to create a common understanding between foresters, ecologists and landowners by exploring both the environmental and economic perspectives of native woodland conservation and management. In addition to such findings, the conference also investigated the possibilities of developing riparian woodlands, in what is a relatively new component in the development of native woodlands in Ireland.

Consultant Ecologist Dr Therese Higgins explored the threat of invasive trees and shrubs and mainly focused on the management of Rhododendron ponticum. Rhododendron is probably the most pernicious plant invading Ireland's native woodlands forming a dense evergreen thicket, preventing light penetrating the forest floor, virtually eliminating ground flora and thwarting the regeneration of seedlings. Whilst this alien is regarded by many as a beautiful ornamental species, which displays vivid pink flowers in late spring; outside the walls of pristine gardens and arboreta, foresters and ecologists view it as an insufferable pest that proves difficult and expensive to remove.

Forestry and management consultant, Dr Michael Carey asked the question: 'Who pays?' during his presentation on 'The native woodland business in Co. Wicklow from the 19th Century'. This question was revisited by a number of speakers and delegates over the course of the conference. It was generally felt that by approaching native woodland conservation in a sustainable way, we could reduce our reliance on Government and EU funding.

A comprehensive exhibition by Muintir na Coille (Coppice Association of Ireland), demonstrated timber products associated with native and semi-native woodland including turned items, charcoal wattle fencing and gates. During coffee breaks people wandered outside in the sunshine to watch Eoin Donnelly turning items on a pole lathe.

The display of furniture using native hardwoods ranged from Muintir na Coille's rustic furniture using small diameter coppiced material to the immaculately finished handcrafted furniture from the Furniture College at Letterfrack, demonstrating the use of inlayed veneer designs. Delegates were also provided with a rare opportunity to view the intricately carved pieces from one of Ireland's master craftsmen and most well renowned woodcarvers, Andrew St Ledger, who also carved the image of a woman with flowing hair on the prow of the replica Famine-ship: Jeannie Johnston.

Although Ireland is in the nascent stages of native woodland conservation and establishment, current indicators point to a bright future. The comprehensive funding of the Native Woodland Scheme in 2005 is a major boost to the progress of native woodland conservation and expansion in Ireland, resulting in a challenging work programme for the year ahead. The Native Woodland Scheme has evolved considerably since its inception in 2001 and is currently being reviewed within the Forest Service.

Thanks are due to all native woodland conference delegates and speakers for their valuable contributions to the success of the conference and for helping to raise the awareness of native woodlands in Ireland. We have since received many requests for the conference to become a biennial occasion, focusing on various aspects of native woodlands now that a comprehensive and cohesive overview has been achieved. Woodlands of Ireland will consider this in due course. Conference papers are currently being prepared for publication and will be available on request in spring 2005.

On behalf of the Woodlands of Ireland Group I would like to thank our funding bodies including the Forest Service, the National Parks and Wildlife Service and the Heritage Council for making this event possible. A special thanks is also due to Galway-Mayo Institute of Technology for providing a state of the art venue and technical support.

Cara Doyle
Project Co-ordinator
Woodlands of Ireland – Coillearnacha Dúchasacha

OPENING ADDRESS BY MR. NOEL TREACY, TD, MINISTER OF STATE AT THE DEPARTMENT OF AGRICULTURE AND FOOD

Noel Treacy, TD
*Minister of State at the Department of Agriculture and Food**

I am delighted to be here this afternoon, to officially open Ireland's first Native Woodland Conference, organised by the Woodlands of Ireland Group, and to welcome all of you to the Galway-Mayo Institute of Technology, and to the City of the Tribes. I would like to thank Woodlands of Ireland for their invitation to open this very important conference.

Woodlands of Ireland, which is co-funded by the Forest Service, now part of the Department of Agriculture and Food, the Heritage Council and the National Parks and Wildlife Service, has been at the forefront of native woodland conservation since it was established back in 1998. Woodlands of Ireland and its members, which represent a wide range of organisations and disciplines, have played a pivotal role in various initiatives such as the People's Millennium Forests Project and the development of the Forest Service Native Woodland Scheme. They are to be complimented on the way in which they actively promote the importance of native woodlands throughout this country. The organising of this conference is a prime example of this active promotion of a valuable part of our national heritage.

For thousands of years after the last Ice Age, natural woodlands of oak, ash, elm, hazel and other native species covered much of Ireland. Although now comprising a small fraction of our landscape, native woodlands represent a 'hotspot' for biodiversity, creating habitats for a diverse range of fauna and flora and providing us with a unique window back to how this island must have appeared before human settlement.

Native woodlands have also contributed to our history and culture, with numerous references to our native trees in history, place names and song. Ash, for example, is synonymous with our great national sport, hurling. The 'clash of the ash' has been, and continues to be, part of our culture, and is internationally recognised as the fastest field game in the world. Native woodlands are therefore part of our natural, historical and cultural heritage, and it was appropriate that they featured in the recent national celebration of the Millennium, in the form of the People's Millennium Forests Project. However, while Ireland's native woodlands are a valuable part of our past, it is important that they should also be part of our future. With this in mind, it is essential that all concerned parties work together, in partnership, to ensure the future of our native woodlands. I am glad to say that the Forest Service Native Woodland Scheme is the result of such co-operation.

The Native Woodland Scheme is aimed at protecting and expanding Ireland's native woodlands, offering grant aid and premiums to landowners to protect and enhance existing native woodlands, and to create areas of new native woodland. This scheme is the result of a vibrant and enthusiastic partnership between the Forest Service, Woodlands of Ireland, the National Parks and Wildlife Service, the Central and Regional Fisheries Boards, the Heritage Council, Coillte, the People's Millennium Forests, COFORD and others. I am mentioning all of these bodies so as to give an insight into the broad spectrum of interests involved. The scheme could only have been made possible through an open and dynamic partnership involving a wide range of experts, organisations and landowners. It is a conscious effort by all involved to advance the cause of native woodlands as a vital component of Ireland's natural heritage.

The primary objective of the Native Woodland Scheme is to promote both the conservation and enhancement of forest biodiversity in Ireland. A core aspect is that projects must aim to reinstate the native woodland type, characteristics and attributes deemed most suitable for their particular site conditions. Another core aspect is the encouragement, where ecologically appropriate, of timber production, including quality hardwood, small diameter timber and material for craftwork. With the application of best-practice silviculture, many of our native woodlands can be managed

**Now Minister of State at the Department of the Taoiseach (with special responsibility for European Affairs)*

to yield high quality timber, while still retaining their natural characteristics. This aspect will help ensure the long-term sustainability of our native woodlands.

The Native Woodland Scheme is highly innovative in its objectives and scope. The Department of Agriculture and Food has embraced an adaptive management approach to its application, enabling it to evolve as new challenges arise. This approach is being assisted greatly by the creative partnership involved in its development. The allocation of some 1 million euro to the Scheme in 2004 is evidence of our commitment in the Department, and that of the Minister for Agriculture and Food, to this very important area. Woodlands of Ireland are continuing to play an essential role in the ongoing development of the Native Woodland Scheme, with various working groups involving national experts advising on a wide range of issues, including training, ecological issues and silviculture.

The staging of Ireland's first Native Woodland Conference this year is particularly appropriate, given that 2004 is the centenary year of Irish forestry. It is also fitting that the conference is being held during Heritage Week, as native woodlands are part of our natural, historical and cultural heritage. This conference provides an opportunity to look back, take stock of where we are, and to look forward. Woodlands of Ireland has organised a wide-ranging, interesting and thought-provoking conference on native woodlands. I am confident that the distinguished guest speakers and the discussions on the broad range of matters concerning our native woodlands included in the programme will make a significant contribution to creating and increasing awareness of the importance of this vital national resource.

I am particularly pleased to see speakers describing individual native woodland restoration projects. Such papers represent a valuable store of knowledge and expertise, relating to the on-the-ground practicalities of conserving and enhancing our native woodlands. I also note the number of papers that are being presented by both archaeologists and historians. One of the great contributions that these two disciplines offer is the capacity to examine key issues over what the French call "la longue durée", over a space of time measured in Millennia, not decades. I think that this depth of perspective is of critical importance to our understanding of the way in which Woodlands of Ireland has evolved and how we can best develop their potential to enhance our society in a modern Ireland. I am also impressed by the number and range of delegates participating at this conference, and would particularly like to welcome experts who have travelled from abroad to be here.

We have a "sheanfhocal" or old saying in Irish, which perhaps best captures the ethos of our work to restore Ireland's native woodlands. It states: "Péine dhuit féin, fuinseóg dod mhac, dair do mhac do mhic" which translates:

"Pine for your lifetime, ash for your children, and oak for your grandchildren".

I would like to thank Woodlands of Ireland and all of its members for their continuing work in promoting our native woodland resource, and I wish you all a productive and enjoyable conference and a pleasant time here in Galway City.

Noel Treacy, TD
Minister of State at the Department of Agriculture and Food

Ireland's Native Woodland Conference
8th – 11th September 2004

Abstracts of conference papers

KEYNOTE ADDRESS

This paper summarises the history of Irish woodland, and asks the following questions:

1. How does Ireland distinguish between woodland and non-woodland?
2. What did Irish wildwood look like? Was the pre-Neolithic vegetation forest?
3. What part did fire play in Irish prehistoric and historic vegetation?
4. Why do most Irish woods lack continuity before the eighteenth century?
5. Why did coppicing decline early in Ireland?
6. Why does Ireland have so few ancient trees?

While speculating on possible answers, I put these questions mainly as subjects for future investigation. The answers will greatly depend on the conservation and future of native woodland in Ireland.

The first problem in studying native woodland in Ireland is that little ancient woodland survives. By *ancient woodland* I mean woodland that has been in existence since the Middle Ages. I do not mean woodland that has never been felled. Virtually all long-established woods have been cut down, often many times: felling is as normal a part of the history of woodland, as mowing is of meadow. Felled woods regenerate mainly by *coppicing*; that is sprouting from the stump. I contrast ancient woodland with woods that have more recently arisen as trees that have colonised former non-woodland, and also with *plantations* where someone has put the trees there. Ancient woods are the baseline against which other kinds of native woodland can be compared.

Ancient woods are the baseline against which other kinds of native woodland can be compared.

Irish woodland history is a series of disasters, partly because of the long history of dense population and high civilisation. In the early Holocene, Ireland was covered by natural vegetation, little influenced by people's activity, which I term *wildwood*. It may have been one of the last parts of Europe to be much influenced by people (S. Caulfield, this volume). As in Scotland, some of the loss of continuous wildwood may result from the natural expansion of blanket bog: woodland may not be forever sustainable in wet climates. The fact that wildwood existed in the pre-Neolithic does not prove that woodland would be possible now.

However, most of the loss of wildwood is due to Neolithic and later people creating farmland: not through felling trees because they wanted wood and timber, but through digging up trees because they wanted grassland and cropland. By the Iron Age, Ireland, perhaps even more than England, was a land of farmland and moorland, with little room for extensive forests.

In pre-Neolithic times elm played a similar dominating part in the wildwood of the Irish lowlands as lime did in England; but by the Iron Age the remaining woods were mostly composed of oak and hazel, trees of land too infertile or too steep for agriculture. If there were extensive woods in Ireland in St. Patrick's time, many of them would not have been wildwood but secondary woodland on Iron Age farmland and moorland. The tragic period of overpopulation that culminated in the Great Famine of 1846 was but the last among a number of phases of dense population and great pressure on land, in which woodland could survive mainly on land that was of little use for anything else (Rackham 1995).

Even such meagre woods that survived the nineteenth century fell victim to the twentieth-century craze for destroying woods and replacing them with plantations. To say that modern forestry, in the rigorous and destructive German style, was the poisoned parting gift of the British to Ireland would be an oversimplification; however, even small native woods were coniferised even more thoroughly than in England. In England this is now seen as a mistake: if trees planted on the site of ancient woodland survived, the market for them collapsed by the time they had

Left: Coppiced oakwood Kilteel, Co. Kildare.

grown. The ancient woods were grubbed or poisoned in vain. In the east midlands of England the Forestry Commission is trying to reverse the effects of replanting in nearly all the ancient woods that it took over (Rackham 2003 chapter 33). Is this happening in Ireland?

The story of woodland is to be built up from the histories of hundreds of individual wood-lots, not from the history of the things that people have been saying about woodland in general. It must bring together different lines of evidence: written records, pollen analysis, archaeology, and the study of woods and trees on the ground, even experiments on how native woods respond to different kinds of treatment. This is especially important in countries like Ireland where some kinds of evidence are meagre. When historians use documents alone they risk writing pseudo-history: for example, they will never learn about times when people were not writing things down. Unless woodland ecologists study historical processes and human activities, and how vegetation responds to them, they risk writing pseudo-ecology: for example, they will never learn about changes that require longer than a human lifetime.

Unless woodland ecologists study historical processes and human activities, and how vegetation responds to them, they risk writing pseudo-ecology...

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THEME 1: THE BACKGROUND TO NATIVE WOODLAND DEVELOPMENT IN IRELAND

Holocene vegetation and land-use dynamics in the karstic environment of Inis Oírr, Aran Islands, western Ireland.

Native woodland dynamics in Ireland: a long-term perspective based on a detailed Holocene pollen profile from Inis Oírr, western Ireland

For the study of long-term woodland dynamics, the availability of detailed records that extend over considerable time periods, and preferably several centuries, is essential. Suitable written or even oral sources are scarce and particularly so in Ireland where such evidence is non-existent or at best scanty for most parts of the country. Reliance must therefore be placed on techniques such as pollen analysis. Pollen analytical data provide not only detailed and also potentially continuous evidence for changes in species composition and woodland extent over complete post-glacial and interglacial periods, i.e. over many millennia. In this paper, the results from detailed pollen analytical investigations of sediments from An Loch Mór on Inis Oírr (Inisheer), the smallest island of the Aran Islands, are presented. A complete post-glacial pollen record is available to which a secure chronology, based on a variety of evidence including AMS radiocarbon dates and tephrochronology, has been attached. This enables long-term woodland dynamics and the final demise of woodland and woody species to be reconstructed in greater detail than hitherto possible in Ireland. The role of the main factors influencing woodland dynamics, including climate and farming activity, are discussed.

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The different effects of climate change and human impact on Ireland's native woodland development

KEYWORDS: anthropogenic; archaeological; landnam; Mesolithic; prehistoric

The impact of human activity as the dominant factor in explanations of woodland change is examined, mainly in the prehistoric period. The human woodland experience is considered from an archaeological perspective from Mesolithic times onwards. The practical problems of the initial colonising of an island with an ecosystem unknown on the mainland where the colonisers originated is examined, and the impact of the forest on the initial four thousand years of human settlement is indicated. In the subsequent prehistoric periods the main issue considered is the anthropogenic impact put forward as the explanation for specific and general forest species decline and recovery. The fact that forest decline and recovery seen in many pollen diagrams coincides with clearly identified human settlement, leads to the anthropogenic interpretation implicit in the term "landnam". The possibility that cause and effect may have to be reversed in some cases, i.e. that forest change led to human occupation rather than the explanation that human impact led to forest decline will be considered in the light of research in Mayo and elsewhere.

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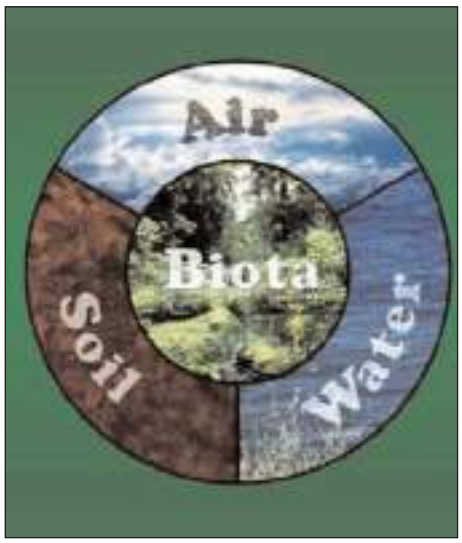

The protection of soil, air, water, flora and fauna are vital to the sustainability of native woodlands.

Land use history and the sustainability of native woodlands

Our native woodlands have been the subject of severe disturbance over many centuries. Deforestation, the clearance of areas within woodlands, the use of woodlands for grazing, the harvesting of products of the woodland and charcoal production have all left their mark. The soil has been significantly altered as a result of this disturbance.

The sustainability of our native woodlands depends on the soil resource. Are these soils themselves sustainable? How can we assess this? Do we need some intervention to improve the soil in order to ensure the long-term sustainability of our native woodlands? The paper explores these issues, provides some answers and raises more questions.

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The use of Ireland's woodland in medieval times

KEY WORDS: woodland, tree-names, pine, law-texts, Brehon law

The main documentary evidence on the uses of woodland in medieval Ireland is provided by the Old Irish law-texts, which date from the seventh to ninth centuries AD. A text on the law of neighbourhood entitled *Bretha Comaithchesa* contains a list of twenty-eight trees and shrubs, divided on economic grounds into four groups of seven. The seven most important trees are described as the 'lords of the wood', and are listed as the oak, hazel, holly, yew, ash, Scots pine, and wild apple. It is of particular interest that the pine is included in this list, as it is generally held to have become extinct in Ireland in later medieval times. A ninth-century commentary on this law-text states that the pine is valued as a source of resin.

The law-texts also provide information on other uses of woodland, in particular the right of landowners to graze their livestock in wooded commonage during the summer months. There were also privately owned woods, in which trespass by livestock would incur heavy fines. As in other medieval societies, deer and wild pig were hunted or trapped in woodland, though there are no records of royal hunting preserves.

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Funny bumps in the woods! Using archaeology to identify historical changes and uses in our native woodlands

This paper aims to encourage people to move beyond historical accounts and cartographic depictions of ancient woodlands, and instead to walk through and around them. As has been well documented in Britain and as will be illustrated by some Irish examples, considerable physical evidence for historical changes and uses of woodlands can be garnered from many places.

In addition to the commonly referenced forms of timber production: standards, pollards and coppices, we can also find examples of 'assarting' (woodland clearance for settlement or farming), rabbit warrens, deer parks, charcoal-making, glass-making, iron working, and lime production.

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The native woodland business in County Wicklow from the 17th century

Wicklow has the highest percentage forest cover in the Republic of Ireland. Most of the present woodland consists of productive plantation forests established in the 20th century. These form the basis of a successful forestry industry. Many are now in the second rotation. The current area of woodland far exceeds that present in the county at the start of the 17th century when the forest cover was in the order of 2-3%, a figure that fluctuated to a small degree over the following two centuries as the woodland was harvested and new trees planted. In 1908 the county had a forest cover of 3.5%.

The woodland formed part of private estates mainly between the 17th and 19th centuries. The Watson-Wentworth estate, centred at Coolattin near Shillelagh, subsequently owned by the Fitzwilliam family, was the largest and owned 36,000 ha of land. 950 ha of this comprised coppices and scrub woods, mostly the former. This represented a high proportion of the woodland area in the county with the woods extending from Shillelagh through to Rathdrum.

These, mainly oak, woodlands were a significant revenue source for the estate and were managed in a disciplined manner on a coppice with standards system. The business was market driven with cordwood for charcoal making, structural and ship timber and, in particular, bark for the leather tanning industry being the main products.

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Tomnafinnoge Wood, Co. Wicklow. This small woodland once formed part of the vast oakwoods of the Watson-Wentworth Estate.

Our ancient ancestors had a spiritual relationship with trees. Hawthorn (above) and yew (below) were considered to possess magical properties.

The culture and spirituality of woodlands in Ireland

There was a deep-rooted connection between people and trees. Ireland is almost unique in the developed world in experiencing near-total deforestation within living memory. In the process, we lost our intimacy with nature which we are only now tentatively re-establishing.

We have some evidence of our ancient ancestors' spiritual relationship with trees, and we find that they possessed a richness missing from modern Irish life, of practicality combined with respect and reverence.

Our recent history - of colonisation and dispossession, of hunger for land - became a potent folk memory which permeated our attitudes towards the way we treated nature up to the present day.

This generation is less affected by the old folk memory. The economic 'spring tide', which has lifted our boats, insulated us from the harsher side of nature, and it gives us some breathing space to look more sympathetically on the many gifts trees and woodlands give us.

But other powerful forces are also at work. Now, nature tends not so much to be fought against as dismissed, in the midst of an unprecedented development boom. We are also losing that link with farming and the soil — so important for a healthy relationship with nature.

Ireland's young tree movement is trying (and sometimes bravely succeeding) in promoting a new tree culture, a culture of ownership of something we had previously considered as not belonging to us: a challenging task for a nation preoccupied with prosperity and materialism.

This paper examines our past and present relationship with trees and woods and explores our hopes and expectations for the future.

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THEME 2: THE ECOLOGY AND CURRENT STATUS OF IRELAND'S NATIVE WOODLANDS

Dr John Cross (NPWS) at the conference field trip, Union Wood, Co. Sligo.

Ireland's native woodlands in a European context

Ireland's woodlands are part of the temperate mesophytic deciduous broadleaved forests that extend across much of Europe between northern Portugal and Scotland in the west and central Russia and northern Ukraine in the east. Based on the recently published Map of the Natural Vegetation of Europe, 4 forest formations with 9 forest units are recognised within Ireland, including acidophilous oak forests, mixed oak-ash-hazel forests and mixed alder-oak-ash forests with willows. These woodlands are examined in terms of their species composition and distribution and compared with similar woodlands in Britain and the continental mainland. It is shown that as a result of the mild, moist climate and the different species composition, especially the absence of numerous species common in Britain and on the continental mainland, Irish woodlands are distinctive and, in some cases, unique at a European and even a global level.

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Irish native woodland plant communities

The flora of Irish native woodlands is poor in flowering plant species by European standards, but rich in bryophytes.

Plant communities are difficult to define and classify, and there has been a lack of consensus concerning both methodology and nomenclature. I present an overview of Irish native woodland communities, bringing together the main systems currently in use. These woodlands show two principal gradients of variation: from strongly acid soils to base-rich soils, and from well-drained sites to sites prone to waterlogging and even flooding. The salient features of each community are briefly outlined. Four are priority type habitats under European legislation; a fifth, the *Alnus glutinosa-Carex paniculata* community, is known from only two or three sites and deserves special recognition.

Yew woodland at Reenadina on the Muckross Peninsula, Co. Kerry - a priority habitat.

The shrinkage and fragmentation of the area of native woodland has apparently led to the loss of some species and the future of others is in the balance. The threats to our woodland communities are briefly outlined.

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Red squirrel – a woodland mammal native to Ireland.

Native woodlands as a habitat for invertebrates, birds and mammals

KEYWORDS: biodiversity, conservation, microhabitats, invertebrates, birds, bats

Throughout the world, native woodland habitats generally have a high biological diversity. A positive correlation has been demonstrated between animal diversity and persistence of the woodland habitat in other European countries. In Ireland there is almost no primary native woodland and very little planted deciduous woodland of more than 200 years standing, but never the less, a disproportionate number of species are associated with woodland habitats. It is in the invertebrates where most of this biodiversity is to be found; a point of some significance when we consider Ireland's obligations under the Biodiversity Convention.

There have been few comprehensive studies of invertebrates, or even of birds and mammals done in woodlands in Ireland. Animals are not as obvious as flora, they often require special sampling techniques and their availability is frequently restricted by season. However, certain animal taxa have been identified as being potentially valuable in studies of woodland ecology and these include snails, hoverflies, butterflies and moths, longhorn beetles and birds. Our understanding of woodland faunas shows that in order to conserve species and maintain biodiversity we must pay attention to the maintenance of micro-habitats such as wet hollows, sunny woodland glades and rides, and forest streams. In particular, it is vital to allow trees to become over-mature, die, fall and rot in situ in order to provide the habitats required by specialist woodland invertebrates. Measures taken to conserve invertebrates will directly and indirectly help birds, and mammals such as the bats.

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Native woodlands and their associated fungi and lichens

Mushrooms, toadstools, and brackets are the identifiable manifestations of often perennial mycelia immersed invisibly in soil, litter or wood. The fruit-bodies are mostly short-lived, seasonal (but not dependably so), and difficult to preserve. The fungal flora of any woodland needs at least five years' work, involving fortnightly visits between March and December. This work has not been done in any native woodland in Ireland. Such lists as have been published, usually from single forays, are obviously deficient in, for instance, mycorrhizal and wood-decay associates of the principal tree species.

Mushrooms, toadstools, and brackets are the identifiable manifestations of often perennial mycelia immersed invisibly in soil, litter or wood.

Lichens, by contrast, are obvious, long-lived and easy to preserve. One thorough search per decade would produce better information than the hundred or so forays for fungi, provided the full vertical extent of the trees was explored.

Work carried out in the Birch Grove on Howth has shown that no more than 35% of the total macromycete taxa found from October through December were found on any one visit. Recommendations are made with regard to a national recording scheme and to woodland management.

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'Sudden Oak Death': A threat to Ireland's native woodlands?

Sudden oak death is a disease caused by a new species of fungus called Phytophthora ramorum. *In Ireland, the fungus has only been recorded on* Rhododendron *(above) and* Viburnum *species.*

Since first reported in the mid-1990s, significant numbers of oak trees and other plant species have been damaged or killed in California and other parts of the western United States by a newly described disease, commonly known as Sudden Oak Death, caused by a new species of fungus named *Phytophthora ramorum*. The same fungus had also been found in a number of European countries on the shrub species *Rhododendron* and *Viburnum*.

The situation was closely monitored by the European Commission's Plant Health Committee, on which Ireland is represented. Legislation was introduced in 2002 under Commission Decision 2002/757/EC regarding provisional emergency phytosanitary measures to prevent the introduction into and the spread within the Community of *Phytophthora ramorum*.

The legislation provided for: import controls into the EU on susceptible plants and wood from areas of the USA where the disease is known to occur; controls on the movement of *Rhododendron* and *Viburnum* within the EU, through the Plant Passport system; and a provision for official surveys for the fungus to be carried out in all Member States.

The official 2003 surveys indicate that *Phytophthora ramorum* has been found in most of the then -15 EU Member States. The vast majority of findings have been on plants of *Rhododendron* and *Viburnum* species. In relation to tree species, *Phytophthora ramorum* has been found in Great Britain on *Quercus falcata*, *Quercus ilex*, *Quercus cerris*, *Fagus sylvatica*, *Castanea sativa* and *Aesculus hippocastanum*. In the Netherlands, the fungus has been found on *Quercus rubra*.

In Ireland, the survey was carried out by Horticulture and Plant Health Division and by the Forest Service, Department of Agriculture and Food. *Phytophthora ramorum* was found on *Rhododendron* and *Viburnum* species at 31 garden centre/nursery locations and on *Rhododendron* at three locations in the wild. Where positives were found in garden centres/nurseries the Forest Service identified oak and mixed broadleaved forests within a 5 km radius using national forest inventory data. These sites were visually inspected for symptoms of *Phytophthora ramorum*. A number of other prominent woodlands where *Rhododendron* is a known understorey were also sampled.

Commission Decision 2002/757/EC was reviewed and amended in 2004 by Commission Decision 2004/426/EC. Under the amendment the list of susceptible plants was extended, with a specific requirement for official surveys to be carried out in 2004 on uncultivated/unmanaged plants as well as on cultivated plants. To date, there have been no findings of *Phytophthora ramorum* on *Quercus petraea* or *Quercus robur* in Ireland or in the rest of the EU.

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Old woodland sites comprise 28,000 hectares, or 6% of the Coillte estate. A further 23,000 hectares have some history of woodland cover since the middle of the 19th century.

Coillte's woodland history survey

Sites with a continuous history of woodland cover tend to support a broader and more representative woodland flora and fauna than do recent woodlands or forests. In recognition of this, Coillte undertook a review of the history of woodland cover across its estate. In 2001, the history of woodland cover of all Coillte properties was traced by consulting the 1st and 3rd Editions of the Ordnance Survey map series, compiled at scale 6":1 mile. The earliest maps from this series date from the 1830's A.D. – this is a very recent date in terms of woodland development, but even this brief history is nonetheless indicative of sites that may have an older, more "ancient" woodland history. Records of Irish woodlands that predate the Ordnance Survey maps are often not readily accessible, incomplete in their national coverage and difficult to interpret. The extent of former woodland cover was traced, and the type of woodland present, as indicated by the mapped symbols, was recorded. Old woodland sites, i.e. sites that have apparently been continuously wooded since the 1830's A.D., were found to comprise just under 28,000 hectares, amounting to approx. 6% of the Coillte estate. A further 23,000 hectares was found to have some history of woodland cover since that time. As part of Coillte's programme for Sustainable Forest Management, the company is now developing policy on how these important sites should be managed, to balance their ecological, social (amenity) and economic values.

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A national survey of native woodland in Ireland

KEYWORDS: native woodland, GIS, conservation

The 2003 native woodland survey used a combination of desk and field studies to produce a GIS based inventory of woodland sites that were at least 1 ha in size. The desk study examined the geographical distribution of woodland within the State and the frequency of different woodland size categories. The study also estimated that within the criteria for this survey there were approximately 90,000 ha of native woodland within the State.

Field surveys were carried out in Counties Carlow, Kilkenny, Laois, Offaly and Wexford. In total 312 sites were visited, and 204 of these were surveyed with at least one relevé recorded from each. Within the study area oak-ash-hazel woodland was the most frequent habitat type surveyed. Most woodland sites were subjected to only low or moderate grazing pressure, and less than half of the sites were affected by an invasive shrub species. The exotics beech and sycamore were frequent in many sites and both vascular plant diversity and the abundance of natural regeneration were negatively associated with canopy cover by these species.

The data collected during the field survey were summarised for each site in order to evaluate the conservation status of each wood. Conservation score was based on species richness, area, diversity of structure and habitats, nativeness, natural regeneration, dead wood and the presence of features and species of interest. In addition, a threat score was calculated for each wood. This was based on the abundance of exotic and invasive species, on sub-optimal grazing regimes and damaging activities.

Within the native woodland survey area, oak-ash-hazel woodland was the most frequent habitat type surveyed. Hazel (above).

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Map of ancient woodland in Northern Ireland

Back on the map: The search for Northern Ireland's ancient woodland

KEY WORDS: Ancient woodland, long-established woodland, historical, maps

Preliminary map work has found around 2,750 woodland areas over 0.5 ha in Northern Ireland that have been continuously present since the first edition Ordnance Survey maps were produced in the 1830s. During 2004 and 2005 these sites are being subjected to further detailed archival work and field survey to distinguish ancient woods (present since at least 1600) from long-established sites (present since 1830 but not proven to be ancient).

Detailed archival evidence from cartographic and written sources such as 17th century Bodley and Raven maps and OS memoirs (19th century) is being collated for a subset of sites for which the best archive evidence exists. Trees, shade tolerant vascular plants, bryophytes and a range of pre-determined physical features are being recorded in each woodland.

This will produce a core list of woodlands that may be classified as either long-established or ancient with some certainty. By using the field survey data and the archival information in tandem we hope to characterise long-established and ancient woodland habitats. Indicator plant species and physical features will be derived from this study that will allow us to categorise the remaining sites as either long-established or ancient.

As well as recording antiquity, the final inventory will classify woods as semi-natural or plantation (broadleaved, conifer, or mixed). Losses to woodland since the 1970s and areas of wood pasture / parkland and scrub are also being mapped in the field. The inventory will enable protection of Northern Ireland's ancient woodland and will be a valuable tool for spatial planning for conservation.

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THEME 3: LEGAL FRAMEWORK AND POLICY DEVELOPMENT

Legislative Framework Protecting Ireland's Native Woodlands

KEY WORDS: Legislation, native woodlands, Natural Heritage Area, Special Area of Conservation, Nature Reserve

The principal pieces of National and European legislation that afford protection to Ireland's native woodlands will be reviewed. These include the Wildlife Act 1976, the Wildlife (Amendment) Act 2000, the European Communities Habitats Directive 1997 and the Planning and Development Act 2000. In addition, in 1996 Ireland ratified the Convention on Biological Diversity. As a result, a National Biodiversity Plan has been produced which contains several actions that relate to woodland conservation including the establishment of the Native Woodland Scheme and a national survey of native woodlands. The protected status of Ireland's native woodlands will be discussed in relation to this legislation.

Woodland can be protected primarily within Natural Heritage Areas (NHA), Special Areas of Conservation (SAC), National Parks and National Nature Reserves. Local authorities have responsibilities that relate to nature conservation such as the preparation of local biodiversity action plans, the making of Tree Preservation Orders, and the control of development in designated areas or on sensitive landscapes. Despite the range of legislative mechanisms available to protect woodlands, the total area of protected woodland in Ireland to date is still relatively low.

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Despite the range of legislative mechanisms available to protect native woodlands, the total area of protected woodland in Ireland to date is still relatively low.

The Role of the ENGO in Promoting the Development of Native Woodland Policy and Instigating Change

An Taisce - the National Trust for Ireland, was established over 50 years ago and is the broadest environmental non-governmental organisation in Ireland. An Taisce has been a statutory consultee under the Planning Acts since 1963. Since then, other consultative responsibilities have been added to our remit, including commenting on integrated pollution control licence, waste licences, aquaculture licences and most recently forestry consent applications.

This paper will examine An Taisce's response to the development of the Native Woodland Scheme since its inception, and will consider some aspects of the new forestry regulatory regime as introduced on the 10th December 2001 by the European Communities (Environmental Impact Assessment) (Amendment) Regulations, 2001.

This legislation removed initial afforestation from the planning acts, and initial afforestation is now 'exempt' from planning permission requirements. A new forestry consent procedure, governed by the Minister for Agriculture and Food, allows for public participation in the consent process through a system of public notification, via local newspapers with a period for comment. Provision has also been made for consultation with specific bodies including the National Parks and Wildlife Service, the Heritage Council and An Taisce - the National Trust for Ireland.

The new regulations lower the thresholds for mandatory Environmental Impact Assessment from 70 to 50 hectares. Provision for requiring an EIA below the threshold have also been included where there may be significant environmental impacts.

An Taisce, is a statutory consultee under the new regulations. The paper will compare the legislation's effectiveness in implementing elements of the National Forest Standard and Code of Best Forest Practice, both of which have been developed in order to implement sustainable forest management principles in Ireland.

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Míde Gerrard (right): "A new forestry consent procedure, governed by the Minister for Agriculture and Food, allows for public participation in the consent process through a system of public notification, via local newspapers with a period for comment."

Woodlands of Ireland: Origins, Activities and Vision for the Future

The Woodlands of Ireland group was established in 1998 to represent all those with an interest in native woodlands, including foresters, ecologists, statutory bodies, ENGO's, contractors and the nursery sector. Woodlands of Ireland is equally sponsored by the Forest Service (Department of Agriculture and Food), the Heritage Council and the National Parks and Wildlife Service (Department of the Environment, Heritage and Local Government).

Since its inception, Woodlands of Ireland has been at the forefront of native woodland conservation in Ireland through initiatives such as the People's Millennium Forest Project and the development of the Forest Service Native Woodland Scheme. Woodlands of Ireland continue to support the development of the scheme through the provision of training courses - in association with the Forest Service - for foresters, ecologists and contractors involved in the scheme.

The Woodlands of Ireland Steering Group provide guidance and expertise on the overall management of the organisation. A Technical Advisory Group was also established to provide advice and technical support on all initiatives. This recently included a set of Silvicultural Guidelines outlining systems and management plans appropriate under the Native Woodland Scheme. The group have also made submissions to the National Roads Authority on the appropriate management of roadside verges and to the Department of Agriculture and Food on the review of REPS.

Woodlands of Ireland promote public awareness to highlight the importance of native woodlands as a valuable part of our natural heritage. It is highly appropriate that Ireland's first major conference on native woodlands is taking place during National Heritage Week 2004.

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Contractor training for the Native Woodland Scheme at Brandrum, Co Monaghan.

Containerised oak seedlings in a tunnel at Clone Nursery, Aughrim, Co. Wicklow.

Native Woodlands and the Use of Native Provenances

KEYWORDS: native species; reproductive material; indigenous seed sources; biodiversity; provenance studies.

Ireland has a very limited range of tree species despite having an ideal climate for tree growth. Forest cover, while once extensive, reached an all time low of approximately 1% at the start of the twentieth century. This was due to a number of factors including climate change, the development of agricultural practices and over-exploitation of the forests by man. Today, forest cover has increased to almost eleven percent of the land area, predominantly comprising exotic conifers. In recent times, however, there has been an increased interest in native species, which has resulted in the development of the Native Woodland Scheme. This scheme encourages the restoration of existing native woodlands and the planting of new woodlands.

A requirement of the Native Woodland Scheme is that all planting stock must originate from indigenous and heterogeneous sources within Ireland. Practical difficulties, however, arise in obtaining reproductive material of native species as substantial quantities have been imported from Europe and beyond for some time. Protecting and developing Ireland's source of native tree seed, in conjunction with the renewed interest in, and commitment to, native species, will ensure that this valuable natural resource will be conserved for future generations.

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Acorns collected at the People's Millennium Forests during October 1999.

The Development and Application of the Native Woodland Scheme

The Native Woodland Scheme produces a wide range of benefits in the areas of native woodland protection and expansion, wood and non-wood production, and the application of traditional and alternative silvicultural approaches.

The Forest Service Native Woodland Scheme represents perhaps the most significant opportunity in the history of the State to contribute to Ireland's native woodlands, and is one of the most proactive initiatives in the area of biodiversity and habitat restoration in Ireland. The scheme represents a major component of the implementation by the Forest Service of Sustainable Forest Management, and contributes significantly to Ireland's National Biodiversity Plan under the UN Convention on Biological Diversity.

The Native Woodland Scheme has become firmly established through a close and intense partnership involving the Forest Service, Woodlands of Ireland, the National Parks and Wildlife Service, the Heritage Council, Coillte, the Regional Fisheries Boards and a wide range of other relevant bodies and representative groups, and through the enthusiasm and commitment of numerous land owners, foresters and ecologists working on the ground. It is beginning to yield wide-ranging benefits in the areas of native woodland protection and expansion, compatible wood and non-wood production, and the application of traditional and alternative silvicultural approaches. The scheme is also enhancing the level of cooperation and understanding between forestry and ecology interests in general.

Over 40 projects have been undertaken under the scheme, including existing and new woodland sites under private, NPWS and Coillte ownership. A wide range of works has been funded, including rhododendron clearance and deer fencing, coupe creation, coppice restoration and the encouragement of natural regeneration. Projects to date have created a wealth of hands-on knowledge and experience of native woodland management. They have also highlighted obstacles limiting progress, and ways in which the scheme can be enhanced. Advances have also been made across a broad range of support measures for the scheme, e.g. the 3-day Native Woodland Scheme Training Course, the development of the list of Participating Foresters and Ecologists, and forthcoming silvicultural guidelines for timber production under the scheme.

This paper reviews the progress of the Native Woodland Scheme to date. It also explores ways in which the scheme can be further refined, in order to enable it to overcome current difficulties and to continue fulfilling its key objective of protecting and expanding Ireland's native woodland resource.

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The Importance of Protected Forest Areas in Europe: COST Actions E4 and E27

KEY WORDS: protected forest areas, biodiversity conservation, reserve selection, categorisation of nature reserves, representativity

Protected Forest Areas (PFAs) have become a major issue in the international forest policy forum. The first systematic analysis of strictly protected forest areas was COST action E4 "Forest Reserves Research Network", carried out in 1996 – 1999. One of the main results of COST E4 was that the ideal non-intervention concept of developing appreciable areas of real untouched forests is not a realistic scenario for Europe. To analyse the large number of PFA categories and classification systems at both the national and international level the EU-COST action E27 "Protected Forest Areas – Analysis and Harmonisation" was launched in 2002 with a duration of 4 years. The main objective of the action is to describe, analyse and harmonise the wide-range of PFA categories used in European countries within the context of existing international systems of protected forest areas. The scientific programme covers PFA definitions, national classifications and their historical and legal background, analysis of options for the integration of data collected in national forest inventory programmes, and harmonisation of definitions and identification of problem areas when using international classification systems. Clarification of the concept of naturalness and key terms is needed.

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Natural Forest Reserve, Luxsteinwand near Weitra, Lower Austria.

THEME 4: CURRENT INITIATIVES IN THE DEVELOPMENT OF IRELAND'S NATIVE WOODLANDS

A New Dawn for Native Woodlands; Brackloon Wood, Co. Mayo - Pilot Site for the Native Woodland Scheme

KEY WORDS: oakwood, ecological monitoring and research, conservation, management.

Brackloon Wood is an ancient, semi-natural Atlantic oakwood designated as a Special Area of Conservation (SAC) and Natural Heritage Area (NHA). Over the last fifteen years it has been the focus of considerable attention with respect to environmental monitoring, research and management. The information gleaned from all these activities has been used in the development and implementation of the recently adopted Forest Service 'Native Woodland Scheme'.

Long-term forest health and ecological monitoring has been ongoing in the woodland since the early 1990s. Consequently, a considerable amount of ecological, historical and research information has being collated and is the basis for an imminent publication (Cunningham, in press).

In 1996, the owners, Coillte Teoranta, designated the site for biodiversity management and in 1998 applied to the Forest Service to implement a 5-year management plan under the 'Woodland Improvement Scheme'. The scheme was tailored to the nature conservation requirements of the wood in addition to promoting limited wood production using a continuous cover silvicultural system. Some of the research and monitoring data were used in the development of the management plan.

Subsequently, Brackloon became a pilot site for the new 'Native Woodland Scheme' in 1999. Since then close co-operation between the owners, the Forest Service, Woodlands of Ireland, the management consultants, the Forest Ecosystem Research Group at University College Dublin (UCD), the local community and others has contributed to the appropriate management of the wood and the fine tuning of the Native Woodland Scheme which was launched in 2001.

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Brackloon Wood, Co. Mayo is an example of a semi-natural Atlantic oak woodland.

People's Millennium Forest, Ballygannon, Rathdrum, Co Wicklow

Restoring Native Woodlands: The experience from the People's Millennium Forests Project

The Peoples Millennium Forest was the first project of national significance to highlight the importance of our remaining semi-natural woodlands. Although the area of woodland identified for establishment, restoration and conservation was relatively small (596ha) the project was wide-ranging and aimed at involving every household and institution in the country.

The mission of the Peoples Millennium Forests was to ensure that future generations could enjoy the benefits of Ireland's native forests. The project's objectives were to enrich and expand Ireland's native forests, to help people appreciate Ireland's native forests and to improve management of our native forests. Coillte Teoranta and Woodlands of Ireland jointly managed the project. The major sponsors were the Allied Irish Bank and the National Millennium Committee with the Forest Service also giving financial and technical support.

Sixteen sites were selected in all, ranging in size from 11 to 96 ha, spread over every province in the country with two sites in Northern Ireland. Overall 1.2 million trees were planted, a tree for every household in the country. A certificate was sent to every household identifying where a tree was planted on their behalf.

Three outreach officers were appointed and they organised walks, visits to schools and seed collection programmes. A mobile exhibition called "the road show" was launched and it visited towns and events throughout the country, with interesting exhibitions and educational programmes on native woodlands. Other promotional initiatives included the restoration of a Yew Walk in Clonfert Abbey, the commission of three native timber sculptures, native woodland management courses, seed collection programmes and a public relations plan, which included a web site.

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Black Stack *by Derek Whitticase in People's Millennium Forest, Ballygannon, Rathdrum, Co. Wicklow*

Ballyvary: Native Woodland establishment under the Native Woodland Scheme

The site for creating new native woodland straddles a portion of two townlands near the village of Ballyvary, Castlebar, Co. Mayo. It is sandwiched between a main highway and the Ballina rail line. A section of the site has a riparian zone , a tributary of the Moy, which has SAC status. No existing woodland was recorded on the first and second editions of O.S. maps.

The topography is mainly drumlin, former flood plain and fen bog. There are areas of both improved and unimproved grassland. Limestone boulder and gravel lie close to the surface. The entrance to the southern portion of the site was formally a quarry site. There is a small hazel woodland on rocky outcrop adjacent, on which a coppice rotation is being developed since 2001, funded by the NWS.

In the process of afforesting the site, retained habitats include calcareous grassland, wet meadow, fen bog, blackthorn scrub, hedgerows and dry stonewalls. Based on the ecological survey, it was decided to plant WN2 / B2 (oak/ash /hazel) woodland type primarily, with some variation on areas inclined to temporary inundation or water logging in winter, which contain more frequent plantings of birch and alder. Novel features include a section of drystone wall repair, hedgelaying and combinations of both.

Silvicultural objectives include the expansion of the existing hazel coppice and some production of ash, birch and alder sawlog. The wood will also be a fuelwood resource, a wildlife refuge and a major component in plans for eco-tourism and craft training locally

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Rustic furniture by Muintir na Coille – Coppice Association of Ireland.

Union Wood, Co Sligo: NPWS experience of the Native Woodland Scheme

Union Wood has been designated as a candidate Special Area of Conservation under the EU Habitats Directive. The site is listed due to the presence of old sessile oak woods with *Ilex* and *Blechnum* which is an Annex I habitat. The wood is one of the best remaining semi-natural oak woodlands in the region.

About 45% of the site consists of mature sessile oak dominated woodland mixed with downy birch, holly and rowan. 55% of the site comprises mixed woodland and conifer plantation. The soils of the area are generally acidic, the ground flora typically dominated by greater wood-rush, though the southern portion of the site is more base rich and shows a good distribution of bluebells and more calcicole plants. The site also contains a good range of sub-habitats, including deeper soils supporting ash and hazel woodland, streams, and pockets of damp woodland typified by remote sedge. The shrub and ground flora is diminished by grazing but localised areas support a rich diversity of bryophytes and herbaceous plants such as enchanter's nightshade, pignut and violets. Pine martin, red squirrel and badger use the site.

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Conference delegates visit, Union Wood, Co. Sligo.

A giant oak tree at Charleville Estate known as the 'King Oak' is estimated to be over 400 years old.

Charleville: The Owner's Perspective of the Native Woodland Scheme

KEY WORDS: Charleville Estate, Native Woodland Scheme, SAC, woodland owner

This paper gives a brief description of Charleville woods, drawing attention to the decline of native woodland in the last 50 years using the Tullamore area as an example. It compares the prices of native woodland trees over the last 200 years.

The paper discusses the factors that have influenced woodland owners during the last 50 years, particularly land reclamation and agricultural expansion following Ireland's entry to the EEC. The effect of the drive to plant softwoods in the middle of the 20th century is also discussed. The paper examines the emerging problems relating to native trees in the context of the overall development of Ireland and raises the issue of public insurance.

The paper explains personal reasons for welcoming the Native Woodland Scheme (NWS) and the preservation of biodiversity. The woodland, which has been entered into the NWS, is described briefly and the importance of prioritising work in order to achieve the best possible result from the finance available is illustrated. The importance of timing in wet woodland activities is highlighted and personal experiences of difficulties of NWS deadlines and the interval between actual expenditure and receipt of grant are discussed.

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This deer fence at Charleville will greatly reduce grazing pressure from deer and allow the woodland to regenerate. Deer fencing is one of the most costly operations funded under the Native Woodland Scheme.

The Native Woodland Scheme from the Forestry Contractor's Perspective

For the past number of years the priority of the forest contractor has been to provide the woodland owner with a service that is heavily focused on conifer establishment, timber extraction and vegetation control, at a very competitive cost. Escalating labour costs and insurance cover has compelled the contractor to invest more heavily in up-to-date machinery and equipment.

The introduction of the native woodland scheme has provided new challenges for forest contractors. Work practices on sites must now be adopted where the emphases are much more focused on habitat retention, flora and fauna protection and long-term conservation work as laid down in the relative management plan. The management plan expects work to be carried out to a very high standard, while still giving good value to the owner. Work often has to be completed over a very short time span, when conditions are poor, creating serious difficulties for the contractor.

The contractor can address the problems to a certain extent by becoming more informed on native woodland management and understanding and perfecting the different skills required. They must also look at new ways of adopting machinery and work practices, so as to comply with the protection of sensitive habitats, as prescribed in the management plan.

It is also incumbent on the managers and ecologists to be familiar with the practical difficulties encountered by contractors. They need to be aware of possible expenditure that will be incurred when setting out prescriptions in the detailed schedule of proposed operations. Communication with the contractor prior to completing the management plan could be beneficial all round. Communications between management and contractors should be ongoing when work is in progress on the site.

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Careful removal of conifers at St Saviour's Wood, Glendalough, Co. Wicklow

Creating new riparian woodlands

THEME 5: THE FUTURE OF IRELAND'S NATIVE WOODLANDS

Expanding Native Riparian Woodlands; A Strategic Approach

Commercial forestry activity has had a significant impact on ecological functioning of Irish rivers due to: hydrological change; deterioration in morphological structure; nutrient enrichment; changes to sediment transport regimes; acidification. In response, Forest Service guidelines that exclude forest activity from riparian zones have been instituted in order to protect watercourses and their fisheries potential. Furthermore new legislation enacted under the E.U. Habitats Directive will seek to further limit forest development in riparian areas. Yet, excluding trees from riparian areas completely maybe counter-productive, as sensitively established native riparian woodlands (as opposed to commercial plantations) have the potential to provide a number of tangible benefits for stream ecosystem functions: temperature regulation; increases in habitat complexity and stability. These positive impacts will be critical in protecting aquatic resources where climate change is already resulting in significantly higher freshwater temperatures and episodic and extreme delivery of water (rainfall) to river systems. The existing native woodland legacy is fragmented and isolated. Population dynamic theory would suggest that without connectivity and critical mass, such isolated entities are unlikely to survive. There are 78,000 km of rivers and streams in Ireland and an estimated 5,000 lakes. Every fragment of native woodland in the country is adjoined by at least one stream or lake. The river network, therefore, provides the best opportunity to reconnect fragmented and vulnerable native woodland ecosystems. Here, I consider some of the advantages for establishing native riparian woodlands for river ecosystem health. I suggest that the river network provides an obvious framework for reconnecting and reinvigorating the existing native woodland resource. I suggest a strategic approach utilising the planning potential of geographical information systems (GIS). I conclude that native riparian woodland can have a dual effect benefiting the health of both native woodlands and watercourses. I recommend, however, that the native riparian woodland development must be a managed process as unregulated development of riparian woodland (tunnelling) can have a detrimental effect on aquatic invertebrate communities and fish production potential.

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A Practical Approach to Riparian Woodland Management in Scotland

Remnants of a Scottish native woodland in a steep gully

Borders Forest Trust is a Scottish Charity set up in 1997, in response to the threats to our pathetic remnants of native woodland, the opportunity to use some of our own hardwood timber to create furniture and jobs, and to allow local people to become involved in woodland management. The Trust now manages over 2,500ha, and owns almost 700ha of land in the Southern Uplands, where native woodlands and associated habitats are being restored.

The Trust works closely with the Forestry Commission Scotland, and with other interest groups through the local biodiversity action plan, to identify priority areas where Forest Habitat Networks can be created in the Borders, and to quantify targets for restoration of native riparian woodlands. Since 1997, BFT, working in partnership with the Tweed Forum (a body set up to draw down lottery fund money in the Borders) and setting up a Riparian Woodland Network project, has planted over 176ha of native trees, enclosing 630 ha and requiring stock fencing of 24km.

This project is typical of how BFT operates. Local landowners are persuaded to give land over to BFT for management, and BFT arranges all the required contracts with Forestry Commission Scotland, Agricultural department, fence contractors, tree suppliers, etc, and ensures that the trees become established.

Future changes in farming subsidies will be an important factor in the availability of land for a future Forest Habitat Network. Just as important however, is the underlying attitude of landowners and their disposition to restoring native woodlands. BFT is at the forefront of a gradual change in attitude in landowners and government bodies.

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Managing the threats of invasive species to Ireland's native woodland

KEYWORDS: Invasive species, beech, sycamore, rhododendron, Japanese knotweed.

Flower head of the invasive shrub Rhodendron ponticum *which can produce up to 7,000 seeds per annum.*

More than half of the species found in the British Isles have been introduced by human activity. Some of these species are widely naturalised and in some cases have proven invasive in both highly disturbed and semi-natural habitats. Many native woodlands are affected by invasive species and such invasion can damage the integrity of the woodland by:

(i) simplifying the woodland structure;
(ii) reducing native biodiversity; and
(iii) inhibiting natural regeneration of the native canopy trees.

Where native woodland conservation is the management objective, action is required to deal with invasive species and to minimise their negative effects on the woodland ecosystem.

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The activities of deer (Sika stag above) cause severe damage to woodlands.

Managing the Threat of Mammals to Ireland's Native Woodlands

KEYWORDS: management, protection, shooting, fencing, tree shelters, chemicals.

Traditionally shooting was the usual method of dealing with threats of damage by mammals to agricultural, forestry or sporting interests. When carried out by trained and experienced people this remains the most cost effective method of management. The most severe damage to woodlands can arise from the activities of deer and goats. Squirrels, both grey and red, can also cause significant damage. Hares and rabbits can be a problem in the early years of tree establishment.

As an alternative to shooting, adequate fencing and the use of tree shelters offer effective but costly methods of protection. Chemical deterrents are expensive to apply and may only last a few months.

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Birch: A pioneer species, now recognised as having commercial timber potential for furniture manufacture.

The Potential of Wood Production from Ireland's Native Woodlands

This paper lists native timber species with commercial potential. It identifies the type of wood products that may be derived from these species, ranging from small diameter wood to sawlog, and looks at the markets that are available. For the production of commercial timber, quality stems must be produced. The requirements for quality timber production are considered in the context of native woodland management. Market accessibility and prices, as well as costs relevant to the production of saleable wood, are addressed.

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The Potential for Non-Timber Forest Products in Ireland

KEYWORDS: ecosystem services, non-timber forest products, sustainable harvest

Non-timber forest products (NTFP) are elements from a forest that can be sold but do not involve harvesting timber. NTFP comprise a wide range of products, from Brazil nuts to carbon sequestration. NTFP are often associated with the diverse forests of the tropics, where forest foods and fodder may still be important parts of rural livelihoods, but old traditions in Ireland include NTFP such as collecting fruits, nuts, herbal remedies, honey, and leaves for fodder. Potential NTFP in Ireland today include foliage and mosses in floral arrangements, photographs of wildlife, and even dyes made from higher plants and lichens.

Other ecosystem services, such as contribution to landscape and conservation of biodiversity, are also important potential products but are harder to value because of being indirectly rather than directly sold in the marketplace. These services, however, may be essential either for human physical health, such as protection of watersheds from flooding, or psychological health, such as places to inspire artists and places for people to recreate.

It is important not to assume that any elements of an ecosystem can be harvested without consideration of population dynamics and ability to replenish. Bryophyte harvesting currently ongoing in North America, for example, may be unsustainable as branches cleared ten years ago have not yet re-grown their moss mats. Biodiversity is a keyword in forest policy today, and therefore using any aspect of the diversity, whether trees or other components of the ecosystem, should be done carefully and with harvest levels deemed sustainable with the best of ecological knowledge.

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Potential markets for non-timber forest products include foliage and mosses for floral arrangements and dyes made from higher plants and lichens (above).

Upland birchwood, Scotland.

Native woodland development: the UK experience

KEYWORDS: Native woodlands, restoration, expansion, habitat networks.

Interest in native woodlands in the UK has increased exponentially since the 1980s and they have moved from a fringe interest to become part of mainstream forestry, well embedded in policies and practice. We initially focused on site protection in designated sites and ancient woodlands and these remain core concerns. But ambition and action has progressively moved to native woodland restoration on ancient sites, improving condition of degraded woods and expanding the area of native woods (through new planting, natural colonisation and conversion of 20th century plantations). Grants to woodland owners have been key tools alongside management and restoration of the national forest estate. Developing techniques for restoration and establishing new native woodlands with a native character is still a technical challenge. We have had failures and some exciting successes and engendered new partnerships in the process. We are now increasingly grappling with larger-scale, joined-up thinking and planning to overcome the limitations of managing fragmented sites, which appear even more vulnerable in the face of climate change. Creating networks and mosaics of native woodland areas which are functionally linked to benefit both woodland species and processes is increasingly the ambition to ensure the best chance of healthy native woodland ecosystems in the future. Although driven initially by nature conservation concerns, the increase in the native woodland resource will mean there will be room in future for a diversity of types and of approaches to management, ranging from productive native plantations to minimal intervention reserves.

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Ireland's Native Woodland Conference
8th – 11th September 2004

Poster abstracts

Pedunculate oak (*Quercus robur*), Ash (*Fraxinus excelsior*), Hazel (*Corylus avellana*, and epiphytic moss *Neckera* sp.)

Calcareous/base-rich soils

Crann

Crann is Ireland's leading voluntary tree organisation. It is a membership-based, non-profit registered charity uniting people with a love for trees and was founded in 1986 by Jan Alexander. Our aims are to stand up for trees by giving trees a voice, promote a wood culture and to favour sustainable and biodiverse woodlands.

Crann achieves its aims through education, promotion, the media and in the trees we have helped to plant all over Ireland. Crann publishes Ireland's only tree magazine. Crann is its members and can only continue to be effective through the on-going activities and hands-on work of its board and membership.

Tree cover in Ireland has plummeted to less than one percent due mainly to human intervention. As a result of this, trees and their relevance have gradually disappeared from people's lives. The essential continuity of woodland planting, management and use, from generation to generation, which is part of country living in continental Europe, is almost totally absent here in Ireland. This has led to a lack of appreciation of the importance and value of trees.

Crann aims to re-establish our historic and cultural links with trees and woodlands by demonstrating the social, ecological and financial value of trees. We aim to lobby, inform, educate and promote trees by giving trees a voice!

Author: Steven Meyen, Chairperson of Crann, www.crann.ie

The Significance of Charred Wood Deposits in Archaeological Contexts: A Case Study from an Iron Age Pit Burial at Raffin Fort Co. Meath

Raffin Fort is a multi-period site, with archaeological features dating from the early Neolithic to the late Iron Age. The Iron Age features consist of a hengiform enclosure, 65m in diameter, and a central ring ditch, 9m in diameter, which is in turn encircled by a ring of six free-standing timbers. These have been interpreted by the excavator, Conor Newman, as being ritual or ceremonial in nature. The wood analysed came from a pit discovered beneath a large standing stone that stood in the north-eastern part of the enclosure. Partial remains of a human skull, two animal bones and eight layers of deposition were recorded in the pit. Five of the eight layers in the pit contained charcoal.

The objective of my research was to analyse the charred wood remains in order to create a better understanding of the local woodland environment of Iron Age Raffin, to investigate the possible selective use of wood and to consider the wood remains in a broader sense, by exploring the role and significance trees, wood and woodlands in a late Iron Age context. The use of wood at Raffin was probably more than a purely economic exercise; there were also social and cultural dimensions to the selection, use and deposition of the wood. Ethnographic studies of contemporary societies and historical accounts indicate that trees, wood and woodlands have played, and continue to play, an important role in articulating human concerns and this has been taken into account when interpreting the wood remains.

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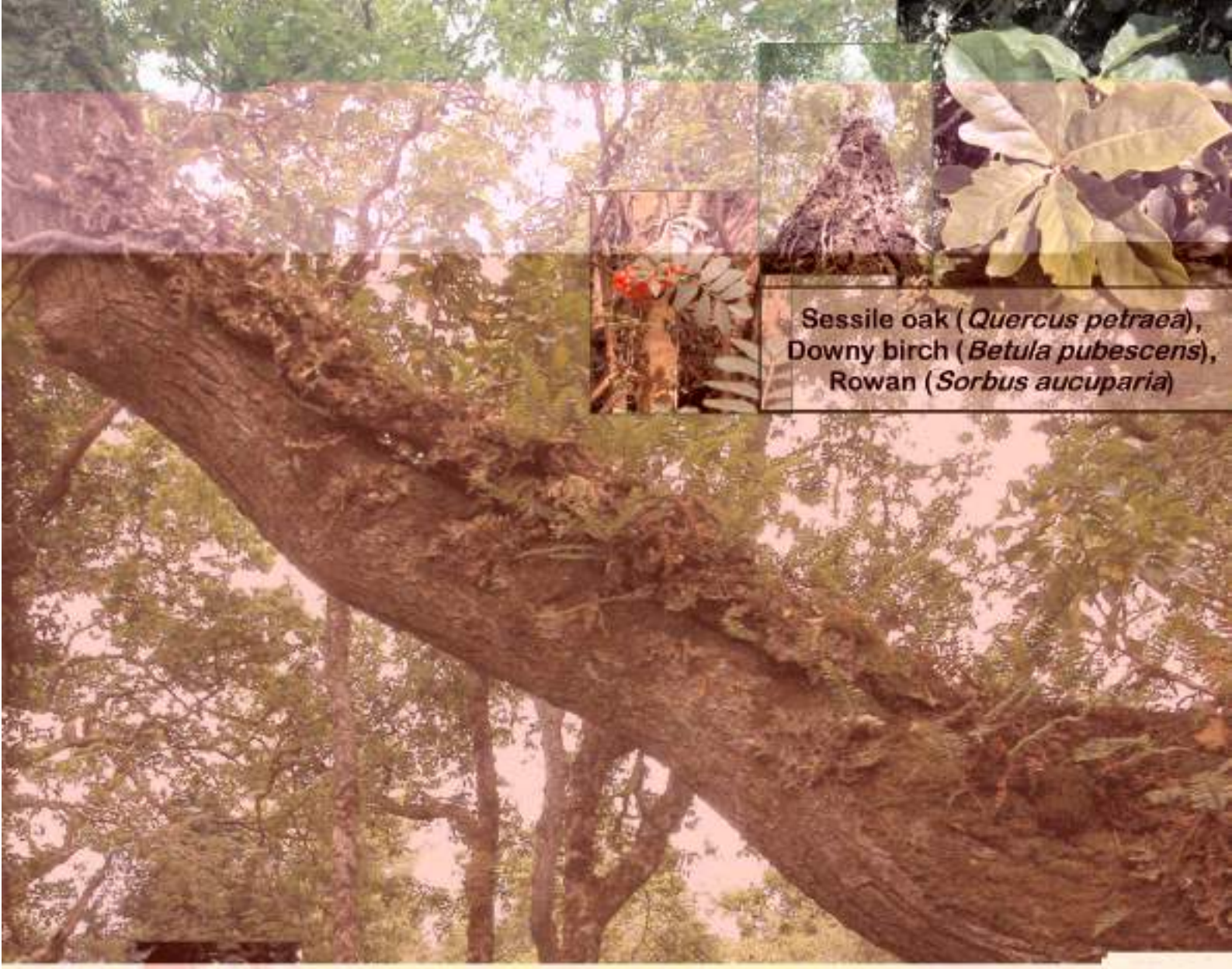

Sessile oak (*Quercus petraea*),
Downy birch (*Betula pubescens*),
Rowan (*Sorbus aucuparia*)

Hard fern (*Blechnum spicant*) and Hay-scented Buckler fern (*Dryopteris aemula*), Great wood-rush (*Luzula sylvatica*), mosses like *Dicranum* and *Polytrichum* spp.

Holly (*Ilex aquifolium*)

Blechno-Quercetum
(oak-birch-holly)
Acid/base-poor soils

Photographs by Sasha van der Drees

Map of the Natural Vegetation of Europe

The Map of the Natural Vegetation of Europe is the result of more than 25 years of international cooperation between all the countries of Europe. It is the first of its kind produced for a whole continent to show so much detail (scale of 1:2.5m). It depicts the potential natural vegetation that would develop in the current climatic and edaphic conditions but it also characterises remnants of existing vegetation. Two maps are presented:
1. A general map of Europe (1:10m) showing the principal vegetation formations or types, clearly distinguishable as belts or zones from north to south. The major forest types can be clearly seen.
2. A map of Britain, Ireland and adjacent parts of the continent showing the vegetation in more detail (1:2.5m). The distribution of the forests is clearly visible.

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Back on the Map: The Search for Northern Ireland's Ancient Woodland

KEYWORDS: Ancient woodland, long-established woodland, historical, maps

Preliminary map work has found around 2,750 woodland areas over 0.5 ha in Northern Ireland that have been continuously present since the first edition Ordnance Survey maps were produced in the 1830s. During 2004 and 2005 these sites are being subjected to further detailed archival work and field survey to distinguish ancient woods (present since at least 1600) from long-established sites (present since 1830 but not proven to be ancient).

Detailed archival evidence from cartographic and written sources such as 17th century Bodley and Raven maps and OS memoirs (19th century) is being collated for a subset of sites for which the best archive evidence exists. Trees, shade tolerant vascular plants, bryophytes and a range of pre-determined physical features are being recorded in each woodland.

This will produce a core list of woodlands that may be classified as either long-established or ancient with some certainty. By using the field survey data and the archival information in tandem we hope to characterise long-established and ancient woodland habitats. Indicator plant species and physical features will be derived from this study that will allow us to categorise the remaining sites as either long-established or ancient. Case studies of woods investigated so far in 2004 show some of the historical sources used, and some of the physical features found in woods thought to be ancient.

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The Irish Soil and Subsoil Mapping Project

The Irish Soil and Subsoil Mapping Project involves the mapping of subsoil, land cover and topographic features nationally using remotely sensed imagery and ancillary data, from which soil type and habitat are modelled. The maps are being used as baseline datasets for the Water Framework Directive Initial Characterisation of River Basin Districts.

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Survey and Classification of Farm Woodlands in Northern Ireland

KEYWORDS: woodland, management, regeneration, ground flora, agri-environment

Baseline botanical surveys of 63 farm woodland sites managed under agri-environment schemes in Northern Ireland were carried out in 2002/3.
Ground flora, shrubs and trees were recorded in permanent quadrats. Seedling and sapling density were also measured. Sites were classified into four main woodland types using TWINSPAN. These groups were also described in terms of NVC and UK BAP priority woodland habitats. Future monitoring aims to determine the effect of management prescriptions on tree regeneration and species diversity.

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Woodland Grazing in Northern Ireland: Effects on Botanical Diversity and Tree Regeneration

Northern Ireland is the least-wooded region of the EU. Semi-natural woodland exists as small fragments adjacent to areas of pasture. These remaining fragments of semi-natural woodland usually survive adjacent to grazing land and include many woods that have been grazed by deer and domestic stock for many hundreds of years. Concerns over lack of regeneration in these woodlands have prompted agri-environment policy makers to exclude all grazing livestock from woodlands in agri-environment agreements. Exclusion of large herbivores can produce dramatic changes in the structure and composition of the woodland, which can lead to a reduction in tree seedling recruitment and plant and animal diversity. Grazing by large herbivores can help to maintain diversity in the structure and composition of the woodland vegetation. Results of a two-year survey of semi-natural woodlands in Northern Ireland are presented with respect to the effects of livestock grazing and stock exclosures on the ground flora and tree regeneration.

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Automatically Detecting Irish Hedgerows from Aerial Colour-photography: A proposed national map

A national hedgerow/woodland map would be of obvious and enormous benefit to researchers, planners and environmentalist across the country. Traditional manual interpretation and digitisation of aerial photography is laborious and expensive, thus no national map has been produced. This poster demonstrates a new method for the unsupervised classification of colour aerial ortho-photography, specifically to detect hedgerows and small parcels of woodland/scrub. The technique is shown to work in the Slieve Bloom mountains and the map produced is compared with existing forestry maps of the area. The poster highlights how work in progress in the Spatial Analysis Group in Teagasc could be expanded to produce a national hedgerow map, quickly and cheaply.

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Setting up a representative strictly protected forest reserves network in South-West Germany

Baden-Württemberg, the region around Freiburg, Karlsruhe, and Stuttgart in south-west Germany is an area which is highly differentiated by geomorphology, geology, and climate. How can the variety of forest types present in this area, be represented in a network of strictly protected reserves and why?

The design of strictly protected forest areas was orientated on the local site conditions, i.e. climate, geology, and geomorphology, which have been mapped out for the entire area of the public forest ((800.000 ha). For the various site types, the corresponding potential natural vegetation i.e. the typical forest for that site, was defined and the regional site type balances were calculated. Strictly protected forest reserves are set up according to the regional area balances of the site types: 1 % of the respective area in a region will be set aside in strict reserves. This means that not only a few large-scale reserves, but numerous areas, each comprising 50 – 200 ha, will be strictly protected in a representative distribution. At the moment, about 100 strictly protected forest reserves have been set up on an area of approximately 6.800 ha; ultimately about 200 reserves on 13.000 ha are intended.

Strictly protected forest reserves will not only serve nature conservation interests, but will also be useful as representative silvicultural models for close-to-nature silvicultural practices within the whole forest area. Therefore, the representativeness of the network – including common as well as rare forest types – is the crucial point of the programme

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A Survey of Potential Biodiversity Areas in the North Mayo Forestry Management Unit

Over the past four years Coillte has been conducting biodiversity surveys within the various Forestry Management Units (FMUs) that make up the Coillte estate across the country. The main objective of this survey programme is to identify at least 15% of each FMU area which will be managed primarily for biodiversity/nature conservation purposes in the future. This poster outlines the highlights of the biodiversity survey within the North Mayo FMU.

The North Mayo FMU is one of the larger FMUs in the country, covering an area of c. 25,900 hectares. Approximately 81% of the FMU area consists of lodgepole pine and sitka spruce plantations (mostly on peat) while another 17% of the FMU area comprises open, unplanted areas of blanket bog and wet heath. Although unplanted areas of blanket bog and wet heath make up a large proportion of the proposed biodiversity area, a number of interesting stands of native woodland and scrub occur, particularly along riverbanks in the south-east of the FMU. These include well-developed stands of oak-birch-holly woodland (WN1) and wet oak-ash woodland (WN4). In addition, there is considerable potential to increase the area of native woodland and scrub throughout the FMU, particularly in riparian zones which have been cleared of conifers within the last few years.

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Climate change, grazing animals and fire in Irish native woodlands: past, present and future

KEYWORDS: charcoal, disturbance, Giant Irish Deer, Pinus sylvestris*, pollen analysis.*

Surviving Irish native woodlands are considerably altered from their natural condition in both composition and structure. The main drivers of this alteration have been direct human influence through species introductions and selective felling, and alterations of the natural grazing, flooding and burning regimes. Climate change of both natural and anthropogenic origin and the process of tree migration after the last ice age have also contributed to the dynamic history of native woodlands. Climatic modelling suggests that *Fagus sylvatica* and *Pinus sylvestris* are not currently suited to the Irish climate and predicts that even *Quercus robur* may become rare in the future. Pollen analysis indicates that *Fagus* is an introduction to Ireland, while *Pinus* was widespread in the past. *Quercus* has been abundant for over 9000 years. *Pinus* flourished throughout the country after the last ice age and survived in the west until the historic period. Preserved charcoal fragments show that natural forest fires were important between 8-9000 years ago where *Pinus* was abundant, just as in Scandinavia today, and burning had a considerable impact on forest processes. Fires today are of anthropogenic origin and usually begin outside woodland areas. When they spread into woodlands it is regarded as a conservation problem, even though some important plant species, such as *Arbutus unedo*, are well adapted to occasional burning.

Grazing animals such as deer, sheep and cattle are a common feature of present-day woodlands. Some believe that they have been of great importance in the past, but there is little evidence of this in Ireland. The Giant Irish deer may have limited the distribution of birch forest at the end of the last ice age with its insatiable appetite, but wild cattle have never been recorded in Ireland and red deer populations must have been low or non-existent during the early post-glacial period. Yet the post-glacial development of light-demanding forest trees such as hazel and pine was almost identical in Ireland and Britain. This supports the theory that large grazing animals had rather little impact on Irish forest composition and structure under 'natural' conditions. Studies of past forests help separate anthropogenic impact from natural processes and form an important reference for understanding the present and planning for the future.

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Ballyannan Wood: Biodiversity of an Ancient Plantation Woodland

Ballyannan Wood is a 24.5 ha plantation woodland in Co. Cork with a canopy dominated by non-native species. As part of the Ballyannan Wood Nature Reserve Project, we carried out surveys of the woodland vegetation, molluscs, hoverflies, birds and mammals, and have researched the history of the wood. There is documentary evidence of continuous woodland cover at Ballyannan since the 1650s. The woodland vegetation includes a large population of Wood Millet (*Milium effusum*), a rare woodland grass and potential ancient woodland indicator. The molluscan fauna is quite poor, in part due to the abundance of Bluebells (*Hyacinthoides non-scripta*), but includes one scarce species, *Perforatella subrufescens*. There is a well-developed hoverfly fauna, including a good representation of species associated with dead wood habitats. The results of our surveys show that a woodland with a high component of non-native canopy cover can support a good range of woodland biodiversity. We have developed a management plan for the wood to maintain and enhance the important features of the wood, and to demonstrate typical methods of woodland nature conservation management.

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Forest of Belfast

The Forest of Belfast is the urban forestry partnership covering the greater Belfast region. The project is promoted by a Forest Officer and brings together central government, local government and voluntary sector environmental organisations. Since the formation of the Forest of Belfast in 1992 over 100,000 trees have been planted, in both public and private land. There is now an increasing emphasis on promoting tree management. This is being achieved by monitoring the health of trees planted through the scheme, working with organisations responsible for planning and tree preservation orders and by encouraging major landowners and householders to care for their trees.

Increasing awareness of the importance of city trees is promoted through arts projects with an average of three sculptures being commissioned for urban parks and open spaces each year, through the media and by promoting the historical and cultural value of trees, which includes a study of the folklore of trees in Ireland. Research is a significant part of the initiative and a multi disciplinary publication on the heritage and biodiversity of Belvoir Park, an estate near Belfast that includes ancient oak woodland, is in preparation.

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The Ecology of Red Squirrels (*Sciurus vulgaris*) in the West of Ireland, with a view to Potential Translocation Opportunities to Uninhabited Areas of Connemara

Since the introduction of the American grey squirrel (*Sciurus carolinensis*) to Ireland, the native red squirrel has been in decline. Red squirrels have disappeared from large areas in the east of Ireland, where the greys are prevalent. Typically the reds are out-competed by the greys in broadleaved and mixed conifer areas. The greys have yet to move into the west of Ireland, with the River Shannon acting as a formidable barrier. In the Connemara area of County Galway, there are large mixed coniferous woodlands, uninhabited by either species of squirrel that could potentially offer the red squirrel a safe haven for the future. These woodlands offer a suitable habitat for the reds, and are isolated to such a degree that the greys are unlikely to reach them, even if the Shannon is breached. If red squirrels can be successfully translocated into these untapped habitats their status in Ireland may be assured.

This study aims to expand our knowledge of the ecology of the red squirrel in Ireland and if feasible, introduce red squirrels into a large coniferous woodland. Some success has been achieved with translocation projects in Britain, and the aim is to improve on their techniques and success rate, and to develop translocation procedures specifically suitable for the unique squirrel fauna in Ireland.

This study will be carried out under consultation with fellow squirrel researchers in Ireland, members of the British Mammal Society and the Northern Ireland Squirrel Forum. Translocation work will take place in consultation with Coillte, and the Department of the Environment, Heritage & Local Government.

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Terryland Forest Park

Terryland Forest Park is a true urban forest located within the heart of Galway City. You will find it as it follows the line of the Sandy River (nee Terryland River) from the Corrib River near the Quinncenntennial Bridge to the Swallow holes at Glenanail on the eastern side of the City. The park is unique in that all plantings are entirely native species. In fact some of the crop is grown from native seed. The park currently covers an area of around 15 to 20 hectares, it will eventually reach 65 hectares.

The project is being steered by Galway City Council and is facilitated by a consultative steering committee composed of various stakeholder groups within the City and the City Council. The project is also unique in that it is a blend of culture, art, crafts, silviculture and horticulture and will eventually form a nucleus for alternative recreational values within the City.

One of the most notable aspects of the project has been an extensive calendar of participatory events. The posters depict advertising for several of these events; including Plantathons, Bulbathons and Feile na Samhain festivals. The artwork was carried out by Mr. Lol Hardiman a freelance artist who is also a steering committee member.

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Ireland's Native Woodland Conference
8th – 11th September 2004

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OF IRELAND
Coillearnacha Dúchasacha

Native woodland once covered most of the island of Ireland, yet today surviving fragments of this once vast forest comprise approximately 1% of the country's land area. Without active management and protection these valuable ecosystems will fast become a fading legacy.

Established in 1998, Woodlands of Ireland is dedicated to the protection, enhancement and expansion of Ireland's native woodland resource and its associated biodiversity.

Woodlands of Ireland is co-funded by the Forest Service (Department of Agriculture and Food), the Heritage Council and the National Parks and Wildlife Service (Department of the Environment, Heritage and Local Government).

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