



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

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Abstract

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 been 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.

Background

Native woodlands cover no more than 1.5% of the Irish landscape today. It is estimated that native woodland cover was over 80% c. 6,000 years ago but that woodlands have declined since then due to human impact - primarily through clearance for agriculture - and climate change, resulting in the spread of blanket bog. The history of Irish woodlands is one of decline, over-exploitation and latterly, neglect (Little, 2002). The resource is currently fragmented and is threatened primarily by overgrazing, invasive exotics and development activities.

In recent years, native woodlands have received a lot of attention through concerted efforts to urgently address their current plight. The dawn of a new millennium presented an opportunity for many concerned individuals and groups to present proposals for a millennium project on native woodlands. The establishment of a body in 1997, namely Woodlands of Ireland, to focus these efforts in partnership with all interested stakeholders, also provided the impetus to develop, not only a millennium project, but other projects designed to secure the future of the native woodland resource.

To date, two major initiatives have been developed -a millennium project entitled 'The People's Millennium Forests project' and the Native Woodland Scheme.

The first of these, managed by Coillte Teo. in partnership with Woodlands of Ireland, the Heritage Council, the Forest Service and National Parks and Wildlife Service (NPWS), has been implemented successfully and was designed primarily to create awareness amongst the general public about native woodlands.

The second initiative, the Native Woodland Scheme (NWS) is currently being implemented by the Forest Service. The NWS provides support to landowners to protect and enhance existing native woodlands and to establish new native woodlands, using 'close-to-nature' silviculture. (Anon., 2001). In 1999, Woodlands of Ireland submitted a draft NWS to the Forest Service. It was further developed and finalised by a technical working group established by the Forest Service, which comprised of woodland ecologists, foresters, contractors, relevant State bodies (i.e. Forest Service, NPWS, Marine Institute, COFORD, Coillte, etc.) and environmental non-Governmental organisations (ENGOS) such as Crann. As there was relatively little experience in native woodland management in Ireland at that time, guidelines of best practise were drawn from the management of woodlands by the NPWS, the Millennium project and experience derived from woodland management in the UK. Management at Brackloon Wood, a pilot site for the scheme, also contributed to this process.

Brackloon Wood – pilot site for the Native Woodland Scheme

Prior to the introduction of the NWS, native woodlands were managed on an *ad hoc* basis, usually in the public sector and especially under the auspices of the NPWS, i.e. woodlands were targeted for management at a regional level as opposed to a national strategy. Until recently, the Forest Service had a selection of forest and woodland schemes but none that were suitable for the ecological and conservation requirements of native woodlands.

The Forest Service 'Woodland Improvement Scheme' (WIS), which was most often applied to old plantation woodlands, was designed to encourage quality wood production in often derelict, unmanaged old woodlands. Though its focus was not primarily nature conservation or ecologically oriented, the scheme did provide a template that could, with considerable adjustments, be tailored to meet the requirements of native woodlands. This is especially the case where the overriding conservation objective of the NWS is augmented with a secondary wood production objective.

The owners of Brackloon Wood, Coillte Teoranta, designated the site for biodiversity management in 1995. It was opportune that the management of the wood also coincided with the development of the NWS. Consequently, it allowed for the WIS management plan to be amended in order to meet the specific ecological requirements of the wood whilst at the same time identifying areas where wood production could be encouraged. In addition, the research and monitoring databases provided useful information in the development of management initiatives.

Research and monitoring input

Brackloon Wood is situated 4 km east of Croagh Patrick mountain and 7 km south-west of Westport, Co. Mayo. It is set in a landscape dominated by rolling topography with frequent rock outcrop, marginal pasture and regenerating, secondary woodland. The wood is classified as Oak-birch-holly semi-natural woodland (WNI) (Fossitt, 2000). It is believed to be 'ancient woodland' (i.e. woodland present since at least 1600) as evidenced from recent palaeoecological investigations (pollen analyses and radiocarbon dating) (von Engelbrechten *et al.*, 2000). Soils are generally shallow, stony, acidic and infertile and are derived from base-poor schists and gneiss. Annual precipitation, at approximately 1700 mm/yr, and a high year-round humidity regime contribute to soil leaching and consequent podzolisation (Little *et al.*, 2001).

As part of a doctoral research project Brackloon Wood was included in a nationwide study of oakwood sites on acid soils in 1990 (Little, 1994; Little *et al.*, 1997). This study also undertook to investigate the history of land use and woodland development over the centuries to help understand the development of acid soils, specifically podzols, under the current oak-dominated canopy. Subsequently, the wood was included in the EU forest health programme (EU International Co-operative Programme established under EU Regulation 3528/86) in 1991. The aim of this monitoring is defined as 'intensive monitoring of forest condition aimed at the recognition of factors and processes, with special regard to the impact of air pollutants, on the more common forest ecosystems in Europe'. To this end the chemistry of ecosystem water strata (bulk precipitation, throughfall, stemflow and soil water) are analysed on a weekly to 4-weekly basis, in addition to tree litter and foliage (Boyle *et al.*, 2000). A complimentary tree root survey (and charcoal analyses) was undertaken at that time (Delaney, 1992).

Expansion of monitoring and complementary research studies began in 1996 when Brackloon Wood became the prototype site for a proposed Irish Ecological Monitoring Network (IEMN) (Little *et al.*, 2001). The site was chosen on the basis that it represents a very common woodland type extant in Ireland, is similar to the majority of semi-natural woodlands with respect to human impact, and its consequent 'medium' biodiversity rating, which is almost certainly similar to many of Ireland's remaining ancient woodlands.

Monitoring of flora and fauna using best practise was instigated and generated a considerable data set. These included flora (Fox *et al.*, 2000), birds (Duffy *et al.*, 1999), mammals (Dowling, 1997; Turner, 1998; Reynolds, 1998; Laurent, 1998) soil and surface invertebrates (Gaughran, 1997; McInerney *et al.*, 2000). Nuclear fallout, primarily from Chernobyl, was also assessed (Seymour *et al.*, 1999).

In addition, complimentary studies contributed to the interpretation of monitoring data and included a management plan (Daly, 1997), a soil survey (Cummins, 1997), a study of human impact on soil and vegetation dynamics (Ciaurriz, 1997) and palaeoecological investigations (von Engelbrechten *et al.*, 2000). Examination of charcoal in soil and archaeological remains has also contributed to our understanding of past human impact and woodland development (Delaney, 1992; Morahan, 2001).

Results and conclusions of research and monitoring

A number of interesting preliminary conclusions can be drawn from the research and monitoring at Brackloon Wood. The floral survey yielded a number of rare woodland specialists, including wood melic (*Melica uniflora*). Narrow-leaved helliborine (*Cephalanthera longifolia*) is also present and the lichen known as 'lungwort' or 'elephants ear' (*Lobaria pulmonaria*) is very common. The first Irish record of a lichenicolous species *Pronectria anispora* (a fungus that is parasitic on a lichen) was made during the vegetation survey. In total, the species list comprises 116 vascular plants, 11 ferns, 306 bryophytes and 437 fungi and lichens. The riparian zone between the wood and the Owenwee river, which is continuous wet woodland, is the most diverse zone with respect to flora in the woodland, especially with respect to mosses, liverworts and ferns.

There is a considerable variety of soil types throughout; acid brown earths, brown podzolics, humo-ferric podzols and peaty gleys predominate (Cummins, 1997). The relationship between soil type, topography and woodland plant communities confirmed the preferences of species to specific conditions, especially as there are very acid, moderately acid and waterlogged soils present in an undulating landscape (Ciaurriz, 1997). Soil faunal communities within the wood also vary with soil type, with more earthworm species and populations present in acid brown earth soils compared to brown podzolics, podzols and gleys (McInerney *et al.*, 2000).

The mammal surveys identified the roosting sites of bat species and helped elucidate changes in the population dynamics of wood mouse (*Apodemus sylvaticus*) as a result of disturbances such as clearfelling. A large badger (*Meles meles*) population is present as evidenced by an extensive sett with outliers. Though there are few faunal woodland specialists in the wood, the presence of pine marten (*Martes martes*) has been confirmed. Most species of birds are opportunistic generalists, however the presence of the long-eared owl (*Asio otus*) is notable.

Of considerable relevance to management is the conclusion that the wood has been considerably altered over the millennia; evidence for human occupation in the area dates back to the Bronze Age c. 3,000 years ago. A large Christian Age ring fort is present within the wood on a hill overlooking the surrounding landscape. A number of charcoal hearths are also present, one of which dates from 400 ± 40 years BP (before present) attesting to a period of sustained felling for a nearby iron furnace at Knappagh (von Engelbrechten *et al.*, 2000).

Human impact has resulted in a reduction in woodland area regionally and a loss of woodland biodiversity. This is confirmed by palaeovegetational analyses from a small hollow and a deep, organic-rich lake/basin within the wood (von Engelbrechten *et al.*, 2000). The resultant pollen diagrams indicate a number successive phases of canopy opening and closure almost certainly attributed to continual human impact. Species present in the past that are absent today include yew (*Taxus bacata*), aspen (*Populus tremula*), juniper (*Juniperus communis*) and Scots pine (*Pinus sylvestris*). Elm (*Ulmus spp.*), hazel (*Corylus avellana*), oak (*Quercus spp.*) and ash (*Fraxinus excelsior*) were far more prominent in the past vegetation of Brackloon than they are today. In addition to natural succession resulting in the displacement of these species, their gradual decline may also be as a result of a combination of human activity, climate change and competition. Continual felling resulted in the opening of the canopy with consequent soil leaching and impoverishment. This in turn has affected the composition of floral communities, which almost certainly have become less diverse. Base-demanding species such as elm, ash and to a lesser extent hazel are likely to have been particularly sensitive to this changing soil environment and declined accordingly.

The pattern of exploitation does not however appear to be consistent throughout the wood; some areas appear to have been cleared more often than others as evidenced by the presence of strongly leached podzols and the presence of appreciable charcoal fragments over wide areas. These are interspersed with isolated pockets of moderately fertile acid brown earth and brown podzolic soils, which support more nutrient-demanding species, i.e. ash and hazel are especially prevalent on brown earths. These pockets are most often located on steep and relatively inaccessible slopes. Crucially, all the soils are derived from very similar parent materials as confirmed by mineralogical analyses (Little *et al.*, 2001). This leads to the conclusion that variation in soils is primarily due to human impact and topography. By comparison, soils outside the woodland are even more degraded as a result of increased leaching due to the permanent removal of woodland cover and continuous soil exposure (Little, 1994; Little *et al.*, 1997).

Research, monitoring and relevance to management

The moderately rich biodiversity status of the wood as elucidated in the baseline studies and monitoring programmes reinforce the recommendations of a report compiled by the then Forest and Wildlife Service in the early 1970s (Neff, undated). It recommended actively conserving the wood through restoration, mainly through the removal of underplanted conifers and rhododendron. Exotic and naturalised shrub (*Rhododendron ponticum*) and tree species (e.g. *Picea sitchensis*, *Fagus sylvatica* and *Acer pseudoplatanus*) were introduced in recent centuries and these can impact negatively on native woodland biodiversity mainly by displacing floral species by altering light regimes and impacting on soil faunal communities.

The more recent studies provided detailed information, many of which are relevant to current and future management initiatives. The ecological surveys confirmed the presence of species that require specific niches, which can be provided via management, for example, the retention of veteran, hollow trees for bat species and the long-eared owl. The retention of deadwood from the cutting and stacking of naturalised and exotic trees and shrubs will augment faunal communities, especially those involved in the degradation of wood and organic matter.

The research on human impact poses a number of pertinent questions. The implications for current and future management of past human impacts, which resulted in lower biodiversity, a predominantly even-aged stand and the occurrence of leached, degraded acid soils, can be broadly encapsulated into two issues:

- What should management try to achieve with respect to floral composition and woodland structure?

- In severely degraded areas characterised by the presence of humus-iron podzols and the appreciable presence of charcoal, should lime and fertiliser be added to soils under controlled conditions subject to research and monitoring?

The recommendations of the broad-based management plan (Daly, 1998) and the subsequent, detailed WIS management plan (Hawe, 2000), both of which took into account the main research and monitoring outputs, go some way to answering the first question. Their primary recommendations include reconnecting isolated mature oak-dominated stands, the diversification of age and species (native trees and shrubs) and the retention of lying and standing deadwood. However, the relative proportions of trees within newly created woodland blocks are not easy to determine. For example, it is likely that the relative dominance of oak seen today may be as a result management practise over the last 500 years or so. Oak may have been favoured at the expense of other tree species. This implies that newly planted woodland areas need not have such a high proportion of oak. Equally, the predominance of oak in existing old woodland blocks may well decline in future as woodland dynamics re-establishes its own equilibrium.

The second question posed is even more difficult to answer. Approximately 10 ha of the wood are dominated by humo-ferric - and humo-ferric gley podzols with very acid and fibrous peaty topsoils (pH < 4.0). Though mature oak dominates the canopy with holly and birch in the understorey regeneration of trees and shrubs is sparse. Even with a decrease in grazing pressure in recent times, it is too early to ascertain if woodland regeneration is sufficient to sustain woodland communities on these very infertile, acidic soils in the long term. The system is almost certainly continuing to lose vital nutrients, which are already in short supply and nutrient amendments, especially lime-based material, may be required to reverse this process thereby ensuring woodland continuity and viability in these areas. Alternatively, the woodland could be allowed to develop without intervention, which may result in the woodland being succeeded by blanket bog in the long term. Further long term research in these areas is required to assess nutrient budgets and recycling, regeneration potential of a specific range of native trees and shrubs and the costs of alternative management options before finally deciding what management strategy is most suitable.

Management

The management objectives outlined by the management consultants are (a) to restore and conserve the semi-natural status of the entire woodland (b) to ensure the sustainability and longevity of the woodland and (c) to optimise the biodiversity of the wood (Hawe, 2000). In order to achieve these objectives the implementation of the management plan has primarily endeavoured to mimic the composition of WNI – oak-birch-holly woodland on acid soils (Fossitt, 2000), the predominant woodland type present.

The soil survey of the entire wood (Cummins, 1997) is a very useful management tool with respect to confirming the presence of alternate woodland units/types and the selection of tree and shrub species for enhancement planting. The most suitable sites for the establishment of appropriate woodland units were identified from the soil map. Native tree species, for example, oak, ash and Scot's pine were planted in mixture with the secondary shrub species related to that woodland type, e.g. hazel, rowan and holly (Hawe, 2000). Very wet soils are being allowed to naturally regenerate, which avoids damage to these soils by machinery. Some modifications of woodland type WNI, occur where soils vary and in flushed and/or wet areas where wet woodland types prevail.

The general vegetation, mammal, birds and archaeological surveys, the location of rare flora, faunal roosting, nesting and habitation sites as well as unmapped archaeological remains provides useful information to the management consultants and contractors. Exclusion zones were created and/or extreme caution was exercised when carrying out operations in these areas. Examples include the locations of the narrow-leaved helliborine, badger setts and lazy beds within what appears to be the remains of a ringfort with an accompanying standing stone.

Woodland structure is being diversified by retaining the old, isolated stands of oak-dominated woodland and reconnecting them by removing underplanted and adjacent conifer blocks. The resultant clearfells are being allowed to regenerate naturally and/or are being planted with locally-derived trees and shrubs. This approach will also lead to age and species diversity. In the past five years, replanting and natural regeneration has already made a significant visual impact and will almost certainly enhance avian biodiversity, as well as creating new habitats for fauna and flora. In addition, veteran trees will be allowed to deteriorate and die *in situ* thereby providing habitat for other flora and fauna. This strategy also addresses habitat defragmentation, i.e. planting of oak and other seedlings in areas between outlying oak woodland blocks and the main oak woodland (i.e. an intact area of c. 11 hectares). This operation is designed to reconnect all areas of existing oak-dominated woodland to provide a seamless habitat, essential to the maintenance of biodiversity in that it allows for species mobility. Woodland regeneration as a result of natural regeneration - which allows for natural succession - and enrichment planting generates a minimum of two distinct age and size classes that is designed to promote the longevity and sustainability of the woodland.

Mounding and (shallow) drainage was carried out where enrichment planting was being undertaken on compacted soils. The siting of the silt trap at the outer edge of the riparian zone has allowed for the creation of an irregular pond area with shallow margins to promote aquatic species diversity. Other operations designed to revitalise the woodland have also been carried out, including the removal of exotics, especially rhododendron, and regenerating naturalised trees, especially beech. Cut material has been stacked to supplement the deadwood habitat within the wood. Tall, weak, native trees and shrubs within areas felled of conifers that are liable to break or be windthrown have been cut back to the stump. This will promote more viable coppice shoots less likely to suffer windthrow. Windblown oaks and other native trees and shrubs have been left *in situ* where they are not a threat to public safety. The reduction of grazing pressure has been assisted by the erection of a stock-proof fence around the perimeter of the wood. The impact of grazing on the woodland currently is considered to be minimal with very few herbivores present.

Scots pine, a component of the wood up to c. 2,000 years ago, has been planted with a view to limited quality wood production under a continuous cover system. Natural regeneration, particularly of birch and willow, is occurring vigorously in some areas. Some of the birch will be re-spaced in order to encourage the production of quality stems.

Management operations aim to address other aspects of biodiversity. In particular, the expansion of the native gene pool is being achieved by growing locally derived trees at somewhat lower planting densities than specified under WIS. Collections of native tree seed were undertaken locally in similar woodland types, i.e. Oak-birch-holly woodland (WNI), and planted in Brackloon.

Conclusions

Until recently, there were little or no financial resources directed specifically at nature conservation management in semi-natural woodlands. With the advent of the NWS opportunities for management of neglected old woodlands like Brackloon exist. If implemented fully the NWS will protect and enhance the last vestiges of our once extensive native woodland resource. This will protect, enhance and expand woodland biodiversity, thereby ensuring the survival of species that rely heavily or solely on woodland ecosystems.

As Brackloon was a pilot site for the NWS, management differed appreciably compared to what is prescribed under WIS. Trees used for planting did not originate from certified stands - as is specified under WIS - where timber production characteristics are paramount. Planting densities were somewhat lower than prescribed under the WIS, especially as biodiversity was the primary objective. There was considerable focus on minor species such as birch, willow, holly and rowan which primarily were used for biodiversity objectives rather than being a focus for wood production. In addition, WIS management plans are drawn up by a forester only; currently, the NWS plans must be drawn up by a forester and an ecologist to a specific format. The success or otherwise of the practical application of management operations, i.e. natural regeneration, planting mixtures/densities, control methods of competing vegetation and rhododendron, and wood production systems, are and continue to be assessed in order to fine-tune the NWS as it develops.

The management of semi-natural woodlands is a complex issue. Human impact over the millennia makes it difficult to ascertain what specific management operations are required to maintain and enhance biodiversity objectives. Alteration of past woodland composition and ecosystem function result in difficulties with respect to management decisions regarding future woodland composition and species. Though the research and monitoring programmes were not designed specifically with management in mind, the experience at Brackloon shows what can be achieved. Research and monitoring data has provided guidance *vis a vis* the appropriate management of the wood. Equally, difficult questions have arisen that cannot be answered without further investigations and continual monitoring.

It is not recommended that all native woodlands earmarked for management should have a complementary research and monitoring programme as it is both unnecessary and not cost effective. However, in order to address the specific management requirements of each of Ireland's native woodland types, representative sites of high biodiversity value should be selected for a research and monitoring network to complement future management planning. The data produced could contribute toward the appropriate management of similar woodland types elsewhere in Ireland.

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RESTORING NATIVE WOODLANDS: THE EXPERIENCE FROM THE PEOPLE'S MILLENNIUM FORESTS PROJECT

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KEYWORDS: Native trees, woodland establishment, woodland conservation, partnership, public awareness

Abstract

The People's 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 People's 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.

Background

In 1999 Woodlands of Ireland made a submission to the National Millennium Committee to create a native woodland to commemorate the millennium year. The submission was looked on favourably, with the recommendation that a suitable partner should be sought to implement the project. Coillte agreed to be a partner and the project was approved.

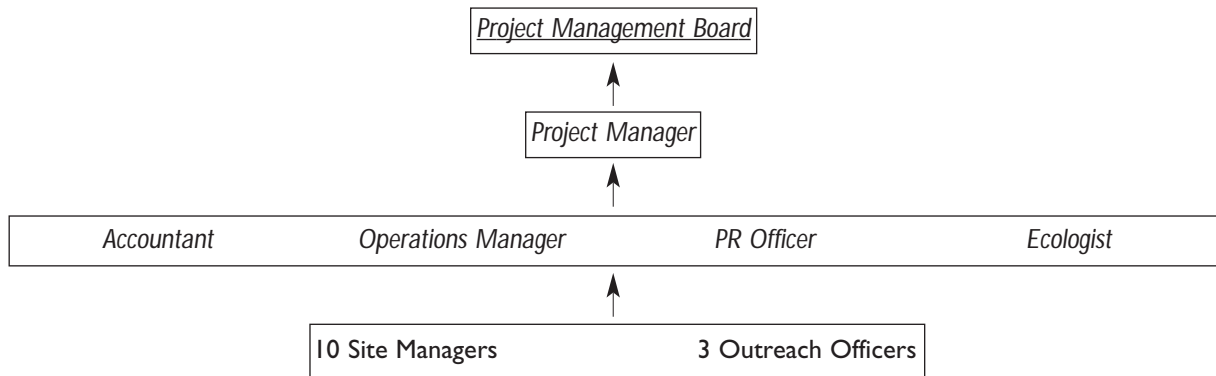
Management Team

A professional team, with some expertise in native woodland management, was selected to manage the project and a business plan was drawn up. The manpower available to carry out the fieldwork was also identified. The management team reported to a Management Bord with representations from the main sponsors and other large organisations such as National Parks and Wildlife Service (NPWS).

Funding

AIB (€2.54m), The National Millennium Committee (€2.03m) and the Forest Service (€0.50m) provided funding for the project. Coillte Teo is not listed as one of the sponsors but the company made available 294.8 ha of their highly productive woodland to the project. They also provided, free of charge, a management team to run the project. Funding was granted from the sponsors on condition that 1.2 million trees would be planted, a tree for every household in the country.

Overall Structure of the Project



Management team training

Native Woodland Management was a relatively new concept in Ireland and the management team underwent a short training course in Scotland before undertaking the project fieldwork.

Identify suitable sites

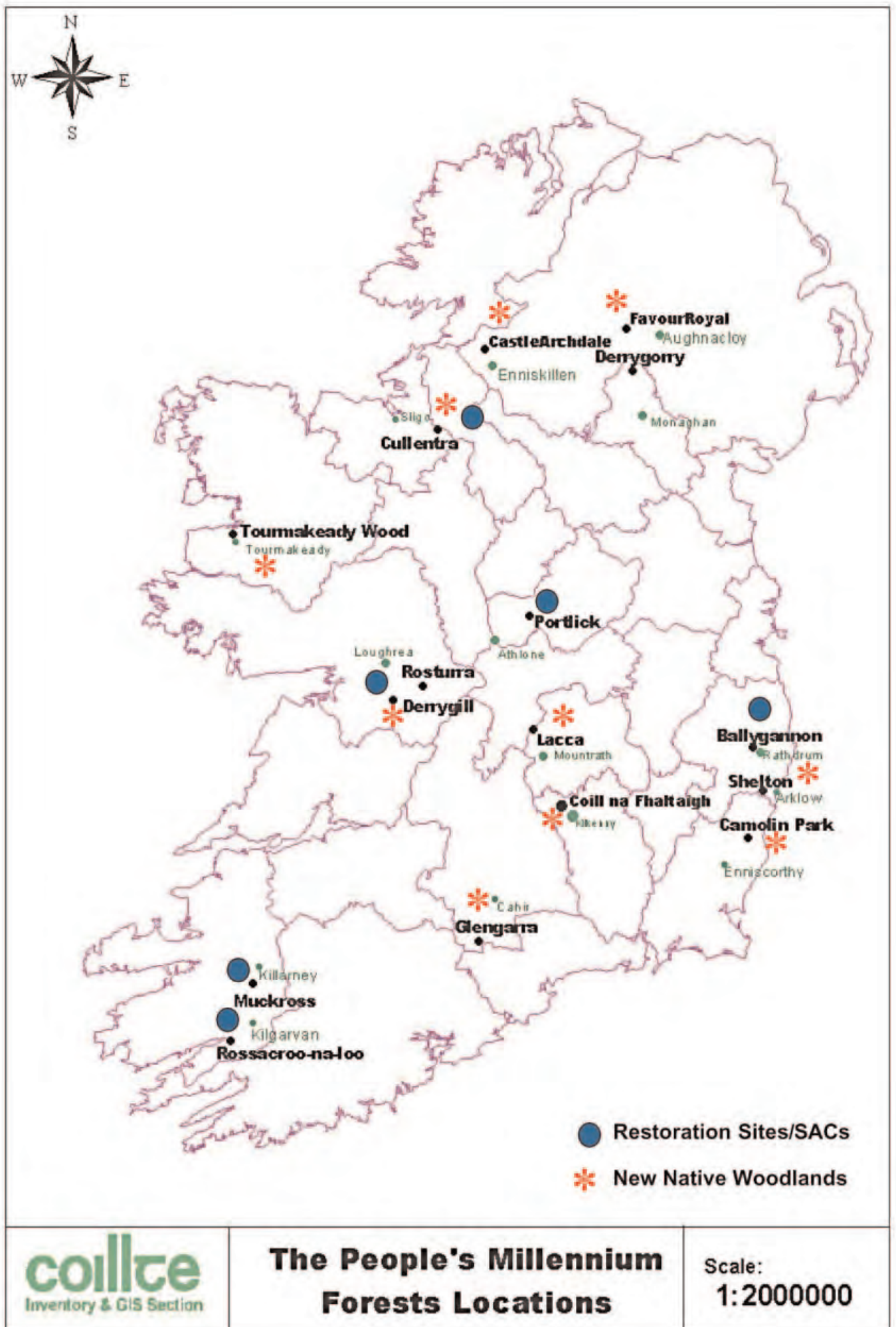
It was important to obtain sites suitable for native woodland development. A team of seven experts travelled the country and selected sites that represented a range of native woodland habitats. The sites selected consisted of one Nature Reserve, five SACs, two sites adjacent to SACs, six sites of old woodland origin, one riparian site and one classified as agricultural land.

Ecological and Archaeological surveys

Ecological and archaeological surveys were carried out on each site before work commenced. The establishment and restoration operations were carried out in accordance with the recommendations of these surveys.

Site Location and Areas

Site	Total area	Area Planted
Ballygannon	52.5 ha	18.8 ha
Shelton	45.8 ha	36.0 ha
Camolin	11.0 ha	10.8 ha
Woodlands	95.5 ha	83.2 ha
Glengarra	19.3 ha	17.8 ha
Rossacree-na-Loo	45.9 ha	3.2 ha
Muckcross	25.0 ha	Nil
Rosturra	51.2 ha	39.2 ha
Derrygill	22.5 ha	21.5 ha
Tourmakeady	35.2 ha	26.4 ha
Derrygorry	42.3 ha	38.1 ha
Cullentra	57.3 ha	16.5 ha
Lacca	17.3 ha	13.0 ha
Portlick	53.4 ha	8.7 ha
Castle Archdale	11.0 ha	8.0 ha
Favour Royal	12.0 ha	10.0 ha
Totals	597.2 ha	51.2 ha



Main Challenges

The project work commenced in late 1999 and the target was to complete the main core work before the end of year 2000. Some of the most difficult challenges were:

- To identify suitable sites
- To source native planting stock
- To design, manufacture and erect signage on sites on time
- Identify the grid location of every household tree and issue certificates to each household
- Prepare sites and plant 1.2 million trees
- Implement an outreach programme
- Respond to queries from the general public and the media.

Household tree scheme

The National Millennium Committee requested that a certificate be issued to every household in the country confirming that a tree had been planted on their behalf and stating its location. This scheme proved to be very time consuming and costly but it did have the effect of creating awareness countrywide, in every household, of the importance of our native forests.

Signage

Signage turned out to be a major challenge and could have been a complete project on its own. The work was wide ranging and some of the operations included:

- Design finger board signs and apply for planning permission.
- Engage graphic designer and supply necessary information, such as history of the site and map of the main features of the site.
- Produce grid map showing tree location and list of household tree numbers to match.
- Proof read drafts and send to manufacturer
- Proof read before final production
- Transfer to joinery for framing
- Transfer and erect signs on site

Public Relations/Media

The project attracted widespread attention both from the public and the media. It made the news headlines as the flagship of the millennium projects and was covered by national television and radio. There was a huge public response to the project and people wanted to see where their tree was planted. Although there was some criticism of the project the vast majority of enquiries were positive and complimentary. Every site had an official launch and a well-known personality was engaged to perform the opening ceremony.

Mobile Exhibition

A mobile exhibition, with all the information about the project, visited every county and targeted main events such as the national ploughing championship and other large regional events.

Outreach Programme

Three outreach officers were appointed to carry out this programme. Some of the highlights of the programme were:

- Visiting national schools throughout the country and arranging supervised field trips to the woods
- The publication of "Our trees" book, which gave a comprehensive guide to growing native trees.

- Setting up a website (www.millenniumforests.com) giving information on our native woodlands and details of all the Peoples Millennium Forest sites. A copy of the ecological and archaeological surveys for each forest is also available on the site. The site is still active and is well worth a visit.

The outreach staff were also involved with the mobile exhibition when it visited their area.

Other Activities

Some of the other activities included the commissioning of wood sculptures in two of the sites, Cullentra, Co. Sligo and Ballygannon, Co. Wicklow. A sculpture was also commissioned for the winner of the 2000 Tidy Towns competition and it can be viewed in the square in Kenmare, Co. Kerry. The yew walk in Clonfert, Co. Offaly was also restored. Courses on seed collection of native tree species were run in Wicklow, Killarney and Sligo and were very well attended. Open areas were left unstocked on a number of sites and the colonisation of these selected areas were monitored. In two sites areas of good quality birch were selected and a silvicultural work programme put in place to monitor the commercial potential of birch woodland.

Highlights of the project

The highlights of the project included

- The establishment of 351ha of native woodland and the restoration of a further 256ha
- The success of containerised oak. Acorns were collected in October, planted in plastic tunnels in February and were ready for planting in August. The trees proved to have a very good survival rate and very fast early growth.
- The excellent performance of some of our native species such as birch and alder.
- The public awareness created and positive reaction from the public in general was very encouraging
- Very valuable experience was gained on native woodland management and conservation
- This experience was invaluable to the Forest Service's "Native Woodland Scheme" which was launched soon afterwards.

Threats

The main threats to the sites are:

- Invasive non-native species such as rhododendron, sycamore, beech and Sitka spruce.
- Damage from deer browsing
- Illegal dumping
- Vandalism to signage, picnic tables, gates and entrances.

The future of the Millennium woodlands

Recent audits of the site gave very positive results and the new native woodlands are now well established and almost at free growth stage. Areas in need of attention were programmed for attention in 2003 and work is ongoing on these sites. Coillte has undertaken responsibility to maintain the sites into the future.

A brief 30-year plan is in place for all sites. From this plan a more detailed 5-year plan is generated and updated every year. Master files have been set up on Coillte's computer system where information on all the sites will be stored and made available when required.

It was a unique experience to work on the People's Millennium Project. There is now a great opportunity to enhance our knowledge of native woodland management from observing the performance of these woodlands into the future.

BALLYVARY: NATIVE WOODLAND ESTABLISHMENT UNDER THE NATIVE WOODLAND SCHEME

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KEY WORDS: native woodland, establishment, NWS, coppice, SAC

Abstract

This paper examines the creation of a new native woodland site, which 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 Special Area of Conservation (SAC) status.

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

In the process of afforesting the site, retained habitats were identified including calcareous grassland, wet meadow, fen bog, blackthorn scrub, hedgerows and dry stonewalls. Based on the ecological survey, it was decided to plant **oak-ash-hazel woodland** W/N2/B2 (Fossitt, 2000, Cross 1998) woodland type primarily, with some variation on areas inclined to temporary inundation or water logging in winter. These areas contain a higher density of birch and alder. Novel features include a section of drystone wall repair, hedge-laying 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.

Introduction

The creation of new native woodland is facilitated by Element 2 of the Native Woodland Scheme (NWS) which was launched by the Forest Service in November 2001. The NWS planting target is 15,000 hectares by the end of 2006 (Anon., 2001). The first two sites comprising a total of 19.6 hectares were afforested in 2003. One of these sites, with an area of 6.9 hectares (on which I was the main contractor) is described in this paper. A further 9.8 hectares has been afforested nationally to date (Anon., F.S. pers. com. Nov. 2004).

Site description

This native woodland establishment site is partially located on two townlands; Toormore and Laghtavarry, near the village of Ballyvary, Castlebar, Co. Mayo. It was formally part of a family farm now owned by two sons, Des and Bernard Joyce. The site contains a riparian zone along the Toormore River, a tributary of the Moy, which has SAC status. Woodland was not recorded at this site on the first or second editions of O.S. maps for the area, nor on the Down Petty survey c. 1650 (D. Joyce, pers. com.)

Much of the site was covered in scrub composed of blackthorn (*Prunus spinosa*), hawthorn (*Crataegus monogyna*) and hazel (*Corylus avellana*) before clearance in the 1970's (D. & B. Joyce, pers. com.). The topography is mainly drumlin and the site contains 6 hillocks and one larger drumlin in the northern part of section G (Fig 1). The Lower part of section G is a former flood plain, but the river has been straightened by the O.P.W in the last 50 years (North Western Regional Fisheries Board, pers. com.) and the gravely spoil has raised the height of the bank above flood height, varying in width from 3-10m. There are strips of ground behind this raised area that retain remnants of grassland vegetation which is subject to intermittent flooding and is classified as **wet grassland (GS4)** (Fossitt, 2000) that was formally more extensive. The northern part of section G supports dense bracken (*Pteridium aquilinum*) in parts as well as patches of blackthorn and a **treeline (WL2)** (Fossitt, 2000) reminiscent of a hedge. There are two patches of fen bog - PFI in section C and the top quarter of section E, now retained and unplanted (Fig 1).

Limestone boulder and gravel lie close to the surface on the slopes. The entrance to the southern portion of the site, at the top part of section F, was formally a quarry site. There are areas of **improved grassland (GAI)** (Fossitt, 2000) on the flatter ground, with deeper soil and **semi-natural calcareous grassland (GS1)** (Fossitt, 2000) on the slopes throughout.

Management prescription

Based on the ecological survey element of the management plan, it was decided to plant **oak-ash-hazel woodland (WN2 / B2)** (Fossitt, 2000, Cross, 2002) primarily, with some variation on flat areas in sections G and D, subject to temporary inundation or water logging in winter, which contain more frequent plantings of birch (*Betula pubescens*) and alder (*Alnus glutinosa*), (potentially **wet pedunculate oak-ash woodland (WN4)** (Fossitt, 2000)) (Fig 1).

In the process of afforesting the site, retained habitats included calcareous grassland (requiring stock proof boundary to the adjacent new woodland), wet meadow, fen bog, **blackthorn scrub (WS1)** (Fossitt, 2000), **hedgerows (WL1)** (Fossitt, 2000) and dry stonewalls (BL1) (Fossitt, 2000).

Novel features of the contract work included a section of stock proof dry stone wall repair in section F, hedge laying and combinations of both in section C (Fig 1). The costs of these were written into the management plan, where their application was deemed to be a viable substitute for the 3-strand barbed wire fence alternative, but also in the context of conserving traditional skills and cultural heritage where the opportunity arose.

There is a small hazel woodland (WN2, B2) (Fossitt, 2000; Cross, 2002) of 0.5 hectares on rocky outcrop adjacent to section F and below the map mark 'ESB' (Fig 1), on which a coppice rotation has been developed since 2001. Two harvesting coupes have been cut to date (Nov' 04). Silvicultural objectives at this site include the expansion of the existing hazel coppice, by developing new harvesting coupes from year 10 in the two small fields on the boundary of adjacent section F and on the sloping areas of section G (Fig 1). There is expected to be some production of ash, birch, alder and occasionally oak through selective thinnings, from year ten approximately, and small sawlog from 30 –50 years, after planting.

Hazel and birch, combined with the associated minor species of B2 type woodland (Cross, 2002), will become common understorey species and act as nurse crops to the ash, oak and alder throughout the site. These will also provide coppiced material for traditional crafts. The new forest will also serve as a fuelwood resource, a wildlife refuge and a major component in the owner's plans for eco-tourism and craft training locally.

Establishment methods

Site preparation involved 'scrap inverted mounding' using an excavator to scrape the sod off, then remove a scoop of underlying soil, push the sod to the bottom of the hole and drop the underlying soil on top of the sod. This was done at an approximate spacing of 1.8m x 1.8m.

One new drain of 5m in length was created in section D to facilitate future machine access (Fig 1). Scrub patches of hawthorn and blackthorn were left undisturbed. Fencing using 3-strand barbed wire was erected where wall repair or hedgelaying could not provide an effective stock proof barrier. Six new gates were installed, three of which provided pedestrian access to the site.

Planting

Trees were notched onto the mounds. Firstly, 50-100 of each of the minor species rowan (*Sorbus aucuparia*), holly (*Ilex aquifolium*), spindle (*Euonymus europaeus*) and crabapple (*Malus sylvestris*) were distributed throughout the site.

These species were intermixed with c.4000 each of ash, hazel and birch plus 1500 each of oak and alder. Willow (*Salix sp.*) regeneration is randomly occurring on the site; hence no new willow trees were planted. Initially, it was decided that wild cherry (*Prunus avium*) would not be introduced to the site, because there appeared to be no evidence of it locally, however, 2 seedlings were noted in section G during maintenance in July 2004 (Fig 1). Planting an additional small number of source identified wild cherry is being considered as part of the 'filling in' operation of winter 2004/5.

Administrative problems affecting the work

Approval of grant aid was received from the Forest Service on 17/10/03, with a request for invoices from completed operations to be submitted by 30/10/03, i.e. two weeks later.

The rationale behind this request dictates that inspections of the site, to approve grant payment, should occur sufficiently early to allow administration to include the approved payment on the payments list by the December deadline. This situation could force contractor work to be undertaken out of season thereby ignoring best practise in order to meet administrative needs. The absence of a multi-annual funding mechanism urgently needs to be addressed.

Special Area of Conservation (SAC)

Excavator work commenced on site on 1/11/03. The excavator operator was to commence work on section G along the Toormore River however, the District Wildlife Ranger pointed out that a band 30m wide, along the Moy tributary, had been declared a Special Area of Conservation during the summer of 2003. The operator started in section F instead, while the updating of records and interactions between Forest Service and Wildlife Service on the matter was completed over the course of a week. Work then commenced on section G as per the agreed management plan (Fig 1).

Timing of planting

When a site is mounded it is best to leave the mounds to settle for a month or two, before planting. This was not possible, due to the constraints mentioned above and the uncertainty as to whether the Scheme would continue in 2004. The seedlings were planted within 2 -3 weeks of mounding resulting in the need for a greater level of 'firming in' of plants than would normally be required, in the months that followed.

The oak plants, which were the largest species used, at a height of 60-90 cm+, needed the most attention due to loosening on the mounds. These plants still retained much leaf when they were collected from the nursery in mid-November. Die-back was noted in many oak when growth commenced in May. Many of the affected plants have been cut back and a healthy re-growth was observed on the majority of these, during grass cleaning. Failures are c.20% in oak and less than 5% in other species.

Plant supply

Indigenous genetic stock of ash, birch, alder and most minor species are readily available in both public and private sector tree nurseries in the southeast of the country however oak and hazel are in short supply. The 1,500 oak (*Quercus robur*) purchased for this site represented c.8% of source identified stock available for planting in 2003, on the island of Ireland and were available from Coillte and the Ulster Wildlife Trust; the 4000 container-grown hazel (*Corylus avellana*) comprised c.50% of available suitable stock.

Maintenance

Grass cleaning, combining the use of slash-hook to pull vegetation from around the trees and trampling, was carried out during June, July and August 2004. A combination of spot spraying using Glyphosate and manual cleaning will be required in the summer of 2005. The 'filling in' of losses will be carried out in the winter of 2004/5. Because mounds are placed back into the hole they were dug out of, with the inverted scrape mounding method, they tend to be lower in height than conventional mounds, which are dug out of drains and placed on an unbroken surface. This means that competing vegetation begins to affect the newly planted stock sooner in the growing season.

Conclusion

Social benefits are being planned for this new native woodland at Ballyvarry in terms of craft training courses and field trips. The administration of the scheme has partially inhibited the commencement of works. Since the launch of the scheme in 2001, three afforestation sites have been planted to date giving a total of 29.4 hectares, i.e. November 2004. The official target of 15,000 hectares is not likely to be achieved by the end of 2006. Shortages of oak (*Quercus sp.*) and hazel plants due to unpredictable mast years need to be factored into plantation design. This shortage can be counter-balanced by initially stocking with a higher proportion of pioneer species such as birch, which is in plentiful supply and subsequently 'filling in' with more oak and hazel as they become available. Plant supply needs to be reviewed in the context of the whole country, so that the maximum amount of potential stock is known and certified for use each season. The November inspection deadline for afforestation needed to change and has now been extended to the following June in relation to measure 2 approvals under the NWS.

Mimicking the type of wood that may naturally occur on a site, while having due regard for the retention of non woody micro-habitats to maintain or enhance species and create structural diversity, is now being supported by the Forest Service through the Native Woodland Scheme. This provides a new set of criteria and a different option for the Irish forestry industry, which is at least as valid as the parameters that were set out in the schemes of earlier times. Wood production objectives as planned, are considered to be in harmony with wildlife and fisheries objectives.

Acknowledgements

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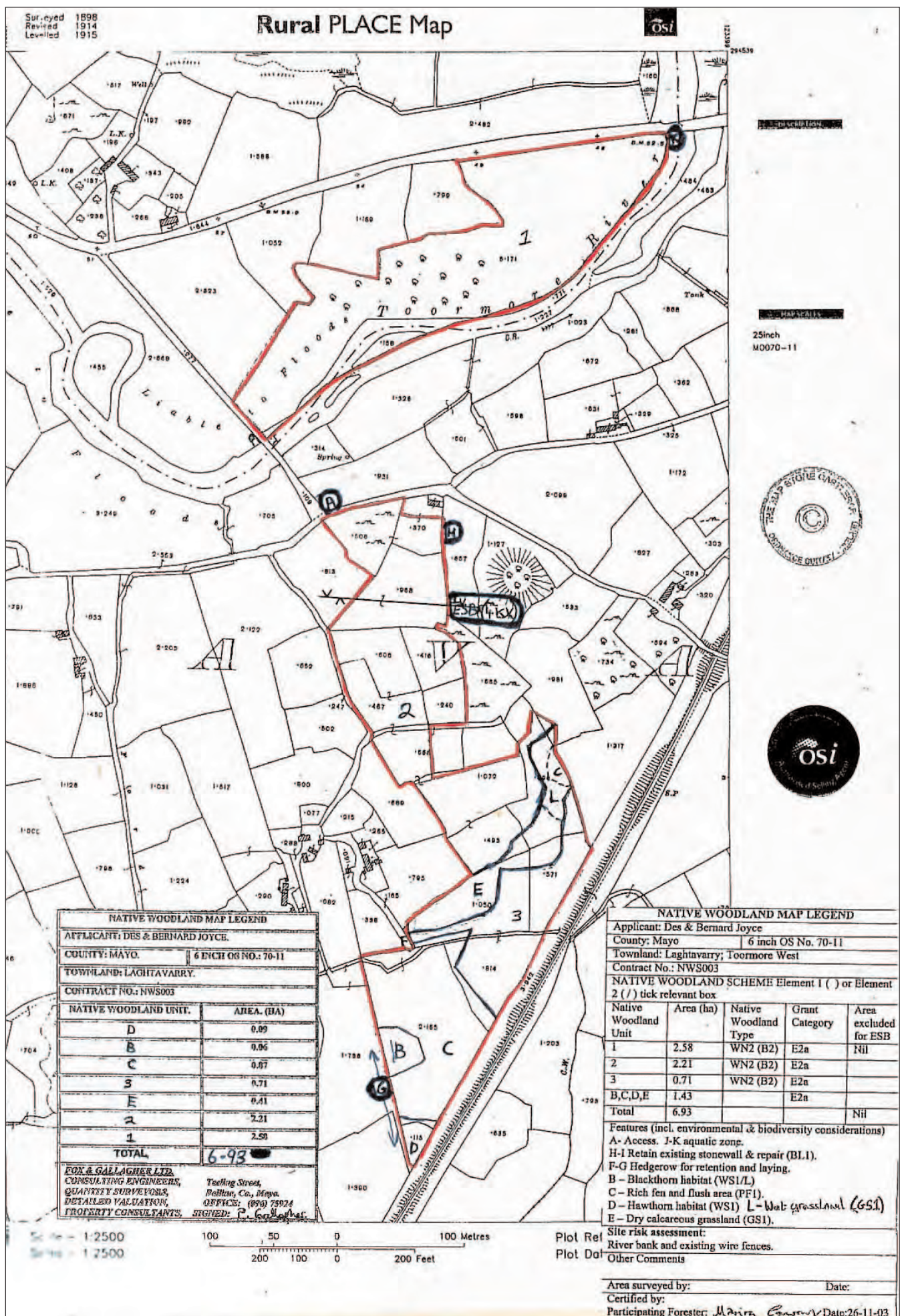


Figure 1: Schematic representation of the area managed under the Native Woodland Scheme at Ballyvary, Castlebar, Co. Mayo.

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CHARLEVILLE: THE OWNER'S PERSPECTIVE OF THE NATIVE WOODLAND SCHEME

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KEYWORDS: Charleville Estate, Native Woodland Scheme, SAC, woodland owner

Abstract

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.

Introduction

I have been blessed to grow up in an area, with over 500 hectares of broad-leaved woods within a five-kilometre radius of my home. This has given me a love of trees and all the living things associated with woodland.

When I became a director of the company that owns the Charleville woods, I realised that there is a great deal more to woodland than economics. In 1982, I looked after some 250 hectares of a neighbour's woodland and oversaw the closure of an outdated sawmill and the subsequent disposal of the woodland.

History of the Charleville woods

Sources of information regarding the history of the Charleville woods include a survey of Charleville Demesne carried out by Michael Cuddihy in 1785, a plan of intended improvements drawn by Thomas Leggett in 1786 and the 1838 Ordinance Survey maps. These, in addition to some improvements suggested by the great landscaper John Claudius Loudon and my own personal memories of the woodland as a child, indicate how little change had taken place in the woodland, from the late 1700s to the 1950s. Beech and sycamore were planted along the carriageways, in some cases probably to improve the bluebells, and Douglas fir and European larch had been planted in the areas of the great wind-blows of the 1890s and 1902. Lime, Spanish and horse chestnut and specimen exotics had also been strategically planted but apart from beech and sycamore, there was very little seeding of non-native species.

Until the 1950s, there was very little tree felling and the woodland staff spent winters clearing up windblow and planting and protecting seedlings from weeds and rabbits. Most of this work was financed by a steam driven rip-saw, which was replaced in 1948 by a diesel engine and ripsaw. My understanding is that timber was cut as fuel in the morning, thus allowing planks or stakes to be cut in the afternoon with sufficient fuel left to allow the process to be restarted the next day. However, the late 1950s, 60s and 70s brought massive change to the woodlands and today, probably less than 15% of the semi-native woodland that I remember as a child remains in the Tullamore area.

The Charleville forester's notebook of 1813 records 34,417 commercial native trees, valued at £43,012 and the area which is now in the Native Woodland Scheme, as having 3,043 oak valued at £6,984, ash valued at £1,921 and 196 birch at £48. At that time, rural wages were one shilling and one penny a week. The oak trees, mentioned in the notebook, valued at an average of £2:8:0, were sold in 1963 for an average of less than £10 when rural wages were around £6:1:0 per week. When these figures are compared with the current average value of a 250 year old tree at Charleville (approximately 200) and the current industrial wage (approximately 500 per week), it is hardly surprising that there has been very significant changes in the attitudes of owners, towards native woodland. From an economic point of view it is incredible that up to the abolition of rates on land in the early 1980s, the ratable valuation of land under trees at Charleville was £0.525 (£0:10:6) an acre compared with £0.50 (£: 10:0) also an acre for farmland.

The replacement of the crosscut with the chainsaw and the introduction of the bulldozer, allowed land under native woodland, particularly good land, to be converted into farmland at little or no cost in the 1950s and 60s. This land then began to produce an annual income. The entry of Ireland into the EEC in 1972, together with the rapid growth in agricultural prices, further fuelled this temptation. Ireland was a country that needed rural employment and if land was allocated for forestry, landowners were considered by many as unpatriotic if they did not grow Sitka spruce, which was deemed to be of most economic benefit by reason of its short rotation. What was happening at Charleville was happening everywhere.

At the same time, the use of pesticides, weedkillers and the replacement of biodegradable packaging with non-biodegradable materials was having devastating consequences on biodiversity. For me, as well as many other woodland owners, there came the realisation that much of what we had loved as children would not be seen again; but how could what remained be saved in such a dreadful economic climate.

With the abolition of rates, I decided that I would not fell any more oak trees at Charleville, except in the case of compulsion and this is a policy that I have never regretted making. However, new threats have now arisen. Woodlands near a town are affected by development; dangerous trees become huge insurance risks, wider roads mean felling roadside trees, houses built on neighbours' land can result in an obligation to fell. Well over 150 mature oak trees have been felled in the last 20 years at Charleville, for these or similar reasons. What can a landowner do about roadside trees, particularly oak and ash that reach such heavy weights? Ten years ago I was offered £2,000 for a group of trees, some of which have now become dangerous. Last month a person with new equipment quoted an estimate which resulted in a net loss of over 3,000 to remove the trees. Fortunately I was able to find an old man with great experience, who had made all his repayments on old but reliable machinery, to do the same job for a small net loss. Increasingly, periods of wet weather and high winds are having major impacts on the woodland. The island in the middle of the lake is a NWS site, which in 1813 had 107 oak and 77 ash. In 1967 the same area had 130 large oak and 48 large ash but today more than 50% of the trees are windblown. On average, Charleville appears to be losing nearly 2% of its oak per year as a result of windblow.

Fallow deer have been present at Charleville for two centuries or more, from large numbers in the 1940s they nearly became extinct in the 1970s. While this enabled much natural regeneration to take place, the methods by which deer were poached, left much to be desired. The current explosion of the deer population at Charleville is causing severe damage to young trees.

Experience of the Native Woodland Scheme from the owner's perspective

The NWS, which recognises that woodland is a community of living things as well as having the capacity to produce timber, pays not just for woodland improvement but also pays the woodland owner a yearly premium.

Last year I entered nearly half of the Charleville woods, which is located in one block, into the scheme, and I was absolutely delighted by the speed with which the participating forester and ecologist drew up the management plan. Without deer control it would have been impossible to establish any young trees, so I was pleased when it was agreed that the whole area could be deer fenced at the same time. This was the only cost effective method to fence bearing in mind the total grant per hectare. The site itself requires various operations including the removal of groups of exotic species and some conifer plantations, which were established in the 1960s, blocks of mature beech and areas where sycamore is the second species. Much of the area is low-lying and very wet. All of the Charleville woodland is part of a large SAC, and I am also encouraged to participate in a plan drawn up by the National Parks and Wildlife Service for the area.

The time scale for operations carried out on the area under the NWS was as follows:

- Management plan approved September
- Line for deer fencing prepared early October
- Deer fence started end of October and completed December
- Some Rhododendron clearance carried out in November
- Young home grown oak seedlings established
- All bills submitted early December
- Work inspected and approved January 2004
- Payment received June 2004

There were huge difficulties with the time scale and on several occasions work had to be abandoned due to deep tracks caused by tractors in wet weather. These are difficult to eliminate without causing root damage to shrubs and changes to the ground flora.

As well as the operation itself, considerable time has been spent answering questions from the public. At one point, a controversial article appeared in the local newspaper in relation to deer. The article could fortunately be modified before going to print, thanks to the intervention of people from Woodlands of Ireland, the Forest Service and the National Parks and Wildlife Service and all false allegations were removed. All operations in relation to Charleville woods have to be carefully dealt with because of the sensitivities of various interest groups, which were originally established as a result of differing views on the Tullamore Bypass. Because the Charleville woods are considered to be of European importance, they attract the attention of a number of state bodies, as well as individuals who are interested in landscape and ecological heritage. Much as I welcome the public's appreciation of native woodland, public access can also create problems such as disturbance and the need for public liability insurance.

It is my understanding that this year there will be a number of changes to the Native Woodland Scheme. In particular, multi annual projects such as that at Charleville need to be managed as an entire entity. At present, the Native Woodland Scheme requires that operations be carried out on an individual section of the total area of the woodland, corresponding to the area funded for that year. The NWS payment applies only to work carried out in that particular section. This creates some disadvantages to the woodland owner with regard to the cost and level of work carried out each year. Other issues that require further exploration are outlined below.

- *How can regeneration in an SAC area be facilitated?*
- *If plants are not home-grown how can plants of local origin be obtained?*
- *Can felling and planting be done in one year if confirmation of acceptance for a particular year is not obtained very early in the year?*
- *Is it fair that a landowner may have to provide funding for two years if payment is not hastened after inspection?*
- *Will there be ecological consequences if work has to be undertaken in wet weather because of time scale?*

Having participated in many schemes, I am aware of the need for constraints if schemes are not to be abused and seen purely as a means of getting money. However, I am also extremely conscious of the fact that felling causes the least amount of damage when the leaf is not on the tree and conditions are dry. Consideration should be given to the fact that juvenile plants are easier to recognise in leaf, and the breeding season of animals and birds needs to be recognised. In practice, I suspect that from the time of acceptance in any one year to the final submission date for completion, the interval for doing work is probably at best nine months. This is a very short time frame for an area, which requires mechanical work, particularly considering Irish weather conditions. On a large block of woodland where it is intended to include several plots over a period of 3 or 4 years, it is often more cost effective to use specialist machinery, or personnel at the most suitable time and minimise transport costs to one visit. Another question I would like to pose is that where pot planting might be used is it not advantageous to study the immediate re-growth before strategically planting?

In the case of oak, a landowner is not likely to think beyond the economics of the yearly premium with regard to planting. They will not know the ultimate beneficiary and future legislation could remove the possibility of a dreamed windfall. Any valuable timber production will be attributed to the owner's sense of pride. Such pride can however be more immediately rewarded by the achievement in establishing some of the richest biodiversity in our natural heritage. Considering the 250 year lifespan of an oak, the brief time scale available for the initial establishment of the ultimate dominant layer of woodland allows the long term objective of the NWS to be governed by short term criteria.

In the case of ash, where there are markets for hurleys, handles etc., the owner can gain more immediate economic returns. While less damage is likely to occur in a restricted time period; if the shrub layer is severely disturbed, the ground flora can change considerably because of light variation and changes in humidity can effect ferns, mosses and insects. In the case of heritage woodland this is of concern to many bodies, including those associated with landscape.

Up to the 1970s large yew trees featured prominently in some of the Charleville woods but when huge prices became available for veneer, economic advantage was taken, as was the case on many other old estates. This loss of hundreds of years of growth, perfectly illustrates the perilous nature facing native woodland.

Arboreta, parks and specimen trees undoubtedly will always have important aesthetic value but they will never be a substitute for habitat.

Conclusion

I believe there is immense vision within the NWS, a new beginning in how we view woodland. The trunk or core thinking in the case of the NWS will have to grow if large branches, which I see as the richness of biodiversity, are to be supported. I hope the NWS will be well supported financially by successive Irish governments because when these native trees blossom, the fruits will fall in the form of education in the ears of our people. I know that those who sought to introduce the scheme have waited many years for it. Hopefully in 5-10 years many more emerging taxpayers will realise that our woodland heritage is worth supporting, so that in years to come, their children whether living in the city or country, will have sufficient native woodland to enjoy and experience.

THE NATIVE WOODLAND SCHEME FROM THE FORESTRY CONTRACTOR'S PERSPECTIVE

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Abstract

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 by 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 to all. Communications between management and contractors should be ongoing when work is in progress on the site.

Introduction

Larry Byrne and Sons is a family forestry business engaged in sawmilling, timber harvesting, log transport, fuelwood production and woodland management. We also purchase standing timber, both hardwood and conifer. The business acquired a semi mature 17 ha oak woodland in County Wicklow, with the view to providing a long-term supply of raw material for fencing and fuel wood. When the management plan was drawn up for the woodland, its ecological importance was highlighted. After much debate and consultation it was decided that the long-term objective would be to manage the woodland for limited timber production while maintaining its ecological values. This experience gave me an invaluable insight and interest into native woodland management.

Communication

Good communication is essential between the contractor, participating forester and the ecologist:

When drawing up the management plan

- Establish an agreed work programme and time for completion
- Agree work methods and costs
- Identify special areas for protection and site constraints

When operations are in progress

- Regular site meetings to discuss progress and work standards
- Discuss unforeseen problems that may have arisen

Timing

From the contractor's point of view it is essential that there is continuity of work through the year. Overhead expenses are spread over a 12-month period. It is best to carry out operations such as extraction and ground preparation from late spring to early autumn when ground conditions are favourable. However, there are often constraints during this period. For example forest operations cannot be carried out during the nesting season. Very often, operations may be held up due to lack of funding or projects awaiting approval. The end result is that work is concentrated to late in the year, which is very difficult for a contractor to programme.

Costs

The onus falls on the contractor to carry out all operations laid out in the management plan to a very high standard. The Native Woodland Scheme is cost based so there is a limit to the amount of expenditure that can be incurred. Again the onus falls on the contractor to be cost effective, while also ensuring that operations do not impact negatively on the ecological values of the woodland.

This is an important issue where there are a number of costly operations such as deer fencing, rhododendron removal etc and all costs may not be covered by the grant. The high cost of labour and difficulty in obtaining insurance cover must be taken into consideration. The more mechanised the operation, the more cost effective it will be.

Experience to date of contract work under the Native Woodland Scheme

Larry Byrne and Sons carry out all NWS operations, but specialise in woodland management, and continuous cover practices, respacing and coupe felling. A large percentage of our work to date has been the removal of non-native species both broadleaf and conifer.

Before undertaking a project we always like do a detailed site assessment noting:

- Ground conditions/flora and fauna/terrain
- Volume and log size of any timber to be removed.
- Extraction paths
- Haulage routes /distance
- Water / fisheries
- National monuments

- Power lines
- Public access/safety

Methods of extraction used

- (1) Horse Extraction (labour intensive)
- (2) Cable extraction (on very sensitive sites but very costly)
- (3) Skidder (long timber lengths and large diameter logs)
- (4) Forwarder and chainsaw (hardwoods)
- (5) Forwarder and Mechanical Harvester (conifers)
- (6) Combination of any of the above

Site conditions vary from flat wet alder-willow type sites to steep acid oak-birch-holly type woodlands, often with rock outcrop and each of these site types will require very different work practices.

On the more difficult sites extraction methods such as cable or horse are used.

On the majority of sites worked on to date, it has been possible to use a combination of mechanical harvesting and forwarder and chainsaw, which we find to be a very effective method from an economical, environmental and safety point of view.