

NATIVE WOODLAND DEVELOPMENT: THE UK EXPERIENCE

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Abstract

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. Initial effort focused on site protection in designated sites and ancient woodlands and these remain core concerns. But ambition and action have 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 available to woodland owners have been key tools alongside management and restoration of the national forest estate. Developing techniques for restoration and establishment of new native woodlands with a native character is still a technical challenge in some situations. But policymakers and practitioners also increasingly have to address 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.

Introduction

This paper attempts to give a rapid overview of the revival of action for native woodlands which has occurred in the UK over the last 20 years. It focuses largely on management policies and programmes and the author recognises that the social and cultural aspects of the native woods revival would merit a paper of their own.

The historic decline of native woodlands

At their peak, in the early post-glacial period, native woodlands may have covered as much as 80 % of the land surface of the UK. The original forest was whittled away over the last 5,000 years or more. The relative contributions of man and changing climate to this loss are a matter of continued interest and debate.

By the early medieval period, the increase in population and agricultural development had caused woodland cover to shrink to around 15%. It continued to decline to a low point of 5% by the end of the Great War in 1918, despite significant planting of native and introduced species from the 17th century onwards.

Outside the most remote areas, the woods which survived were generally those which were useful to somebody, whether as Royal hunting forests such as the New Forest, or as sources of wood, forage and shelter for local communities and their livestock, and later as industrial timber sources for ship building, charcoal and

tanning or coverts for game sports. Because of their long continuous history of human use and influence, those ancient woodlands which have survived and retained a more or less native character, are a priceless biological and cultural asset.

Woodland loss and fragmentation, as well as human persecution contributed to the loss of many larger species like beaver, bear, bison, auroch, wolf, elk and wild boar, (all extinct by the 18th century). And in the last 2-3 centuries pine marten, red kite, polecat, red squirrel, capercaillie, roe deer and wild cat also disappeared from large parts of the UK.

Forest expansion-native woodland neglect

The Forestry Commission was formed in 1919 to reverse forest losses and to rebuild a strategic timber reserve, by which time native woodland cover was probably as little as 2.5% of a total of 5% woodland cover.

Since then woodland cover has grown from 5% to 11.6% in the UK (Forestry Commission 2003). But until the late 1980s most of the expansion was achieved with imported species, mostly those with the highest potential growth rate and commercial value. Indeed there was continuing loss of native woodlands by conversion to conifer plantations (over a third of all ancient semi-natural woodlands between the 1930s and mid-1980s), clearance for intensive agriculture and to developments like roads and housing in the lowlands and gradual loss through overgrazing in the uplands. (Kirby *et al* 1989).

One reason for the neglect of native woodlands in this period was the decline of the traditional rural woodland economy as markets changed and labour costs increased. Broadleaved woodlands were seen as unproductive and expensive to work. As post-war affluence and mobility encouraged greater interest in recreation, landscapes and nature conservation, forestry found itself challenged to broaden its objectives from timber and afforestation alone in order to conserve and revitalise the remnants of native woodlands. Recently the burgeoning community movement has sought more influence and benefits for local communities and there has been a stronger focus on increasing added-value from native woodlands for rural economies.

The renaissance of native woodlands

In the early 1980s, the then GB nature agency, the Nature Conservancy Council, compiled inventories of ancient woodlands in England, Scotland and Wales, (Kirby *et al* 1989). These were inspired by Dr George Peterken whose research in eastern England had shown the importance of a continuous history of woodland for conserving the more sedentary and specialist species of woodland plants and animals. (Peterken & Game, 1984).

The inventories used historic records to identify areas of 'ancient' woodland sites, which were present by the 17th or 18th century and have been wooded continuously to the present day. Ancient woodlands include an unknown mixture of primary woodlands (present without clearance from post-glacial times) and secondary woods which had arisen or been planted after a period of clearance in historic times. Ancient woods were also classified as currently either semi-natural or planted stands, with cases of doubt usually being classed as semi-natural. The 'ancient and semi-natural' woodlands typically have higher value for biodiversity conservation than more recent or planted woods.

This work highlighted the rate of loss of ancient and semi-natural woods, which had occurred in the previous four decades and led to a seismic policy change.

The 1985 GB Broadleaved Woodlands Policy (Forestry Commission, 1985) required ancient woodlands to be safeguarded and recognised the importance of bringing broadleaved woodlands back into active management if they were to be maintained for the future. And it called for expansion of broadleaved woodlands by planting new areas of both pure broadleaves and mixtures. A grant scheme was introduced to give incentives with higher rates than for conifers, recognising higher establishment costs and lower profitability.

Over the same period, the plight of the native pinewoods of Highland Scotland was being recognised, helped by pioneering restoration efforts in places like Glen Affric and Black Wood of Rannoch in response to a survey by Steven and Carlisle (1959), and also an international conference held in 1975 (Bunce & Jeffers, 1977). The truly native pinewoods had once extended over perhaps a million hectares but by the 1980s they were now confined to as little as 12,000 hectares.

A pinewoods grant scheme was introduced in 1977 and was enhanced in the late 1980s, to pay for regeneration and planting with local origin pine stock in both existing and new native pinewoods. Promotion of new native pinewood has been particularly successful with over 50,000 hectares of new pine and birchwood established so far.

The switch in 1988 from tax relief for afforestation to grants with enhanced rates for broadleaved species and native pine was a turning point in UK forestry, when large-scale conifer afforestation declined and the balance of new planting shifted towards native species.

Native woodland types in the UK

The 'woodland antiquity' and 'semi-naturalness' categories developed in the ancient woodland inventories have proved valuable as an indicator of biodiversity and cultural values, and have been incorporated into nature conservation and forestry policies and planning guidance.

Ancient semi-natural woodlands are the most important of all for biodiversity as they harbour a greater concentration of specialist and sedentary species. This distinction between ancient semi-natural woods and more recent native woods has proved to be more marked in lowland arable landscapes than in upland semi-natural landscapes, where many woodland species can move through or persist to some degree in open areas.

Planted native woods can eventually develop a structure and composition like those of semi-natural woods, making it hard to distinguish them in the field. A broad classification of 'native woodland' including all woodlands composed mainly of native species, with a subdivision to recognise antiquity and semi-naturalness where these are known, is becoming more popular. It has been used for the UK Habitat Action Plan types for example (Department of the Environment, 1994; UK Biodiversity Group 1995-1998, 2004).

Ecological classifications of native woodlands

The National Vegetation Classification (NVC) system (Rodwell *et al* 1991, Whitbread and Kirby 1992) has become the main system in the UK since the late 1980s. It is widely used in surveys and has proved valuable in developing predictive guidance on woodland type and tree species composition for new or restored native woodland sites (Rodwell & Patterson 1994, Ray 2001, MLURI model). The NVC recognised 19 native woodland and 6 native scrub types.

Based on work by Dr Peterken, the Forestry Commission developed a management classification of 8 broad types of semi-natural woods based on stand and NVC types, and published policy and best-practice guidance for each, in a series which remains the core guidance on managing native woodlands (Forestry Commission 1994). These types were also used as a basis for defining priority woodland types for the development of Habitat Action Plans (Hall & Kirby, 1998).

Policy

Following devolution to Scotland and Wales, policy is decided at country level and England, Scotland, and Wales all have Forestry Strategies, which include as key themes conserving, improving and extending semi-natural and native woodlands and restoring ancient woodlands. Northern Ireland is also preparing a forestry strategy. Native and ancient woodland policies are under revision in both England and Scotland. However, at present,

the UK Forestry Standard (Forestry Commission 2004) and the Forestry Practice Guides for the Management of Semi-natural Woodlands remain the best summary of principles and best practice throughout the UK.

The *Management Principles* set out in these guides are to:

- Maintain semi-natural woodland types;
- Maintain or restore diversity of structure;
- Improve the diversity of species where appropriate;
- Maintain diversity of habitat;
- Maintain a mature habitat;
- Minimise rates of change; and
- Use low-key restocking techniques.

Further guidance has recently been published on restoring native woodlands on ancient woodland sites, which have been converted to non-native plantations during the 20th century. (Thompson *et al*, 2003). Full restoration is advised on high priority sites whilst partial restoration options can be more suitable for lower priority sites. And the pace of restoration should often be gradual: if a woodland canopy can be retained and exotic species gradually removed it helps to retain any ancient woodland wildlife that remains.

Management Systems

Every woodland is different and should be considered on its own merits and in relation to the owner's objectives. Management planning is vital and should include several key elements: description, evaluation, objectives of management, long term strategy and short term proposals, and finally monitoring, with feedback to revised objectives. These may seem obvious steps, but are not always applied. In response to new initiatives or short term funding streams, there can be a temptation to underplay evaluation and long-term objective setting, in addition to the monitoring of outcomes; and instead to focus on short term actions which may not always have a clear rationale.

In protected areas, the opposite tendency may be detected: an emphasis on survey and monitoring and a nervousness about intervention in case something is lost or the wrong action is taken.

A thorough approach to management planning is becoming more widespread however, and survey and evaluation is now expected for grant schemes and for management of native woodland in state forests.

The main management options for UK native woodlands are, in no particular order:

- ***Low intervention with little or no silvicultural management***
Suited to strict nature reserves and many of the more remote and less intensively managed native woods, or elsewhere where objectives are primarily to promote a relatively natural development and secure the long-term survival of the wood with all its key elements. There is rarely a prospect of complete non-intervention in the UK, even in the larger native woodland areas. Control of browsing animals in the absence of their natural predators is needed almost everywhere. And in the smaller managed woods, continued silvicultural management is usually required if they are to retain a diverse structure and composition.
- ***High forest systems***, with a range of silvicultural systems, ranging from individual tree and group selection to small-scale felling coupes.
Many native and ancient woodlands have been managed as high forest in the past or reverted to a high forest structure after a phase of coppicing. Most of the former coppice is best suited to high forest systems in future, except perhaps where a long period of coppicing has ended within the last few decades. The timber quality of many stands is poor. This is partly because of silvicultural neglect, but in the uplands, harsh conditions, over-grazing and burning on moors are also important factors.

- ***Coppice and coppice with standards***

Organised coppice systems were common in the lowlands for many centuries but in the uplands, coppice systems were probably widespread only for relatively short periods in the last 3 centuries, where industrial markets such as bobbin-making, charcoal for smelting and tan-bark made it profitable. Traditional coppice has been maintained or revived in many places, mainly in lowland England, and there has been a mix of revived craft markets, often precarious, and newer markets like charcoal for barbeques and firewood. Wood energy developments could provide a future boost for coppice systems.

- ***Wood pasturage***

Some ancient lowland royal hunting forests and parklands associated with country estates still have traditional wood pastures with scattered old trees, often former pollards. These old 'veteran' trees retain a high proportion of the rarer lichens, fungi, and dead wood insects which remain in the UK lowlands, often associated with locally rare remnants of unimproved grasslands. The upland native woodlands have more widespread forms of wood pasture often the result of fluctuating periods of light and heavy grazing. But there is growing evidence of a long history of more managed pasturage and pollard systems in the uplands as well.

Biodiversity Action Plan Targets

Since 1995 the UK Biodiversity Action Plan has been developed in response to the 1992 Convention on Biological Diversity. A set of native woodland priority habitats have been defined as part of the 45 priority habitats in the UK, and they support many of the UK priority species. UK wide targets have been set for native woodland Habitat Action Plans. (UK Biodiversity Group 1995-1998, 2004). For each type of native woodland there are quantitative targets for the period up to 2010-2015 for :

- *Maintaining current total area and extent of native woodland types*
- *Improving condition of existing native woodlands*
- *Restoring areas of non-native woodland on ancient woodland sites back to native woodland (about 10% of each type)*
- *Expansion (of about 10%) by creating new native woods and by converting non-native plantations to native woodland*

This process has been important as a driver and in helping to prioritise action both nationally and locally. Progress is reported in a consistent manner at three-year intervals. While the BAP is sometimes criticised for creating a new 'bio-bureaucracy', it has provided a valuable stimulus to improve systematic monitoring and reporting of what is happening to our important habitats and species.

Monitoring is being addressed in various ways including the inclusion of native woodland area and condition measures in a UK wide sampling system, the National Inventory of Woodlands and Trees (Forestry Commission, 2002), and recording systems built for activity contributing to targets in grant schemes and for Forest Enterprise, who manage the national forest estate in England, Scotland and Wales.

In Scotland a national native woodlands survey project is being developed with the aim of providing a consistent baseline map with condition information for the first time, although there have been many partial surveys over the last 20 years. (Clifford & MacKenzie, 2004).

The role of protected areas

Semi-natural woodlands were amongst the habitats designated as protected areas called Sites of Special Scientific Interest (SSSI) from the 1960s. This designation was intended to protect a representative range of high value or distinctive sites from development but had modest effect at first. It took several decades and more legislation to improve their effectiveness at preventing deliberate damage or loss through development or damaging operations or activities. Since the 1980s the emphasis has changed from protection and compensation for not doing damage, towards providing positive incentives for good stewardship to conserve the woodland and its designated features.

Even so, owners still did not have to take up these incentives, and sites could suffer through the gradual effects of neglect or customary unsuitable management practices.

Recently legislative measures have been taken in England, Wales and Scotland to remedy this. And management of adjacent land can now be controlled where it could affect the designated features of SSSIs. The strengthened SSSI systems thus now provide similar protection to those of Natura 2000 sites under the EU Habitats and Species and Birds Directives.

For SSSIs a system of site condition monitoring has been developed by nature agencies and is now being implemented progressively for all SSSIs. An adaptation of this is now being developed for assessing condition of the wider native woodlands resource. These condition assessments should drive future allocation of resources for management.

Although designated site management is now increasingly being linked to the management of surrounding areas, many sites are likely to be too small to be resilient in the face of unpredictable events and environmental pressures like climate change. The smaller sites often rely on an intensive gardening approach to conserve all the bits of the wildlife jigsaw through time and may still not be able to sustain populations of vulnerable specialists.

A rethink of the role and distribution of protected areas is likely as part of a move to landscape scale planning and management, to build in linkages and resilience.

Forestry grants for native woods in the private sector

Since the 1980s forestry grants have evolved to help deliver policy for native woodlands and a steadily increasing proportion of native woodlands are now included in grant schemes in each of the 4 countries of the UK. These include grants for improving and restoring degraded native woodlands, eg by removing exotic tree species where harvesting is at net cost, clearing rhododendron in upland oakwoods and dismantling fences that are dangerous to woodland grouse. Management grants have also been paid to help towards the costs of ongoing management to provide public benefits, including the maintenance of rides, glades and coppicing. New native woodlands have been created in substantial amounts, notably for native pine and birchwoods in the Scottish Highlands (over 50,000 ha grant aided since 1989), and through 'Challenge' funding projects in the National Parks of England and Wales.

The priority habitats and species in the Biodiversity Action Plan have been targeted in grant schemes developed in recent years. For example the Scottish Forestry Grant Scheme (Forestry Commission, 2003) includes 60% or 90% contributions towards standard costs of approved operations; the higher rate applying to native woodlands and designated sites as well as other priority habitats and species. And to encourage functional linkage in the landscape, new native woodlands are funded at the higher rate where they are sited close to existing native woodlands or are within zones targeted for native woodlands as part of Forest Habitat Network Plans.

Forestry grants are now the main mechanism to achieve suitable management of SSSIs, with nature agencies only funding very specific projects, which are beyond the scope of forestry grants. In Natura sites EU LIFE funds are used to supplement forestry grants to pay for specific additional work to be done.

Encouragement for integrated planning across ownership boundaries has developed in recent years and the integrated rural development agenda following CAP reform is encouraging more integrated forms of planning and incentives across land-use sectors so that agricultural and forestry incentives can be better dovetailed in future.

However, it remains the case, that grants will normally only contribute towards the costs of native woodlands and there is often an understandable reluctance amongst owners to spend their own money for intangible public benefits in the future which will not accrue to them personally. Education and awareness raising can go some way to overcoming this by motivating individual owners to manage native woodlands sympathetically, and this is an important part of extension services from forestry offices and Forest Research.

Native woods on the national forest estate

The Forestry Commission manages the national forest estates of England, Scotland and Wales (approximately a third of all woodlands but a smaller proportion of native woods), as does the Forest Service in Northern Ireland. They have both made substantial efforts over the last 15-20 years to conserve ancient and semi-natural woods and to restore conifer plantations on ancient woodlands back to native woodlands. (Forest Enterprise England, 2002; Forestry Commission Scotland, 2003). The restructuring of conifer plantations at the end of the first rotation has also provided an opportunity to create new native woods and clumps of native species along streamsides, which can act as future seed sources for further expansion.

Many projects on the FC estate have been developed as partnerships with EU LIFE funds, grants to private owners or NGOs and business funding. Several significant EU LIFE projects have focussed heavily on native woodland SACs since the mid-1990s, including Atlantic Oakwoods, Caledonian Pinewoods, Wet Woodlands, the New Forest, and Alluvial woodlands. These have been valuable, not only in terms of work done in important sites but also in raising the profile of native woodlands and providing exemplars and good practice guidance.

Progress in achieving biodiversity targets

This is hard to assess precisely because of the lack of a sound baseline and monitoring and reporting systems, which can assess native woodlands in terms of woodland type and target achieved. A 2001/2 study (MacKenzie & Worrell, 2003), sampled managed areas in both public and private woodlands and suggested that some targets would be achieved if current action was followed through, but most would probably not be achieved without enhanced activity (and some condition targets would probably not be possible in the short time available, eg where a build up of old trees and dead wood could take many decades). All targets will be reviewed over the period 2005/6 and extended to 2020 and beyond. More integration across habitats is being encouraged to take account of landscape ecology and mosaics of wooded and open ground. Climate change can also be factored into targets if possible, although the various scenarios are still highly uncertain in their effects.

Issues for the future

Much has been achieved over the last 20 years, but it is really only a beginning. There is now a strong focus on improving management and achieving national targets, but some challenges remain and new issues are constantly arising.

Policy issues

We need to develop clearer visions in each country of the UK for the long term roles of native species and native woodlands, ranging from wilderness woodlands through those managed mainly for biodiversity and cultural heritage, to native plantations created for wood production, recognising the values that this broad spectrum can provide and locating them in the best places. The increasing native woodland resource and development of spatial planning techniques should allow scope for a diversity of approaches to develop without threatening the key areas for biodiversity. The management of native woods must engage the interest and support of people nationally and in local communities and be seen as part of rural development strategies. A balanced genetic policy needs to be developed, taking account of climate change implications to guide the use of local and distant provenances and genetically improved or selected stock.

Mechanisms

A regional and landscape scale approach to planning is a crucial challenge to enable best integration with other woods and other land uses, and to build in functional connectivity to native woodlands in the face of climate change, land use pressures and invasive species. Integrated mechanisms for planning and public funding for land management are developing in each UK country and native woodlands need to be built in. Good monitoring and surveillance systems linked to systems for reporting against performance targets must be a priority, and sharing the load in developing and managing data systems is important for informing policies and planning.

Technical challenges

Although the basic management practices for native woodlands are now well known, some challenges remain, for example in terms of promotion and training, deer and grazing management across larger scales, encouraging natural regeneration, developing methods of converting and restoring native woodlands and deciding how/where to enhance wood production values and non-timber forest products in a sustainable way. Stimulating adequate production of suitable local provenance planting stock is also important.

Conclusion

The last 20 years have seen a dramatic reversal of fortunes for native woodlands in the UK and they are starting to recover and expand after thousands of years of decline. But the recovery of our native woodlands will be a long- term business and to see their potential realised, we must work to sustain recent efforts and public support, and to ensure that native woodlands are fully integrated into land management policies and mechanisms.

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