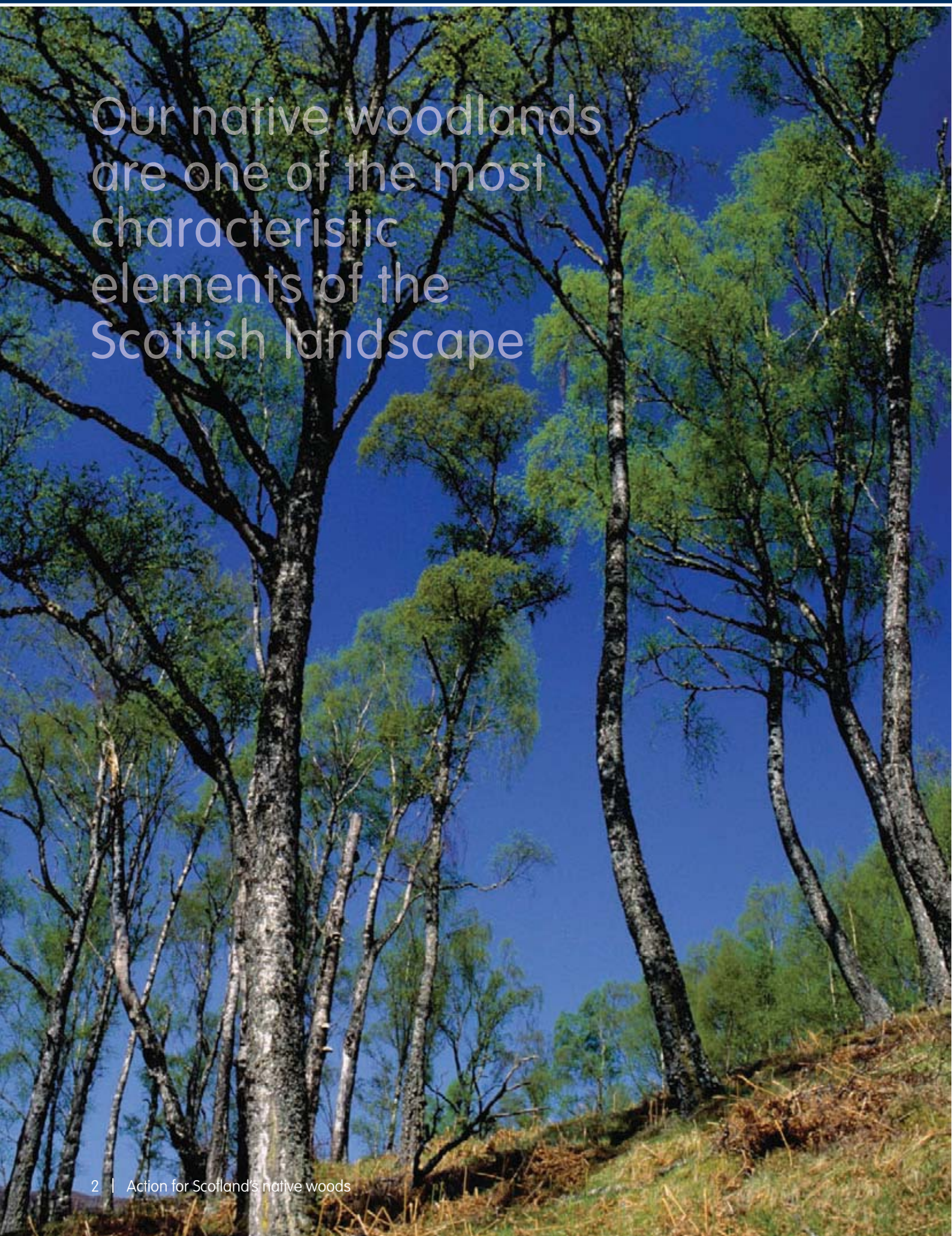
Forestry Commission Scotland

Information

Action for Scotland's Native Woods

The Scottish Government

Forestry Commission Scotland



Our native woodlands are one of the most characteristic elements of the Scottish landscape

Native woods – why they matter

Our native woodlands are one of the most characteristic elements of the Scottish landscape - from the rugged Caledonian pinewoods and birchwoods in Highland glens to the remnant ancient broadleaved woods in Borders cleuchs. They are home to many species of animals and plants - from wildcats to wood ants and mighty trees to tiny mosses, lichens and fungi.

Native woodlands are dominated by tree species that are native to the area where they grow. They can include both naturally regenerated and planted trees. As well as their importance to our natural and cultural heritage, native woods have many other uses, both for their owners and the wider public. They give us wood, shelter for livestock and deer, improve fisheries and protect our rivers and lochs. They also provide opportunities for activities like traditional country sports, wildlife tourism, walking and mountain biking.

The natural post-glacial woodlands that covered most of Scotland have been depleted over thousands of years by a combination of natural and human causes. The woods that remained were usually either useful to people and therefore managed over the centuries, or were remote and inaccessible. This loss, and the fragmented nature of today's native woods, has seriously reduced the richness of our wildlife.

However, it is not all gloom and doom. In recent years we have seen a real native woodlands revival. Many new native woods have been created and neglected woods are being managed to ensure they regenerate and to remove threats such as overgrazing or shading by rhododendron or planted conifers.

A good start has been made but much more needs to be done. The Scottish Forestry Strategy published in 2006 aims for a long-term programme of expansion, restoration and improvement in the condition of Scottish native woodlands by the middle of the century.

One of the main challenges we face is that many native woodlands are still not actively managed to maintain them for the future. The aim of this booklet is to encourage more people, and especially land managers and owners, to think about opportunities to manage and create native woodlands.

Threats and opportunities

Native woodlands face a number of threats which require action for individual woodlands or at larger scales.

Problems such as excessive grazing by deer or sheep, invasive plant species and shading from exotic trees can be tackled directly by site-specific actions.

Some wider problems, including the fragmentation and isolation of individual woods and the impacts of climate change and atmospheric pollutants, need action on a larger scale and over longer periods. The best way do this is to plan individual woodlands as part of a wider network of forest habitats which should allow more robust and adaptable woodland ecosystems to develop.

There are three main opportunities for action to help native woods:

Creating new native woods

Since the 1990s, much progress has been made in establishing new native woodlands, especially in the uplands. Many new woods are now reaching an age where they begin to provide good habitat for wildlife.

The Scottish Forestry Strategy aims to encourage landowners to continue this native woodland expansion, with the emphasis on creating networks of habitat; covering a wider range of sites, focussed in habitat networks; and directing more effort to the lowlands and southern parts of the country. Conversion from 20th century plantations of spruce might also play a part in expanding native woods.

Restoring native woods on ancient woodland sites

A vital contribution can be made by restoring native woodlands from 'Plantations on Ancient Woodland Sites' (PAWS). These are sites where the former native woodlands were replanted with introduced species, usually conifers, during the mid 20th century.

Restoration back to native species is already underway in a number of public and private woodlands. Woodland owners have a variety of objectives for their woodlands, but there are many circumstances where restoration to native woodlands is a good choice that can provide a range of benefits.

Improving the condition of our native woods.

The biggest opportunity for action is simply to give our existing native woodlands better care. Most have not been actively managed for a long time. Overgrazing, burning, urban pressures and allowing invasive non-native species such as Rhododendron to get out of hand, mean that many native woodlands are now in poor condition, with a reduced range of trees and shrubs and other characteristic or special wildlife species and little or no regeneration of young trees.

Some woods are protected by conservation designations (such as Sites of Special Scientific Interest or Special Areas of Conservation) and these are a higher priority. However there are many other sites about which much less is known and where action may also be urgently required. To help understand what is needed, Forestry Commission Scotland is carrying out a survey of Scotland's native woodlands to establish their location, composition and condition.

Forestry Commission Scotland is managing native woodlands on the national forest estate and many privately-

owned native woodlands have also been brought under renewed management, supported by forestry grants, non-government organisations and various partnership initiatives.

Still, most privately-owned native woodlands, including many designated sites, are not actively managed. This represents a major challenge and opportunity for owners, foresters and conservationists.

Some examples of actions to improve native woodlands are described later in this booklet to provide ideas and inspiration.

Why should I manage my native wood?

Managing native woods should provide value to landowners or managers as well as the wider public benefits. The old maxim "the wood that pays is the wood that stays" remains equally valid today. Some of the possible benefits to owners are outlined here and examples of managing woods for multiple objectives are illustrated in the case studies later on.

Wood products – many native woodland have a potential to be managed to produce wood products. Good quality Scots pine timber has always been marketable and the native hardwood sawmilling sector has been expanding for the last decade. On better sites, new native woodlands can include groups of trees at close spacing to encourage straight growth.

Some owners may wish to grow stands of native species primarily for quality timber, perhaps using genetically selected plants. Existing native woodlands may benefit from selective thinning and formative pruning.

Many native tree species make good firewood which can be harvested on a domestic or commercial scale and rising demand for renewable energy is likely to increase opportunities to bring native woodlands into sustainable management.

Livestock shelter – native woodlands can provide shelter and opportunities for managed woodland grazing and so improve livestock production potential.

Amenity, sporting and other values – The capital value and revenue potential of rural property can be enhanced by creating new native woodlands. They can improve the scenic value, support game, shelter deer and enhance fisheries. They can also be a source of edible fungi, berries and other products for wild harvest.

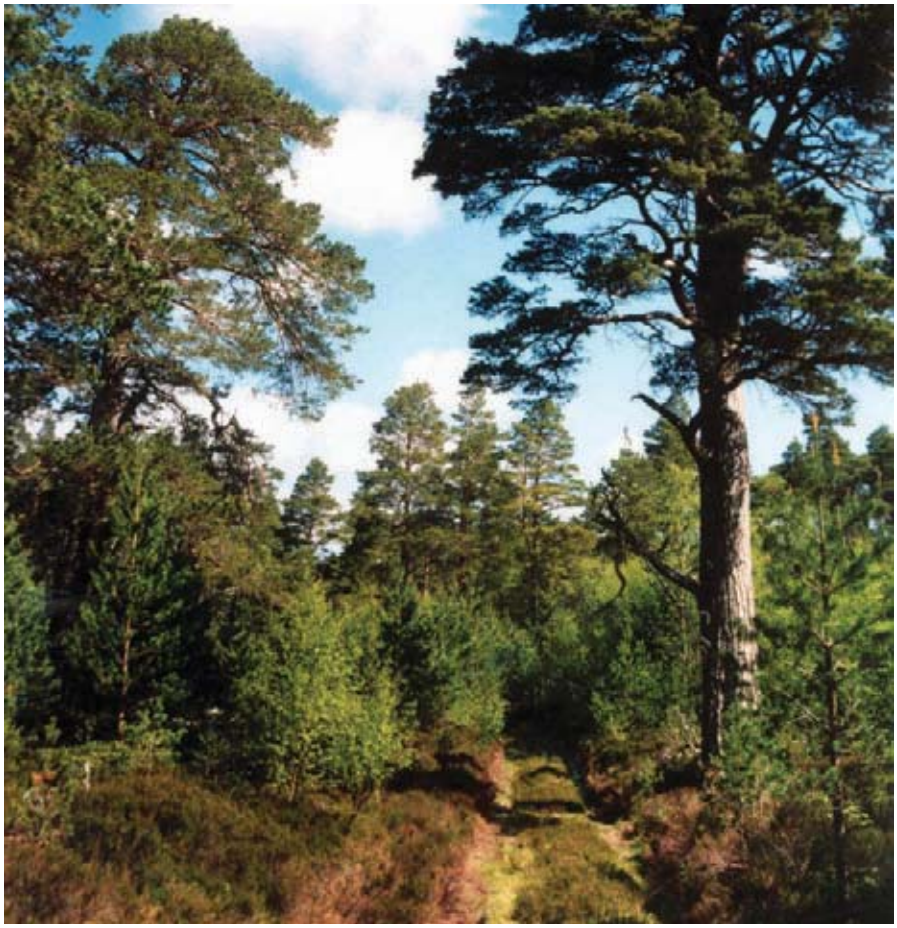
Of course many owners, including private individuals and community groups, get a great deal of enjoyment from owning and looking after native woodlands, and indeed this may provide the most important motivation for many.

Native woodland habitat types

Native woodlands are an important part of Scotland's natural heritage and they support much of our biodiversity (the variety of life). Many species are only found in native woodlands.

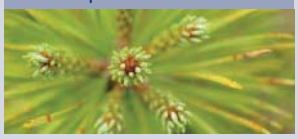
Ecologists and foresters have grouped our native woodlands into seven main types, all of which are now UK priority habitats (listed opposite) with national targets for expansion, restoration and conservation. Some are also European priority habitats. Each type is described in more detail on the following pages, with the main priorities for action.

Native woods support many UK priority species and examples of these are listed for each woodland type. Broad-brush habitat improvement often helps these species too, but some species have particular requirements and this needs to be catered for in planning.

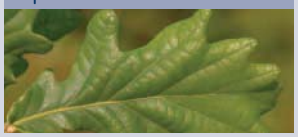


Scottish native woodland priority habitat types

Native pinewoods

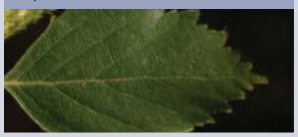


Upland oakwoods



Upland mixed ashwoods

Upland birchwoods



Wet woods

Lowland mixed broadleaved woods

Wood pasture and parkland

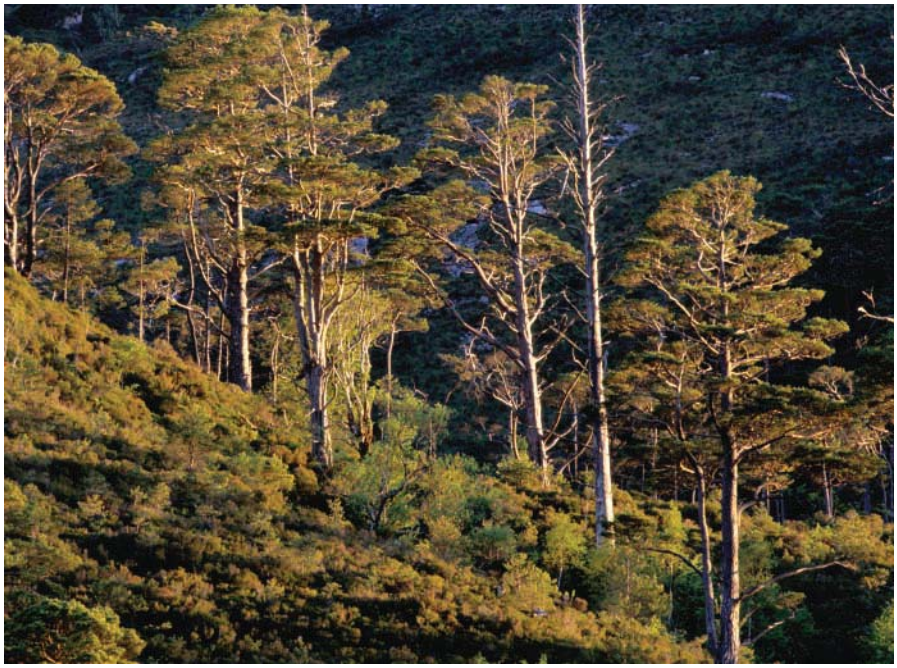
Native pinewoods

The 'Caledonian' native pinewoods, composed of swathes of Scots pine with scattered pockets of birch, rowan, alder and juniper, are the best studied of Scotland's native woodlands. They provide a home for some of our most charismatic species such as capercaillie, pine marten, red squirrel and wild cat. In the past, native pinewoods were a source of timber and a place for summer livestock grazing.

Many have been managed for centuries, with pine being favoured over other tree species. Although they once covered the majority of the higher ground in the Highlands, they have been reduced by felling, grazing and past climate changes to about 80 patches occupying a tiny fraction of their original area.

Work to identify and conserve these remnants has been going on for 60 years and has really gathered pace in the last 20 years. Non-native conifers planted within many pinewoods have been removed and existing areas of pinewood expanded by natural regeneration. Large new native pinewoods have been planted and some earlier plantations of Scots pine have been managed to develop a more natural uneven structure.

While expansion will continue, we should focus more in coming years on sustainable management through better control of red deer, restoration of cattle grazing to some areas, effective natural regeneration of pinewoods and the sensitive harvesting of timber.



Native pinewoods priority species- examples

Capercaillie

Red squirrel

Twinflower

Black grouse

Scottish crossbill

Wood ants

Juniper

Several woodland mosses and lichens

Upland oak woodlands

Upland oak woodlands are found mainly near to the west coast, from Galloway north to Wester Ross, and along the southern margins of the Highlands in Stirlingshire and Perthshire. The western examples are often called "Atlantic oakwoods" or 'Scotland's rainforests' and they host a huge diversity of mosses and lichens due to the wet, mild climate. The structure and composition of these woodlands reflects their history; informal wood-pasture until around 1700, then intensive coppicing for iron-smelting charcoal and tan-bark in the 1700s and 1800s, followed by neglect, over-grazing and, in some cases, conversion to conifer plantation. Oak is often unnaturally dominant due to past planting and removal of other species. We should seek to encourage a wider range of associated species to develop on the more fertile sites in future, such as birches, ash, rowan, hazel,hawthorn, holly,aspen and bird cherry.

In the last 10 years, many new areas have been planted and work is starting on the restoration of oak woodlands that were underplanted with conifers in the 1950s and 1960s.

We need to continue to bring old oakwoods back into management as well as expanding and linking them. Deer browsing and slow regeneration remains a problem in many upland oak stands as does the control of Rhododendron. Striking the right balance between livestock grazing and oak woodland conservation is also essential.

Recent trials in the Sunart Oakwoods have shown that with appropriate management, there is often good potential to produce oak timber in future.

Upland oak woodland priority species-examples

Killarney fern

Wood warbler

Chequered skipper

Pearl bordered fritillary

Small cow-wheat

Several woodland mosses and lichens

Upland mixed ash woodlands

Mixed ash woods are scattered across the uplands of Scotland where the soil is sufficiently fertile. Typical sites include river valleys and gorges, where inflowing water carries extra nutrients, and soils on lime-rich rocks. Ash is often found with hazel, wych elm, oaks, hawthorn, alder, cherry, aspen, rowan, birches, bird cherry. If not overgrazed, these woods are very species rich, especially for flowering plants.

There are a few large ash woodlands, but many of those in Perthshire, Stirlingshire, Argyll and the Borders are long and narrow and have become restricted to steep-sided valleys by heavy grazing. Some have been planted or colonised by sycamore or beech. The difficult access to many remaining sites does mean they have not been widely exploited for timber.

Good progress has been made in protecting many ash woodlands from grazing but ideally they should now be allowed to expand outwards from the burnsides by natural regeneration. Some new woodlands have been planted in recent years, but it has proved difficult to acquire land of suitable quality because of its relatively high agricultural value.

There are many opportunities for landowners, especially hill farmers, to protect, plant and regenerate mixed ash woodlands contributing to woodland habitat networks along the valleys. In time they could produce useful timber.

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Upland mixed ash woodland priority species-examples

Pearl bordered fritillary

Aspen hoverfly

© Naturepl.com

Song thrush

Hazel gloves fungus

Wilson's filmy fern

Several woodland mosses and lichens

Upland birch woodlands

Birch woods are characteristic of many Highland glens, often growing on bracken and grassy sites as well as heather moorlands. Perthshire, Angus, Deeside, Speyside and the inner Moray Firth all have many fine birchwoods with a mixture of rowan, willow, hazel, holly, juniper, oaks, alder and aspen scattered or in pockets amongst the silver or downy birches. They are very good habitats for insects, fungi, mosses and lichens.

The main threat to birch woods is uncontrolled deer and sheep browsing. The light canopy of birchwoods is valuable both for shelter and grazing for cattle and sheep and there are opportunities for managing this grazing carefully to combine it with regeneration of the woodland.

Birch woodland has traditionally been used as a source of firewood and small timber. Birch grows fast and there is scope for timber production from better sites, along the lines seen in Scandinavia. Seed orchards are being developed to produce selected silver birch to plant in woodlands where the owners aim is to grow better quality timber.

Many of the new native woodlands planted in the uplands contain a large proportion of birch, although on some sites pine or oak may eventually become more prominent. There has also been fairly rapid natural expansion of birch onto open moorland where grazing pressure has been reduced. Birch woods frequently improve the soil fertility of these sites.

Upland birch woodland priority species-examples

Black grouse

Wild cat

Juniper

Pine marten

Tree pipit

Aspen hoverfly

Several woodland mosses and lichens

Wet woodlands

Wet woodlands dominated by alder, willow or birch occur throughout Scotland in a wide range of situations. These include narrow 'riparian' strips along the banks of rivers and streams, various wetland fen or mire sites, and extensive areas of wet peaty birchwoods. Wet woods are distinctive habitats that often contribute much more than their small area would suggest to woodland biodiversity.

Often wet woods need little more than protection from excessive grazing pressure and from invasive non-native plants such as Japanese knotweed. The drier forms have some potential for wood production eg for firewood or biomass, but care is needed to avoid damage to soil and habitats.

Riparian woodlands perform important functions, protecting rivers against run-off pollution, siltation and flash flood damage, and enhancing habitats for freshwater invertebrates and other aquatic species such as salmon, trout, and otter. Riparian woods are also valuable as the basis to build forest parts of habitat networks. Over the past decade, many new riparian woodlands have been created with grant support along rivers such as the Tweed, often as part of salmon fisheries improvement schemes. There are opportunities to extend this more widely.

Most of our former floodplain woodlands are long-lost due to the artificial channeling of rivers and the reclamation of wetlands for agriculture.

Restoring some floodplain woodlands could benefit our water environment and wildlife and might also help reduce the risk of downstream flooding.

Wet woodland priority species- examples

Otter

Water vole

Crane flies

Great crested newt

Willow tit

Several woodland mosses

Lowland mixed broadleaved woods

Mixed broadleaved woods of oak, ash, hazel and Wych elm, with a mix of hawthorn, elder, hazel, blackthorn, birch and cherry, would originally have covered much of the lowlands of central and eastern Scotland. Most were cleared for agriculture in the distant past.

Examples remain for example in the Clyde Valley and around Stirling and Edinburgh and the Borders, but many have been modified by planting non-native species such as beech and sycamore. They are often ancient woodland sites with a long management history, which are now hotspots of diversity in mainly arable landscapes. These woodlands are quite capable of producing good quality oak and ash timber as well as continuing to support a high number of specialist wildlife, notably insects and fungi associated with old oak trees, and slow colonising woodland plants like dogs mercury.

Many of the lowland farm and amenity broadleaved and mixed woodlands planted in the last 20 years could increase our resource of this habitat type, though many will need action to alter the species composition to favour locally native species. However, they tend to be too small and the trees are often too widely spaced for good quality timber or good woodland habitat to develop. Enlarging and enriching such woods would increase their potential to meet a wider range of objectives and contribute to habitat networks.

A priority for many mature woodlands is to remove the non-native and invasive species of tree, shrub and ground flora which have gained a foothold. Management to produce timber trees of good form would be worthwhile. The local hardwood sawmilling sector in Scotland is showing promising signs of market development and could expand as fine timber becomes available.

Lowland broadleaved woods priority species-examples

Spotted flycatcher

Deadwood beetles

Great crested newt

Song thrush

Great crested newt

Lesser-spotted woodpecker

Bullfinch

Wood pasture and parkland

Wood pasture can develop in any of the native woodland habitat types described earlier, if they have been managed over a long period of time in association with livestock grazing. This usually leads to wider spaced trees developing an open grown structure. Oak, ash, hazel and alder can survive to a great age in wood pastures, forming 'veteran' trees which are of great value to rare invertebrates, fungi and lichens. These habitats have a high cultural heritage interest as well.

Upland wood pastures tended to develop naturally from grazed native woodlands, whereas lowland parklands were often created as part of designed landscapes. Wood pastures are mainly threatened by changes to grazing regimes and a lack of tree regeneration. Care is needed in deciding objectives: a sparse open grown old upland birch or oakwood could either be managed as wood pasture if it has a long history as such, or be regenerated as a more complete woodland ecosystem.

It is very difficult to create new wood pastures from bare land, although some modern agroforestry systems may aim to achieve this. The priority should be to identify and record examples of long-established wood pasture and then put in place conservation grazing regimes to maintain and improve them.

There is scope for private owners both to conserve and restore traditional wood pasture habitats and to develop novel sustainable grazing and regeneration regimes as part of their farming practices.

WTPL/David Bell

Wood pasture and parkland priority species-examples

Noctule bat

Wood ants

Fungi and lichens

Spotted flycatcher

Deadwood beetles

Tree pipit

Pearl bordered fritillary

Woodland creation

What needs to be done and where?

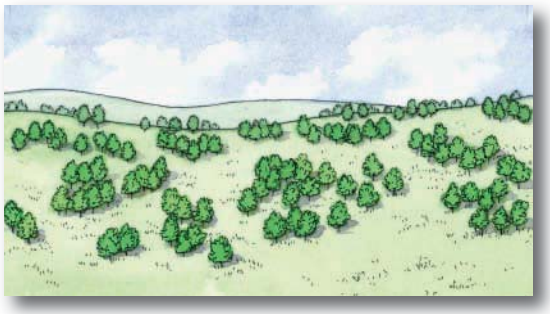
One of the main ways to reverse the long-term decline in native woodlands is to plant new woodland or enable natural regeneration to extend existing woodlands. The Scottish Forestry Strategy proposes a significant increase in native woodland cover by the mid 21st century and emphasises the importance of creating habitat networks.

For maximum biodiversity benefit, we need to seek more opportunities in future to expand upland mixed ash woodland, wet woodland and lowland mixed broadleaved woods which have had less input so far and have particularly high biodiversity potential in the long term. However these woodland types generally require better quality land which is also valued for agriculture.

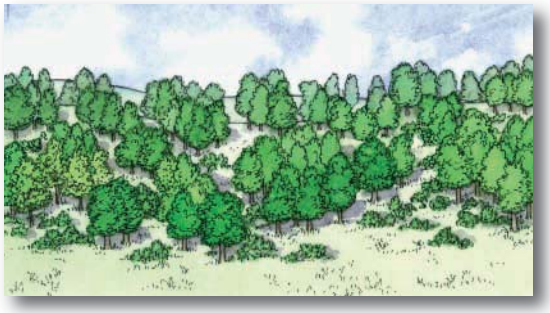
Whatever the amount of land available there is always scope to create native woodlands. Different objectives can be catered for too, but the results will almost always enhance our biodiversity, and improve the landscape and the local amenity.

Owners of large farms and country estates can create large areas of native woodland which may include a mosaic of woodland types, reflecting changes in soil conditions and micro-climate and incorporating other habitats such as moorland, heathland and wetland. Large woodlands can provide timber, fuelwood, game, shelter for livestock, opportunities for ecotourism and improvement to fisheries.

Smaller landowners and farmers and local community groups are more likely to plant discrete native woodlands on a particular site. These can also benefit biodiversity if they are well planned and contribute to a wider woodland habitat network.



Planting in groups helps develop a varied structure and composition



Encourage gradual natural colonisation by other native trees and shrubs

A complex 'natural' woodland has developed after 50 - 100 years

A mature and regenerating native woodland conributing to wider habitat networks

Illustrations by: Clare Hewitt

Woodland restoration

What needs to be done and where?

Following the two world wars, and in a drive to produce a national reserve of timber, much of Scotland's remaining ancient native woodlands were replanted with faster-growing introduced species, mostly conifers like sitka spruce. In some cases the native trees were felled prior to planting, in others the conifers were underplanted through the existing native woodland.

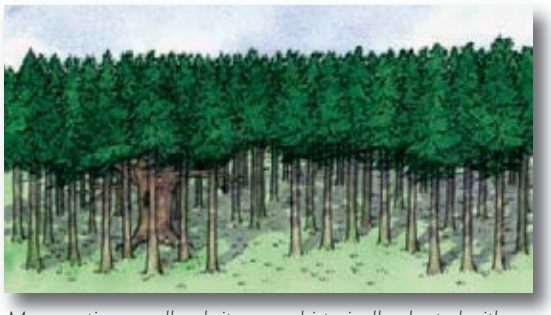
The value of these ancient woods for our natural and cultural heritage is now much better appreciated and it is now appropriate to restore many of these woodlands to native species to safeguard and revive the remaining biodiversity value and enhance the landscape. Often restoration makes good long term economic sense for owners since important remnants of native woodland often persist where poor access and low site productivity make commercial timber production difficult.

The restoration of native woodland habitats from Plantations on Ancient Woodland Sites (PAWS) can be easier than creating new native woodland on bare land, since the ancient woodland provides a more sheltered site for tree establishment with good drainage and soil fertility. Forestry Commission Scotland is restoring many of the PAWS sites on the national forest estate and supports private landowners to do likewise.

Restoration of native woodland on ancient woodland sites requires careful planning, taking account of local conditions. A survey can suggest which sites are a priority. Operations need to be planned carefully to favour these features during the restoration of a native species composition.

Ideally transformation should be gradual, avoiding major disturbance and allowing owners to realise the value of their maturing conifer stands. Gradual thinning, or selective or group felling, of non-native trees and promoting native species using 'continuous-cover' forestry methods can often be sufficient to change to a native tree and shrub species composition over time.

Felling the whole conifer canopy in one go will have a greater impact on the landscape and woodland ecology, but it may sometimes be the most suitable option on sites with poor access or a high risk of windthrow.



Many native woodland sites were historically planted with fast growing conifers

Gradual thinning should be targeted to remove non native trees

Native species should be encouraged using continuous cover management methods

Restoration may take many years

Illustrations by: Clare Hewitt

What needs to be done and where?

Many native woodlands have been unmanaged for a long time, in many cases since coppicing (for fuel or tanbark) ended, around 150 years ago. The largest remnant woodlands may be able to look after themselves, but most are too small for that and have fallen into poor condition over many years.

Many suffer from a range of pressures which result in a serious lack of tree regeneration. Heavy grazing by wild deer or livestock, and competition from invasive non-native species like Rhododendron, reduce the chance of native trees becoming established.

Activities on surrounding land can create other problems like fly-tipping, pesticide drift, fire and development encroachment. Because our native woodlands are often small and isolated these impacts threaten their existence and wildlife cannot easily find other refuges, so our biodiversity is threatened.

Work to improve the condition of native woodlands can be a "win-win situation" both for the owners and for wildlife. The key is to identify measures that will achieve both.

In most cases work should be based on a woodland survey and management plan. While professional foresters and ecologists will normally be needed, there may be some scope for voluntary input to survey work by local people.

The first priority should be to address the immediate threats to the survival of the wood or its key features and species; for example to remove invasive Rhododendron, control grazing and clear fly-tipped waste and other debris. These measures will usually improve not just the biodiversity value, but also the appearance, sporting potential and recreational access to woodlands.

In some cases that may be all that is needed to set a native wood on the right path. But there are usually opportunities to take further action to improve the ecological health of the wood and provide habitats for particular species, and also to boost wood production, recreational capacity, sporting potential or the protection of archaeological features.

Normally the main options to consider for improving biodiversity will be:

- encouraging natural regeneration and a varied woodland structure including open glades, eg by felling and vegetation management
- ensuring the future development of old trees and dead wood
- removing non-native trees and shrubs where they threaten native species
- introducing missing native species typical of the site into planted native woods
- introducing some form of controlled light grazing eg with cattle

Management will usually need to continue into the future, and should be based on some form of periodic monitoring of changs in key features which relate to the objectives of management for example grazing impacts, species composition and woodland structure, or the growth of timber species.

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Where can I go for more advice and help?

This booklet aims to give owners some ideas about why and how to manage the various types of native woods found in Scotland. The series of **Case Studies** on the next few pages may provide more ideas and inspiration. Further advice and information about the financial support available to support native woodland creation, restoration and management can be obtained from regional offices of Forestry Commission Scotland or from the Scottish Rural Development Programme website at www.scotland.gov.uk/srdp

Further reading

There are too many sources to list here. Some key information on best practice is listed here as a start.

Managing native woods

Forestry Practice Guides 1-8; The Management of semi-natural woodlands. Forestry Commission 1994.
Managing and controlling invasive Rhododendron. Practice Guide. Forestry Commission, 2006

Restoration of native woods

Restoration of native woodlands on Ancient Woodland Sites Practice Guide. Forestry Commission, 2003

Expanding native woods

Creating new native woodlands Bulletin 112, Forestry Commission, 1994.

The creation of small woodlands on farms, Forestry Commission Scotland, 2006.

Seed sources for planting native trees and shrubs in Scotland, Forestry Commission Scotland, 2006

Acknowledgements

Thanks are due to all the landowners and managers who contributed so willingly to the case studies, to Dr Scott Wilson who prepared most of the text and photographs and to the members of the Native Woodlands Partnership for Scotland for their advice on style and content.

Border Cleuchs

Woodland Owner	Hill farms and private estates.
Location	The Ettrick and Yarrow valleys, west of Selkirk, in the Scottish Borders.
Project	Fence cleuch woodlands to prevent grazing by sheep and allow natural regeneration. Plant native trees on adjoining sites. Remove conifers from the Ettrick floodplain sites.
Participants	Millennium Forest for Scotland Trust, Private landowners, Borders Forest Trust, Scottish Natural Heritage, Forestry Commission Scotland, Tweed Foundation/ Tweed Forum.
Objectives	Regenerate and expand native woodland habitat. Conserve biodiversity. Enhance the landscape. Improve salmon fisheries. Exclude livestock from hazardous sites.
Progress	A number of cleuch woodlands have been fenced and natural regeneration is evident at some sites, especially where there has been direct seeding of birch. Planting expands the woodland area more quickly but is also more costly and dependent on the grants available. Introduced conifers have been cleared from the Ettrick floodplain and wet woodland habitat is being restored. Plans for further work are being considered.

Background

Native woodland cover in the Borders is regarded as critically low. At one time the Border hills would have been covered in woodland, but a long history of sheep grazing has removed nearly all of the tree cover.

The cleuchs are side-valleys which still hold small areas of upland ash and wet woodland on the steep slopes, inaccessible to sheep. These small, isolated woodlands now represent the most important native woodland resource in the Borders.

The upland streams are important spawning grounds for Tweed salmon supporting valuable rod-and-line fisheries. Looking after the cleuch woodlands will help protect and enhance the spawning grounds and maintain the salmon populations.

Objectives

The objectives are to protect the cleuch and Ettrick floodplain woodlands and to extend them over a period of time. The Borders Woodland Strategy gave a framework for this action, by emphasising native woodlands. Woodland and wildlife conservation are the main drivers, but other factors such as enhancing the landscape, improving salmon fisheries and protecting livestock have played a part in encouraging individual landowners to become involved.

Organisation and resources

Borders Forest Trust co-ordinate the work in collaboration with numerous private landowners. Grants have been provided by Forestry Commission Scotland, Scottish Natural Heritage, The Scottish Government, The Millenium Forest for Scotland Trust and the European Union. The work has been carried out by the farmers and landowners and by local forestry contractors.

The best examples of Cleuch woodlands can be found in the upper Yarrow and Ettrick valleys

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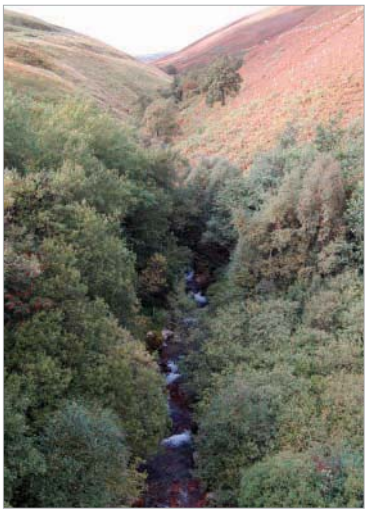

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Methods

Existing cleuch woodlands were protected by stock fencing to permit natural regeneration. In some cases native trees were planted to speed up woodland expansion. Introduced conifers were removed from the Ettrick floodplain prior to restoration of the wet woodland.

Results

Many cleuch woodlands have been fenced and natural regeneration has been successful at some sites. Planting native trees has generally been more effective in extending woodland area, but is a more expensive option. Work to restore the Ettrick floodplain wet woodlands is well advanced and there is a nature trail which is open to the public.

Cashel Farm

Woodland Owner	Royal Scottish Forestry Society Forest Trust Company.
Location	Cashel Farm, by Balmaha, east bank of Loch Lomond, Stirlingshire.
Project	Creation of large-scale, productive native woodland by planting following ecological site survey and effective site preparation works. Subsequent interpretation, biological research and ecological monitoring.
Participants	RSFS Forest Trust Company, Royal Scottish Forestry Society, Millennium Forest for Scotland Trust, Forestry Commission Scotland, Border Consultants (Forestry) Ltd (project managers).
Objectives	Enhance biodiversity, improve the landscape and produce valuable timber for local use. Emphasis on the demonstration of sound forestry methods and public education.
Progress	Planting has now been completed. Tree growth is good but stocking is variable. Major woodland types created are native pinewood, upland oakwood and upland birchwood. Upland ash/ wet woodland elements could be expanded later. Access and interpretation facilities have been installed and regular events and open days are now held.

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Background

A number of large native woodlands have been created in the uplands in recent years, some as part of the Millennium Forest for Scotland. One of the most ambitious of such woodland creation schemes was Cashel Farm on Loch Lomond.

The eastern banks of Loch Lomond are already largely wooded with mature upland oak woodlands, formerly managed as coppice, and plantations of spruce from the 1900s. Forestry Commission Scotland is gradually removing the introduced conifers and restoring native woodland. Cashel Farm had been a sheep farm and was one of the few large open sites on the east side of the Loch.

A variety of methods can be used to create new native woodland. Cashel Farm shows what can be achieved by effective site preparation and planting, following careful study of the site.

This is one of the most ambitious woodland creation schemes as part of the Millenium Forest for Scotland Trust project

© Scott McG Wilson

Objectives

The objective was to create a large area of native woodland which would provide a habitat for wildlife, enhance the landscape, offer public access and interpretation and, in time, produce timber for local use. The project also aimed to demonstrate techniques for creating productive upland native woodland. Existing mature oak and alder woodlands on the lower parts of the site also form part of the long-term management plan.

Organisation and resources

Establishing the trees and the subsequent site management have been done jointly by the owner (the RSFS Forest Trust Company) and their agent Border Consultants (Forestry) Ltd. The money was raised by public charitable subscription and grants from the Millennium Lottery Fund and Forestry Commission Scotland.

Methods

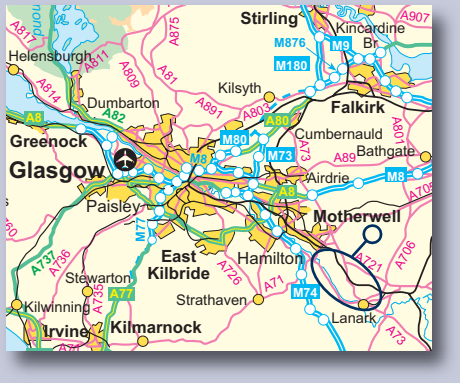
A systematic approach was taken to evaluating the site. The soils and vegetation were surveyed, and the impacts on the landscape modelled, before deciding which species to plant where. The site was prepared using conventional forestry techniques including fencing, machine mounding and fertiliser application. Since planting a number of biological surveys and ecological monitoring works have been conducted.

Results

The woodlands of pine, oak and birch have established well, although stocking rates have varied more than expected. On reflection, more ash and alder could have been included in the planting mix and trees might not have been planted so high up the hill, but these lessons are being learned. Access and interpretation facilities are a feature of the project. A visitor centre has been opened and a residential field centre is planned.

Clyde Valley Woodlands

Woodland Owner	Scottish Wildlife Trust, Historic Scotland, South Lanarkshire Council, Scottish Natural Heritage and private owners
Location	The Clyde Valley between Hamilton and Lanark, south-west of Glasgow.
Project	Restoration of neglected native woodlands by removal of conifers planted on ancient woodland sites, clearance of Rhododendron and fly-tip waste. Some thinning and planting.
Participants	Private landowners, Scottish Natural Heritage, Forestry Commission Scotland, South Lanarkshire Council, the EU LIFE woodland project, The Scottish Wildlfie Trust and Historic Scotland.
Objectives	Improve the condition of existing native woodlands and enhance their biodiversity. Remove introduced conifers, invasive plant species and fly-tipping. Provide new opportunities for natural regeneration and woodland expansion.
Progress	The EU LIFE project is now complete with conifers removed from several sites, notably within Chatelherault Country Park. Rhododendron and fly-tip waste has been removed and some sites have been thinned to promote regeneration. Small areas of new native woodland have been planted on adjoining sites. Maintenance work now continues with limited funding.

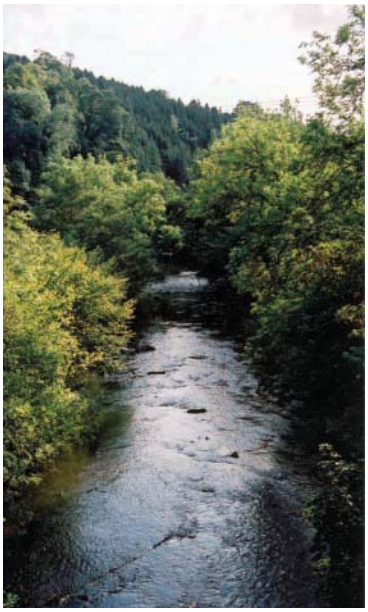


Background

The woodlands of the Clyde Valley, south-west of Glasgow are some of the few extensive native woodlands left in the lowlands. Following the river valleys, they have good inter-connectivity, forming a natural "habitat network". The lowland broadleaved woods and the wood pastures and parklands are nationally important, having been lost from most other lowland areas.

The Clyde Valley Woods have not been sympathetically managed in the recent past. Some were replanted with conifers following the Second World War. In others, invasive plants such as Rhododendron, giant hogweed and Japanese knotweed have taken hold. Being close to urban areas they have been prone to fly-tipping, vandalism and fires.

It was widely recognised that action was necessary to safeguard and enhance these important native woodlands



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Objectives

The first challenge was to tackle the main threats to the woodlands, clearing the introduced species and addressing the problems of fire and waste tipping. Once that was achieved, actions were directed at improving the natural regeneration and looking at opportunities for expanding and linking-up the woods, benefiting wildlife, the landscape and the local amenity.

Organisation and resources

The woodlands are owned by several parties, including South Lanarkshire Council, Scottish Natural Heritage and many private individuals, some of whom have little experience of woodland management. The co-ordination was funded by an EU LIFE project, which also provided top-ups to the grants available from Forestry Commission Scotland and Scottish Natural Heritage.

Methods

The work concentrated on restoring native woodland from PAWS (plantations on ancient woodland sites), gradually removing the conifers and other invasive plants. Some woods were thinned to promote natural regeneration and small areas of new native woodland have been planted.

Results

A major achievement has been the restoration of native woodland at Chatelherault, Hamilton, by gradually thinning out conifers and enabling natural regeneration. Invasive species and fly-tip waste have been removed from other sites. Small new native woodlands have been created to expand the woodlands at Garrion Gill and Cleghorn Glen. Public access has been improved but remains difficult at some sites. There is some concern that it may not be easy to sustain the improved level of management.

Craiganour Estate

Woodland Owner	Craiganour Estate.
Location	North side of Loch Rannoch, Kinloch Rannoch, Highland Perthshire.
Project	Creation of new native pinewoods by planting and promoting natural regeneration in mature oak and birch woodlands. Also a woodland grazing pilot project in existing native woodlands.
Participants	Craiganour Estate, Savills (L&P) Ltd, Border Consultants (Forestry) Ltd, Forestry Commission Scotland.
Objectives	Create large-scale new native pinewoods. Improve the condition of mature upland oak and birch woodlands. Aim to benefit wildlife and landscape character while allowing continued management as a Highland sporting estate.
Progress	Woodlands were established in 2000 following careful site survey and ground preparation (1250 ha), with an additional 100ha in 2004. There has been successful regeneration in the mature oak-birch woodlands following stock fencing.

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Background

Craiganour is a traditional Highland sporting estate on the north side of Loch Rannoch, with deer stalking and other outdoor recreation activities. The native woodland resource includes mature upland birch woodlands along the loch side and a smaller area of very old upland oak woodland with many veteran trees. These woodlands were formerly open to grazing by deer and sheep. The Estate also has some young conifer stands that adjoin similar Forestry Commission plantations.

As on many upland estates, the owners of Craiganour have used the available grant schemes to enhance their existing native woodlands and to extend them by planting on open ground.

Objectives

The main objectives were to conserve the existing native woodlands and to expand them by new plantings to benefit wildlife and the landscape. The design and proposed management of the woodland is consistent with Craiganour continuing to function as a sporting estate.

Organisation and resources

The woodlands are owned by Craiganour Estate and factored by Savills (L&P) Ltd of Perth. Border Consultants (Forestry) Ltd have acted as forestry agents and project managers. The project was supported with Forestry Commission Scotland grants.

Methods

In 2000, two large native pine woodlands were established on difficult upland sites. Early problems with tree survival required replacement planting and fertilising at 4 years, and birch die-back was a problem in places. Mature oak and birch woodlands have been fenced against sheep and deer to promote natural regeneration, and a woodland grazing trial has been started.

Results

Establishment and growth is now satisfactory and, in time, both areas will complement the neighbouring pinewoods such as the Black Wood of Rannoch on the far side of Loch Rannoch, benefiting both wildlife and the landscape. Regeneration in the mature oak and birch woodlands is now well advanced and results of the grazing trial are awaited.

The design and proposed management of the woodland is consistent with Craiganour continuing to function as a sporting estate

Deveron Headwaters

Woodland Owner	Edinglassie Mains, Wellheads Farm, Broadland Farm.
Location	Upper Deveron valley, west of Huntly, Aberdeenshire.
Project	Creation of small areas of native woodland (upland oak-birch, wet woodland) especially along watercourses. Restoration of mature wet woodlands along the Deveron to favourable condition.
Participants	Farmers, Scottish Native Woods, Forestry Commission Scotland.
Objectives	Objectives of individual owners varied but biodiversity conservation and landscape enhancement aims were shared. One owner cited stock shelter as an additional aim while another emphasised riparian habitat and salmon fisheries improvement.
Progress	Many small areas of native woodland have been created over the past two planting seasons using a combination of tree shelters and stock fencing. Sycamore and giant hogweed have been removed from mature riparian wet woodland. Taken together, the works have had an impact on woodland habitats at a catchment scale, reinforcing a local habitat network.

Background

The River Deveron in Aberdeenshire is one of Scotland's premier salmon rivers. The success of the salmon fisheries depends on the ecological health of the upper reaches, which have a vital role as spawning grounds. Managing the riparian woodland will help to protect these, providing shade and sources of food. Small areas of mature riparian woodland survive along the upper Deveron and its tributaries, but as with many other farming areas in upland Scotland, woodland cover has been depleted.

Where land is in multiple private farm ownership it can be difficult to secure concerted action for native woodland. In the upper Deveron, the non-governmental organisation Scottish Native Woods has played a key role in encouraging several farmers to conserve and expand local native woodlands. While each participant has their own motives, the overall outcome will be a big improvement in woodland habitats in the catchment.

Managing riparian woodland will help protect and enhance vital Salmon spawning grounds

© Scott McG Wilson

Objectives

The overall objective was to increase the cover of native woodland, especially riparian woodland, to benefit wildlife, the landscape and salmon fisheries. The work would also look after existing wet woodlands to improve their condition. Individual farmers' own objectives for new woodland creation included the provision of stock shelter to replace ageing conifer shelterbelts and excluding stock from difficult ground with poor access.

Organisation and resources

The woodlands are owned by three private farms/ small estate owners. Work was co-ordinated and managed by Scottish Native Woods and funded under Forestry Commission Scotland grant schemes.

Methods

Woodland establishment was planned using ecological site survey techniques to select trees and shrubs native to the site. Upland oak-birch woodland and wet ash-alder woodland were planted onto improved and semi-improved fields using tree shelters and stock fencing. Sycamore and giant hogweed were removed from an existing wet woodland.

Results

The plantings are very recent but establishment is satisfactory. The overall pattern of woodland created will significantly increase native woodland cover at the local catchment scale. Mature riparian woodlands are improving in ecological condition. There is scope to carry out more regeneration work in other riparian woodlands along the upper Deveron valley.

Kinveachy Estate

Woodland Owner	Reidhaven Trust (part of Seafield and Strathspey Estates).
Location	Monadhliath mountains, west of Carrbridge, Strathspey.
Project	Scientific study of native pinewood ecosystem, red deer and capercaillie. Promotion of natural regeneration by deer culling and deer fencing. Actions to benefit capercaillie including fence marking and predator control. Public interpretation.
Participants	Seafield and Strathspey Estates, Forestry Commission Scotland, Forest Research, Scottish Natural Heritage, Deer Commission for Scotland, RSPB Scotland.
Objectives	To achieve a sustainable balance between red deer numbers for stalking and achieving natural regeneration in native pinewoods, and to protect and enhance capercaillie populations.
Progress	Studies of Scots pine, red deer and capercaillie have yielded valuable initial results. Deer numbers are being reduced by culling and native pine regeneration is improving, initially within fenced exclosures. The Estate has healthy capercaillie populations at three leks.

Background

Kinveachy in western Strathspey is a traditional Highland sporting estate with deer stalking, grouse shooting and salmon fishing. Kinveachy also has old native pine woodland and younger pine plantations, both of which host healthy populations of capercaillie.

There are trade-offs to be made between deer numbers and natural regeneration, and it is known that deer fencing can kill capercaillie in areas where the fence is hard to see and the birds fly into them.

Objectives

The main objective is to encourage the valuable native pine woodland habitats to regenerate naturally, while maintaining populations of red deer, grouse and capercaillie.

Organisation and resources

The woodlands are owned by Seafield and Strathspey Estates who worked together with Forestry Commission Scotland, Forest Research, Scottish Natural Heritage, Deer Commission Scotland and RSPB Scotland. Each party provides funding and/or support in kind.

Methods

The research involved deer and capercaillie counts and studies of the pinewoods, such as age analysis of pines. Deer culling reduced the population to a level at which natural pine regeneration would be likely to occur and it is hoped that grouse numbers will increase as grazing reduces. Stalking continues, albeit at a lower level. Some deer fencing is used to allow more rapid woodland regeneration, but all fences have been marked to help reduce capercaillie collisions. Foxes and crows have been controlled to protect capercaillie around lek sites.

Results

This is long-term work, with deer numbers being reduced over a 10-year period. Pine regeneration is already increasing in fenced areas and the habitat will be monitored in the coming years to detect gradual change outside the fences as deer numbers come down. Capercaillie populations remain strong. This work is making major contributions both to the biodiversity of Kinveachy and to its future as a sustainably managed upland sporting estate.

The estates have sought a new balance between red deer, capercaillie and native pine regeneration by carrying out collaborative research work, leading to well-planned deer culling, fence marking and predator control

Sunart Oakwoods

Woodland Owner	Forestry Commission Scotland and Ardtornish estate.
Location	Oak woodlands on the Morvern and Ardnamurchan peninsulas around Loch Sunart in the West Highlands.
Project	Removal of conifers and control of invasive Rhododendron in native oak woodlands. Promotion of oak silviculture to encourage natural regeneration and provide local timber.

Participants	Forestry Commission Scotland, Forest Research, Scottish Natural Heritage, Rick Worrell and George Peterken (consultants), Ardery estate.
Objectives	To protect and restore upland oakwoods for biodiversity, rural development and landscape benefits.
Progress	Removal of conifers and Rhododendron is well advanced, with fairly radical approaches having been used. A research report on silvicultural options for native oak woodland has been produced and trials are underway in the Sunart oakwoods.

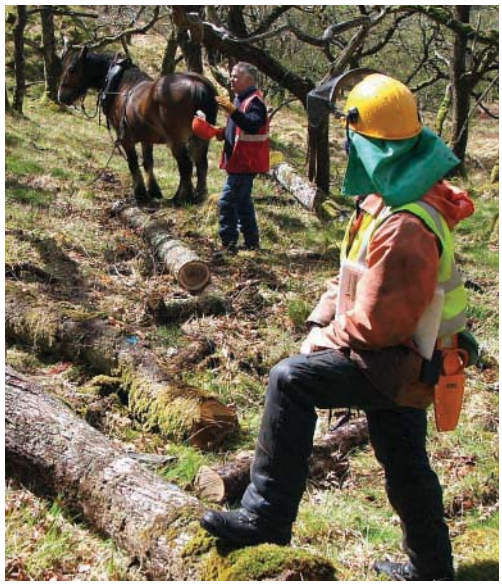
Background

The oak woodlands of the Morvern and Ardnamurchan peninsulas in Western Scotland are one of the most species rich areas of native woodland in the UK. They support important populations of mosses, lichens, butterflies and birds.

These woodlands have a long history of human influence, particularly during the 1700s and 1800s when they were a major source of charcoal (to smelt iron) and tanbark (to cure leather).

As the value of oakwood products diminished, the woodlands became neglected and over-grazed. After the Second World War, introduced conifers were planted through many oakwoods, gradually shading out the native species. Rhododendron, another introduced plant, also became widely established and is shading out key species.

Action is needed to protect and restore these woodlands



© Sunart Oakwoods Initiative

Objectives

The key objective was to protect and restore the oak woodlands, improving their biodiversity and the landscape. In due course, it is intended that silvicultural systems will be developed so that timber and fuel wood from the oak woodlands can contribute to the local economy.

Organisation and resources

Most of the oak woodlands with introduced conifers are owned by Forestry Commission Scotland. Those with Rhododendron and sheep grazing are owned by several private estates. Forestry Commission Scotland has undertaken work on its own ground and on neighbouring private land with the agreement of the owners. Ardtornish Estate has carried out Rhododendron control work funded by Forestry Commission Scotland and Scottish Natural Heritage and is trialling alternative silvicultural systems.

Methods

Introduced conifers and Rhododendron have been removed from the oakwoods, with herbicide follow-up in the case of Rhododendron. Silvicultural methods are being tested, using sensitively designed felling and low-impact extraction equipment to thin the oakwoods to promote natural regeneration and allow future extraction of usable timber

Results

Removing the conifer and Rhododendron has been very effective but has altered the appearance of the woods. Seedling regeneration is strong and usually dominated by birch. An oakwood silviculture demonstration day has been held and there are plans to involve more woodland owners through activities of the Sunart Oakwood Initiative.

Forestry Commission Scotland

Information

Forestry Commission Scotland serves as the forestry department of the Scottish Government and is responsible to Scottish Ministers

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