

## Upland Oakwoods

W2



LORNE GILL/STH

UPLAND OAKWOOD, PERTSHIRE

## DEFINITION

Upland Oakwoods are defined as those woodlands dominated by oak; Sessile oak *Quercus petraea* usually dominates, with Pedunculate oak *Quercus robur* locally. Birch *Betula spp.* is generally present in the canopy with varying amounts of Holly *Ilex aquifolium* (not often found in Tayside), Rowan *Sorbus aucuparia*, Hazel *Corylus avellana* and occasionally Aspen *Populus tremula* present as the predominant understorey species.

Oak-dominated woods are defined by the National Vegetation Classification (NVC) in the following extract from the Ecological Classification of Woodland HAP Types:

<b>Upland Oakwoods</b>	woodland within the upland region of UK generally dominated by oak or, in Scotland with at least 30% of the canopy cover comprising oak. Small areas of other communities may occur, for example along streams (W7 - Alder-ash woodland with yellow pimpernel) or towards the base of slopes which experience flushing (W9 - Upland mixed broadleaved woodland with dog's mercury).
<b>NVC Types</b>	W10 - Lowland mixed broadleaved woodland with bluebell/wild hyacinth W11 - Upland oak-birch woodland with bluebell/wild hyacinth W16 - Lowland oak-birch woodland with bilberry/blaeberry W17 - Upland oak-birch woodland with bilberry/blaeberry

## CURRENT STATUS AND EXTENT OF HABITAT

Across the UK the extent of this woodland type is estimated between 70,000 - 100,000 hectares, concentrated mainly in the western half of the country. These woodlands are recognised as being of international importance due to the extent and distinctiveness of the flora (especially bryophytes) and fauna they support. For some of these species Britain and Ireland hold a substantial part of the world and European population. Upland Oakwoods are at the limit of their northern range in Scotland.

The Tayside Native Woodland Inventory of 1995 indicates the total Upland Oakwood area in Tayside as 1,900 ha.

Tayside Biodiversity Partnership



## KEY SITES

## CASE STUDY

	Carie	Fonab
<b>Grid reference</b>	NN613574 to NN615569	NN940539
<b>Oakwood Status &amp; History</b>	The oak woodland was part of an extensive semi-natural deciduous woodland which extended along Loch Rannoch. The oak was almost certainly managed during the 18th and 19th century for timber and tanbark. This was followed by a period when the woodland was grazed as woodland pasture. The site was acquired by the Forest Enterprise from Dall Estates in 1958. Management during the 1960's sought to convert some of the oak and most of the birch woodland to conifers by underplanting. Recently an extensive programme of conifer removal has been carried out.	The woodland was probably planted during the 18th or early 19th century on an ancient woodland site. The current crop consists of planted maidens or carefully singled coppice. The site was acquired by Forest Enterprise from the Hydro Electric Board in 1952.  Management has included thinning of most of the wood, several group fellings, bracken control and some (largely unsuccessful) replanting in felled areas.
<b>Total area</b>	19.5 hectares	18 hectares
<b>NVC type</b>	W17: Upland oak-birch woodland with bilberry/blaeberry.	W11: Upland oak-birch woodland with bluebell/wild hyacinth.
<b>Oak Species</b>	Pedunculate oak <i>Quercus robur</i>	Pedunculate oak <i>Quercus robur</i>
<b>Present stocking</b>	80 - 150 stems per hectare	100 - 300 stems per hectare
<b>Other species</b>	Downy birch <i>Betula pubescens</i> 50%; Silver birch <i>Betula pendula</i> 10%; Aspen <i>Populus tremula</i> 1%; Rowan <i>Sorbus aucuparia</i> 1%.	Silver birch <i>Betula pendula</i> 5%.
<b>Potential</b>	To continue to increase the area of oak/birch woodland by removal of conifer crops from under existing areas of mature trees and by felling blocks of conifer within the woodland. Options for extending the woodland beyond its current compartment boundaries are more limited. Regeneration will initially clearly be largely of birch, but oak would be expected to colonise the woodland in the long term.	There are several options for increasing the area of woodland by removing blocks of conifer within and adjacent to the main area of oak woodland. Regeneration has largely failed in the past due to deer browsing pressure. Therefore selecting the most appropriate deer management must be a priority.

## NATURE CONSERVATION IMPORTANCE

Upland Oakwoods take a long time to evolve ecologically and are valuable wildlife sites. The ground flora associated with this woodland type varies according to the NVC type. Upland Oak-birch with bilberry/blaeberry (W17) is located on very acid, shallow soils where the tree growth is usually slow. The ground vegetation here is dominated by blaeberry. Upland Oak-birch with bluebell/ wild hyacinth (W11) however, is found on acid freely draining leached brown earths. The tree growth is stronger here and bracken is often dominant in the ground layer. Both NVC types occupy well-drained slopes.

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**Wildcat** (*Felis sylvestris*)

**Ecology** - Wildcats have increased in both numbers and range in Scotland in the past century and have benefited from afforestation. The species is found mainly in upper valley slopes and steep hillsides, on moorland and peatland and in rough grassland or forest, as well as in the lowland margins. They have also been recorded at higher altitudes, above 800m. It is listed as a 'Species of Conservation Concern' in Tayside.

**Distribution** - Widespread, except in the lowlands in the far east of Tayside. More abundant in Angus and east Perthshire. In recent decades there has been little change in overall range and the population in most areas appears stable.



LAURIE CAMPBELL

There is a strong understorey and structure associated with this woodland holding a strong climax woodland community. Oakwoods and their associated open areas provide a rich and diverse habitat for a variety of invertebrates, including the Pearl-bordered fritillary *Boloria euphrosyne*. A large proportion of species listed in the following table are associated with the open ground areas of oakwoods.

**KEY SPECIES**

**P** = UK Priority species    **C** = UK species of conservation concern

<b>Mammals</b>	Red squirrel	<i>Sciurus vulgaris</i>	<b>P</b>
	Wildcat	<i>Felis sylvestris</i>	<b>C</b>
	Badger	<i>Meles meles</i>	<b>C</b>
	Brown long-eared bat	<i>Plecotus auritus</i>	<b>C</b>
	Pipistrelle bat	<i>Pipistrellus pipistrellus</i>	<b>C</b>
<b>Birds</b>	Wood warbler	<i>Phylloscopus sibilatrix</i>	<b>C</b>
	Spotted flycatcher	<i>Muscicapa striata</i>	<b>P</b>
	Redstart	<i>Phoenicurus phoenicurus</i>	<b>C</b>
	Great spotted woodpecker	<i>Dendrocopus major</i>	<b>C</b>
<b>Amphibian</b>	Great crested newt	<i>Triturus cristatus</i>	<b>P</b>
<b>Invertebrates</b>	Pearl-bordered fritillary	<i>Boloria euphrosyne</i>	<b>P</b>
	Hairy wood ant (Northern)	<i>Formica lugubris</i>	<b>P</b>
<b>Higher Plants</b>	Wild hyacinth	<i>Hyacinthoides non-scripta</i>	<b>C</b>
	Small cow-wheat	<i>Melampyrum sylvaticum</i>	<b>P</b>
	Wilson's Filmy Fern	<i>Hymenophyllum wilsonii</i>	<b>C</b>

**NATIONAL BIODIVERSITY CONTEXT**

In the UK, upland semi-natural oakwoods have declined by about 30 - 40% in area over the last sixty years as a result of replanting, mainly with introduced conifers, clearance for quarries or other developments and conversion to rough grazings. Recent changes have greatly reduced the amount of inappropriate management of these woodlands.

**Tayside Biodiversity Partnership**

The objectives of the UK Biodiversity Action Plan for Upland Oakwood are:

- Maintain the existing area of upland oakwood (70,000 - 100,000 ha.) and improve its condition by a mixture of management for timber (predominately as low intensity high forest), as sheltered grazing and minimum intervention.
- Avoiding other habitats of high nature conservation value, expand the area of upland oakwood by about 10% on to currently open ground by some planting, but particularly by natural regeneration by 2005.
- Identify and encourage the restoration of a similar area of former upland oakwood that has been degraded by planting with conifers or invasion by *Rhododendron ponticum*.

In the context of Scotland, the estimated area of all upland oakwoods is in the region of 35,000 ha. of which ancient semi-natural woodland (ASNW) accounts for 24,000 ha. The Scottish targets are to initiate action in 80% of all HAP sites (i.e. 28,000 ha.) by 2004 and achieve favourable condition in over 50% by 2010. Within these figures the target is to initiate action in 100% of HAP sites occurring within SSSIs and SACs by 2004 and achieve favourable condition in over 70% by 2010.

The restoration figures for upland oakwood in Scotland are 3,000 ha. by 2010. This includes 10 ha. in Angus and 350 ha. in Perth & Kinross.

The expansion targets for upland oakwood in Scotland are 3,000 ha. by 2005. This includes 110 ha. in Angus and 280 ha. in Perth & Kinross.

## ECOLOGY AND MANAGEMENT

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Sessile oak *Quercus petraea* and Downy birch *Betula pubescens* dominate this woodland type. However where *Quercus robur* occurs, especially in eastern Scotland, it is usually of planted origin. The lack of oak dominance in woodland on higher slopes can often be attributed to past management and is not a true reflection of the natural species composition of this woodland type. However with increased altitude Birch becomes the dominant species. The field layer is dominated by three types namely grasses, bracken and ericoid sub-shrubs. The relative proportions of these vary with soil type, shade, grazing and topography.

The oak woodlands are in general a mosaic of different NVC communities with W11 and W17 the major community types.

**NVC W11** This is the most common oceanic type of woodland community with base-poor brown earth soils dominated by Oak species and Downy birch *Betula pubescens*. Where oak dominates, it forms a high forest with a closed canopy of tall oak with poor crown development derived principally from coppice and planted oak of unknown origin. Where birch is more dominant the canopy is more open. The occasional Ash *Fraxinus excelsior* may be found with, locally in Tayside, Rowan *Sorbus aucuparia* and Hazel *Corylus avellana* more common.

**NVC W17** These communities are less frequent than the W11, but these woodlands have very acid shallow soils with Oak and Downy birch still the dominant species. Where the oak is dominant the trees are of a poorer quality and smaller than W11 oakwoods. Where the Birch is more dominant, Rowan is present as a co-dominant species. The commonest other species are Holly *Ilex aquifolium* though generally quite scarce, with Ash and Hazel which tend to be found in pockets of base-rich wet flushes.

The cessation of coppicing and the increased grazing pressure from both permitted grazing of domestic animals and browsing by wild animals has contributed to a decrease in the structural diversity of this woodland type. It must be pointed out that oakwoods that are not, or have never been, coppiced are not necessarily biodiversity poor. The removal of substantial amounts of timber throughout the early 20th century also contributed significantly to the changing composition and structure seen in Tayside's upland oakwoods today.

## Upland Oakwoods

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**CURRENT FACTORS CAUSING LOSS OR DECLINE**

In Scotland large scale planting of oaks was undertaken on estates between 1780 and 1830 for tanning bark, timber, coppice for charcoal making and general landscape value. In the last hundred years, the advent of the First World War saw a severe decline in oakwoods which continued during the Second World War as timber was utilised for the war effort. There has been a decline of about 30 - 40% of oakwoods across the British Isles over the last sixty years.

Lack of management of the remaining oakwoods, grazing pressure and adjacent land use changes (for example development pressures such as new roads, quarrying and recreational access) have led to a limited age structure within most of these woods. With increased planting of exotics from 1940 onwards the last sixty years has seen a further reduction. In more recent times such woods have remained relatively stable with only slight decreases being recorded by the Forestry Commission between 1980 and 1995.

There is, however, a wide range of factors that have contributed to Upland Oakwood decline. Those contributory factors, specific to Tayside, are listed below in order of priority of seriousness:

1.	Historical under-planting of oakwoods with coniferous species, for example Carie Oakwood (case study).
2.	The spread of Bracken <i>Pteridium aquilinum</i> which can limit regeneration. Because the oak is a strong light demander, regeneration of oak under oak canopy is difficult enough without other competition. Invasion of species such as Rhododendron <i>Rhododendron spp.</i> and Sycamore <i>Acer pseudoplatanus</i> also provides competition against oak seedlings.
3.	In some cases unsympathetic forest management practices do not produce the biodiversity benefits such woodlands can provide, for example inappropriate planting for game cover or a lack of appropriate management.
4.	Limited markets for hardwood timber products produced in Scotland.

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**OPPORTUNITIES AND CURRENT ACTION**

The government through the Forestry Commission (FC) regulates the management of all woodland in the UK. The Commission also encourages forestry expansion through the payment of grants where creation of new woodland is in accordance with forestry and conservation policies. Such policies are informed by both national and international priorities and these are set out in a series of publications that provide the framework for environmental regulations and incentives. The UK Forest Standard defines and applies government commitments to sustainability and biodiversity and this is augmented by a series of environmental guidelines on conservation, landscape and water. The Scottish Forestry Strategy contains a strong commitment to achieve the current Action Plan targets.

There are a number of resources available, both financial and advisory support, for native woodland management and establishment. The main sources of funding are through the FC which offers a wide range of grants to private landowners to assist specifically for native woodland management, improvement and expansion.

Opportunities are also available through:

- The introduction of a new grants initiative - Scottish Forestry Grants Scheme - to be launched in April 2003. The key changes to the FC grants will allow greater focus on the management of existing oak woodlands and will target grants towards areas where significant Habitat Action Plan (HAP) targets can be met.
- LIFE European funding to manage SAC (Special Areas of Conservation) designated oak woodland sites (for example: Comrie woods cSAC)
- Ongoing development and promotion of training on the conservation and management of oak HAP types with particular reference to the problems associated with regenerating oakwoods. At present, for example, Scottish Native Woods organises a range of courses tackling the issue of regeneration.

**Tayside Biodiversity Partnership**

## Case Study

## COMRIE WOODS

The Comrie Woods SSSI and cSAC lies just north of the town of Comrie and the Highland Boundary Fault. This part of the wood is situated to the west of the River Lednock gorge.

As a whole the SSSI is a primary woodland site representing the largest area of acid sessile oakwood (*Quercus petraea/Betula pubescens/Dicranum majus* W17 community) in Perth & Kinross. In addition, the Lednock gorge and adjacent areas contain fragments of richer mixed ash, hazel, wych elm woodland (W9b) whilst bluebell dominated oakwood (W11) is characteristic on more neutral soils.

The primary objectives of management are:

- To enhance and safeguard the integrity of natural woodland communities on the site principally by managing beech colonisation and promoting regeneration of native species.
- To maintain the intrinsic qualities of the woodland experience available to visitors. The factors that define this experience also include large veteran trees and conifers.



LORNE GILL/SNH

BLUEBELL

## OBJECTIVES AND TARGETS

The UK Habitat Statement for Upland Oakwoods gives a conservation direction to Local Biodiversity Action Plans which may adopt some or all of the relevant measures identified nationally to be applied locally. The targets established for local plans are based on maintaining the current extent of Upland Oakwoods and encouraging the balance of appropriate management regimes across the distribution of the type.

	Objectives	Targets
1	Maintain existing area and improve the condition of Upland Oakwoods in Tayside and prevent net loss or reduction in area. The core areas for Scotland total 30,000 ha. The Tayside area is approximately 2,600 ha.	All 2,600 ha. to be identified and managed to increase their biodiversity value whilst not compromising any existing commercial operations or other nature conservation interests by 2005.
2	Restoration of upland oakwood cover. The restoration figures for upland oakwood in Scotland are 3,000 ha. by 2010. This is made up of 10 ha. in Angus and 350 ha. in Perth & Kinross.	Restore 360 ha. by 2015, completing half of this by 2010.
3	To bring under management existing upland oakwoods to increase their biodiversity/conservation value.	Raise the awareness of the importance of upland oakwoods to woodland owners through examples of good practice, workshops, publicity and other promotional opportunities. Provide habitats for associated key species utilising current European LIFE funding initiatives (such as at Comrie Wood cSAC and SSSI case study).

## Tayside Biodiversity Partnership



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4	Increase the area of upland oakwoods on suitable sites within Tayside. The expansion targets for upland oakwood in Scotland are 3,000 ha. by 2005. This is made up of 110 ha. in Angus and 280 ha. in Perth & Kinross.	Revised IFS (Indicative Forestry Strategy) to be drawn up by Local Authorities incorporating the figures below by 2005. Expansion of upland oakwood area, preferably through natural regeneration, in suitable sites in Tayside by 390 ha. by 2005.
5	Ensure the long term future of this habitat.	Raise the public's awareness of the importance of upland oakwoods and newly planted oakwoods within the Tayside area through examples of good practice, workshops, publicity and other promotional opportunities.
6	Ensure the long term future of upland oakwoods.	Ensure all new upland oakwood sites are incorporated into positive management through the new Scottish Forestry Grant Scheme by 2005.
7	Extend and enhance upland oakwoods by developing Forest Habitat Networks as detailed in the Scottish Forestry Strategy.	Priority action point in SFS document. Partnership involvement from grant setting (FC) to guidance (SNH) and adoption by private sector, FE and woodland initiatives providing ongoing advice. Target is to act on advice and recommendations currently being prepared by FC and SNH. Also required are revised IFS (Indicative Forestry Strategies) to be drawn up by Local Authorities by 2005.
8	To improve the ecological value of native woodlands through work related to native woodland Habitat Action Plans.	To deliver new FC grants by April 2003 that will be designed to contribute towards costs for work that achieves at least one of the following: - improves the natural heritage value of semi-natural woodlands; - restores native woodlands on ancient woodland sites; - secures natural regeneration within or immediately adjacent to native woodlands.
9	To improve the environmental value of woods and forests through work related to Biodiversity Action Plans (Habitat and Species Action Plans and Local Biodiversity Action Plans) and designated sites or species listed in the schedules of the Wildlife and Countryside Act or the EU Habitats and Species Directive.	To deliver new FC grants by April 2003 that will be designed to contribute towards costs for work that is necessary to implement agreed HAPs, SAPs & LBAPs including work in open space and non-woodland habitat within the woodland or forest area.
10	To put forward recommendations for changes to the Woodland Grant Scheme and Farm Woodland Premium Scheme in Scotland so as to improve their effectiveness in delivering priorities identified in the Scottish Forestry Strategy.	A joint Forestry Commission / Scottish Executive Steering Group report submitted for European approval in autumn 2002. Provisional launch of new scheme (Scottish Forestry Grants Scheme) in April 2003. Revised IFS's put in place across Tayside incorporating HAP and LBAP targets by 2005.

## Stakeholders

- Landowners and woodland owners; forestry and woodland organisations; countryside organisations; local authorities; members of public.

## Tayside Biodiversity Partnership



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## ACTION FOR BIODIVERSITY

		Action - Upland Oakwood	Deliverers		To take place by								Meets Objective No.
			Lead Partners	Partners	02	03	04	05	06	07	11	16	
LBAP Ref.	<b>A</b>	<b>Policy and legislation</b>											
W2	1	Ensure that the opportunities to realise the upland oakwood potential of suitable land are identified within the development of Indicative Forestry Strategies by the local authorities.	AC DCC PKC	TBP				#					1,3,4,7,10
W2	2	Provision of financial grant support for appropriate management of upland oak woodland through the introduction of the Scottish Forestry Grants Scheme.	FC		#	#	#	#	#	#	#	#	AllEsp. 8,9
	<b>B</b>	<b>Site safeguard and management</b>											
W2	1	1. On FE managed land, ensure appropriate management of upland oak woodlands for biodiversity. 2. Ensure biodiversity details are incorporated into the FE 10 Year Plans.	Forest Enterprise	TBP	#	#	#	#	#	#	#	#	1,2,4,5
W2	2	Establish sites that can be used to demonstrate good practice of oakwoods which identify linkage work that will complement other habitats.	FC	FE TBP				#					2,4,5
W2	3	Compile a list of all landowners with upland oakwood on their land.	FC	Landowners				#					1
W2	4	Promote the use of long term (20 year) Forest Plans that highlight woodland owner objectives and their aims for existing or potential upland oakwoods.	FC	Woodland owners and advisors	#	#	#	#	#	#	#	#	2,4,5
W2	5	Encourage grant applications that contribute to the development of Forest Habitat Networks and effective management of existing native woods under the Scottish Forestry Grants Scheme.	FC	SNH, Woodland owners, advisors	#	#	#						6
	<b>C</b>	<b>Advisory</b>											
W2	1	Provide management advice to owners of existing upland oakwoods and also to those who wish to create new upland oakwoods.	FC	SNW	#	#	#	#	#	#	#	#	All
W2	2	1. Encourage and provide advice on the marketing and sustainable use of products from oakwoods as a means of supporting appropriate management. 2. Provide advice on silvicultural methods to obtain woods products and on marketing and utilisation.	Forestry Industry Cluster Group SNW	FC Woodland owners, advisors	#	#	#	#	#	#	#	#	1,3,5,6
W2	3	Provide advice to woodland owners and managers to encourage the improvement of woodland structures for the benefit of the associated key species.	SNH RSPB		#	#	#	#	#	#	#	#	1,2,3,5
	<b>D</b>	<b>Research and monitoring</b>											
W2	1	Promote the use, and identify sources, of local native tree stock for woodland planting where appropriate alongside natural regeneration.	FC	SNH	#	#	#	#	#	#	#	#	4
	<b>E</b>	<b>Promotion and awareness-raising</b>											
W2	1	Highlight the values of upland oakwoods to owners, managers and the general public.	FC	SNH SNW RSPB TBP	#	#	#	#	#	#	#	#	All
W2	2	Monitor and review this plan - ensure this plan is being delivered annually and in detail after 5 years.		TBP	#	#	#	#	#	#	#	#	