

Scottish Forestry Forum Briefing Note

Native Woodland Habitat Action Plans in Scotland

Introduction

The clearance of our native forests, which at one time covered an estimated 70 – 80% of Scotland, has been a continuous process over several thousands of years, and native woodland cover is now only about 2% of the land surface. Although much has been done to reverse this trend, and to establish new native woodlands, particularly since the introduction of the Broadleaves Policy in 1985, and a native pinewoods grant scheme in 1989, there is potential to achieve much more. Key threats to the remaining native woodlands include further fragmentation (including losses to development), unsuitable or insufficient management, and overgrazing.

The UK Biodiversity Action Plan (UKBAP)¹ outlined a strategy for implementing the Convention on Biological Diversity, previously signed by the UK Government at the Rio Earth Summit (in 1992). Its overall aim was to set national objectives for conserving and enhancing species and habitats, promoting public awareness and contributing to international conservation efforts. A key part of the UKBAP was the preparation of Action Plans for over 40 priority habitats (HAPs) and over 400 priority species (SAPs)².

Six native woodland HAPs (NW HAPs) were included, of which five are applicable in Scotland. Two others, (also applicable in Scotland), are being prepared with a view to ratification (at UK level) and publication in 2003. The full list is as follows:

NW HAPs applicable in Scotland (publication date)

- Native pine woodlands (1995)
- Upland oakwoods (1995)
- Upland mixed ashwoods (1998)
- Wet woodlands (1998)
- Lowland wood pasture and parkland (1998)

NW HAPs currently being prepared

- Upland birchwoods
- Lowland mixed deciduous woodlands

Each NW HAP describes the type of woodland to which it refers. For information on the relationship between the NW HAP types and the most commonly used native woodland ecological classification systems see Hall and Kirby (1998)³.

All the plans contain measurable biological targets to ensure that we focus on assessing results rather than just the effort and resources which go into conservation. These targets are recognised in the Scottish Forestry Strategy as 'existing commitments', and are therefore implicit in the priorities for action *to improve the management of semi-natural woodlands, and to extend and enhance native woodlands by developing Forest Habitat Networks.*

Links to other HAPs and to SAPs and LBAPs

There is an inevitable link between NW HAPs and woodland-related species (some of which have their own SAPs). It is probable that most of the relevant SAP targets can be achieved through relatively small fine-tuning of general woodland management measures, eg. ensuring the short-term continuity of niche habitats and woodland conditions (shade, microclimate, etc.), coupled with judicious restoration and expansion on to adjacent sites in the longer term. In some places however hard choices may need to be made, eg. restricting the expansion of large-seeded broadleaves to safeguard existing red squirrels core areas. Similarly the merits of expanding native woodlands on to other semi-natural habitats will need to be weighed against the benefits of protecting those habitats.

Local Biodiversity Action Plans have been prepared (or are in hand) covering the whole of Scotland. Almost all have included native woodlands in their lists of priorities. In some cases they have adopted discreet targets which can be related directly to the Scottish targets for each NW HAP type; in others no

¹ Biodiversity: The UK Action Plan, 1994. HMSO, London

² see www.ukbap.org.uk

³ Hall, J. E. and Kirby, K. J., 1998: The relationship between BAP Priority and Broad Woodland Habitat types and Other Woodland classifications. JNCC Report No. 288. Joint Nature Conservation Committee. Peterborough.

distinction is being made between the different HAP types. Estimates of possible locally applicable HAP expansion and restoration targets have been made, see Annex E (based on Jones *et al*, 2002)⁴.

Implementation

The Forestry Commission (FC) is the lead agency for implementing all the published NW HAPs, except for the Lowland wood pasture and parkland HAP (which is being led by English Nature, with Scottish Natural Heritage acting as their 'agents' in Scotland). Implementation involves establishing networks of partners, preparing work programmes, carrying out and stimulating action, directing resources, managing publicity and reporting progress against HAP targets⁵.

The FC has convened and chairs a steering group called the UK Native Woodland Habitat Action Plan (UKNWHAP) Group, which co-ordinates overall UK implementation of all the native woodland HAPs. A similar group has been set up in Scotland, called the Scottish Native Woodland HAPs Partnership (SCNWHAPP) to co-ordinate delivery of targets in Scotland. It is also chaired by the FC, and the current membership includes representatives of:

- Forestry Commission (National Office and Policy and Practice Division of FC HQ)
- Forest Research
- Scottish Natural Heritage
- Scottish Executive Environment and Rural Affairs Department
- Deer Commission for Scotland
- Scottish Landowners federation
- National Farmers Union (Scotland)
- Forestry and Timber Association
- Royal Society for the Protection of Birds (also representing Scottish Environment Link)
- Scottish Native Woodlands (also representing the Scottish Native Woodlands Initiative Network)
- Scottish Local Biodiversity Action Plan Co-ordinator

⁴ Jones, A.T., Gray, H. and Ray, D. (2002). Strategic Application of Modelling Forest Potential: Calculating Local Targets for Native Woodland Habitat Action Plans in Scotland. Scottish Forestry, Vol. 56(2).

⁵ The latest progress reports will shortly be available on www.ukbap.org; click on 2002 Reporting and log in as a 'guest' to view each HAP report individually.

Definitions

To ensure consistency of interpretation and action to implement the NW HAPs the following definitions have been adopted.

Site-native species: refers to those species that are native to the locality, and are capable of growing naturally on the site (ie: they can successfully colonise and complete their life-cycle). Species such as sycamore and sweet chestnut may be widely *naturalised* but are not regarded as native anywhere in the UK, whilst some species such as beech, hornbeam and Scots pine are considered to be native only within a restricted area of Britain. The best current guidance on native and site-native status for trees and shrubs in Britain is given by Soutar and Peterken⁶. [NB. Climate change is likely to affect the natural distribution of our native species, but this need not affect how we respond to the challenge of the HAPs in the short term, as there is no definitive statement on the probable extent and rate of change.]

Native woodlands: for the NW HAP purposes, this term refers to all woodland, planted or semi-natural origin, in which site-native species occupy more than 50% of the woodland canopy. The composition of the shrub layer is not used to define native woodland, although it might determine its ecological condition. It is acknowledged that we do not have detailed figures about the overall size of the resource (of all the HAP types), or the number and area of woodlands with different proportions of site-native species. This may be a problem when it comes to inventories and judging the overall success of our actions, and the issue is currently being addressed, but in the meantime a management decision related to HAP targets can be made for every wood based on site-nativeness and the 50% 'rule'.

Semi-natural: this reflects past human influences, as no truly natural woods remain in the UK. Semi-natural woodlands are comprised predominantly of trees and shrubs that are native to the site, and are not obviously planted, *ie.* they appear to have originated mainly from natural regeneration (or from coppice growth) from previous generations of naturally regenerated trees. Such woodlands normally have higher nature conservation values than planted (native) woodlands of a similar age. In practice it can be very difficult to tell whether stands which appear semi-natural in structure and composition were actually planted or naturally regenerated, and doubtful cases have often been included as semi-natural in inventories. The estimated area of semi-natural woodlands in Scotland is 150,000 ha.

Ancient woodland sites: refers to sites which are believed to have been continuously wooded for several hundred years, regardless of the type or origin of the trees growing there now. This long continuous history is important for nature conservation and cultural values. These sites are identified in the Ancient Woodland Inventory for Scotland, (though the latter has a different threshold date for defining ancient woodland from that used in England and Wales), and also includes some additional categories. **Ancient semi-natural woodlands (ASNW)** are semi-natural woodlands growing on ancient woodland sites. The estimated area of ASNW in Scotland is 89,000 ha.

Plantations on Ancient Woodland Sites (PAWS): can, in theory, refer to plantations of predominantly (over 50%) site-native or non site-native trees (on Ancient Woodland Sites). The former are often ecologically very similar to ASNW, even if their structure differs, and are therefore included (for HAP purposes) as native woodlands (see above). However where the predominant species is non site-native some of the original ecological interest may have been adversely affected. Many such woods were converted from ASNW to plantations of introduced conifers between the 1930s and 1980s, causing large losses in biodiversity. They are NOT currently regarded as part of the NW HAP resource though they have the potential to become part of it following their restoration. It is estimated that the total area of non site-native PAWS in Scotland is about 56,000 ha.

⁶ Soutar R and Peterken G F: *Native Trees and Shrubs for Wildlife*, reproduced as an appendix to Forest Nature Conservation Guidelines, 1990. Forestry Commission. Edinburgh.

Eligibility criteria

Native Pinewoods HAP

The **current resource** includes

- the core areas of the pinewoods listed in the Caledonian Pinewoods Inventory (CPI)⁷ which identifies pinewoods believed to be genuinely native (*ie.* self-sown trees derived from generations of similarly descended trees originating from post-glacial woodland remnants).
- areas of new native pinewoods created (established) within the natural pinewood range since the 1980's.

In comparison with the other NW HAPs (below) the scope of the native pinewood HAP is relatively restricted, in that it excludes other pinewood areas (including pine plantations) within the traditionally accepted natural range of pinewoods (even if they are occupied by pinewood SAP species). The problem is unlikely to be resolved before 2005 when a major review of all HAPs and SAPs is due to take place. [NB. This anomaly has not affected the eligibility of proposals for grant aid (to manage pine plantations to benefit named pinewood species) under the Woodland Grant Scheme – this flexibility will be continued under the new Scottish Forestry Grants Scheme.]

Broadleaved native woodland HAPs

(comprising Upland oakwoods, upland mixed ash woodlands wet woodlands, upland birchwoods and lowland mixed deciduous woodlands)

These NW HAPs promote action in all categories (ancient, recent, semi-natural and planted woods) relevant to each HAP type. However ancient semi-natural woodlands are the most important for biodiversity and they need to be given the highest priority.

The **current resource** to which HAP targets apply to woodlands include the following:

- ancient semi-natural woodland (semi-natural stands on ancient woodland sites)
- other semi-natural woodland (semi-natural stands on more recently wooded sites)
- planted stands on ancient woodland sites where the composition is mainly site-native species (more than 50% of the canopy cover). [NB. Areas of non site-native plantations on ancient woodland sites (PAWS) are NOT currently regarded as part of the NW HAP resource though they have the potential to become part of it following their restoration.]
- new native woodlands designed to mimic natural woodland composition and structure (as per FC Bulletin 112)⁸
- other planted woods (outside ancient woodland sites) comprising mainly site-native species (more than 50% of the canopy cover) where the owner's agreed aim is to manage as native woodland and to develop a more natural structure and composition. [NB. It has been argued that future management should not be the basis of current classification, especially as ownerships and management intentions can change. On the other hand it is likely that there will be many plantations of native (broadleaved) tree species in Scotland that have quite naturally developed at least some of the characteristics of their semi-natural counterparts. It therefore seems perverse to exclude them, especially if these characteristics are to be supported by proposed management action.]

Many mixed planted woods may be best suited to continuing as a mixture of native and other species for timber production, sporting, visual amenity and historical or other reasons, rather than being converted to natural type native woodland.

The following **thresholds** should be used to define and measure areas of native woodland of each HAP type.

- **(Overall) Canopy cover:** minimum 20%, as for the National Inventory of Trees & Woodlands, (NIWT).

⁷ Forestry Commission, 1999. The Caledonian Pinewood Inventory. National Office for Scotland, Forestry Commission, Edinburgh. (Available as An IBM 3.5" floppy disc, or by e-mail on request).

⁸ Rodwell J S and Patterson G S, 1994: Creating New Native Woodlands. Forestry Commission Bulletin 112. HMSO. London.

- **Minimum size:** all areas of native woodland. In inventories the minimum size recorded often refers to discreet (mappable) areas of 2 hectares of any one woodland type, though smaller thresholds may be used where suitable.
- **Open ground within woods:** areas less than 1ha or linear features less than 50m wide are 'counted' as part of the gross woodland area. Open areas larger than this are classed as unwooded. This also follows the NIWT convention.

Objectives

Although there are minor differences between the individual NW HAPs they have common objectives, namely to co-ordinate action throughout the UK that will:

- **maintain** the extent of the existing native woodland resource, ensuring especially that areas of *ancient semi-natural woodland* and *genuinely native pinewood* are not lost
- **improve** the ecological condition of native woodlands, ensuring that necessary management is undertaken to achieve *favourable condition*
- **restore** native woodlands on ancient woodland sites where the original woodlands have been replaced deliberately (in the form of plantations of non site-native species) or by default (following natural colonisation by non-native species); this will increase the native woodlands resource
- **expand** the area of native woodland habitats of each type by the creation of new native woodland and conversion of non-native plantation (outside ancient woodland sites) to native woodland.

Targets and Monitoring

The Scottish share of the UK HAP targets are a pro-rata share of the UK targets, based on the estimated proportions of the different native woodland types occurring in Scotland (Kirby – internal paper 2/99 to the UKNWHAP group), namely:

- Native pinewoods – 100%,
- Upland oakwoods – 42%,
- Upland mixed ashwoods – 33%,
- Wet woodlands – 50%,
- Lowland wood pasture and parkland – 5%
- Upland birchwoods – 100%
- Lowland mixed deciduous woodlands – 8%

The individual NW HAP targets are shown in Annexes A to D. All the published targets were reviewed and ambiguities clarified during 2001, as part of JNCC's UK wide review of all BAP targets.

At present the data for native woodland areas by HAP type and category are inadequate, and the development of inventory and monitoring systems is a priority for the UKNWHAP Group. The aim is to achieve a sensible balance between effort spent on monitoring and on action on the ground, so that we have a much clearer picture of the status and trends in our native woodland resource. Initial estimates may need to be rather crude, assigning compartments or even whole woods to one NW HAP type, but as individual woodlands are surveyed and brought under management our understanding of the resource will improve, provided these relate consistently to NVC communities, and NW HAP types and targets.

The publication date(s) of the NW HAPs is taken as the starting point for monitoring the implementation of each HAP. Current resource relates to the area of each NW HAP type present at the baseline date (and subsequently to additions to the resource through restoration and expansion). Intermediate or 'milestone' stages may also be recorded as a way of managing the process. It is expected that the Woodland Grant Scheme, (and the forthcoming Scottish Forestry Grants Scheme) will be instrumental in helping to deliver the HAP targets. Other changes in the resource will have to be detected through periodic sampling at national and/or site level.

Targets for Maintaining the native woodland area

NW HAP type	Brief Description of Target (reference number revised 2002)	Scottish target (ha)	Target completion date	Comments
Native pinewoods	T1. Maintain the current wooded area in the 'core areas' of the pinewoods listed in the CPI	17882	ongoing	total core areas from 1998 revision of the CPI used
Upland oakwoods	T1. Maintain the current extent and distribution of the upland oakwood system	42000	ongoing	estimated gross area as 42% of UK total
Upland mixed ashwoods	T1. Maintain the total extent and distribution of upland mixed ashwoods	22275	ongoing	estimated gross area as 33% of UK total
	T2. Maintain the current extent and distribution of ASNW upland mixed ashwood	12000	ongoing	semi-natural woodland area estimated by Mackenzie
Wet woodlands	T2. Maintain the total extent and distribution of wet woodlands	35000	ongoing	estimated gross area as 50% of UK total
	T1. Maintain the current areas of ASNW wet woodlands	12000	ongoing	semi-natural woodland area estimated by Mackenzie
Upland birchwoods*	Maintain the total extent and distribution of upland birchwoods	(45000)	ongoing	estimated gross area
	Maintain the total extent and distribution of ASNW upland birchwoods	(36000)	ongoing	80% of the gross area
Lowland mixed deciduous woodlands*	Maintain the total extent and distribution of semi-natural lowland mixed deciduous woodlands	(20000)	ongoing	estimated gross area as 8% of the UK total
	Maintain the total extent and distribution of lowland ASNW mixed deciduous woodlands	?	ongoing	area to be confirmed by SNH
Lowland wood pasture and parkland	T1. Maintain the current extent and distribution of the total area of wood pasture and parkland	?	ongoing	
	T2. Maintain the current extent, distribution and condition of wood pasture and parkland that is in favourable condition	?	ongoing	

* targets (including quantities and dates) to be confirmed when the draft plan approved / published

Notes.

- The pinewood HAP target refers specifically to maintaining the 'core areas' of the native pinewood identified in the Caledonian Pinewood Inventory as *mosaics of semi-natural habitat*. These areas comprise woodland (primarily semi-natural pinewood with pockets of upland birchwood and possibly wet woods and upland oakwood) and open habitat such as bog/mire and upland heath with scattered trees. Core areas should not be compromised by planting of non-native species or pine of non-local origin or by clearance of woodland in favour of non-woodland habitats. The current total wooded area (ie area of >20% cover of trees) should be at least maintained at each site on the CPI, allowing for natural fluctuations due to regeneration and mortality.
- For all the broadleaved NW HAP the targets will be achieved by maintaining:
 - ASNW woods within current boundaries wherever possible, allowing some fluctuations at the margins to reflect natural dynamics;
 - the total areas of other semi-natural woodlands, allowing for fluctuations at margins for natural dynamics, but respecting the possible need to restore other important (open) habitats, such as heath colonised by birch;
 - the current areas of native woodland plantations (currently over 50% site-native species) on ancient woodland sites, and on other sites (where it is agreed that they are to be managed as native woodland thereafter), allowing some fluctuation in boundaries at individual sites;
 - any areas added to the native woodland resource by *expansion and restoration* and which are currently excluded from any of the above categories (assuming they are to be managed as native woodlands in future)
- The total extent of the current resource of each NW HAP type must be monitored. Additionally ASNW of each type (and, for native pine woodland, the status of core areas of CPI) requires to be monitored to assess maintenance within current boundaries. Ideally each category of woodland within the native woodland resource should be monitored so that areas of woodland recently added to the resource through restoration or expansion are not 'traded' for areas of established native woodland. This will require inventory or sampling techniques.

Targets for improving the condition of the native woodlands:

When the HAPs were originally published this target was sometimes combined with the 'maintain' target, but it is now shown separately (since the UK-wide review of targets in 2001/2).

NW HAP type	Brief Description of Target (reference number revised 2002)	Scottish target (ha)	Target completion date	Comments
Native pinewoods	T2. Improve the condition of the 'core areas' of the pinewoods listed in the CPI	17882	no date given	total core areas from 1998 revision of the CPI used
Upland oakwoods	T2. Improve the condition of the existing upland oakwood resource, using a mixture of management for timber (predominantly as low intensity high forest), as sheltered grazing, and minimum intervention	30000	no date given	semi-natural woodland area estimated by Mackenzie
Upland mixed ashwoods	T4. Initiate measures intended to achieve favourable condition in 80% of the total resource of upland mixed ashwoods	9600	2004	80% of 12000
	T5. Achieve favourable condition over 50% of the total resource	6000	2010	50% of 12000
	T3. Initiate measures intended to achieve favourable condition in all upland mixed ashwoods occurring within SSSIs and SACs	?	2004	area to be confirmed by SNH
	T6. Achieve favourable condition over 70% of the resource in designated sites	?	2010	area to be confirmed by SNH
Wet woodlands	T4. Initiate measures intended to achieve favourable condition in 80% of the total resource of wet woodlands	9600	2004	80% of 12000
	T5. Achieve favourable condition over 50% of the total resource	6000	2010	50% of 12000
	T3. Initiate measures intended to achieve favourable condition in all wet woodlands occurring within SSSIs and SACs	?	2004	area to be confirmed by SNH
	T6. Achieve favourable condition over 70% of the resource in designated sites	?	2010	area to be confirmed by SNH
Upland birchwoods*	<i>Initiate measures intended to achieve favourable condition in 80% of the total resource of upland birchwoods</i>	<i>(22500)</i>	<i>2010</i>	<i>50% of 45000</i>
	<i>Achieve favourable condition over 50% of the total resource</i>	<i>(22500)</i>	<i>2015</i>	<i>50% of 45000</i>
	<i>Initiate measures intended to achieve favourable condition in all upland birchwoods occurring within SSSIs and SACs</i>	<i>?</i>	<i>2010</i>	<i>area to be confirmed by SNH</i>
	<i>Achieve favourable condition over 70% of the resource in designated sites</i>	<i>?</i>	<i>2015</i>	<i>area to be confirmed by SNH</i>
Lowland mixed deciduous woodlands*	<i>Initiate measures to achieve favourable condition in 40% of lowland mixed deciduous woodlands outwith designated sites</i>	<i>?</i>	<i>2004</i>	<i>area to be confirmed by SNH – possibly 40% of 75% of 20000 = 6000</i>
	<i>Achieve favourable condition over 50% of the resource</i>	<i>?</i>	<i>2010</i>	<i>area to be confirmed by SNH, possibly 3000</i>
	<i>Initiate measures to achieve favourable condition in 50% of lowland mixed deciduous woodlands within SSSIs and SACs</i>	<i>?</i>	<i>2004</i>	<i>area to be confirmed by SNH – possibly 50% of 25% of 20000 = 2500</i>
	<i>Achieve favourable condition over 95% of the resource in designated sites</i>	<i>?</i>	<i>2010</i>	<i>area to be confirmed by SNH, possibly 2375</i>
Lowland wood pasture and parkland	T3. Initiate a programme to restore favourable ecological condition in areas of wood pasture and parkland	150	2010	nominal area

* targets (including quantities and dates) to be confirmed when the draft plan approved / published

Notes.

1. Favourable condition in relation to the NW HAPs has yet to be fully defined, although an assessment system has now being finalised for use in SACs and SSSIs throughout the UK. If possible, this will be adapted and developed into a system applicable to all woodlands in the native woodland resource. It will need to be complemented by sample monitoring at national and regional scales, using general indicators of condition – probably building on current measures in the NIWT and Countryside 2000 survey.

2. Until there is better data on the size of the overall resource and its condition the quantitative interpretation of this target will relate only to action to improve ancient semi-natural woodlands of each HAP type, as set out below.
3. Action to achieve the above would include an agreed site management plan, that has clear objectives and prescriptions for management towards attaining favourable condition at both a site and landscape scale (normally based on guidance in FC Forestry Practice Guides nos. 3 – 8)⁹, coupled with appropriate operations such;
 - removal of non site-native species from native woodland (currently > 50% site-native) including species in both the canopy and shrub layers, eg. removal of rhododendron from areas of native woodland, and removal on pine of non-local origin from the core areas of the pinewoods;
 - use of sympathetic restocking techniques such as natural regeneration, coppicing or planting site-native species, preferably using local origin planting stock;
 - control of deer or stock grazing;
 - restoration of natural drainage regimes (and closure of man made drains) where pockets of bog or mire would be typical of an undisturbed woodland of that type;
 - adoption of minimal intervention regimes where appropriate;
 - management for characteristic species such as capercaillie in pinewoods
4. Undertaking these actions constitute 'milestones' towards the HAP target, and are particularly important where achieving 'favourable condition' for the whole of any woodland is likely to take several years. It may also be pragmatic to regard 'unfavourable-recovering' condition as indicative of progress, if that is all that can be achieved in the short term (eg. over the life time of a woodland grant contract).

⁹ Forestry Commission, 1994: Forestry Practice Guides, Management of Semi-natural Woodland. Forestry Commission, Edinburgh.

Targets for restoring the native woodland area:

This target applies to ancient woodland sites where non site-native species, usually planted – PAWS – but occasionally self-seeded (like sycamore) are predominant in the woodland canopy. Some site-native trees may be present, but any regeneration from them is often shaded out and suppressed, and similarly any shrub and herb layer species characteristic of the original woodland site. The ultimate aim of restoration is to re-establish a more natural woodland ecosystem on the site, in terms of both the woodland structure and its composition (*ie.* site-native trees and other vegetation).

NB. Restoration targets do **not** apply to plantations on ancient woodland sites where the site-native component in the canopy already exceeds 50%; for these, maintain and improve targets apply.

HAP type	Brief Description of Target (reference number revised 2002)	Scottish target (ha)	Target completion date	Comments
Upland oakwoods	T4. Complete the restoration to site-native species 10% of the former upland oakwood that has been converted to PAWS	3000	no date specified, but 2010 adopted to match other HAPs	42% of the UK total
Upland mixed ashwoods	T7 & T8. Complete restoration (to site-native species) upland mixed ashwoods PAWS (in 2 stages)	400	2010	33% of the UK total
		400	2015	
Wet woodlands	T7 & T8. Complete restoration (to site-native species) of wet woodlands PAWS (in 2 stages)	500	2010	this is less than a pro-rata 50% share of the UK total, and may be revised when the upland birchwood HAP is published
		500	2015	
Upland birchwoods*	Complete restoration (to site-native species) of upland birchwoods PAWS (in 2 stages)	(900)	2010	target taken from the draft HAP is based on 60% of estimated area of PAWS created since 1930
		(900)	2015	
Lowland mixed deciduous woodlands*	Initiate restoration (to site-native species) lowland mixed deciduous woodland PAWS (in 2 stages)	(560)	2004	8% of the UK total
		(560)	2015	
	Achieve full restoration (to site-native species) of lowland mixed deciduous woodlands (in 2 stages)	(560)	2010	
		(560)	2015	
Lowland wood pasture and parkland	see target under improvement			

* targets (including quantities and dates) to be confirmed when the draft plan approved / published

Notes.

1. The HAP target is defined in terms of restoration to site-native composition. The aimed-for canopy cover of site-native species should be much higher than the 50% threshold, and ideally over 95%. There will be some woodlands where for historical, landscape or even biodiversity reasons it will be sensible to allow more non site-native species to be kept, such as old trees of particular merit, or long established naturalised species, or in the context of continuing cover systems.
2. Similarly it is accepted that there may be sound environmental (as well as economic) reasons why full restoration may take several years to achieve. The first phase (which may in itself not be feasible in one operation) should if possible underpin the long-term objective by raising the site-native canopy cover above the 50% mark, *ie.* sufficient non site-native trees removed and sufficient site-native species successfully established (including some regeneration where appropriate) to occupy >50% of the canopy. This would be regarded as a 'milestone' stage. Subsequent management to continue the restoration process will be necessary to achieve the agreed target for that site.
3. It is important that the HAP target dates are not allowed to dictate the method used, as these are not directly relevant to woodland owners – hence the value of the 'milestone' stages such as:

- removing non site-native species in several successive thinnings, to encourage sub-dominant and under-storey native trees; this could be consistent with a form of continuous cover system;
 - selective felling of non site-natives and promotion of natural regeneration of native species;
 - larger-scale felling and restocking and/or natural regeneration with site native species
4. Where restocking is used to achieve restoration, the use of the National Vegetation Classification (NVC) should guide species composition and thus influence which HAP type is being restored. Restoration to native woodland should be aimed at the sites where the greatest benefits will result. Restoration methods including and prioritisation of sites, are the subject of a FC Forestry Practice Guide (in prep)¹⁰.
 5. The pinewood HAP does not contain a target for the restoration of pinewoods on ancient woodland sites that were formerly pinewood areas. This is because the CPI pinewoods are a specific subset of all pinewood dominated ancient woodland sites where, it is believed, no planting of pines has ever taken place. However, where other species have been planted on old pinewood sites they are candidate areas for restoration. Such action would be welcomed especially where the sites are adjacent to, or in the vicinity of, CPI areas, and could be critically important as a means of extending the pinewoods habitat for the benefit of pinewood species.

¹⁰ Forestry Practice Guide *Restoration of Native Woodland on Ancient Woodland Sites*, by R. Thompson, J. Humphrey and R. Harmer. Forestry Commission. Edinburgh. (Expected publication date 2003)

Targets for expanding the native woodland area:

HAP type	Brief Description of Target (reference number revised 2002)	Scottish target (ha)	Target completion date	Comments
Native pinewoods	T3. Expand the wooded areas of the pinewoods predominantly by natural regeneration, mainly in the 'regeneration zones' of the CPI areas, (though some will occur in the core areas).	5600	2005	Regeneration within the unwooded areas of the core areas (<20%) canopy cover would 'count' as achieving the target
	T4. Create the conditions for a further area to be naturally regenerated over the next 20 years	5600	2005	
	T5. Establish new pinewoods on suitable sites within the natural range of native pinewoods.	25000	2005	This is additional to T3
Upland oakwoods	T3. Avoiding other habitats of high conservation value expand the area of upland oakwood (by about 10%) by planting or natural regeneration on currently open ground and by conversion from non-native plantations	3000	2005	42% of the UK total
Upland mixed ashwoods	T9 & T10. Complete the establishment of upland mixed ashwoods on unwooded sites, or by conversion of non-native plantations (in 2 stages)	1000	2010	33% of the UK total
		1000	2015	
Wet woodlands	T9 & T10. Complete the establishment of wet woodlands on unwooded sites, or by conversion on non-native plantations (in 2 stages)	1100	2010	this is less than a pro-rata 50% share of the UK total, and may be revised when the upland birchwood HAP is published
		1100	2015	
Upland birchwoods*	Complete the establishment of upland birchwoods on unwooded sites, or by conversion of non-native plantations (in 2 stages)	(2250)	2010	
		(2250)	2015	
Lowland mixed deciduous woodlands*	Complete the establishment of lowland mixed deciduous woodlands on unwooded sites, or by conversion of non-native plantations (in 2 stages)	(1000)	2010	8% of the UK total
		(1000)	2015	
Lowland wood pasture and parkland	No Scottish target			

* targets (including quantities and dates) to be confirmed when the draft plan approved / published

Notes:

1. These targets would be achieved by creating New Native Woodland (NNW) by planting or natural colonisation on bare ground (or after felling and removing a previous non site-native plantation, other than on an ancient woodland site). Ideally this should be done where it will enlarge an existing native woodland or will improve its linkages with other woodlands within a Forest Habitat Network.
2. In the case of pinewoods, the HAP targets are quite specific with regard to location and type. Natural regeneration, proceeding 'outwards' from the core areas into the 'regeneration' and 'buffer' zones of the CPI pinewoods, is to be encouraged, with planting using trees of local origin, being a last resort. Both milestone and completion of targets will need to be recorded separately in the core areas, regeneration and buffer zones respectively. To encourage the regeneration, actions similar to those listed above under targets to improve native woodlands would be appropriate. Crops of pine of non-local origin would also be eligible for conversion.
3. The predicted NVC woodland community for a given site should guide planting composition (or the target species for natural regeneration). Further guidance on the appropriate NVC type is contained in FC Bulletin 112, or the FC Ecological Site Classification system (Ray, 2001)¹¹.
4. As the species composition of new woodlands is largely set for several decades ahead after establishment, and expensive future intervention to remove non-native species is not assured, it is important to try to get the species composition and design as close as possible to the intended woodland type from the start. Sometimes composition may need to be biased towards pioneer

¹¹ Ray, D. (2001) Ecological Site Classification Decision Support System. V1.7 Forestry Commission. Edinburgh

species on difficult sites; similarly shade-bearing species may need to be introduced later, so that establishing mixed broadleaved woods containing significant amounts of non site-native species would not normally 'count' against the HAP expansion targets.

5. The draft HAP for Upland birchwoods specifically identifies and encourages the acceptance of the natural dynamics of upland birchwoods as a means of expanding core birchwood areas through colonisation of adjacent ground. It also promotes the re-creation of more natural tree line woodland zones along the upper woodland margins and the enlargement of existing aspen stands.

[NB. There may be areas south of the traditional pinewood range where the site and climatic conditions are suitable for establishing pine plantations. This might be encouraged in these areas as part of a Forest Habitat Network, but it would be outwith the scope of the HAP as it is currently drafted.]

Stocking density threshold for deliberately created, restored or regenerated restoration and expansion of all native woodland types

Initial stocking density for woodland must normally achieve at least 1100 stems per hectare as an overall average, in line with grant scheme and UK Forestry Standard¹² requirements, to 'count' against targets, and irregular spacing and inclusion of open ground are strongly encouraged. Higher minimum average densities may be specified in some situations as a condition of grant, e.g. to speed up canopy closure, counter harsh conditions or promote timber quality. Lower average densities may also be suitable in certain circumstances such as historic wood-pasture and parkland sites, some open pinewoods, bog woods, tree-line areas and at sites managed specifically for other priority habitats/species requiring open woodland conditions.

¹² The UK Forestry Standard (1998, revised 2001). Forestry Commission. Edinburgh.

Suggested local NW HAP targets for the broadleaved native woodland types¹³

(Areas in hectares)

Local Authority Area	Upland Oakwoods		Upland Ashwoods		Wet Woodlands		Upland Birchwoods		Lowland Mixed Deciduous Woodlands	
	expand	restore	expand	restore	expand	restore	expand*	restore*	expand*	restore*
Aberdeen City	10								20	
Aberdeenshire	360	120	50	10	60		50	40	490	160
Angus	110	10	10		30		30		160	30
Argyll & Bute	190	700	500	530	190	220	880	370	10	20
Clackmannanshire	10				10				10	30
Dumfries & Galloway	300	250	210	60	440	190	430	20	310	610
Dundee City									10	
East Ayrshire	60	30	160	10	70		70		10	
East Dunbartonshire	10	10							10	
East Lothian	30	60			10				90	130
East Renfrewshire	20		30						10	
Edinburgh, City of	10				10				20	
Falkirk	20	10	10		20				20	30
Fife	80				40				160	50
Glasgow City									10	30
Highland	440	890	410	120	730	530	2370	1200	80	160
Inverclyde	10		20						10	
Midlothian	40	40	10		10				10	80
Moray	100	80	70		70	30	50	10	70	50
North Ayrshire	60	10	40	30	10		50	30	10	
North Lanarkshire	50	10	40						10	30
Perth & Kinross	280	350	30	10	180		170	50	140	160
Renfrewshire	20		10		10				10	
Scottish Borders	360	60	90	20	130		170	10	230	270
South Ayrshire	120	90	50		50		40		10	
South Lanarkshire	110	30	210	10	50		60		10	50
Stirling	140	240	10		80	30	120	70	50	80
West Dunbartonshire	20		10						10	
West Lothian	40	10	30				10		10	30
Total	3,000	3000	2000	800	2200	1000	4500	1800	2000	2000

* allocation of targets based on overall targets in draft HAPs

Suggested pinewood HAP targets¹³

(Areas in hectares)

Local Authority Area	Expansion of Caledonian Pinewood Inventory areas	Expansion within the traditional pinewood range
Aberdeenshire	1180	3520
Angus		1320
Argyll & Bute	60	1720
Highland	3940	12610
Moray		1640
Perth & Kinross	400	3210
Stirling	20	980
Total	5600	25000

¹³ For a full explanation of how these figures were derived see Jones *et al* In Scottish Forestry Vol56(2), 2002.