



COED CADW
WOODLAND
TRUST

Pen y Coed

Management Plan 2014-2019

MANAGEMENT PLAN - CONTENTS PAGE

ITEM	Page No.
Introduction	
Plan review and updating	
Woodland Management Approach	
Summary	
1.0 Site details	
2.0 Site description	
2.1 Summary Description	
2.2 Extended Description	
3.0 Public access information	
3.1 Getting there	
3.2 Access / Walks	
4.0 Long term policy	
5.0 Key Features	
5.1 Ancient Semi Natural Woodland	
5.2 Planted Ancient Woodland Site	
5.3 Historic Features	
5.4 Informal Public Access	
6.0 Work Programme	
Appendix 1: Compartment descriptions	
Appendix 2: Harvesting operations (20 years)	
Glossary	
MAPS	
Access	
Conservation Features	
Management	

THE WOODLAND TRUST

INTRODUCTION

The Trust's corporate aims and management approach guide the management of all the Trust's properties, and are described on Page 4. These determine basic management policies and methods, which apply to all sites unless specifically stated otherwise. Such policies include free public access; keeping local people informed of major proposed work; the retention of old trees and dead wood; and a desire for management to be as unobtrusive as possible. The Trust also has available Policy Statements covering a variety of woodland management issues.

The Trust's management plans are based on the identification of Key Features for the site and setting objectives for their management. A monitoring programme (not included in this plan) ensures that these objectives are met and any necessary management works are carried out.

Any legally confidential or sensitive species information about this site is not included in this version of the plan.

PLAN REVIEW AND UPDATING

The information presented in this Management plan is held in a database which is continuously being amended and updated on our website. Consequently this printed version may quickly become out of date, particularly in relation to the planned work programme and on-going monitoring observations. Please either consult The Woodland Trust website www.woodlandtrust.org.uk or contact the Woodland Trust (wopsmail@woodlandtrust.org.uk) to confirm details of the current management programme.

There is a formal review of this plan every 5 years and a summary of monitoring results can be obtained on request.

WOODLAND MANAGEMENT APPROACH

The management of our woods is based on our charitable purposes, and is therefore focused on improving woodland biodiversity and increasing peoples' understanding and enjoyment of woodland. Our strategic aims are to:

- Protect native woods, trees and their wildlife for the future
- Work with others to create more native woodlands and places rich in trees
- Inspire everyone to enjoy and value woods and trees

All our sites have a management plan which is freely accessible via our website www.woodlandtrust.org.uk. Our woods are managed to the UK Woodland Assurance Standard (UKWAS) and are certified with the Forest Stewardship Council® (FSC®) under licence FSC-C009406 and through independent audit.

In addition to the guidelines below we have specific guidance and policies on issues of woodland management which we review and update from time to time.

We recognise that all woods are different and that the management of our sites should also reflect their local landscape and where appropriate support local projects and initiatives. Guidelines like these provide a necessary overarching framework to guide the management of our sites but such management also requires decisions based on local circumstances and our Site Manager's intimate knowledge of each site.

The following guidelines help to direct our woodland management:

1. Our woods are managed to maintain their intrinsic key features of value and to reflect those of the surrounding landscape. We intervene when there is evidence that it is necessary to maintain or improve biodiversity and to further the development of more resilient woods and landscapes.
2. We establish new native woodland using both natural regeneration and tree planting, but largely the latter, particularly when there are opportunities for involving people.
3. We provide free public access to woods for quiet, informal recreation and our woods are managed to make them accessible, welcoming and safe.
4. The long term vision for our non-native plantations on ancient woodland sites is to restore them to predominantly native species composition and semi-natural structure, a vision that equally applies to our secondary woods.
5. Existing semi-natural open-ground and freshwater habitats are restored and maintained wherever their management can be sustained and new open ground habitats created where appropriate.
6. The heritage and cultural value of sites is taken into account in our management and, in particular, our ancient trees are retained for as long as possible.
7. Woods can offer the potential to generate income both from the sustainable harvesting of wood products and the delivery of other services. We will therefore consider the potential to generate income from our estate to help support our aims.
8. We work with neighbours, local people, organisations and other stakeholders in developing the management of our woods. We recognise the benefits of local community woodland ownership and management. Where appropriate we allow our woods to be used to support local woodland, conservation, education and access initiatives.
9. We use and offer the estate where appropriate, for the purpose of demonstration, evidence gathering and research associated with the conservation, recreational and sustainable management of woodlands. In particular we will develop and maintain a network of long-term monitoring sites across the estate.
- 10 Any activities we undertake will conform to sustainable forest management principles, be appropriate for the site and will be balanced with our primary objectives of enhancing the biodiversity and recreational value of our woods and the wider landscapes.

SUMMARY

This public management plan briefly describes the site, specifically mentions information on public access, sets out the long term policy and lists the Key Features which drive management actions. The Key Features are specific to this site - their significance is outlined together with their long (50 year+) and short (5 year) term objectives. The short term objectives are complemented by a detailed Work Programme for the period of this management plan. Detailed compartment descriptions are listed in the appendices which include any major management constraints and designations. A short glossary of technical terms is at the end. The Key Features and general woodland condition of this site are subject to a formal monitoring programme which is maintained in a central database. A summary of monitoring results is available on request.

1.0 SITE DETAILS

Site name:	Pen y Coed
Location:	Llangollen
Grid reference:	SJ227413, OS 1:50,000 Sheet No. 117
Area:	27.95 hectares (69.07 acres)
Designations:	Ancient Semi Natural Woodland, Ancient Woodland Site, Planted Ancient Woodland Site, Special Landscape Area, Tree Preservation Order

2.0 SITE DESCRIPTION

2.1 Summary Description

This attractive wood offers a mix of ancient semi-natural woodland with pockets of beautiful seasonal flowers such as bluebell and anemone; conifer plantation which is gradually being replaced with broadleaves; archaeological features that hint at its past uses; and lovely walks.

2.2 Extended Description

Pen y Coed occupies a prominent steep-sided ridge (running roughly north-west to south-east) on the eastern side of Llangollen and is clearly visible from Llangollen, the Eglwyseg escarpment and the hills to the south. The woodland also forms a backdrop to the adjacent residential developments. Adjoining the woodland is a neighbouring Woodland Trust property, The Avenue (4.7ha) which is designated as an SSSI for its grassland interest.

Much of the site, including all of the southern slopes, comprises ancient woodland. On the northern slopes there is evidence that some areas have experienced periods of clearance (including for agricultural use) though the woodland currently present is long-established and supports many species associated with ancient woodland sites. The majority of the site was replanted with conifers during the late 1950s/early 1960s and supported dense stands of a wide variety of conifer species which were thinned in 2005/06. Within these areas of coniferous plantation there are frequent scattered broadleaved trees and patches dominated by broadleaves. Also, along the woodland margins, tracks and walls there are pockets of diverse ground flora including many species associated with ancient woodland. Areas of semi-natural woodland (including ancient semi-natural woodland) are also present, dominated by ash, sessile oak and/or sycamore with frequent wild cherry and silver birch.

The site is of particular amenity value due to its proximity to Llangollen and residential developments. The local public footpath network links it with The Avenue and forms a popular circular walk. Management access is available along three rights of way which cross neighbouring land, although none of these are suitable for larger vehicles associated with timber extraction.

Key features at the site are:

- the semi-natural/broadleaved woodland (including ancient semi-natural woodland)
- planted coniferous woodland (including planted ancient woodland, PAWS) which has a high potential for restoration/conversion to native woodland;
- walls and revetments associated with historical trackways and former enclosures within the woodland, which are of particular archaeological and historical interest;
- informal public access. Other features of interest include a number of other archaeological features such as charcoal hearths, quarries, gate posts and tracks.

3.0 PUBLIC ACCESS INFORMATION

3.1 Getting there

Buses: The nearest bus stop is located on Market Street in Llangollen town centre. There is a half mile walk to the closest site entrance along mainly level pavements, but with a steep uphill climb for the last 200 yards, before crossing a grazed field and accessing the wood via a kissing gate.

Rail: The wood is not easily accessible by rail, the nearest station being in Chirck over 12 miles away.

For further information on public transport contact Traveline on 0871 200 22 33; or visit: www.traveline.org.uk

By car: From Wrexham take the A483 heading south. After passing junction 1, leave the A483 at the next roundabout, taking the A5 to Llangollen. Upon entering Llangollen, turn left opposite the Star Inn, on Brook Street.

A small public car park is immediately on the left which holds around 10 cars. Continuing on foot, walk further along Brook Street where there are numerous public footpaths that lead up hill, to the left. There is also roadside parking along the main artery road into the housing estate requiring a walk of approximately 500 yards to the site, largely along pavements. The last 200 yards to the wood involves a steep uphill climb before crossing a grazed field and accessing the wood via a kissing gate.

Maps: OS Explorer 255 and 256 and Land ranger 117
Grid reference: SJ227413

3.2 Access / Walks

There are five public access points into the site, the majority from Brook Street. The closest and most frequently used by visitors has a kissing gate with a short flight of steps to join a main path into the wood. The entrance closest to the highway has an access point suitable for the less-able.

A public footpath runs inside the north-eastern boundary of the wood and follows an old track for the most part. The internal paths and tracks are unsurfaced and moderate to steeply sloping in parts. The path surfaces, particularly on the eastern side of the hill, are loose shale and can be slippery in both wet and dry conditions.

The local public footpath network links Pen Y Coed with The Avenue (another Woodland Trust wood) to form a popular circular walk.

4.0 LONG TERM POLICY

The main objective at Pen y Coed is to restore/convert the planted woodland (currently dominated primarily by conifer stands) to native woodland dominated by a variety of broadleaved species and with shrub and field layers typical of the existing semi-natural woodland that already exists in parts of the site. This will be achieved through a process of successive thinning, retaining a continuous canopy so that the landscape value of the woodland is maintained and conditions favoured by woodland species are maintained throughout. Due to the lack of suitable management access the majority of the timber will be felled to waste. Existing broadleaved trees will be retained along with other features characteristic of semi-natural woodland (for example patches of vegetation typical of semi-natural ancient woodland). This approach will result in a gradual overall change resulting in full restoration/conversion to native woodland over a period of decades. A predominantly native canopy should be achieved within 20-30 years with restoration/conversion complete (ie: almost all conifers removed) within 50 years. Some selected individual, and groups of conifers, will be retained for their lifetime for aesthetic reasons.

In areas of semi-natural broadleaved woodland the main objective will be to maintain a semi-natural woodland, dominated by a diversity trees and shrubs (with sycamore at a level where it does not significantly suppress shrub and field layer vegetation) with a rich and varied field layer typical of upland ash and oakwoods. This will be achieved by managing the woodland as continuous cover high forest through periodic light thinning to favour species encouraging the development of large over-mature trees.

Throughout the woodland, in both semi-natural and replanted woodland, invasive non-native shrubs, cherry laurel and rhododendron, will be controlled and ideally eradicated.

With regard to the many walls and revetments which are considered to be of historical importance at the site, efforts will be made to prevent deterioration in their condition. Selected representative sections of wall and revetment (particularly retaining walls) will be actively maintained and repaired as necessary.

The amenity value of the site will be maintained and enhanced. The existing network of paths will be maintained in a good safe condition with improvements being made and retaining walls/revetments repaired as necessary. The internal landscape of the site will be retained/enhanced through the retention of 'feature trees', both conifers and broadleaves, and the development of future veterans. Efforts will be made to broaden the site's use by the public, to reduce site misuse through community involvement and deter unauthorised access.

5.0 KEY FEATURES

The Key Features of the site are identified and described below. They encapsulate what is important about the site. The short and long-term objectives are stated and any management necessary to maintain and improve the Key Feature.

5.1 Ancient Semi Natural Woodland

Description

Ash, sycamore and/or sessile oak are usually dominant with locally frequent wild cherry and silver birch. Scattered suppressed conifers are present locally. Shrubs include scattered rowan, hazel, elder, hawthorn, yew and holly and, on the boundary, crab apple and blackthorn. Non-native shrubs are locally frequent, especially to the east, including snowberry, box, Oregon grape, cotoneaster, rhododendron and cherry laurel (extensive areas of which were cleared in 2001/2). The field layer is variable and often diverse, reflecting the base status of the underlying soils. Within stands on the southern slopes the field layer comprises carpets of bluebell and/or bramble with abundant honeysuckle and male-fern and frequent creeping soft-grass, broad buckler-fern, wood sorrel and ivy and scattered enchanter's nightshade, bracken, red campion, wood anemone and cleavers (W10 oak-bracken-bramble woodland). Locally (particularly on the northern slopes but also in patches throughout) the field layer is locally species-rich including dog's mercury, bluebell, enchanter's nightshade, hart's-tongue fern, soft and hard shield-ferns, herb robert, primrose, wood anemone, wood meadow-grass, yellow archangel, ground-ivy, moschatel, woodruff, sanicle, germander and wood speedwells, wood melick, false wood-brome, ransoms, black bryony, navelwort and gooseberry (W8 ash-field maple-dog's mercury woodland).

Significance

The semi-natural/broadleaved stands include two UK Biodiversity Action Plan (BAP) and European priority woodland habitats (upland mixed ashwoods and upland oakwoods). The woodland habitat is also likely to be of value to a number of fauna groups/species including birds and badger. These semi-natural/broadleaved stands represent important refuges for ancient woodland species at the site and will act as sources for recolonisation of the remaining woodland during restoration.

Opportunities & Constraints

There are opportunities to reduce the dominance of sycamore, retaining dead wood to increase the volumes present and encouraging the development of mature and over-mature individual native trees (future veterans). Although management access is currently poor, the relatively small volumes of timber which might result from periodic light thinning could be felled to waste.

Factors Causing Change

Sycamore is dominant or co-dominant in some areas and may be increasing in cover. This will result in increased shading and may locally suppress shrub and field layer vegetation., Sycamore will also probably make up a high proportion of natural regeneration at the site in the future., Snowberry, Oregon grape and cotoneaster may expand at the site., Regrowth of laurel and rhododendron if not treated., Trees will become unstable particularly on steep slopes/on crest of hill if not thinned to promote stability.

Long term Objective (50 years+)

Enhanced semi-natural woodland (high forest) dominated by a diversity of tree and shrub species with sycamore at a level at which it neither dominates or significantly suppresses underlying vegetation. The canopy will include a high proportion of mature to over-mature individuals. The field layer will be diverse, reflecting the variation in underlying soils types across the site. Cherry laurel and rhododendron will be eradicated and other non natives may be present but not dominant anywhere and will not have expanded.

Short term management Objectives for the plan period (5 years)

No silvicultural management will be required during the plan period.

By end of plan period cherry laurel and rhododendron will be present only as occasional regrowth from cut stems, and not expanding.

By end of plan period Oregon Grape, snowberry and cotoneaster is present, but not dominant anywhere, and not expanding.

5.2 Planted Ancient Woodland Site

Description

The majority of the woodland had been replanted (or underplanted) with dense conifer stands of a wide variety of species including western hemlock, Douglas fir, Corsican pine, larch and Japanese red cedar. Within the stands which were most densely planted only scattered and small groups of broadleaved trees and shrubs are present and the ground is predominately bare with only scattered ivy, broad buckler-fern, male-fern, bramble, honeysuckle, wood sorrel, bluebell, honeysuckle and bracken. In other areas, particularly at the woodland margins, broadleaved trees/shrubs are more frequent (often dominant). Here the field layer is more abundant and species-rich, similar in composition to the semi-natural/broadleaved woodland (described above). Centrally along the ridge is an area dominated by old stunted and twisted sessile oaks underplanted with conifers (some of which have been cleared). Here the soils are particularly acidic and support wavy hair-grass, common cow-wheat, bramble, honeysuckle, bell heather and creeping soft-grass with a variety of bryophytes (W16 oak-birch-wavy hair-grass woodland). Invasive non-native shrubs, cherry laurel and rhododendron which were locally dominant have been cleared. Non native snowberry and box which appear to have been planted as game cover are present at the site margins.

Significance

Restoration/conversion of the plantation areas to predominantly native broadleaved woodland will significantly enhance the biodiversity value of the site and result in restoration of an ancient woodland site. Areas of UKBAP and European priority woodland habitats (upland mixed ashwoods and upland oakwood) will be restored/created.

Opportunities & Constraints

There are significant opportunities to restore/convert all the woodland to predominantly broadleaved native woodland due to the presence of adjacent semi natural woodland and remnants of ancient woodland flora (trees/shrubs/field and ground layer vegetation) within coniferised stands which will then expand as the dense shade of the conifers is gradually reduced. Care will be required to ensure that pockets of remnant vegetation within plantation areas are retained undisturbed/undamaged during management operations.

Conifer thinning will also have the benefit of reducing the shading of the adjacent housing estate to the north, as they are significantly taller and more dense than the mature broadleaves present. Since timber extraction is at present impracticable due to the physical constraints of management access routes to the site, care is required in the phasing of felling to waste operations to ensure that colonisation by, or recovery of woodland ground flora is not adversely affected by the volume of felled timber on the ground.

Restoration of the woodland to predominantly broadleaved woodland will enhance the landscape value of the site. If significant western hemlock occurs, this species may require clear felling as opposed to gradual removal. There is a problem with dumping of garden waste in sub-compartment 2d which may introduce invasive non-native species.

Factors Causing Change

Although not currently a problem, western hemlock can regenerate prolifically., Laurel and rhododendron will recolonise if regrowth not controlled.

Long term Objective (50 years+)

Restored/converted native woodland (high forest) dominated by a high diversity of broadleaved trees and shrubs (predominantly ash, sessile oak, silver birch, wild cherry and sycamore, the latter being nowhere dominant). Proportion of conifers no more than 10 -15%. All significant remnants of former ASNW vegetation (trees and ground flora) retained and are recovering and expanding. The shrub and field layers including natural regeneration will be developing naturally to reflect that currently found in the semi-natural woodland areas at the site. Selected 'feature' conifers will be retained for their lifetime for their amenity value.

Cherry laurel and rhododendron will be eradicated and other non natives may be present but not dominant anywhere and will not have expanded.

The quantity of deadwood (standing and fallen) will increase naturally over time.

Short term management Objectives for the plan period (5 years)

All areas of remnant ground flora present at start of restoration process retained and showing signs of recovery/expansion.

Compartments under Glastir scheme selective felled to waste between 2014 and 2018.

All older broadleaves thinned at start of restoration process free from threat of overshadowing/confinement by conifers.

Natural regeneration of broadleaves is occurring beneath coniferised stands (every 10 years)

Cherry laurel and rhododendron will be present only as occasional regrowth from cut stems.

By end of plan period oregon grape, snowberry and cotoneaster is present, but not dominant anywhere, and not expanding.

Natural regeneration of Western Hemlock absent.

5.3 Historic Features

Description

Walls and revetments associated with historical trackways and former enclosures within the woodland, which are of particular archaeological and historical interest and are in varying states of repair. Some also have the present function of retaining/supporting internal footpaths, including a public footpath.

Significance

Several of the walls/revetments are associated with historical features regarded as being of regional or local importance), e.g old tracks/paths and walls around the former field enclosures.

Opportunities & Constraints

There is the opportunity to actively maintain certain sections of wall/revetment. The current condition, historical importance and present function all need to be taken into account in prioritising sections for repair. Examples of sections which remain in relatively good condition are: along the historical track, (formerly the main access road from Llangollen to Tyndwr which runs in the north of the site, and around the former enclosures on the upper northern slopes. The opportunity to undertake further repair works could be undertaken should funding become available.

Some sections of wall may be important as a habitat for a number of ancient woodland specialist plant species including frequent maidenhair and black spleenworts, wood sorrel, hart's-tongue fern, soft shield-fern, dog's mercury, wall lettuce and wood meadow-grass. This will need to be taken into account when deciding on the approach to wall repair.

Damage could potentially be caused through management operations.

Factors Causing Change

Walls/revetments are occasionally damaged due to tree root growth and/or trees falling. They also suffer gradual weathering and deterioration., There has also been some deliberate removal of stone in the past.

Long term Objective (50 years+)

All representative and significant sections will be in a good state of repair. Tree growth is not accelerating the need for repair on priority sections or the degradation of low priority sections.

Short term management Objectives for the plan period (5 years)

Regular (every 2 years) maintenance to ensure that all walls free from woody growth (regrowth and natural regeneration) and fallen trees.

A programme of wall repairs to be implemented so that all priority sections (ref plan Management Plan Reference File) in a good state of repair by 2017.

Accidental damage through management operations minimised through appropriate contact conditions and monitoring.

5.4 Informal Public Access

Description

Pen y Coed is an important local amenity within walking distance of Llangollen and adjacent to housing estates to both the north and south. A public footpath runs along the northern boundary of the site (along the historical main route to Tyndwr) and other permissive paths run throughout the site.

There are views from the northern boundary across to the Eglwyseg Escarpment and a number of interesting internal landscape features are present including the large variety of conifer species and several individual/groups of mature broadleaved and conifer trees together with historical trackways and old field enclosures (Ref Key Feature 3)

The site suffers from low level petty abuse (eg: dumping) and vandalism and there have been problems with trespass onto neighbouring land to the east. There is occasional unauthorised access by motorcyclists.

Significance

Pen y Coed is an important local amenity within walking distance of Llangollen and adjacent to housing estates to both the north and south. A public footpath passes through the site to the north.

Opportunities & Constraints

Opportunity to work with the Local Authority to create a waymarked circular walk through Pen y Coed and the adjacent Woodland Trust property, The Avenue and linking in with local footpath network. Car parking is limited at the site but provision of suitable information locally could direct visitors from the main town centre car park. Visitor enjoyment could be enhanced through provision of information about sites wildlife and history. The presence of local residential areas presents opportunities for greater involvement of the local community which could reduce current problems of vandalism/dumping. Many of the feature trees and individuals of a variety of conifer species could be retained and allowed to develop into mature/over-mature individuals.

Factors Causing Change

The site suffers from low level petty abuse and vandalism., An increase in local visitors may be likely as result of major management activities., Feature trees may suffer stability problems if not managed appropriately.

Long term Objective (50 years+)

Current access facilities will be maintained in a good and safe condition which also prevents unauthorised access by horses and motorbikes. Improvements to existing path surfaces made where necessary, particularly on the SE side of the wood. Informal public access will be enhanced in line with local consultation including the waymarking of a circular route through Pen y Coed and The Avenue. Partnership opportunities for community involvement will be explored with the aim of reducing the level of site misuse. The retention of feature broadleaf and conifer trees and maintenance of historical features (ref Key Feature 3) will enhance the internal landscape value of the wood.

Short term management Objectives for the plan period (5 years)

Path and entrance work maintained and improved where necessary in order to provide safe public access with facilities that are appropriate to level of use.

Consultation in 2014 with the local authority and local users with regard to extending waymarking to create a local circular route through the Avenue and Pen y Coed.

Feature trees and groups of trees are retained and are stable/free from competition. (10 years)

Opportunities for community involvement through partnership working will be explored with local agencies. If established monitor for decrease in level of misuse evident.

6.0 WORK PROGRAMME

Year	Type of Work	Description	Due By
------	--------------	-------------	--------

APPENDIX 1: COMPARTMENT DESCRIPTIONS

Cpt No.	Area (ha)	Main Species	Year	Management Regime	Major Management Constraints	Key Features Present	Designations
1a	0.40	Mixed broadleaves	1960	High forest	Landscape factors, No/poor vehicular access to the site, Very steep slope/cliff/quarry/mine shafts/sink holes etc	Informal Public Access	Planted Ancient Woodland Site, Special Landscape Area, Tree Preservation Order
<p>Narrow strip of woodland on the steep north-facing slopes on the site's northern boundary (north of old track). Mainly dominated by broadleaves (ash, sycamore and wild cherry with wych elm and hazel). Parts of the compartment had been replanted/under-planted with conifers. Suppressed conifers were felled in 2006 so that only occasional conifers now remain and the compartment is now considered to have been restored. Occasional non native cherry laurel was cleared in 2006 and cotoneaster is also present. The ground is rather sparsely vegetated probably due to the steep north-facing aspect (resulting in poor light) and unstable substrate. However, to the west, ferns such as soft shield-fern are frequent (W8e) while to the east bramble, ivy, honeysuckle and broad buckler-fern are more abundant (W10).</p>							
2a	10.70	Mixed conifers	1960	High forest	Archaeological features, Landscape factors, No/poor vehicular access to the site, Sensitive habitats/species on or adjacent to site, Very steep slope/cliff/quarry/mine shafts/sink holes etc	Informal Public Access	Planted Ancient Woodland Site, Special Landscape Area, Tree Preservation Order

Moderate to steeply sloping ground to the north/east of the site mainly bound by a wall (on the hill crest) to the south and a track with retaining wall to the north. The majority of the woodland canopy is still comprised of conifers (varied species including stands of Western hemlock) with only occasional broadleaves (sessile oak, birch, ash, rowan, sycamore, holly, yew) The ground is mainly bare in heavily coniferised areas with only scattered to locally frequent bluebell, ivy, broad buckler-fern, bramble, honeysuckle, wood sorrel, wavy hair-grass, hart's-tongue fern and dog's mercury. Locally, broadleaves dominate and here the field layer is abundant and often species-rich including abundant bramble, bluebell, male-fern, broad buckler-fern, wood sorrel and ivy (W10) sometimes accompanied by species such as sanicle, wood avens, wood meadow-grass, cleavers, wood melick, wood anemone, enchanter's nightshade, dog's mercury, hart's-tongue fern, soft and hard shield-ferns, yellow archangel and primrose (W8). The retaining wall to the north is of particular archaeological interest and supports maidenhair and black spleenwort, wood sorrel, hart's-tongue fern, soft shield-fern and wood meadow-grass. Snowberry and box are present especially to the east. and Locally frequent/abundant laurel and rhododendron was cleared in 2006. An initial thin was undertaken in 2006 with the aim of removing the threat of densely shading conifers from areas of ground flora containing ancient woodland species and larger broadleaved trees over-topped by the canopy of surrounding conifers

2b	1.10	Mixed broadleaves	1940	High forest	Housing/infrastructure, structures & water features on or adjacent to site, Landscape factors, Very steep slope/cliff/quarry/mine shafts/sink holes etc	Informal Public Access	Ancient Woodland Site, Special Landscape Area, Tree Preservation Order
----	------	-------------------	------	-------------	---	------------------------	--

Semi-natural woodland to the north-east of the site dominated by a variety of broadleaved species including sycamore, sessile oak (including some large coppice stools), rowan, silver birch, ash and wild cherry and with occasional lime and beech. The shrub layer is often diverse including holly, yew, rowan, elder, field maple, hazel and hawthorn. Invasive non native cherry laurel which was locally abundant was cleared in 2001/02. Non native shrubs snowberry and Oregon grape are present. The field layer is variable with areas on more acidic soils supporting bluebell, bramble, honeysuckle, greater stitchwort, creeping soft-grass, ivy and wavy hair-grass (W10, locally transitional to W11) and on more basic soils supporting bluebell, wood melick, dog's mercury, bramble, yellow archangel, primrose, wood anemone, hart's-tongue fern, gooseberry, enchanter's nightshade, wood meadow-grass and ivy (W8). The northern boundary of the sub-compartment comprises a minor road and retaining wall/track.

2c	3.50	Sycamore	1960	High forest	Housing/infrastructure, structures & water features on or adjacent to site, Landscape factors, Sensitive habitats/species on or adjacent to site, Very steep slope/cliff/quarry/mine shafts/sink holes etc	Informal Public Access	Ancient Semi Natural Woodland, Special Landscape Area, Tree Preservation Order
----	------	----------	------	-------------	--	------------------------	--

Section of the south-eastern slopes dominated by sycamore, ash and sessile oak, with occasional silver birch and wild cherry and a scattered shrub layer including rowan, hazel, holly, hawthorn and elder. The field layer is generally species-poor comprising carpets of bramble and/or bluebell with honeysuckle, creeping soft-grass, broad buckler-fern, wood sorrel and ivy (W10). Small pockets with abundant dog's mercury and enchanter's nightshade are also present (W8). To the east is an area formerly dominated by dense cherry laurel (largely now cleared in 2001/2 and 2006).

2d	11.70	Mixed conifers	1960	High forest	Archaeological features, Landscape factors, Mostly wet ground/exposed site, No/poor vehicular access to the site, Very steep slope/cliff/quarry/mine shafts/sink holes etc	Informal Public Access	Planted Ancient Woodland Site, Special Landscape Area, Tree Preservation Order
----	-------	----------------	------	-------------	--	------------------------	--

The south-facing slopes below the ridge, supporting mainly replanted ancient woodland (PAWS). Throughout the conifer stands are scattered to locally frequent sessile oak, sycamore, wild cherry, silver birch, ash and hazel. The ground is generally bare with field layer species mainly confined to scattered male-fern, ivy, bramble, bluebell, honeysuckle and bracken (W10). However, also within the sub-compartment are significant areas which are dominated by, or with frequent, broadleaves, mainly sessile oak, beech, wild cherry, ash, holly and hazel. In such areas, the field layer is more abundant (mainly W10) but with species-rich areas typical of W8 (particularly at the woodland margin). On the upper slopes there is an area dominated by stunted mature sessile oak (with some pine and underplanted conifers remaining) over a field layer dominated by wavy hair-grass with common cow-wheat, creeping soft-grass, heath bedstraw, common bent, hairy wood-rush, honeysuckle and locally frequent bell heather (W16). An initial thin was undertaken in 2005 with the aim of removing the threat of densely shading conifers from areas of ground flora containing ancient woodland species and larger broadleaved trees over-topped by the canopy of surrounding conifers.

Appendix 2: Harvesting operations (20 years)

Forecast Year	Cpt	Operation Type	Work Area (ha)	Estimated vol/ha	Estimated total vol.
2014	2a	Selective Fell	10.69	37	400
2015	2d	Selective Fell	10.00	34	341
2017	2c	Selective Fell	3.51	9	30
2018	2d	Selective Fell	1.27	6	8
2021	2d	Selective Fell	5.00	60	300
2023	2d	Selective Fell	2.00	100	200
2024	2d	Selective Fell	3.00	83	250
2025	2a	Selective Fell	10.00	45	450
2026	2d	Selective Fell	0.50	80	40

GLOSSARY

Ancient Woodland

Ancient woods are defined as those where there has been continuous woodland cover since at least 1600 AD. In Scotland ancient woods are defined strictly as sites shown as semi-natural woodland on the 'Roy' maps (a military survey carried out in 1750 AD, which is the best source of historical map evidence) and as woodland all subsequent maps. However, they have been combined with long-established woods of semi-natural origin (originating from between 1750 and 1860) into a single category of Ancient Semi-Natural Woodland to take account of uncertainties in their identification. Ancient woods include Ancient Semi-Natural Woodland and plantations on Ancient Woodland Sites (see below). May support many species that are only found in ancient woodland.

Ancient Semi - Natural Woodland

Stands in ancient woods defined as those consisting predominantly of native trees and shrubs that have not obviously been planted, which have arisen from natural regeneration or coppice regrowth.

Ancient Woodland Site

Stands in ancient woods that have been converted to plantations, of coniferous, broadleaved or mixed species, usually for timber production, including plantations of native species planted so closely together that any semi-natural elements of the understorey have been suppressed.

Beating Up

Replacing any newly planted trees that have died in the first few years after planting.

Broadleaf

A tree having broad leaves (such as oak) rather than needles found on conifers (such as Scots pine).

Canopy

The uppermost layer of vegetation in a woodland, or the upper foliage and branches of an individual tree.

Clearfell

Felling of all trees within a defined area.

Compartment

Permanent management division of a woodland, usually defined on site by permanent features such as roads. See Sub-compartments.

Conifer

A tree having needles, rather than broadleaves, and typically bearing cones.

Continuous Cover forestry

A term used for managing woods to ensure that there are groups or individual trees of different ages scattered over the whole wood and that some mature tree cover is always maintained. Management is by repeated thinning and no large areas are ever completely felled all at once.

Coppice

Trees which are cut back to ground levels at regular intervals (3-25 years).

Exotic (non-native) Species

Species originating from other countries (or other parts of the UK) that have been introduced by humans, deliberately or accidentally.

Field Layer

Layer of small, non-woody herbaceous plants such as bluebells.

Group Fell

The felling of a small group of trees, often to promote natural regeneration or allow planting.

Long Term Retention

Discrete groups of trees (or in some cases single trees) that are retained significantly past their economic felling age. Operations may still be carried out within them and thinning is often necessary to maintain stability.

Minimum Intervention

Areas where no operations (such as thinning) will take place other than to protect public safety or possibly to control invasive exotic species.

Mixed Woodland

Woodland made up of broadleaved and coniferous trees.

National vegetation classification (NVC)

A classification scheme that allows an area of vegetation to be assigned to the standardised type that best matches the combination of plant species that it contains. All woodlands in the UK can be described as being one of 18 main woodland types (W1 - W18), which principally reflect soil and climatic conditions. For example, Upland Oakwoods are type W11, and normally occur on well drained infertile soils in the cooler and wetter north and west of Britain. Each main type can be subdivided into numerous subtypes. Most real woods contain more than one type or sub-type and inevitably some woods are intermediate in character and can't be properly described by any sub type.

Native Species

Species that arrived in Britain without human assistance.

Natural Regeneration

Naturally grown trees from seeds falling from mature trees. Also regeneration from coppicing and suckering.

Origin & Provenance

The provenance of a tree or seed is the place where seed was collected to grow the tree or plant. The origin is the geographical location within the natural range of a species from where seeds/tree originally derives. Thus an acorn collected from a Turkey oak in Edinburgh would have an Edinburgh provenance and a southern European origin.

Re-Stocking

Re-planting an area of woodland, after it has been felled.

Shrub Layer

Formed by woody plants 1-10m tall.

Silviculture

The growing and care of trees in woodlands.

Stand

Trees of one type or species, grouped together within a woodland.

Sub-Compartment

Temporary management division of a compartment, which may change between management plan periods.

Thinning

The felling of a proportion of individual trees within a given area. The remaining trees grow to fill in the space created.

Tubex or Grow or Tuley Tubes

Tubes placed over newly planted trees or natural regeneration that promote growth and provide protection from animals such as rabbits and deer.

Weeding

The control of vegetation immediately around newly planted trees or natural regeneration to promote tree growth until they become established. Either by hand cutting or with carefully selected weed killers such as glyphosate.

Windblow/Windthrow

Trees or groups of trees blown over (usually uprooted) by strong winds and gales.