



# Thunderfield Grove

## Management Plan 2017-2022

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## 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 Consequently this printed version may quickly become out of date, particularly in relation to the planned work programme and on-going monitoring observations.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](http://www.woodlandtrust.org.uk) or contact the Woodland Trust ([wopsmail@woodlandtrust.org.uk](mailto: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.

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## 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](http://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.

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## 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

<b>Site name:</b>	Thunderfield Grove
<b>Location:</b>	Wormley West End
<b>Grid reference:</b>	TL338052, OS 1:50,000 Sheet No. 166
<b>Area:</b>	24.56 hectares (60.69 acres)
<b>Designations:</b>	Ancient Woodland Site, Planted Ancient Woodland Site, Tree Preservation Order

## 2.0 SITE DESCRIPTION

### 2.1 Summary Description

Part of the Broxbourne Woods complex, thinning has been undertaken to begin the gradual process of returning Thunderfield to its original native character. Paths vary from wide and open to the more secretive and meandering where deer may be spied. Turnford Brook runs along the southern edge of the wood.

## 2.2 Extended Description

Thunderfield Grove is attractive mixed broadleaf and coniferous woodland that lies just northwest of Cheshunt and close to the Broxbourne Woods National Nature Reserve (NNR) in southern Hertfordshire. It is partly a Planted Ancient Woodland Site (PAWS) originally thought to be sessile oak / hornbeam similar to the adjacent NNR before large areas of it were planted with exotic conifers. An old wood bank with overstood hornbeam hedge runs along its roadside edges.

Glancing against the urban sprawl of London's northern suburbs, the Broxbourne Woods and immediate area has a surprisingly rural feel; heavily wooded and interspersed with varied agriculture covering the gently undulating Hertfordshire plateau. The wood lies on a chalk solid strata with drift deposits (pebbly gravels and London clay).

The wood was formerly owned by the Forestry Commission and is largely made up of hornbeam coppice, and planted beech, corsican pine and western hemlock. Areas of self-set birch have also established. Historical records indicate that the woodland was also known as Sunday Field Grove in the past but it is not known why or when this changed.

The site has a southerly aspect, sloping down to Turnford Brook on the boundary, just outside the Trust's ownership. A public footpath runs north to south through the western end of the site and the entire wood is covered by a Tree Preservation Order (TPO).

A locked management access gate is located on the eastern edge from Park Lane Paradise linking into a degraded network of forestry tracks and a scrubbed up loading area, but users should exercise caution when exiting as the gate sits on a blind corner of a fast 'rat-run' lane.

## 3.0 PUBLIC ACCESS INFORMATION

### 3.1 Getting there

Thunderfield Grove lies a couple of miles north west of Cheshunt, in a relatively wooded area. A public footpath runs north to south through the western end of the wood and is complimented by numerous other permissive paths and tracks. Entrances are in the form of kissing gates directly off the highway or from the public footpath. The main entrance is off Park Lane Paradise to the north east of the wood. The site slopes to the south and ground conditions are normally manageable, but the paths can be seasonally wet and muddy.

Nearest car park: Emanuel Pollards car park - 1 mile away just off White Stubbs Lane, along quiet country roads with no pavement. Small informal pull-in in front of management gate off Park Lane Paradise with room for 1-2 cars.

Nearest toilet: Approximately 3 miles away at Tesco supermarket - Brookfield Centre, Cheshunt. Baby changing facilities and disabled toilet are available in the main block. Open Mon - Sat 24 hours, Sun 10am - 4pm, as checked Jan 2013.

Nearest railway station: Bayford - 4 miles away along busy country roads.

Nearest bus stop: On Beaumont Road adjacent to northern boundary of the wood.

Further information about public transport is available from [www.nationalrail.co.uk](http://www.nationalrail.co.uk) or <http://www.traveline.info/> or phone 0870 608 2 608.

### 3.2 Access / Walks

Served by a regular grid of tracks, rides, and more discrete paths, and bounded to the south by Turnford brook. A public footpath runs N-S along the western edge of the wood, and pedestrian access is also possible from Park Lane Paradise.

## 4.0 LONG TERM POLICY

The long term intention for Thunderfield Grove is to restore and enhance this ancient site back to a productive native dominated woodland in order to increase the habitat and age-class diversity, build up resilience by stimulating and recruiting natural regen, and favour traditional woodland flora and wildlife, with consequent benefits to wildlife, visitors, and the wood as a whole.

The ancient woodland characteristics will be enhanced through gradual removal of the exotic conifers allowing the site to slowly revert to native broadleaf woodland, increasing biodiversity and resilience within the woodland. A scattering of mature specimen conifers should be retained to add to the structural diversity, aesthetics, and resilience of the wood, as well as provide a physical record of past management.

The planted broadleaf areas will continue to be thinned to fragment the canopy, stimulate natural regen, and help develop an understorey. The original hornbeam coppice in the west of the wood will have some coupes re-cut to increase the mosaic of habitats and age-classes within the wood. The mature Corsican pine stands will continue to be lightly thinned to help stimulate and thicken the weak and scattered native understorey beneath them, combined with a programme of rolling 50% of the bracken and bramble in order to favour seedlings struggling to establish and form an understorey.

The remaining broadleaf woodland will naturally mature; the decay and collapse of old trees in the wood will eventually punch holes in the canopy, stimulating natural regeneration and coppice regrowth. Any ancient hornbeam will be allowed to collapse and naturally re-coppice / regenerate.

Deer numbers will continue to be controlled by shooting though if browsing levels are unsustainable temporary deer fence will be erected for 3-4 years around worked areas to let natural regen get away.

The Trust's corporate objective of increasing people's awareness and enjoyment of woodland will be achieved by continuing to provide and maintain appropriate access paths and facilities throughout the wood.

## 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 Planted Ancient Woodland Site

#### Description

A broadleaf and coniferous woodland with some limited structural diversity, two-thirds is largely even aged plantations of conifers and beech. The thinned and raked plantation areas (PAWS) are secure though not restored. Traditional hornbeam coppice and early successional birch in the western third give way to planted stands of mature corsican pine, larch, beech, and sweet chestnut in the centre and east of the wood. Other tree species present include oak, ash, wild service tree, sweet chestnut, sycamore, Norway spruce, western hemlock, Lawson cypress, Douglas fir. Bracken and bramble dominate under the Corsican pine stands, but elsewhere ground flora is sparse as would be expected where the closed canopy is formed by beech, hornbeam, and conifers. The mature corsican pine and western hemlock within cpt 2 and the northern edge of cpt 3 present the greatest challenge for restoring native species and broadleaf regeneration/establishment is only scattered thinly beneath them. Although some of the larger conifers are beginning to throw deadwood levels remain relatively low.

#### Significance

Ancient woodlands have been in existence for many hundreds of years and are a declining and finite resource. As well as being a traditional feature in the landscape they support an abundance of plants, mammals, birds, insects and fungi adapted to depleted uncultivated soils. It is one of the Trust's main objectives to ensure no further loss of ASNW. They take centuries to evolve and are irreplaceable. PAWS sites such as Thunderfield still hold the soil and seedbank potential to return to a more natural native composition and it is Trust policy to restore them as best possible. The structure and history of Thunderfield Grove give it further importance given its close proximity to the Broxbourne Woods National Nature Reserve (designated due to sessile oak / hornbeam structure).

#### Opportunities & Constraints

**Opportunities:**

Conserve and enhance ancient woodland components through active management. Gradually reduce the coniferous element to maintain the momentum of native broadleaf restoration. Increase natural regeneration and ground flora to improve resilience and biodiversity by controlling deer numbers, reducing the vigour of coarse vegetation, fragmenting the canopy to allow more light to reach the woodland floor, and favouring pockets of natural regeneration through selective thinning. Maturing mono-cultures of planted trees allow for economic removal.

**Constraints:**

Threat to native species and ancient seed bank from conifer shading, conifer needle bed, seeding of western hemlock, and vigour of coarse vegetation. Deer pressure. Degraded infrastructure and dangerous access to highway limiting ability to remove large quantities of felled timber from site. Corsican pine if felled will need to be quickly removed from site (within 2 weeks before it spoils) to recover the full monetary value of the timber. Increased pressure on surrounding land use and transport routes (development, traffic flows, restricted access for HGV's through surrounding urban areas).

**Factors Causing Change**

Maturing mono-cultures and closed canopy. Pests and diseases (squirrel, deer, OPM, Chestnut Blight, Longhorn beetles, Needle blight, Chalara of ash, Phytophthora).

**Long term Objective (50 years+)**

Attractive, resilient, maturing largely mixed broadleaf mixed aged woodland with a varied mosaic of stand structure and productivity, including areas of coppice, open and dense high forest and a mixed, multi-aged understorey. Ancient woodland characteristics increasing/re-appearing and managed on a continuous cover and coppice basis. Vigorous natural regeneration levels and coppice regrowth sufficient to sustain continuous cover management. Many of the old hornbeam coppice stools along the stream will reach senescence and beyond providing veteran trees and valuable dead wood habitats. A scattering of conifers will also be retained to provide visual and structural diversity, as well as a physical reminder of past management. Ideally, in the fullness of time, the woodland could become part of the Broxbourne NNR.

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

Operational objective: Conserve and enhance the ancient woodland characteristics of Thunderfield Grove by gradually removing more conifers and managing light levels and coarse vegetation appropriately to allow ground flora and natural regeneration to develop. Develop portions of the planted areas into productive woodland managed on a continuous cover basis using existing racks. Improve as best possible the existing tracks and entry point to allow for prompt, safe, and economic removal of timber from site.

## Work programme

### Annual Maintenance Activity:

Mow/clear paths, rides, and entrances

Clear and inspect culverts

Roll 50% of bracken and bramble in Cpt 2a twice a year by rolling alternate racks

### 2018-19:

Widen entrance gate from 12' & 6' gate to 2x 12' gates.

Reinstate metal barrier one lorry length in from entrance gate (20m)

Scrape and re-stone where necessary 350m of existing track from entrance to T-Junction and down slopes.

Respace, clean, and remove tubes from planted area in cpt 3c (0.43Ha). 80% Firewood to be stacked rideside, remainder to form deadwood element. Tops to be cut up small and distributed across work area.

Fell Western Hemlock and Lawson cypress in over- and under- storey of northern portions of cpt 3a & 3b (0.5Ha). Timber to be stacked rideside. Top to be windrowed/dead hedged back from road and ride to expose maximum area of soil to maximum light levels.

### 2019-20:

Thin conifers in NE third of Cpt 3b to favour native trees (0.25 Ha). 80% timber to be stacked at rideside, remainder to form deadwood element. Tops to be cut up small and distributed across work area.

Clearfell larch back 20m from roadside edge with Park Lane Paradise.

### 2020-21:

Light thin of Cpt 2a (CP 5.54 Ha) to fragment canopy, favour establishment of native natural regen/understorey, and favour best stems. Timber to be extracted to roadside, top to be dragged then windrowed to break up needle bed and maximise mineral soil exposed to light.

Thin Cpt 2b (WH 1.75 Ha) to favour mature native broadleaves, fragment canopy, and favour native natural regen/understorey. Timber to be extracted to roadside, top to be dragged then windrowed to break up needle bed and maximise mineral soil exposed to light.

Thin Cpt 3a (BE/HBM 2.03 Ha) & 3d (BE/HBM 5.32 Ha) to fragment canopy, assist establishment of native understorey, and favour best stems. Timber to be extracted to roadside, top to be cut up small and distributed across work area.

### 2021-22:

Coppice 0.5 Ha Hornbeam either side of Power line clearance. Timber to be extracted to roadside, top to be cut up small and distributed across work area.

### 2022-23:

Light selective thinning to favour natural regen where necessary.

Erect temporary deer fence around 21-22 coppice coupe if deer browsing levels unsustainable.

Some underplanting with shade tolerant NBL in 1.2m tubes in Corsican pine cpt 2a if natural regen not establishing.

## 5.2 Informal Public Access

### Description

There is an extensive network of paths throughout Thunderfield Grove, much of them in a regimented grid formation, the N-S elements of which are visible in the County Epoch maps from the 19th century and which were added to by the Forestry Commission when the wood was planned, planted, and managed as a productive woodland. The main public access is from the N-S footpath inside the western edge of the wood, though a kissing gate (and vehicle gate for management access only) provide access directly off the highway (Park Lane Paradise) in the northeast corner.

### Significance

Thunderfield Grove's size and location make it a natural attraction for the local population prepared to venture off the beaten track who can enjoy the woodland and its associated habitats. It adds to the local rights of way network and provides an excellent recreational resource.

Informal public access in a pleasant wood raises people's awareness and enjoyment of woodland, fulfilling one of the Trust's objectives.

### Opportunities & Constraints

#### Opportunities:

Opportunity to retain the involvement, interest, and support of the local community by making the site attractive and easy to visit for those who wish to.

Opportunities for linking Thunderfield grove to wider Woodland Trust holdings in the Broxbourne NNR as well as holdings of local partners.

#### Constraints:

The gate at the main road entrance to the site suffers regular fly tipping and occasional vandalism. Campsites/drinking dens and associated rubbish/litter particularly along the stream, peaking in the Summer. Occasional drug use paraphernalia found in wood.

Coppice along eastern edge of PRow is dense and dark and can make permissive paths leading off the PRow into the wider woodland appear uninviting.

Need to manage deer populations by shooting.

### Factors Causing Change

Weather conditions making paths impassable.

Vandalism of gates, signs, benches.

Unauthorised access by motorbikes and quad bikes churning up paths.

### Long term Objective (50 years+)

A welcoming woodland with well-maintained entrances and attractive paths that connect to a wider network of rights of way. Easily accessible, well used and respected by locals from the surrounding area. The wood will remain open for the public to visit and enjoy its natural beauty and conservation interest.

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

**Operational objective:**

Easily accessible, attractive, well maintained and safe woodland regularly used by the public. Path network, entrances and recreational furniture remain in good condition and are appropriate for level and type of use.

**Work programme:**

Cut paths twice a year to a minimum width of 2m and keep entrances and paths clear of obstructions.

Annual tree safety inspection of zones A and B.

Repair signs and entrances as necessary.

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## 6.0 WORK PROGRAMME

Year	Type of Work	Description	Due By
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## APPENDIX 1: COMPARTMENT DESCRIPTIONS

Cpt No.	Area (ha)	Main Species	Year	Management Regime	Major Management Constraints	Key Features Present	Designations
1a	3.37	Hornbeam	1994	High forest		Informal Public Access, Planted Ancient Woodland Site	Ancient Woodland Site, Tree Preservation Order
<p>Primarily young hornbeam coppice, last cut in the 1990's with occasional oak and birch standards. Scrubby natural regeneration of hornbeam, birch, oak and holly is also present with bramble dominant in the more open areas.</p>							
1b	0.77	Birch (downy/silver)	1993	High forest	Services & wayleaves	Informal Public Access, Planted Ancient Woodland Site	Ancient Woodland Site, Tree Preservation Order
<p>A mix of young and mature hornbeam coppice, with a high percentage of oak and birch standards. There is frequent natural regeneration of hornbeam, birch and occasional oak has taken over former grassy areas. A HV overhead power line forms the north-western edge of this sub-cpt. Yield Class 8</p>							
1c	1.73	Hornbeam	1960	High forest	Services & wayleaves	Informal Public Access, Planted Ancient Woodland Site	Ancient Woodland Site, Tree Preservation Order
<p>Sub compartment 1c is dominated by mature hornbeam coppice, last cut around 1975. Birch and oak standards established around 1970 can also be found. An occasional understorey of hornbeam, hazel and holly is present with bracken and some bramble making up the ground flora species. An overhead HV powerline runs through the compartment. A number of wet flushed exist within this sub-cpt and there is a higher incidence of wind-thrown coppice stools here than elsewhere in the wood.</p>							
1d	1.83	Hornbeam	1960	High forest	Services & wayleaves	Informal Public Access, Planted Ancient Woodland Site	Ancient Woodland Site, Tree Preservation Order

Compartment 1d is a thin strip of mature hornbeam coppice, last cut around 1975, which runs along the west and south edge of the wood. Hornbeam maidens and oak, beech and birch standards established around 1965 are also noticeable.

Occasional holly, thick near the bridge, and rare elder regeneration form the main understorey species.

Ground flora is limited to bramble, grasses and ivy, and leaf litter.

An overhead HV power line runs across the northern third of the sub-cpt, and a buried oil pipeline runs just outside the woodland but within 1 tree length of the southern edge of the sub-cpt.

2a	5.54	Corsican pine	1965	High forest		Informal Public Access, Planted Ancient Woodland Site	Planted Ancient Woodland Site, Tree Preservation Order
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Primarily mature, well thinned and racked Corsican pine of good form established around 1965.

Racks run N-S

The occasional pole stage oak and birch are also present.

Some scattered hazel and hornbeam have established in the thin shrub layer underneath but bramble dominates.

South of the central track the Corsican stands have been less heavily thinned and there is little understorey with vigorous bramble and bracken dominating the field layer.

Yield Class 16. Sustainable timber yield on a 5 year thinning regime 56m<sup>3</sup>/Ha (YC 16x0.7x5yr)  
19.11.17 relascope-basal area tariff = 500m<sup>3</sup>/Ha

2b	1.75	Western hemlock	1965	High forest	Services & wayleaves	Informal Public Access, Planted Ancient Woodland Site	Planted Ancient Woodland Site, Tree Preservation Order
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Sub compartment 2b mainly comprises western hemlock of average form, planted around 1965 along with beech. Other canopy species include, birch, hornbeam, alder, poplar and the odd Douglas fir.

As with the Corsican racks have been cut, running N-S.

Understorey is made up of occasional beech, birch and hornbeam regeneration.

A watercourse runs along the southern boundary, outside Woodland Trust ownership, separating the wood from grazed meadows and Christmas tree plantations.

A buried oil pipeline runs just outside the woodland but within 1 tree length of the southern edge of the sub-cpt.

W.Hemlock Yield Class 20.

3a	2.03	Beech	1985	High forest		Informal Public Access, Planted Ancient Woodland Site	Ancient Woodland Site, Tree Preservation Order
<p>This sub compartment is dominated by mature hornbeam coppice and planted beech, raked N-S, along with birch, oak, field maple and some Lawson cypress north of the ride. Hornbeam and beech regeneration is occasional and leaf litter dominates the field layer. Yield Class 10</p>							
3b	1.78	Sweet chestnut	1965	High forest		Informal Public Access, Planted Ancient Woodland Site	Ancient Woodland Site, Tree Preservation Order
<p>Primarily a mixed broadleaf and conifer stand established around 1965 with much of the conifer since thinned out. Species include young and mature sweet chestnut coppice, hornbeam, birch, oak and birch, along with Lawson cypress, Corsican pine, larch and Douglas fir. The majority of the understorey consists of hornbeam and sweet chestnut coppice, and a touch of birch and oak regen. Ground flora includes bracken, bramble, nettles and moss. The main management access enters this compartment directly off the highway from a fast blind corner. A hard standing timber loading area exists but has scrubbed and was once used as a car park but closed due to vandalism, fly tipping and burnt out cars.</p>							
3c	0.42	Birch (downy/silver)	1995	High forest		Informal Public Access, Planted Ancient Woodland Site	Ancient Woodland Site, Tree Preservation Order
<p>Established in 1995 following clearance of the previous conifer crop after windthrow. Planted species include birch, oak and larch, along with copious amounts of birch regeneration breaking through the dense thatch of bracken and bramble. Yield Class 7</p>							
3d	5.32	Beech	1975	High forest	Services & wayleaves	Informal Public Access, Planted Ancient Woodland Site	Ancient Woodland Site, Tree Preservation Order

Sub compartment 3d is largely dominated by hornbeam coppice and planted beech, raked N-S, and established around 1966. Turkey oak and ash are dotted about, a patch of birch can be found in the south west corner, and a block of larch just south of the old parking area.

The sub-cpt was last thinned in 2006 when remaining Lawson cypress were removed.

Understorey consists of beech and hornbeam regeneration, along with occasional hornbeam and rare beech coppice regrowth from the thinning operation.

Ground flora is very sparse and species include grasses and moss, though leaf litter dominates throughout.

A buried oil pipeline runs just outside the woodland but within 1 tree length of the southern edge of the sub-cpt.

Yield Class 8. Sustainable Timber Yield on a 5 year thinning regime 28m<sup>3</sup>/Ha (YC10x0.7x5yr)

19.11.17 relascope-basal area tariff = 205m<sup>3</sup>/Ha

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**Appendix 2: Harvesting operations (20 years)**

Forecast Year	Cpt	Operation Type	Work Area (ha)	Estimated vol/ha	Estimated total vol.
2019	3b	Thin	0.50	30	15
2020	2a	Thin	5.50	55	300
2020	2b	Thin	1.75	29	50
2020	3a	Thin	2.03	27	54
2020	3d	Thin	5.32	27	146
2021	1a	Coppice	1.00	80	80

## 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.