WOODLAND TRUST

Penn Wood

Management Plan 2017-2022

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MAPS

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 Consequently this printed version may quickly become out of date, particularly in relation to the planned work programme and on-going monitoring observations.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:	Penn Wood
Location:	Penn Street
Grid reference:	SU914959, OS 1:50,000 Sheet No. 165
Area:	176.33 hectares (435.72 acres)
Designations:	Ancient Semi Natural Woodland, Area of Outstanding Natural Beauty, Green Belt, Planted Ancient Woodland Site

2.0 SITE DESCRIPTION

2.1 Summary Description

Penn Wood is one of the largest ancient woodlands in the Chilterns Area of Outstanding Natural Beauty (AONB) and lies in the heart of this area. It has a long history and was once part of a very large common called Wycombe Heath. A herd of cows is still used to manage part of the site today as 'wood pasture' and this continues the traditional management carried out in the past. The wood contains impressive bluebell areas in the spring and red kites and buzzards are commonly seen overhead.

2.2 Extended Description

Penn Wood lies in the heart of the Buckinghamshire Chilterns, and is the largest single ancient woodland in the Chilterns Area of Outstanding Natural Beauty (AONB). The Chilterns is characterised by its high density of ancient woodland, much of which is semi natural. A number of ancient woods adjoin Penn Wood at various points around its boundary, including Common Wood to the south which is another significant block of ancient woodland at 103ha (255 acres), and is managed entirely by the volunteers of the Penn and Tylers Green Residents Association.

Penn Wood has a long recorded history of use as wood-pasture, indeed its name derives from the Old English term for enclosure or pen and dates back to when the area was a deer enclosure during Anglo-Saxon times. Penn Wood was part of Wycombe Heath, an area that once comprised some

1600ha (4000 acres) of heath and woodland, where seven surrounding towns and parishes once shared rights of common. Penn and Common Woods were legally enclosed in 1855 and common rights were immediately extinguished. Seven years of lawlessness from the dispossessed householders followed, and Penn Wood was recorded as being one of the most difficult areas in which to restore order.

Penn Wood was acquired by The Woodland Trust in 1999 following a long running and successful campaign by the local community to prevent the wood from being developed as an 18-hole golf course. Only in the last days of 1998 was the case decided by John Prescott the then Environment Secretary, who refused permission because of the "paramount importance" of conserving ancient woodland and securing its good management. "Were non-woodland uses to become the accepted answer to an owner's income problems," he said, "woodland up and down the country could be under threat."

Penn Wood today is given the designation of a Planted Ancient Woodland Site (PAWS). This recognises that the wood has been modified by planting as, following enclosure and since, extensive felling and replanting of the woodland with mixed conifer and broadleaves has taken place. Currently the major species of conifer present include Douglas fir, European larch, Corsican pine and Norway spruce. Exotic shrubs have been established along the major rides of the wood, dating from the mid-19th century, with the main species being Rhododendron ponticum. These same rides also contain large specimen conifer trees such as Douglas fir.

A large proportion of the wood is also predominantly broadleaved, dominated by oak and beech together with birch, cherry, rowan and other minor components. Most of these broadleaved stands are also derived from plantations. Penn has a scattering of trees over 200 years old, mainly beech, which date from when the site was part of Wycombe Common. There are also 24 veteran trees, including a special oak tree that was integral in the decision to confirm the ancient status of the site, the 'Holey Oak'.

In addition to the dense canopy woodland there is a proportion of more open woodland, especially to the south. This habitat consists of a mixture of acid grassland, large open grown trees (oak and beech) with scrub and bracken. Dexter cattle have been introduced to the site and 50ha (123 acres) are now grazed under a wood-pasture management system consistent with the historical land use. Wood pasture is now a rare habitat nationwide and very scarce in the Chilterns. Some of the open areas which have been adopted are partly a result of illegal tree clearance for the proposed golf course fairways in the 1990's, when the Woodland Trust changes the outcome of a restocking notice to wood pasture which was accepted by Forestry Commission at the time. There are several historic ponds on the site, and these hark back to when Penn was common land when they would have been important watering places for the animals.

Many archaeological features are present such as a wood-bank around most of the perimeter, flint and clay pits, and old tracks. In 1800 the wood from the site was a source of legs, stretchers, spindles and sticks for Windsor and cane-backed chairs. Many bodgers working in Penn Wood supplied this thriving industry. The chair-manufacturing firm Dancer & Hearne started up in a shed behind the Hit or Miss pub in Penn Street, and was at one time the largest chair maker in Europe, producing 450,000 chairs and employing over 300 people. A LIDAR survey was commissioned in 2015 and a number of interesting features were identified including a rectangular bank and ditch enclosure, about 90 metres square, with various linear ditches nearby. Numerous other banks and

quarries have also been located in the wood.

A booklet called ‘The History of Penn Wood’ by local historian Miles Green, originally written for Friends of Penn Wood as part of the fight to save the site from development and later to celebrate the purchase of Penn Wood by the Woodland Trust, is available to buy and contains some absorbing reading and historical detail.

3.0 PUBLIC ACCESS INFORMATION

3.1 Getting there

By bus:

Buses regularly stop at the bus stop near Mop End on the A404 at Penn Street on route between High Wycombe and Chesham. Occasional buses stop near the Squirrel public house in Penn Street village.

By train:

The nearest train stations are at Beaconsfield (4.8 km/3 miles), Amersham (6.4 km/4 miles) and High Wycombe (8 km/5 miles).

For further information about public transport, contact Traveline: www.traveline.org.uk or phone 0871 200 22 33.

By car:

From junction 4 of the M40 turn north on the A404 into High Wycombe and remain on the A404 through the town, following signs for Amersham and Hazlemere. The A404 passes through Hazlemere and climbs a hill. At the top of the hill go past the first right, signposted for Penn Bottom, and take the next right 2km further on, signposted for Penn Street.

There are numerous places to park in the village, but the best place is the main car park next to Holy Trinity Church which has a shared use with the church.

3.2 Access / Walks

There are seven main entrances to Penn Wood and three rights of way running through the wood which link it to the surrounding countryside. A surfaced 360m circular easy access path runs from the entrance of Penn Street church, together with a 1km surfaced bridleway. There are also many more permissive paths totalling about 10,000m (10km), providing a variety of walking routes for the visitor. A link to Common Wood (another wood with public access) can also be found at the western corner of Penn Wood.

In general, the paths are moderately easy to walk on but do get muddy during the winter months.

Walking and cycling are both popular within the wood, but horse riding less so because the bridleway is separated from a connecting route by the busy A404.

There are currently no way-marked trails through the wood, but the Chilterns Conservation Board have produced a walk leaflet for those who are less mobile: www.chilternsaonb.org/accesswalks .

There is easy access from the village of Penn Street, where there is also some opportunity to park along the roadside.

Information for visitors is provided at three of the entrances:

- Church Gate
- Beamond End Gate and
- Goose Pond Gate.

All distances are approximate.

4.0 LONG TERM POLICY

The long term intentions for Penn Wood will seek to realise two of the Woodland Trust's three key aims:

- to protect native woods, trees and their wildlife
- to restore damaged ancient woodland

The following proposals have been itemised to mirror Penn Wood's key features.

PAWS restoration:
The PAWS areas of the woodland will be restored in line with best restoration and reversion practice, to address the threats to the semi-natural components, (in particular the flora and the older broadleaved trees), and to attain a largely broadleaved woodland over time. Restoration of PAWS provides the only opportunity to increase the area of ancient woodland with semi-natural characteristics.

Practically this means that the conifer and broadleaf plantation component, where identified after assessment as a threat to diverse broadleaf regeneration and/or forming dense shade suppressing ground flora, will be gradually thinned. The aim is to achieve more semi-natural broadleaved conditions gradually. In subsequent continuous-cover operations (there will be no loss of woodland cover) to thin stands to robust levels, (where the threat from plantation species to remnant features is minimal), the management will consider practice which may provide an economic return. A component of conifer will be retained long-term to provide increased biodiversity and woodland resilience. Specimen conifer planting and the main rhododendron avenue will be retained as a feature of the woodland's history. Broadleaved trees will develop within the stands via natural regeneration.

As the woodland matures, operational management will diversify the overall age structure and stand species composition. Some broadleaved trees will be left to reach old age and decline naturally. Deadwood, both standing and fallen will be maintained to provide important niche habitats within the wood, particularly for invertebrates and fungi, except if they pose a significant tree safety risk.

Observations will be carried out to record any factors causing change that may be detrimental to the vitality and structure of the woodland. For example there should be no damaging invasive species present on the site, and the likely colonisation by ash dieback (Hymenoscyphus fraxineus) and other pests and diseases monitored and managed where necessary.

Rhododendron control:
Rhododendron ponticum will be eradicated from within the stands in the woodland and the open grassland areas to remove the threat it poses to flora and broadleaf regeneration across the whole site. Non-invasive Rhododendron varieties and any other non-invasive exotic shrubs along the central rides will be retained but managed, so this element of Penn's history is kept.

Wood pasture management:
The areas of open habitat will be largely managed through cattle grazing. Grazing will take place in areas to the south of the central east-west ride (Compartments 1a, 1b, 1c, 2d, and 2f) because

PAWS restoration will be focussed north of this. Open semi-natural habitat elsewhere and especially to the north of the central ride will be managed through mechanical means with the intention of extending grazing management to some of these parts in the future after the PAWS areas are restored. The aim of wood pasture management will be to achieve an approximate balance of 30% grassland, 20% scrub and 50% woodland in the grazed areas. This grazed woodland is likely to need some mechanical cutting of scrub and trees to maintain this balance.

Management of old trees:
Old growth trees (those older than 200 years) will be allowed sufficient growing space to ensure they live as long as possible and do not become dominated by younger surrounding trees. Specimen conifer trees along the central rides will also be managed in the same way, so they remain strong features in the wood.

Management for public access:
The public's enjoyment of the woodland will be enhanced by maintaining an accessible and safe network of paths and rides. Entrances, boundary fences, and benches will be maintained as necessary and the access provision will be monitored and provided in line with a category A site, defined as; 'high usage sites, regularly used at all times of year, more than approx. 15 - 20 people using one entrance every day'. Open access will be retained at the wood and well used paths will be made open and sunny in parts. The wood will be made as safe as practicable through regular safety inspections. Good information will be made available on and off the site to enable visitors to explore and navigate around the wood and to appreciate its inherent qualities. High quality and prominent signage will greet visitors on their arrival to the wood. Penn will be widely promoted in the Chilterns local area as one of largest accessible woods for people to visit and enjoy.

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 Woodland Site

Description

The history of Penn Wood was researched by Miles Green, a local historian, who conclusively proved that the area had been woodland since Doomsday (1086 - see summary of available information). For many centuries Penn Wood was a well wooded part of Wycombe Heath and could be described historically therefore as a ‘wooded common’. Most of the common finally became enclosed in 1855. Following this the woodland has had several waves of felling and replanting with conifers, mixed with broadleaves of mainly beech and oak (sessile as well as pedunculate). The whole site is classified as a planted ancient woodland site (PAWS) in the ancient woodland inventory because of this replanting. Currently 40% of the site (approximately) is conifer-dominated woodland, and another 40% is ‘semi natural’ and largely composed of broadleaved trees. The other 20% of the site is open grassland with widely spaced trees and scrub. Over the past 20 years the Trust has actively managed the site with frequent operations, focussing on restoration of PAWS areas, including treatment of invasive species, and re-introduced grazing on the site with cattle.

Penn is an ‘old growth’ woodland (woodland with trees exceeding 200 years in age with a continuity of old trees reaching into the past). There are at least 50 of these ‘old growth’ trees (mainly beech) on the site and they date back to when Penn was common land, prior to its enclosure. The majority of the old trees are along the northern edge of the wood. In the same area there are small areas remaining of hazel coppice with oak standard.

Penn occupies a plateau in the landscape for much of its area and the soils are mildly acidic (pH 4.5 to 5.5) on the whole. This acidity greatly influences the naturally occurring vegetation on the site, with wavy hair-grass being common as well as heather (ling). The majority of the woodland approximates to W14 (beech-bramble) under the National Vegetation Classification (NVC). As well as frequent bramble, drifts of bluebells can be found beneath the stands of trees, most notably on the west side, together with other ancient woodland species such as wood spurge. The land slopes in the far south of the site and here the soil becomes more calcareous (Compartment 3f). Consequently the flora is far richer in this area, with species such as sanicle, primrose, woodruff and black bryony present. An invertebrate study of the site in 2000 found 10 nationally scarce beetles, of which 2 are considered to be ancient woodland indicator species.

Shortly after the site’s enclosure some of the main rides were made more formal with the planting of exotic flowering shrubs and specimen conifer trees such Douglas fir, Corsican and Austrian pine (the conifers are now an impressive size). Amongst the shrubs Rhododendron ponticum was planted and would have also been the rootstock for other Rhododendron varieties. The R. ponticum has spread from these rides and invaded the surrounding woodland, as well as the open areas of woodland. Mapping in 2017 determined that the plant covers approximately 5.5 ha (13.5 acres) of the site.

Penn contains a number of archaeological features which are typical of an ancient woodland site. There is large wood bank surrounding most of the perimeter which is many centuries old and this is particularly prominent on the southwest and northern boundaries. There are also pits and dells; some of these are manmade quarries for acquiring flint and clay, but others are thought to be natural ‘solution hollows’ where pockets of underlying chalk has dissolved.

Significance

Ancient woodland is a limited and irreplaceable resource which is home to more species of conservation concern than any other habitat in the UK. Buckinghamshire is a county where 45% of ancient semi natural woodland has been lost since the Second World War with only 4000 ha (9885 acres) remaining. Restoration of ancient woodlands by removing the shading effects from plantation species is the only way the area of ancient semi-natural woodland can be increased. The larger a woodland is, the more species it will be able to support. As one of the largest ancient plateau beech woods in the Chilterns, Penn Wood is important woodland. Old growth woodland (woodland containing trees over 200 years old and with a continuity of old trees reaching into the past) is rare and declining worldwide. A substantial number of specialist woodland species are almost wholly confined to old growth stands.
ASNW is very important due to the continuity of woodland cover over hundreds of years which allows for a diverse range of wildlife and vegetation to develop over time that cannot be found in new woodland creation sites.

Opportunities & Constraints

Constraints:
- Potential compaction of poorly drained soils and damage to tracks/paths through the use of forestry machines undertaking PAWS restoration. Timing and extraction routes need to be carefully planned
- Damage to archaeological and historic features when implementing forestry operations
- Protected species present such as hazel dormice, bats and red kite that require strict conditions on working practices and timing of operations

Opportunities:
- Restoration of the whole site to ancient semi natural broadleaved woodland
- To use the site to demonstrate the Trust's approach to woodland management and to influence neighbouring landowners and other key stakeholders
- Retaining the old growth trees well into the future to enable them to become veteran and ancient trees
- Providing continuity of old growth characteristics through increasing the number of old trees on the site by recruitment from the 19th century broadleaved stands. (Potential for colonisation of old growth species from surrounding mature and over mature trees from nearby sites e.g. Naphill)
- Improvement of tree age range, structure and species diversity
- Extending wood pasture management over a greater area of the site after PAWS areas are restored

Factors Causing Change

- Rhododendron ponticum is spreading within the stands of trees from the main central rides
- Open areas within the wood are succeeding to scrub and woodland thickets, dominated by birch and beech
- Natural regeneration of broadleaves is occurring within the formerly thinned conifer stands
- Increasing shade and loss of coppice structure in minimum intervention stands
- Mammal damage (deer, rabbits, squirrels)
- Changes in structure and gaps in canopy due to wind-blow and disease/dieback e.g. Hymenoscyphus fraxineus in ash

Long term Objective (50 years+)

Penn Wood will have become predominantly semi-natural in composition and structure and the majority of the woodland will be composed of existing and naturally regenerating broadleaved trees (typically beech, oak, cherry, rowan and birch) with a minor percentage of conifers in the mixture (no more than 20%). The high forest structure will be being managed on a continuous cover silvicultural system to produce uneven-aged, self-regenerating stands of high conservation and amenity value.

In the long term the PAWS areas within the wood should all be predominantly broadleaved in character, with all other major ancient woodland components in a secure and improving condition, including old growth trees, ground flora, archaeological features, and a diverse deadwood component. There will be no invasive exotic species within the restored stands of trees, or open ground habitat.

Any exotic shrubs and trees growing along the internal rides will be non-invasive, and there will be large specimen conifers along these rides.

Some of well used paths between the stands of trees will be open and sunny and have good woodland edge habitat.

Deer damage to the broadleaf trees will be monitored and action taken if the damage becomes a threat to regeneration.

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

This section should be read in conjunction with the PAWS assessment and strategy maps.

- All PAWS compartments which have been identified in the PAWS strategy (reviewed in 2017) as being threatened through high or medium shade will be thinned during this plan period. The thinning will concentrate on removing plantation trees to benefit remnant ancient woodland features such as old broadleaf trees and hotspots of important flora. This will affect either entirely or partially all compartments in the wood apart from 1b, 3a, and 3f. In total around 40ha (100 acres) will be thinned during this plan period. Next intervention due 2019.

- Supplementary planting in PAWS zone 14 & PAWS zone 2 (compartments 2l and 2o, approx. 1.25ha), where 2013 thinning operation and subsequent wind blow has left areas over-exposed with high weed competition.
Zone 2 (2o) to be planted with beech & oak. Birch will seed from neighbouring stands and regeneration of Scot's pine and Douglas fir is present. Early 2018
Zone 14 (2l) is largely trackside and pond side. Some larch and beech remain. Planting is to create graduated shrub layer building on ride / pond margin field layer up to high canopy beyond, and includes hazel, hawthorn, rowan & wild cherry. Birch will seed from neighbouring stands. Occasional oak & beech planted within stand. Early 2018

- The Rhododendron ponticum was mulched or hand-cut within all stands in 2017, and regeneration will be controlled with use of herbicide with the intention of eradicating all R. ponticum and any remaining laurel from within the stands within this plan period; approx. 5.5ha will be treated annually. Rhododendron will only be present along the main east-west ride by 2022. Any other non-invasive shrubs growing along the rides (such as Azalea) will be retained. Final hand cutting across whole site due September 2018. Annual spraying in March throughout plan period or until eradicated.

Woodland Trust EA (Environmental assessments) are carried out before each timber harvesting operation as harvesting and felling is potentially damaging to the environment. An EA will check for:
- Designations within the felling area
- Protected species or sensitive features in the harvesting area? e.g. watercourses / rare flora/EPS
- Previous incidents of environmental damage on this site
- Is the harvesting area, or any access routes to it, near any watercourses, water bodies, or private water supplies?
- Are new roads / rides, loading bays, car parks or entrances to be created?
- Timing: is the operation to be carried out in a sensitive period for flora and fauna?
- Timing: is the operation to be carried out when ground is likely to be churned up?
- Any other site considerations to assess (e.g. topography, soil type, exposure, special conditions)?

Separate EA's are carried out if there are EPS (European Protected Species) present on site, specifically if EPS are present within the felling area which is likely to have a direct impact on confirmed EPS habitat which may require a licence for the activity.

Contract monitoring during timber harvesting operations will check at each site visit for:
- Safe working practices, following HSE guidelines appear to be carried out
- Appropriate PPE worn & first aid kits available
- All signage, barriers etc. identified in ORA (Operational Risk Assessment) in place
- All other specific actions identified in ORA carried out.
- Evidence that operators are aware of content of ORA.
- Work been carried out to agreed standard & time scale
- Biodegradable lubricants used
- Spillage kits accessible
- Any re-instatement work required agreed with contractor

5.2 Wood Pasture

Description

Remnant areas of semi-natural acid grassland exist at the site and paradoxically this habitat benefitted and increased in area since the mid 1990's when tranches of tree clearance were illegally undertaken for the planned golf course development.

Patches of more open woodland, containing the acid grassland, exist throughout the site. However, there is more of a concentration of this habitat in the southern half of the site. In the northern half of the site the open woodland exists largely as glades between the blocks of plantations. The acid grassland is very rich and diverse and contains 20 plant species which are uncommon in the county. As well as numerous species of grass, sedge and rush the grassland also contains flora such as heath bedstraw and patches of heather (ling). Within these more open areas of woodland there are also occasional old growth trees and widely spaced mature oaks and beeches, dating from early plantations in the 19th century.

Historically this open habitat would have been managed through commoners grazing their animals and removing some tree growth for fuel. This management ceased following enclosure of the former common (1855). However, in 2001 winter grazing was re-introduced by The Woodland Trust on the southernmost two-thirds of the site (approx. 50ha) to help manage and maintain a wood pasture habitat. Since 2012 grazing is now year-round, which has improved the quality of the grassland and helped control growth of scrub, bracken and bramble.

As with the denser woodland areas, Rhododendron ponticum has invaded from the formalised rides into parts of the open grassier areas; especially from the east-west central ride.

Significance

Wood pasture is a nationally rare habitat and especially rare in the Chilterns. There is also a suite of species associated with this habitat, which are by association rare and rely on the right conditions of old trees in open conditions with associated flora.

Within the Chilterns there only a few sites where relict wood pasture features exist and where there is an opportunity for restoration; Penn Wood is one of these sites. The old growth trees at the site are especially important in this context.

Opportunities & Constraints

Constraints:
- There is a need to actively thin stands of pole stage conifer in parts of the site. This is a priority and precludes wood pasture in these areas, until lighter woodland conditions are created and the stands are largely broadleaved in character
- Grazing a large area extensively can be problematic for graziers because of stock welfare, and there may be a need for more internal compartment fencing to enable animals to be kept in smaller areas and then moved around
- Rhododendron ponticum will continue to invade the grassland, to the detriment of the habitat, unless eradicated

Opportunities:
- An important opportunity to manage and restore areas of acid grassland to enhance the surviving mosaic of wood pasture habitat.
- Extending low level grazing management across the site on rotation following restoration of PAWS stands. It has been reported that this could be the largest opportunity to recreate wood pasture in the Chilterns (N. Sanderson, Ecological and Historic Assessment of Penn Wood, Aug 2000 – see reference information and surveys)
- Retaining the open glades in the northern half of the site
- Continued restoration and management of a wood pasture habitat at Penn could provide suitable conditions for priority species for conservation including birds such nightjar and woodlark

Factors Causing Change

- Rhododendron ponticum has spread within the wood pasture from the main central rides
- Open areas within the wood are succeeding to scrub and woodland thickets, dominated by birch and beech
- Bracken cover is also increasing in the open habitat, though cattle grazing in the coming years will reduce the extent of this succession

Long term Objective (50 years+)

Wood pasture management has been implemented over approximately one third of the site area, in the southern half of the wood. Grazing by cattle will be used to manage a balance of 50% woodland, 20% scrub and 30% open grassland in this area with widely spaced trees. Bracken and bramble will be present but part of the scrub component and therefore at a manageable level.

As PAWS compartments become restored then wood pasture management will be extended into these areas, and open glades with species rich acid grassland will be managed in the PAWS areas until this time. No invasive exotic species will be present within the wood pasture. Old growth trees will be in open conditions and not in competition with younger trees.

Over time and with continued wood pasture management, some of the beech and oak planted in the 18th century will develop into future old growth trees. With careful manipulation of the grazing pressure, some saplings will also develop in patches to become future veteran trees as well.

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

- All year round grazing with cattle will be continued to manage the wood pasture habitat (approximately 50 hectares) across Subcpts 1a, 1b, 1c and 2d, to the required balance of 50% woodland, 20% successional trees and 30% grassland with widely spaced trees. The local community support of this process by carrying out daily stock checks to support the grazier is vital and will be continued
- Internal stock fencing will be maintained and replaced as necessary to benefit stock welfare and allow concentrated grazing management, with stock being moved around on rotation. Rolling programme of fencing repairs annually in May each year
- Invading Rhododendron ponticum will be eradicated from within the wood pasture and from around Keepers Cottage in the south of the site. Next intervention March 2018
- The glades within the non-wood pasture parts of the site will be cut annually to keep them open (these are marked on the conservation features map). A total area of approximately 10ha will be cut and mainly carried out towards the end of the season, with some partial cutting/rolling earlier in the summer to control bracken. Annually in August
- Fixed point photography will be used to record any structural changes to the habitat with photographs taken annually. Local volunteers will assist with this

5.3 Connecting People with woods & trees

Description

Penn Wood is part of the Woodland Trust's Welcoming Sites Programme (WSP), which aims to improve the visitor experience to this site. The WSP will lead to a series of lasting upgrades that will improve the visitor experience and will likely increase the number and range of visitors to the wood. An attractive and serviceable network of tracks and paths will further encourage the appreciation of the woodland both on the site and in the locality. The site will be managed to meet the required high standards of WSP and will provide a clear welcome: well-maintained entrances, furniture, signs and other infrastructure as well as sustainable path and track surfaces across the variable ground conditions. Improved access will better facilitate use by a wider range of visitors. An engagement plan will set out a plan for engagement activities, further enhancing public visits to the site.

Penn Wood is located in the hamlet of Penn Street in Buckinghamshire. Combined with the surrounding Holmer Green and Tylers Green as well as the larger village of Penn itself, the local population is approximately 8,000. The towns of High Wycombe (pop 125,000) and Amersham (pop 15,000) are 5 miles (8km) south west and north east of the wood respectively.

Penn is a large site with good complex of legal and permissive paths across the whole area, totalling over 6 miles (10km). There is easy access from Penn Street, where there is parking available with permission from the Holy Trinity Church at their car park. There is also limited parking near the village green, along Gravelly Way and off the A404 to the north.
Most of the paths in the wood are un-surfaced but there is a surfaced 0.75 mile (1.2km) easy access path which starts at the main entrance at Holy Trinity Church. There is a permissive bridleway for horse riding from Mop End at the north to the village green at Penn Street. There are 7 main entrances to the wood and there are 3 rights of way running through the wood which link to the surrounding countryside. There is also a link to Common Wood (a wood managed by the Penn and Tylers Green Residents Society with public access - http://commonwood.pennandtylersgreen.org.uk) at the western corner of Penn Wood. Information for visitors is provided at 4 of the entrances: Church gate, Beamond End gate, Justice gate and Goose Pond gate. There are currently two trails through the wood: a short, surfaced and way-marked 0.75 mile (1.2km) circular trail which includes sculptures and carvings produced by local primary school children as part of HLF funded Bringing History to Life project. The second, longer trail 4 mile (7km) is also circular but runs through Penn and Common Woods as well as the privately-owned Penn Estate.
An information leaflet was produced for Penn and Common Woods in October 2017. The local community is very engaged and interested in the wood and there is a local Friends Group, a cattle-watchers group, a dormouse monitoring group and volunteer wardens who help with the day to day monitoring of the site. In total, there are 17 volunteers registered at Penn Wood. There is also an active Forest School site within the wood, regularly used by two local primary schools.

The site has opportunities for further volunteering and for engagement activities through volunteer days with corporate groups or developing relationships with current groups.
Penn Wood is a diverse site with many natural features that may be of interest to visitors. The central avenue comprises a rhododendron lined ride with mature feature tree planting dating to the Victorian period when the estate belonged to Earl Howe. There are many archaeological features across the site including saw-pits, banks, holloways, quarries and ditches. Natural features of interest include ponds, wood-pasture, colourful and often rare displays of native flora, stands

undergoing PAWS restoration and open areas of acid grassland.
The site is well used by locals and visitors. There is currently an average of 8000 day visits per month at the site with main user groups being dog walkers and families, and is an important resource for the local village and schools. Visitor counters were installed in May 2017 at the 4 main entrances and will be in situ for a year in order to assess visitor numbers and seasonal variability in visits. The counters have already demonstrated a rise in visitor numbers – it is estimated that visitor numbers have doubled in the past three years. There are approximately 12 other WT woods in the local area (less than 10km) which are all smaller woods and not part of the WSP. The closest is Common Wood, which connects with Penn Wood through a way-marked trail, and is often visited in conjunction with Penn Wood. Due to its location in the Chilterns, there are many other woodlands, nature reserves and estates in the area which will be attractive to visitors, including a number of National Trust-owned houses and gardens. With so many visitor options in the area, the visitor experience offer at Penn Wood will continue to focus on communicating the Woodland Trust's 'Protect' message, to engage visitors in the importance of native woodland and the habitat it provides and show how they can help. Promoting access to other nearby sites and links with local businesses and tourist attractions for visitors is also a key part of Penn Wood development. This will help to encourage a more diverse range of new visitors to the site.

Significance

In a busy part of the country Penn Wood provides a relatively peaceful and accessible place for visitors to enjoy. This is one of the largest ancient woodlands open to the public in the Chilterns and offers a good experience to visitors, as well as good connectivity to neighbouring landscape of high amenity value. Saved from becoming a golf course by the local community with help from the Woodland Trust in 1999, the woodland once again provides access to visitors for quiet informal recreation, and will do in perpetuity.

In 2017 a three-year Bringing History to Life Heritage Lottery Fund project came to an end and was independently evaluated. The funding aimed to develop local understanding and engagement in the wood and its history. Connecting People outputs of the project included an annual summer wood festival (attended by over 200 people); wooden carvings and sculptures produced by local primary school children; teachers from the local Primary Pupil Referral Unit trained to deliver forest school activities and the creation of a new site leaflet and online Penn Wood history resource. The project was well supported by a range of partners and individuals, and has led to offers of support to develop future engagement and fundraising activities. As a result of this increased investment, awareness of the wood and visits to the site has increased.

Opportunities & Constraints

Constraints:
- Enhanced signage/ information and activities at the site need to be balanced against preserving its natural qualities
- There could be a conflict between more grazing animals and an increase in people using the site in the future, especially if there is a need for more stock fencing
- Formal car parking is limited at the wood
Opportunities:
- Increased community involvement in management of the wood through volunteering opportunities
- Continuation of annual summer event to deepen local engagement and increase membership opportunities
- Further develop relationships with local partners e.g. Chilterns AONB for cross-promotion and joint working on engagement activities including listing Penn on key visitor information websites
- Continued and expanded use of Penn Wood as a demonstration site to key partners and stakeholders

Factors Causing Change

- An increase in visitors is likely to occur through better facilities and greater promotion of the wood. This could also lead to more antisocial behaviour and more conflicts between different user groups
- Economic changes as funding ends will impact opportunity to develop and enhance the site
- Government adopted local housing targets will lead to increased development in the area and further pressure on the wood through increased visitor numbers

Long term Objective (50 years+)

The woodland will provide an extensive area of quiet informal recreation to a wide range of users both from the local community and from further afield. The use of the site by visitors will be promoted through positive relationships with neighbouring tourist destination sites, with good signage and interpretation.
Penn Wood will offer a high quality visitor experience in line with a category A access designation (high usage with more than 20 people using one entrance per day).
Open access for a range of users will be retained at the wood in perpetuity and there will be a well-managed network of paths. Well used paths will be made open and sunny in parts to add variety and interest for the visitor, as well benefitting woodland edge wildlife. The wood will be made as safe as practicable through regular safety inspection of trees in high risk zones and inspection of access furniture. Good information will be made available on and off the site to enable visitors to explore and navigate around the wood and to appreciate its inherent qualities. High quality and prominent signage will greet visitors on their arrival to the wood. Penn will be widely promoted in the Chilterns local area as one of largest accessible woods for people to visit and enjoy. There will also be a programme of engagement activities to aid visitor understanding and enjoyment of the wood and to attract new visitors. The local community will continue to be engaged with the management of the wood.

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

- Approximately 6 miles (10km) of paths and 7 main entrances will be cut and managed on an annual basis to keep them in good condition and open for use all year around
- The main car park will be graded and re-surfaced to improve visitor experience (2017)
- The poor sections of the main east-west ride will be filled with stone already on site, and left over from the illegal works to grade fairways, to provide a better surface for users (2017)
- Stakeholders and supporters will continue to be engaged and consulted through regular informal and formal meetings and local events
- Annual safety inspections will be carried out on trees in high risk zones, and the quality of access infrastructure will also be inspected formally at least once during this 5 year plan period
- Annual activity/event(s) to build on increased engagement as a result HLF Bringing History to Life project
- Provision of further volunteering opportunities for local community through engagement activities via volunteer days with corporate groups or developing relationships with current groups
- Ensuring all volunteers are registered and receive training appropriate to their role as required
- Continue relationships with local conservation and volunteer groups for example with wildlife surveys and volunteer activities engaging the wider community

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	32.26	Beech	1900	Wood pasture	Archaeological features, Sensitive habitats/species on or adjacent to site	Ancient Woodland Site, Connecting People with woods & trees	Area of Outstanding Natural Beauty, Green Belt, Planted Ancient Woodland Site
Mainly widely spaced mature pedunculate oak and beech planted in 19th century with open grassland in between the trees. Several larger pre-plantation (old growth) beech trees are present. Large patches of bracken and bramble are present in the grassland. The compartment is much more open in eastern half. Avenues of rhododendron present to the north with specimen conifer trees. Rhododendron has spread further into the compartment but the 2017 operation has mulched the majority of this, and herbicide treatment will continue in order to eradicate. There are Medieval wood-banks (hollow way) on the southern boundary.							
1b	22.79	Beech	1900	Wood pasture	Archaeological features, Sensitive habitats/species on or adjacent to site	Ancient Woodland Site, Connecting People with woods & trees	Area of Outstanding Natural Beauty, Green Belt, Planted Ancient Woodland Site
Mainly widely spaced mature pedunculate oak and beech planted in 19th century with open grassland in between these trees. Blocks of younger woodland (less than 20 years) also present especially in the eastern half, and this is dominated by naturally regenerating birch with some beech and oak present; the grassland forms smaller glades in this half. Patches of bracken and bramble are present. Rhododendron avenues to the west and north with specimen conifer trees; Rhododendron has spread further into the compartment but the 2017 operation has mulched the majority of this, and herbicide treatment will continue in order to eradicate. There are Medieval wood-banks (hollow way) on the south-eastern boundary, and pits of historic origin which have been mapped and are shown in the study of Penn Wood by N A Sanderson (Aug 2000).							
1c	2.26	Oak (pedunculate)	1986	Wood pasture	Archaeological features, Sensitive habitats/species on or adjacent to site	Ancient Woodland Site, Connecting People with woods & trees	Area of Outstanding Natural Beauty, Green Belt, Planted Ancient Woodland Site
Plantation of beech and oak planted in 1986 with some red oak and much self sown birch. Rhododendron is present on the eastern boundary but the 2017 operation has mulched the majority of this, and herbicide treatment will continue in order to eradicate.							

2a	2.07	European larch	1979	PAWS restoration	Archaeological features	Ancient Woodland Site, Connecting People with woods & trees	Area of Outstanding Natural Beauty, Green Belt, Planted Ancient Woodland Site
Plantation of European larch and beech planted in 1979. The larch was last thinned in 2014.							
2b	1.67	Norway spruce	1979	PAWS restoration	Archaeological features	Ancient Woodland Site, Connecting People with woods & trees	Area of Outstanding Natural Beauty, Green Belt, Planted Ancient Woodland Site
Plantation of Norway spruce and southern beech planted in 1979. This was last thinned by lines in 2012.							
2c	3.60	European larch	1986	PAWS restoration	Archaeological features	Ancient Woodland Site, Connecting People with woods & trees	Area of Outstanding Natural Beauty, Green Belt, Planted Ancient Woodland Site
Plantation of European larch and sessile oak planted in 1986 and last thinned (by lines) in 2010. There is Rhododendron in north and west which is part of the avenue complex and has spread further into the compartment, but the 2017 operation has mulched the majority of this, and herbicide treatment will continue in order to eradicate.							
2d	1.14	Oak (pedunculate)	1983	PAWS restoration	Archaeological features, Sensitive habitats/species on or adjacent to site	Ancient Woodland Site, Connecting People with woods & trees	Area of Outstanding Natural Beauty, Green Belt, Planted Ancient Woodland Site
Plantation of Norway spruce and pedunculate oak planted in 1983. The spruce was last thinned to waste in 2009 and is now present only in small clumps, with much naturally regenerating birch within the stand. Also beech, cherry, ash and hawthorn present and gaps of grassland. There is an old pond site to the south of the compartment. Rhododendron is present and invading from the boundary with the house, but the 2017 operation has mulched the majority of this, and herbicide treatment will continue in order to eradicate.							

2e	0.89	Beech	1965	PAWS restoration	Archaeological features, Sensitive habitats/species on or adjacent to site	Ancient Woodland Site, Connecting People with woods & trees	Area of Outstanding Natural Beauty, Green Belt, Planted Ancient Woodland Site
Plantation of European larch and beech planted in 1965 with the larch now a minor component, due to silvicultural works in recent past. No further thinning of conifers is required for restoration. Patches of Rhododendron are present however the 2017 operation has mulched the majority of this, and herbicide treatment will continue in order to eradicate.							
2f	3.81	European larch	1982	PAWS restoration	Archaeological features	Ancient Woodland Site, Connecting People with woods & trees	Area of Outstanding Natural Beauty, Green Belt, Planted Ancient Woodland Site
Plantation of European larch, pedunculate oak and ash planted in 1982, with self sown beech and birch (now taller than planted oak) present. Rhododendron present especially to east, but the 2017 operation has mulched the majority of this, and herbicide treatment will continue in order to eradicate. Medieval bank and hollow way present on southern boundary. Last operation was undertaken in 2014, and recovery time is required to allow canopy closure and minimise threat from coarse vegetation succeeding.							
2g	2.23	Japanese larch	1982	PAWS restoration		Ancient Woodland Site, Connecting People with woods & trees	Area of Outstanding Natural Beauty, Green Belt, Planted Ancient Woodland Site
Plantation of Japanese larch, pedunculate and sessile oak with Scots pine to east, planted in 1982 and last thinned by lines in 2007. Minor components of ash, cherry and birch also present. Old sewage sludge pipes still very evident (southwest corner), from when this was spilled into the wood with nettle abundant close by. Medieval boundary bank and hollow way present along southwest boundary.							
2h	3.67	Beech	1969	PAWS restoration		Ancient Woodland Site, Connecting People with woods & trees	Area of Outstanding Natural Beauty, Green Belt, Planted Ancient Woodland Site

Plantation of European larch and beech planted in 1969. The larch has been routinely thinned and the last operation was in 2011. Mature specimen Douglas fir trees situated along ride edge to south. Much bracken and rhododendron present to the south, but the 2017 operation has mulched the majority of the Rhododendron, and herbicide treatment will continue in order to eradicate. Drifts of bluebells are present. Sewage pipes also present. One operation required on larch to remove 50%, and thinning of beech desirable.							
2i	1.95	Douglas fir	1982	PAWS restoration		Ancient Woodland Site, Connecting People with woods & trees	Area of Outstanding Natural Beauty, Green Belt, Planted Ancient Woodland Site
Plantation of Douglas fir and pedunculate oak planted in 1982 with much birch regeneration. The conifers were last thinned by lines in 2011.							
2j	1.08	Norway spruce	1965	PAWS restoration		Ancient Woodland Site, Connecting People with woods & trees	Area of Outstanding Natural Beauty, Green Belt, Planted Ancient Woodland Site
Plantation of Norway spruce, European larch and beech planted in 1965. The southern front edge of the compartment has been thinned more routinely and beech is dominant here. Elsewhere the compartment is dominated by conifers and much darker. Last operation was undertaken in 2012. Rhododendron has spread further into the compartment but the 2017 operation has mulched the majority of this, and herbicide treatment will continue in order to eradicate.							
2k	5.75	European larch	1970	PAWS restoration		Ancient Woodland Site, Connecting People with woods & trees	Area of Outstanding Natural Beauty, Green Belt, Planted Ancient Woodland Site
Plantation of European larch and beech planted in 1970. The larch has been routinely thinned. Large dell present in the northwest corner. Extensive mammal damage present on the beech. Rhododendron is invading from the rides on the east and south sides, but the 2017 operation has mulched the majority of this, and herbicide treatment will continue in order to eradicate. Last operation was undertaken in 2012.							

2l	2.81	Oak (sessile)	1984	PAWS restoration		Ancient Woodland Site, Connecting People with woods & trees	Area of Outstanding Natural Beauty, Green Belt, Planted Ancient Woodland Site
Plantation of European larch and sessile oak planted in 1984 with some self sown birch and beech. The large Beamond End Pond is present in northwest corner which was de-silted in 2005, 2007 and 50% of the reed mace was cleared in 2016, and opened up around its perimeter. The conifer element was thinned heavily in 2015. Oak was being suppressed by conifers and there is was limited ground vegetation other than mosses, now coarse vegetation is present bracken / bramble. Re-planting of mixed BL's to take place early 2018 on southern and western sides of Cpt. North and east to be retained as scrub / successional habitat adjacent to pond and main east-west path.							
2m	1.97	European larch	1976	PAWS restoration		Ancient Woodland Site, Connecting People with woods & trees	Area of Outstanding Natural Beauty, Green Belt, Planted Ancient Woodland Site
Plantation of beech and European larch planted in 1976, in 3 small blocks. The conifers have been thinned by line and selectively, latest operation 2016. The broadleaves are being suppressed within the blocks by the conifers. The matrix between the blocks is young birch and oak (less than 20 years) with grass and bracken. The individual conifer blocks are shown on the PAWS strategy map.							
2n	1.64	European larch	1981	PAWS restoration		Ancient Woodland Site, Connecting People with woods & trees	Area of Outstanding Natural Beauty, Green Belt, Planted Ancient Woodland Site
Plantation of beech, pedunculate oak and European larch planted in 1981. The larch was thinned by lines in 2004 and 2010. Rhododendron is invading from the ride on the south side, but the 2017 operation has mulched the majority of this, and herbicide treatment will continue in order to eradicate. Acid grassland with heather present along this section of the ride also.							
2o	3.99	Beech	1980	PAWS restoration		Ancient Woodland Site, Connecting People with woods & trees	Area of Outstanding Natural Beauty, Green Belt, Planted Ancient Woodland Site
Plantation of Douglas fir, European larch, Western hemlock, Norway spruce, pedunculate oak and beech; planted in early 1980's. The conifers were last thinned by lines in 2004 and again in 2010, and then heavily in 2015. Acid grassland with heather present at southern edge, and also some heather present within the compartment. Re-planting of mixed BL's to take place early 2018.							

2p	1.91	European larch	1985	PAWS restoration		Ancient Woodland Site, Connecting People with woods & trees	Area of Outstanding Natural Beauty, Green Belt, Planted Ancient Woodland Site
Plantation of pedunculate oak and European larch planted in 1985. Archaeological features are present (pits and depressions). The larch was thinned by lines in 2003 & 2010. Rhododendron is invading from the ride on the south side, but the 2017 operation has mulched the majority of this, and herbicide treatment will continue in order to eradicate.							
2q	1.81	Oak (pedunculate)	1981	PAWS restoration		Ancient Woodland Site, Connecting People with woods & trees	Area of Outstanding Natural Beauty, Green Belt, Planted Ancient Woodland Site
Plantation of European larch and pedunculate oak planted in 1981 with self sown birch and sycamore, and a minor component of planted cherry. The larch was line thinned in 2013 and 2016. Rhododendron has spread further into the compartment but the 2017 operation has mulched the majority of this, and herbicide treatment will continue in order to eradicate.							
2r	7.13	Beech	1975	PAWS restoration		Ancient Woodland Site, Connecting People with woods & trees	Area of Outstanding Natural Beauty, Green Belt, Planted Ancient Woodland Site
Plantation of Western hemlock and beech, planted in 1975, with a scattering of mature oaks thought to be planted in 19th century. Much of the hemlock in the central portion of this compartment has been felled creating a habitat of acid grassland and heather through the middle. The hemlock was thinned in 2003, 2008 and 2016; it is now present in the compartment in clumps, covering no more than 15% of the total area. Drifts of hemlock seedlings are now growing in the middle of the area.							
2s	24.99	Beech	1978	PAWS restoration		Ancient Woodland Site, Connecting People with woods & trees	Area of Outstanding Natural Beauty, Green Belt, Planted Ancient Woodland Site

Plantation of Corsican pine and beech planted in 1978 together with areas of pure broadleaved woodland. The conifers are present in 6 distinct blocks, which can be viewed on the PAWS strategy map. The pine was thinned in 2012 and 2016. In between the conifer blocks the woodland is broadleaved and mixed structured. There is a scattering of old growth trees (beech and oak) including a hollow veteran oak. These older trees are mixed with planted mature oak and beech and also more recent thickets of natural regeneration consisting of beech and birch. The compartment overall is approximately 40% conifer plantation (containing some broadleaves) and 60% pure broadleaves. There is a screen of rhododendron and cherry laurel spreading from the church perimeter in the south-eastern corner. A mediaeval wood bank exists along the northern boundary. Small open grassy areas are present.							
2t	3.01	Douglas fir	1978	PAWS restoration		Ancient Woodland Site, Connecting People with woods & trees	Area of Outstanding Natural Beauty, Green Belt, Planted Ancient Woodland Site
Plantation of Douglas fir, European larch, beech and pedunculate oak planted in 1978. A minor component of self sown birch is present. The Douglas fir in this compartment was last thinned in lines in 2011. There is medieval wood bank on boundary with Compartment 2s.							
2u	1.21	Beech	1965	PAWS restoration		Ancient Woodland Site, Connecting People with woods & trees	Area of Outstanding Natural Beauty, Green Belt, Planted Ancient Woodland Site
Plantation of European larch and beech planted in 1965, which was last selectively thinned in 2011. The stand is now over 70% broadleaved and will require one further thin of the larch to be restored. Mediaeval wood bank present on boundary with Compartment 2s and enclosure bank along northern boundary.							
3a	5.72	Beech	1900	High forest		Ancient Woodland Site, Connecting People with woods & trees	Area of Outstanding Natural Beauty, Green Belt, Planted Ancient Woodland Site
A mixture of mature beech and pedunculate oak planted towards end of 19th century. Mature rowan and birch also present, with younger beech, all of which are probably self sown. This is the most important area of the woodland for old growth trees with over 20 scattered across this compartment (mostly beech). There are several open glades containing patches of heather but also much bracken and rush. Drifts of bluebells are present beneath the trees.							

3b	2.64	Beech	1900	High forest		Ancient Woodland Site, Connecting People with woods & trees	Area of Outstanding Natural Beauty, Green Belt, Planted Ancient Woodland Site
Area of broadleaved woodland contained within surrounding conifer blocks. Mostly widely spaced mature beech planted towards the end of 19th century with young natural regeneration of mostly birch and beech in between. The compartment is more open and grassy through its centre.							
3c	20.78	Beech	1900	High forest		Ancient Woodland Site, Connecting People with woods & trees	Area of Outstanding Natural Beauty, Green Belt, Planted Ancient Woodland Site
Broadleaved woodland consisting of widely spaced beech and pedunculate oak planted at end of 19th century. There is a matrix of open grassy glades and clumps of younger natural regeneration of birch and beech between these older trees. A proportion of the compartment, approximately 25%, consists of recently restored PAWS conifer plantations from the 1960's and 70's. European larch and Scots pine remain from this as a minor component.							
3d	9.47	Beech	1954	PAWS restoration		Ancient Woodland Site, Connecting People with woods & trees	Area of Outstanding Natural Beauty, Green Belt, Planted Ancient Woodland Site
Plantations of European larch and beech planted in 1954. There are now only remnants of larch present plus a minor component of pedunculate oak. Pockets of young self sown birch and beech are present, which are probably the result of wind-blow of the plantation. Rhododendron and cherry laurel thickets present to the north, but the 2017 operation has mulched the majority of this, and herbicide treatment will continue in order to eradicate. Several small glades present, dominated by bracken but containing occasional heather as well as grasses. The beech was selectively thinned in 2016.							
3e	1.31	Oak (pedunculate)	1986	High forest		Ancient Woodland Site, Connecting People with woods & trees	Area of Outstanding Natural Beauty, Green Belt, Planted Ancient Woodland Site
Plantation of beech and oak planted in 1986 with some red oak and much self sown birch, especially in the northern half.							

3f	0.82	Beech	1986	High forest		Ancient Woodland Site, Connecting People with woods & trees	Area of Outstanding Natural Beauty, Green Belt, Planted Ancient Woodland Site
Young beech, pedunculate oak, ash and hornbeam plantation with some exotics such as red oak and Norway maple planted in 1986 with self sown birch, ash, and hazel. One of the only chalk rich areas in the woodland and because of this the ground flora is diverse containing species such as woodruff, sanicle and black bryony amongst others. A medieval hollow way is present on the northern boundary with compartment 1b.							

Appendix 2: Harvesting operations (20 years)

Forecast Year	Cpt	Operation Type	Work Area (ha)	Estimated vol/ha	Estimated total vol.
2020	2b	Thin	1.67	60	100
2020	2c	Thin	3.60	42	150
2020	2g	Thin	2.20	36	80
2020	2h	Thin	3.67	49	180
2020	2i	Thin	1.95	41	80
2020	2j	Thin	1.08	46	50
2020	2k	Thin	5.75	42	240
2020	2r	Thin	7.13	28	200
2020	2t	Thin	2.80	50	140
2020	3c	Ride edge Coppice	2.00	53	105
2025	2d	Thin	1.14	48	55
2025	2m	Thin	1.97	33	65
2025	2n	Thin	1.64	37	60
2025	2p	Thin	3.99	30	120
2025	2s	Thin	24.99	14	350
2025	2u	Thin	1.21	50	60
2025	3d	Thin	9.47	21	200
2027	1a	Thin	32.26	6	200
2027	1b	Thin	22.79	8	180
2027	1c	Thin	2.26	40	90
2027	2a	Thin	2.07	39	80
2027	2e	Thin	0.89	51	45
2027	2f	Thin	3.81	52	200
2027	2q	Thin	1.81	33	60
2027	3a	Thin	5.72	21	120
2027	3b	Thin	2.64	32	85
2027	3e	Thin	1.31	34	45

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.