



Joyden's Wood

Management Plan 2018-2023

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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 Consequently this printed version may quickly become out of date, particularly in relation to the planned work programme and on-going monitoring observations.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 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:	Joyden's Wood
Location:	Dartford & Bexley South
Grid reference:	TQ501717, OS 1:50,000 Sheet No. 177
Area:	134.81 hectares (333.12 acres)
Designations:	Ancient Semi Natural Woodland, County Wildlife Site (includes SNCI, SINC etc), Green Belt, Planted Ancient Woodland Site, Scheduled Ancient Monument, Tree Preservation Order

2.0 SITE DESCRIPTION

2.1 Summary Description

Joyden's Wood is a tranquil, ancient woodland right on London's doorstep. With its remarkable variety of trees and plants, abundant wildlife, and intriguing history stretching back to Roman times, it's a wonderful place to escape the hectic pace of city life.

2.2 Extended Description

The Woodland Trust purchased Joyden's Wood, Gattons Plantation and Sands Spinney from the Forestry Commission (FC) in 1987. Then in 1993, Dartford Borough Council gifted 7.72 hectares of the north-eastern corner of Joyden's Wood to the Woodland Trust. Today, the total area of the woodland complex covers 135 hectares (333 acres) and is managed together under the same management plan. Administratively, the wood is split between Dartford Borough Council to the east and the London Borough of Bexley to the west.

The woodland is located on the south-eastern edge of London, only 13 miles from the city centre. The main block of Joyden's Wood is situated on high ground and is visually prominent in the local landscape. The whole of Joyden's Wood is hilly with two main valleys running through it and some quite steep-sided spurs and minor valleys with elevations ranging from 30m to 85m above sea level.

Joyden's Wood lies within the North Kent Plain National Landscape Character Area (NCA 113) and the London Green Belt.

Almost the entire woodland complex is classified as Plantation on Ancient Woodland Sites (PAWS) with smaller areas of ancient semi natural woodland (ASNW) in the main block of Joyden's Wood adjacent to Northfield Road and within Gattons Plantation. The PAWS comprises of stands dominated by the following species: 62 hectares (153 acres) of conifer, 33 hectares (81 acres) of beech, 5 hectares (12 acres) of red oak and a small compartment of mixed broadleaves. A small proportion of the total can be considered as restored to site native species. A small area (1.9 ha) of priority lowland heathland habitat has also been restored in the centre of Joyden's Wood, near to the picnic area.

Joyden's Wood is designated as a County Wildlife Site (Local Wildlife Site and Site of Importance for Nature Conservation) as well as being seen strategically as a Biodiversity Opportunity Area within the Thames-side Green Corridors and an important area of greenspace within the Green Belt. Indeed, Joyden's Wood is highly valued by the surrounding local communities as an accessible and attractive area for informal recreation.

Whilst managed under the same plan, it is easiest to describe the detail of this complex of woodland by its three distinct areas: 1. Joyden's Wood, 2. Gattons Plantation and 3. Sands Spinney.

1. Joyden's Wood (main block)

This is the largest block covering 120 hectares with a varied, complex topography with many steep slopes and narrow valleys. Joyden's Wood was originally taken over by the Forestry Commission (FC) in 1956 from the remains of Mount Mascall Estate. At this time, the FC cleared much of the native woodland vegetation and planted the whole area predominately with Corsican pine with small proportions of Western hemlock, Lawsons cypress, larch and Scots pine as well as broadleaves such as beech, sweet chestnut and red oak. Since the Woodland Trust took over the site in 1987, the woodland has been undergoing a process of PAWS restoration targeted at non-native conifers, with the Corsican pine and other conifers gradually being thinned out through harvesting operations from 1990 to 2014 to reduce their presence. An extensive programme of Rhododendron clearance has also taken place which has been successful in eradicating Rhododendron from most of the wood, apart from the occasional specimen found regenerating.

Although Corsican pine still dominates much of the upper canopy, broadleaf regeneration has been successful and a diverse lower storey is starting to develop; made up of sweet chestnut, sessile oak, red oak, birch and ash with smaller components of beech, rowan, cherry, aspen, hazel, goat willow, sycamore and Norway maple. Yew and holly is also present throughout the woodland. Dense patches of bramble and bracken, especially in the conifer areas, are outcompeting much of the native woodland ground flora species, although in localised areas, ancient woodland indicator species such as wood melick, bluebell and lily of the valley are evident. The enclosed woodland landscape of the main block of Joyden's Wood is broken up by a small open area (1.9 ha) of restored heathland with heather, gorse and acid grassland. The main area of acid grassland is the location known as the picnic area. Several ephemeral (seasonal) ponds are scattered throughout the woodland.

Archaeological sites comprising deneholes, earthbanks and settlement features are found

throughout the woodland but the main feature of note is the Faesten Dic which is a Scheduled Monument (SM). This defensive structure built by the Saxons, to keep the Romans from moving out of London, runs for over a kilometre north to south through Joyden's Wood and has been visually restored by clearing trees in several areas of the wood.

Since the time of the FC's ownership, Joyden's Wood has been open to the public for walking and cycling and a licensed horse riding permit scheme has been running through the southwest section of the wood for many years as well. The site is currently part of the Trust's Welcoming Sites Programme and is particularly popular with regular visitors who visit the wood for quiet recreation and dog walking. Despite not having a formal car park, the number of daily visitors to the wood is high.

2. Gattons Plantation

Gattons Plantation (14 ha) is located to the west of the main block of Joyden's Wood, separated by a privately owned pasture. According to the England Ancient Woodland Inventory the wood is primarily ASNW with 4 hectares of PAWS in the northern half of the wood. The wood is made up of mature broadleaf species comprising sweet chestnut, oak, sycamore, ash and field maple with holly and yew in the shrub layer. Robinia (Black locust) is regenerating freely in the northeast part of the wood. There is one circular path within this block as well as two small ponds. There is neither vehicular access nor suitable roadside parking for this wood. The only entrance is off of Cocksure Lane, which can be accessed on foot from the southwest corner of the of Joyden's Wood via Parsonage Lane.

3. Sands Spinney

Sands Spinney is a small isolated outlier (1.4 ha) to the north of Joyden's Wood. It was originally planted in 1909 with Corsican pine and Scots pine but is now dominated by a mix of mature Corsican pine and sycamore. Beech is also present and there are some good specimen trees including an old dying veteran oak. There is a small clump of small leaved lime in the north which is most likely derived from planting. The understory contains holly, sycamore and beech while the ground flora is dominated by bramble, elder, ivy and honeysuckle. There is no public access to the wood and access as a whole is very restricted, although it is possible to enter the wood on foot from Stables Lane.

3.0 PUBLIC ACCESS INFORMATION

3.1 Getting there

Joyden's Wood is located on the eastern suburban fringe of London in the boroughs of Bexley and Dartford. It is situated in between the populated areas of Sidcup, Dartford, and Swanley. Two access points are easily accessible from the surrounding suburban roads - one on Summerhouse Drive (the main entrance) and one off Ferndell Avenue. Ferndell Avenue is a private road and so there is no public parking on this road. The Summerhouse Drive entrance starts with a wide opening next to a metal vehicle gate at roadside, followed by 50m of hard surface track leading to a wide kissing gate, suitable for most wheelchairs and pushchairs. Ferndell Avenue is fitted with just one gate, which is a slightly smaller kissing gate than just described and may not be suitable for some wheelchairs and pushchairs. Both entrances lead onto several kilometres of surfaced all-weather tracks, which can be muddy and bumpy depending on seasonal conditions. Other pedestrian entrances exist as links to local rights of way, from the north, south and west. These connect to a number of designated public footpaths (DR316, DB34 to DB39, FP136, FP138, and FP172) throughout the site.

There are a number of other entrances to the wood, such as those off Parsonage Lane and next to Mount Mascall stables which also act as entry points for horse riders onto a network of permissive bridleways around the wood. Horse riding is permitted on tracks in the west and south quarter of the wood and currently operates via a licensed permit scheme.

There is no designated car park for Joyden's Wood. Limited street parking is available along Summerhouse Drive, close to the main entrance. The nearest bus-stop, labelled Squires Way, is right next to the main Summerhouse Drive entrance, with bus routes connecting to the nearby town centres. The nearest railway station is Bexley located to the northwest of the wood and approximately one mile away from the northern entrance next to Mount Mascall stables.

Access to Gattons Plantation is located on Cocksure Lane. There are no areas suitable for roadside parking in this area, but the entrance point can be reached on foot from the southwest corner of the of Joyden's Wood via Parsonage Lane. Currently, there is no public access or maintained paths at Sands Spinney.

There are no public toilets within walking distance of this site. The nearest toilets are several miles away in Dartford town centre where there are a number of toilet locations, including designated disabled toilet facilities.

For further information on public transport please contact Traveline www.traveline.org.uk

3.2 Access / Walks

There are two main pedestrian entrances: one off Summerhouse Drive and another at the end of Ferndell Avenue. Only the Summerhouse Drive entrance is accessible to wheelchairs and buggies, having a wide kissing gate leading to a surfaced stone track.

The main entrance to Gattons Plantation is from the west side, off Cocksure Lane. There is no public access provision in Sands Spinney.

Three entrances for horse riders lead to a network of permissive bridleways around the west side of the wood. These bridleways are fenced off from the rest of the site. Riders must purchase a permit from Mount Mascall stables.

The woodland has a good network of paths and tracks, and two circular waymarked routes: the Faesten Dic Trail (3.3km/two miles) and the Woodland Walk (2.7km/1.7 miles). Gattons Plantation has one circular path. There is no vehicular access to this part of the wood.

4.0 LONG TERM POLICY

The Long-term policy for Joyden's Wood is presented in accordance with the key features present on the site.

Ancient Woodland Site:

Joyden's Wood is predominantly an ancient woodland site, which in a landscape scale context is very rare and unique in Dartford, Kent. The long-term intention is that Joyden's Wood, Gattons Plantation and Sands Spinney will be semi-natural woodland, managed as high forest with a diverse species and age composition, primarily dominated by native species and well-developed shrub and field layers. Scattered over-mature conifer will remain as a minor component but will not be regenerating significantly. This will primarily be achieved through PAWS restoration which is one of the Trust's major objectives for its own sites as well as those in other ownerships.

The Trust's approach to PAWS restoration is to restore the canopy to native broadleaved trees over the long term to avoid the sudden change in conditions that comes from clear-felling. This will take the form of an on-going programme of gradual thinning of the conifers, on a 5-10 year cycle until the conifer component is less than 20% of the woodland. Rather than maximising timber production, the thinning will favour broadleaved regeneration, ground flora hotspots that still survive, and other ecological and archaeological features that are being damaged by the shade and needle drop from the conifer canopy. The adoption of a continuous cover silvicultural system will avoid the need for clear-felling and should ensure a succession to broadleaved canopy is developed, using natural regeneration wherever possible. Some supplementary planting of successor species may be necessary in the long term due to a limited variety of seed sources and disease. Some mature conifer will be retained where it poses no threat and where it can provide an ecological niche for certain species (e.g. raptors). The fallen and standing deadwood resource will be allowed to increase where there are no public safety issues. This approach should encourage a more resilient woodland capable of better withstanding pressures from climate change, pests and diseases.

As a priority, the ancient woodland components that have been identified will be secured; these include woodland specialist ground flora, precursor and veteran trees, deadwood and archaeological features. This will involve opening up shaded rides, tracks and paths and the edges of scattered ground flora hotspots in the wood as well as releasing mature trees currently being shaded out by the surrounding conifers. The threat of over shading will gradually be removed through thinning to secure and enhance the ground flora and encourage native broadleaf regeneration, progressively converting the existing woodland towards a more native broadleaved wood with a range of species present according to the soil variations across the site.

Within the predominantly broadleaf plantation compartments (60ha) scattered veteran or character mature broadleaves will have competing trees removed around them (halo thinned) to gradually secure them and improve vigour. More open areas will be encouraged to regenerate naturally with native species. The regenerating rhododendron and any other invasive non-native species throughout will be controlled and eradicated. Operations will concentrate on shifting the canopy gradually towards a species composition that is predominantly native.

Lowland heathland is a UK priority habitat and there is a small area of open habitat in the centre of

Joyden's Wood. This will be maintained using cyclical heathland vegetation management techniques to control gorse and bracken and maintain a mosaic of heather with different age structures to enhance the ecological value and species diversity.

The ride network throughout the woodland provides important habitat diversity and corridors for wildlife to move through the wood. Key east-west facing rides will be maintained in cyclical management, with the cutting of rotational scallops to add both visual diversity and create a mosaic of scrub/vegetation structure of different ages to benefit lepidoptera and bird life and enhance the diversity of ground flora.

Connecting people with woods and trees:

The Woodland Trust will promote the woodland so that local users and visitors can gain an understanding of its importance in the landscape, the need for restoration and its rich wildlife habitat; which is irreplaceable. The site will continue to provide opportunities for public events, education, volunteering and to demonstrate the Trust's approach to management.

The site's extensive network of rides and paths will be suitably managed to encourage safe, enjoyable access wherever possible. Infrastructure such as signs, bridges, boardwalk and steps will be strategically sited to enable visitors to navigate safely around the site and feel secure.

When managing all aspects of the site, public access will be considered as well as the requirements of wildlife.

Archaeological Features:

Archaeological features within the woodland will be protected during woodland operations and where possible their setting and condition will be enhanced. The key priority will be protection, visual enhancement and continued interpretation of the Faesten Dic Scheduled Monument (SM) which runs for over 1.67km through Joyden's wood. This will be done in consultation with Historic England. The current long-term intention is for sections of the Faesten Dic to be kept clear of trees and scrub and for any trees that could be windblown to be felled before that may occur to prevent damage by the root plate being displaced. Wider opening of this feature may lead to erosion from cycling and excessive foot traffic.

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

Nearly the entire wood is classified as a Plantation on Ancient Woodland Site (PAWS) along with smaller areas (22 ha) of Ancient Semi Natural Woodland (ASNW) in the main block of Joyden's Wood adjacent to Northfield Road (subcpt 5g) and in Gattons Plantation (subcpt 3a). Only five hectares of the wood is not included in the Ancient Woodland Inventory, which comprises parts of subcpt 2f and the southern part of 6d.

In the 1950's, the Forestry Commission cleared much of the native woodland vegetation and planted the whole area with mainly Corsican pine, Scots pine and broadleaves such as beech and red oak. Conifers are still in abundance today at Joyden's although thinning operations between 1990 and 2014 removed a proportion of the conifer component. Within the PAWS zones, Corsican pine still dominates the upper storey, although a wide range of broadleaf species (both native and non-native) are starting to colonise the lower and mid storey layers. Plantation beech is also a feature of the PAWS zones. Within the PAWS zones ancient woodland features are not extensive although there are pockets of hazel coppice near the Faesten Dic as well as the occasional clump of small-leaved lime, old coppice stools and isolated veteran oak trees. As well as the Faesten Dic which is a Scheduled Monument a variety of other unscheduled archaeological features such as dene holes, lynchets and banks are scattered throughout the woodland.

The ground flora has become severely depleted since the 1950's with heavy shading and needle drop from the conifer cover, and coarse species such as bramble and bracken are dominant through much of the wood. However, the extensive Rhododendron invasion has now been controlled through a spraying programme carried out between 2010-2015 across the whole site. Localised patches of Japanese knotweed were also targeted.

There are several ponds within Joyden's Wood and two ponds in Gattons Plantation which are invaluable for wildlife such as invertebrates, bats, birds, and amphibians.

There is a small area (1.9 ha) of restored open habitat in the centre of Joyden's Wood. The area supports valuable lowland heathland and acid grassland communities. Part of the area which comprises acid grassland is the location of the picnic site. The open ground was formerly planted with conifers in the 1950's and 60's which were removed by the Woodland Trust in the 1990's. The area currently supports a variety of heathland specialist species including a good sward of heather (*Calluna vulgaris*) and gorse. Although in some areas, the gorse has become overgrown and is encroaching into the heather areas. The more open landscape of this area provides a complete contrast to the rest of the woodland and acts as a focus area for woodland users who often stop to sit and appreciate the views.

Like many woodland sites across the country, Joyden's Wood is affected by tree diseases. The Corsican pine is all affected to varying degrees by *Dothistroma* needle blight (red band needle blight) while ash dieback (*Hymenoscyphus fraxineus*) is evident in much of the ash. The site was surveyed for sweet chestnut blight in 2017 and no evidence of the disease was found. However, young sweet chestnut in localised areas in the Joyden's Wood, appear to be suffering from a form of *Phytophthora*. Acute oak decline (AOD) is also present in neighbouring Chalk Wood. Oak processionary moth (OPM) has been spreading outwards from central London and Joyden's Wood lies within the Control Zone. Selected sites within the Control Zone are routinely checked for signs of nests, although no nests have been found in Joyden's Wood to date.

Significance

The amount of ancient woodland left in Britain has been drastically reduced over the last century. Approximately 40% of England's ancient woodland is found in the South East. Ancient woodland 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. In a heavily wooded area where woodland has become fragmented, larger areas of woodland are able to withstand external pressures such as climate change much better. Ancient woodland is irreplaceable and the prevention of its loss is one of the main aims of the Trust. Joyden's Wood has 130 hectares of PAWS and ASNW which, in a landscape scale context, is very rare and unique in Dartford and Bexley, as most of the surrounding once-wooded area has been developed or otherwise lost through deforestation.

Opportunities & Constraints

Opportunities:

- Extracting coniferous timber will still be economical for at least the next 15 years and this revenue will help to pay for restoration work.
- The sale of timber helps to support the local timber market.

Constraints:

- Loss of the conifers will change the look and feel of Joyden's in the long-term and this could be unpopular with some local people, although the gradual nature of this process should make this a minor concern.
- Particular species of wildlife may be disadvantaged by loss of conifers, e.g. birds such as crossbill, goldcrest and firecrest but these species also utilise broadleaf habitat so are able to adapt.
- Disturbance to the public during felling/thinning operations and from temporary closure of sections of footpath/track network.
- Safety issue from decline/death in ash trees along paths and the woodland perimeter due to ash dieback disease.
- The steep topography and access constraints can make some compartments quite difficult to work.
- Past timber felled to waste has been used extensively to construct unauthorised mountain bike jumps and obstacles which is posing a safety and management issue.

Factors Causing Change

- Natural regeneration within the PAWS zones changing the component structure towards a higher percentage of broadleaf species.
- Uncontrolled spread of invasive non-native species such as cherry laurel, rhododendron and cotoneaster outcompeting native flora.
- Spread of coarse species such as bramble and bracken outcompeting woodland specialist species.
- Extensive natural regeneration by non-native broadleaves such as red oak, Robinia and Norway maple outcompeting other native species in part of the wood.
- Wildfire
- Pest & diseases resulting in loss or damage to trees. Ash dieback (*Hymenoscyphus fraxineus*) is likely to have a significant impact on the population of ash trees within Joyden's Wood over the next decade.
- Climate change - greater increase in extreme events has the potential to cause woodland restructuring (i.e. windblow during storm events or wildfire during periods of drought).
- Increasing levels of use of the wood by mountain bikers is creating an extensive network of unofficial trails and paths throughout the woodland and causing local areas of erosion on steeper slopes.

Long term Objective (50 years+)

The restoration of PAWS is a key objective of the Woodland Trust's work strategy. Within the long term (50 year's +) the PAWS areas within Joyden's Wood should all be predominantly broadleaved in character with less than a 20% conifer component. All ancient woodland components, such as specialist woodland flora, ancient trees, deadwood and archaeological features will be rated as restored or secure and any threats to their survival such as competition from invasive species such as Rhododendron or competition from coarse species such as bracken and bramble will have been removed or significantly reduced. The resulting mixed stands of high forest will be managed on a continuous cover silvicultural system to produce uneven-aged, self-regenerating stands of high conservation and amenity value.

The semi-natural woodland areas managed by minimum intervention will develop through natural processes such as canopy collapse followed by natural regeneration. As a result, there will be an increasing volume of coarse woody debris (standing and fallen) throughout the site.

The programme of ride management will develop a network of rides throughout the wood, supporting a diverse herb and grassland community rich in invertebrate interest and providing connectivity for wildlife to move through the wood.

Heathland habitats have been declining rapidly since the 1800's and remaining areas are generally regarded as habitats of local, national and international importance. Acid grassland and lowland heath are both UKBAP and Kent BAP priority habitats and the area within Joyden's is recorded on the Priority Habitat inventory for England. Kent has 145 hectares of heathland, 70% of which occurs on just four sites (Dartford Heath, Blean Woods, Bedgebury Woods & Hothfield Common) so the small area in Joyden's is an important contribution and lies close to Dartford Heath.

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

This plan period will have a management regime aimed at thinning and extraction for restoration of PAWS zones. Prescriptions to manage the woodland area and associated features during this plan period, to progress PAWS restoration and maintain the woodland habitat features in good condition, will include:

- Joyden's wood will be divided into three working blocks (encompassing the PAWS Zones) where the PAWS zones will be worked in different years to minimise disturbance to woodland users/wildlife and address EPS requirements. Thinning will aim to remove up to 30% of the conifer component, targeted at opening up the best areas of broadleaf regeneration within the lower/mid storey. The three blocks will be worked as follows:

- the far west (subcpts 4d, 4e, 6a, 6b, and 6c) will be thinned in 2019/20;
- the north (subcpts 2b, 2c, 2d, 2e, 2g, and 2i) will be thinned in 2021/22; and
- the central region (subcpts 5b, 5c, 5f, and 5h) will be thinned in 2023/24.

- 1.0 ha of plantation beech in compartment 2i, will have up to 20% of stems selectively thinned in 2021 to reduce the excessive shading to the ground flora. Thinning will focus on areas where woodland specialist species would benefit from greater light levels (e.g. bluebell stands).

- Compartments that are almost completely dominated by dense bramble and bracken require coarse vegetation management to allow natural regeneration of native woodland flora a chance to establish. Use a technique (cutting, whipping, or rolling) suitable to the subcpt area and terrain

within PAWS subcompartments 2c, 2d, and 2e (detailed below). Hand cutting and whipping may be carried out by volunteers.

- subcpt 2c (0.6 ha) - due to the higher elevation of the central area of conifers, this subcpt will only undergo manual treatment; whipping in 2019, 2021 and 2022.
- subcpt 2d (1 ha) - this subcpt is to undergo machine rolling in 2019, 2021, and 2022. Areas not accessible by machine will be hand cut/whipped by volunteers.
- subcpt 2e (1.3 ha) - this subcpt will undergo machine rolling in 2019, 2021, and 2022.

- Carry out 925m of rotational ride management along key tracks and paths. In 2020, widen and cut scallops along east/west rides between 2b/2e (175m) and 5h/6b (225m). This will create structural diversity and benefit areas of tracks which are prone to becoming muddy. In 2022, re-cutting existing scallops which have become overgrown or cutting new scallops along rides that have previously been managed will take place. This includes the main track between subcpt 4a/5c (100m) as well as the main track between 2g/5d (250m). The main east/west ride through Gattons Plantation (175m) will also be managed at this time.

- Carry out Rhododendron control by spot spraying within Sands Spinney (subcpt 1a, 1.41 ha) and Japanese Knotweed control by injecting plants within (subcpt 2f) in 2019. Volunteers to pull up rhododendron along the southern boundary of Gattons Plantation as well as regularly survey site for rhododendron, and pull/cut individual specimens encountered. Any large areas or larger bushes needing sprayed, is to be reported to Site Manager for follow-up.

- Obtain a report from the biological records centre for Joyden's, Gattons and Sands Spinney to help identify any features requiring special protection during woodland operations and to assist in the 2019 site interpretation plans.

- Carry out rotational scrub control and coppice on no more than 30% of the willow around the perimeters of the ponds in compartment 6 in the winter months (1st November to 31st January) of 2019/20, 2021/22, and 2023/24.

- Monitor the heather sward for signs of degeneration and start a programme of rotational management whereby 20% of the heather area is mown/cut every 5 years to maintain in a 25-year heather cycle and manage gorse on a 12-15 year cycle.

5.2 Archaeological Feature

Description

Joyden's Wood contains evidence of a number of archaeological features, chief amongst these being the Faesten Dic (pronounced feston ditch and meaning strong ditch), a 1.67km long, frontier earthwork believed to have been built between the fifth and sixth centuries AD during which time the Anglo-Saxon Chronicle records tribal warfare in the Bexley area. The most heavily defended sections lie on the higher ground towards the southern and northern ends of the monument and comprise a large, originally V-shaped ditch up to 8m wide. This has become partially infilled over the years, but remains visible to a depth of up to 2m in places. The Faesten Dic earthwork is a Scheduled Monument (under the Ancient Monuments and Archaeological Areas Act 1979) and is monitored by Historic England.

There are a number of other earthwork features, many of which were recorded last century (archaeological survey 1999). These earthworks include 'hut' sites, lynchets or Celtic field systems, trackways, wells and 'Deneholes'. There is a medieval dwelling known as the King's Hollow in the northern part of compartment 2a, a sunken lane in compartment 2c and an archaeological structure known as Hadlow Well, a hollow over 8m in diameter, in compartment 4e. Joyden's Wood also contains evidence of more modern history from the second world war. A line of bomb craters can be found across the wood believed to be from a plane jettisoning its bombs during the London Blitz and two Hawker Hurricane planes were shot down over the wood in 1940. Whilst the original remains of the planes have long since disappeared, a wooden sculpture was installed in the picnic area to mark the history of the latter event.

Significance

The archaeological features of Joyden's Wood provide evidence and chart the history of the site dating back to the Iron Age. Of greatest significance is the Faesten Dic which is a Scheduled Monument and the Trust is required to ensure its preservation. The Faesten Dic is a unique ancient structure. It is a visitor attraction for the site and a source of educational interest. However, the unscheduled features are also a significant component of the ancient woodland, in a similar way to the remnant ancient woodland flora. The associated archaeology -such as the woodbanks and deneholes - while not designated, help to improve our knowledge and understanding of the wood and form an important part of the woods' heritage.

Opportunities & Constraints

Constraints:

- The Scheduled Monument restricts what type of management can take place in the vicinity of the Faesten Dic and consent is required for tree works along the earthwork.
- Mechanised extraction of timber felled on/near the Dic is not appropriate, although machines can lift material from the scheduled area.
- Numerous deneholes are scattered across the site with possibly more not yet found which poses a potential safety hazard/restriction for forestry operations.
- Unscheduled archaeological features need to be safeguarded during forestry operations.

Opportunities:

- Scope to improve knowledge, setting and protection of archaeological features.

Factors Causing Change

- Damage by unapproved horses, motorbikes, mountain bikes etc. on site
- Rootplate damage from windblown trees
- Scrub and bracken encroachment.

Long term Objective (50 years+)

Protection and management of the Faesten Dic will be carried out in consultation with Historic England. The Faesten Dic could be further opened up at strategic areas by removing trees along the ditch and bank to both protect the monument and to integrate it into the landscape and public enjoyment of the site, but care will be needed to prevent further development of unapproved cycling routes and misuse of the feature. On site interpretation will help to explain the significance of the site to the public. Opportunities that arise to carry out further fieldwork into the unscheduled archaeological features to improve the understanding of the features and their relationship to history of the site will be explored. Therefore, as understanding of site features increases so too will the long-term protection of the features through such things as more targeted management and planning of silvicultural operations.

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

During this plan period, the Woodland Trust will continue to manage the SM (Faesten Dic) in line with the recommendations of Historic England. This will be achieved through:

- Ensure on-going protection of designated features through the Environmental Assessment process carried out prior to operations. Provide contractors with constraint maps and special instructions prior to work commencement. The contract manager to also check-in with the contractors throughout the operations for compliance.
- Consultation with Historic England on the key areas of the Faestens Dic to target tree and scrub removal. Removal of scrub will be carried out by volunteers targeting one subcpt each year (subcpt 2d, 2e, 5c, 6c, 6d). Tree removal will align with the dates for the planned thinning in each subcpt, wherever possible:
 - subcpt 2d and 2e in 2021
 - subcpt 6c and 6d in 2022
 - subcpt 5c in 2023
- If applicable, prepare and submit SM consent to carry out target restoration and maintenance work over the next 5-10 years. Note: forestry works within the scheduled area which don't disturb the ground will not need SMC. So, for example, if thinning or felling can be carried out in such a way as to avoid any ground disturbance (by keeping machinery off the scheduled area, by directional felling and by avoiding dragging of felled timber) then such works can be carried out without the need for consent.
- Annual inspections of the Faesten Dic will be carried out by the Site Manager or Assistant Site Manager in areas where trees, scrub, and bracken have been removed (2d, 5c, 5h) to ensure that areas remain clear of encroachment. Regeneration will be removed as required.

5.3 Connecting People with woods & trees

Description

Joydens Wood is a 135 ha (333 acres) PAWS woodland part of the Welcome Sites Programme (WSP). The WSP is a Woodland Trust initiative which aims to improve recreation and access provision at our key sites. 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 this site. An attractive and serviceable network of tracks and paths will further encourage the appreciation of the woodland. 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 where appropriate. 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.

The boundaries of the site cross into both the London Borough of Bexley and the Dartford Borough Council, Kent. There are nearly 350,000 people living in the two boroughs and as many as 60,000 living in the nearby areas of Swanley, Bexleyheath, Crayford, and Sidcup. The site has good bus transport links to the town of Bexleyheath via the B12 bus route, which stops adjacent to the Summerhouse Drive entrance to Joydens Wood. The nearest rail station is in the village of Bexley, which can be accessed on the same bus route or by walking approximately one mile from the northern boundary of the wood to the station. Joydens Wood currently is heavily used by local visitors, and boasts an active weekly work party led by the Woodland Trust volunteer group known as the Joydens Wood Support Group.

There is a combined total of approximately 13 km of paths and bridle paths through Joydens Wood which are generally wide and easily accessible. Some are hard surface gravel tracks that are suitable for wheelchairs and pushchairs under dry conditions. There are two waymarked walking routes - the red route and the blue route as well as a permanent orienteering course which is overseen by the Dartford Orienteering Klubb (DFOK). The site is popular with casual walkers including people exercising dogs as well as people wishing to enjoy an area of tranquil woodland. Many circular walks are possible and much longer walks, including the London Loop footpath, connect to this site. One such walk is advertised in the Woodland Trust's 'Let's Get Walking' guide. There are just over 4km of permissive bridle paths looping around the west and southern areas of the woodland. A rider permit scheme is in place, administered by the local Mount Mascals Stables.

There are three schools in the neighbouring community - the Joydens Wood Infant School, Joydens Wood Primary School, and Maypole Primary School. A further five schools are just over one mile away, including Wilmington Primary, Wilmington Academy, and Wilmington Grammar School for Boys as well as Hextable Primary School and Broomhill Bank Secondary School.

At the moment, volunteering is the main people engagement activity at Joydens Wood. The nearly 30 members of the Joydens Wood Support Group undertake activities throughout the year, including trail maintenance, litter picking, small scale coppicing, fence fixes, clearing encroaching birch from the heather area and various other tasks agreed with the Site Manager.

There are a number of smaller Woodland Trust sites in close proximity to Joydens Wood, including Hollows Wood next to the M25 Junction 4 and Saxtens & Cages just off the M20, near to Brands Hatch. Slightly further afield is Ashenbank, another category A woodland in the Welcome Sites

Programme, which is approximately 10 miles to the east.

Under the WSP and the People's Postcode Lottery funding secured for 2019, it is hoped that the visitor experience will be enhanced at Joyden's Wood. The community local to Joydens Wood will be encouraged to visit Joyden's Wood to enjoy the upgraded visitor infrastructure in the short term and will be invited to new public events which the Woodland Trust hope to launch at the site in the medium term.

Significance

Joydens Wood provides a large woodland escape for recreational purposes in an urban area within close proximity to London. There is an excellent network of paths, interesting historical features, and permissive bridle paths, all in a diverse woodland setting. All of this helps to enhance the enjoyment of visitors and encourage the public to visit the site.

Second only to Langley Vale Wood, Joydens Wood is the second largest Woodland Trust site inside of the M25. It is a short 13 miles from the heart of London. Its size and close proximity to the city centre, provides a number of partnership opportunities not afforded by many other Woodland Trust sites in the southeast.

Opportunities & Constraints

Constraints:

- No formal car parking, which can cause problems with neighbours if large numbers of visitors are parking on local roads.
- Anti-social behaviour - motor cycles, dog fouling and vandalism to signs, structures, and trees detracts from the value of this site for informal public access.
- Mountain bikers building and riding trails which damage the woodland and cause conflict with other site users.
- Unpermitted camp fires have caused wildfire on several occasions in the past. This is a fire safety risk to site users and the local community.
- Walkers exceeding the 4 dogs per person limit can lead to uncontrolled dogs on site, which can create conflict among site users.

Opportunities:

- As it is in a built up area, it provides an escape into nature for the local community.
- The bus transport links to nearby villages, towns, and train stations make it easy for people from closer by and further away (mainly London) to access the site.
- High usage of the site could hold opportunities for the membership team.
- The size of the site and proximity to London may make it a suitable Dedications site.
- Develop relationships with the nearby schools to promote connecting children to nature.
- Using onsite interpretation, to encourage more families to enjoy the site.
- Raising awareness among the local community about the benefits of woodland management can help increase support and tolerance of woodland operations.

Factors Causing Change

- Fly-tipping, human-caused fires, dog-fouling, damaging mountain-biking, and high numbers of dogs.
- Increased visitor numbers could result in increased likelihood of damage to the site from misuse.

Long term Objective (50 years+)

Joydens Wood will continue to offer a high quality visitor experience in line with its Welcome Site Programme (WSP) designation within the Woodland Trust. Free and open access will continue to provide the local community and surrounding area, a well maintained site of walking paths, bridle paths, entrance infrastructure, and on-site interpretation. As a large PAWS site with significant historical features, Joydens Wood will continue to provide opportunities for educational events and woodland experiences within travelling distance from central London.

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

During this plan period the short term objective is to provide a high quality experience for visitors which is safe and enjoyable and to maintain volunteering capacity.

- Approximately 13km of paths and entrances will be maintained twice a year in May and July/August to allow continued access across the site. This will include strimming of ride edges and cleaning/repairing entrance signage and infrastructure as required.
- Regular tree safety inspections - annual for Zone A and at least every 3 years for Zone B - and the follow on tree safety work will be carried out as needed. Public and volunteer reports of hazardous trees will also be followed up and addressed as necessary.
- Entrances and signage at Ferndell Avenue and Summerhouse Drive will be updated and a high level access disability kissing gate to allow for various mobility aids will be installed in 2019.
- Increase public engagement activities at Joydens Wood by piloting organised walks, waymarked educational trails, promoting existing orienteering course on Woodland Trust online and/or print communications.
- In cooperation with the Regional Development Officer, consider hosting at least one legacy event at Joydens Wood.
- Launch Joydens as a Dedications site by the end of 2021.
- Continue to permit organisations such as the Dartford Roadrunner and the DFOK to host public events at Joydens Wood.
- Continue to work with the Joydens Wood Support Group on effective management of Joydens Wood, by carrying out Work Programme items suitable for volunteers that do not require power tools. This includes, but is not limited to: litter picking, minor trail maintenance, small-scale coppicing, clearing birch encroachment from the heather area, cutting gorse, removing rhododendron regrowth, bashing bracken, fence repairs, camp clearing, and helping/educating visitors.
- Through the Volunteer Development Officer, support new volunteer recruitment and offer new/existing volunteers training and volunteer networking opportunities.

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	1.41	Corsican pine	1909	Min-intervention	Gullies/Deep Valleys/Uneven/Rocky ground, No/poor vehicular access to the site, Sensitive habitats/species on or adjacent to site, Services & wayleaves	Archaeological Feature, Connecting People with woods & trees	Green Belt, Tree Preservation Order
<p>Isolated outlier known as Sands Spinney with very limited access. The stand was planted in 1909 with Corsican pine and Scots pine, now dominated by mature Corsican pine and sycamore. Beech is also present and there are some good specimen trees and the occasional standing deadwood veteran oak. An electricity power line cuts this compartment in half where sycamore has been coppiced along the wayleave. The understory contains elder, sycamore, beech, holly and yew with a bramble and ivy dominated ground flora although bluebells are present in places. There is small clump of small leaved lime trees close to the wayleave which is most likely derived from planting. Scattered laurel and Rhododendron are present. A very extensive badger sett occupies the southern end of the compartment.</p>							
2a	7.65	Beech	1951	Min-intervention	Archaeological features, Housing/infrastructure, structures & water features on or adjacent to site, Very steep slope/cliff/quarry/mine shafts/sink holes etc	Archaeological Feature, Connecting People with woods & trees	Ancient Semi Natural Woodland, County Wildlife Site (includes SNCI, SINC etc), Green Belt
<p>Large stand of mainly mixed broadleaves which was planted by Forestry Commission in 1951. Tree species include beech, silver birch, sweet chestnut and red oak. Ground flora contains bramble, honeysuckle and wood sage. Rhododendron has been treated by spraying. A mature London plane tree forms a character tree adjacent to the path on south-west side of the compartment.</p>							

2b	5.19	Corsican pine	1961	PAWS restoration	Archaeological features, Sensitive habitats/species on or adjacent to site	Archaeological Feature, Connecting People with woods & trees	Ancient Semi Natural Woodland, County Wildlife Site (includes SNCI, SINC etc), Green Belt
<p>Main component of this stand is Corsican pine planted in 1961 and was last thinned in 2008. Corsican pine dominates the subcpt at 45% overall and as much as 75% in the southern two thirds of the sub compartment. Bramble and bracken dominate the ground flora under the pine. Sweet chestnut is abundant in the understory and frequently reaching the upper canopy. Other tree species in rare numbers include red oak, sessile oak, whitebeam, and wild cherry. Regenerating sycamore, holly, hawthorn as well as the rare elder and yew form the shrub layer. There are several old internal woodbanks within this stand and evidence of human caused fire (most recently in spring 2018).</p>							
2c	5.41	Beech	1951	PAWS restoration	Very steep slope/cliff/quarry/ mine shafts/sink holes etc	Archaeological Feature, Connecting People with woods & trees	Ancient Semi Natural Woodland, County Wildlife Site (includes SNCI, SINC etc), Green Belt
<p>This block was originally planted by the Forestry Commission in 1951 with Japanese larch and Corsican pine which has been thinned in 1990, 1991, 2006, 2007, and 2010. There is approximately 20-30% conifer canopy in this block. The subcpt can be split into two main sections. The north-eastern half is predominantly beech with some pole stage sycamore and a small component of ash and the southwestern half is dominated by conifer. Corsican pine is the main species and red oak is the secondary species in this half. The remainder of the canopy species is a mix of silver birch, sweet chestnut, sycamore and sessile oak. There are a handful of Lawson cypress regenerating and a small number of young yew trees. Sparse hazel, holly and hawthorn shrubs are present in the understory. Evidence of two fire events; one approximately 10-15 years ago and a second in 2017. Bramble and bracken are predominant especially in the fire damaged areas.</p>							
2d	6.94	Corsican pine	1963	PAWS restoration	Archaeological features, Sensitive habitats/species on or adjacent to site	Archaeological Feature, Connecting People with woods & trees	Ancient Semi Natural Woodland, County Wildlife Site (includes SNCI, SINC etc), Green Belt

Corsican pine planted in 1963 dominates the upper storey throughout much of the subcpt and is generally denser, although more mature broadleaf is present along the Faesten Dic with silver birch, sessile oak and sweet chestnut predominating. To the east of the Faesten Dic there is good regeneration of broadleaf species in the lower storey comprising sessile oak, birch, beech, sweet chestnut, red oak, rowan, ash and wild cherry. Holly, hawthorn, goat willow and hazel add to the shrub layer. Broadleaf regeneration is less developed to the northwest of the Faesten Dic where the Corsican pine is denser and bracken dominates the ground flora. There are occasional patches of bluebell and lily of the valley. Localised areas of young sweet chestnut have been affected by Phytophthora. The majority of Rhododendron in this compartment has been effectively eradicated by spraying.

2e	6.01	Corsican pine	1963	PAWS restoration	Archaeological features, Sensitive habitats/species on or adjacent to site	Archaeological Feature, Connecting People with woods & trees	Ancient Semi Natural Woodland, County Wildlife Site (includes SNCI, SINC etc), Green Belt
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Corsican pine plantation established in 1963 and remains as approximately 65% of the canopy in the west and 85% of the canopy in the east. The stand was last thinned in the west in 2004 and the east in 2008. The area west of the Faesten Dic is showing strong regeneration with a mix of sweet chestnut, sessile and pedunculate oak, birch, sycamore, rowan, red oak, whitebeam, willow, hawthorn, and holly. 0.5ha in the southeastern portion of the subcpt burned 5-7 years ago, which has affected the vertical structure. Bracken is thick in this area, but lily of the valley, wild sage, willow herb, and herb Robert were present in the ground flora as well.

The area to the east of Faesten Dic has a higher density of bracken and bramble and regeneration is much weaker than in the west half of the subcpt. Around the edges, tree species such as birch, sweet chestnut, oak, cherry, sycamore, beech and red oaks are present as well as shrub species such as hazel and holly. In the area thinned in 2008, where regeneration is limited, the understory is mainly rowan with the occasional yew and occasional sweet chestnut, while the overall the understory is sparse.

2f	1.70	Birch (downy/silver)	1926	Min-intervention	Housing/infrastructure, structures & water features on or adjacent to site, Mostly wet ground/exposed site	Archaeological Feature, Connecting People with woods & trees	County Wildlife Site (includes SNCI, SINC etc), Green Belt
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Former derelict waste site, this sub-compartment is not included in the ancient woodland inventory. The upper storey is dominated by birch with occasional sessile oak and sycamore. The understory contains sycamore, rowan, sweet chestnut with occasional yew and hazel. A few tubes have been planted with saplings of rowan and cherry to block off access following the asbestos clearance. The more disturbed area of the stand on east side contains pioneer species such as goat willow. There was Japanese knotweed present here in 2010 but it has now has been controlled. The site has been cleared of asbestos but is still littered with rubble, glass and metal. A badger sett is present.

2g	5.97	Corsican pine	1967	PAWS restoration	Sensitive habitats/species on or adjacent to site, Very steep slope/cliff/quarry/mine shafts/sink holes etc	Archaeological Feature, Connecting People with woods & trees	Ancient Semi Natural Woodland, County Wildlife Site (includes SNCI, SINC etc), Green Belt
<p>Corsican pine, planted 1967 dominates the upper storey (60-70%) intimately mixed with sessile oak and birch in places. There is good lower storey regeneration of broadleaves including sessile oak, ash, willow, rowan, Norway maple, sycamore, sweet chestnut and holly. Ash is particularly prominent along path boundaries where the conifer has been removed. Bramble is present throughout the subcpt along with bracken, although lily of the valley can also be found in localised areas. There is an invasive non-native threat along the eastern boundary from garden escapees including cotoneaster and Montbretia (Coppertips).</p>							
2h	2.18	Sweet chestnut	1926	Min-intervention	Archaeological features	Archaeological Feature, Connecting People with woods & trees	Ancient Semi Natural Woodland, County Wildlife Site (includes SNCI, SINC etc), Green Belt
<p>Formerly combined with subcpt 2f. Mixed broadleaved stand where the upper storey is dominated with birch and sweet chestnut with a component of sessile oak. The lower storey supports sycamore, beech, rowan with occasional holly and yew. Some mature oak standards and chestnut coppice stools also form a feature within the compartment. The ground flora is dominated by bramble and nettle, but lily of the valley is also present. Small patches of laurel are scattered within the subcpt. A few saplings of hawthorn have been planted in tubes adjacent to the path.</p>							
2i	2.27	Beech	1951	PAWS restoration	Archaeological features	Archaeological Feature, Connecting People with woods & trees	Ancient Semi Natural Woodland, County Wildlife Site (includes SNCI, SINC etc), Green Belt
<p>Formerly a part of subcpt 2b. This subcpt is predominantly closed canopy, plantation beech, with Norway maple, sycamore, oak, and birch. There are occasional shrub height yews and the rare hazel, but the understory layer is mostly absent under the beech. The ground flora is dominated by bluebell and wood anemone in this area.</p>							

3a	14.44	Pedunculate/common oak	1911	Min-intervention	Archaeological features, People issues (+tve & -tve)	Archaeological Feature, Connecting People with woods & trees	Ancient Semi Natural Woodland, County Wildlife Site (includes SNCI, SINC etc), Green Belt
<p>Woodland known as Gattons Plantation. Main entrance to this wood is from the west side, off Cocksure Lane. There are several small ponds which have been opened up in the past. Mixed broadleaved structure of sweet chestnut, oak, sycamore, ash and field maple with holly and yew in the shrub layer. Robinia (black locust) is regenerating freely in the northeast where it accounts for up to 20% of the canopy. A few specimens of Turkey oak are also present. Ground flora dominated by bramble and bracken but specialist woodland plants can be found, most notably wood spurge, spurge laurel and bluebell. Some established patches of rhododendron are also present.</p>							
4a	4.17	Beech	1958	Min-intervention	People issues (+tve & -tve), Very steep slope/cliff/quarry/mine shafts/sink holes etc	Archaeological Feature, Connecting People with woods & trees	Ancient Semi Natural Woodland, County Wildlife Site (includes SNCI, SINC etc), Green Belt
<p>Predominantly beech plantation woodland, established in 1958. Minor species include sweet chestnut coppice regrowth, sessile oak, holly and yew.</p>							
4b	3.76	Beech	1958	Min-intervention	People issues (+tve & -tve), Very steep slope/cliff/quarry/mine shafts/sink holes etc	Archaeological Feature, Connecting People with woods & trees	Ancient Semi Natural Woodland, County Wildlife Site (includes SNCI, SINC etc), Green Belt
<p>This broadleaved stand has two distinct halves. The southern half has been felled and replanted with native broadleaves in 2000. Planted species include sessile oak, ash and sweet chestnut and there is plenty of additional natural regeneration of ash and silver birch. Retained semi-mature oak and ash standards help to give some structural variation. Ground flora is typically bramble. The northern stand is older and contains beech, sessile oak, larch and sweet chestnut planted in 1958. There is a small pond in the northern half.</p>							
4c	3.63	Sessile oak	1958	Min-intervention	People issues (+tve & -tve), Very steep slope/cliff/quarry/mine shafts/sink holes etc	Archaeological Feature, Connecting People with woods & trees	Ancient Semi Natural Woodland, County Wildlife Site (includes SNCI, SINC etc), Green Belt

<p>Mainly a stand of mixed broadleaves, planted in 1958. Main species include sessile oak, ash, hazel, sweet chestnut and silver birch. Japanese larch is an occasional species as well as western red cedar. Bramble covers much of the ground.</p>							
4d	4.95	Sweet chestnut	1959	Min-intervention	People issues (+tve & -tve), Very steep slope/cliff/quarry/mine shafts/sink holes etc	Archaeological Feature, Connecting People with woods & trees	Ancient Semi Natural Woodland, County Wildlife Site (includes SNCI, SINC etc), Green Belt
<p>Mixed stand containing clumps of Corsican pine (planted 1959) which are more prevalent on the upper slopes of the eastern side. Sweet chestnut tends to be dominant in the broadleaved areas with a birch component. Small-leaved lime is also present. The ground is typically brambly but ancient woodland indicator species are present including swards of Wood Melick.</p>							
4e	3.15	Corsican pine	1959	PAWS restoration	Archaeological features, People issues (+tve & -tve), Sensitive habitats/species on or adjacent to site	Archaeological Feature, Connecting People with woods & trees	Ancient Semi Natural Woodland, County Wildlife Site (includes SNCI, SINC etc), Green Belt
<p>Corsican pine planted in 1959 dominates the upper storey through much of the sub-compartment with a small component of Hybrid larch (<1%). The dominance of Corsican pine ranges from 50% to 95% across the sub-compartment. A mid-storey of broadleaves is developing with sweet chestnut and birch dominant among ash, sessile oak and rowan. The lower storey also supports holly, aspen, sycamore and Norway maple and yew. There is a well established ground flora community in localised areas comprising wood melick, bluebell and Lily of the Valley especially where bramble and bracken is absent.</p>							
5a	4.48	Beech	1960	Min-intervention	Very steep slope/cliff/quarry/mine shafts/sink holes etc	Archaeological Feature, Connecting People with woods & trees	Ancient Semi Natural Woodland, County Wildlife Site (includes SNCI, SINC etc), Green Belt
<p>The northern half is dominated by beech planted in 1960 which is regenerating very well, and also sweet chestnut coppice regeneration and silver birch. There is a sparse understorey with some holly. The southern half is a much younger woodland, planted in 1991 following storm damage. Species planted include sessile oak, sweet chestnut and wild cherry with birch regeneration. Rhododendron has been treated in this compartment.</p>							

5b	3.36	Corsican pine	1960	PAWS restoration	People issues (+tve & -tve), Sensitive habitats/species on or adjacent to site	Archaeological Feature, Connecting People with woods & trees	Ancient Semi Natural Woodland, County Wildlife Site (includes SNCI, SINC etc), Green Belt
<p>Stand of mainly Corsican pine planted 1960. Also contains a small block of western hemlock (0.1ha) which is also naturally regenerating in abundance underneath the pines. Ground layer consists of mainly bramble and bracken with patches of bluebells on the broadleaf edges of the stand. There is only occasional natural regeneration of broadleaves (sweet chestnut coppice) beneath the coniferous stands and light levels are generally quite low. Old oak stumps remain on the ground from the felling and replanting. Rhododendron has been treated in this compartment.</p>							
5c	6.43	Corsican pine	1964	PAWS restoration	Archaeological features, Gullies/Deep Valleys/Uneven/Rocky ground, Sensitive habitats/species on or adjacent to site	Archaeological Feature, Connecting People with woods & trees	Ancient Semi Natural Woodland, County Wildlife Site (includes SNCI, SINC etc), Green Belt
<p>Stand is dominated by Corsican pine (~60%), planted in 1964, and last thinned in 2005/2006. A very small component of Lawson's Cypress is also present. Natural regeneration of broadleaves (birch, sweet chestnut, sessile oak, red oak, hazel, rowan, Norway maple, sycamore, cherry) beneath the canopy of the pines is extremely good and there is also coppice regrowth from mature chestnut stools which probably date back to the time when the stand was originally felled and replanted. Yew is also present. Ground flora is dominated by bramble and bracken but patches of bluebells are present in localised areas. Old deadwood stumps still persist from oak trees which were felled before the pine planting. A small component of aspen and hazel coppice can be found adjacent to the Faesten Dic especially toward the southern end of the subcpt.</p>							
5d	7.15	Beech	1958	Min-intervention	Archaeological features, Very steep slope/cliff/quarry/mine shafts/sink holes etc	Archaeological Feature, Connecting People with woods & trees	Ancient Semi Natural Woodland, County Wildlife Site (includes SNCI, SINC etc), Green Belt
<p>Large, mixed broadleaved stand consisting of beech, sycamore, Norway maple, red oak, ash and silver birch replanted in 1958. Sweet chestnut is present as coppice regrowth and there is some hazel in the shrub layer. There is also some scattered Corsican pine in places. There has been scalloping with coppicing along the main ride between 2008-2010. Rhododendron has been treated.</p>							

5e	1.90	Open ground	1990	Non-wood habitat	Archaeological features, People issues (+tve & -tve)	Archaeological Feature, Connecting People with woods & trees	Ancient Semi Natural Woodland, County Wildlife Site (includes SNCI, SINC etc), Green Belt
<p>This compartment consists of an area of restored open habitat (~1.5ha). Part of the area comprises an established heathland community dominated by mature heather and areas of gorse with a smaller acid grassland area known as the picnic area. The open area acts as focal point for visitors and breaks up the surrounding woodland landscape. Bracken and seedling birch is regenerating within the heathland community.</p>							
5f	3.93	Corsican pine	1967	PAWS restoration	Archaeological features, Sensitive habitats/species on or adjacent to site, Very steep slope/cliff/quarry/mine shafts/sink holes etc	Archaeological Feature, Connecting People with woods & trees	Ancient Semi Natural Woodland, County Wildlife Site (includes SNCI, SINC etc), Green Belt
<p>Mixed woodland containing Corsican pine, sessile oak, birch and sweet chestnut in the upper storey. The lower storey is starting to develop well with sessile oak, hazel, sweet chestnut, beech, sycamore and rowan. There is scattering of old oak stubs/coppards and halo thinning of pine in 2010 has opened up their crowns. The stand contains an outstanding specimen oak maiden with large spreading crown. Lily of the valley has been observed growing amid the ground flora however bramble, bracken and honeysuckle are starting to outcompete the native flora particularly in the pine dominated areas.</p>							
5g	7.48	Sessile oak	1964	Min-intervention	Archaeological features, People issues (+tve & -tve)	Archaeological Feature, Connecting People with woods & trees	Ancient Semi Natural Woodland, County Wildlife Site (includes SNCI, SINC etc), Green Belt
<p>Stand of mixed broadleaves with oak (including sessile), silver birch, sweet chestnut, ash, hazel and aspen. Understorey contains natural regeneration of broadleaves in the more open areas. Ground flora contains patches of bluebells but is dominated by bramble and bracken. This compartment is designated as Ancient Woodland in the Ancient Woodland Inventory but its character is more reminiscent of secondary broadleaf woodland as few ancient woodland features are evident. Although some mature sweet chestnut coppice and veteran oak trees can be seen around the woodland edge.</p>							

5h	6.54	Corsican pine	1967	PAWS restoration	Archaeological features, People issues (+tve & -tve), Sensitive habitats/species on or adjacent to site	Archaeological Feature, Connecting People with woods & trees	Ancient Semi Natural Woodland, Scheduled Ancient Monument
<p>The stand contains a high percentage of Corsican pine with a smaller component of western hemlock. The majority of this compartment was last thinned in 2005. Broadleaves (sessile oak, sweet chestnut) provide a mid-storey layer while a diverse lower storey is developing; comprising ash, sessile oak, sweet chestnut, rowan, cherry, birch, hawthorn, hazel, elder and holly. Ground flora consists mainly of bramble and bracken.</p>							
6a	1.24	Corsican pine	1970	PAWS restoration	People issues (+tve & -tve), Sensitive habitats/species on or adjacent to site	Archaeological Feature, Connecting People with woods & trees	Ancient Semi Natural Woodland, Green Belt, Scheduled Ancient Monument
<p>Stand of mostly Corsican pine planted 1970 and thinned 2007 and 2009. Very thin scattering of native broadleaf regeneration. The stand is quite dense with a lack of understory. Ground flora has some significant patches of bluebells during springtime.</p>							
6b	7.46	Corsican pine	1970	PAWS restoration	People issues (+tve & -tve), Sensitive habitats/species on or adjacent to site	Archaeological Feature, Connecting People with woods & trees	Ancient Semi Natural Woodland, County Wildlife Site (includes SNCI, SINC etc), Green Belt
<p>Mixed stand in structure and species. The scattered clumps of Corsican pine were last thinned in 2006. Corsican pine is still dominant in places mixed with ash, birch and sweet chestnut. A lower storey of ash, sweet chestnut, hazel and hawthorn is starting to develop. Much of the ground flora is bramble dominated with bracken but with a good proportion of woodland specialist species in evidence and seedling ash is regenerating freely in localised areas.</p>							
6c	4.66	Corsican pine	1970	PAWS restoration	Archaeological features, People issues (+tve & -tve), Sensitive habitats/species on or adjacent to site	Archaeological Feature, Connecting People with woods & trees	Ancient Semi Natural Woodland, Green Belt, Scheduled Ancient Monument

Mixed stand of conifers and broadleaves, with Corsican & Scots pine planted in 1970. It was last thinned in 2006. Corsican pine is dominant in the upper storey comprising 60-70% of the overall component. Broadleaves are regenerating in the lower-mid canopy primarily comprising birch, red oak and sessile oak along with rowan, sweet chestnut, aspen, holly, hazel and whitebeam in the lower storey. There is a small stand of hazel coppice near the pond adjacent to the boardwalk. Bracken is dense where the canopy is more open but there are areas where woodland groundflora is well established including swards of wood melick and lily of the valley. Two ponds form features within this subcpt where willow and hazel coppice is evident.

6d	1.87	Sessile oak	1967	PAWS restoration	Archaeological features, People issues (+tve & -tve)	Archaeological Feature, Connecting People with woods & trees	Ancient Semi Natural Woodland, County Wildlife Site (includes SINC, SINC etc), Green Belt
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Long thin sub-compartment on the SE boundary of Joyden's Wood, adjacent to golf course on the east side and mobile homes to the south. Mixed woodland with scattered clumps of Corsican pine which is no longer a significant part of the overall tree canopy. Main broadleaved species are oak (sessile), hazel, silver birch and sweet chestnut.

Appendix 2: Harvesting operations (20 years)

Forecast Year	Cpt	Operation Type	Work Area (ha)	Estimated vol/ha	Estimated total vol.
2020	4d	Thin	0.50	58	29
2020	4e	Thin	3.10	58	180
2020	6a	Thin	1.24	58	72
2020	6b	Thin	1.87	58	108
2020	6c	Thin	3.86	58	224
2021	2b	Thin	3.84	58	223
2021	2c	Thin	1.00	58	58
2021	2d	Thin	5.34	58	310
2021	2e	Thin	5.00	58	290
2021	2g	Thin	5.46	58	317
2021	2i	Thin	1.00	18	18
2023	5b	Thin	3.23	58	187
2023	5c	Thin	4.48	58	260
2023	5f	Thin	1.63	58	95
2023	5h	Thin	4.41	58	256
2028	2c	Thin	2.00	18	36
2028	4a	Thin	1.50	18	27

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.