



# Callendar Wood land management plan 2026-36



We manage Scotland's National Forest Estate to the United Kingdom Woodland Assurance Standard – the standard endorsed in the UK by the international Forest Stewardship Council® and the Programme for the Endorsement of Forest Certification. We are independently audited.

Our land management plans bring together key information, enable us to evaluate options and plan responsibly for the future. We welcome comments on these plans at any time.



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Promoting Sustainable  
Forest Management



## Version history

Version	Date	Comments
1.0	09/03/2026	Submitted to Scottish Forestry
1.1		
1.2		
1.3		



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## A. Description of Woodlands

### A.1 Property Details

Property			
Property Name:	Callendar Wood		
Business Reference Number:	70	Main Location Code:	Central Region
Grid Reference: (e.g. NH 234 567)	NS 8950 7880	Nearest town or locality:	Falkirk
Local Authority:	Falkirk Council		
LMP Plan area (hectares):	94.95		
Owner's Details			
Organisation:	Forestry and Land Scotland	Position:	Central Region
Primary Contact Number:	0300 067 6700	Alternative Contact Number:	N/A
Email:	planning.central@forestryandland.gov.scot		
Address:	Five Sisters House, Five Sisters Business Park, West Calder, West Lothian		
Postcode:	EH55 8PN	Country:	Scotland
Approval - to be completed by Scottish Forestry staff:			
LMP Reference Number: 032/26/05			
Plan Period: (10 years) (day/month/year)	From: 24/06/2026	To: 24/06/2036	
Operations Manager Signature:	<i>A Lindsay Scrymgeour</i>	Approval Date: (dd/mm/yyyy)	24/06/2026



## Declaration

**I hereby apply for a permission to fell the trees described in this application and I certify that:**

- I am the landowner or an occupier of the land with written permission of the landowner;
- Where the landowner is a business, I am authorised to sign legal contracts on behalf of that business;
- If I am acting on behalf of the landowner or occupier, I have been mandated to do so;
- Any necessary consents from any other person(s) if required, have been obtained;
- I have made the necessary checks with the local planning authorities regarding Tree Preservation Orders and Conservation Areas;
- I have notified all stakeholders that may be affected by the felling in this application and sought their views prior to submitting this application;
- I hereby acknowledge that Scottish Ministers may process any of my personal data contained in or relating to this application in accordance with the terms of Scottish Forestry's Privacy Notice, a copy of which is available at [www.forestry.gov.scot](http://www.forestry.gov.scot);
- Where applicable and appropriate I have submitted an EIA screening opinion form for operations contained within this application under the Forestry (Environmental Impact Assessment) (Scotland) Regulations 2017;
- I have read and understand this application fully and, to the best of my knowledge and belief, the information given in this application is complete, true, and accurate;
- I accept that any false or misleading information provided in this application constitutes an offence and may result in any felling permission based on this application being revoked at any time, and I have read and understand Scottish Forestry's Privacy Notice, a copy of which is available at <https://forestry.gov.scot/privacy-complaints-freedom-of-information-and-requests-for-information>

Do you give consent for Scottish Forestry to access your land? Delete as appropriate.	YES	
<p>You are not obliged to give us consent to enter your land, however if we are denied access to your land, and cannot carry out an assessment because of this, we may reject your application.</p> <p>This consent is for access to assess this application as well as monitor compliance with any subsequent approval, where applicable</p>		
Signed:	<i>Toby Austin</i>	Print: Toby Austin
Date:	16/02/2026	



## A.2 Location and Background

### Location (Map 1)

Callendar Wood is situated in the south-east of Falkirk town, within the Falkirk local authority area. It's setting is primarily urban but its north-east boundary adjoins a large parkland belonging to Callendar House. The main operational entrance is on Kemper Avenue, approximately 3km from the M9 motorway and 6km from the Port of Grangemouth. The woodland covers an area of 94.95 hectares.

### Background

Callendar Wood, the adjacent parkland and their locale have a rich and long history with indications of human activity dating from the Iron-Age through to the present day. Since 1783 the Forbes Family managed this land and developed distinct zones such as the designed parkland around Callendar House and denser policy woodland, now Callendar Wood. The latter is thought to have been present for as long as records exist and is therefore classified as a *plantation on ancient woodland site*. In 1999 it was purchased by the Forestry Commission (now Forestry & Land Scotland) and is currently managed as a public urban forest. Most of the remaining Forbes estate is now managed by Falkirk Council as a public green-space and both areas combined form a nationally recognised Garden and Designed Landscape.

## A.3 Existing Schemes and Permissions

Table 1 existing schemes and permissions

Type (e.g. Felling Permission)	Ref. No.	Details
Long Term Forest Plan	32/14/05	10 Year forest plan 15/01/2016 – 15/01/2026.



## A.4 Stakeholder Engagement

This table shows the main issues raised during stakeholder engagement and where they are covered in the plan. A more detailed record of stakeholder engagement is in [Appendix IV](#).

Table 2 stakeholder engagement details	
Scoping – Main Points	LMP Reference (section/page):
<b>Amenity value of woodland &amp; diversity of woodland landscapes with suggestions to plant more ornamental species along paths.</b> Some users felt the woodland was quite enclosed along paths and welcomed opening up of the woodland by removing windblown conifers whilst other consultees raised that the scale of plant health felling may significantly change the woodland environment.	A.6.9; B; C.1; C.2.5; C.2.6; C.2.11
<b>Concern at the level of motorised quad and trail bike activity in the woodland, and associated risks to other users.</b>	A.7.1; B; C.2.10
<b>Value of the woodland as an education resource for local businesses, charities, schools &amp; nurseries.</b>	A.7.1; B; C.2.10
<b>Interest and support for improving plant health and forest resilience.</b>	A.8; B; C.2.1; C.2.2; C.2.6; C.2.13
<b>Interest and support for improving biodiversity.</b> Some concerns on impact of grey squirrel and invasive plant species.	A.6.10; A.6.11; B; C.2.3; C.2.6; C.2.12; C.2.14
<b>Interest in historic environment &amp; support for maintaining the designed landscapes and a variety of woodland tree species .</b>	A.6.9; B; C.2.11
<b>Concerns over nutrient leaching into the Loch in Callendar Park during forest operations.</b>	A.6.5; C.2.7
<b>Some concerns about visitor infrastructure, condition of path surfaces &amp; stone size. Concerns over closing of core paths &amp; visitor access during forest operations. Some concerns about restricted access to windblown conifer areas.</b>	A.7.1; B; C.2.10



## A.5 Management Objectives and Long Term Vision

Due to an increased risk from plant pests and disease we're accelerating the transition to a principally native broadleaved woodland. We intend to remove main concentrations of high risk conifer species (spruce and larch) in one intervention and after this will revert back to our intended approach of low intensity woodland management. Our longer term vision for the woodland is illustrated in the 'Future Concept' ([Map 7](#)). The management objectives for the next 10 years are listed below.

**Table 3 overarching management objectives**

Objectives	Indicator of objective being met
<p><b>Our central focus in the short-term is to reduce plant health risks. In the long-term we'll focus management on retaining and enhancing the amenity and conservation value of the woodland.</b></p>	<p>Levels of Spruce and Larch. Presence of key strategic pests &amp; diseases. Quality and structural diversity of native woodland. Forest management systems used in the longer term. Protection of historical assets.</p>
<p><b>Transition commercial conifer stands to native broadleaves and retain a minor component of ornamental species to complement designed landscapes linked to Callendar House.</b></p>	<p>Proportion of native broadleaved woodland. Presence and management of non-invasive ornamental tree species.</p>
<p><b>Continue the control of invasive species such as Rhododendron ponticum and Himalayan balsam to enhance PAWS restoration.</b></p>	<p>Presence of invasive non-native species.</p>
<p><b>Encourage an increasing proportion of timber suitable for niche markets through appropriate silviculture and tending.</b></p>	<p>Presence of and stem quality of selected timber trees throughout the woodland. Niche marketing of these trees.</p>
<p><b>Continue to build on FLS's community and visitor management work of recent years and explore how best to add value to visitors' appreciation and understanding of Callendar Wood.</b></p>	<p>Partnership working to promote informal and educational use of the woodland. Retention of path networks. Monitoring of visitor usage levels from important 'gateways' or access points. Use of active measures to help promote crime reporting by visitors. Working with partners to disrupt anti-social behaviour.</p>



## A.6 General Site Description

### A.6.1 Geology, Soils & Landform

#### Geology & Soils

The *underlying geology* is ‘Scottish Lower Coal Measures Formation’ consisting of repeated layers of sandstone, siltstone and mudstone. Coal seams are typical in this rock type and 18 mine entries are formally recorded - all of which are now filled or capped.

Glacial till forms the dominant *surface geology* across the site with small areas of raised marine and glaciofluvial deposits occurring in the north-east.

Our own surveys identify the soils as brown surface water gleys (7bh) which is consistent with the James Hutton Institute’s assessment.

#### Topography (Map 2)

The woodland lies within a lowland landscape just south of the Forth Estuary. It occupies a gently rising, north-facing slope that extends upwards from its boundary with Callander Park. The woodland’s lowest point, ~35 metres, lies just north of the Mausoleum, whilst its highest ground reaches ~110 metres near the Hallglen residential area. Henry’s Hill forms part of this elevated zone and is quite prominent internally due to its open setting and relative topographical isolation. It, however, remains largely screened from external viewpoints by surrounding tree stands.

### A.6.2 Climate, Wind Exposure & Thinning Potential

#### Current & future climates, & thinning potential (Map 2)

The UK’s forest research agency has defined climatic zones based on accumulated temperature and moisture deficit during the growing season. Callendar Wood lies within the ‘warm moist’ climatic zone which provides favourable growing conditions for most forest species used in Scotland. In relation to wind exposure, most of the site is sheltered from the prevailing wind, with only the higher south-west corner being moderately exposed.

Climate model projections to 2080 indicate no significant changes at this location; however temperatures are expected to gradually rise and extreme weather events likely to be more frequent and this reflects broader trends across Scotland.

#### Thinning potential

Based on wind exposure and soils types, all areas of Callendar Wood have good potential for thinning.



### A.6.3 Landscape

#### Landscape & Visibility

According to NatureScot’s *Landscape Character Assessment*, this area is designated as ‘Urban’ and this reinforces the plan’s significance as a vital urban woodland and green space.

From the south, east and west, the woodland is mostly experienced at a small scale and surrounding topography screens it from wider viewpoints. From the north the wood is perceived at the medium scale and due to its slope-side situation forms a wooded backdrop to Falkirk. In the 1960s and 70s high-rise residential tower blocks were built just north of Callendar House and these partially screen the woodland from northern viewpoints.

Perhaps the most important landscapes lie *within* the woodland and include a variety of natural and designed features. This is enhanced by the range of woodland landscapes and stand compositions. There is also a clear transition between the designed open parkland surrounding Callendar House and denser forest stands of Callendar Wood. The linking trackways lined with large ornamentals and built architectural features help to connect these two landscapes.

### A.6.4 Land Use

Table 4 current land use	hectares	% of plan area
High forest	84.9	89.46
Designed Open	4.06	4.28
Successional Open	4.09	4.31
Windblow	1.9	2.00

#### Neighbouring Land Use (Map 4 & Map 6)

Neighbouring land use is predominantly urban residential with the communities of Hallglen to the south-west, Westquarter to the east, Laurieston to the north-east and Parkfoot & Woodlands to the north-west. Other surrounding land-use includes the recreational Callendar Park to the north, commercial & government offices to the north-east and Woodend farm to the south-east; the latter is now being developed for residential housing. A covered reservoir next to Woodend farm is being retained and has a connecting water pipe running along the eastern boundary of the plan.

### A.6.5 Hydrology

#### Hydrology (Map 3)

Callendar Wood has no associated watercourses but functions as a small watershed for land in the immediate vicinity. Surface water is conveyed through a network of remnant drains which run to the plan’s northern boundary, and then through adjacent woodland, before reaching:

1. the historic drainage system of Callendar Park & loch



2. a modern drainage system along Kemper avenue.

The majority of this drainage eventually feeds the catchment of Ladymill burn.

Several drains along the plan's southern boundary channel water southwards to adjacent farmland and the Hallglen residential area. This eventually feeds the catchments of Glen and Westquarter burns.

The woodland's drainage network is now mapped and protected as part of the historic landscape. While natural ageing has led to some localised blockages and areas of wet ground, there is no evidence of significant water accumulation.

There are no public or private water supply catchments within or affected by the woodland. Two covered reservoirs are present to the south (Grid Ref: NS 8846 7858 & NS 9025 7865) and fed by Scottish Water underground pipelines.

#### Potentially Vulnerable Flooding Areas (PVAs)

PVAs are catchments with a significant risk of downstream flooding where specific locations called 'objective target areas' (OTAs) are identified to deliver targeted flood management objectives and actions. The UK Forestry Standard requires that forests within PVAs are managed so that felling, fallow and young crops (<10 years old) do not exceed 40% of the catchment in any five year period. Surface water from Callendar Wood drains to four PVA catchments and associated OTAs:

- 'Grangemouth East' & 'Grangemouth West'
- 'Falkirk'
- 'Polmont, Redding & Westquarter'

There are no 'natural flood management' actions identified for these catchments and each has well below 40% forest cover. Therefore proposed operations are expected to have negligible effects on associated objective target areas.

### A.6.6 Windthrow

Windthrow is present as a small proportion of total woodland (2.2% ) and concentrated in p1970s conifer stands which were not consistently thinned.

### A.6.8 Operational Access

Public access and recreational use of the forest is described in [Section A.7.1](#).

Our main operational access is on Kemper Avenue (NS 8874 7920). Two other entrances are suitable for operational access from Glen Brae road & New Hallglen road. The forest itself is serviced by an extensive road and track network. Many tracks have been upgraded for disability/pedestrian use in the last 20 years and this will be a key consideration in prioritising which tracks to upgrade for operational usage.



## A.6.9 Historic Environment

### Designed landscape

The woodland is part of the wider designed landscape of Callendar Park, listed in Historic Environment Scotland's Inventory of Gardens & Designed Landscapes in Scotland. This designation has been afforded due to the site's silvicultural value, its high artistic and historic value and its outstanding architectural value.

The site's silvicultural value is, in part, down to the number of specimen trees and shrubs across the site, which can be categorised as either 'large and/or old trees'; 'ornamental/exotic trees' and 'ornamental shrubs'.

### *Large and/or Old trees*

There are a number of trees that have reached large size and which form visually impressive landscape features. Notable trees are: Douglas fir at the Shrubbery Road entrance; the large veteran oak & yew trees found throughout the woodland and old Beech trees on the Loch Road esker embankment.

The large Sitka spruce at the east end of the newly created all abilities path is now in poor health and could potentially become unsafe. Mixed among this Spruce are large Oak and Scots pine trees in good health.

### *Ornamental/Exotic trees*

In common with many other policy woodlands, Callendar has its share of ornamental and exotic tree species. These include Noble fir, Grand fir, Lime, Yew, Chesnut, Copper beech, Strawberry tree and Red oak. They're generally found at the sides of former carriageways and the most common carriageway species are Common lime and Yew.

### *Ornamental shrubs*

Numerous non-native and specimen shrubs have been planted within the wood including rhododendron (*Rhododendron ponticum*), Portugal laurel (*Prunus lusitanica*), Holly (*Ilex aquifolium* "Silver Queen"), and Golden Irish Yew (*Taxus baccata* "Fastigiata Aurea"). Rhododendron was planted alongside most of the carriage drives and perhaps in some woodland areas as game cover. Over the years the rhododendron spread throughout a significant proportion of the wood. Thick, impenetrable rhododendron scrub covered approx. 1/3rd the woodland area when Callendar Wood came under the management of Forestry & Land Scotland in 1999. Portugal laurel, which are confined to a few specimens alongside the west part of the All Abilities path, have grown wildly and are of large size with some overgrown limbs. There are two specimen Holly bushes in three different locations but they are not particularly noticeable within the landscape. There is one Golden Irish Yew beside the Farm Road.



The artistic, historic and architectural value of the site is evidenced by the landscaped Carriageways, Avenues and Vistas as well as architectural features such as the Category 'C' Listed Policy Wall, Kennels and Wellhead, the Water House and the Category 'A' Listed Mausoleum. This Mausoleum is particularly striking at 45 foot and built in a classical Doric style. It's not within the management area owned by Forestry & land Scotland but has been retained by Callendar Estate and is now partially obscured by surrounding mature woodland.

### Other Archaeology

As well as the features which make up the designed landscape there are several other features within the wood of historic interest, although none of these are Scheduled Monuments.

*Iron-age hill fort:* The fort occupies the east end of a ridge 110m above sea level and the ground falls sharply away into the valley of the Glen Burn to the south, and only slightly less steeply into the Forth Valley to the north. The fort is distinguished by a large perimeter ditch forming an oval-shaped enclosure 149m W/E by 77m N/S. Part of the rampart is still standing at the SE corner. No excavation has taken place on the site and so it remains undated.

*Marker Stones:* The wood is reputed to contain 39 marker stones marked 'Coal Pit', 'Pipe', 'Air-Cock' and relating to the Ordnance Survey. 21 of these have been found to date, of which the most important are those that mark old mine workings. These stones are inscribed with a date and whether the coal pit was filled in or capped. If any mine workings were ever to open up they could present some danger to public safety, especially those that have been capped. The sites of old shafts have been mapped and visitors are not encouraged unknowingly into their vicinity. The greatest danger would be to any heavy machinery working in the vicinity of a shaft. The two "Air-cock" stones are connected to one of the two water supplies from the well. Their supply went to Falkirk steeple via the Kemper avenue gate whereas the "Pipe" stones are associated with the other well supply line, and mark the route of a pipeline from there towards to Callendar house via a series of water tanks (one within Callendar Wood the rest on the Callendar Park side). The line of the pipe from the well to the house is still clear from the marker stones and where it crosses a large drain.

*Drainage system:* Callendar Wood has an extensive drainage network which is made up of recent forestry and amenity drains, older forestry drainage, natural drainage, older ditches which relate to the early earthen bank system, historic coal mining drainage and water supply channels. The drainage system is captured on Map \* – Hydrology.

*Earthen embankment at Southern boundary:* The remains of a linear embankment which runs along the southern edge of the wood. One length runs from the Farm Road to the east High



Road/Barrel Well Road junction. The second length runs from NS 891 787 to the edge of Henrys Hill. The embankment has still not been explained conclusively but it is possibly the original boundary embankment.

*Plague pit:* Locals of the site have previously reported that a Plague Pit is reputed to be located at the southern boundary near Farm road.

## A.6.10 Biodiversity

### UK Biodiversity Action Plan Priority Habitats

The plan contains the following priority habitats:

- Lowland mixed deciduous woodland
- Lowland Meadows
- Localised areas of 'Upland birchwoods' & 'Upland mixed ashwood'

### Local Biodiversity Action Plan

Falkirk's Local Biodiversity Action Plan (LBAP) has within it five specific action plans that influence management at Callendar Wood:

- Woodland
- Farmland & Grassland
- Urban
- Connecting people & wildlife
- Invasive non-native species

In addition, the LBAP identifies 'Urban Greenspace' and 'Urban Wildlife Corridors' as priority urban habitats at Callendar Wood.

There are no statutory conservation designations within or adjacent to the woodland but 'Callendar Wood & Lake' local wildlife site encompasses the whole plan area and Falkirk Council have identified several conservation & enhancement opportunities for this site; those relevant to the plan are:

- Control of invasive non-native species
- Move towards more broadleaved woodland
- Enhance native ground flora
- Enhance the neutral grassland

### Habitat connectivity

There is some potential to enhance intermittent woodland networks to the west and south of the plan. These comprise lowland mixed deciduous woodland bordering the union canal and riparian woodland along Westquarter burn. This potential is likely to be constrained by Glen Brae



road & New Hallglen road. The long term transition of Callendar Wood to predominantly native woodland is expected to improve potential but will be subject to land use pressures outside the plan.

### Priority species

The plan area supports a range of priority species that benefit from the woodland and open habitats present. The following species are identified in the LBAP and strongly associate with current habitats at Callendar Wood:

#### Woodland species

**Mammals:** Badger (*Meles meles*), Brown long-eared bat (*Plecotus auritus*), Soprano Pipistrelle bat (*Pipistrellus pygmaeus*).

**Birds:** Bullfinch (*Pyrrhula pyrrhula*), Cuckoo (*Cuculus canorus*), Green woodpecker (*Picus viridis*), Lesser redpoll (*Acanthis cabaret*), Song thrush (*Turdus philomelos*), Spotted flycatcher (*Muscicapa striata*), Tree pipit (*Anthus trivialis*), Wood warbler (*Phylloscopus sibilatrix*), Woodcock (*Scolopax rusticola*).

**Invertebrates:** Small pearl-bordered fritillary (*Boloria selene*).

**Flowering Plants:** Bluebell (*Hyacinthoides non-scripta*), Wych elm (*Ulmus glabra*).

**Ferns and Lower Plants:** Hay-scented buckler fern (*Dryopteris aemula*), Liverwort (*Plagiochilia spinulosa*).

#### Grassland species

**Flowering Plants:** Ox-eye daisy (*Leucanthemum vulgare*)

### Ancient Woodland/PAWS

The majority of the site (approx. 76 Ha) has been identified as Ancient Woodland of Semi-Natural origin (ASNW) with other notable areas, on the periphery of the plan, classified as 'plantation origin' but long established or 'LEPO' (approx. 10 Ha). Due to the sites long management history, 'native' and 'semi-natural'<sup>1</sup> characteristics vary considerably across these designations. Woodland stands with an oak dominated canopy typically have the greatest value for both attributes and are identified on Map 6 'Analysis' as *Principally broadleaves with excellent semi-natural & native characteristics*. Outside these zones, the +100 year old mixed stands with both native and non-native species generally score highly for *semi-naturalness*. From a conservation management perspective the majority of Callendar Wood is considered a 'plantation on ancient woodland' with high ecological potential for native woodland restoration. This is tempered, to some extent, by the designed landscape elements which contain non-native ornamental species linked to Callendar Park.

### Deadwood potential

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<sup>1</sup> Semi-naturalness = diverse woodland structure containing a range of tree size classes, species, stem forms and densities.



The UK Woodland Assurance Scheme (Fourth Edition) includes the following guidance: Current evidence suggests that, over the long term, deadwood (not including stumps, which are usually retained after felling) should accumulate to roughly 20 m<sup>3</sup> per hectare averaged – though not uniformly distributed – across the WMU.

Table 5 shows areas of the plan currently with high, medium and low deadwood potential:

assessed deadwood potential	area (Hectares)	future volume estimate (m <sup>3</sup> /ha)	total future est. volume (m <sup>3</sup> )
<b>High</b>	33.79	100	~3379
<b>Medium</b>	56.46	30	~1693
<b>Low</b>	0	15	0

Relatively high deadwood levels are present across the woodland, with highest densities recorded in mixed broadleaved zones regenerated in the 19<sup>th</sup> Century. These zones have both standing and fallen deadwood and a high density of veteran trees. Moderate deadwood levels are found in conifer zones, often associated with windblow.

Total future potential at Callendar Wood is estimated to be ~56m<sup>3</sup>/ha.

### A.6.11 Invasive Non-Native Species (INNS)

There has been extensive work over the last 10 years to control INNS within the woodland. The main target species were *Rhododendron ponticum* & Laurel (*Laurus sp.*), Japanese knotweed (*Reynoutria japonica*) and some invasive conifer natural regeneration (Sitka spruce & Western hemlock). The latter, although not considered to be INNS, are deemed incompatible with conservation objectives of this particular woodland. In 2024, we carried out surveys to evaluate the presence and extent of invasive species. A total of nine species were identified and mapped, each showing different levels of abundance and spatial distribution.

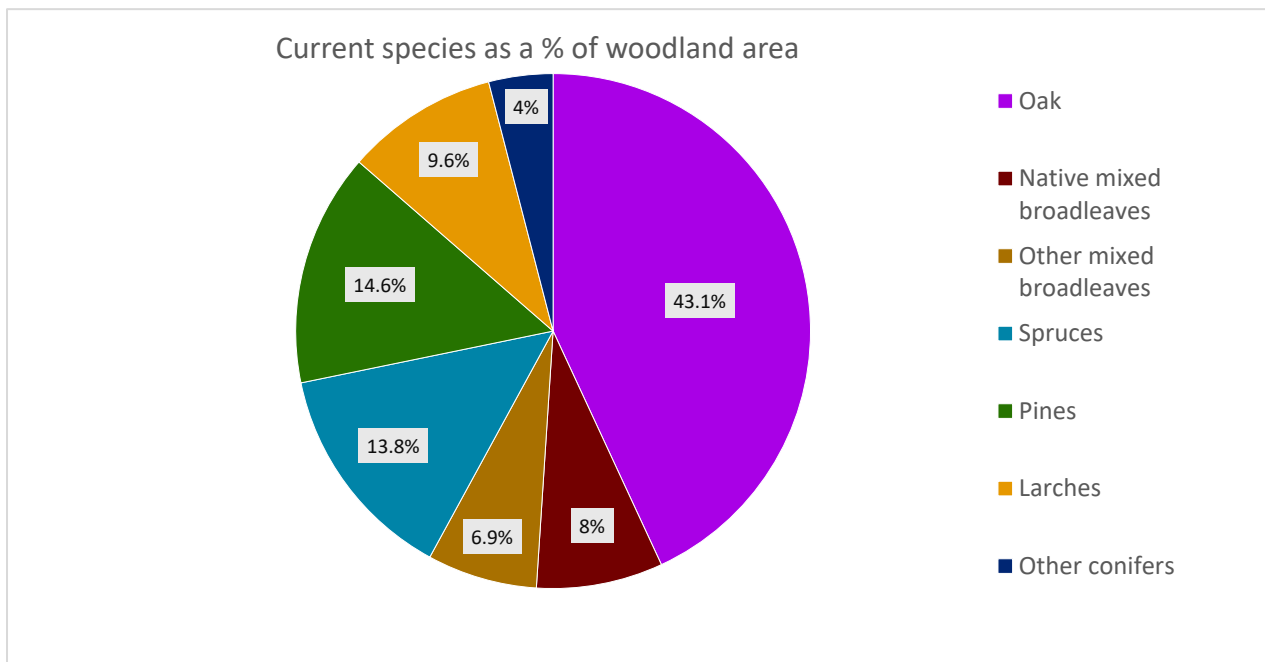
- Butterfly bush (*Buddleia davidii*)
- Cotoneasters (*Cotoneaster spp.*)
- Hebe (*Hebe sp.*)
- Laurel (*Laurus sp.*)
- Pampas grass (*Cortaderia selloana*)
- Red-flowering currant (*Ribes sanguineum*)
- Rhododendron (*Rhododendron ponticum*)
- Snowberry (*Symphoricarpos albus*)
- Himalayan balsalm (*Impatiens glandulifera*)



Rhododendron has decreased in the last 10 years as a result of ongoing control operations but still remains the most abundant and spatially dispersed invasive plant in the woodland. Other recorded species are more localised, with each species covering less than 0.02% of the plan. Total INNS coverage is estimated to be just over 2 hectares.

## A.7 Woodland Description

Figure 1 forest composition



The existing forest is shown on [Map 6](#) and summarised above ([Figure 1](#)). Over the last 10 years we've gradually increased the proportion of broadleaves by increasing Oak and other native species characteristic of NVC woodland types present. This has coincided with a reduction in conifers (primarily Larch) and their relative proportions. Scots pine is now the most prevalent conifer species, followed by Spruce & then Larch. Ornamental/Exotic species linked to the designed landscape remain a small component but add structural and seasonal diversity especially along tracks and paths. They include Horse Chesnut, Yew, Common lime, Red oak, Strawberry tree, Fir & Western red cedar. Spruce, Western hemlock and Sycamore remain a management challenge as they regenerate profusely at the expense of other species. Western hemlock and Sycamore are relatively minor components but Spruce covers a significant area and is presented in a range of age classes.

### Age-class characteristics of woodlands ([Table 7](#) & [Figure 3](#))

The woodland is currently dominated by tree stands over 60 years old and these can be divided into two relatively distinct zones:



1. 60-100 year old stands concentrated in conifer zones established in the 1940's & 60's
2. 100+ year old stands concentrated in mixed broadleaved zones regenerated in the 1870's

The above age cohorts, together, make up just over 70% of the woodland.

Due to regeneration work carried in the previous plan, very young woodland (between 1-10 years) has increased from below 5% at the start of the plan to just over 10% now. This is predominantly native woodland with a minor, but increasing, component of non-native species such as Spruce, Sycamore, Western Hemlock, Fir & Larch. The young native woodland has been established using both planting and natural regeneration. Non-native species have established entirely from natural regeneration.

Between these very young and very old age cohorts there is a small quantity of woodland aged between 11 and 60 years of age and a large proportion of this is Larch and Spruce proposed for removal over the next 10 years.

### A.7.1 Communities and Recreation

Callendar Wood is among the most visited FLS woodlands in the central belt and readily accessible to neighbouring communities in Falkirk. The woodland is used in a variety of ways including walking, dog exercising, cycling and as 'through-access' to surrounding urban zones. It's readily accessible as a 'nature-based' education resource and used by local nurseries, schools and charities for self-organised learning events & outings. Other activities include orienteering, cross country running, military fitness training, horse riding, health and wellbeing events. The woodland has nearly 9 miles of internal carriageways, footpaths, bridleways and rides with multiple access points connecting to the regional core path network. This network extends into Callendar Park, Falkirk and the surrounding countryside and most visitors perceive the woodland and Callendar Park as one contiguous green space.

A short section of path through Callendar Wood was incorporated into the 'John Muir Way' in 2014 and now connects the woodland to this 134 mile walking and cycling route through the central belt.

Unfortunately, anti-social behaviour has increased, particularly since the Covid lockdowns. Negative activities such as unauthorised motorised access are now quite frequent and having a negative effect on both experiences and perceptions of the woodland. FLS, like many land managers, is reviewing how best to manage and deter such activities with limited resources.



Table 6 – current and projected forest composition in the years 2026, 2036 and 2046.

This shows the current and projected species composition within the entire Land Management Plan and includes non-woodland elements such as open ground. Forest composition in future years is based on management proposals in Section C.

area by species						
Species	Current (2026)		Year 10 (2036)		Year 20 (2046)	
	Area (ha)	%	Area (ha)	%	Area (ha)	%
Oak	37.4	39.39	46.7	49.18	48.8	51.40
Native mixed broadleaves	6.9	7.27	24.9	26.22	25.8	27.17
Other mixed broadleaves	6	6.32	4.7	4.95	4.1	4.32
Spruces	12	12.64	0.52	0.55	0.2	0.21
Pines	12.7	13.38	5.88	6.19	3.6	3.79
Larches	8.3	8.74	0.2	0.21	0.1	0.11
Other conifers	3.5	3.69	3.9	4.11	4.2	4.42
Open Ground	8.15	8.58	8.15	8.58	8.15	8.58
<b>Total</b>	<b>94.95</b>	<b>100</b>	<b>94.95</b>	<b>100</b>	<b>94.95</b>	<b>100</b>



Figure 2 current and projected forest composition in the years 2026, 2036 and 2046.

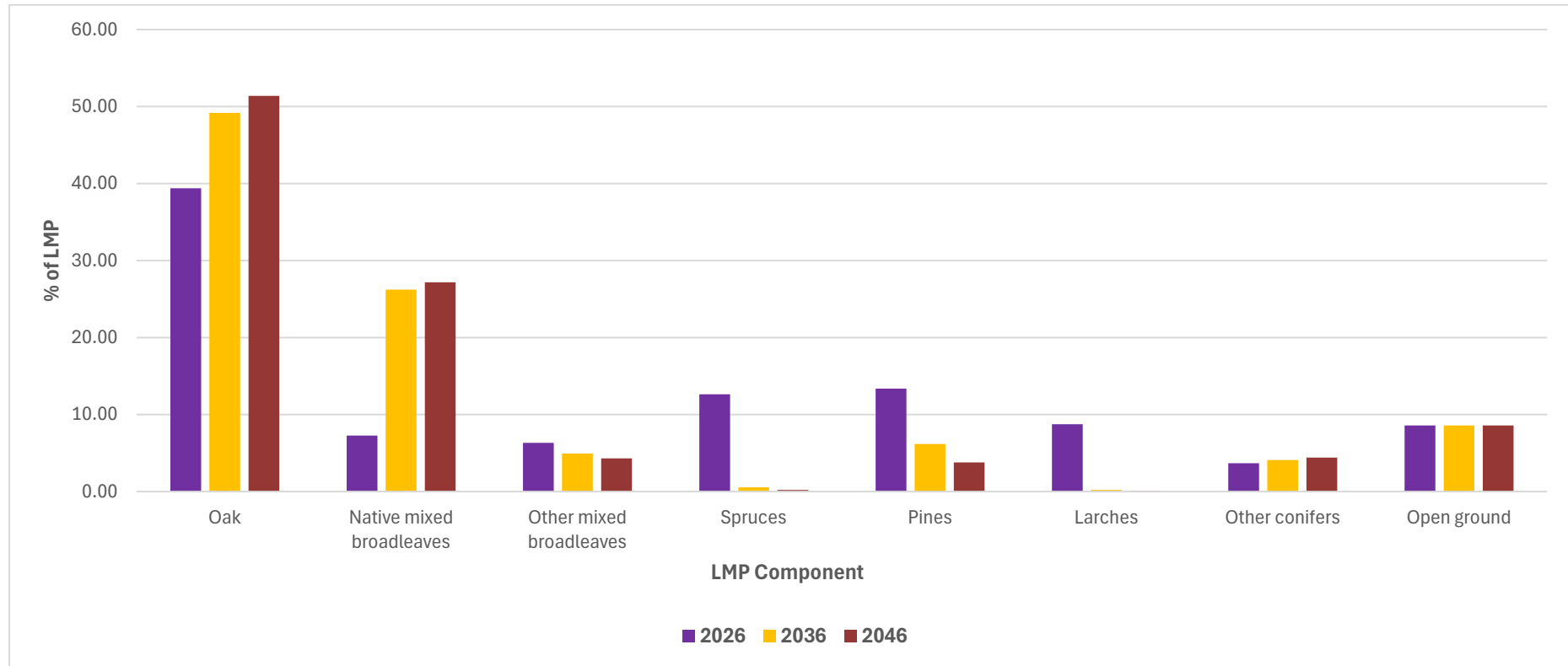




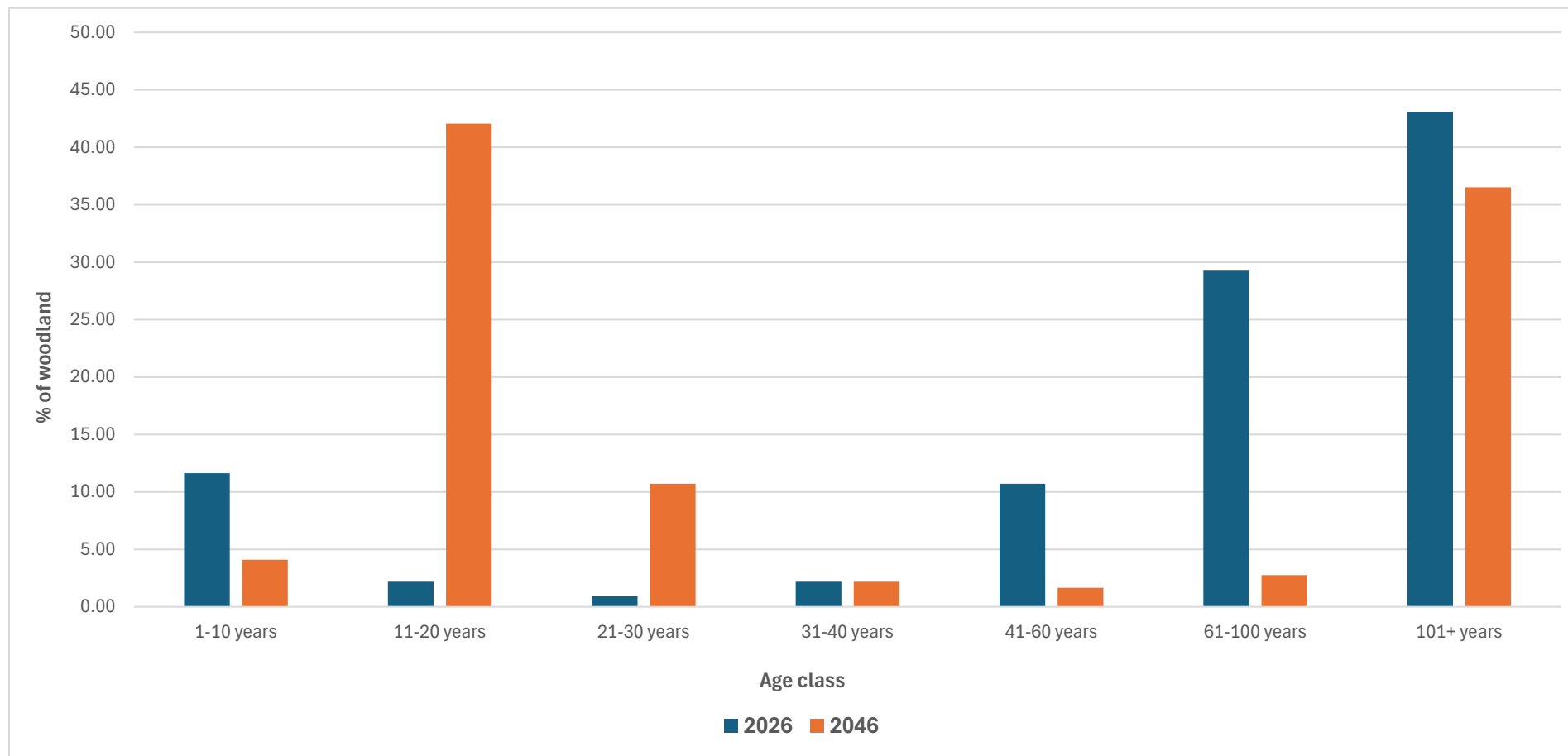
Table 7 – age profile of woodland 2026 and 2046

This shows the woodland area broken down by age class. The projected age class breakdown is based on management proposals in [Section C](#).

Age class (years)	Current (2026)		Year 20 (2046)	
	Area (ha)	% of woodland	Area (ha)	% of woodland
1-10	10.1	11.64	3.56	4.10
11-20	1.9	2.19	36.5	42.05
21-30	0.8	0.92	9.3	10.71
31-40	1.9	2.19	1.9	2.19
41-60	9.3	10.71	1.44	1.66
61-100	25.4	29.26	2.4	2.76
101+	37.4	43.09	3.56	4.10
<b>Total</b>	<b>86.8</b>	<b>100</b>	<b>86.8</b>	<b>100</b>



Figure 3 current and projected age profile of woodland 2026 and 2046.





## A.8 Tree Health

### Dothistroma Needle Blight (DNB)

DNB is monitored as part of our tree health survey programme and infection levels are currently low in Callendar Wood. Scots pine stands have been well thinned and are frequently in mix with other species, so are currently at low risk of severe infection. Our current policy is to continue using pine species, carry out thinning where feasible, and accept a small reduction in productivity.

### Phytophthora ramorum (*P. ramorum*)

*P. ramorum* is a fungus-like pathogen causing extensive damage and mortality to a range of plant species across the Country. Callendar Wood lies within the 'Priority Action Zone' of Scottish Forestry's Larch Action Plan, where actions to remove this species will have greatest impact on disease control. We've received one Statutory Plant Health Notice so far which required the removal of infected larch from central parts of the plan. Remaining larch together with another key host, *Rhododendron ponticum*, remain highly vulnerable to future infection.

### Bark beetles

Several species of bark beetle are considered a potential risk to coniferous forests and more specifically to Scotland's main timber species, Sitka spruce. The proximity of Callendar Wood to Grangemouth port coupled with the presence of mature windblown spruce makes the woodland vulnerable to beetle colonisation. In liaison with Scottish Forestry and Forest Research we've taken the decision to accelerate removal of spruce over the next few years and this will compliment our long-term strategy to revert the woodland to principally broadleaves. [Section C](#) provides details on how this will be delivered.

## B. Analysis and concept

The analysis stage of this plan's development identified a range of factors potentially relevant to the future makeup and management of the plan. We've assessed the importance of these factors and how they relate to the management objectives ([Section A5](#), above). The findings have been used to develop 'concept zones' which:

1. Geographically link management objectives to current and projected forest resources;
2. Ensure sensitivities, user groups and forest assets are considered;

This process is summarised below and illustrated on [Map 6 analysis](#) and [Map 7 future concept](#).

### Table 8 Analysis & Concept



Constraints/Challenges/ Sensitivities	Opportunities	Relevant Concept Zones
<b>Linked Overarching Management Objectives</b>		
<p>Callendar Wood is a highly valued urban green space and the site continues to have high potential for informal recreation &amp; community based activities but anti-social behaviour is a growing concern for both visitors &amp; local communities.</p>	<p>To encourage community activity &amp; disrupt anti-social behaviour we could improve partnership working to promote responsible access &amp; make crime reporting easier for visitors.</p>	<p><b>Entire plan area:</b> Promoting informal recreation &amp; community involvement is relevant to all parts of the plan and will be a key consideration across all aspects of management. Working to reduce anti-social behaviour is also relevant to the whole plan &amp; will be implemented through our visitor, communities and partnership work within the woodland.</p>
<ul style="list-style-type: none"> <li>• We'll continue to build on FLS's community &amp; visitor management work of recent years &amp; explore how best to add value to visitors appreciation and understanding of Callendar Wood.</li> <li>• In the long-term we'll focus management on retaining &amp; enhancing the amenity &amp; conservation value of the woodland.</li> </ul>		
<p>Spruce &amp; Western hemlock continue to regenerate in native woodland stands at the expense of native plant species. Spruce &amp; Larch are highly susceptible to strategically important forest pests &amp; diseases.</p>	<p>We have a narrow window of opportunity to reduce plant health risks within Callendar Wood. Removing main concentrations of these higher risk species would allow a transition to principally broadleaved woodland with a small component of resilient ornamental conifers that are more compatible with the woodland's semi-natural qualities.</p>	<p><b>Entire plan area:</b> Due to an increased threat from several plant pests &amp; diseases and the focus on conservation objectives for this particular woodland we will accelerate the removal of incompatible species such as spruce &amp; larch. This will be implemented through a range of operations such as clearfell, commercial &amp; pre-commercial thinning, &amp; native woodland regeneration. Details of methods used in each concept zone are provided in the Future Concept map &amp; 10 year operations map.</p>
<ul style="list-style-type: none"> <li>• Our central focus in the short-term is to reduce plant health risks.</li> <li>• We'll transition commercial conifer stands to native broadleaves, retaining a minor component of ornamental species to complement the designed landscapes linked to Callendar House.</li> </ul>		
<p>The majority of the site (~76ha) has been identified as ancient woodland but native &amp; semi-natural characteristics vary significantly due to the woodland's complex history.</p>	<p>Opportunity to employ low intensity management in woodland zones with a high degree of semi-naturalness. We could limit work in these zones to the removal of invasive non-native species &amp; small-scale planting to regenerate the existing native woodland. In surrounding zones, long-term management &amp; species choice should be sympathetic to ancient</p>	<p><b>Principally native woodland for conservation &amp; amenity.</b>  <u>Surrounding zones:</u> <b>Principally mixed broadleaves for amenity, conservation &amp; small-scale production of 'niche market' timber.</b></p>



Constraints/Challenges/ Sensitivities	Opportunities	Relevant Concept Zones
<b>Linked Overarching Management Objectives</b>		
	woodland features & encourage a multi-layered woodland structure.	
<ul style="list-style-type: none"> <li>• In the long-term we'll focus management on retaining &amp; enhancing the amenity &amp; conservation value of the woodland.</li> <li>• We'll transition commercial conifer stands to native broadleaves, retaining a minor component of ornamental species to complement the designed landscapes linked to Callendar House.</li> <li>• We'll continue the control of invasive species such as Rhododendron ponticum &amp; Himalayan balsam to enhance PAWS restoration.</li> </ul>		
<p>Callendar Wood is part of the wider designed landscape of 'Callendar Park', a nationally recognised parkland landscape of high artistic, architectural &amp; scenic value. The mixed woodland composition enhances its 'policy' character &amp; stems from its diverse management history. Large ornamental &amp; specimen trees can frequently be seen throughout the woodland.</p>	<p>Opportunity to preserve the designed qualities of the woodland by promoting a future generation of large ornamental &amp; specimen trees. The majority of the plan is proposed as native woodland but there's opportunity to maintain a minor component of ornamental conifers &amp; broadleaves in some zones for structural &amp; seasonal diversity.</p>	<p><b>Principally mixed broadleaves for amenity, conservation &amp; small-scale production of 'niche market' timber.</b></p>
<ul style="list-style-type: none"> <li>• We'll transition commercial conifer stands to native broadleaves, retaining a minor component of ornamental species to complement the designed landscapes linked to Callendar House.</li> <li>• Encourage an increasing proportion of timber suitable for niche markets through appropriate silviculture and tending.</li> </ul>		
<p>Henry's Hill is an important area of open ground supporting Lowland Meadow priority habitat and providing a contrast to the woodland environment.</p>	<p>Opportunity to expand the species rich meadow to other grassland across Henry's Hill and control any invasive species where encroaching on the grassland.</p>	<p><b>Principally open habitat</b></p>
<ul style="list-style-type: none"> <li>• In the long- term we'll focus management on retaining &amp; enhancing the amenity &amp; conservation value of the woodland.</li> <li>• We'll continue the control of invasive species such as Rhododendron ponticum &amp; Himalayan balsam to enhance PAWS restoration.</li> </ul>		



## C. Management Proposals

### C.1 Silvicultural Practice

#### Industry compliance

All proposals have been developed in accordance with sound silvicultural and environmental principles, falling within the framework outlined by the UK Forestry Standard and the UK Woodland Assurance Scheme. The national strategies and standards we work to can be found [here](#).

#### Overview of silvicultural practices to be used:

Over the next 5 years our intention is to undertake plant health felling to remove main concentrations of mature spruce and larch in the woodland. This will include windblown stands and be implemented as a single intervention to reduce plant health risks and accelerate the transition to principally broadleaved woodland. This management type is identified on [Map 8](#) as 'plant health felling' and described further in [Section C.2.1](#) (below). During this period we'll manage remaining stands as continuous cover woodland and carry out selective thinning for amenity, conservation, plant health & small-scale niche timber production.

Over the longer term our intention is to manage all stands at Callendar Wood using continuous cover forestry systems as described in [Section C.2.3](#).

In order to ensure successful regeneration of the woodland we'll use a range of establishment methods including planting, natural regeneration, selective weeding/re-spacing, herbivore control &, where necessary, physical tree protection. [Section C.2.6](#) details where each regeneration method will be targeted and how specific establishment challenges will be addressed.

#### Long term silvicultural aims

##### Conifers

Over the next decade, we aim to reduce the proportion of conifer woodland to 10 – 20%. Remaining conifer species will be chosen to complement the designed landscapes of Callendar Park and minimise natural colonisation into native oak woodland. Spruce, Larch and Hemlock will be removed, while Firs, Cedars, Scots pine and Yew will be retained as a small, long-term component. A proportion of conifers will be grown to produce quality sawlogs and secondary timber products.

##### Broadleaves

Over the next decade, we aim to increase broadleaves to 80 – 90% and actively promote species representative of existing priority habitats. We'll also retain a small proportion of



ornamental/exotic species for seasonal & structural diversity, and locate these in high usage areas where visitors will appreciate them most. Sycamore will not be planted, and any existing trees will be removed where necessary to prevent them outcompeting native species.

Regeneration of broadleaved woodland has been challenging due to strong weed competition, so we'll first establish pioneer or shade-tolerant natives such as Wych elm, Hazel, Silver birch, Willow and Alder before enrich these areas with 'late-successional' species such as oak.

## C.2 Prescriptions

### C.2.1 Plant health felling

Plant health felling will be carried out early in the next plan and employ both 'clearfell' and 'clearfell with seed-tree' harvesting systems. Our focus is to remove Spruce, Larch, Western hemlock and Sycamore and retain broadleaves, Scots pine and alternative conifers such as Firs & Cedars. Expected retentions cover ~24% of the gross felling area or ~8.47 hectares.

**Gross felling area** = 34.87 hectares

**Retentions** = 8.47 hectares

**Net felling area (Phase 1)** = 26.4 hectares (27.8% of LMP area)

#### Coupes 70001 & 70011

These coupes have been thinned and are relatively stable. We propose to remove Spruce, Larch and Sycamore and retain a light overstorey of Scots pine and native broadleaves (where present). Some of the latter species may be removed to allow safe operational access or where retained trees are deemed unsafe. We expect this operation will bear a closer resemblance to the *clearfell with seed-tree* harvesting system, whereby retained trees will act as a seed source to help regenerate the woodland.

#### Coupe 70008

This coupe contains poorly thinned and windblown conifer stands with some broadleaves mixed throughout. We propose to remove Spruce, Larch, Hemlock and Sycamore and retain native broadleaves (where present). As in all coupes we may remove some of the proposed retentions for safety purposes where necessary. The operation is expected to closely resemble a *clearfell system* and require active re-planting to regenerate the woodland.

#### Coupe 70012

This coupe contains very large mature conifers mixed through broadleaved woodland. The large spruce is in poor condition due to a range of environmental stresses. We propose to remove this species along with Larch, Hemlock and Sycamore and retain native broadleaves and alternative conifers. Veteran oak trees are dispersed across the coupe and a few may require removal to allow the safe harvesting of large conifers, we'll try to retain the majority of Oak.



The operation is expected to resemble a *clearfell system* with some localised areas resembling a *seed tree system*. We'll assess restocking requirements subsequent to felling but expect to use active re-planting in many zones.

## C.2.2 Thinning

Map 10 identifies proposed thinning areas for which approval is sought over the next ten years. We aim to achieve the following outcomes:

- remove Spruce, Larch, Hemlock & Sycamore
- improve the woodland's natural resilience to storms, pests & disease, etc.
- manage light levels in the understorey to promote woodland regeneration
- provide more growing space and light to veteran trees
- enhance woodland amenity in high-use visitor zones (e.g. along busy path networks)
- improve stem-form and vigour for small-scale niche timber production

Thinning will normally be carried out at, or below, the level of marginal thinning intensity (i.e. removing no more than 70% of the maximum MAI, or YC, per year). Higher intensities (no more than 140 % of maximum MAI, or YC, per year) may be applied where thinning has been delayed, larger tree sizes are being sought or as part of a LISS prescription.

## C.2.3 LISS<sup>2</sup> & minimum intervention woodland

Over the next ten years we'll use low impact silvicultural systems (LISS) to manage woodland outside plant health felling zones. We've divided this woodland into 3 broad LISS categories (see Map \* 10 year proposals):

### 1. Continuous cover broadleaf woodland for amenity, conservation & 'niche market' timber production

This predominantly broadleaved woodland has a minor component of conifers and we intend to thin these stands to remove small groups of Spruce, Larch, Hemlock & Sycamore. This will, in-turn, reduce crown density of remaining trees to improve growth, good stem development and seed bearing potential.

A proportion of younger stands in this zone will be managed to develop semi-natural oak woodland by promoting native species characteristic of this habitat.

In both stand types we'll carry out small-scale planting to regenerate the understorey and achieve the desired stand composition. Silvicultural management will be more reflective of a group selection system.

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<sup>2</sup> LISS = Low Impact Silvicultural Systems



## 2. Low intensity management of native woodland for conservation & amenity

These are principally native oak stands with a high degree of semi-naturalness. Our intention is to remove invasive non-native species & ensure successful woodland regeneration with native broadleaves. We'll carry out selective thinning where necessary to remove invasive conifers and small-scale planting to supplement natural regeneration & help suppress bracken. Silvicultural management will be more reflective of a single tree selection system using smaller-scale dispersed interventions & limited canopy openings.

## 3. Minimum intervention

We'll manage the small woodland on Henry's Hill through minimum intervention, carrying out only essential tree-safety work and occasional small-scale planting in response to community/volunteer requests. We intend to maintain this area as 'open woodland' with widely spaced, mature veteran trees.

### C.2.4 Other Tree Felling in Exceptional Circumstances

FLS will normally seek to map and identify all planned tree felling in advance through the LMP process. However, there are some circumstances requiring small scale tree felling where this may not be possible and where it may be impractical to apply for a separate felling permission due to the risks or impacts of delaying the felling.

Felling permission is therefore sought for the LMP approval period to cover the following circumstances:

- Individual trees, rows of trees or small groups of trees that are impacting on important infrastructure (as defined below\*), either because they are now encroaching on or have been destabilised or made unsafe by wind, physical damage, or impeded drainage.

\* Infrastructure includes forest roads, footpaths, access (vehicle, cycle, horse walking) routes, buildings, utilities and services, and drains.

The maximum volume of felling in exceptional circumstances covered by this approval is 75 cubic metres (approximately 3 lorry loads of timber) per LMP per calendar year. A record of the volume felled in this way will be maintained and will be considered during the five year LMP review.

### C.2.5 Woodland Management of Visitor Zones

FLS 'Visitor Zones' have been identified in areas where FLS encourage and manage access or where the woodland managed by FLS interacts with popular visitor sites or access routes.



Visitor zones at Callendar Wood are identified as 'Interactive Zones' comprising buffers around trails and the immediate environment which the public interact with ([Map 5](#)).

In these areas, single trees or small groups of trees will be removed when necessary to protect facilities, infrastructure & trails, or to enhance the setting of features, or to maintain existing views.

Woodland in these zones will also be thinned, or trees re-spaced, for safety reasons (including to increase visibility to ensure that sites are welcoming and feel safe) & where it is necessary to enhance the experience of the forest setting, through the development of large trees, or preferential removal of trees to favour a particular species.

### C.2.6 Restocking Proposals / Natural Regeneration

Planned restocking over the next 10 years is illustrated on [Map 12](#) and quantified in [Appendix II](#).

Prescriptions for regeneration of each woodland type are outlined below. Where these are delivered within 'plant health felling zones' our intention is to achieve overall stocking across felled areas. Outside these zones (i.e. mature woodland) we'll under-plant small groups of trees with their size and placement determined by presence of advance regeneration and canopy openings.

#### Principally native oak woodland - NVC W10 & W11

Initial planting will be at 2.5m x 2.5m spacing (1,600 stems per hectare) using native 'pioneer' and 'shade bearing' species such as wych elm, hazel, birch, grey/goat willows, alder, dogwood and guelder rose. Our aim is to suppress vigorous bracken growth and thus improve conditions for later regeneration with oak & field maple. The latter will be achieved through enrichment planting and use of advance regeneration.

#### Principally mixed broadleaves with minor component of ornamental tree species

We'll follow the above planting/species prescriptions but include a minor component of ornamental species for seasonal and structural diversity. We'll limit ornamental species to those already found in the woodland, such as cedar, lime, fir, red oak, chestnut, maple, strawberry tree, and redwood. We'll focus ornamental species in high usage areas where visitors will appreciate them most.

#### Principally mixed broadleaves with a minor component of Scots pine

In these areas our intention is to retain a light overstorey of mature Scots pine and mixed broadleaves to act as a seed source and promote natural regeneration. Currently, there is some advance regeneration in the understorey and this will be surveyed post-harvesting to determine species composition and spacing. We'll then carry out supplemental planting & maintenance to achieve the desired stem density & species composition. Planting will again follow species and spacing prescriptions for native oak woodland and include a minor component of Scots pine. Some ornamental trees will be accepted where this, together with Scots pine, remains a small component of the planting mix.



#### Additional restocking prescriptions:

- spruce, larch, hemlock and sycamore are considered to be incompatible with our objectives so will be removed during the establishment phase
- to limit vigorous weed competition in felled areas, the preferred fallow period should not exceed 2 years
- the least carbon intensive ground preparation (in terms of soil disturbance) will be used to achieve silvicultural objectives
- pesticides will be used in line with UKFS, UKWAS and FLS national policy
- The preferred seed zones for nursery grown stock will be 107 or 203, with adjacent zones used if unavailable (see guidance): Seed Sources for Planting Native Trees & Shrubs

### C.2.7 Hydrology

All operations will adhere to the latest version of UK Forestry Standard's 'Forest and Water Guidelines' and associated standards. During forest operations we'll focus on safeguarding the historic drainage network, including track infrastructure and connecting outflow systems. We'll work with Falkirk Council to conduct a thorough survey of drains leading to Callendar Loch and target appropriate UKFS mitigation measures as necessary.

### C.2.8 Herbivore Management & Tree Crop Protection

#### Herbivore control

The Scottish Lowland Regional Deer Management Plan ([Appendix II](#)) provides further details on our deer management strategy and objectives. The main herbivore species at Callendar Wood is Roe deer and our objective is to regulate browsing levels by this species to ensure successful woodland regeneration.

#### Individual tree guarding

Where active herbivore control is not deemed appropriate or achievable we may use individual tree guarding. We'll avoid or reduce the use of plastic guarding where viable alternatives are available. Redundant guarding will be removed and recycled to avoid impacts of bio-accumulation.

### C.2.9 Forest Roads

There is no requirement for new forest roads in the next 10 years but to ensure safe operational access we propose to upgrade an existing forest road, shown on [Map 8](#) and [Map 9](#). The total length of upgrade will be 1660 metres and include:

- A slight widening of the running surface and some existing junctions
- creation of bays for welfare units and lorry loading/passing



- cleaning of existing drains and culverts

Several reinforced machine crossing points will also be installed to protect existing paths during timber extraction. They'll be located to optimise machine tracking distances and minimise path crossings.

The upgrade works will not require extensive tree felling, though some individual trees may need to be removed or pruned, affecting an area of up to 0.4 hectares. Bays & crossing points will be located to minimise impact on historic features & environmental features such as veteran native and ornamental trees. [Map 8](#) shows the timber haulage exit point and estimated quantity of timber to be removed over the next ten years. The exit point is on Kemper Avenue and estimated timber removal is ~16,980 tonnes.

## C.2.10 Communities & Recreation

### Proposed management during the period of this plan

1. Collaboration with other agencies, local residences and user groups to deter anti-social behaviour (ASB) and increase awareness of the Scottish Outdoor Access Code (SOAC). This will include targeted signage to clearly communicate that unauthorised motorised access is prohibited in the woodland and a review of barrier options, in liaison with the local authority access officer, to discourage such activity whilst complying with SOAC.
2. We'll manage woodland adjacent to visitor zones to improve the woodland setting (see also [Section C.2.5](#)). The proposed felling operations will open up the woodland and improve visibility in the short term.
3. We'll maintain existing recreational infrastructure including regular inspections and programmed maintenance
4. Liaise with Local Access Forums to manage core path networks in compliance with the Land Reform Scotland Act 2003 and Local Authority core path plans.
5. Seek options to improve facilities where high visitor pressure is causing friction between user groups. This will be reliant on available funding and resources.
6. Partnership working with local communities, schools, nurseries, businesses, charities and research institutions to promote a range of activities within the woodland and better understand its value and future potential for outdoor education and well-being activities.

With regard to point 1, we are not an enforcement agency but will work proactively with partners to deter ASB.

## C.2.11 Historic Environment

We have now collated a detailed record of [historic assets](#) within the plan area. Their condition is monitored bi-annually through our regional 'historic asset management plan' and work undertaken to manage and maintain their condition. With respect to non-scheduled



archaeology, all operations in the vicinity of such features will be conducted in accordance with UK Forestry Standard Guidelines on 'Forests and the Historic Environment' and appropriate steps will be taken to ensure their protection.

#### Designed landscapes

We will selectively retain ornamental trees and shrubs that contribute to the plan's diverse woodland character. A key management focus is to protect and enhance older veteran trees and establish a new generation of young ornamentals, particularly along trackways and paths linking to Callendar Park.

We will continue to protect the built features that contribute to the site's cultural and artistic value, including the Category 'C' listed policy wall, kennels, wellhead, and water house. We'll utilise proposed woodland management operations to improve sightlines to the Category 'A' listed Mausoleum.

### C.2.12 Biodiversity

#### Priority Habitats & Species

The various woodland and open priority habitats as well as priority species they support will continue to be conserved and we'll conduct all operations to ensure adequate protection as advised by suitably qualified/experienced staff, Scottish Forestry's 'Wildlife and Forest Operations' guidance, and relevant species licenses from statutory consultees.

#### PAWS restoration

Core priority woodland habitat will be managed through low impact silvicultural systems to maintain and enhance native & semi-natural characteristics. We'll focus on the protection of native veteran trees, removal non-native species and regeneration of young native woodland. As surrounding non-native conifer stands are removed we'll significantly expand existing native woodland to improve its long term resilience and connectivity.

In mixed woodland zones, where specimen native *and* non-native species are present, we'll gradually remove specific non-native species that present a potential risk to core woodland habitats; with a focus on Sitka spruce, Western hemlock & Sycamore removal. We'll regenerate these areas using mainly native species reflective of existing priority habitats but include a proportion of ornamentals (already present in the wood) that do not present a risk to native woodland. The 'future species' & 'future concept' maps show the intended woodland composition and [Section C.2.6](#) outlines the planned restocking species.

#### Open habitat management

The existing 'lowland meadow' priority habitat on Henry's Hill will continue to be cut annually and we'll explore potential expansion of this habitat to other grassland on Henry's Hill. The latter will be subject to available budget.

#### Deadwood Habitat



The UK Woodland Assurance Standard (UKWAS) target is for an average of 20 m<sup>3</sup> of deadwood per hectare, although it is expected actual concentrations will vary widely across a site. Total future potential in the plan is estimated to be ~56m<sup>3</sup>/ha. We'll retain deadwood across the whole woodland with a particular focus on areas with highest ecological value and/or where linkages can be provided between deadwood habitats. We'll need to balance this habitat type with public safety and plant health considerations.

### C.2.13 Tree Health

We'll continue to monitor the forest for nationally important tree pests and diseases so that Forest Research can be alerted of sightings where necessary. Our objective over the next 10 years is to remove main concentrations of mature spruce & larch, and monitor existing Ash trees (for safety purposes). In the longer term, we'll remove spruce & larch during LISS thinning, PAWS management and invasive species control. Native Ash will be used in future restocking if strains resistant to Ash dieback become available.

### C.2.14 Invasive species

Invasive plant species will continue to be monitored and removed.

In relation to grey squirrel control, the dense urban landscape and multiple neighbouring landowners mean that effective management would require a coordinated, landscape-scale partnership. Without such collaboration local control efforts are unlikely to have an impact. As there are currently no established red squirrel populations in this area, active control is not a priority at present. We'll continue to review this position in liaison with relevant conservation stakeholders.

### C.2.15 Wildfire Management

In drafting this plan we've identified wildfire risk zones, vulnerable assets, operational access and fire fighting resources within each part of the forest. The information collected has been used to improve wildfire resilience and support the regional fire response plan during wildfire events. We have used the following guidance in this process:

- Forestry Commission (2014) Practice Guide 22: Building Wildfire Resilience into Forest Management Planning
- Information Note: Forest Planning to minimise wildfire risk in Scotland

## D. Environmental Impact Assessment and Permitted Development Notifications



There are no forestry activities proposed in the next 10 years within 'scope' of current EIA regulations.



## E. LMP Tolerance Table

Table 10 Regulatory tolerances for changes to the approved land management plan								
Action Required	Map Required (Y/N)	Adjustment to felling Period <sup>3</sup>	Adjustment to felling coupe boundaries <sup>4</sup>	Timing of restocking	Change to species	Wind throw response <sup>5</sup>	Adjustment to road lines	Designed open ground <sup>6</sup>
<b>Scottish Forestry (SF) Approval not normally required (record and notify SF)</b>	N	Fell date can be moved within 5 year period where separation or other constraints are met	<10% of coupe size.	Up to 2 planting seasons after felling	Change within species group E.g. Scots pine to birch,  Non-native conifers e.g. Sitka spruce to Douglas fir,  Non-native to native species (allowing for changes to facilitate Ancient Woodland policy).			Location of temporary open ground e.g. deer glades if still within overall open ground design  Increase by 0.5 ha or 5% of area - whichever is less
<b>Approval by exchange of letters and map</b>	Y		10-15% of coupe size.	Between 2 and 5 planting seasons after felling subject to the wider forest and habitat structure not being significantly compromised	Change of coupe objective that is likely to be consistent with current policy (e.g. from productive to open, open to native species).	Up to 5 Ha	Departures of greater than 60 m from the centre of the road line	Increase of 0.5 ha to 2 ha or 10% - whichever is less  Any reduction in open ground
<b>Approval by formal plan amendment may be required</b>	Y	Felling delayed into second or later 5 year period.  Advance felling into current or second 5 year period.	>15% of coupe size.	More than 5 planting seasons after felling subject to the wider forest and habitat structure not being significantly compromised	Major change of objective likely to be contrary to policy, E.g. native to non- native species, open to non-native,	More than 5 Ha	As above, depending on sensitivity	More than 2 ha or 10% Any reduction in open ground in sensitive areas Colonisation of open Areas agreed as critical

<sup>3</sup> Felling sequence must not compromise UKFS, in particular felling coupe adjacency. Felling progress and impact will be reviewed against UKFS at 5 year review.

<sup>4</sup> No more than 1 ha, without consultation with FCS, where the location is defined as 'sensitive' within the Environmental Impact Assessment (Forestry) 1999 Regulations (EIA).

<sup>5</sup> Where windblow occurs, Scottish Forestry must be informed of extent prior to clearance and consulted on clearance of any standing trees.

<sup>6</sup> Tolerance subject to an overriding maximum of 20% designed open ground.



## F. Production Forecast

N/A – FLS provide this nationally to Forest Research as per Working Agreement with Scottish Forestry.

## G. List of Appendices

Item number	Title
<b>Appendix I</b>	Ten year felling & thinning tables
<b>Appendix II</b>	Ten year restocking tables (by coupe)
<b>Appendix III</b>	Scottish Lowlands Deer Management Plan
<b>Appendix IV</b>	Consultation Record

## H. List of Maps

Item number	Title
<b>Map 1</b>	Location map
<b>Maps 2</b>	Landform, climate & exposure
<b>Map 3</b>	Main hydrological features
<b>Map 4</b>	Existing forest
<b>Map 5</b>	Visitor zones & path networks
<b>Map 6</b>	Analysis of constraints & opportunities
<b>Map 7</b>	Future concept zones
<b>Map 8</b>	Summary of 10 year management proposals
<b>Maps 9 &amp; 10</b>	Management coupes & 10 year thinning areas
<b>Maps 11 &amp; 12</b>	Future species & habitats & 10 year restocking areas