Forestry England

Harbottle & Holystone

Forest Plan 2027-37



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Introduction

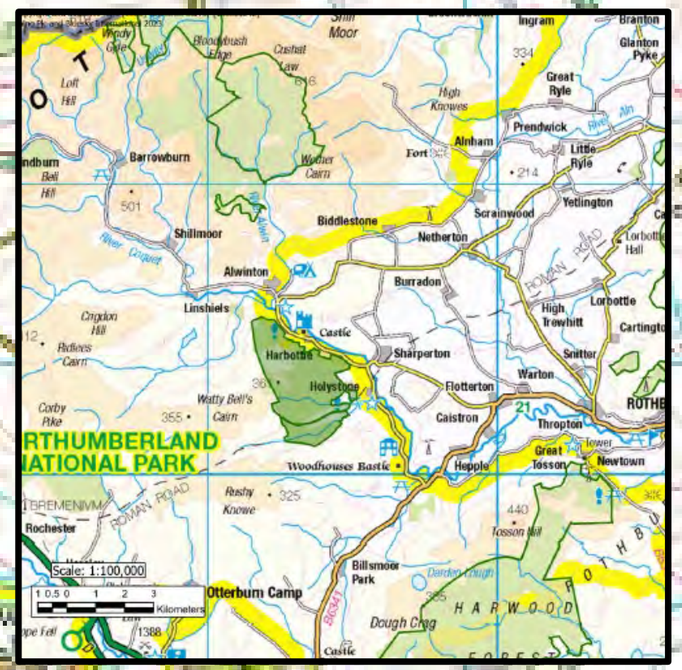
Harbottle and Holystone forest (referred to as Harbottle forest) forms part of the nation's forest estate in Northumberland and is managed by Forestry England.

The forest was created through the purchase of seven individual land units by the Forestry Commission between 1955 and 1987 to create the 865 ha that is under management today.

Harbottle forest lies on the eastern slopes of Harbottle Moors with the River Coquet at the valley bottom. The communities of Harbottle and Holystone are close against the forest edge making the woodlands an important part of the local landscape and access provision.

Harbottle forest is also in the Northumberland National Park and has three designated sites encompassing upland heath and upland oak woodland.

Although the forest sustained storm damage in the winter of 2020/21 it is relatively sheltered under normal conditions, which makes the use of thinning and shelterwood management systems a viable option over much of the area. The forest provides a steady supply of timber to the local economy as well delivering important biodiversity elements.



What is a forest plan?

A forest plan is a local management strategy produced by Forestry England for its local forests, outlining how land that is owned or leased and directly managed by Forestry England will be managed. They form one part of its Forest Management Planning Framework of decision-making and detail

The forest plan serves the purpose of presenting the information required to meet legal obligations to allow Forestry England to carry out management activities for at least the next ten years whilst delivering Forestry England's purpose and Forestry England's objectives. Forest plans also set the direction of business plans, and shaping the landscapes in its care, whilst demonstrating compliance with the UK Forestry Standard and UK Woodland Assurance Standard.

Forest plans are produced by Forestry England's local District teams and will collectively deliver the aims and objectives of the organisation's strategic plan(s). An individual forest plan may cover one or several discrete contiguous blocks of forest at a variety of different scales depending on local circumstances and practicalities.

A forest plan sets out specific objectives for the local forest environment to be achieved during the plan's duration. These can include objectives relating to protecting and managing designated sites and scheduled ancient monuments, conserving biodiversity and restoring ancient woodland and/or other priority habitats), local community engagement, increasing forest resilience and income generation (through the sale of timber and other sources).

The primary focus of a forest plan is the management of trees and receiving approval for felling and restocking over a ten-year period. It is not intended to include specific interventions on the management or recovery of habitats or SSSI features, which will sit in a separate management plan or be enacted through operational site plans. The forest plan seeks to recognize and enable other management plans within the forest landscape.

A forest plan will not set out detailed annual management operations or contain operational planning and site assessment information, such as the precise timing of tree felling, timber extraction routes, timber stacking areas, associated drainage or weed control methods for tree establishment. These details are developed separately by Forestry England within its operational site plans.



National Context

Our task is to realise the potential of each of the forests in our care for sustainable business opportunities, wildlife and nature conservation, and the enjoyment and well-being of local people and visitors. Each of our forests supports the economy through local jobs, sustainable timber production and the provision of recreation and tourism opportunities. All are funded by revenue from timber sales and recreation provision.

The strategic plan for the Nation's Forests outlines the delivery of forest policy at a national level. At a regional level there are six Forest Districts covering the country that directly oversee the implementation of policy actions in the nation's forests. North Forest District (NFD) is an extensive area encompassing 9 county or unitary authority areas from the Scottish border to Durham and Lancashire.

The woodlands of North district are currently arranged in 58 management areas, and their management is covered by individual ten-year forest plans that identify local issues and the broad silvicultural management of the woods. Forest plans are reviewed every five years.

These plans and their associated forest operations ensure that produce from the woodlands is endorsed by the Forest Stewardship Council® (FSC®) and the Programme for the Endorsement of Forest Certification (PEFC) as being produced from woodlands under good management that meet the requirements of the UK Woodland Assurance Standard (UKWAS) and the UK Forest Standard (UKFS). Individual forest plans aim to deliver a range of public benefits with achievable objectives that deliver the three drivers of sustainable land management outlined in the North Forest District strategy.

Forestry England recognises its obligations under UK legislation and regulations such as the Natural Environment and Rural Communities Act 2006; as amended by the Environment Act 2021 (Sec 102)'.

These key drivers are supported by the following Forest District Policy;

- We will optimise the financial return from timber production compatible with achievement of other forest district objectives while complying with the UK Forestry Standard and meeting the requirements of the UK Woodland Assurance Standard.
- We will provide public access to all our forests and woodlands where there are no legal or safety restrictions. We will encourage and permit a wide range of recreational activities from walking and quiet enjoyment to more specialised activities.
- We will ensure that special habitats and heritage features are protected and managed to maintain or enhance their conservation or historic value.

This document is the revision of the Harbottle forest plan replacing the previous version published in 2016. It has been updated to reflect changes in forest policy & practice ensuring forest resilience and sustainable management.



Analysis

This stage of the forest plan seeks to identify key social, environmental and economic aspects for the plan. Taking count of what we already have, before we can look forward to what management will be over the next 10 or more years.

Forest Structure

Forest Structure

This section is based on the exiting forest using the data available in 2026. A summary of the land use types in Harbottle forest is given in Table 1.

Table 1: Current land use at Harbottle

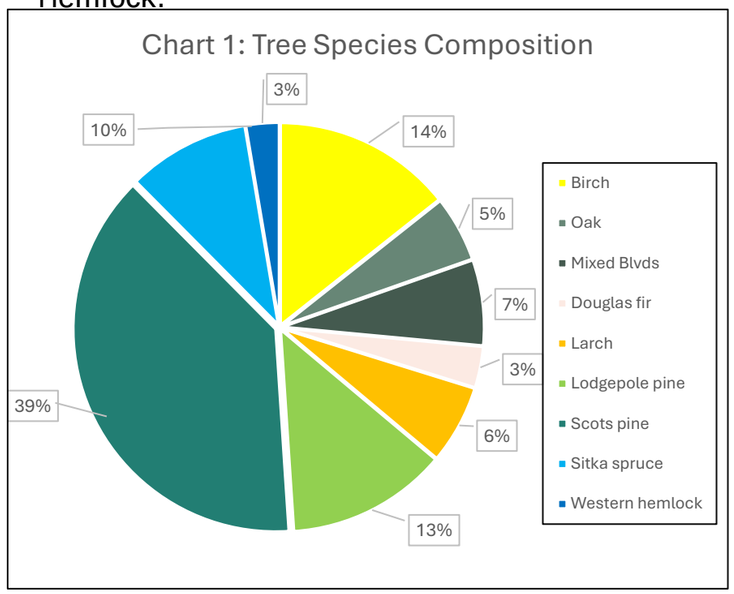
Land Use	Area (ha)	% Plan Area
Conifer forest	373.5	43.2
Broadleaved forest	131.4	15.2
Felled	51.3	5.9
Open habitats	307.7	35.6
Property/quarry	1.1	0.1
Total	865.0	100.0

Of the total high forest area c51.3 ha is felled and classified as transitional open awaiting restocking or natural regeneration. An additional 25 ha is windblown, awaiting clearance.

The category for open habitats includes open moorland, riparian zones and integral open land in the forest. Other than the designated upland moors, a lot of the open habitat within the forest is moving towards successional forest habitat creating a class of transitional habitat.

Coniferous tree species make up 74% of the high forest structure with broadleaved species at 26% (Chart 1). Scots and Lodgepole pine make up the largest proportion of the conifer components at 255.3 ha (50.6%). Other conifers include larch and smaller components of Douglas fir, Norway spruce and Western Harbottle Forest

Hemlock.



Broadleaved species include oak, birch, aspen, alder and rowan. A lot of the mature broadleaved woodland is associated with the designated Site of Special Scientific Interest (SSSI) in the southern Holystone part of the forest unit. However, in recent years birch and aspen have started to be included within restocking mixtures to increase diversity within the stands. These species are expected to be contributors to future timber production but will also create additional biodiversity gains.

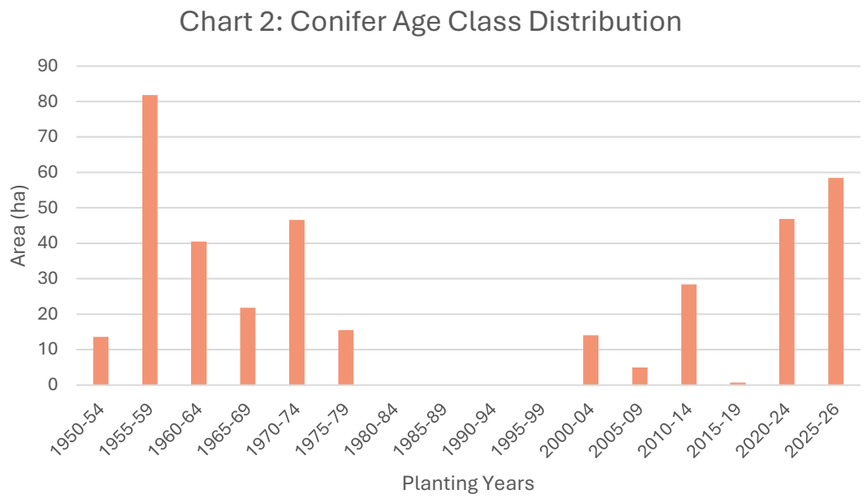
Much of the felled ground is forest that was damaged by the winter storms of 2021/22 (storm Arwen). Approximately 120 ha (c20%) was damaged during this period by extreme easterly winds. Under normal conditions, the forest is sheltered from the prevailing westerly weather which means that continuous cover forest systems that rely on thinning are viable.

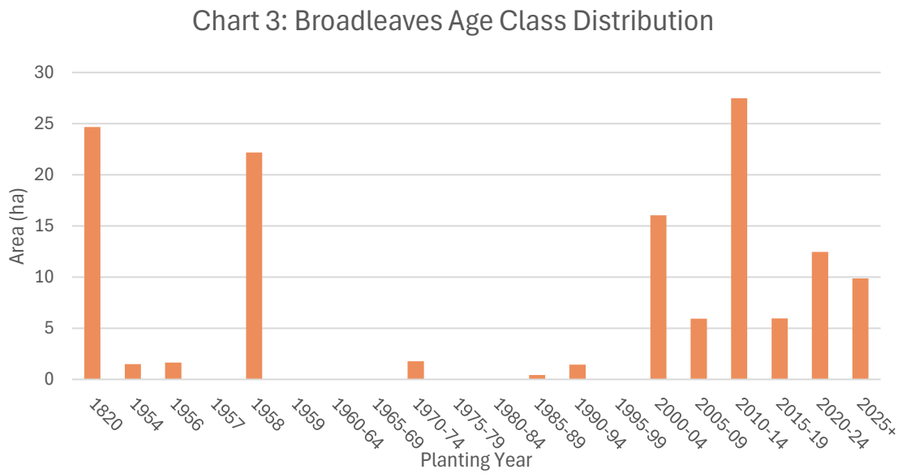
Forest productivity for timber is expressed through yield class, which is the rate of annual tree growth as cubic metres of timber per hectare per year: YC12 = 12 m^3/ha/year.

The range of yield classes for tree stands in Harbottle is shown in Table 2. The data indicates there is good potential across the range for timber production. Larch is a species that will not continue to be planted because of plant health risks, therefore other species such as firs will need to be explored. Western hemloch appears to have strong growth potential, but is quite an effective regenerator, so its proximity to sensitive habitats needs to be taken into consideration.

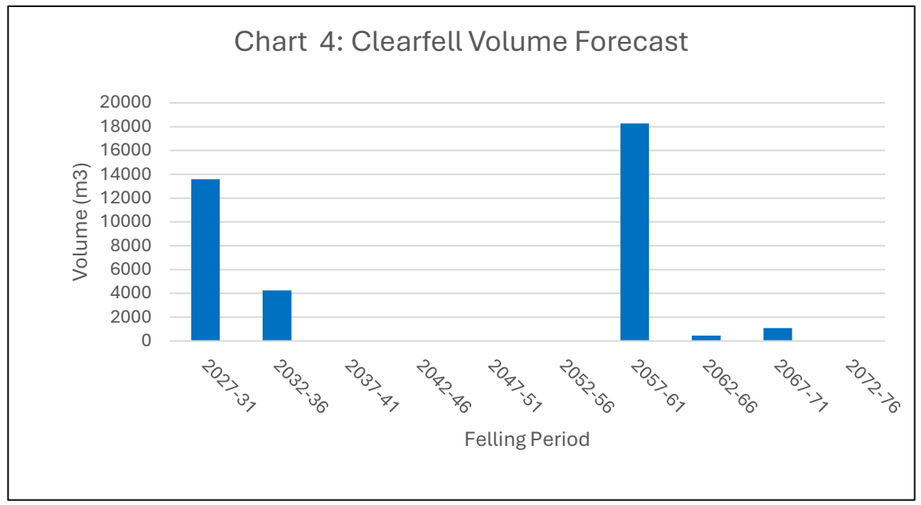
Table 2: Mean Yield Class of Tree Species		
Species	Mean YC	YC Range
Birch (downy/silver)	4.6	2-8
Douglas fir	10.0	8-16
Larch	8.8	8 - 14
Lodgepole pine	9.0	4-12
Norway spruce	10.0	8-12
Oak (robur/petraea)	2.0	2
Scots pine	10.1	8-14
Sitka spruce	11.1	6-22
Western hemlock	14.3	8-20

The age distribution of the current stands is shown in charts 2 and 3 for conifers and broadleaves, respectively and are broadly spread across the 71-year period between 1955 and 2026 (Chart 2 & 3). Although the two categories of tree types are shown separately, in reality the younger age classes of broadleaves, post year-2000 are in mixture with conifers. The older categories of broadleaves represent the native woodland of the Holystone SSSI features.





The damage sustained from storm Arwen has created an imbalance in the age class distribution and there is a knock-on effect to timber supply over the next 20 years, with a substantial gap after 2036 (Chart 4).



Forest Soils

The two largest soil groups recorded in Harbottle forest (map 1) are:

- 4zs Podzolic iron pan, stony.
- 6/7 Typical peaty surface-water gleys.

The Natural England 2025 peat map records variable depths of this soil type across the forest, which does not tie in with the traditional soil maps used as reference, or evidence on the ground. This plan is primarily based on local soil maps.

Forest Soils (cont.)

The importance of peat as a habitat and carbon resource is recognised in the UK governments' 25 Year Environment Plan (2023), the England Peat Action Plan (2021) and the England Trees action Plan (2021). The combination of these policies has led to the development of the DEFRA Decision Support Framework for Peatland Protection (20230 to aid choices for restocking forests on peat, focussing on the relationship between highly valued peat habitats, their restorability and the yield class of forestry where is it carbon positive.

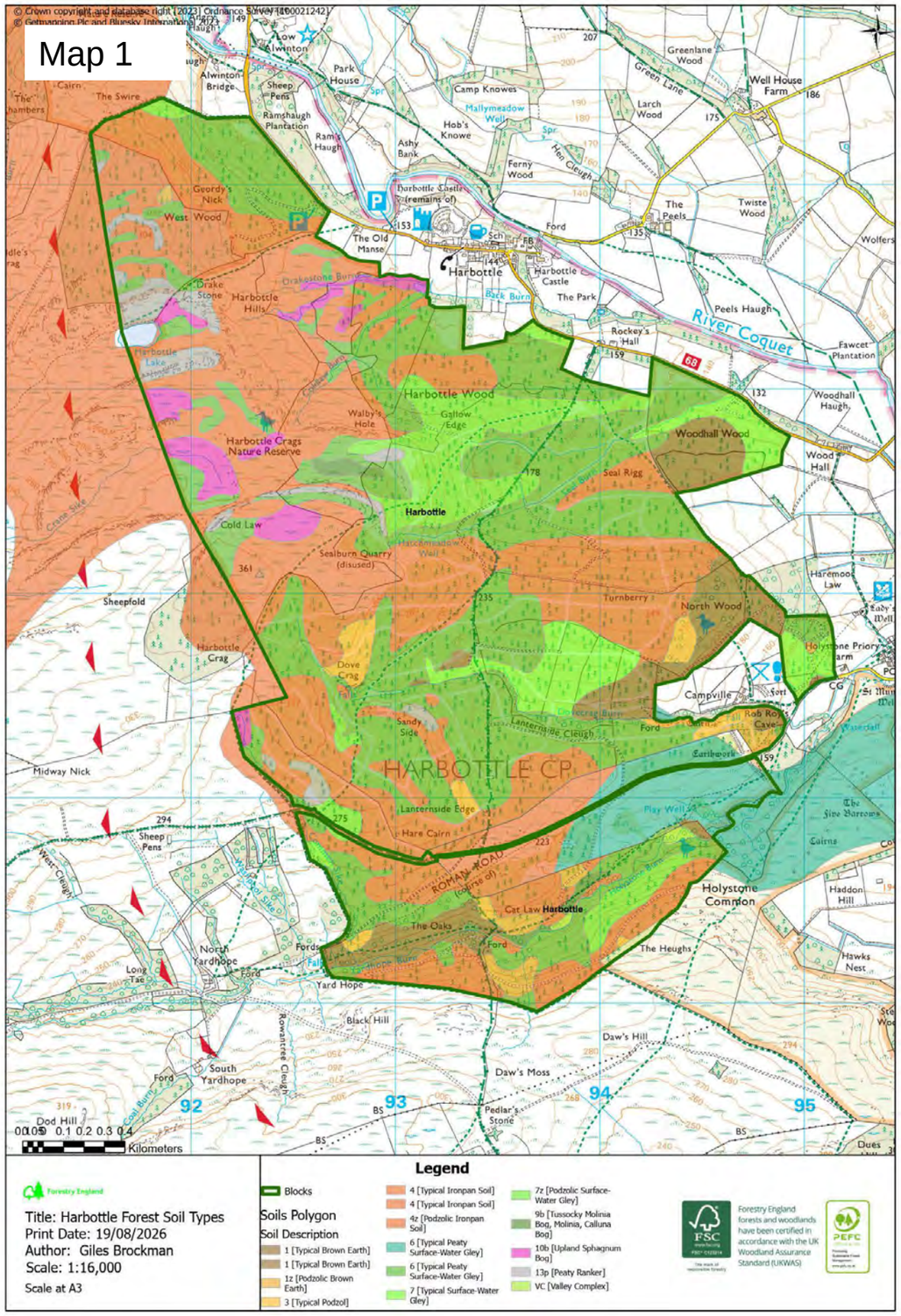
Analysis of the peat and forest soils mapping against the local site evidence concluded that there would be some scope for change around the edge of the forest at outflow of the Drakestone and Coldlaw burns and at Harbottle Crag/Sealburn quarry and along the top of the hill at West Wood. In these locations woodland cover will be retained but will change from high volume plantation to a low intensity native woodland option.

Climate & Exposure

The exposure value of the forest in relation to the risk of storm damage is described as wind hazard class. Much of Harbottle forest is in the medium to low classes, which reflects the easterly aspect which is normally sheltered from prevailing wind direction. The higher risk zone reflects the top of the hill around Harbottle Crag with exposure from the west, and steeper slopes.

The 2021/22 winter storms (including Storm Arwen) were an extreme event with winds coming from opposite to the normal prevailing South-West wind direction, against which root system patterns had developed their stability. Extreme weather events are likely to increase in frequency and management options for reducing impacts are limited to keep average coupe size small and matching rotation length to terminal tree height. Harbottle is still a viable option for thinning and shelterwood systems, as regular thinning should allow tree to develop better stability.

Average felling coupe area is currently around 10.0 ha.



Forest Health

Harbottle provides good habitat for roe deer. Forestry England actively manage deer populations to ensure that levels do not compromise objectives, particularly the promotion of natural regeneration in low impact silvicultural systems areas and the designated sites.

The effects of good deer management are evident through the low grazing/browsing impacts recorded on the regeneration of softer, more palatable conifers and broadleaves across the forest, such as in West Wood (plate 1). Deer fencing has been used on a coupe in East Wood/Gallow Edge to protect a restock of Douglas fir. If deer browsing can be maintained at low level, further fencing might be avoided.



Plate 1: Advanced tree regeneration, West Wood.

There are pests and disease pressures impacting the forest at varying levels at Harbottle forest, the most prominent are:

- *Hylobius abietis* (Large pine weevil) is a well-established insect in Northumberland forests. It is of greatest risk to newly planted trees in the first 3 to 5 years of restocking phase after felling. Parts of Harbottle took a lot of damage in the winter storms of 2021/22 (Storm Arwen). The forest strategy is to leave felled ground fallow for three years to allow the weevil population growth to peak naturally and disperse. This reduces the reliance on chemical controls. The new restocking plan will diversify species and reduce mean coupe sizes to reduce the future risk of storm damage.

- Great spruce bark beetle (*Dendroctonus micans*) has been recorded in the wider geographic area (Kidland forest) and a control programme of releasing the predatory control beetle Rhizophagus grandis has been in place. The low level of spruce in Harbottle reduces this risk.

- Dothistroma needle blight (*Dothistroma septosporum*) causes early needle drop on conifers, but pines are particularly susceptible. This pathogen can greatly depress volume production and weaken trees to be vulnerable to other health issues. The response to this is to diversify species mixtures at restock and to consider the provenance of species as some pines are more resistant that others.

- Ash-dieback (*Hymenoscyphus fraxineus*) is present in the wider landscape and affects planted trees. Because of this, ash will not be planted as part of any native woodland mix. Natural regeneration of ash will be accepted.

- Across the UK larch (Larix spp) is under threat from the disease *Phytophthora Ramorum* and this has been detected in the wider Kielder forest. Because of this, larch will not be planted as part of the restocking options.

Forestry England continues to monitor for other pests and diseases that might influence the future development of a forest plan, such as the *Ips typographus,* European spruce bark beetle, which was first recorded in the UK in Kent in 2018. The guidance on restocking in this forest plan is intended to give foresters flexibility to respond to changes in the availability of planting options.

Designated Areas

Special Areas of Conservation

The Harbottle Moors SAC (UK0030333) includes c171.0 ha of the open habitat in Harbottle forest (Map 2). This area is managed for open dwarf-shrub heath features and operational management is dealt with through the management plan for the Harbottle Moors SSSI.

Sites of Special Scientific Interest

There are three sites of special scientific interest (SSSI) overlapping Harbottle forest (Table 3). The River Coquet & Coquet Valley Woodlands SSSI is adjacent to the forest and whilst management takes this into consideration, non of the feature lie directly in the forest.

Table 3: Summary of Sites of Special Scientific Interest

Unit Name	Harbottle Moors	Holystone Burn	Holystone North Wood
Unit ID	1003324	1003329	1009829
Feature	Dwarf-shrub heath.	Broadleaf, mixed and yew woodland-upland.	Broadleaf, mixed and yew woodland-upland.
Unit No	1+2	2(part),3+4	1
SSSI Area (ha)	921.0	110.7	14.53
Area FE (ha)	171.3	66.38	14.53
% of SSSI in FE Management	18.6	60.0	100.0
SSSI Condition	Units 1 & 2: Unfavourable recovering.	Unit 2 & 3: Favourable Unit 4: Unfavourable no change	Unfavourable recovering
Threat	• Encroachment of bracken and loss of dwarf-shrub heath communities. • Over grazing.		• Lack of age diversity in the woodland & over shading of mature oaks preventing natural self-seeded trees to thrive. • Browsing by deer preventing native tree regeneration. • Incursion of non-native conifer regeneration.

Forestry England is committed to furthering the conservation and enhancement of SSSI interest features as part of our land management responsibilities.

The forest plan aligns with the SSSI management plan for the three SSSIs with the objective of achieving favourable condition by:

- Enabling silvicultural thinning in Holystone North Wood to remove non-native conifers and monitoring Harbottle Moors for tree regeneration.
- Enabling clearfelling and silvicultural thinning in conifer stands around Holystone Burn oak woods to remove non-native conifers and buffer the SSSI with Scots pine/native woodland options.
- Harbottle Moors: removal of Sitka spruce stands from the forest edge of the SSSI/SAC boundary. Forest operations that could have the potential to impact the SAC will be assessed under the Habitats Regulations Assessment



Plate 2: Holystone Burn oak woods.

Ancient Woodland

This Forest Plan has used the existing Ancient Woodland Inventory to determine the extent of ancient woodland, whilst the Revised Ancient Woodland Inventory is being completed. Future plans will incorporate any revisions. The forest contains 33.6 ha of ancient woodland and 28.7 ha of plantation on ancient woodland sites (Map 2). Much of this woodland type is associated with the SSSI in Holystone. In keeping with the Keepers of Time: Ancient & Native Woodland & Trees Policy in England (2022) Forestry England aims to restore these sites to native woodland with improved ecological condition.

Ancient Woodland (cont.)

The current condition of the ancient woodland is described through a semi-natural score which rates the proportion of native and honorary species in the canopy (table 4). Forestry England accepts Scots pine as an honorary native species. Management in and around these sites will focus on removing non-native tree species, especially at Lanternside Cleugh on the Dovecrag Burn and at the Oaks and Cat Law.

Table 4: Ancient Woodland Condition Score		
Semi-natural Score		Proportion
0	No trees.	8.0%
1	>80% native species.	72.6%
2	>50%-<80% native species.	7.5%
3	<20%-<50% native species.	0.0%
4	<20% native species.	11.9%

The ordnance Survey mapping from the 1840-1880 series (plate 3, courtesy of National Library of Scotland map collection) corroborates the Natural England ancient woodland inventory but also shows that plantations or woodlands were established in other parts of the forest, notably West Wood, Newpark Plantation and Woodhall wood. Forestry England will adapt its management for ancient woodlands in response to changes in the Ancient Woodland Inventory as they come forward.

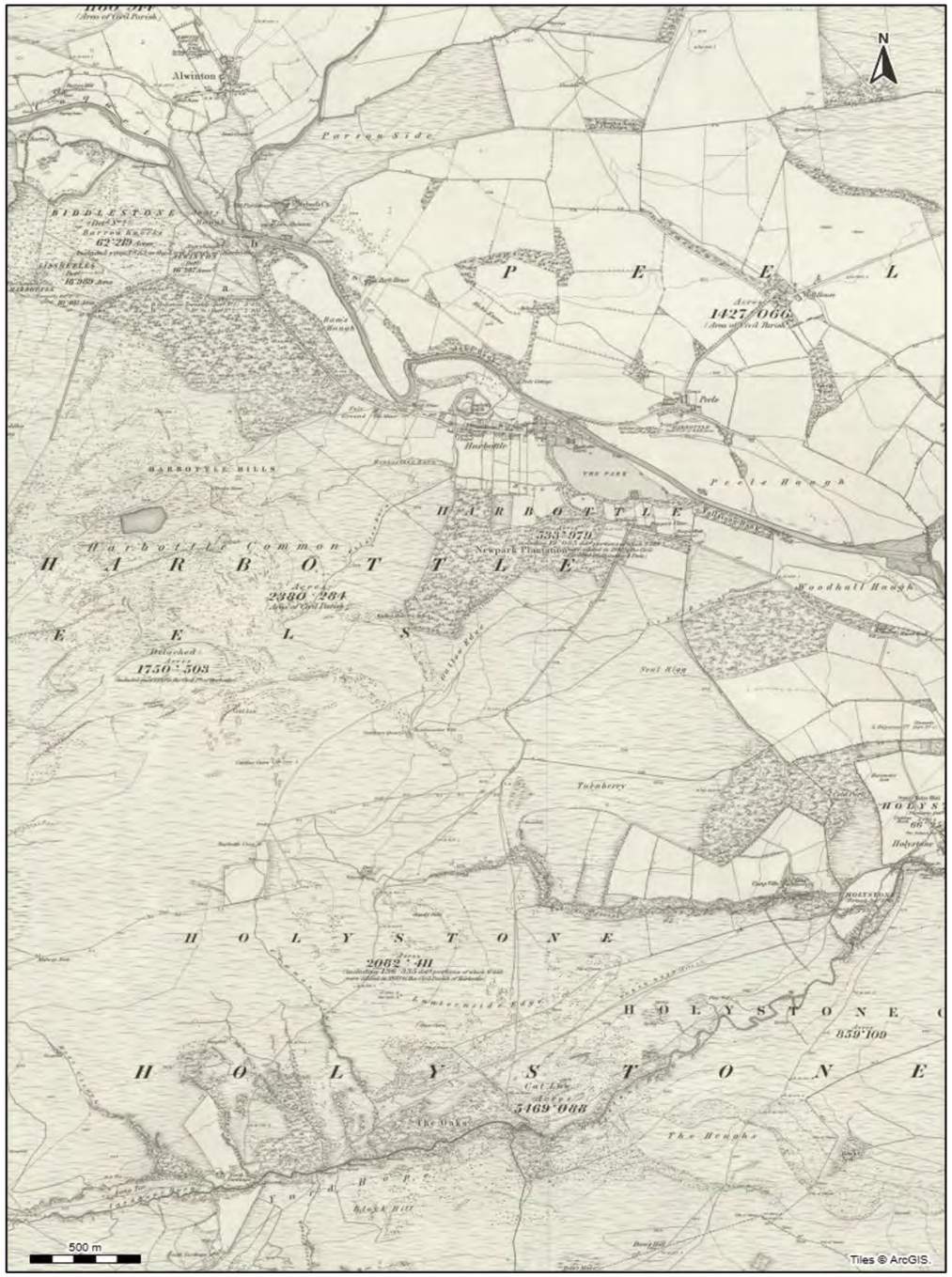


Plate 3: 1840-1880 Ordnance Survey Mapping for Harbottle & Holystone.

Northumberland National Park

Harbottle forest is in the Northumberland National Park. This forest plan demonstrates how forestry, which has been prominent in shaping the landscape we see today, can create greater public benefit through sustainable land management delivering for people, nature, and the economy.

The National Park management plan promotes 5 strategic themes, which the forest plan makes a strong contribution to (table 5). Management within Harbottle forest will take into account:

- Protection and improvement of upland heathland on Harbottle Moor and the upland oak woodland in Holystone wood.
- Maintenance of forest structures beneficial to red squirrel populations as a key regional species.
- The improvement of habitat for other forest flora and fauna such as the Northern woodant.
- Enhanced sediment and watercourse protection on hydrologically sensitive ground feeding into designated water systems.
- Landscape scale ecological cohesion, recognising the connected nature of Harbottle forest to the wider moorland, pasture and riparian networks.
- Alignment with National Park ambitions for nature recovery, woodland expansion, climate action, and resilient long term landscape management.

These considerations form a core part of Forestry England's commitment to supporting the conservation and favourable condition of designated sites while delivering sustainable forest management.

Table 5: National Park Strategic Themes & Forest Contribution

Strategic Theme	Contribution Though The Harbottle Forest Plan
Nature recovery.	• This forest plan focuses management on removing non-native conifers from zones closest to the SSSI features at the Holystone oak woodland, Drakestone burn and Sealburn Quarry. • Red squirrel habitat will be maintained through the development of forest structures using Scots pine and Norway spruce as favoured cone producing canopies. Silvicultural thinning will help develop cone producing canopies. • The continued restructuring of forest to small coupe sizes will increase canopy diversity in the forest. • An increase in the use of native broadleaves (birch/aspen) in conifer mixtures at restocking will increase diversity of the plantation habitat.
Climate Action.	• The rotational felling of the forest resource conifers places sustainable timber into the supply chain. • Greater use of silvicultural thinning across the most sheltered parts of the forest to promote diversity in canopy structure. • Underplanting in older thinned stands to encourage development of shelterwood systems. • Maintaining a diverse range of tree species will increase the resilience of the forest to climate change and forest pests and diseases.
Cultural & heritage.	• Scheduled ancient monuments have management plans and are monitored and maintained. • Unscheduled heritage features are identified during operational planning and mitigation put in place to protect them from harm.
A welcoming park.	• The majority of Harbottle forest is dedicated under the CRoW Act 2000. The forest provides simple access for pedestrians, cycling and horse riding. • Basic access points with limited parking are provided at Northwood and Holystone.

Historic Environment

There are two scheduled ancient monuments in Harbottle forest, a bank/dyke feature and a stone cairn (table 6). The Cross Dykes site is currently on the English Heritage risk register because the management plan has expired. As part of the forest plan review process, the management plans for both scheduled sites will be renewed and agreed with English Heritage.

The presence of tree regeneration and bracken tends to be the main action to address in management plans in order to maintain good condition.

In addition to these scheduled monuments there are 18 recorded unscheduled features in the forest (Map 2) which point to the long history human occupation in this landscape including:

- Path of a Roman road.
- Site of a Romano-British farmstead.
- Post medieval quarry.
- Discoveries of an arrowhead and stone axe head.
- Boundary stones and cairns.

Forestry England follows the relevant parts of "The protocol for the care of the government historic estate" (2017) and demonstrates a sustainable approach to the historic environment by adhering to UKFS and UKWAS so that the heritage of the estate can be conserved, understood and enjoyed.

Pre-operational planning ensures that sites are assessed and mitigation put in place to protect features. Site assessments also look for potential features that have not yet been recorded.

Table 6: Scheduled Ancient Monuments

ID No	SAM Name	OS Grid Reference	Actions supported by this Forest Plan
1011396	Cross dyke, south of Campville.	NT94700222	Removal of trees from the site. Maintain as open habitat. Keep machinery off the features.
1011395	Round cairn, 200m south-west of Campville.	NT94530234	

Map 2 - Habitat Designations

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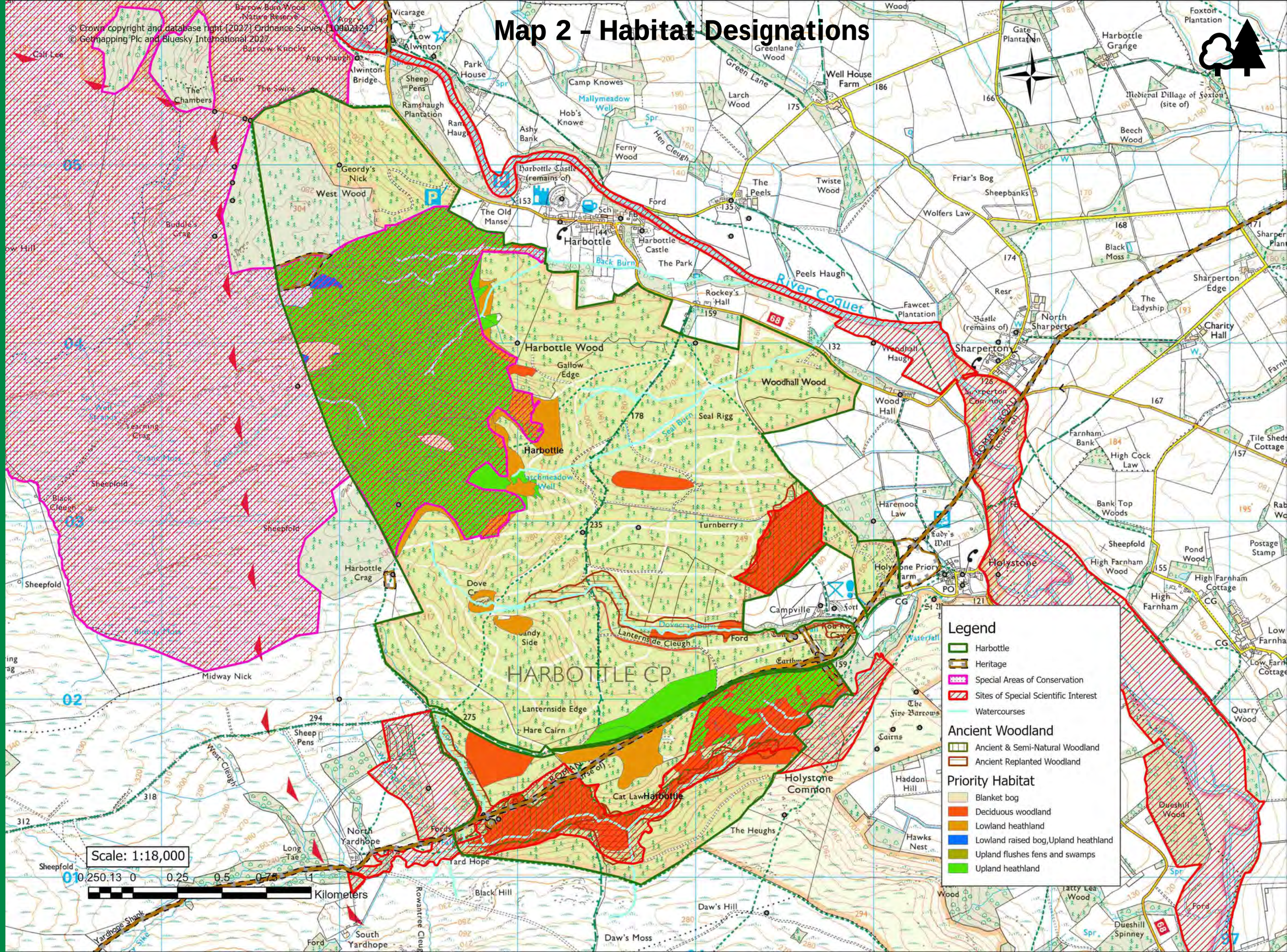


Legend

- Harbottle
- Heritage
- Special Areas of Conservation
- Sites of Special Scientific Interest
- Watercourses

Ancient Woodland

- Ancient & Semi-Natural Woodland
- Ancient Replanted Woodland

Priority Habitat

- Blanket bog
- Deciduous woodland
- Lowland heathland
- Lowland raised bog,Upland heathland
- Upland flushes fens and swamps
- Upland heathland

Natural Environment

The habitats of Harbottle forest are predominantly coniferous forest (c49%) with broadleaf woodland areas (c15%). The latter is mostly ancient woodlands but the proportion of planted native woodland is establishing well.

The open habitat component comprises upland wet heathland with bogs and acid grasslands.

Table 7 summarises a range of key species groups that benefit through this forest plan.

Juniper is a notable species in this forest and is a feature of the Holystone Burn Woods SSSI. Juniper is susceptible to *Phytophthora austrocedri* which is a pathogen that has caused dieback in many juniper colonies. To control this disease, the management advice is to avoid planting introduced stock and rely instead on natural regeneration as there is evidence on natural resistance developing in some cases.

Table 7: Species and Actions Supported by this Forest Plan

Species	Actions supported by this Forest Plan
Red squirrel	Increasing the proportion of other conifers in the restocking proposals, such as Norway spruce and Scots pine should increase the quality of the food resource for Red squirrels.
Insects: **Glow-worm, *Lampyris noctiluca*.** **Northern (Hairy) Woodant, *Formica lugubris*.**	Develop forest/ride edge habitats. Maintain a pine/conifer content for needle litter nest building.
European otter	Improving the diversity and connection of riparian corridors will increase their value as feeding and breeding territories from the river Coquet.
Reptiles; Adder, Slow-worm	Maintain large scale open wet heath and riparian habitats, in conjunction with dappled native woodland fringes.
Goshawk	Maintaining forest structure provides breeding and hunting habitat not available in the wider landscape.
Lesser spotted woodpecker, Tree pipit, Redstart, Pied flycatcher, Wood warbler, Marsh tit, Lesser redpoll, Hawfinch.	Maintain forest/woodland cover to provide habitat. Diversify tree species and structural composition of the wood by planting a wider range of species and thinning.
Insects: Small Pearl Bordered Fritillary, Large Heath, Green Hairstreak butterflies.	Provision of open habitats that transition from surrounding hill land and riparian zones.
Plants: **Juniper, *Juniperus communis*.** **Chickweed wintergreen, *Trientalis europaea*.** **Petty (Needle) Whin, *Genista anglica*.** **Bog myrtle, *Myrica gale***	Juniper colonies will be monitored for disease. Natural regeneration will be encouraged and protected through deer management. Improving the mire and bog habitats will provide opportunities for this range of plants to thrive. Habitat monitoring schemes will check on the presence/absence of species.

Red Squirrels

Red squirrels are important species in the North of England. Harbottle forest provides an important habitat for a wide range of flora and fauna species. Modelling the forest habitat for Harbottle forest indicates that the current forest structure could hold between a low of 29 and a high of 105 animals depending on seasonal/annual peaks and troughs.

The potential for this species is that future restocking proposals using more Scots pine and Norway spruce and encouraging the native oak woodland to expand could lift the carrying capacity towards the range of 55 to 180. This modelling is not absolute, but rather indicates that the future forest should maintain viable habitat for Red squirrels

Grey squirrels have been recorded in and around the forest and are currently controlled under permission by the Coquetdale squirrel group.

Landscape and Topography

Harbottle forest is located within the landscape character area for the Northumberland sandstone hills, but this coincides with a convergence of landscape types for the Border, Moors and Forests, the Cheviot Fringe and Cheviot which tightly bordering around it

The Northumberland National Park Authority, Update of landscape character assessment for NNP (2019) has this as type 8, outcrop hills and escarpment. Key characters:

- Flat-topped elongated ridges & rounded sandstone hills.
- Distinctive steep scarp faces forming notable stepped, often dark, skyline silhouettes.
- Open plateau dn gentle dip slopes clothed in heather moorland, acidic grassland mosaic, coniferous forestry and peat bog/mires.
- Steeper slopes clothed in bracken, heather and broadleaved woodland with craggy outcrops.
- Wet pastures and semi-improved pastures on lower slopes.
- Little or no habitation but significant archaeological remains.
- Water bodies including natural loughs and reservoirs.

The leading action from the review for this landscape type was to support the ongoing, sensitive restructuring and encourage use of continuous cover forestry systems or long-term retentions.

The Ordnance Survey map for 1840-1880 (acknowledgement to National Library of Scotland, Maps) show existing forest cover in West wood and Newpark plantation, Woodhall wood, North wood and the Oaks amounting to at least 140 ha. Some additional woodland cover was evident on these maps in places such as Lanternside Cleugh, which ties in with ancient woodland classification. The balance of todays' forest area was planted after 1959 as the area was purchased through individual acquisitions.

Restructuring has been undergoing for some time but the advent the winter storms of 2020/21 (Storm Arwen) caused considerable damage across the site, with the winds coming opposite to the prevailing direction. This has created the opportunity to diversify the forest at the restocking stage using a combination of introducing more tree species to reduce the average area of coupes.

Development of continuous cover systems will be encouraged, but understoreys may need to be planted to encourage the development of under-stories.

Access and Roading

Access for vehicles in Harbottle forest is good with a sound core of road infrastructure which allows timber to be extracted and moved to market easily.

The need for new forest roads is likely to be limited, but maintenance to the existing network will be essential. It is more likely that soil-based forwarder routes will be required to access the further reaches of the forest. Requests for new road developments and upgrades are assessed as felling plans come forward, and assent is obtained from the relevant planning authority through prior notification.

Harbottle forest is connected to the public road network by the agreed timber transport routes, which uses the C172 and C180 county roads.

Communities

Harbottle forest is set in a rural landscape with community hubs adjacent to the forest at Holystone and Harbottle. Other local communities within close distance (1 to 2 km) include Sharperton and Alwinton. The largest community of Rothbury is c12.0 km away.

Recreation & Access

Harbottle forest is in a remote and rural landscape adjacent to two communities at Harbottle and Holystone.

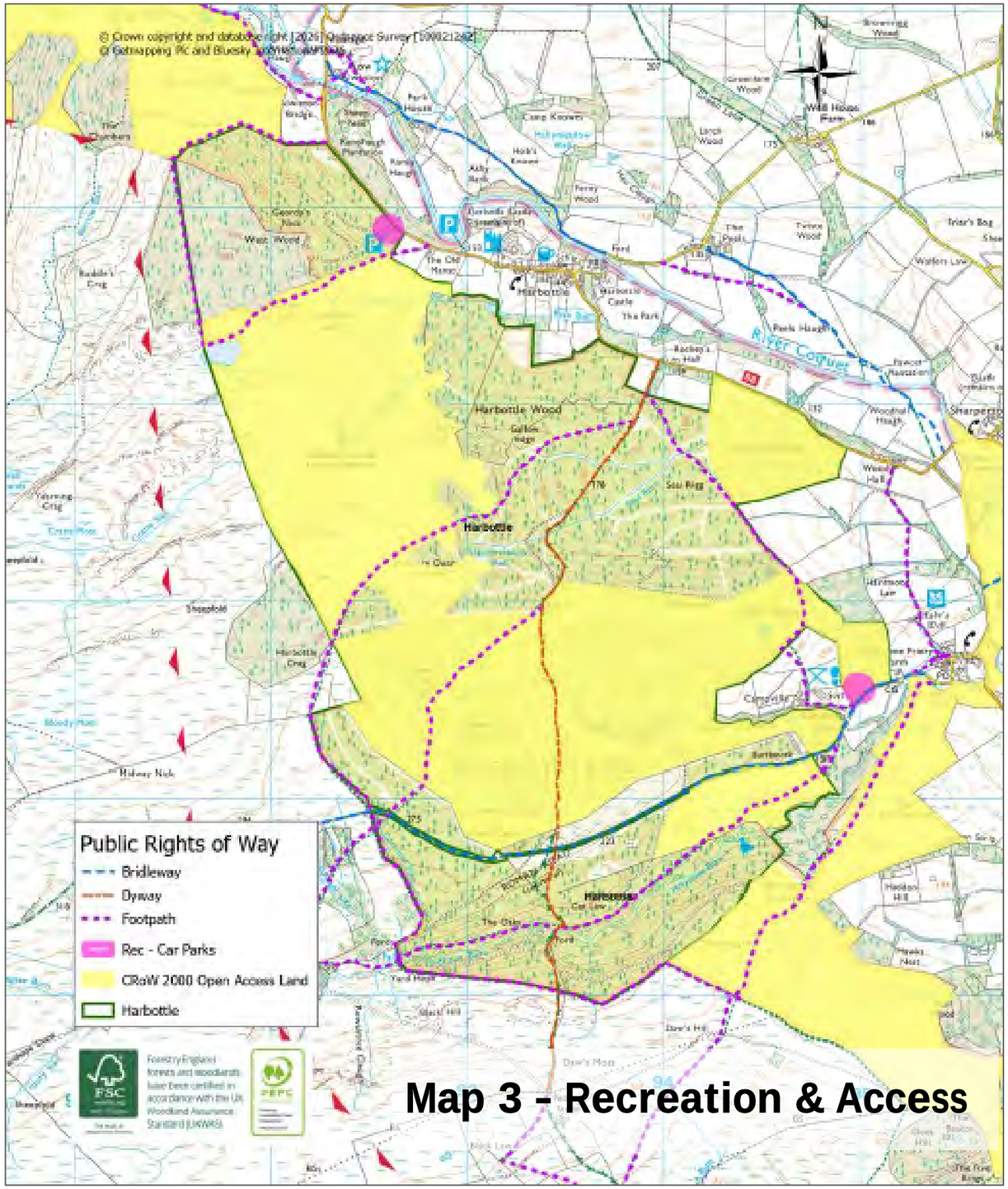
The forest has two formal, low key entry points with car parks which provide links to the public rights of way (Table 8 & map 3) and forest road network.

A proportion of Harbottle forest is dedicated under the Countryside & Rights of Way Act (2000). Over that, the Forestry England's access policy welcomes walkers on to the nation's forest estate as a whole.

Table 8: Public Rights of Way	
Classification	Length (km)
Bridleway	4.35
Restricted Byway	4.1
Footpath	16.73
Total (km)	25.18

The forest is well used by the local community and whilst it also sees a regular flow of other visitors from other locations, the forest is still best described as low to moderate level of use. This quiet appeal is part of the spirit of place of the forest and makes it a peaceful haven for those who do visit.

One of the footpaths provides a circular route that takes visitors on to the heights of Harbottle moor, past the sandstone boulder that is Drake Stone and Harbottle lake. From this vantage point visitors can look out over the ruins of Harbottle castle and up and down the Coquet river valley, and further off the Cheviot hills. This walk is promoted by third parties through social media.



Vision and objectives

Over the next 50 years, Harbottle forest will evolve into a resilient, diverse and sustainably managed landscape that delivers long-term economic, social and natural capital benefits.

The forest will support a broad range of habitats and species, with structurally varied stands, improved ecological connectivity, and a woodland composition better adapted to climate change and future pests and diseases.

Designated sites will be managed in favourable condition.

Scheduled ancient monuments will be managed to maintain them in a secure condition.

Sustainable timber production will continue to play a core role in the local economy, while recreational opportunities and improved landscape integration will ensure that the forest remains a valued resource for future generations.

Sustainable Forest Management

Timber production remains a priority objective for Harbottle, but the forest is already delivering good benefits across multiple objectives (Map 4, Design Concept).

Management techniques and decision-making will continue to adapt to changing climate, species availability and plant health; in line with the FE forest resilience strategy (2026).

Continuous cover systems based on silvicultural thinning will be focused on the more sheltered parts of the forest. Line thinning with clearfell will be used in the more exposed parts of the forest, with additional thinning where conditions allow.

Silvicultural thinning interventions will be used to move the ancient woodland resource towards a better condition and then to maintain it, primarily through the removal of non-native conifer species.

Deer management has reduced browsing pressure to a level that is allowing native broadleaved species and palatable conifers to establish without fenced protection. There is a very good naturally present seed-rain of birch seed which is establishing on felled areas. Scots pine regeneration is evident on open habitats, but not under canopies. The low browsing levels will allow under-planting of conifer species to be used to advance the development of secondary storeys and introduce a broader range of species.

Our broadleaved coupes are beginning to developing throughout the forest. These coupes will be managed to remove non-native conifer regeneration through silvicultural thinning to achieve and maintain the core objective. Longterm, there is no reason why these coupes cannot be managed to deliver timber, biodiversity and landscape objectives.

Harbottle Moors & Holystone North & Oak Woods

This network of nationally important open and woodland habitats will be raised to favourable condition. The open habitats need to be managed to remove non-native tree regeneration. The SSSI management plan will set an agreed level for native woodland colonisation on open habitat.

Management in the designated woodlands will focus on controlling non-native tree regeneration, developing a more sensitive buffer around the woodlands and continuing deer management to enable natural regeneration of oak and juniper to establish.

Plantation Sitka adjacent to the designated sites will be removed and replaced with other conifer and broadleaved species.

Improving wildlife corridors

Through its combinations of open and forest habitats and the improving ancient woodland resources, Harbottle forest will make a significant contribution to local biodiversity.

The riparian zones, forest rides and open areas will continue to develop as functioning habitat networks for all species, of which wood ants are one example; Harbottle forest being one of very few recorded colonies of Northern (Hairy) Wood ant in North Northumberland (NBN Atlas).

The forest plan seeks to maintain a strong component of Scot's pine and other tree species whose coning and seed will benefit Red squirrels as a habitat resource.

The forest plan will support our aspirations to give missing species, such as pine marten, the opportunity to establish within the forest.

Map 4 - Design Concept

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West wood. Remove poorly performing Lodgepole pine. Restock with Scots pine/ native woodland.

West wood. Remove poor form Western Hemlock. Develop mixed conifer CCF.

Drakestone Burn. Remove poorly performing Sitka spruce from edge of SSSI. Move to minimum intervention Scots pine coupe for water quality.

Woodhall wood. Replace larch with other conifers; firs & pines.

Develop Scots pine coupes throughout the forest, mixed with aspen/birch for timber & as Red squirrel feeding resources.

Sealburn Quarry. Remove poorly performing Sitka spruce from edge of SSSI.

North Wood. Develop ancient woodland resource. Achieve SSSI favourable condition.

Develop native woodland upland fringe. Thin to remove conifer regeneration.

Develop native woodland resource in Lanternside Cleugh.

Holystone wood. Remove mature non-native conifers from edge of SSSI. Restock to Scots pine native woodland.

Holystone wood. Remove windblown Scots pine & restock to pine/native woodland.

Scale: 1:18,000

0.250.13 0 0.25 0.5 0.75 1 Kilometers

Objectives

Our management objectives (table 8) are derived from Forestry England's vision for the nation's forests described in the Growing the Future: 2026 – 31 organisational plan, and North Forest District's strategic objectives.

Objectives fall into three pillars of sustainable forest management, these are:

- **For Wildlife** - Nature is in crisis. The UK has lost more biodiversity than most other countries in the world, being ranked 189 of 218 countries assessed on a Biodiversity Intactness Index. The recent UK State of Nature report showed that 13% of species are at immediate risk of extinction.
- **For People** - Energising, restoring and supporting mental and physical wellbeing, time outdoors is a necessity for all. We are always learning more about the positive effects of being in nature for everyone.
- **For the climate** - We are facing a climate emergency. The nation's forests are critical for reducing the causes and mitigating the impacts of climate change. We see those impacts today at landscape scale in the resilience of forests, trees and land management.

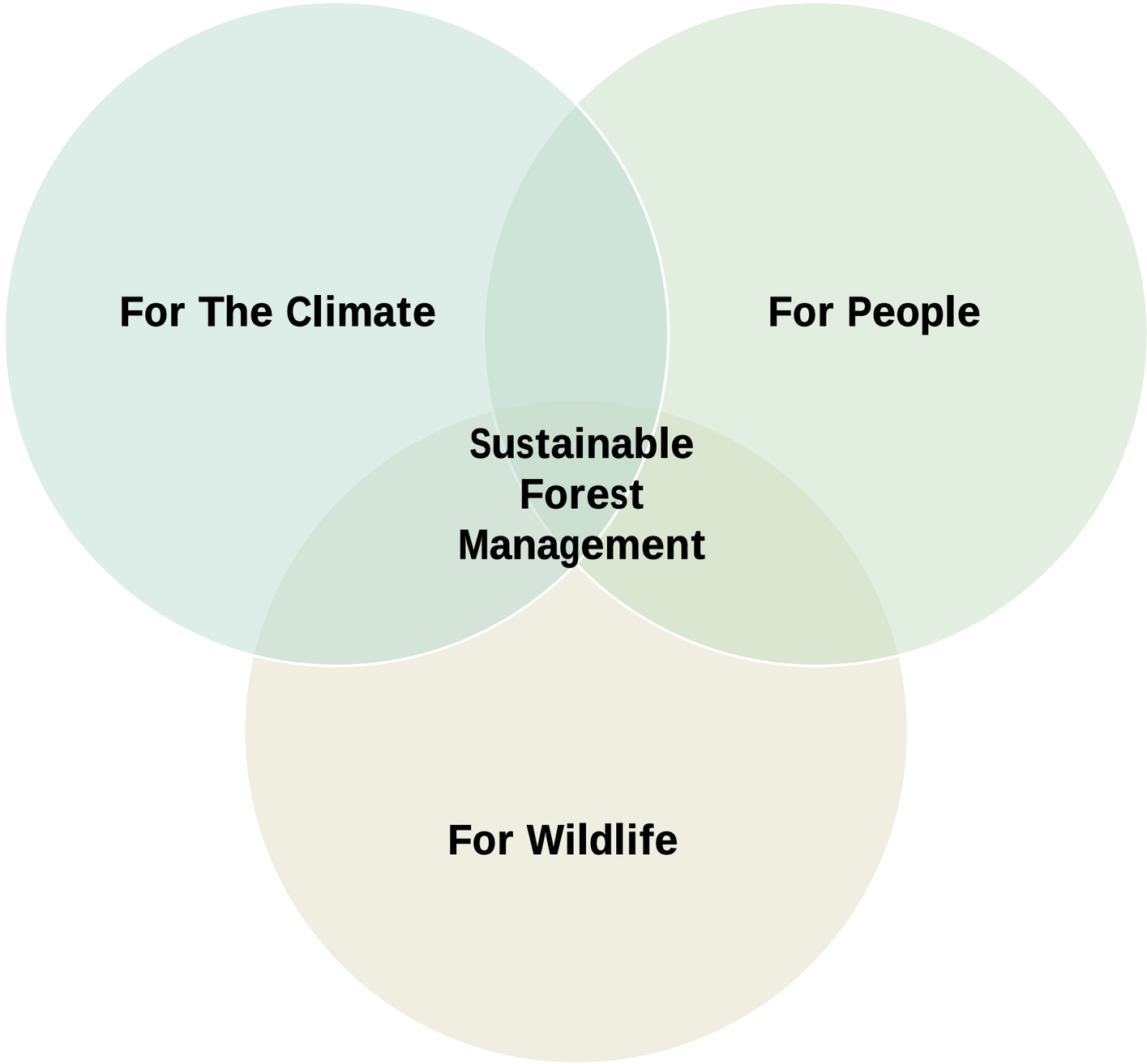


Table of Objectives

Table 8. Forestry England Goals supported by the Harbottle Forest Plan

	Growing the future strategic goal	Harbottle Forest Plan Delivers	Monitoring
For the climate	*We will offer over one million cubic metres of sustainable timber to market each year, maintain world-class forest management practices, externally accredited to international standards.* *Greater structural and tree species diversity in the nation's forests to support adaptation to climate change.* *Continuing to restore and help our habitats and landscapes to adapt, which will support their role in carbon absorption and biodiversity resilience and tell the story of its place in productive forestry.*	Deliver approximately 29,955 m^3 of sustainable timber over the ten years of this plan 2027–2037, maintaining UKFS compliant operations. Restocking will focus on Scots pine, Norway spruce, Serbian spruce, Douglas fir, Silver fir, Western red cedar, Japanese red cedar. Birch is freely regenerating across the forest, so aspen will be planted to diversify the broadleaf base. Forest operations will remove non-native conifers from the ancient woodlands. Deer management will continue to keep browsing levels down at a level that promotes natural regeneration of oak and juniper.	• Contract and sales records. • Sub-compartment database updates. • Thinning records. • Plant health notices. • Deer management records. • Year five forest plan review. Report on progress against objectives. • Ancient woodland condition monitoring.
For wildlife	*Continuing action to protect, improve and build the resilience of our most special habitats, including ancient woodlands and Sites of Special Scientific Interest.*	The removal of Sitka spruce from the edge of the Harbottle Moors SSSI to improve favourable condition. Removal of non-native conifer regeneration from the upland broadleaved coupes. Develop Scots pine component as a resource for Red squirrels. Manage forest operations around the sensitive season for Red squirrels. Develop the network of riparian corridors within Harbottle forest, encouraging the development of native broadleaf woodland.	• Sub-compartment database updates: monitor for change in forest structure • Year 5 forest plan review: report on progress against objectives. • FE designated sites management plans: review against objectives. • Ancient woodland condition monitoring. • Species records: North East Environmental Records Centre. • Coquet Squirrel Group trapping records.
For people	*We will continue to provide first-class outdoor experiences in the nation's forests with excellent customer service.* *Evolve high quality partnerships that grow expertise and innovations, enabling us to reach wider audiences in new ways with new technologies, services and products.*	Improve the visual value of the forest by diversifying the forest composition and structure. Align forest objectives to work with local partnerships for improved gains in climate, biodiversity and water quality at landscape scale. Protect features of the historic environment.	• Year five-forest plan review. Report on progress against objectives. • Recreation inspection records. • Sub-compartment database updates. • Complaints database. • Scheduled ancient monument management plans: reviews.

Proposals

This section focuses on the management of the forest over the next 10 years. Providing rationale for each aspect of sustainable management, acknowledging the value and impact evaluated in sections 2 & 3.

Silviculture

Harbottle enjoys relatively sheltered conditions across the lower slopes of the forest which should allow silvicultural thinning to be implemented over much of the ground.

Continuous cover forestry is an objective for this plan. Being mindful of the impact of Storm Arwen and the moderate exposure scores, the range of systems that can be used may be limited to irregular shelterwood group approaches or clearfell with seed trees. Recent changes in timber economics make it more feasible to undertake first thinning at year 20-25 which will allow options to develop.

Restocking by natural regeneration is an attractive option. Birch is observed to be freely regenerating in the forest and as a species that is of low palatability to deer browsing is establishing well. Conversely, Scots pine regeneration is not being recorded in the forest, which is feature of the closed canopy structure that existed prior to Storm Arwen. It will be necessary to replace the conifer stands damaged by the storm by restocking with conifer nursery stock. This will allow the Scots pine resource to be built back up and a broader range of species to be introduced.

The options for silvicultural systems in Harbottle are shown in Map 5.

Along riparian corridors, woodland rides and transitional edge zones will be managed as dynamic habitat. These zones will develop as open growing clumps of willow and birch mainly through natural tree regeneration and natural processes. Non-native conifers regeneration will be removed from these zones using thinning/felling interventions.

These dynamic habitat areas will improve ecological connectivity, and support priority species such as red squirrel and upland birds.

Where minimal intervention strategies are proposed for the ancient woodland or riparian zones natural processes/succession is allowed to dominate except where public safety, a plant health issue or an overarching biodiversity objective arises. This approach gives nature the chance to decide what happens next. In some sites an intervention may still be required to remove conifers before allowing the site to take its own path.

Additional land within the forest includes, forest roads, quarries and car parks, and agricultural tenancy areas. These will be managed by operational teams or tenants to maintain access, ensure safe use, and support wider land management objectives across the forest.

Proposed Felling

Proposed coupe felling order for the next 20 years is shown in Map 6, this shows only coupes under clearfell management. Silvicultural thinning will take place in coupes where it is assessed to be viable, typically on a 5 to 10 year intervention cycle.

Table 9 shows the estimated production forecast over the next 20 years of the plan period to be 40,693 m^3. This includes the potential volume from thinning.

As a result of the damage incurred in the 2021/22 winter storms volume production declines to zero after 2041, before starting to climb again after 2052 as the restocks from 2021 onwards mature to thinning ages.

Table 9: Estimated timber volume (20 yrs)			
Fell Period	Thin (m3)	Fell (m3)	Estimated Volume (m3)
2027-31	1,927	15,073	17,001
2032-36	950	12,004	12,954
2037-41	795	9,198	9,993
2042-46	726	19	745

To achieve local management objectives removal of trees is also necessary from roadsides to manage and protect the forest road infrastructure. This will be a rolling program dictated by survey and management needs, which means there is variable tree cover along the roadsides in Harbottle forest. These areas are classified as managed open habitat.

Much of the internal forest open habitat network along riparian zones and forest edges will be classified as successional/dynamic habitat (map 7). Dynamic habitat is expected to accumulate native woodland regeneration through natural processes to create an open, scrubby woodland ecotone habitat network.

Management interventions in these zones will be as for irregular shelterwoods, felling or thinning to remove Sitka spruce regeneration before it reaches seeding age (c20 yrs) to encourage the development of open grown native woodland habitats.

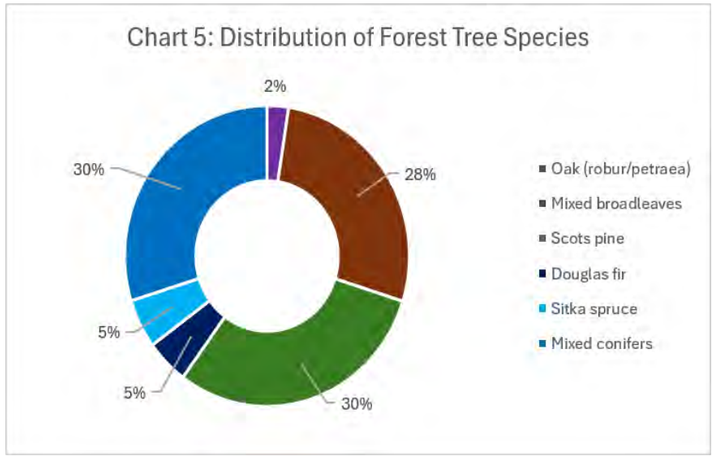
Felling interventions will be triggered by survey results and may take place as independently planned operations, or as an extension to a neighbouring felling coupe, depending on which option is more feasible.

Future Habitats & Species

The intention for the future forest habitats through restocking, natural regeneration and open habitats is shown in Map 7. These intentions set a strategic direction based on the analysis of site conditions and management objectives, before felling takes place. The forest manager always has the authority to amend restocking plans once tree cover has been removed and a site can be more thoroughly surveyed. Any changes must meet the objectives in the FE Forest resilience strategy (2026) and be assessed as a formal amendment to the forest plan.

The distribution of land use types in Harbottle will be maintained at around 65% forest (558 ha), 13% dynamic habitats (111 ha) and 22% managed open space, largely the Harbottle Moors SSSI (192 ha).

The composition of the forest tree species within the afforested area will change in response to moving away from using Sika spruce and larches and encouraging more broadleaved forest area. (chart 5).



The proportion of broadleaved forest cover increases from c24% to 30% largely through the increase of native woodland buffering the SSSI.

The proportion of Scots pine appears to decline but this an effect of it being prescribed as a mixture with birch and aspen rather than as a pure plantation. Scots pine can also be included within any restocking prescription for mixed conifers.

Sitka spruce decreases to 5% in favour of increasing the use of alternative conifer species to diversify forest composition and build in resilience against climate and forest pest risks. The options for other species includes Norway spruce, Serbian spruce, Douglas fir, Silver fir, Western red cedar and Japanese red cedar; or any other species that is supported by Forest Research.

The forest development types for conifers includes the option add a proportion of aspen and birch within the stand.

With the exception of the woodland SSSI and ancient woodland sites, there is an ambition to win some timber production from any stands of broadleaved species. These stands focus mainly on birch, aspen and alder as the timber producers.

The summary for restocking required within the 10 years of this forest plan is summarised in Table 10, together with the options for forest development types.

Table10: Proposed restock species and composition				
Forest Development Types	Proposed restocking	Coupe number	Area (ha)	Felling Period
1.2.4 Norway spruce & shade tolerant conifers.	•70-90% Norway spruce & other conifers.	11803/11022 (part), 11804, 11587	12.7	Felled
1.2.7 Norway spruce & short-lived broadleaves.	•10-30% Aspen, birch, alder.	11448, 11685, 11243	38.9	2027-31
	•10-30% Open space.	11802, 11539, 11428	47.8	2032-36
2.1.7 Scots pine & birch/aspen.	•60-90% Scots pine.	11707 (groups), 11294, 11293 (part).	21.3	Felled
	•10-30% Aspen, birch, alder.	11293 (part), 11588, 11890	40.53	2027-31
	•10-30% Open space	11083 (part/groups)	36	2027-31
7.1.2 Birch & short-lived broadleaves.	•90% Birch, aspen, alder, rowan, willow (natural regeneration).	11372	9.5	2032-36

Conservation Area Network

The conservation area network around Harbottle forest is depicted in map 8. The landscape around the forest is largely based on open upland heathland and moorland and agricultural/pastoral grazed landscapes.

Plantations are habitats in their own right providing continuity of tree habitats for insects (eg Wood ants), birds and mammals such as raptors, red squirrels and pine martens that would be more poorly represented in the wider landscape. The plantations also allow the ancient woodland zones to be buffered and extended over time.

Harbottle forest links to the River Coquet through five significant watercourses, which link to the upland catchments on the Harbottle and Greenwood Law hills.

Much of the woodland riparian and ecotone habitats have been classified as successional/dynamic habitat. Dynamic habitats are largely open habitats along forest roads/rides, neighbouring boundaries and riparian zones. These habitats are expected to recruit more than 20% native broadleaved woodland cover, primarily through natural regeneration but also by enrichment planting where appropriate.

Management interventions may be implemented to remove non-native conifers that might regenerate.

Forest road corridors zones will largely be managed as open habitats to protect the integrity of the running surface. However, that still allows colonies of willow and hazel to develop along the area.

Wildfire Fuel Hazard Classification

A wildfire risk assessment was carried out during the preparation of this plan and identifies habitats within the forest block that, due to their vegetation type, may be either a high or low wildfire risk (map 9).

In this context, high risk areas are those that fire could move quickly through and potentially, into adjacent habitats.

It is not intended to show where fires are most likely to occur. Wildfires in the UK are almost always initiated due to human influence so the most likely areas for a fire to occur are variable.

This information is shared with Northumberland Fire and Rescue service and informs our emergency response plans.

The map is useful in identifying vulnerable habitats and restock areas during operational planning and forms part of a wider forest fire plan in North district.

The condition of habitats change year on year, therefore this map is only relevant to the year of printing.

Currently, wildfire resilience is managed at a beat level following principles set out on the Forestry England Website.

Map 5 Silviculture

- **Clearfell** coupes will be managed through clearcutting and restocked either through natural regeneration, replanting or a combination.
- Clearfell with seed trees may be used to initiate a form of shelterwood succession, using seed trees retained at c40 stems/ha.
- **Irregular shelterwoods** are dynamic habitat zones where we aim for an average of 50% canopy cover and 50% open space. They include riparian edges, woodland rides, and upland fells. This approach has advantages for biodiversity, such as Red squirrels
- **Long-term Retention are s**mall groups of trees that are retained beyond felling age for an amenity, biodiversity or landscape purpose. These areas will be managed for public safety and can be absorbed into mainstream coupes once the objective has been achieved.
- **Minimum interventions** are predominantly ecologically valuable areas where intervention will occur to achieve specified habitat outcomes.
- **Natural Reserves** are stands where no active management occurs, preserving natural processes, unless led by an over-riding habitat objective.
- **Other / Open land** is managed to ensure forest cover does not exceed 2m in height. A tolerance of 20% native forest cover will be accepted on some lower priority sites.

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Legend
- Harbottle
- Forest Roads

Management Type
- Clearfell
- Clearfell with seed trees
- Irregular shelterwood
- Long Term Retention
- Minimum intervention
- Minimum intervention (Natural Reserve)
- Other/Open land

Scale: 1:18,000
0.25 0.13 0 0.25 0.5 0.75 1 Kilometers

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Map 6 Management Coupes

This map shows the proposed felling program for Harbottle forest over the next 20 years. It focuses exclusively on areas managed under a clearfell system.

These stands are predominantly pine, Western Hemlock and spruce managed for timber production.

Depending on wind hazard, soil type, and accessibility, stands designed as low impact silvicultural systems (LISS) will undergo silvicultural thinning to improve timber quality.

Some of the stands marked for minimum intervention will be thinned to remove non-native conifer species to move the stand towards native woodland.

Land designated as open habitats or heritage sites will have trees removed to maintain the site management objectives.

Scale: 1:18,000

0.250.13 0 0.25 0.5 0.75 1 Kilometers

Legend

- Harbottle
- Forest Roads

Felling Year

- 2027-31
- 2032-36
- 2037-41
- 2042-46
- 2047-51
- LISS or After 2052
- Min Intervention
- Natural Reserve

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Map 7 – Future Habitats

Scots pine: can include mixtures with Lodgepole pine, birch and aspen up to 40%.

Mixed conifers: Options can include Norway spruce, Serbian spruce, Douglas fir, Grand fir, Western red cedar, Coastal redwood, Japanese cedar.

Mixed broadleaves: Birch, aspen, alder, rowan. Willow species can be introduced in riparian & ecotone zones. Longer lived broadleaves such as oak can be introduced where soil types and shelter are suitable.

Successional ride/ecotone/riparian zones: expected to recruit >20% native woodland. Will be managed to remove non-native tree species.

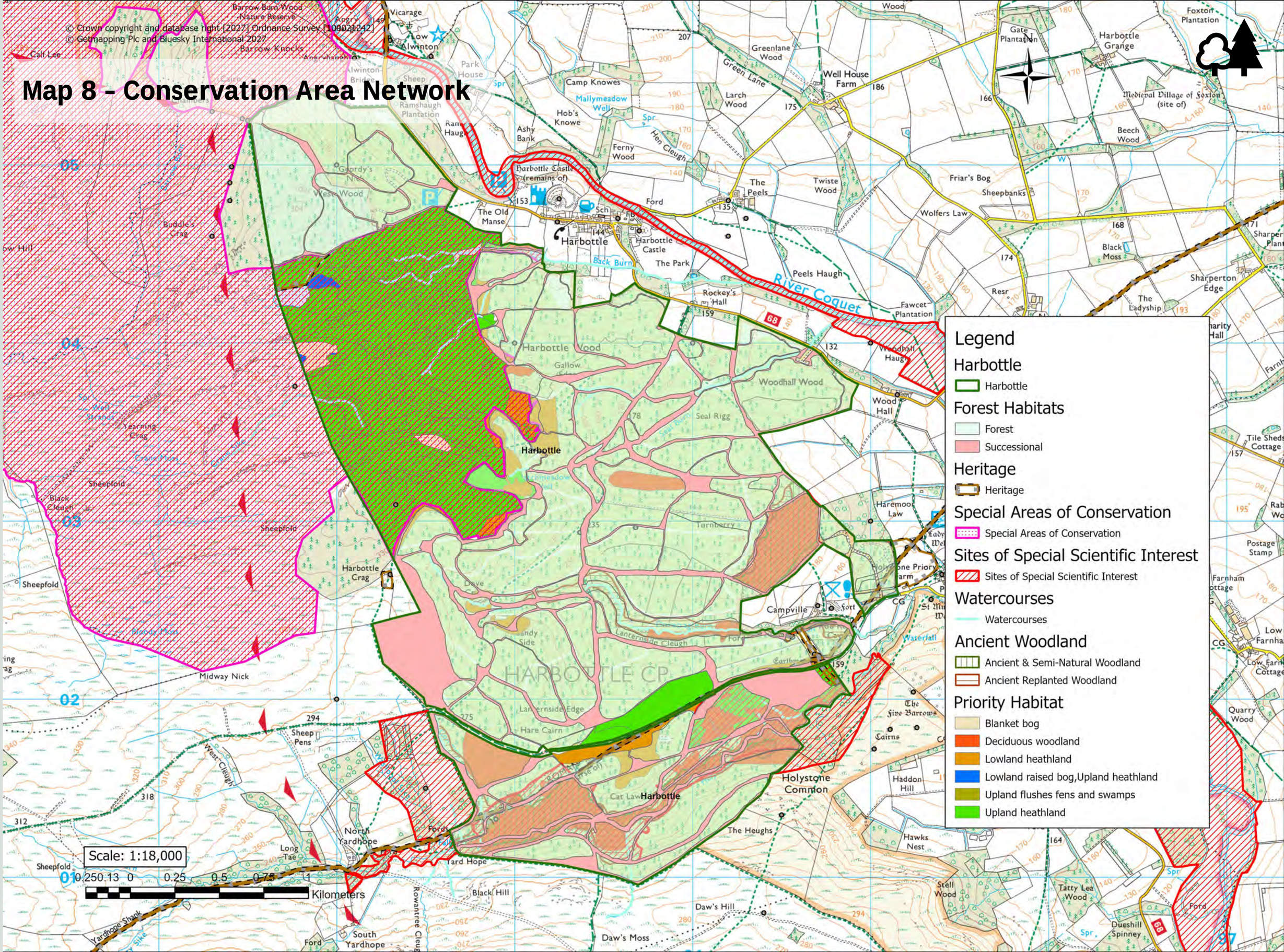
Managed open habitats; will be managed to be >80% open.

Scale: 1:18,000

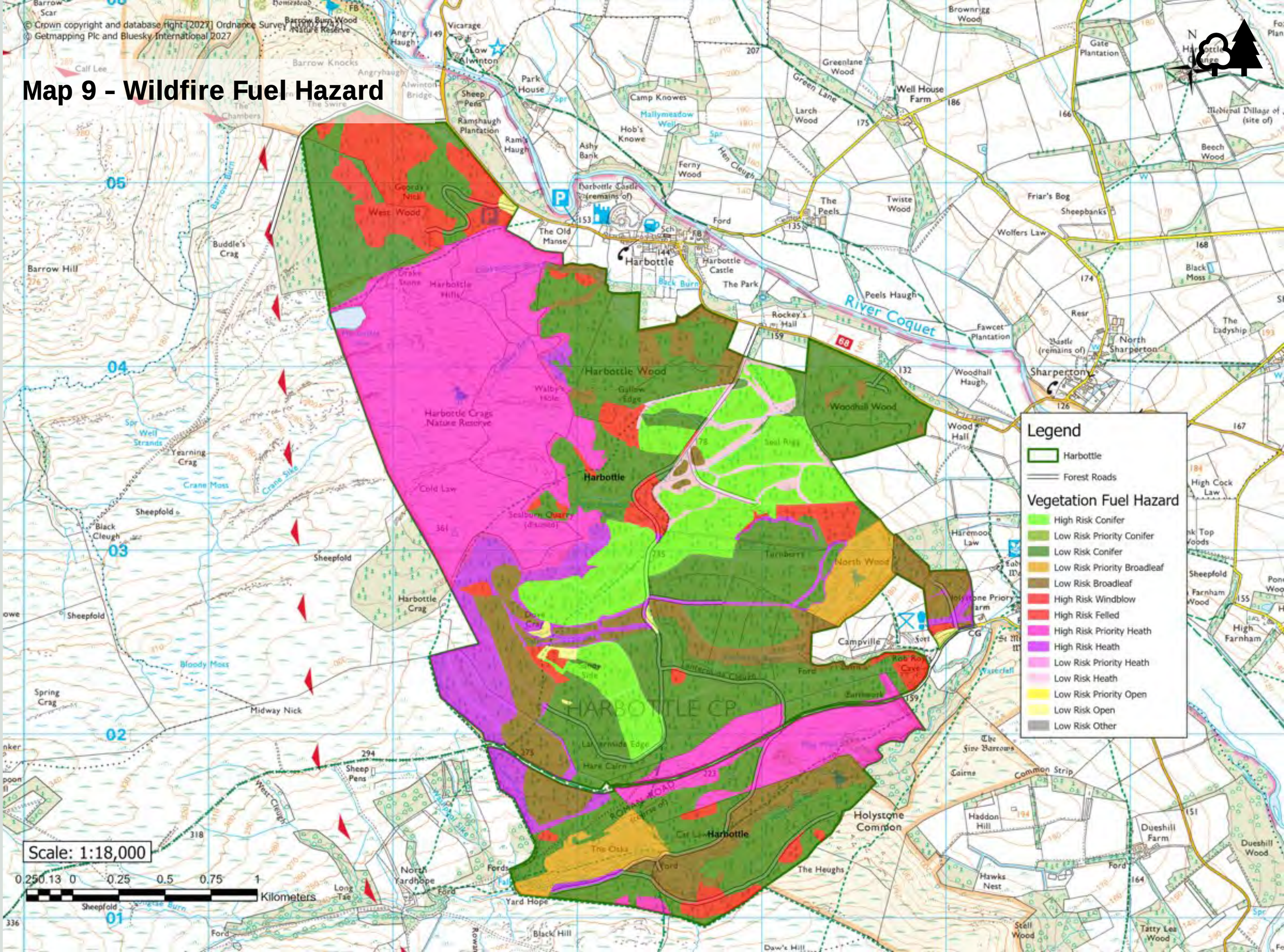
0.250.13 0 0.25 0.5 0.75 1 Kilometers

Legend
- Harbottle
- Forest Roads
- Oak (robur/petraea)
- Mixed broadleaves
- Scots pine
- Douglas fir
- Mixed conifers
- Sitka spruce

Map 8 - Conservation Area Network



Map 9 – Wildfire Fuel Hazard



Glossary

Acronyms & Organisations

FSC® (Forest Stewardship Council): An international non-profit organization that promotes responsible management of the world's forests. Forestry England forests are FSC certified.

PEFC (Programme for the Endorsement of Forest Certification): An international non-profit, non-governmental organization dedicated to promoting Sustainable Forest Management through independent third-party certification.

SSSI (Site of Special Scientific Interest): A formal conservation designation protecting the country's very best wildlife and/or geological sites.

SAC (Special Area of Conservation): A habitat designated under the European Natura 2000 regulations.

SM (Scheduled Monument): A nationally important archaeological site or historic building, given protection against unauthorized change.

VT (Veteran Trees): Trees that are of interest biologically, culturally, or aesthetically because of their age, size, or condition.

TSI (Trees of Special Interest): Trees that may not yet be "veteran" in age but have specific local importance or unique characteristics worth preserving.

Forestry Concepts

Natural Capital: The stock of renewable and non-renewable natural resources (e.g., plants, animals, air, water, soils, minerals) that combine to yield a flow of benefits to people.

Ecosystem Services: The direct and indirect contributions of ecosystems to human well-being (e.g., clean water, timber, carbon sequestration, recreation), often derived from Natural Capital.

Ancient & Semi-Natural Woodland (ASNW): Woodland that has existed continuously since at least 1600 AD. It is considered the richest land habitat for wildlife in the UK.

Resilience: The ability of a forest ecosystem to withstand or recover quickly from difficulties such as pests, diseases, fire, and climate change (as noted in your diagram's central intersection).

Native Diversity: The variety of species that are indigenous to a specific region, which Forestry England aims to increase to support local wildlife.

Common Management Terms

Clearfell: Cutting down all trees in a specific area at once. This is a standard method for harvesting timber and allowing for replanting or natural regeneration.

Thinning: The removal of a proportion of trees in a forest stand. This improves the quality and growth of the remaining trees and allows more light to reach the forest floor.

Shelterwood: A system of harvesting and regenerating forests using a low impact or continuous cover forestry (CCF) management system.

Restocking: Replanting an area after trees have been harvested either through manual planting or natural regeneration.

High forest: trees & forest cover grown over rotations of more than 20 years and/or to full height, rather than being cut and regenerated (coppiced) over short rotations typically of less than 20 years. High forest systems may be thinned during their rotations to promote growth and quality selection of stems.

Successional/Dynamic habitat: Open habitats allowed to recruit >20% native woodland cover through natural processes.

Natural processes: nature is allowed to determine how an area or habitat develops naturally, with minimal human influence.

Corridors: Strips of natural habitat that connect separated populations of wildlife, allowing them to move between different areas of the forest (crucial for the "protection and enhancement of habitats" mentioned in your text).

Ride/Glade: Open spaces within a woodland. Rides are often tracks used for access, while glades are open, grassy areas. Both are vital for biodiversity, particularly for butterflies and insects.

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