



## Yorkshire Forest District

### Sneaton Forest Plan

FP 31

2020



## Forestry England - Property

Forest District:	Yorkshire
Woodland or property name:	Sneaton
Nearest town, village or locality:	Whitby
OS Grid reference:	NZ 893023
Local Authority district/unitary Authority:	North York Moors National Park

## Areas for approval

	Conifer	Broadleaf	Open
Felling	76.2		
Lower Impact Silvicultural Systems regeneration felling	27.0		
Restocking	78.86	12.16	12.18
New planting	3.14	13.14	

1. I apply for Forest Plan approval for the property described above and in the enclosed Forest Design Plan.
2. I apply for an Opinion under the terms of the Environmental Impact Assessment (Forestry) (England & Wales) Regulations 1999 for afforestation as detailed in my application.
3. I confirm that the pre-consultation, carried out and documented in the Consultation Record attached, incorporated those stakeholders which FS agreed must be included. Where it has not been possible to resolve specific issues associated with the Plan to the satisfaction of consultees, this is highlighted in the Consultation Record.
4. I confirm that the proposals contained in this Plan comply with the UK Forestry Standard.
5. I undertake to obtain all permissions necessary for the implementation of the approved Plan.

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## Sneaton

904.6 Hectares

### Period of Plan: 2020 - 2030

#### 1. Background

Sneaton Forest is part of a network of forests managed by Forestry England (FE), Yorkshire Forest District, located within the North Riding Beat. It is situated approximately 7 km south of Whitby on the eastern fringe of the North York Moors National Park.

The forest is a freehold property where the majority of conifer was planted in the 1970's while large parts of the broadleaf dominant stands associated with Falling Foss are much older, circa 1850.

#### 2. Describing the Site

##### 2.1 Geology and Soils (FP Map 01)

Underlying geology varies between the coniferised plateaux and the broadleaf-dominant valley systems. The plateau is mainly sedimentary bedrock of sandstone, siltstone and mudstone formed in the mid Jurassic period with the igneous Armathwaite-Cleveland Dyke cutting north-west to south-east across the property. The valley systems are also formed of Jurassic sedimentary bedrock but overlaid with superficial glacial deposits of the Quaternary period.

The soils at Sneaton are heavily influenced through a combination of geology and slope resulting in a variety of soil types; podzolic peaty surface water gleys dominate the plateau with pockets of blanket bog associated with watercourses. Brown earths and typical surface water gleys occupy the valley sites. Based on Forest Research Ecological Site Classification, soils range between wet soil moisture regime (SMR) and very poor soil nutrient regime (SNR) across the plateau, and very moist SMR and medium SNR across the valley sites. The difference between SMR and SNR impacts on the range of 'suitable' species that can be considered for restocking/regenerating although objectives and silvicultural management will be very different between both site types.

##### 2.2 Tree Species (FP Map - 02)

Species composition has changed little over the last 13 years as shown in the table below.

Species	2006%	2020 Ha	2020%
Spruce	26	230.5	25
Pine	26	209.5	24
Larch	3	25.4	3
Broadleaf	12	112.6	12
Felled (waiting regeneration)		12.3	1
Open (inc. SSSI, agriculture, successional open space)	33	314.3	35

Open is mainly split between 185.8 ha of permanent open space designated as SSSI/SPA/SAC and 105.4 ha of temporal successional open space associated with riparian corridors and land adjacent the SSSI where regenerating broadleaf and conifer species are anticipated.

## 2.3 Wind Damage

The Windthrow Hazard Classification ranges from 2 to 5 with almost 70% of the forest in the intermediate hazard class 4, where thinning options can be more limiting and particular care needs to be taken to avoid precipitating the onset of serious windthrow. Previously delayed conifer thinning across the moorland plateau has restricted silvicultural options across even-aged, single species stands. Particularly across shallow rooting species such as Sitka spruce. Opportunities to carry out timely thinning has increased over recent years, of which 30 hectares (ha) has been carried out across stands designated for management by Lower Impact Silvicultural Systems (LISS).

## 2.4 Landscape (Photographic montage)

The forest covers two distinct character types and areas<sup>1</sup>; 'Forest - Newton House' and 'Central Valley - Lower Esk Valley' and is located toward the east of the North York Moors National Park. The forest is referenced in the document with the following descriptions;

Forest - Newton House

*'Intensively managed areas of coniferous forest, generally overlaying deltaic mudstone and sandstone with local variation including the Cleveland Dyke cutting through Newton House Plantation.*

*Minor becks flow through Newton House Plantation, cutting shallow valleys with waterfalls at the forest edge.*

*Landcover is primarily coniferous forest planted in geometric blocks, separated by a grid iron pattern of unplanted rides and firebreaks, including recently felled and/or recently planted areas'*

Under the previous plan significant areas of clearfelling have been carried out, particularly adjacent the designated moorland, creating a more irregular boundary as viewed from the west of the property. Fixed-point photographs of both external and internal views support the changing structure across the forest and demonstrate how this provides a positive contribution to the overall landscape.

Central Valley - Lower Esk Valley

*'Blocks of broadleaved woodland (including some ancient semi natural upland oak woodland) are a feature of the upper, middle and lower valley sides, and follow the line of the river and valley side becks.*

*The valley sides are undulating and varied in form, frequently steep at their edges and close to the river, the central slopes being gentler. The tributary valleys of Murk Esk, Little Beck and Stonegate Beck have similar topography.'*

To date, no significant felling or woodland activity has been carried out across this more tranquil part of the forest block.

## 2.5 People and Community (FP Map - 04)

The whole of the forest is freehold which is dedicated as Open Access land through the Countryside Rights of Way Act (2000). In addition, the forest supports a network of forest roads, rides and public rights of way with links to the Coast to Coast long-distance trail and Moor to Sea cycle route.

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<sup>1</sup> North York Moors National Park LCA Report 2003

The broadleaf-dominant part of the forest forming part of the Lowland Esk Valley is a popular destination for visitors, particularly those visiting the waterfall at Falling Foss, The Hermitage in Newton House Wood and the footpaths along May Beck.

Although not as popular in terms of visitor numbers, the conifer-dominant forest across Sneaton High Moor still attracts walkers and cyclists to the more remote but more intensively managed parts of the forest.

The forest has two informal car parks although only the one known as May Beck car park is maintained. Both are well used throughout the year.

### 2.6 Natural Heritage (FP Map - 04)

Sneaton Forest hosts a range of flora, fauna and bio-diverse habitats. The moorland margins are contiguous with the North York Moors Site of Special Scientific Interest (SSSI), Special Protection Area (SPA) and Special Area for Conservation (SAC) cited for Atlantic Upland Heath and important for ground nesting birds such as golden plover and merlin, details for which may be found at; <http://www.sssi.naturalengland.org.uk>. Unit 81 of the SSSI sits within the land owned and managed by Forestry England.

An important ecotone is developing along parts of the moorland edge, particularly around Louven Howe Side and along Blea Hill Beck where recent felling and subsequent regeneration with mixed-species woodland and heathland ground flora are replacing the pure stands of even-aged conifers.

There are almost 21 ha of ancient semi natural woodland and circa 1850's broadleaf plantation ancient woodland located at Newton House Wood and Foss Wood.

The forest supports a wide range of national and regionally important bird species across different habitat types (see Appendix 1):

Wooded heath/clearfell - Nightjar, Tree pipit

Woodland edge/ride/glade - Willow warbler, Dunnock, Spotted flycatcher, Starling, Reed bunting

Developed shrub layer - Woodcock

Adders are regularly seen across coniferous parts of the forest, particularly recently felled sites through to thicket stage stands where heathland flora and light levels provide suitable habitat.

A network of streams, water courses and forest drains pass through and adjacent to the forest, providing a large area of riparian habitat. These sites typically support a more diverse woodland structure where native broadleaf tree species, shrubs and ground flora can naturally regenerate. They provide ecologically diverse habitat corridors across the forest supporting populations of Small pearl-bordered fritillary (SPBF) and Great crested newt. Besides SPBF, the regionally important Large heath and Dingy skipper are also present.

### 2.7 Cultural Heritage (FP Map 04)

The presence of human activity in the area ranges from prehistoric arrow-head finds, scheduled Bronze Age round barrows, medieval boundary stones and a listed building to the east of Midge Hall.

## 3. Describing the Project

### 3.1 Project Brief

- manage natural and cultural heritage sites in accordance with their requirements as per agreed management plans and district policy,
- increase the proportion of native broadleaf cover, particularly along riparian buffer zones, restocking conifer stands at Crook's Plantation and new planting opportunities around the confluence of May Beck and Blea Hill Beck.
- consider the selection of alternative main tree species that will contribute toward a greater range of species diversity to maintain or increase timber productivity and increase resilience to plant health and biosecurity threats,
- increase the diversity of the forest age structure and landscape impact by use of appropriate silvicultural systems.

### 3.2 Objectives

#### People

- Maintain and improve the woodlands contribution to the landscape character within the North York Moors National Park 'Forest - Newton House and Central Valley - Lower Esk Valley character areas'. To be measured by fixed-point photography.
- Work with and provide volunteering opportunities that derive benefits to both the participants and the woodland. To be measured through FC systems.

#### Nature

- Improve the resilience of the natural environment to pests, diseases and wildfires and realise the potential of these woods for nature and wildlife, to be measured by Natural England, NYMNP Authority and FC systems.
- Expand, improve and maintain the cultural and heritage value of these woods, to be measured by Historic England, Natural England, NYMNP Authority and FC systems.

#### Economy

- Maintain the land within our stewardship under UKWAS certification, to be measured by independent surveillance audits.
- Improve the economic resilience of these woods from a more diverse range of site appropriate conifer and broadleaf species, to be measured by FC systems accordingly.

### 3.3 Opportunities & Constraints

- A significant area of previously unplanted land has been identified at the confluence of May Beck and Blea Hill Beck. Creating an area of new native woodland at this point will help extend native woodland along the broadleaf-dominant valley systems toward the coniferised plateaux.
- Managing 2<sup>nd</sup> rotation spruce stands on nutrient-poor sites where options for managing heather check and nutrient status are limited.



- The retention of windfirm conifer stands on extended rotations that will allow the development of management by LISS to facilitate species and structural diversity.
- Limited infrastructure to access mature conifer crops at Newton House Plantation will require significant investment to harvest this site.

## 3.4 Implementation

### 3.4.1 Conservation

Protect and, where appropriate, enhance all known sites of archaeological and ecological importance:

#### Archaeological sites

All sites, regardless of their designation, will receive the same level of care during the planning and execution of forest operations. The operational planning system will ensure they are recognised and the proper measures for their protection are in place before work begins. This planning system also ensures that, where possible, opportunities to enhance the condition of archaeological interest are taken during routine forest work.

#### Ecological sites

All work sites are surveyed prior to any operations being carried out, both to audit the accuracy of information already held on record and to identify opportunities to further improve the ecological value of the woodlands. For Sneaton this will include:

- Managing North York Moors SSSI Unit 81 in line with the management plan agreed with Natural England to ensure this site remains in target condition.
- Increase and improve the deadwood resource as set out in - 'Deadwood - Policy, Procedures, Guidance (PPG) 51 (2018)'. Areas of high ecological value across which deadwood resources could be encouraged include; Ancient Woodland, riparian zones, Long Term Retention sites and areas of broadleaf woodland.

The large numbers of *chalara* infected ash across Foss and Great Wood provide opportunities for deadwood development but need to be managed in line with the District Tree Safety Management policy where visitor numbers are high and safety is paramount.

- Managing Veteran trees and PAWS as set out in - 'Ancient Woodland on the Forestry Commission Estate in England (March 2002)' and 'FEE Operations Instructions No. 3 (rev.2012), Ancient Woodlands'.

'FC - Managing England's woodlands in a climate emergency' provides guidance to implement adaptation actions including the acceptance of naturalised species and assisted migration.

- Increase the diversity of tree species and age structure that will maintain and improve favourable conditions for target species and identified habitats. This is particularly beneficial for the range of habitats and species recorded at Sneaton from which a selection has already been mentioned at 2.6 - Natural Heritage.
- May Beck watercourse is currently identified as 'good' status through the Water Framework Directive (WFD) assessment (2012 data). Work undertaken through this plan

will contribute to maintaining the water quality and aquatic ecology, through replacing immediately adjacent conifer crops with predominantly broadleaf species and considering opportunities to address known issues. Management using LISS and phasing of felling will avoid significant lengths of watercourse being felled at any one time throughout the approval period of the plan. Targeted watercourse clearance will be considered where these contribute to priority BAP/HAP targets.

### Minimum Intervention - Natural Reserves

Natural Reserves are sites that are predominantly woodland which have been set aside where biodiversity is the prime objective. As far as reasonably practicable this is a permanent designation and will be managed on a minimum intervention system.

There are 46.3 ha of Natural Reserves located across the broadleaf woodlands north of Falling Foss.

### Minimum Intervention - Candidate Natural Reserve

Sites which have the potential to deliver greatest biodiversity benefit but without the formal designation as defined by UKWAS. There are 20.8 ha located at Consitt Field Plantation and Foss Plantations.

### Long Term Retentions (LTR)

These are stable stands or clumps of trees that are important to retain for landscape or biodiversity reasons and will be retained beyond their economic rotation but still managed under an appropriate silvicultural system i.e. thinning may still be carried out.

Through this plan 64.62 ha are designated LTR.

### Invasive species

*Rhododendron ponticum* is recorded across a number of sites in the forest. A programme of vegetation management will be carried out over the duration of this plan.

### 3.4.2 Timber Harvesting

We will continue to sustainably harvest timber from clearfell, Lower Impact Silvicultural Systems (LISS) and thinning's. Where appropriate we will develop broadleaf stands to increase their contribution to timber production. Recently planted (circa 2004 - 2010) 2<sup>nd</sup> rotation Sitka spruce sites that have subsequently developed natural regeneration with other conifer species will be managed through thinning operations to maintain mixed conifer woodland.

These operations will be planned and controlled to ensure due regard for all other objectives of management at Sneaton.

### 3.4.3 Landscape

Sneaton Forest lies within the North York Moors National Park, a protected and designated landscape where felling across the visually prominent moorland boundary as viewed from the A169 and Sneaton Low Moor under the previous plan has reduced the negative impacts of hard geometric boundaries and even-aged plantation forest. The mosaic of habitats developing across these sites provides opportunities to manage a more diverse forest with variable proportions of open space.

Appropriate scale felling across the coniferous parts of the forest will continue the process of restructuring, moving away from even-aged, single species stands to a more mixed

conifer/broadleaf woodland. Targeted upland edge softening will focus where riparian corridors can link with the adjacent SSSI/SPA/SAC along the southern and western boundary.

Over time LISS with associated smaller-scale felling will contribute toward a more varied and intimate internal forest landscape, where simple and complex stand structures create a more diverse visitor experience within the forest.

On a scale of low/medium/high, landscape sensitivity is considered to be medium.

### 3.5 Plan (FP Map 05)

The design concept map shows the key factors we need to address. These are taken forward and used to form the basis of a practical plan set out in the fell and restock maps.

### 3.6 Areas (FP Maps 06, 06a and 07))

#### 3.6.1 Breakdown of felling areas within the period of the plan.

A map showing the location of felling sites can be found in the Forest Plan folder.

Felling	Area - hectares	% of total area (excl. SSSI)	Projected volume (m <sup>3</sup> )
2020 - 2021 Clearfell	18.9	3	5920
2022 - 2026 Clearfell	57.3	8	20880
2027 - 2028 Clearfell	-	-	-
LISS*	27.0	4	8100

\* A proportion of Sneaton will be managed using LISS through the Strip Shelterwood silvicultural system. During the plan period, it is proposed areas of LISS where crops are over 25 years old will receive a silvicultural intervention (thinning/regeneration felling). As a result of this intervention, the above area of woodland cover will be strip-felled and regenerated through a combination of restocking and natural regeneration.

#### 3.6.2 Breakdown of constituent areas.

A Future Habitat and Species map showing the location and detail of the constituent areas can be found in the Forest Plan folder.

Habitat type - (based on principal species established)	Area - hectares			% age of total area		
	2020	2030	2050	2020	2030	2050
Conifer	465.4	446.9	414.5	51	49	46
Broadleaf	112.6	134.4	146.8	13	15	16
Open inc. agriculture, felled, wooded heath, riparian corridors etc	91.6	88.3	108.3	10	10	12
Upland heathland SSSI/SAC/SPA	235.0	235.0	235.0	26	26	26

## 3.7 Methods / Forest Operations

### 3.7.1 Planning

Before any major forest operations are undertaken an “Operational Site Assessment” is completed. This document details the proposed work and outlines all known environmental, social and operational considerations. The “Operational Site Assessment” then becomes an important reference document during the planning phase, at the pre commencement meeting before scheduled works begin and for supervisory visits during the operation. The “Operational Site Assessment” is kept along with other documents relating to the operation in the main office.

For routine maintenance operations (e.g. fencing, ride mowing, survey work etc.) the Yorkshire District policy on timing of operations to minimise wildlife disturbance will be followed.

Regarding wildfire, we will follow guidance as set out in ‘FC Practice Guide - Building wildfire resilience into forest management planning’. This will be applied proportionately dependant on a particular forest or woodland.

### 3.7.2 Standards

All operations within the forest will be carried out in accordance with the certification standard for the U.K. Woodland Assurance Standard and the U.K Forestry Standard 2017, version 4.

### 3.7.3 Harvesting

See 3.4.2. Forestry Commission staff will monitor work through regular site visits to ensure all guidelines and contract conditions are adhered to.

#### Clearfell V's LISS

All plans are required to consider LISS in windfirm conifer plantations as opposed to traditional clearfell systems. This decision is based upon the methodology provided in FC Information Note 40 - ‘Transforming Even-aged Conifer Stands to Continuous Cover Management’. Where existing coupes are not identified for LISS management, we may consider managing these on an extended rotation basis to be thinned and monitored for future consideration for conversion to LISS.

Using the FC Forest Research Agency, Ecological Site Classification system (ESC), a range of conifer species are considered ‘optimum’ to ‘suitable’ for LISS where timber production is considered as an objective. Through this plan the area to be managed under LISS has increased from 136 ha to 255 ha.

See Appendix 2 - LISS Justification.

### 3.7.4 Haulage

As in our other woodland blocks we will continue discussions with the relevant Highways Authority to agree haulage routes and discuss annual tonnages.

All timber traffic will be managed in line with the Road Haulage of Round Timber Code of Practice, Fourth Edition (2012), which aims to improve the safety and environmental standards of the timber haulage industry.

### 3.7.5 New Planting

Proposed new planting around the confluence of May Beck and Blea Hill Beck will follow the principles as set out in FC Bulletin 112, Creating New Native Woodlands where plant spacing will vary between 1m up to 10m achieving variable density woodland. This will include direct planting and natural regeneration. ESC analysis suggests a number of appropriate Woodland Types;

W4 - Birch woodland,  
W6 - Alder woodland,  
W11 and W17 - Oak/birch woodland variants,  
W18 Scots pine woodland.

A variety of establishment and protection measures will be employed across the area ensuring woodland establishment meets the requirements of FC Action Note 93 and will enable the site to be used as a demonstration woodland in partnership with North York Moors National Park Authority for establishing native woodland.

### 3.7.6 Restocking

#### Conifer

The areas of strip felling carried out as part of management by LISS will be established through a combination of natural regeneration and restocking using alternative productive conifer species to diversify age structure and species to continue to provide a sustainable timber resource, whilst mindful of the projected impacts of climate change. The FC Forest Research Agency, Ecological Site Classification system (ESC) will aid species choice and selection. A range of timber producing conifer species as set out in Appendix 2 and Appendix 3 'Species by soil type' will help inform restocking options.

Areas of LISS will be managed to encourage natural regeneration, although it is accepted that replanting will be required to maintain and further diversify the current range of species.

Reference to Predominantly Mixed Conifer on the Future Habitat & Species Map will be used to describe those areas where a range of species will be planted and/or regenerated, where conifer species will comprise at least 70% of the component mix.

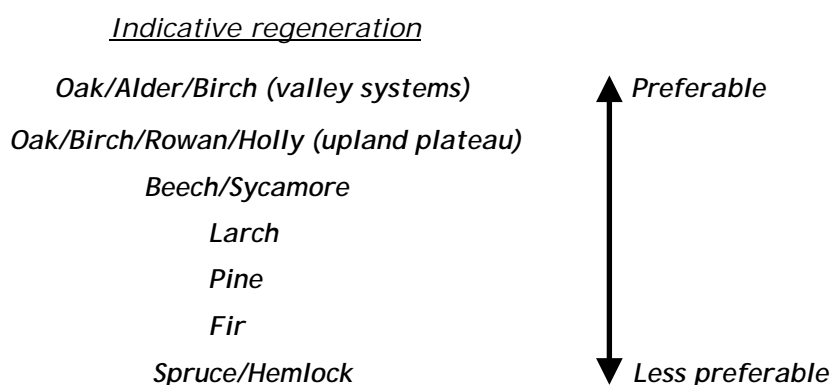
As indicated at 3.7.1, the Operational Site Assessment will provide site-specific data on soils and other site factors that will help inform the correct choice of species on a site-by-site basis.

All sites will achieve at least 2500 conifer stems per hectare through planting, natural regeneration or a combination of both.

## Broadleaf

There are 33.5 ha Ancient Woodland Sites across Sneaton Forest which are currently semi-natural class 1 or 2 (see section 4.1 Habitat Condition). These sites are also designated Natural Reserves (see 3.4.1) and will be managed by minimum intervention as defined by UKWAS or where risks posed through tree safety management policies require intervention i.e. *chalara* on mature ash. We will accept 'naturalised' species i.e. beech and sycamore where these can enhance resilience to impacts of climate change.

Natural regeneration in non-PAWS broadleaf woodland will be assessed and the risk it poses to the objectives of the plan considered. Where dense shade or invasive species (i.e. Western hemlock, Sitka spruce) threatens the native woodland community, it will be removed as part of routine felling or thinning operations. This will particularly apply adjacent to watercourses where a more open structure is desirable and the development of broadleaf species is preferred.



Reference to Predominantly Mixed Broadleaf on the Future Habitat & Species Map will be used to describe those areas where a range of species will be planted and/or regenerated, where broadleaf species will comprise at least 60% of the component mix.

Targeted enrichment planting will be considered across sites that fail to develop sufficient natural regeneration of broadleaf species i.e. Aspen/common alder within riparian corridors.

Where new native woodland is being created or conversion from conifer to predominantly broadleaf woodland is proposed, sites will achieve at least 1100 broadleaf stems per hectare through natural regeneration, planting or a combination of both.

### 3.7.7 Wildlife Management

The successful establishment of future restocking sites through planting and/or natural regeneration will require effective control of crop damaging mammals. Sneaton forest supports a population of Roe deer that will be managed in line with the Yorkshire Forest District Deer Management Strategy 2019.

## 4. Monitoring

See Appendix 5 - Monitoring Plan

### 4.1 Habitat condition

Over the lifetime of the plan where maintaining semi-naturalness is important such as Ancient Woodland Sites, we will monitor and record levels of change through the Sub-Compartment

Database and the resulting Semi Natural Class scores. Across these sites we will maintain stands to SN Class 1 and 2 as set out in 3.7.5 Broadleaf.

Elsewhere such as Crook’s Plantation where we are converting conifer stands to broadleaf-dominant woodland, we will gradually move these sites to SN Class 2.

Class 1	Semi-Natural Woodland
Includes native coppice woodland and high forest or site-native plantation with a relatively high percentage of native self-sown or coppice understorey.	
Class 2	Reasserting Semi-Natural Woodland
Plantation or ex-plantation with 50-80% site-native species. Includes coppice regeneration and/or strong natural regeneration amongst planted trees.	
Class 3	Plantation
Plantation with 20-50% site-native trees under established plantation stands	
Class 4	Plantation
Plantation with less than 20% site-native species. Includes all non-native broadleaves and beech planted outside its natural range in England.	

## 4.2 Forest Plan

All forest plans are formally reviewed as part of a “5-year mid-term review” and the plan’s aims and objectives and its success at achieving those aims and objectives. This plan will be formally reviewed in 2025 with opportunity to share information where requested. This time period can be shortened if circumstances change significantly or if parts of the plan prove detrimental to the overall aims and objectives.

Where an amendment to the Forest Plan is required, the Forestry Commission Practice Delivery Note 01 - Tolerance Table will be applied as set out in Appendix 5.

## 4.7 UKWAS Compliance Table

	Forest Plan Area (ha)	Forest Plan Percentage	Forest District Area (ha)	Forest District Percentage
Total Area	904.6	100	20,971	100
Total Wooded area	712.8	77	16,484	79
Natural Reserves - Plantation (1%)	Nil	Nil	170	1
Natural Reserves - Semi-natural (5%)	46.3	5	85	6
Long-term Retentions and Low Impact Silvicultural Systems (>1%)	173.5	24	7,049	42
Area of conservation value(15%)including designations; PAWS, ASNW, NR, LTR, LISS	450.8	50	8,666	41

## 5. Determination of Impact Significance and Mitigation

### 5.1 Native Woodland

Threats to our native woodlands can be immediate and absolute (e.g. loss to infrastructure or development) or slower and subtler (e.g. shading from conifer species or invasive species such as Rhododendron). There are also more widespread environmental changes, such as diffuse pollution and climate change, which may threaten in the long term. ([www.forestry.gov.uk/keepersoftime](http://www.forestry.gov.uk/keepersoftime)) Major threats to native woodland are:

- Climate change and fragmentation
- Excessive browsing and grazing by deer & livestock
- Inadequate or inappropriate management
- Invasive and problem species
- Diffuse pollution
- Loss

Through this plan, we will continue to apply local and national policy and best practice guidance for the management and development of our existing and new native woodlands.

### 5.2 Flora

Heathland is a UKBAP Priority Habitat

*Within woods, concentrate on open space habitat expansion and management, developing heathland, neutral grassland and acid mires.*

(G. Peterken - Native Woodland Development in the North York Moors and Howardian Hills)

This plan will continue the management and development of heathland where this will improve habitat networks across Sneaton forest. Maintaining a mixed resource of temporary and permanent



open space with heathland flora will provide suitable habitat for Nightjar, Tree pipit, Woodcock and other priority species including large heath butterfly and adder.

### 5.3 Other Objectives

*Concentrate on developing habitat-rich riparian corridors with marshes, meadows, woodlands, trees in farmlands. These would pass through both woodland and farmland.*  
(G. Peterken - Native Woodland Development in the North York Moors and Howardian Hills)

We will continue to apply local and national policy and best practice guidance to the management of riparian corridors across Sneaton. This will improve and enhance the habitat network within the woodlands and benefit protected species. Continuing development of both species and structural diversity will benefit habitats for priority woodland bird species throughout the woodland (Appendix 2 - Priority woodland bird species).

## Appendix 1 – Priority woodland bird species, open forest bird species and lepidoptera species

Bird Species <sup>1</sup>	Forest location	Habitat enhancement
Nightjar Tree pipit	Wooded heath, Clearfell sites	Continue sequential conifer felling and heavy thinning adjacent to open areas; maintain a mosaic of open structure woodland/wooded heath.
Willow warbler Dunnock Spotted flycatcher Starling Reed bunting  Woodcock	Woodland edge, ride, glade    Developed shrub layer	Continue selective thinning and strip-shelterwood felling as part of LISS management, this will allow the development of shrub layer structure and increased structural and species diversity. Expand diverse riparian woodland habitat, create and maintain successional woodland (birch and oak)/scrub habitat and standing deadwood.

<sup>1</sup> Source – BTO Bird Atlas and Breeding Bird Survey data for NZ80 grid square.

*The Breeding Bird Survey is run by the British Trust for Ornithology (BTO) and is jointly funded by the BTO, the Joint Nature Conservation Committee (JNCC) (on behalf of the statutory nature conservation bodies: Department of Agriculture, Environment and Rural Affairs - Northern Ireland, Natural England, Natural Resources Wales and Scottish Natural Heritage), and the Royal Society for the Protection of Birds (RSPB).*

Lepidoptera <sup>2</sup>	Forest location	Habitat enhancement
Large heath	Blanket bog with <i>Eriophorum</i> species and jointed rush	Identify suitable habitat and retain as open where preferred foodplants remain.
Small pearl-bordered fritillary	Damp woodland clearings with <i>Viola</i> species	Identify suitable habitat and retain as open where preferred foodplants remain.
Dingy skipper	Rides and roadside verges with <i>Lotus</i> species and <i>Hippocrepis</i>	Maintain rides and roadside verges through cyclical grading and cutting as part of standard operational activity that will help maintain foodplant species.

<sup>2</sup> Source – Butterfly Conservation Group

## Appendix 2 - LISS justification

### Site Appraisal

Site Factor	Suitability Score	Comment
Wind Hazard Classification: Class 4 across all areas of pine to which LISS will be applied.	3	ESC indicates rooting depth of 60cm for soil type.
Soil fertility: Podzolic peaty surface-water gley	1	Competing ground vegetation is generally that associated with heathland communities and very poor sites.
Current species suitability: LP, SS, Downy/Silver birch SP	(very moist SMR/medium SNR)  1 - Very suitable  2 - Suitable	Lodgepole pine is well suited to the site and already regenerates within current stand structures where light levels allow and across adjacent clear fell sites.

With a combined score of 5 and 6, initial analysis indicates stands of mature LP and SP respectively achieve a 'Moderate' site ranking for transformation to LISS, although this is adjusted to 'Low' as suggested in FCIN 040 due to a WHC score of 3. However, the current stands have previously been thinned and have shown good stability over the past 10 to 15 years. Although not optimal for transformation, the choice of strip shelterwood can incorporate low thinning of the existing stand to develop existing seed trees and provide side shelter for the development of adjacent crops.

### Stand Appraisal

**Stand form** - Overall stand form for Lodgepole and Scots pine is good. Crown development is better across SP stands although there is currently no evidence of regeneration, probably due to its age and having not yet reached age of maximum cone production (80+ years). There is good evidence of advanced regeneration of LP across the property.

**Thinning history** - Thinning operations have been limited due to previous windblow events following delayed thinning carried out in the mid to late 1990's. Some first rotation stands that were previously line-thinned and remained stable have subsequently been selectively thinned and have remained stable. Currently there is good evidence that LP, SS and birch are capable of developing through natural regeneration across sites.

**Access** - This is not a limiting factor as good infrastructure exists across the majority of the productive coniferous areas.

On the basis of the above information, we will consider LISS within LP and SP stands across Sneaton main block with the aim of increasing species diversity through enrichment planting using a wide-range of conifer species identified as Very Suitable and Suitable on the attached ESC report, aiming for a simple stand structure.

We will adopt a Strip Shelterwood system, where strips will aim to be between 20 to 25 m wide.

Some areas of high forest/clearfell coupes will be managed on an extended rotation basis and will be monitored for development of natural regeneration. Where appropriate these will be considered for developing toward LISS management as set out above.

The Forest Research ESC table below supports the range of target species considered for natural regeneration and those identified as very suitable (dark green) and suitable (light green) where enrichment planting will increase species diversity. For Sneaton, enrichment planting could consider the introduction of Macedonian pine, Norway spruce, Western and Japanese red cedar, European silver and Grand fir, Hybrid larch, Western hemlock, Coast redwood, Lawson's and Leyland cypress, Aspen and Red, Grey, Italian, Common alder.

Future wildlife management issues may arise where deer browsing could impact across strips as more palatable species are introduced. Temporary deer fencing, site monitoring and adherence to the District Deer Management strategy will help inform future management.















**Appendix 3 - Restock species by soil type**

Site type		Species														
Upland sites	Lowland sites	SP	LP	MCP	DF	ESF	GF	WH	WRC	Ley/Law C	Coast R	Giant R	HL	SS	NS	Oriental S
Gley						y		y	y	y				Y	Y	y
Iron pan/podzol		Y	y	y	y	y	y				y	y	y		y	y
BE/intergrade		Y		y	Y	y	y	y	y	y	y	y	y	y	Y	y
Calcareous				y		y			y	y						y
	Gley					y		y	y	y	y	y		Y	Y	y
	Podzol	Y	y	y	y	y	y	y	y	y		y	y		y	y
	BE/intergrade	Y		y	Y	y	y		y	y	y	y		y	Y	y

<b>BOLD CAPITAL (Y)/BOLD INFILL COLOUR</b>	<b>Cat A Major species</b> - currently widely used with no supply problems and should continue to play an important role
<b>Bold, lower case italics (y), pastel infill colour</b>	<b>Cat B Minor species</b> - Species that either currently play a minor role but have demonstrated their suitability being part of a species range to diversify our forests. Climate change may increase or reduce their use
Normal lower case (y), pastel infill colour	<b>Cat C Secondary species</b> - Species with little information on forest performance but possible choice based on Arboreta. Use on small-scale experimental basis for now but may increase if favourable results

[source data](http://www.forestry.gov.uk/fr/treespecies) http://www.forestry.gov.uk/fr/treespecies

Refer to cell comments for specific species notes

**No planting where >50cm peat depth**

Pacific coast associated forest cover - consider in mixtures as part of underplanting for CCF					
DF	GF	WH	Law C	Coast R	ESF

Appendix 4 - Sneato

Objective	Method
<b>People</b>	
Maintain and improve the woodlands contribution to the landscape character within the North York Moors National Park 'Forest - Newton House and Central Valley - Lower Esk Valley character areas'.	Fixed-point photography
Work with and provide volunteering opportunities that derive benefits to both the participants and the woodland.	Input data and analyse results through RazorsEdge secure database.
<b>Nature</b>	
Improve the resilience of the natural environment to pests, diseases and wildfires and realise the potential of these woods for nature and wildlife.	Update Forester Web GIS; subcompartment database, Conservation module.
	Review sample of Operational Site Assessments.
Expand, improve and maintain the cultural and heritage value of these woods.	Liaise with and review Historic England - At risk Register, NYMNPA shared monuments data, update Forester Web GIS Heritage module.
	Review sample of Operational Site Assessments.
<b>Economy</b>	
Maintain the land within our stewardship under UKWAS certification.	Independent surveillance audit across the organisation.
	Independent surveillance audit across the District.
Improve the economic resilience of these woods from a more diverse range of site appropriate conifer and broadleaf species.	Update Forester Web GIS; subcompartment database, Operational Thinning Layer, Management Coupe Layer.
<b>Site-specific</b>	
Clearfell coupes - ensure boundaries are accurately reproduced and within agreed tolerances as set out in Forestry Commission Practice Delivery Note 01 (FC PDN 01).	GPS unit or equivalent data recorders.
Restock & Future Habitat Coupes - Productive mixed conifer sites. Establish at least 2500 conifer stems per ha by planting and natural regeneration by year 5 since date of initial planting (allowing 2 years fallow for <i>hylobius</i> ).	On-site stocking density plot surveys.

Restock & Future Habitat Coupes - Mixed broadleaf habitat. Establish at least 1100 broadleaf stems per ha through natural regeneration by year 10 since date of felling.	On-site stocking density plot surveys.
New planting - Native broadleaf habitat. Woodland establishment meets the requirements of FC Action Note 93 and will enable the site to be used as a demonstration woodland in partnership with North York Moors National Park Authority	On-site stocking density plot surveys.
LISS coupes - Productive mixed conifer sites. Establish at least 2500 conifer stems per ha by year 10 after final removal overstorey.	On-site stocking density plot surveys.
PAWS regeneration.	Monitor change through abbreviated stocking density assessments and repeat condition surveys.
Wildlife management - Identify problem sites where mammal damage is affecting crop establishment or degrading woodland flora.	On-site stocking density plot surveys. Damage, Impact and Activity Assessments as set out in YFD Deer Management Strategy.
Plan specific	
Forest Plan mid-term review. Review the plan's aims and objectives and the progress of their implementation.	Apply a variety of measures as described in the above table.

n Forest Monitoring Plan	
Frequency/Timings	Actions
Year 0 baseline, 5-year review, 10-year review.	Review visual impact of coupes within the landscape and adjust future coupe shape if necessary.
Quarterly	Review activity across the forest and wider District to measure activity and to provide insight into gaps and future opportunities through volunteering.
As recordable changes occur within the forest environment. At time of Year 0 plan renewal, 5-year review, 10-year review.	Measure changes in diversity across species, age structure, conservation siting's/records and broad habitat types; conifer, broadleaf, open. Ensure positive change through increasing diversity occurs over the lifetime of the plan.
Annually	Provide feedback where management is not compliant with recommendations.
Annually or as data becomes available. At time of Year 0 baseline, 5-year review, 10-year review.	Review progress of annual maintenance programmes and adjust where At Risk status may decline from target condition.
Annually	Provide feedback where management is not compliant with recommendations.
Annually	Implement corrective actions as required.
As per audit sample.	Implement corrective actions as required.
As recordable changes occur within the forest environment and End Of Year updates. Year 0 plan renewal, 5-year review, 10-year review.	Review long-term changes in productive capacity through the Production Forecast at the point of plan renewal and across the wider District.
Upon completion of all harvesting activity.	If significant coupe variation, apply for appropriate ammendment to FC as required as per FC PDN 01 prior to felling. Update Forester Web for completed clearfells.
Beat-up surveys between years 1 to 4. Year 5 stocking assessment, internal guidance OGB4.	Carry out beating up where stocking density falls below prescribed number of trees/ha to achieve full stocking.

Beat-up surveys between years 1 to 4. Year 5 stocking assessment, internal guidance OGB4.	Carry out enrichment planting where stocking density falls below prescribed number of trees/ha to achieve full stocking.
Beat-up surveys between years 1 to 9. Year 10 final year assessment.	Carry out enrichment planting where stocking density falls below prescribed number of trees/ha to achieve full stocking.
Beat-up surveys between years 1 to 4. Year 5 stocking assessment, internal guidance OGB4.	Carry out enrichment planting where stocking density falls below prescribed number of trees/ha to achieve full stocking.
Beat-up surveys between years 1 to 5 year assessment.	Monitor change from current Semi natural class toward target SN 1 (>80% native). Consider future changes in management that can achieve target score.
To be informed from results of beat-up surveys between years 1 to 4 and year 5 stocking assessment, internal guidance OGB4.	Target deer control in line with District strategy.
2025	Modify the plans aims and/or objectives where these are no longer compatible with National or District Policy. Significant plan changes will require consultation and formal amendment from the Forestry Commission.





Appendix 5 Agreed Tolerance Table for Yorkshire Forest District, England

	Adjustment to felling coupe boundaries	Swapping of felling coupes	Adjustment to felling operation	Clearance of standing trees associated with wind-blown areas	Timing of restocking - including natural regeneration	Species choice	Tree health
Formal approval by area team required	>25% of the coupe area	Where changes to the felling sequence is likely to result in a significant breach <sup>1</sup> of the UKFS adjacency rules	Thinning to selective felling or clear felling	Clearance of >1 Ha or 10% of the area (whichever is less) in sensitive <sup>2</sup> areas, >5 ha or 25% of the area (whichever is less) in non-sensitive areas	Where this is > 4 planting seasons from the date of felling	From mixed, predominantly Broadleaves to evergreen conifer	Where no SPHN issued and felling required
Written approval only required from area team, <sup>3</sup>	Between 10-25% of the coupe area	Where changes to the felling sequence is likely to result in a minor breach <sup>4</sup> of the UKFS adjacency rules			Where this is at least 2 but no more than 4 planting seasons from the date of felling	Deciduous conifers to evergreen	Thinning >50% but < 65%
Formal approval by area team <u>not required</u> <sup>5</sup>	< 10% of the coupe area	Where changes to the felling sequence does not result in a breach of the UKFS adjacency rules.	Clear felling to selective felling or thinning	Clearance of <1 Ha or 10% of the area (whichever is greater) in sensitive areas, <5 ha or 25% of the area (whichever is greater) in non-sensitive areas	Where this is < 2 planting seasons from the date of felling	Any other changes	Where SPHN is issued or thinning up to 50%

<sup>1</sup> Greater than 20% of the coupe boundary

<sup>2</sup> Definition of sensitive areas is as per the EIA guidance

<sup>3</sup> Approval letter retained for compliance inspection purposes

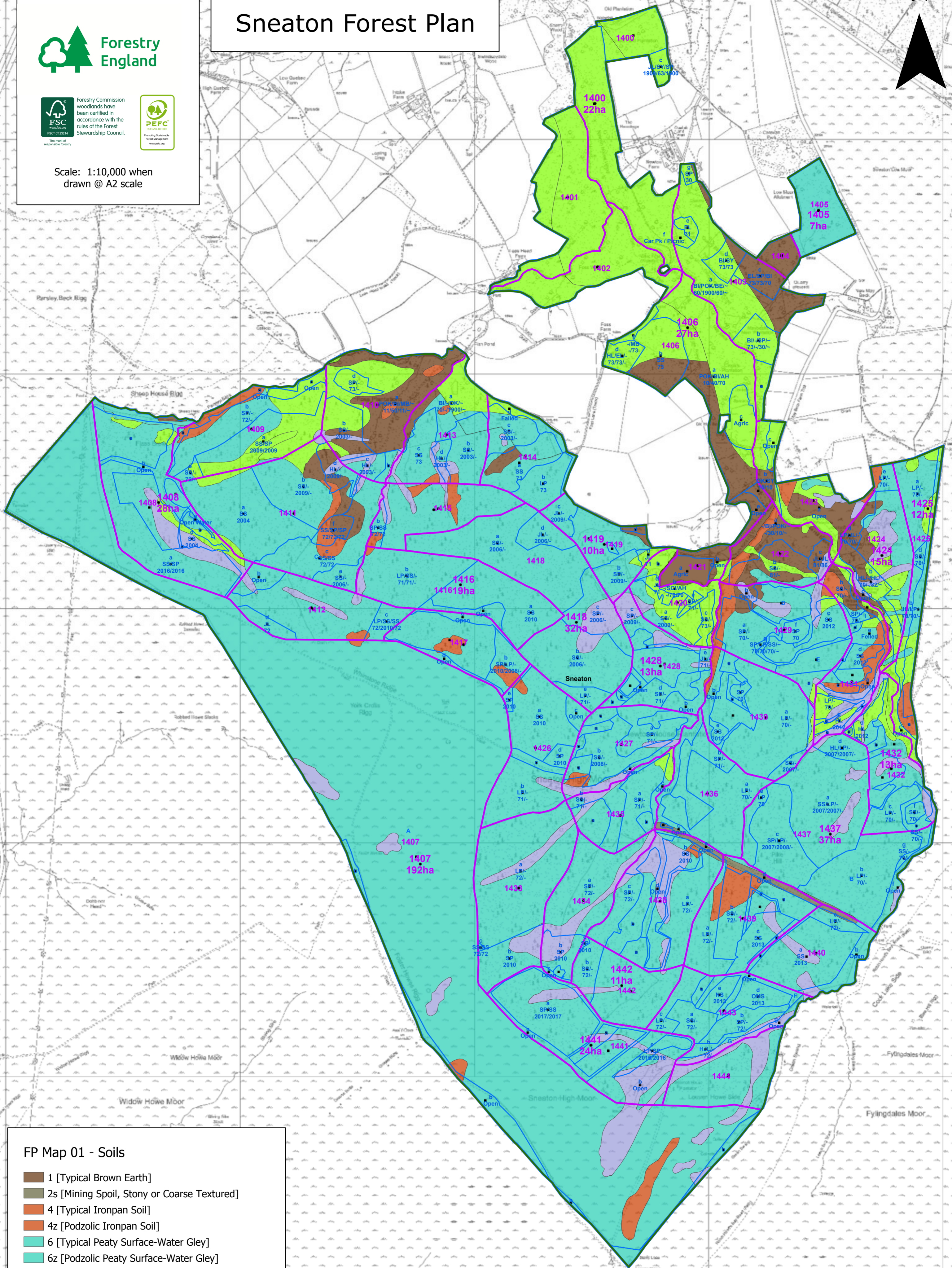
<sup>4</sup> 20% or less of the coupe boundary

<sup>5</sup> District team must retain all relevant documentation for compliance inspections



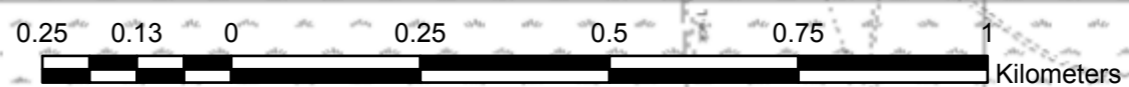
# Sneaton Forest Plan

Scale: 1:10,000 when drawn @ A2 scale



## FP Map 01 - Soils

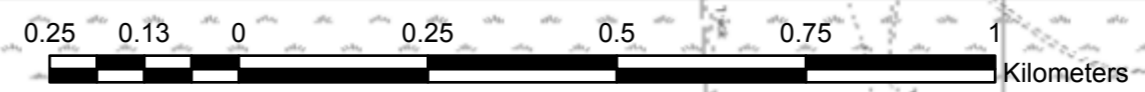
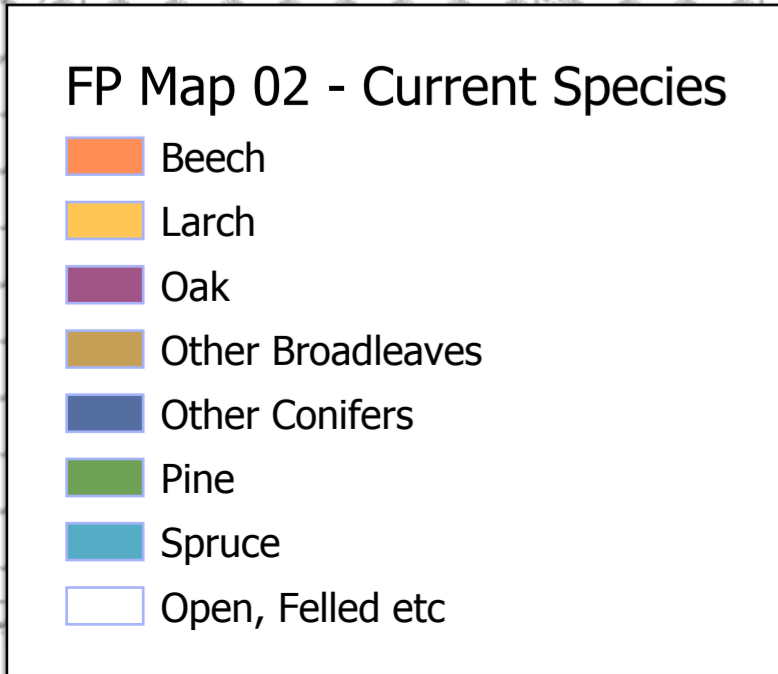
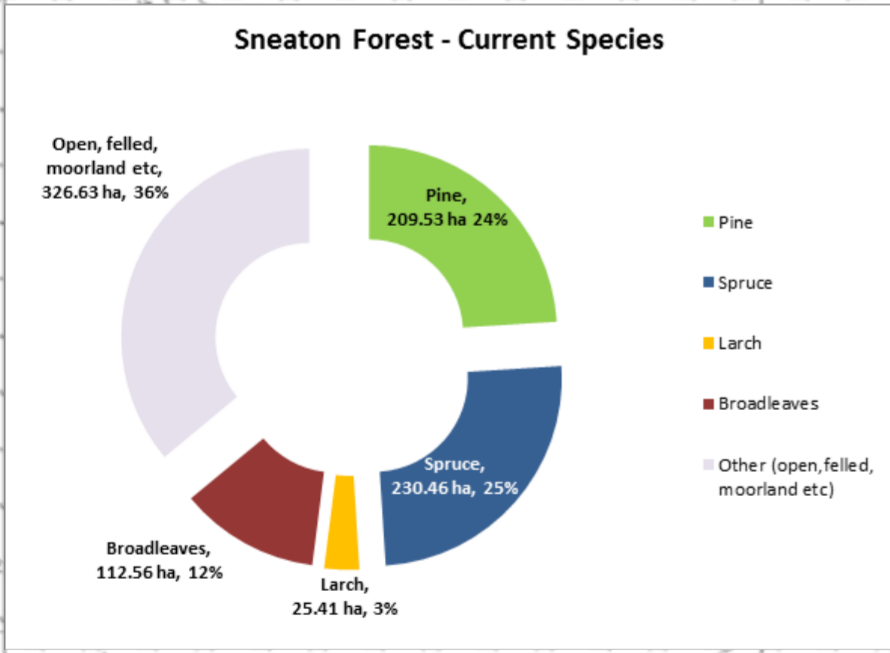
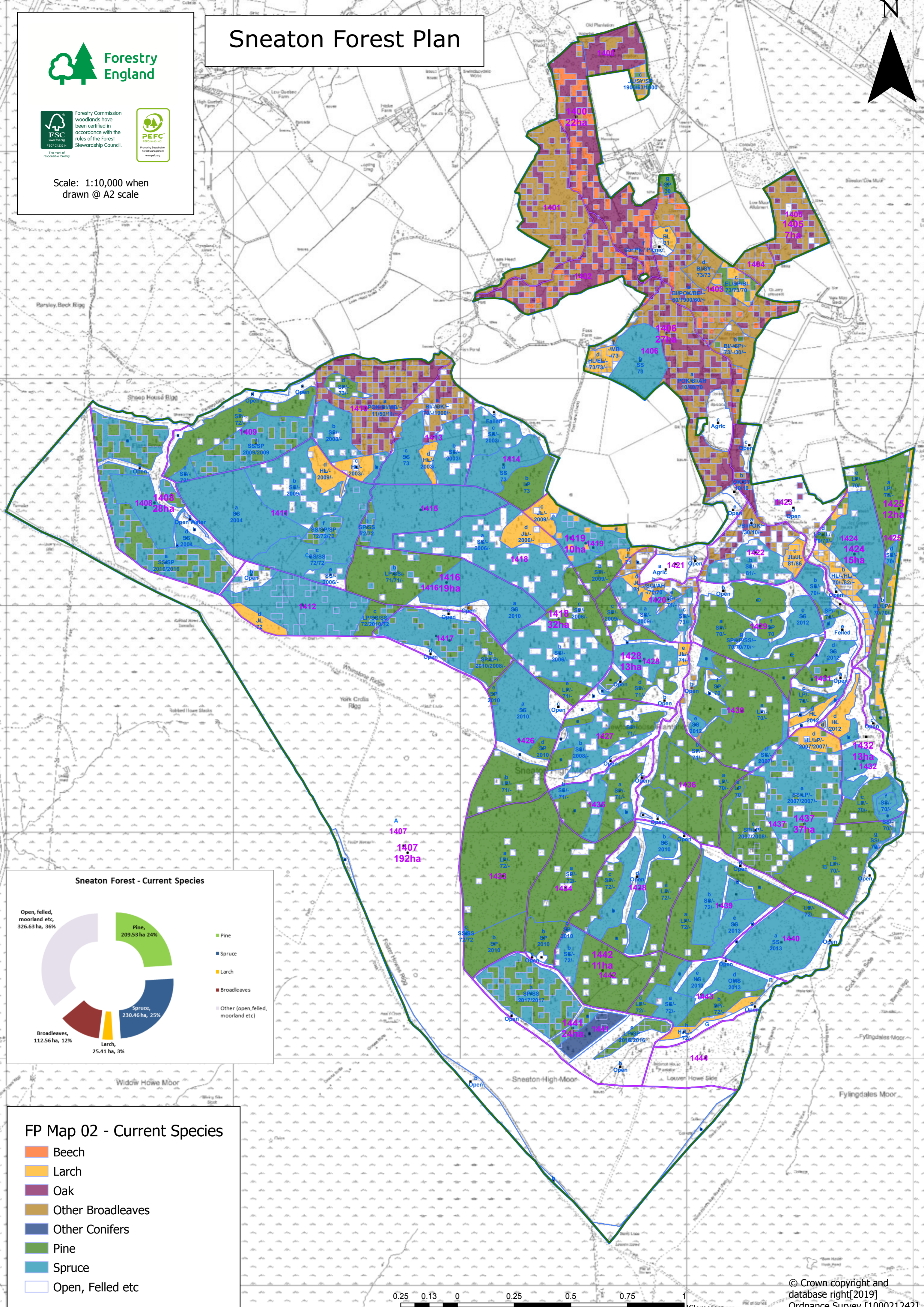
- 1 [Typical Brown Earth]
- 2s [Mining Spoil, Stony or Coarse Textured]
- 4 [Typical Ironpan Soil]
- 4z [Podzolic Ironpan Soil]
- 6 [Typical Peaty Surface-Water Gley]
- 6z [Podzolic Peaty Surface-Water Gley]
- 7 [Typical Surface-Water Gley]
- 7z [Podzolic Surface-Water Gley]
- 11b [Calluna, Eriophorum vaginatum Blanket Bog]



# Sneaton Forest Plan



Scale: 1:10,000 when drawn @ A2 scale

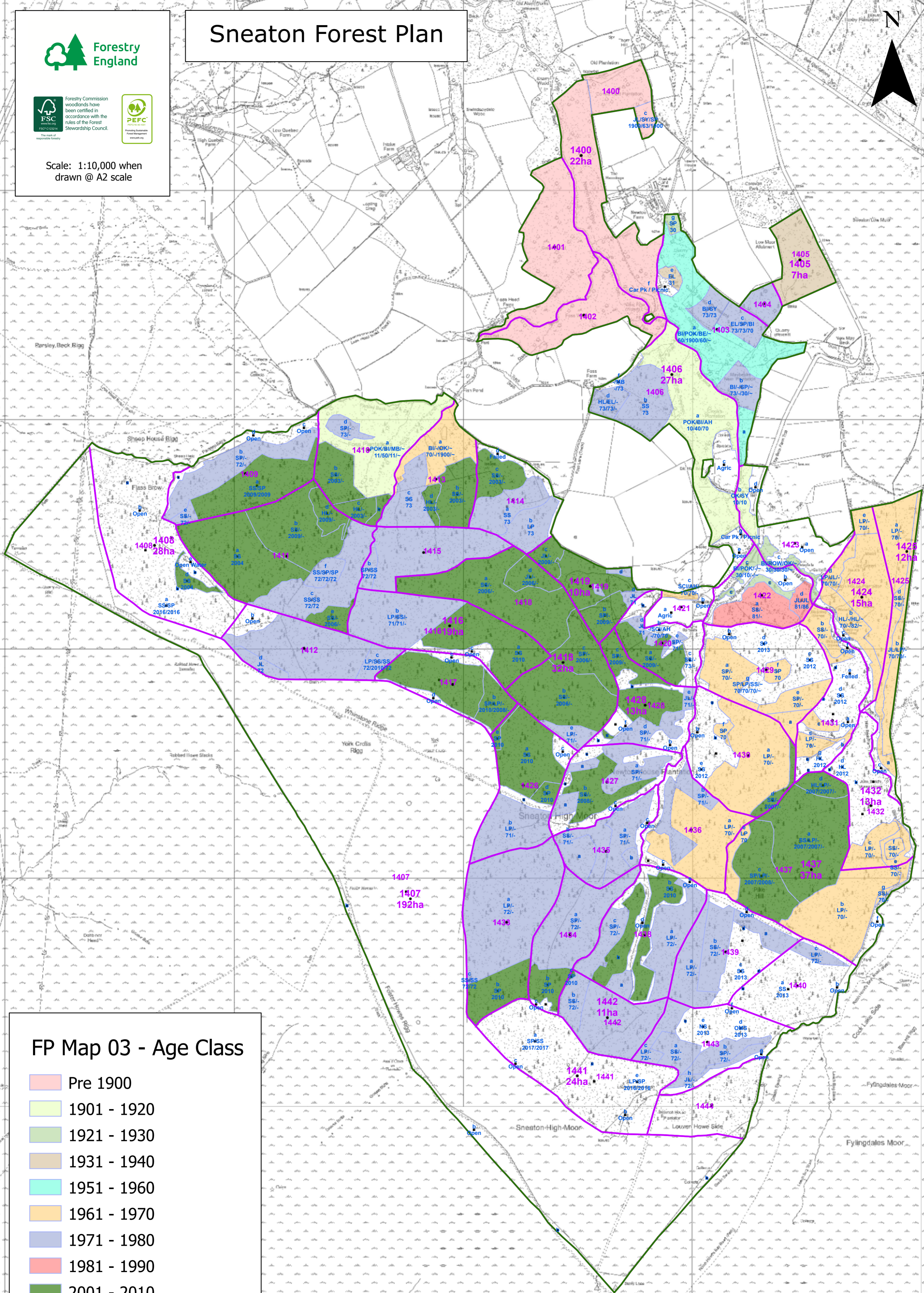
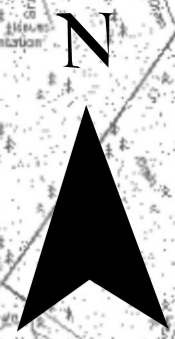




# Sneaton Forest Plan

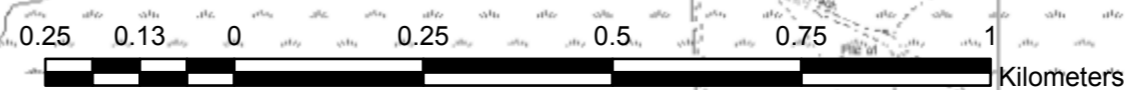


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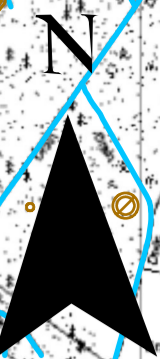
## FP Map 03 - Age Class

- Pre 1900
- 1901 - 1920
- 1921 - 1930
- 1931 - 1940
- 1951 - 1960
- 1961 - 1970
- 1971 - 1980
- 1981 - 1990
- 2001 - 2010



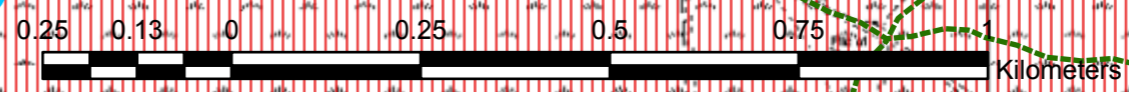


Scale: 1:10,000 when drawn @ A2 scale



### FP Map 04 - Management Information, People, Community, Natural & Cultural Heritage

- Car Park
- Scheduled Monument
- Unscheduled Monument
- ASNW
- PAWS
- Crow Access
- SSSI/SPA
- SSSI/SPA/SAC
- Secondary River
- Tertiary River
- Public Rights Of Way





Maintain ancient woodland sites that are resilient to potential threats from climate change.  
 \* Maintain existing and develop additional deadwood resource in line with tree safety management policies.  
 \* Accept regeneration of naturalised species and consider assisted migration where this meets management objectives.

Sneaton Forest offers opportunities to develop significant benefits to improve ecological features.  
 \* Increasing species and structural diversity across the forest will continue to support a mosaic of habitats and associated flora and fauna including upland heath, broadleaf woodland and riparian habitats.  
 \* Maintain designated SSSI/SPA/SAC in target condition.

Forest landscape character has been strongly influenced by geometric blocks of conifer and broadleaved woodland within valley systems.  
 \* Continue to design clearfell coupes that respond to landform and increase structural diversity.  
 \* Increase the area of native broadleaf cover along riparian corridors, felled conifer coupes and new planting opportunities around the May Beck/Blea Hill Beck confluence.

Sustainable timber production remains a priority objective across the forest whilst mindful of climate change impacts on silviculture, species choice and plant health.  
 \* Alternative conifer species e.g. Macedonian pine European silver fir and Coast redwood will be considered for restocking where conditions are suitable.  
 \* Develop low impact silvicultural systems to allow natural regeneration and enrichment planting with alternative species to become established.



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**Title: FP Map 05 - Analysis & Concept**

Date: 18 March 2020

Author: Nigel Rylance

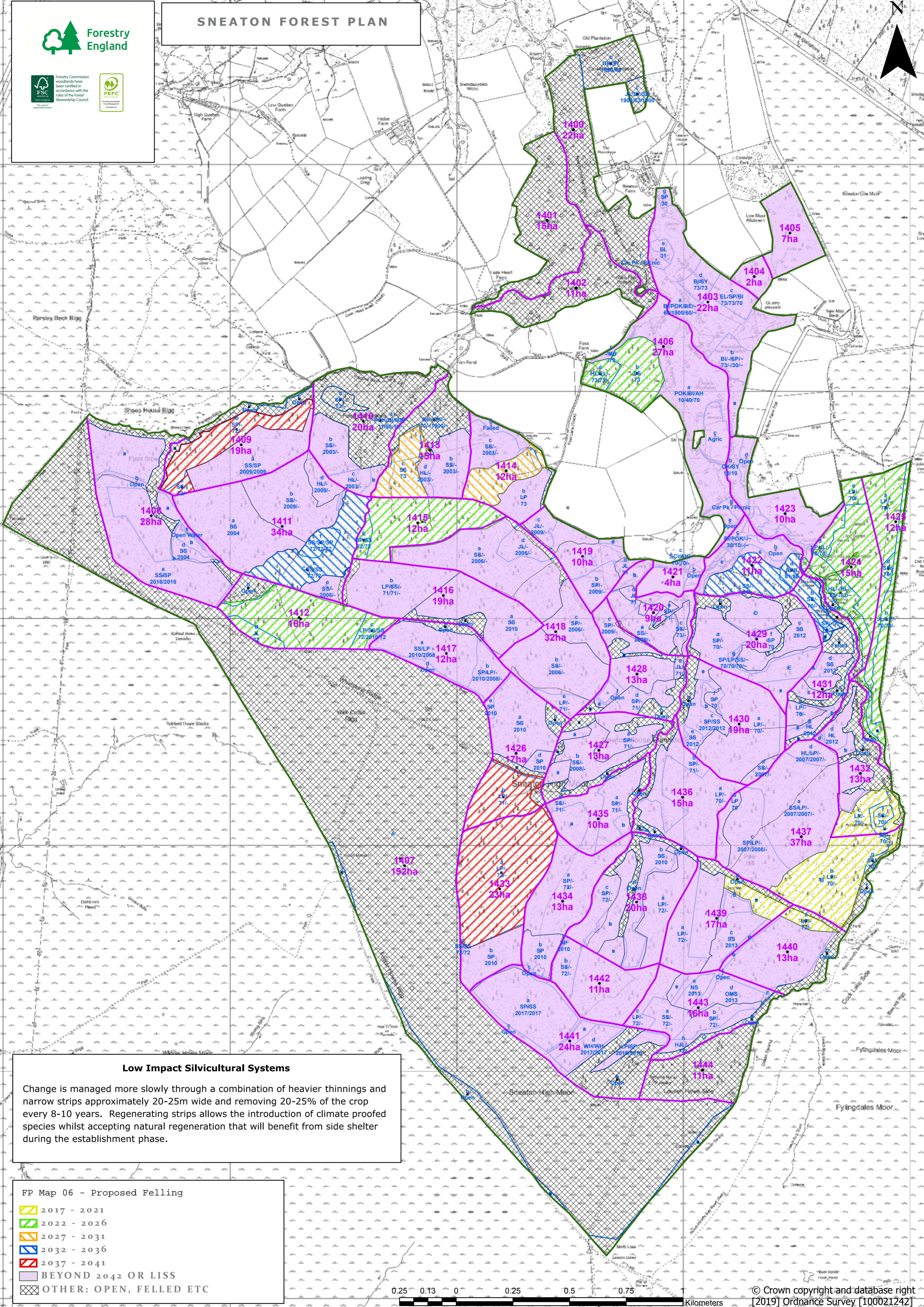
Scale @ A3: 1:20,000



- Forest block
- Sub-compartments
- Maintain ancient woodland sites
- Convert to predominatly mixed broadleaf
- Predominatly productive mixed conifer
- Watercourses
- SSSI



# SNEATON FOREST PLAN

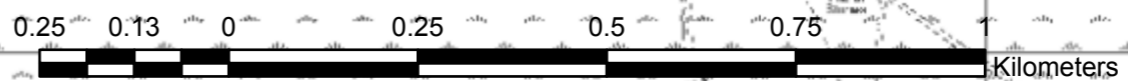


### Low Impact Silvicultural Systems

Change is managed more slowly through a combination of heavier thinnings and narrow strips approximately 20-25m wide and removing 20-25% of the crop every 8-10 years. Regenerating strips allows the introduction of climate proofed species whilst accepting natural regeneration that will benefit from side shelter during the establishment phase.

### FP Map 06 - Proposed Felling

- 2017 - 2021
- 2022 - 2026
- 2027 - 2031
- 2032 - 2036
- 2037 - 2041
- BEYOND 2042 OR LISS
- OTHER: OPEN, FELLED ETC

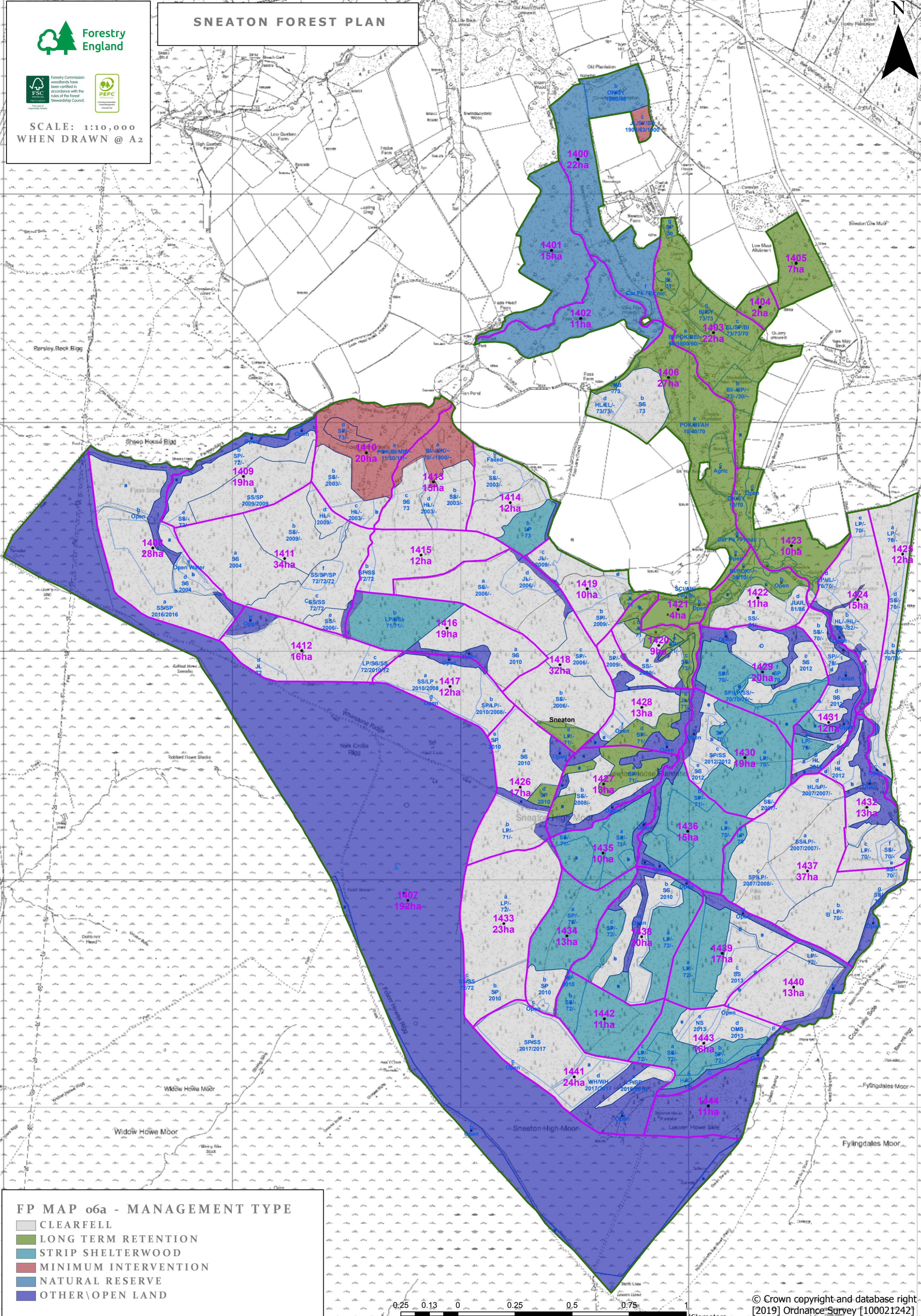




# SNEATON FOREST PLAN

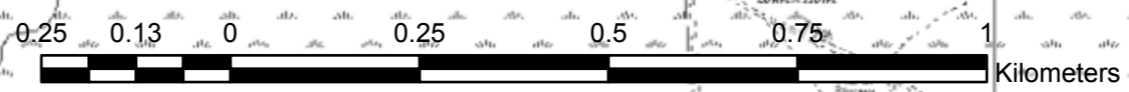


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WHEN DRAWN @ A2



## FP MAP o6a - MANAGEMENT TYPE

- CLEARFELL
- LONG TERM RETENTION
- STRIP SHELTERWOOD
- MINIMUM INTERVENTION
- NATURAL RESERVE
- OTHER\OPEN LAND



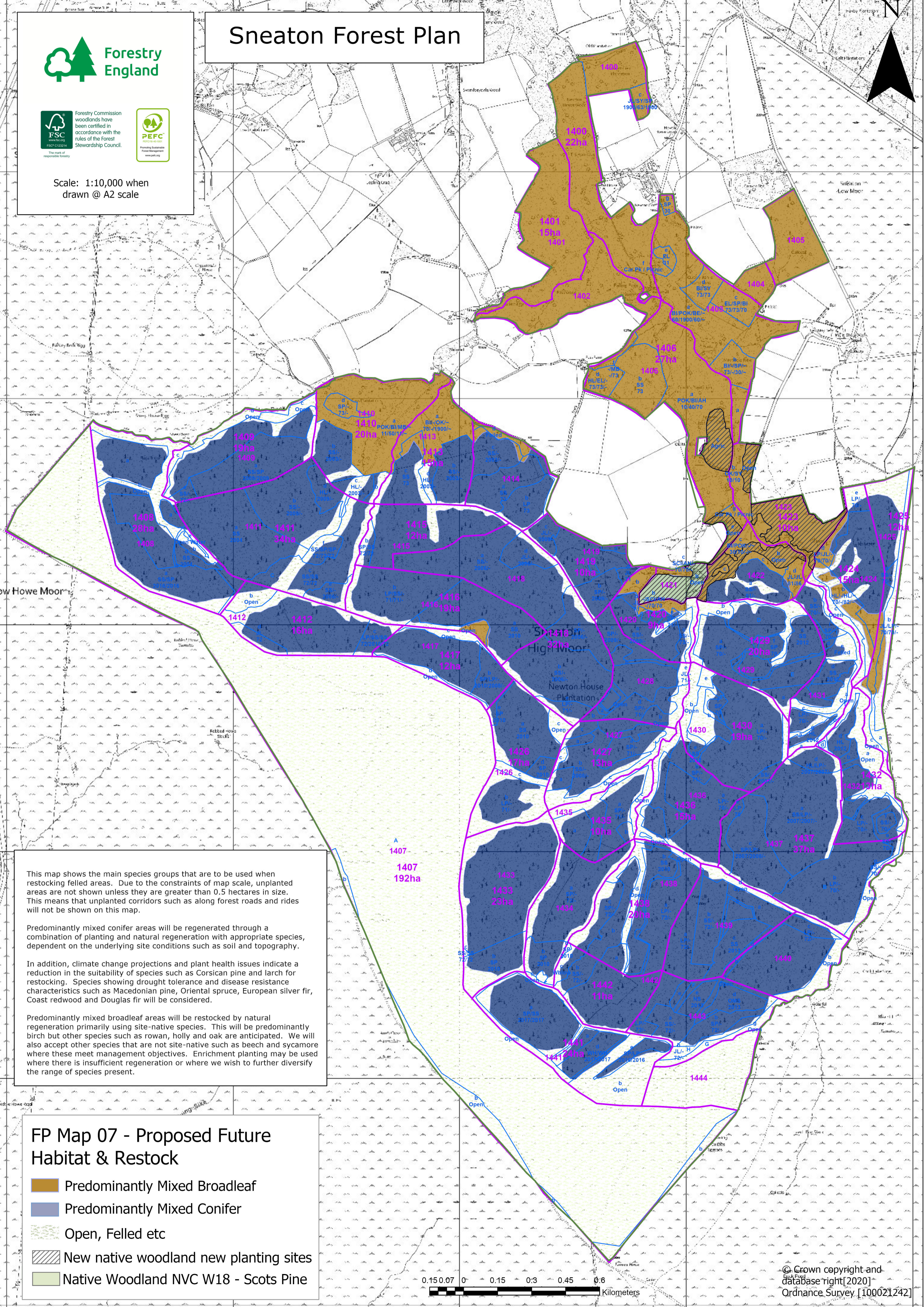




# Sneaton Forest Plan



Scale: 1:10,000 when drawn @ A2 scale



This map shows the main species groups that are to be used when restocking felled areas. Due to the constraints of map scale, unplanted areas are not shown unless they are greater than 0.5 hectares in size. This means that unplanted corridors such as along forest roads and rides will not be shown on this map.

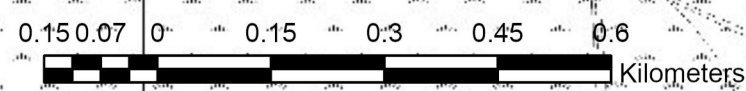
Predominantly mixed conifer areas will be regenerated through a combination of planting and natural regeneration with appropriate species, dependent on the underlying site conditions such as soil and topography.

In addition, climate change projections and plant health issues indicate a reduction in the suitability of species such as Corsican pine and larch for restocking. Species showing drought tolerance and disease resistance characteristics such as Macedonian pine, Oriental spruce, European silver fir, Coast redwood and Douglas fir will be considered.

Predominantly mixed broadleaf areas will be restocked by natural regeneration primarily using site-native species. This will be predominantly birch but other species such as rowan, holly and oak are anticipated. We will also accept other species that are not site-native such as beech and sycamore where these meet management objectives. Enrichment planting may be used where there is insufficient regeneration or where we wish to further diversify the range of species present.

## FP Map 07 - Proposed Future Habitat & Restock

- Predominantly Mixed Broadleaf
- Predominantly Mixed Conifer
- Open, Felled etc
- New native woodland new planting sites
- Native Woodland NVC W18 - Scots Pine



## Internal Photographs



**May Beck tributary valley.** The internal view looking downstream along the tributary valley highlights the semi-natural character of this broadleaf-dominated woodland. This is a relatively stable landscape. The most significant change is the planned felling of the conifer crop at Crook's Plantation in the top left of the photograph. The restoration of broadleaf woodland across this site enhances the overall landscape.

**Internal stream valley.** Over the lifetime of the previous plan, 1<sup>st</sup> rotation stands of conifer have been felled from along watercourses and riparian corridors. In their place, significant areas of open ground have been created, leaving space for retained broadleaf trees to develop and a more diffuse and diverse forest structure to develop. Future management will look to maintain and extend these sites where proposed felling allows.



**Blea Hill Beck.** Another internal stream valley where previous felling has created improved open space along the watercourse. Although the proposed felling at Newton House Plantation presents harvesting challenges to access this site, future development of open space and broadleaf woodland along the valley side will significantly enhance the ecological and landscape qualities.

**May Beck car park.** A popular destination for visitors enjoying quiet walks along May Beck or accessing the more remote upland forest and moorland. Proposed new native woodland planting across sites currently dominated by bracken will have a positive impact for visitors and flora and fauna alike.



## External Photographs

**View from Coast to Coast trail off A169.** This view highlights the increasing structural diversity Sneaton Forest offers as felling and restocking progresses across the site. From here the viewer can see a range different aged crops; 1972, 2004, 2009 and 2016. Proposed felling adjacent the moorland boundary will further diversify this view with increasing amounts of open space and broadleaf regeneration that will benefit the landscape and the ecotone between forest and moorland.



**View from Blue Bank car park.** The external view looking upstream along the May Beck tributary valley demonstrates how well the broadleaf woodland is integrated with neighbouring woodland. The impact of conifer woodland will diminish as felling at Newton House Plantation and Crook's Plantation are replaced with increasing proportions of broadleaf species and open space.



**View from A169.** A similar view seen by those travelling by vehicle along the A169 as to that seen by those walking along the Coast to Coast trail. The sequence of felling and restocking is gradually increasing the structural diversity of the forest and reducing the negative impact of even-aged, single species forests of the 1970's.



**View from Sneaton Low Moor.** This view can be seen when travelling to and from May Beck car park. The even-aged, single species forest of the 1970's is becoming more diverse as the restructuring process of felling and restocking progresses across the forest. Future felling at Crook's Plantation and subsequent regeneration with broadleaf woodland will further enhance this view.

