

HIGH LODGE
THETFORD FOREST
FOREST PLAN

2015 – 2025

Contents

Contents 2

1. What are Forest Plans? 3

2. Standard Practices and Guidance 4

3. Introduction 5

4. Design Brief 6

5. Natural and Historic Environment 8

6. Communities and Places 10

7. Working Woodlands 11

8. Maps & Plan Appraisal 12

9. Summary of Proposals 17

10. Glossary of Terms 18

11. Management Prescriptions.....20

12. Tolerance Table 21

13. Appendix A Scheduled Monument Plans 22



Forestry Commission woodlands have been certified in accordance with the rules of the Forest Stewardship Council.

The mark of responsible forestry



PROTECTING
AND EXPANDING
ENGLAND'S FORESTS
AND WOODLANDS,
AND INCREASING THEIR VALUE TO SOCIETY
AND THE ENVIRONMENT.

1. What are Forest Plans?

Forest Plans are produced by us, the Forestry Commission (FC), as a means of communicating our management intentions to a range of stakeholders. They aim to fulfil a number of objectives:

- To provide descriptions of our woodlands to show what they are like now.
- To explain the process we go through in deciding what is best for the woodlands' long term future.
- To show what we intend the woodlands to look like in the future.
- To outline our management proposals, in detail, for the first ten years so we can seek approval from the statutory regulators.

Our aim is to produce a plan that meets your needs for the woodland; meets the needs of the plants and animals that live there and meets our needs as managers.

We have produced this draft plan to illustrate our management proposals thereby creating an opportunity for you to comment on the plan, whether you are a user, a neighbour or a member of one of the many stakeholder groups that have an interest in the woodlands. Information on how to get your comments to us is on the webpage.

This plan does not set out the detailed yearly management operations for each small piece of a wood, known as a coupe*. It is not possible to say which year a particular operation will take place, but we can say in which five-year period it should happen.

All tree felling in the UK is regulated and a licence is required before trees can be felled; the scale of tree felling in Thetford Forest is such that the Forest Plan is the best mechanism for applying for this licence.

Responsibility for checking that the plan meets all the relevant standards and statutes lies with another part of the FC (Forest Services). If all the criteria are met, full approval is given for the management operations in the first ten years (2015 - 2025) and outline approval for the medium term vision (2025 - 2045). The plan will be reviewed after the first five years (2020) to assess if the objectives are being achieved. Natural England will approve management proposals for the Sites of Special Scientific Interest (SSSIs) and Historic England will approve management proposals for Scheduled Monuments (SMs) which lie within in our woods.

We use some technical words and phrases in the text because they best describe what we are doing. There is a glossary at the back of the plan with some commonly used technical forest terms and abbreviations these technical words are identified with an * .



2. Standard Practices and Guidance

Underpinning the management proposals in Forest Plans is a suite of standard practices and guidance described briefly below. Some of these practices are strategic national policy, whilst others are local expressions of national policy to reflect the particular conditions found in East England - the policy level is indicated in brackets.

The UK Forestry Standard* (national)

The UKFS sets out standards for the sustainable management of all forests and woodlands in the UK and describes, in outline, good forest practice.

The UK Woodland Assurance Standard* (national)

The UKWAS certification standard sets out the requirements which woodland owners, managers and forest certification bodies can use to certify their woodland and forests as sustainably managed. It is the document which guides all of our management, and against which the FC is certified by outside consultants to ensure our compliance.

Deadwood (national and local)

Deadwood is important in the forest as a habitat for birds, invertebrates and some primitive plants. Guidance is given on how to provide deadwood in the forest of different sorts and sizes and how this will be distributed.

Natural reserves (national and local)

Natural reserves are areas of the forest where little or no active management takes place thereby creating a very different and special habitat in our otherwise actively managed forests.

European Protected Species (national)

In August 2007 amendments to the European Habitat Directive came into force in England and Wales to protect the habitat of a number of vulnerable species. Those European Protected Species (EPS) most likely to be found in a woodland habitat include all species of bat, hazel dormouse, great crested newt, otter, sand lizard and smooth snake.

In Forestry Commission managed woodland where one or more of these species has been confirmed, the FC will manage the woodland in accordance with the good practice guidance documents that have been produced by FC and Natural England (NE). On the rare occasion when woodland management operations cannot be undertaken in compliance with the guidance, NE will be consulted and where necessary, an application will be made to undertake the operation under licence.

It is recognised that EPS can occur beyond woodland therefore the management of open habitats identified in this Forest Plan will also need to consider the presence of these species.

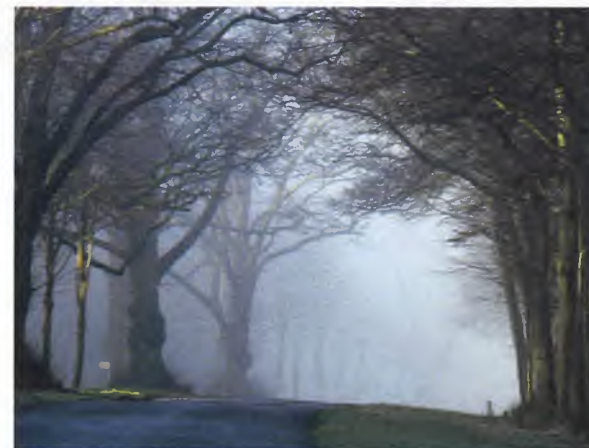
Other Designations

The FC landholding in England has a wide range of European and national designations placed upon it in various locations across the country, such as;

- National Park
- Area of Outstanding Natural Beauty (AONB)
- Special Protection Area* (SPA)
- Special Area of Conservation (SAC)
- Sites of Special Scientific Interest* (SSSI)
- Scheduled Monuments (SM's)
- County Wildlife Sites*

Along with the standard guidance documents, we have individual plans for our designated sites; these describe work required to maintain and enhance the protected features. We will gradually integrate these into our Forest Plans where appropriate.

In addition, the Forestry Commission has a number of practice guides and specialist bulletins which further inform our management, some of these are available to download from our website <http://www.forestry.gov.uk/>



3. Introduction

This Forest Plan covers the almost 3500 hectares of Forestry Commission managed land that forms the part of Thetford Forest between Brandon and Thetford. We are guided and directed by a number of policies and strategies - the most significant being:

The Government's Priorities

While the new Government settles in and formulates the detail underlying its forestry policy, Forestry Commission priorities are to make sure that trees and woodlands help in meeting Government's goals for natural resources, climate change, improved urban environments and a better quality of life for all.

Forest District Strategic Priorities for Thetford Forest

The main priorities listed below are taken from the East Anglia Forest District's Strategic Plan which was written in 2005 and is under revision in 2015.

This plan lies within the Thetford Forest strategic zone.

- To manage and monitor SACs, SPAs and SSSIs.
- Take into account the internal and external landscape considerations for the area.
- To collate and prioritise the ideas/objectives of all teams to fully inform the Forest Plan.
- To diversify the range of restock species in response to climate change adaptation and increased threats from pests and diseases.

General Description of Plan Area

The plan covers 3464 hectares of Thetford Forest between Brandon and Thetford.

Several busy roads affect the plan area - the Brandon/Thetford Road runs through the block, the Brandon/Bury St Edmunds road bounds it on the west and the A11 dual carriageway cuts through it on the south. The Cambridge/Norwich railway delineates the northern boundary of the plan.

The plan area straddles the county border, falling within the administrative boundaries of Breckland District Council in Norfolk and Forest Heath District Council in Suffolk. The plan includes land within the parishes of Brandon, Santon Downham, Thetford and Elveden. This plan encompasses the Little Ouse River which flows through Forestry Commission ownership for almost its entire length between Brandon and Thetford.

Many people live within walking distance of the plan area. Housing estates and industrial areas on the edges of Brandon and Thetford abut the forest, and the vil-

lage of Santon Downham lies in the heart of the forest. There are isolated small farms and fields amongst the forest.

The Forestry Commission visitor centre for Thetford Forest provides recreation facilities in the heart of the plan area, and users also access the plan area from the Forestry Commission office car park at Santon Downham, the Forestry Commission's St Helens Picnic Site on the Little Ouse, Brandon Country Park (run by Suffolk County Council) and the many informal parking places at forest gateways. Tourists can stay in the forest at farm camping/caravan sites and Centre Parcs.

The Forestry Commission own just under half the plan area - most acquired from the Downham Hall Estate in 1923 supplemented by smaller areas from Weeting Hall Estate in 1926 and Brandon Park Estate in 1930, and a tiny piece from Brandon Parish in 1966. The remaining half of the plan area had been held on long term leases from the Crown Estate and Elveden Estate since the 1920s. The freehold area is dedicated as open access land under the Countryside and Rights of Way Act 2000 (CRoW Act).

Within the High Lodge plan area are 13% of the forest is pure broadleaf but there are further broadleaves mixed amongst the conifer plantations. Of the conifer, 78% is pine. The block has historically yielded high quality pine timber.

There is 12% open space overall, and apart from the 1% accounted for by car parks/recreation sites it is generally kept open for nature or heritage conservation.

The strategic priorities of the Forestry Commission and the Strategic Plan for East England set the general direction for the future management of the woodland. We take these and our own local knowledge of the site to prepare a 'Design Brief', which sets out the main factors we need to consider within this plan. However these may be subsequently modified following consultation. The Brief is used to draw up an Analysis and Concept Map, which feeds into the rest of the Forest Plan. The whole plan is arranged around the three themes of sustainable forest management:

- Nature
- People
- Economy

4. Design Brief

Nature

- The Thetford felling plans should aim for an even distribution of felled area for Woodlark/Nightjar habitat and maintain a minimum area of 12757 ha in cyclic clearfell as required under the SPA designation.
- Maintain open space in order to implement the Thetford Open Habitat Plan through the network of rides in the forest.
- Manage Scheduled Monuments and protect other sensitive heritage features within the wood.

People

- Maintain a pleasant woodland environment for users.
- Size and shape of felling coupes to fit into the landscape.

Economy

- The felling plan should aim to smooth production from crops in cyclic clearfell but also meet market commitments for 2015-25.
- Restocking should aim to maximise production but also to increase species diversity and climate change resilience.
- Restock species should take soil pH into account and the threat posed by Dothistroma Blight.

The following three sections will show how the objectives in the Design Brief can be delivered through the Forest Plan for the Harling area of Thetford Forest. The final section will be an appraisal of the design plan against the brief to see if all the objectives have been met and a statement regarding monitoring the progress of work as the Forest Plan is implemented on the ground over the next ten years.



Analysis & Concept Map

<p>Infrastructure</p> <ul style="list-style-type: none"> Settlement House Power Station Powerline wayleave Public water supply <p>Environment</p> <ul style="list-style-type: none"> River/ditch Scheduled Monument Warren bank EU Special Protection Area Site of Special Scientific Interest (excluding Theford Forest) National Nature Reserve County Wildlife Site (excluding those in forest) FC natural reserve FC conservation site (point) FC conservation site (line) FC conservation site (polygon) Grazing (tenanted land) 	<p>Access</p> <ul style="list-style-type: none"> Freehold land Leasehold land Public forest access dedicated under Countryside and Rights of Way Act (CROW) Danger area (no access) Public road Forest road Public right of way Ride (compartment edge) Waymarked trail Recreation site Visitor Centre Parking in gateways Parking non FC Viewpoint FC carpark Public Campsite Scout Camp
---	--



Design Brief Summary

Nature
Aim for an even distribution of felled area for Woodlark/Nightjar to meet SPA commitments.
Maintain open space.
Manage Scheduled Monuments and protect other sensitive heritage features.

People
Maintain a pleasant woodland environment for users.
Design coupe shape and size appropriate to landscape.

Economy
Smooth long term timber production whilst meeting market commitments for 2015-25.
Increase species diversity and climate change resilience whilst maximising production – restock proposals take into account soil pH and Dothistroma Blight.

5. Nature

Site Characteristics

The plan area covers some of the highest ground in Thetford forest, an "upturned T" shaped central plateau reaching to over 50m above sea level. Dry valleys cut into the east and west sides of the plateau. The northern edges of the plateau fall, sometimes sharply, to the floodplain of the Little Ouse River at under 10m above sea level. This landform creates differences in exposure and aspect which impact on felling coupe design, restock species selection and silvicultural options.

Soils influence silvicultural options, choice of tree species and timber productivity. In the plan area, floodplain soils are peats and gleys. River terraces have excessively drained acidic gravels and pockets of windblown sand. The slopes are covered with the characteristic alternate banding of deep acidic sand and shallow (in places calcareous) brown earths. 'Uplands' are overlain by deep excessively well drained acidic sands.

The overall climate is generally mild with very warm summers, but the area can experience very low winter temperatures; spring and early summer frosts are common. These factors, coupled with relatively low rainfall (520 - 640 mm/year) create an almost continental climate.

Most of the plan area is in the catchment of the Little Ouse, which is classified as a "main river" - as such water levels are managed by the Environment Agency.

There are Anglia Water supply boreholes within the forest, to take advantage of the lower ground water nitrogen levels than in surrounding farmland.

Existing Habitats

Coniferous Forest

Most of the wooded area of the plan is conifer forest, with Pine being the predominant species, but also some impressive Douglas fir stands. The mature forest areas are used as breeding habitat by several different species of raptor and other Schedule 1 birds such as Firecrest. Long term bat box monitoring sites are well distributed through the plan area and the hibernation site next to the High Lodge Visitor centre is used by Barbastelle bats.

Broadleaf Woodland

Although the plan area has some very productive conifer stands, many have a broadleaf element. Parts of the plan area have a broadleaf woodland character, particularly in the Little Ouse Valley and historic estate woodland near Santon Downham. There are many trees of historic interest, including lime avenues.

Deadwood

A proportion of dead trees are left standing after clearfelling, providing they are regarded as safe; these become important standing deadwood habitat. A lot of fallen trees are left to rot down where they fall, it is important not to 'tidy up' these

fallen trees from a biodiversity point of view as shaded rotting wood is important habitat for invertebrates.

Ponds, watercourses and wetlands

The plan area falls within the catchment of the Little Ouse. Historically the river was an important freight route but is now only navigable as far upstream as Santon Downham. There are seasonally wet ditches and pools in the floodplain, and the Forestry Commission worked with the Environment Agency in 2014 to increase the water holding capacity of the floodplain to reduce downstream flooding and vary the water flow rate in the river channel. To the east of the plan area is the Horse Meadows SSSI, which has an extensive area of fen and wet grassland.

Otter and water vole are well-established on the river with Daubentens bats hunting over the water and the artificial hibernacula on the river edge achieving one of the highest winter counts of Daubentens in the country.

Great crested newts have been recorded in the pond close to High Lodge visitor centre.



5. Nature and the Historic Environment

Open habitats

The tenanted grazing units in the river valley and network of wide forest rides provide around 14% open space. The plan area is fringed to the north and west by other forest blocks, but the Thetford Golf Course SSSI and Barnham Common adjoin the plan area.

The importance of linking open habitat across the forest is recognized. A project called the 'Thetford Forest Open Habitats Plan' is underway looking at linking the larger open space areas utilizing wide rides as 'ecological corridors', which will be managed for biodiversity. The plan will be informed by data from the Breckland Biodiversity Audit (2010) to focus links along rides that already have high levels of biodiversity and contain a wide range of rare species. The Thetford Forest Open Habitats Plan will be completed during 2015 and incorporated into Forest Plans through formal amendments where necessary.

Protected Sites

Most of the plan area has been designated as a Special Protection Area (SPA) under the European Habitat Directive. The two birds of interest are the Woodlark (*Lullula arborea*) and Nightjar (*Caprimulgus europaeus*).

These birds nest on open ground and rely on the clearfell tree harvesting system to generate suitable nesting habitat. As a result of the SPA designation the area notified as a Site of Special Scientific Interest (SSSI) has been increased to match the SPA, although parts of the forest had already been notified as SSSI for significant assemblages of rare Breckland plants and invertebrates.

The SPA designation protects the breeding habitat of Woodlark and Nightjar and therefore impacts on the clearfell programme across Thetford Forest. This revision of the Forest Plan will try to smooth the 'supply' of breeding habitat over time by amending the felling dates of the clearfell coupes to produce an annual area of clearfell close to the sustainable mean for the forest. This is illustrated in a bar graph in the appraisal and monitoring section.

Safeguarding our Heritage

This part of Thetford Forest was one of the Forestry Commission's first land holdings in the country, and the main district office was established in the grounds of the hall at Santon Downham. The hall was demolished and housing was built in the village for workers in the new forest.

In common with much of Thetford Forest, a number of designated and undesignated historic environment features survive in the plan area. These reflect human settlement patterns over thousands of years and how land uses have influenced their survival.

Prior to planting the forest, much of the plan area was managed as extensive rabbit warrens which were a significant feature of the Breckland landscape and economy from the middle ages until the late nineteenth century. There are extensive surviving warren boundary banks and sites of warren lodges in the plan area, and English Heritage own one of only two surviving (almost) complete Thetford Warren Lodge just outside Forestry Commission land.

There are numerous other undesignated features including prehistoric burial mounds, field boundaries and nineteenth century flintmines.

Designated Scheduled Monuments are legally protected under the Ancient Monuments and Archaeological Areas Act 1979. The Forestry Commission accepts our responsibility to protect them and manages them through close working relationships with Historic England. This Forest Plan forms part of the formal management agreement with Historic England (see Appendix A for Scheduled Monument descriptions and site objectives; management actions are included in work programmes).

There are four scheduled burial mounds in the plan area (Historic England ref 21435, 21436, 31083, 31099) which are maintained as open space. Santon Moated Manor and medieval village is scheduled and is partly overlain by St Helen's picnic site.

Cultural and heritage features are considered in detail during pre-operational site assessments rather than within this plan. These assessments plan operations to improve the preservation of a features and take opportunities to enhance their setting. Sensitive management of historic features also contributes to other environmental and social objectives.



The site of the current visitor centre for Thetford Forest at High Lodge was a Warren Lodge in the middle ages, a farm in the nineteenth century, a labour camp in the 1920s and an internment camp during WW2.

1940s aerial photo supplied by Collin Pendleton, Suffolk County Council.

6. People

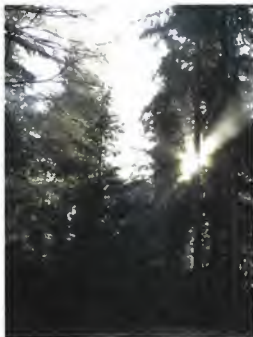
Access and Recreation

The freehold area within the plan is dedicated as open access land under the Countryside and Rights of Way Act 2000 (CRoW Act). A significant part of the leasehold area close to Thetford is occupied by an MOD rifle range which prevents public access, but there are permissive trails and public footpaths through other leasehold areas.

High Lodge is the Forestry Commission visitor centre for Thetford Forest and provides recreation facilities in the heart of the plan area, accessed along a 3 mile forest drive. High Lodge attracts an increasing number of visitors per year (currently 400,000) and offers a café, play lawn, high ropes adventure course, adventure play area, bike hire and an extensive network of maintained bike and walk trails. Lottery funding has been secured for second phase development of a heritage trail in 2015-2018. There is also a summer concert season, with each concert having an audience of up to 10,000.



There are waymarked walk trails from the car parks at the Forestry Commission Santon Downham Office, St Helen's Picnic site, Suffolk County Council's Brandon Country Park and Breckland District Council's Risbeth Wood car park. A trail follows the Little Ouse from Brandon to Thetford. There are several locations in the plan area that attract visitors with a special interest in birds or flora, particularly in the Little Ouse valley.



Tourist accommodation in the area includes a scout/societies campsite, a public campsite, a caravan park, Centre Parcs and a range of hotels and B&Bs in neighbouring towns and villages.

A significant number of visitors access the forest directly from neighbouring towns and villages, and by parking at the many forest gateways. Despite this level of use, the forest block is large enough to offer tranquil areas away from other users with no road noise.

A recent Europe wide study has shown that people who visit forests prefer to see stands of large mature trees, both of

broadleaves and conifers. This study confirms our own management policy of retaining some over-mature trees and managing them under a continuous cover system, especially in areas with high public access.

Community

Many people live within walking distance of the plan area. Some of the poorest parts of Thetford and Brandon about the plan area — housing estates built as the towns expanded to accommodate displaced London overspill in the 1950s and 60s. These are some of the most deprived wards in England and the neighbouring woods inevitably suffer from ongoing low level criminal activity such as arson and vandalism. The old "forestry" village of Santon Downham lies in the heart of the forest, although very few houses are now occupied by employees. Where roads pass through the forest there are pockets of small farms and fields.

Major electricity supply wayleaves to Thetford and Brandon run through the forest from the Two Mile Bottom biomass power-station .

Landscape

For nearly a century the landscape of Thetford Forest has been ever-changing; from the 1920's onwards tree planting on a huge scale created one of England's largest lowland forests and from the 1970's, when the trees started to reach maturity, the timber from the forest has been harvested. The present day landscape of Thetford Forest is a patchwork of trees of different ages intermingled with wide rides and open spaces.

This large forest block fills the landscape, creating one of the most iconic views in the area— from Gallows Hill looking west across the Little Ouse valley with a patchwork of forest rising on the undulating plateaux beyond.

As the age structure of the forest has altered it has been possible to assess the visual effect of the larger clearfells of the 1970's and 80's. These early clearfells were 25 – 30 hectares in size and can dominate the landscape. It is now agreed that smaller area fit better into the landscape, providing visual diversity while retaining the economies of scale for our forest operations. In areas of high public access smaller coupes are often used to add variety to the landscape.

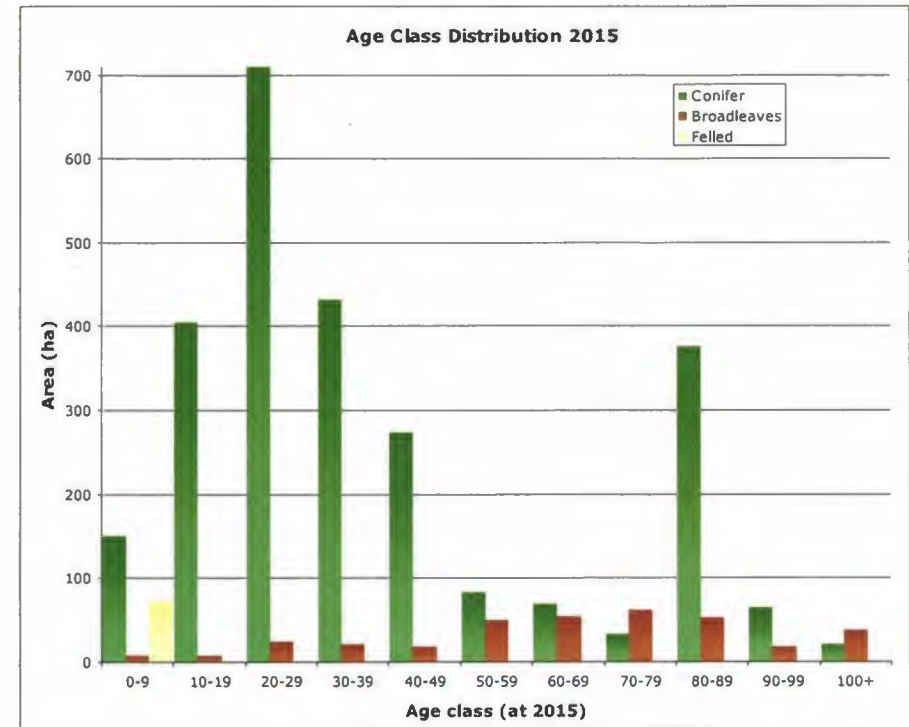
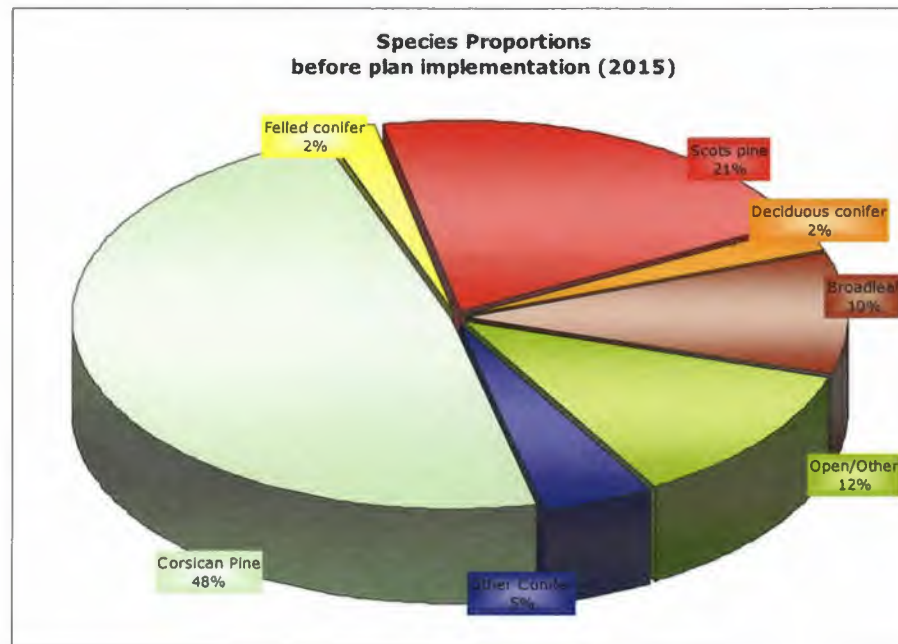
Forest Plans have been used in Thetford Forest for more than 20 years; leading to a change from rectilinear felling shapes to more 'organic' shapes that follow natural or historic boundaries resulting in more of the forest becoming a mosaic of interlocking shapes composed of trees of different ages and species. There are just a few large rectilinear areas left to 'redesign' but most of the Thetford Forest is well on the way to becoming a well balanced and sustainable multi-purpose forest.

7. Economy

Tree Species

Thetford Forest is predominantly a pine forest; this genus was chosen as both Scots and Corsican pine are particularly well suited to the soils and climate in Breckland; growing fast and producing good quality timber. The heavy reliance on pine, particularly Corsican pine, has its downside as Dothistroma Needle Blight (aka Red Band Needle Blight) has now spread across the forest; Corsican pine is particularly susceptible to this disease; Scots pine is also affected but to a lesser extent. The effect of Dothistroma is to reduce the number of needles held on the tree and also to reduce the efficiency with which the remaining needles photosynthesize, leading to poor growth and in the worst cases killing the tree but this relatively rare. Ongoing research is guiding our silvicultural decisions. In the plan area there are around 30ha of longstanding research plantations looking into the productivity of non-pine tree species. The pine has historically been particularly productive on the plateaux soils at High Lodge, and in the past straight, premium quality Scots Pine trees have been selected for telegraph poles.

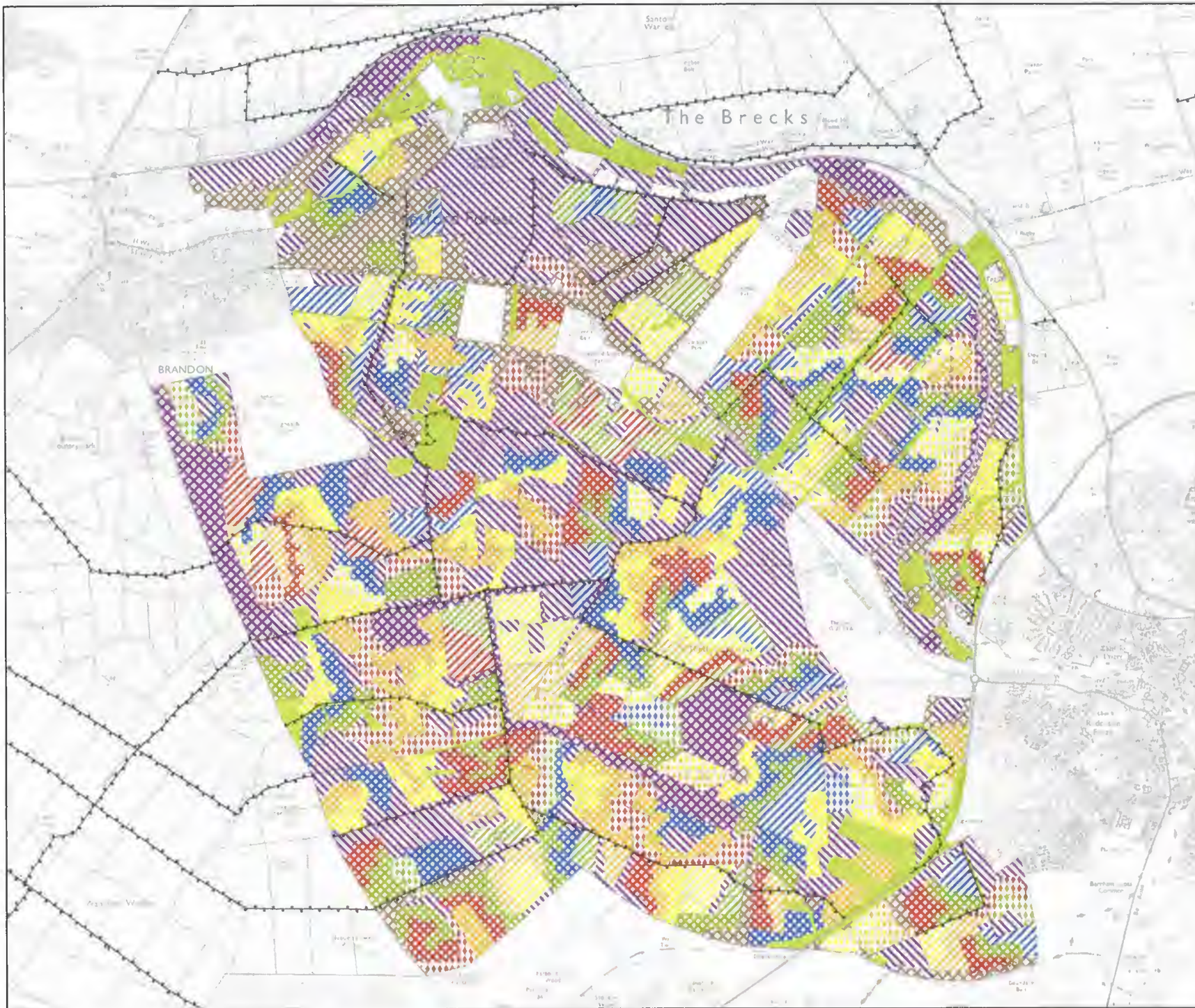
Just over 10% of the plan area has broadleaves as the main species. In addition, some stands have a significant amount of naturally regenerated broadleaf.



Age Classes

The bar chart above illustrates how past management of the woods has perpetuated the condensed initial establishment phase—resulting in the current limited spread of tree ages. Some of the original pre-FC pine plantings and broadleaf belts remain. The largest age group by area is 1920-29 but much of this group cannot be clearfelled as it forms small clumps or belts and they have become prominent landscape features.

The design brief is to 'smooth' the felling of the second rotation so that the age class distribution becomes more evenly spread over a period of 60 to 70 years. This equates, approximately, to a rotation* of trees and will move the forest forward on a more sustainable basis.



Forestry Commission
East England Forest District
High Lodge

Management Map

Legend

- Clearfell 2012-2016
- Clearfell 2017-2021
- Clearfell 2022-2026
- Clearfell 2027-2031
- Clearfell 2031-2036
- Clearfell 2037-2041
- Clearfell 2042-2046
- Clearfell 2047-2051
- Clearfell 2052-2056
- Clearfell 2057-2061
- Clearfell 2062-2066
- Clearfell 2067-2071
- Clearfell 2072-2076
- Clearfell 2077-2081
- Clearfell 2082-2086
- Long Term Retention
- CCF- Conifer
- CCF - Broadleaf
- Natural Reserve
- Open/Other



Forestry Commission woodlands have been certified in accordance with the rules of the Forest Stewardship Council.



Produced by the Planning Team
 June 2015
 Crown copyright and database right (2015)
 Ordnance Survey [100021242]



1:142,164



Forestry Commission
 East England Forest District
High Lodge

Management Map
 Showing felling
 periods falling within
 the 10 year plan
 approval date

Legend

-  Clearfell 2012-2016
-  Clearfell 2017-2021
-  Clearfell 2022-2026
-  CCF - Conifer
-  CCF - Broadleaves
-  Natural Reserve
-  Open/Other



Produced by the Planning Team
 June 2015
 Crown copyright and
 database right [2015]
 Ordnance Survey [100021242]



1:142,164





Forestry Commission
 East England Forest District
High Lodge

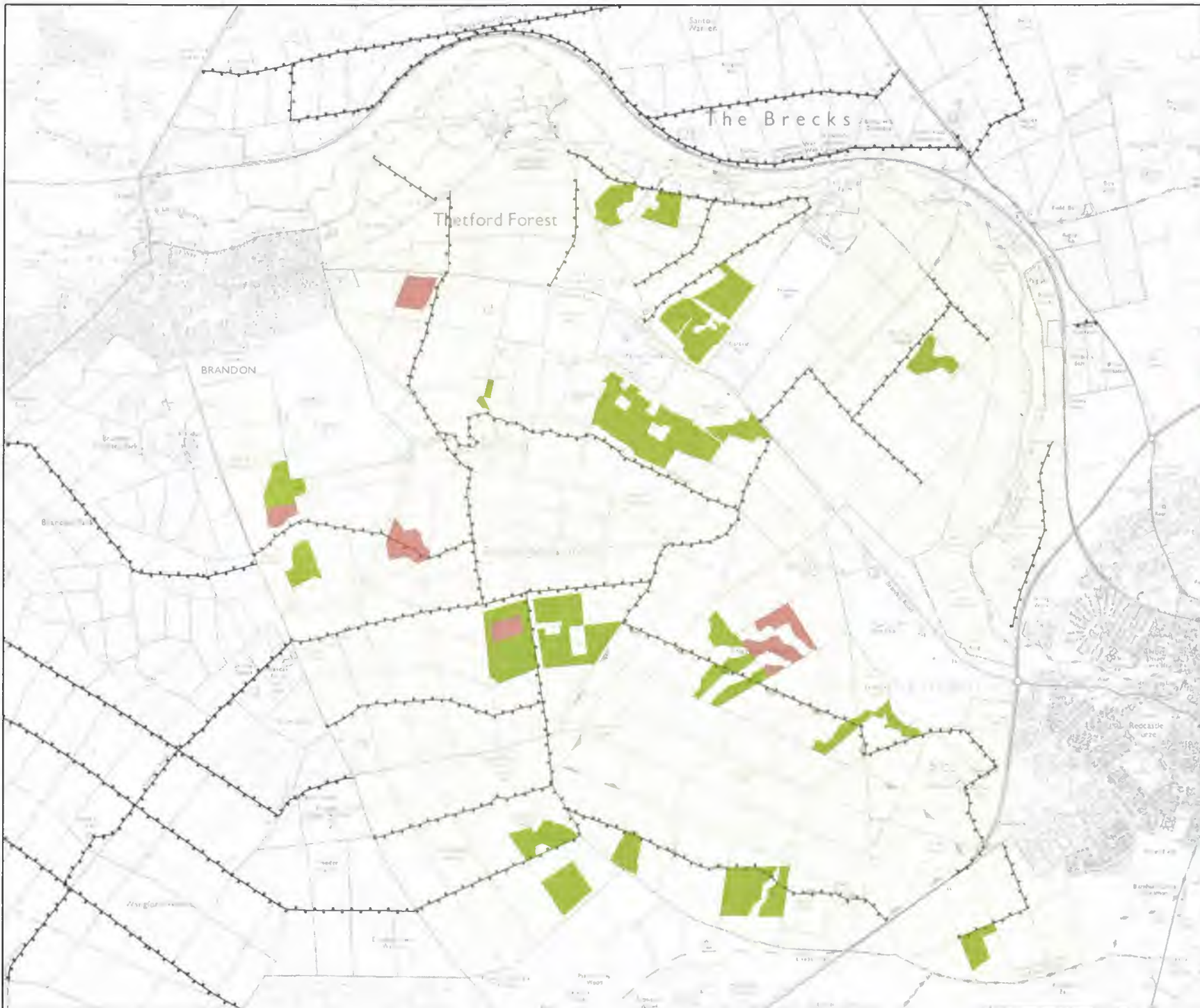
Habitat Map

Legend

-  Broadleaf woodland
-  Evergreen conifer woodland
-  Deciduous conifer woodland
-  Permanent Open Space
-  Recreation - open/woodland
-  Other land use



Produced by the Planning Team June 2015 Crown copyright and database right (2015) Ordnance Survey (100021242)	 N E S W
1:142,164	



Forestry Commission
 East England Forest District
High Lodge

Species Map
 Showing planned restock
 coupes for coupes
 falling within
 the 10 year plan
 approval date

Legend

- Scots Pine
- Other Evergreen Conifer

 Forestry Commission
 woodlands have
 been certified in
 accordance with the
 rules of the Forest
 Stewardship Council.



Produced by the Planning Team
 June 2015
 Crown copyright and
 database right [2015]
 Ordnance Survey [100021242]



8. Plan Appraisal

The appraisal of the revised plan is measured against the design brief on page 6, this has three separate sections and the appraisal relates to these sections:

Nature

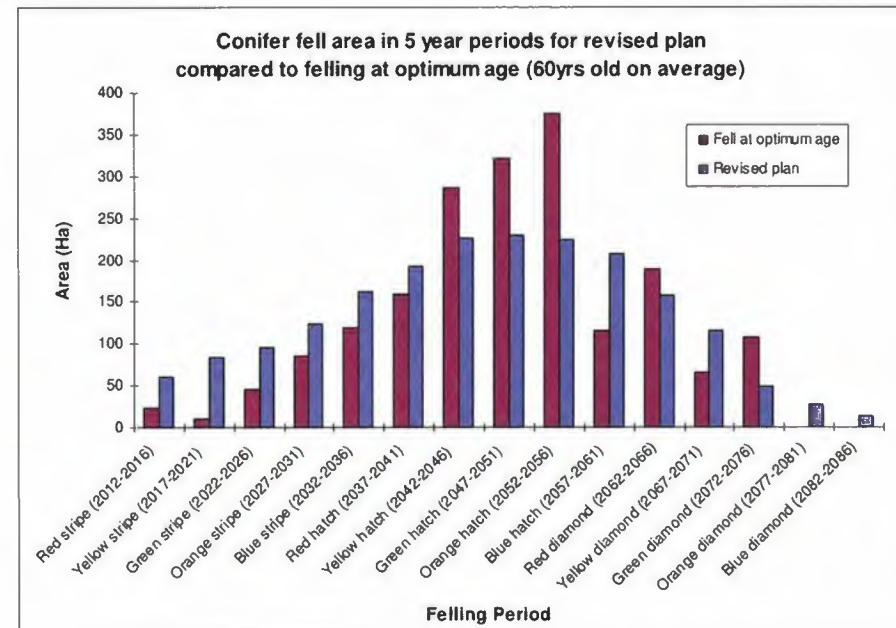
The felling comparison chart below shows how the revised plan has 'smoothed' the creation of felled area over the long term so that Woodlark and Nightjar habitat is more evenly distributed. All of the timber production clearfell coupes are larger than 5ha, the minimum size required by the SPA.

- Trees cannot be harvested at the optimum age due to the uneven age of conifers (see bar chart on page 11) — some areas will be felled early, others late.
- The broadleaves and over mature conifer are being retained to maintain the woodland's character.

The Thetford Open Habitat Plan will be integrated into the plan area when approved which will increase the current predicted open space of 7% back to over 10%.

People

It is difficult to assess how pleasant a woodland environment is, as it is subjective,



but research shows that maintaining mature woodland creates a pleasing environment for forest users and viewers. Restocking with a wider variety of species will increase visual diversity.

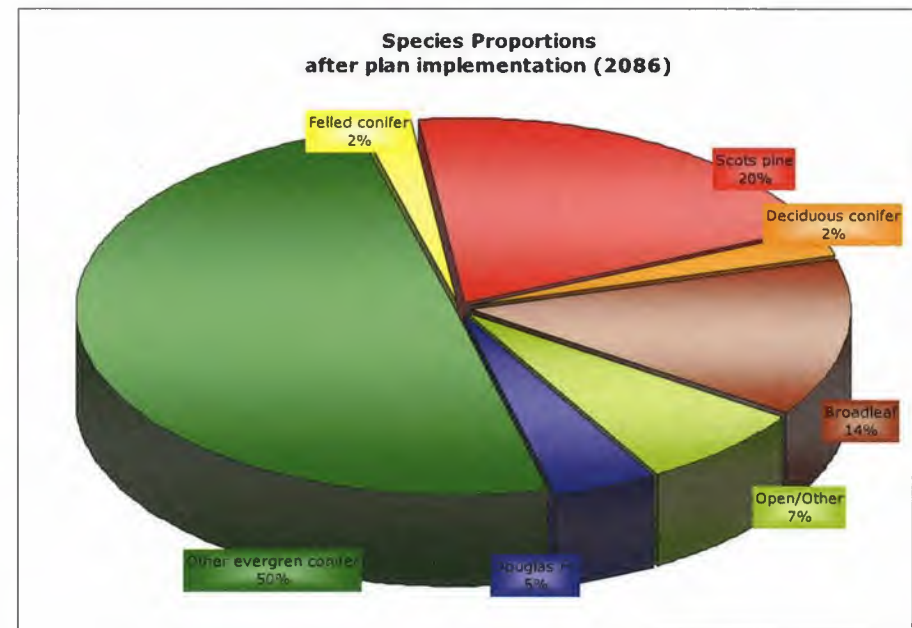
The size and shape of the coupes planned for felling can be seen on the management maps on pages 12/13; the average size of these coupes is 7.6ha and the continued use of organic shapes will create blend well into the landscape.

Economy

The objective to smooth timber production complements the objective for provision of SPA habitat. The plan attempts to balance smoothing the area to clearfell in a period with optimising the timber value at clearfell—96% of the stocked clearfell area is programmed for felling close to the optimum at between age 45 and 70 yrs old.

Coupes are smaller and more interlocking than in the expiring plan to shelter the more sensitive species being considered as alternatives to Corsican pine.

The pie chart below shows the projected species proportions by the end of the plan period, when compared the to the current species proportions (page 11) there is a significant increase in the diversity of tree species across the plan area.



9. Summary of Proposals

The increase in restock species diversity should increase the resilience of the forest to climate change and the threat from pests and diseases.

The habitat map on page 14 gives an indication of the split between conifer and deciduous trees across the plan area; Larch is separated out because it is a deciduous conifer. Larch would be planted more widely but it is susceptible to *Phytophthora ramorum*; a disease which is killing Larch trees in the western half of the country. The restock map on page 15 indicates provisional restock species for the plan approval period (2015 to 2025). Restock species will be confirmed by a site assessment during the operational planning process – soil pits and vegetation surveys will be used to ascertain the optimum species for the coupe taking into account prevailing knowledge of species performance and pathology concerns.

Monitoring

To monitor compliance with the felling plan, after a coupe is felled the shape is captured on the ground using a GPS* receiver and the data is uploaded into GIS*. The resulting point data is then compared to the original coupe shape to confirm that the felling coupe has been accurately laid out on the ground.

To monitor compliance with the restocking plan, the forest district database is updated at replanting to show the newly planted species and their proportions. As part of this updating process the restocking information is compared with the Habitat Plan to confirm compliance. The restocking area can vary slightly from the plan as physical features come to light only after felling. Most of these minor changes are within the tolerances agreed between Forest Enterprise and the Forest Services – see Tolerance table on page 21. A felled coupe is usually restocked two years later, when all the ground preparation and weed control has been completed.

To monitor timber sustainability, a stocking assessment is carried out to measure establishment success after five years.

Date of commencement of the plan: *approved date*

Expiry Date:

Mid-Term Review Date:

I seek approval to clearfell and restock 239ha of the Public Forest Estate (this is the area in the red, yellow and green stripe fell periods— i.e. 2016-2026, all felling from the previous red stripe period has been completed).

I also seek approval to selectively fell approximately 200ha within an area of 1130hectares (for the purpose of continuous cover forestry) during the period 2016 to 2026 as shown on the enclosed plans.

Signed

FOREST MANAGEMENT DIRECTOR - Forest Enterprise

Date

Signed

REGIONAL DIRECTOR - Forest Services

Date

Signed

REGIONAL DIRECTOR - Historic England

Date

10. Glossary of Terms

Biological Diversity

The richness and variety of wildlife and habitats.

Canopy

The mass of foliage and branches formed collectively by the crowns of trees.

Compartments

Permanent management units of land within a forest, further divided into sub-compartments. The compartment boundary usually coincides with a road or ride.

County Wildlife Sites (also SINC and LNR)

A non-statutory designation, recognising a site's local importance for nature conservation. These sites are identified by the Local Authority and should be taken account of in planning.

Coupes

Areas of forest that have been or will be managed together.

Cubic metre

A standard forestry unit of timber volume. A cubic metre is roughly equivalent to a tonne of timber.

England Forestry Strategy (now England's Trees Woodlands and Forests)

Describes how the Government will deliver its forestry policies in England and sets out the Government's priorities for the next five to ten years.

Favourable condition

English Nature's definition for an SSSI in its intended state.

Forestry Commission Guidelines

Outline the principles and standards of good management practices in forests and woodlands to enable landowners, land managers and their advisors to satisfy Forestry Commission policy.

GIS

Geographic Information System - computer program that enables the FC to hold and display all the district's inventory, landholding and crop information. All the maps in this document have been produced using GIS.

GPS

Global Positioning System, which uses information from satellites to accurately locate a position on the Earth.

Habitat Action Plans

UK wide plans for priority habitats defined under the UK Biodiversity Action Plan. They contain quantitative targets for conserving, restoring and expanding the habitats.

Historic Environment

These are the physical remains of every period of human development from 450,000 years ago and include earthworks, buried remains, structures and buildings.

Historic Environment Action Plan (HEAP)

Sets out the requirements for the sustainable management of all historic environment sites.

Historic Environment Record (HER)

The definitive database of all known Historic Environment remains which is managed by the County Archaeology Service.

Native woodland

Woodland containing tree and shrub species which colonised Britain unaided by the influence of man after the last Ice Age.

Natural regeneration

The growth of trees from seed found in the soil or cast from adjacent trees and shrubs.

Non-native species

Trees and shrubs that have been introduced to the UK by the activities of man. Also used to describe species not native to the site and locality.

Operational Site Assessment (OSA)

Detailed site plans that are prepared in advance of all major forest operations and identify site constraints, opportunities and areas requiring special treatment or protection.

Red Data Book species

Species that are included on Red Data lists published by the Joint Nature Conservation Committee (JNCC). The lists are based on a global system developed by the International Union for Conservation of Nature and Natural resources (IUCN) for classifying species according to their extinction risk.

Restocking

The re-establishment of trees where felling has taken place. Restocking may be achieved through natural regeneration but as a term, it is more usually associated with replanting.

Ride

Forestry term for unsurfaced roads, paths and tracks within a woodland.

Rotation

The period, in years, that a 'crop' of trees take to reach economic maturity e.g. Scots Pine may be grown on a 80 year rotation.

Scheduled Monuments

Nationally important archaeological sites which are protected under the Ancient Monuments and Archaeological Areas Act, 1979.

Semi-natural woodland

A woodland predominantly composed of trees and shrubs that are native to the site and are not obviously planted.

Species Action Plan

A conservation plan under the UK Biodiversity Action Plan for species based upon knowledge of its ecological and other requirements, which identifies the action needed to stabilise and improve its status.

SPA

Special Protection Area designated under the European Habitats Directive (Council Directive 92/43/EEC).

SSSI

Site of Special Scientific Interest—this designation is determined by Natural England and placed on areas of very high conservation value.

Sub-compartments

Areas of forest comprising a more or less homogeneous crop in terms of age, species composition and condition. Their boundaries may change as the forest develops after felling and restocking.

Strategic Plan

Serves as a guide to the management of woodlands within South East England Forest District. It divides the district into zones for the purpose of management and ensures that forestry activities reflect the local ecological, social and cultural individuality of woodland. Strategic objectives for each zone are presented within the context of the Government's strategic priorities for forestry in England (e.g. forestry for rural development; forestry for economic regeneration; forestry for recreation, access and tourism and forestry for the environment and conservation).

Succession

Applied to the natural sequence of species change on a site over time, or more simply, the following on of one thing after another. So successional open space is the open space and the plants associated with it, that persist for a short time after felling of trees.

Thinning

The removal of a proportion of the trees in a sub-compartment to improve the quality of the remaining trees, accelerate individual tree growth and provide income.

UK Biodiversity Action Plan

The UK government response to the Convention on Biological Diversity at Rio de Janeiro: includes actions to safeguard key habitats and species.

UK Forestry Standard

The Government's criteria and standards for the sustainable management of forests in the UK.

UK Woodland Assurance Scheme (UKWAS)

A voluntary scheme for the independent assessment of forest management in the UK. The Scheme has been developed by a partnership of forestry and environmental organisations in response to the growing consumer demand for timber products from sustainably managed forests. It has been designed to ensure that it reflects the requirements of both the Government's UK Forestry Standard - and through this the guidelines adopted by European Forestry Ministers at Helsinki in 1993 - and the Forest Stewardship Council's (FSC's) GB Standard.

Uniform Shelterwood System

A management system that allows young crops to become established under the overhead shelter of existing crops. The existing tree crop is evenly and gradually removed over time in successive regeneration fellings to bring about natural regeneration on the ground beneath.

Veteran tree

A tree that is of interest biologically, aesthetically or culturally because of its age, or a tree that is in the ancient stage of its life, or a tree that is old relative to others of the same species.

Windthrow (or sometimes windblow)

Uprooting or breakage of trees caused by strong winds.

11. Management Prescriptions

(Ref: Management Map)

Clearfelling

This is the main form of timber harvesting in Thetford Forest. All the trees are felled across the site or 'coupe' with the timber part of the tree extracted to the forest road where it is taken away by lorry. The smaller branches and tops are left on site where they may be chipped, mulched or raked in to rows so that enough bare ground is available to plant the next rotation of young trees. The creation of the bare planting ground is an important part of the management of the Breckland Forest SPA/SSSI, as it is this bare ground that is the nesting habitat for Woodlark and Nightjar.

Thinning

This is an important part of the management of Thetford Forest as nearly all the trees planted in the forest will require thinning at some point. Thinning performs three separate functions; removing small, dying or diseased trees; providing space for the dominant trees to continue growing; provide a small economic return in advance of clearfelling. Due to the size of Thetford Forest, thinning is a continual process that works around the forest on a five year cycle.

Continuous Cover Forestry (CCF)

This is a general term for the management of trees without clearfelling them all. There are a number of CCF silvicultural systems but all of them are based on thinning the crop on a regular cycle and removing a proportion of the trees thereby making space for seeds to germinate and new saplings to grow and fill the resulting space.

CCF is often used in areas of high public access to maintain the visual impact of large mature trees as these trees are maintained for their aesthetic value. CCF is also used to manage most of the broadleaf crops in Thetford and all the mature conifer crops in areas of high conservation value as these trees often provide important nesting habitat e.g. Firecrest.

Open space

Temporary open space follows felling when coupes are prepared for planting or to encourage natural regeneration.

Permanent open space will be centred on conservation sites, heritage sites and the forthcoming Thetford Open Habitats Plan—see 5.5 Open Habitats.

Long Term Retentions

These are areas or clumps of stable trees that are often prominent in the landscape. These trees are retained past their normal rotation age as they bring ecological or visual diversity to the area they are in but they will be felled at some point when other trees have grown up to replace them.

Minimum Intervention & Natural Reserves

These two management types are similar in that they are areas where natural processes are left to progress unhindered unless there are tree safety issues e.g. a tree has died adjacent to a footpath and creates a hazard to the public. The natural reserve areas have been identified as a permanent feature in the plans where as minimum intervention is the current management type in these areas but could change in the future.

12. Tolerance Table

	Adjustment to felling coupe boundaries	Timing of Restocking	Changes to species	Windthrow & DNB clearance
FC Approval normally not required	0.5 ha or 5% of coupe	Up to 3 planting seasons after felling	Change within species group e.g. conifers; broadleaves	Up to 2ha
Approval by exchange of letters and map	0.5ha to 2ha or 10% of coupe	Up to 4 planting seasons after felling		> 2ha to 10ha
Approval by formal plan amendment	> 2ha or >10% of coupe	Over 4 planting seasons after felling	Change from broadleaves to conifers	> 10ha

