

Hartwood & Ironmine Forest Plan

2020 - 2030

West England Forest District

Ben Robinson

FE File Ref: OP10/94

OLD Ref: PE12/1 & PE14/1



Declaration by FE as an Operator.

All timber arising from the Forest Enterprise estate
represents a negligible risk under EUTR (No 995/210)



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About

The Hartwood and Ironmine Forest Plan area is made up of a number of scattered woods mainly on the plateaus and valley sides alongside the River Fowey. They are known as Bazley's, Hartwood, Brown Queen, Warren and Ironmine Woods.

The Hartwood and Ironmine woodlands are situated a few miles to the south of Bodmin in the parishes of Lanhydrock, Lostwithiel, St Winnow and Cardinham. The local authority is Cornwall Council.

In earlier times the woods would have been managed as traditional oak coppice with standards to produce charcoal and building materials for local use or as grazed agricultural land. Acquired by the Forestry Commission in the early 1950's and mostly cleared of the much of the broadleaves they were planted with conifers (Douglas fir, Sitka spruce, beech and Japanese larch).

Much of the Nation's forests here are ancient woodland having been planted with conifer to address the national timber shortage of the early Twentieth Century. The area is now known to produce quality fir and spruce log which makes up the majority of the tree cover supplemented primarily with beech and larch. Areas of remnant ancient semi-natural woodland do remain and are made up of oak and birch with ash. Most of the areas are actively managed to provide timber for local and national businesses, and to improve the quality of the remaining tree crop.

The Plan area is ecologically valuable with habitat such as Priority Lowland Mixed Deciduous Woodland used by for bats and raptor as well as other important flora and fauna species.

Much of the Plan area is leased and as such access is constrained to public rights of way, areas of freehold are Open Access, confirmed by the Countryside Rights of Way Act. The woodlands are popular with walkers and cyclists, as part of the wider Lanhydrock cycling and walking network.

Objectives

The core aim of the Plan is to begin to progress the 50 Year Vision by producing woodlands which continue to sustainably produce timber whilst providing a forest rich in wildlife, attractive to people and increasingly resilient to climate change, pests and diseases.

The social, economic and environmental objectives of management are:

- The continued production of sustainable and marketable woodland products.
- Protect and enhance woodland and open habitats and their associated species.
- To protect, enhance and restore areas of ancient woodland in line with the 'Keepers of Time' policy.
- The provision and maintenance of recreation facilities.
- Deliver well-designed forests that both protect and enhance the internal and external landscape in keeping with the local landscape character.
- To conserve, maintain and enhance cultural and heritage assets.



The current plan outlines management proposals including felling and restocking over several decades, with felling licence approval for operations up until 2030.

The Plan makes provision to develop the complex and dynamic crop compositions of quality fir and spruce shelterwood forest. Areas identified as PAWS will be managed as mixed woodland to maximise their productive potential, with the aim of a gradual return to native woodland.

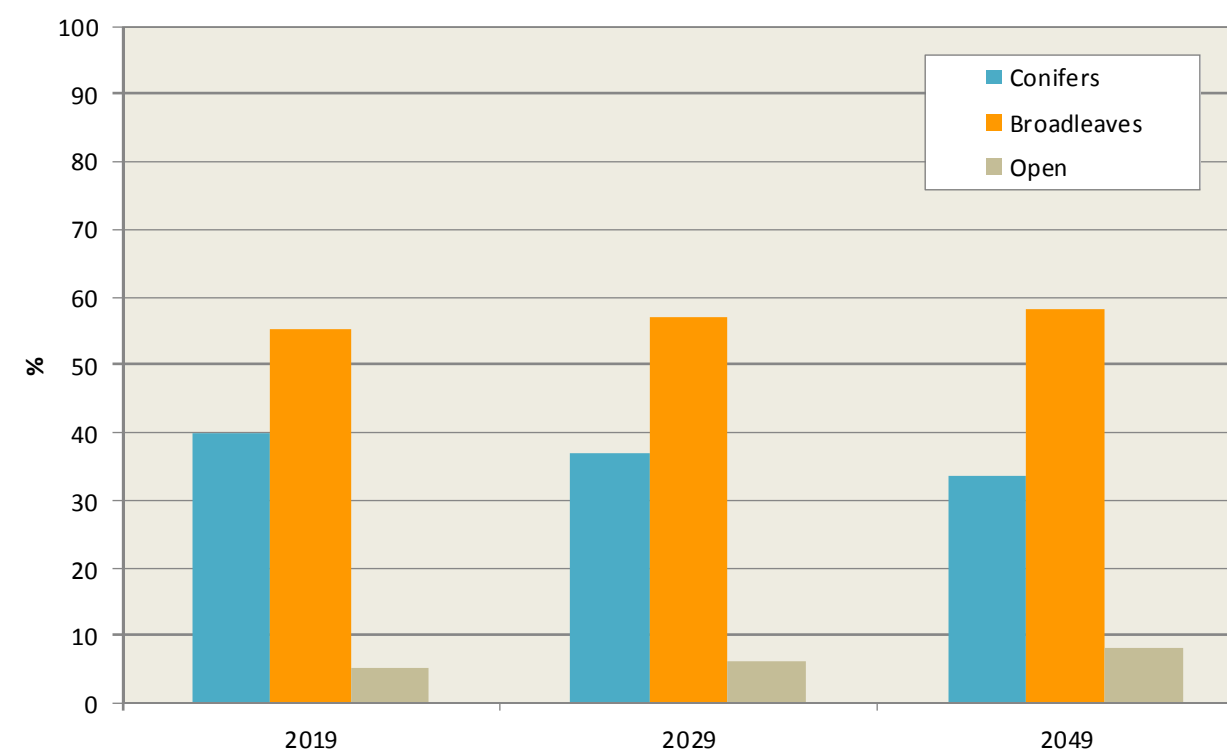
The Plan makes provision to ensure proposals are in keeping with the enclosed farmed and wooded landscape. Implementation and maintenance of an environmental corridor system will continue to increase diversity of habitat and internal landscaping.

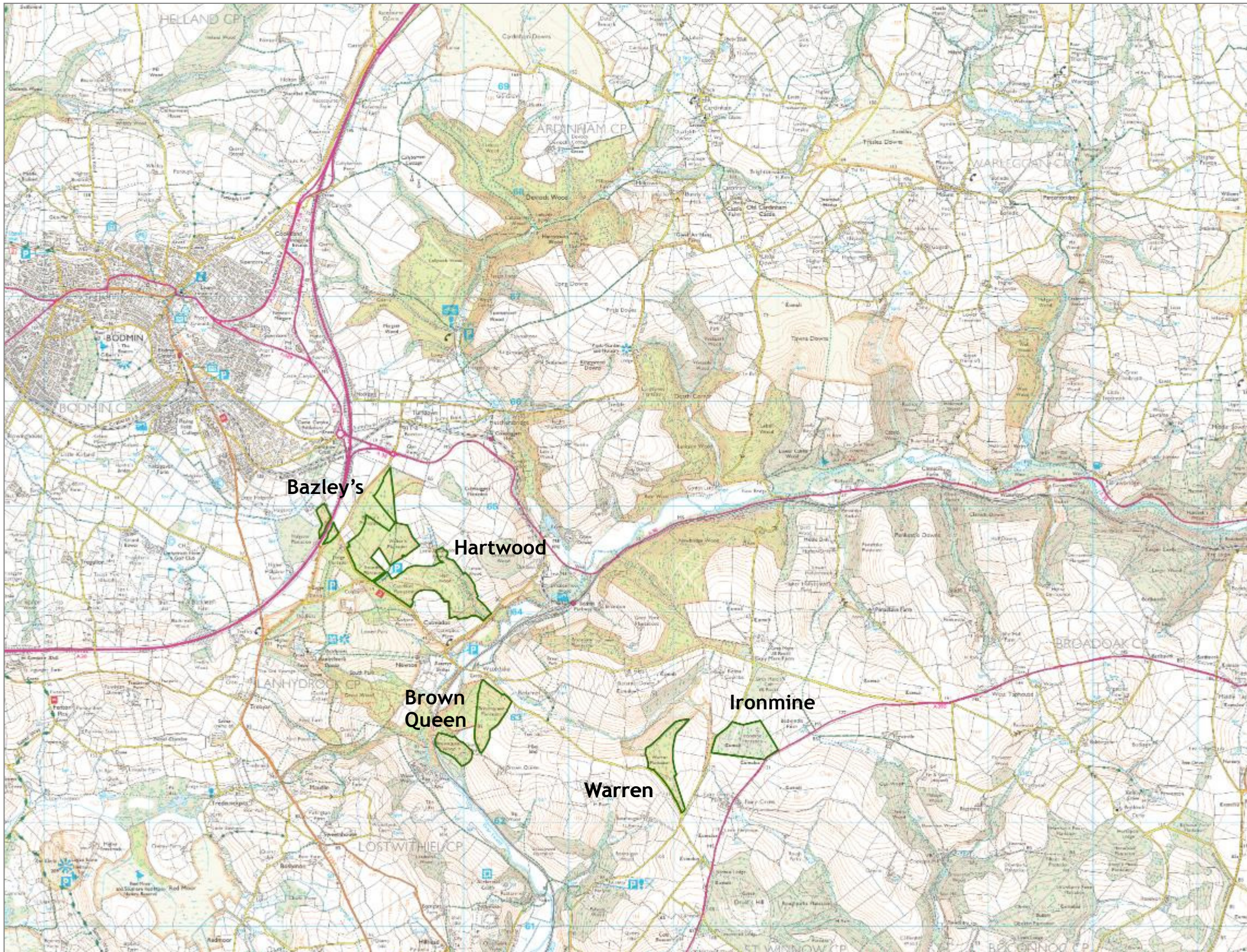
The planned areas of clearfelling, restocking and permanent open space creation during the ten years to 2030 are summarised in the chart below.

HECTARES	Conifers	Broadleaves	Open space
Clearfelling	4.84	0.68	-
Restocking/Regeneration/ Creation	2.24	1.68	1.60

In addition to these defined operations, ongoing thinning and selective felling of both conifers and broadleaves will be carried out across the Plan area at five to ten year intervals.

The proportions of conifer and broadleaved woodland and open space at the beginning of the plan period are shown in the bar chart. The increase in native broadleaves within the plan period and over time is indicated in the middle and right hand columns of the chart.





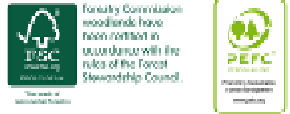
Location

The Hartwood and Ironmine woodlands are situated a few miles to the south of Bodmin in the parishes of Lanhydrock, Lostwithiel, St Winnow and Cardinham. The local authority is Cornwall Council.

The Hartwood and Ironmine Forest Plan area is made up of a number of scattered woods mainly on the plateaus and valleys sides alongside the River Fowey. They are known as Bazley's, Hartwood, Brown Queen, Warren and Ironmine.

The majority of the land is at 25-150 metres above sea level and is undulating to steep in places. The climate is warm and moist with an average annual rainfall of 1100–1400mm, a soil moisture deficit of around 100mm, and an accumulated temperature over 5 °C of 1500 °C.

The soils across the Hartwood and Ironmine Plan Area are primarily medium to poor, moist upland brown earths or surface water gleys. With Hartwood and Brown Queen on the richer deeper soils and Warren and Ironmine on nutrient poor wet soils.



A 50 Year Vision

The Vision for the future of the Plan area is bold but in keeping with Forestry England's key strategic goals and the local and national value which is placed on the area. Set against the backdrop of the landscape character whereby most of the land cover is woodland, with broadleaved and mixed woodland, with significant areas of conifer plantation, much of it within replanted or semi-natural Ancient Woodland, and a small area of parkland around Lanhydrock. This Vision looks to achieve an area which is a haven for wildlife, recreation and timber production in keeping with the 'Land Management Guideline' of the Landscape Character Area (Cornwall County Council, 2008) which is to *encourage woodland regeneration both along the banks of the ria and in the inland valleys and to conserve existing areas of Ancient Woodland and encourage reversion of plantations to broadleaved woodland when felled*. In 50 years time this Plan will look to have delivered a rich mosaic of robust habitats which supports a multitude of rare and common flora and fauna species as well as contributing to a low-carbon economy.

The conifer dominated forest will predominantly be managed through a mixture of clearfell and low impact silvicultural systems contributing to a vibrant woodland economy. Much of this will be restored overtime to native woodland to better reflect the historical cultural landscape. Rare and protected species, such raptors, badgers and bats will continue to call the forest home. The forest will also be a popular and safe place to come to exercise, learn and relax in a resilient natural environment. The trees will be valued not only for their ecological and social value but also as a timber product, water regulation and for carbon sequestration which as climate change takes effect will be of increasing importance. A diverse structure of young, thicket and maturing crops across the area will provide suitable continuous habitat over time.

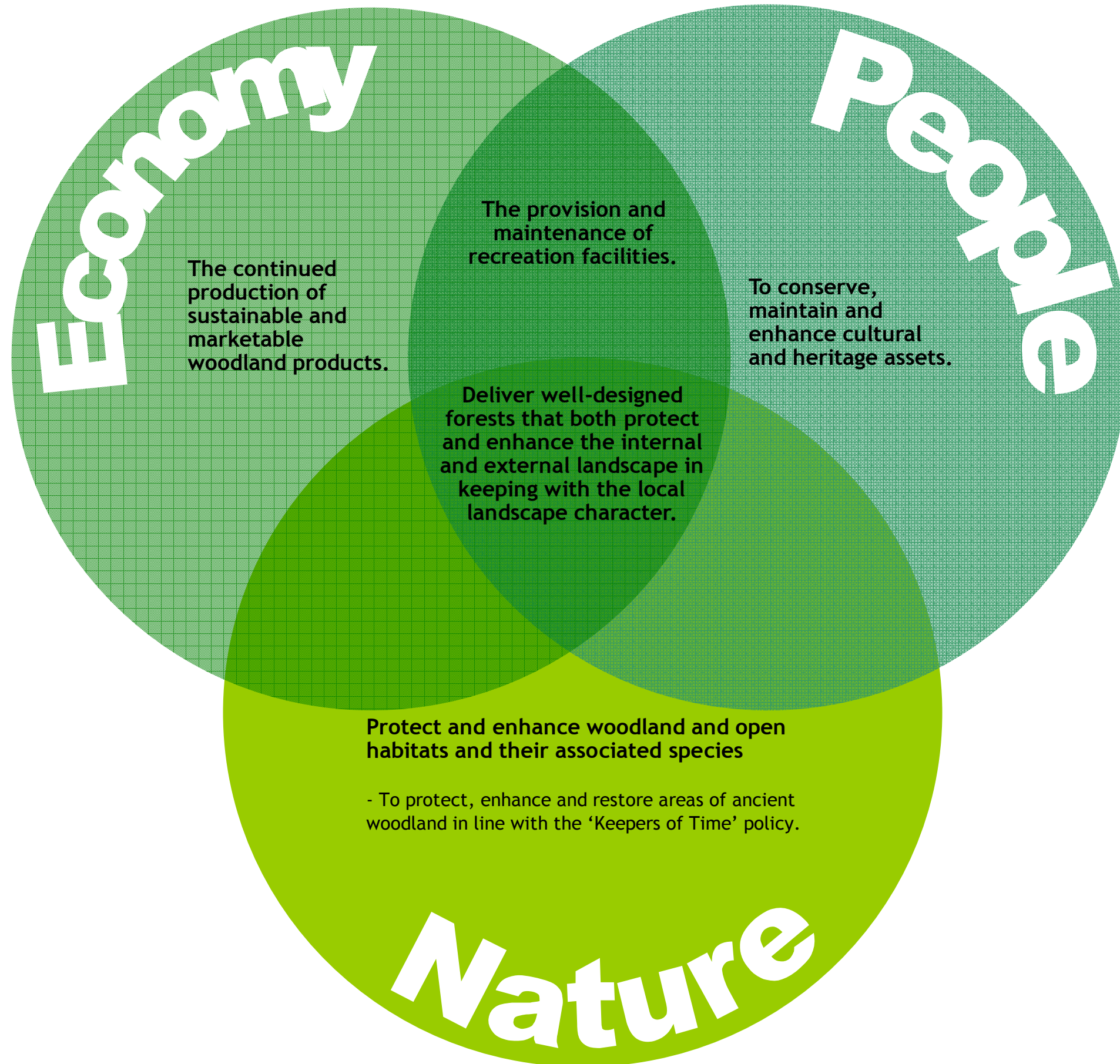
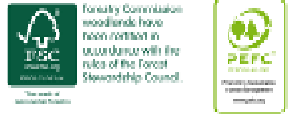
Broadleaf trees will grow in size and improve in condition as restoration to native cover takes affect in certain areas. Managed more sensitively but still with productivity in mind through thinning, these more secluded areas will become a haven for a multitude of micro habitats, species and ecosystem functioning. Veteran, mature and future significant trees will be retained and allowed to breakdown providing deadwood habitat and nutrient cycling. Everything Riparian areas will be enhanced through broadleaf intrusion and opened up to dappled shade to become invaluable to the quality and storage of water that passes through.

Ancient and native woodland, a key part of the Landscape Character, will feature more significantly in the area's makeup. Areas will be restored to oak dominated forest cover gradually to support the rare and protected flora and fauna species which populate these habitats. In addition to these, areas of conifer dominated forest managed through continuous cover forest techniques or clearfell/restock will become a home for numerous conifer and edge loving species such as bats, nightjar and raptors.

The considerable rides and roadside network will be wider than currently and support common and rare butterflies and other rotational scrub loving species. These areas will also be invaluable to the enjoyment of the area for people, creating windows into the wider forest and out into the landscape.

The 50 Year Vision outlined in this Plan will be delivered in part over the next 10 years through the Objectives outlined on pages 7 and 8 with the proposal and prescriptions following.





WEST ENGLAND FOREST DISTRICT

PROTECTING AND EXPANDING ENGLANDS FORESTS AND WOODLANDS AND INCREASING THEIR VALUE TO SOCIETY AND THE ENVIRONMENT.

The objectives of this Plan will, in part, deliver the *West England Forest District Strategic Plan* (2013a) and the national *Strategic Plan for the Public Forest Estate in England* (2013b).

Sustainable management of the woodland will be to the standards required to maintain FSC and PEFC accreditation and therefore must deliver economic, environmental and social objectives.

The meeting and monitoring of these objectives is outlined on the following page.



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



Declaration by Forestry England as an Operator.

All timber arising from the Forest Enterprise estate represents a negligible risk under EUTR (No 995/210)

District Strategy

Economy

- Maintain the land within our stewardship under FSC/PEFC certification.
- Improve the economic resilience of our woods and forests.
- Encourage and support business activity on the Estate

Nature

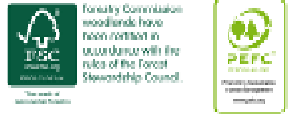
- Improve the resilience of the natural environment of the Estate under our stewardship.
- Realise the potential of the Public Forest Estate for nature and wildlife.
- Maintain and improve the cultural and heritage value of the Estate.

People

- Maintain existing established consultation panels and engage with other consultative bodies such as National Park Authorities and AONBs.
- Provide high quality woodland based recreational opportunities for people and business focusing on the 3 principle Forest Centres.

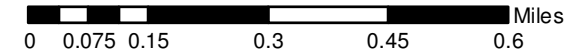
	Forest Plan Objective	Meeting Objective	Monitoring
	The continued production of sustainable and marketable woodland products.	The majority of the Plan area will remain productive through thinning yield. Some clearfell timber production of mature crops will occur, majority from the conifers.	Comparison of total production forecast yield 2,500m ³ (2020-2021) and 5,000 ³ (2020- 2030) with actual production at the Forest Plan (FP) five and ten-year review.
	Protect and enhance woodland and open habitats and their associated species. - To protect, enhance and restore areas of ancient woodland in line with the 'Keepers of Time' policy.	Appropriate reinstatement works will be carried out once operations have been concluded. Protection and enhancement of water supplies and soil quality through sensitive implementation of operations and improved restocking practices. Restoration of ancient woodland through a gradual thinning process Raptor numbers will be maintained.	Operational site planning of harvesting and restocking operations will help monitor the effect of management. Ongoing monitoring of soil and water quality pre and post harvesting with input from outside stakeholders. Analysis of naturalness scores at Review stage Measured at Review stage through analysis of ongoing surveys and records.
	The provision and maintenance of recreation facilities.	Visitor numbers will be maintained. Road and ride corridor and car park aesthetics enhanced and maintained. Felling together with a delayed restock program will continue to diversify stand and age structure. Viewpoints enhanced and maintained at time of intervention, where possible.	Visitor feedback comments, to be included in Review where appropriate.
	Deliver well-designed forests that both protect and enhance the internal and external landscape in keeping with the local landscape character .	Implementation of proposals will soften and better integrate the woodland with the surrounding landscape	Fixed point photography analysis at Forest Plan review stage
	To conserve, maintain and enhance cultural and heritage assets.	Protect and enhance unscheduled sites at the time of intervention. Manage Ironmine SM in line with Management Plan	Operational site planning of harvesting and restocking operations will help monitor the effect of management. Feature condition monitored through Review process and records updated.

Analysis & Concept



The woods clustered around the upper reaches of River Fowey and Bodmin Parkway station are discrete and mainly on the side of the Glynn valleys or along the valley bottom. The soils are deep and medium/rich, predominantly loamy brown earths. Whilst the climate is mild, wet and sheltered creating the ideal conditions for growing productive tree crops.

These woodlands are a mixture of leasehold and freehold. Hartwood is particularly popular with locals for walking and cycling as part of the wider Lanhydrock estate. The objective in these woodlands is to protect, maintain and enhance native tree cover and associated ecosystem functioning where registered as ancient woodland. This will be done using a number of silvicultural methods, specifically addressing threats and long term sustainability concerns first. On sites not registered as ancient woodland productive conifer production will be pursued, through clearfell but where possible by lower impact silvicultural system methods.



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Ordnance Survey [100021242]

Analysis: Areas of wooded heath restoration have commenced to complement the similar surrounding habitat and benefit the ecological features which thrive in transient habitats, such as nightjar, Lepidoptera and foraging fauna.

Concept: These areas will be considered holistically and enhanced by building on areas of existing open space with efficient and sustainable future management a key consideration to ensure future viability and capital.

Analysis: A large proportion of the plantation, which is made up of a mixture of pine and beech is managed as a Natural Reserve.

Concept: Any long term aspirations and management of this area will be for the benefit of the ecological significance of this site.

Analysis: Hartwood and sections of Grey Mare are registered ancient woodland and was most likely managed as ash and oak with hazel coppice in the past. All of these areas are now conifer and therefore PAWS.

Concept: Proposals will outline a plan of restoration to native species cover in line with Keepers of Time policy. This will be achieved through a process of thinning out the conifer to favour ancient woodland features and native regeneration.

Analysis: A considerable proportion of the Plan area is leased from the National Trust.

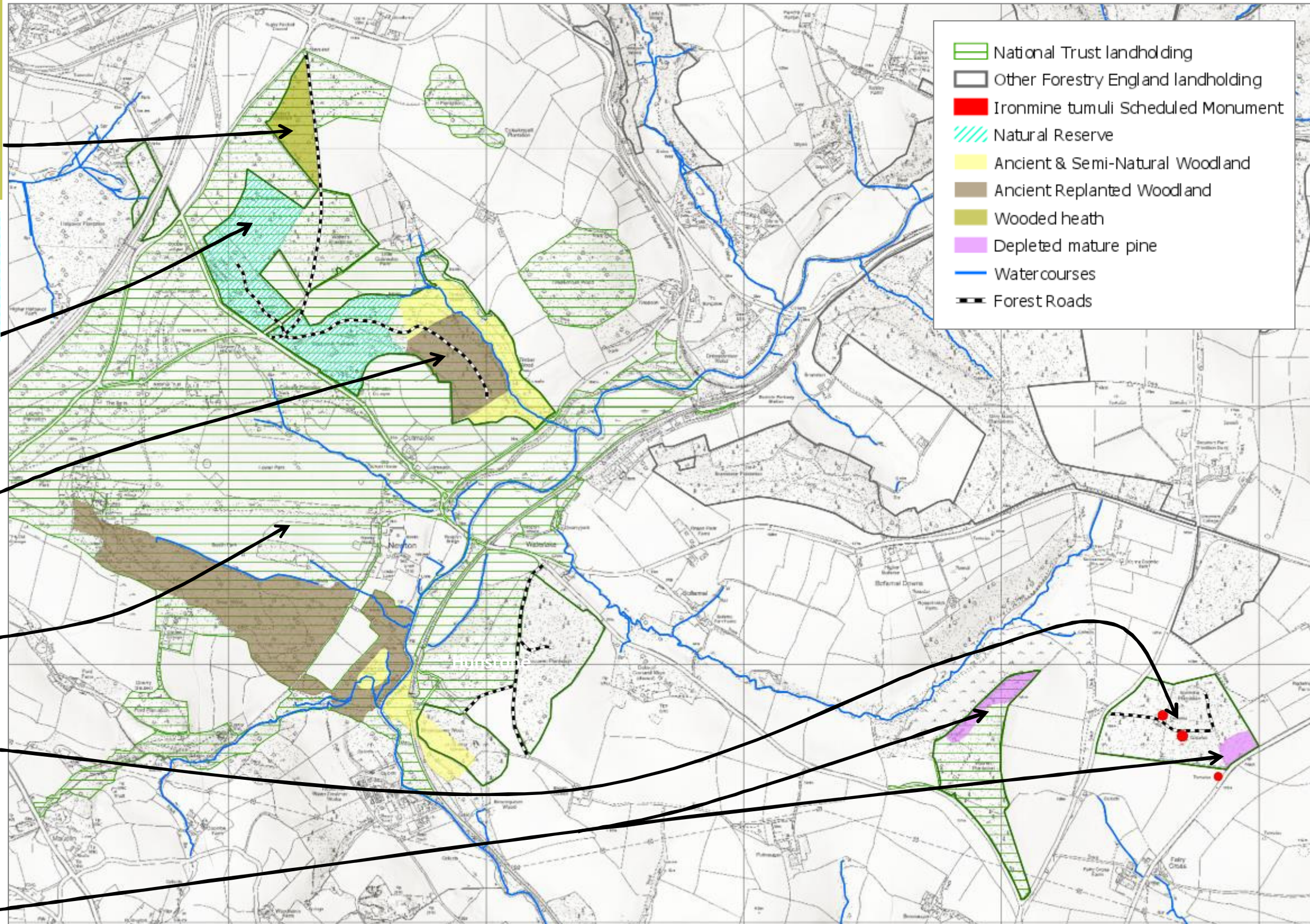
Concept: These areas will be managed sympathetically in accordance with the lease, which in some cases means for aesthetic purposes only, and others where the timber rights are retained.

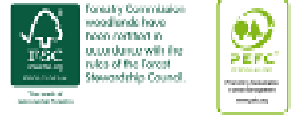
Analysis: Three bowl barrows form part of a round barrow cemetery within and around Ironmine plantation. These are clear of trees

Concept: Proposals will maintain and enhance the cultural significance of these features and their setting.

Analysis: Poor quality and depleted pine crops are situated on the edge of the Warren and Ironmine plantations.

Concept: Proposals will look to address these to enhance the aesthetic landscape of the area by felling and replanting with a new species.





Woodland Composition

The Plan area is dominated by native and naturalised broadleaves with some ancient semi-natural remnants and regenerating broadleaf components. The majority of conifer component is made up of quality Sitka spruce and Scots pine with Douglas fir the major supplementary species.

The broadleaf components of the Plan area comprise a mixture of ancient semi-natural oak and ash assemblages as well as beech plantation and intruded elements and edges to the conifer crops. The overall broadleaf composition is predominantly made up of beech and oak, with birch, hazel and ash evident as pioneer species. Broadleaf crops vary in age with significant planting and regeneration establishment occurring in the 1940s and 1950s. The majority of stands are even aged beech, sometimes in mixture with Scots pine with understory development evident but not always establishing as a secondary crop.

The age of conifer crops is somewhat varied however the majority are concentrated into two periods with considerable planting having occurred in the 1950s and 1990s to 2000s. In places the thinning of conifer crops has ensured that understory development is, now beginning to establish, often with broadleaves, which in time will deliver a more structurally diverse woodland composition.

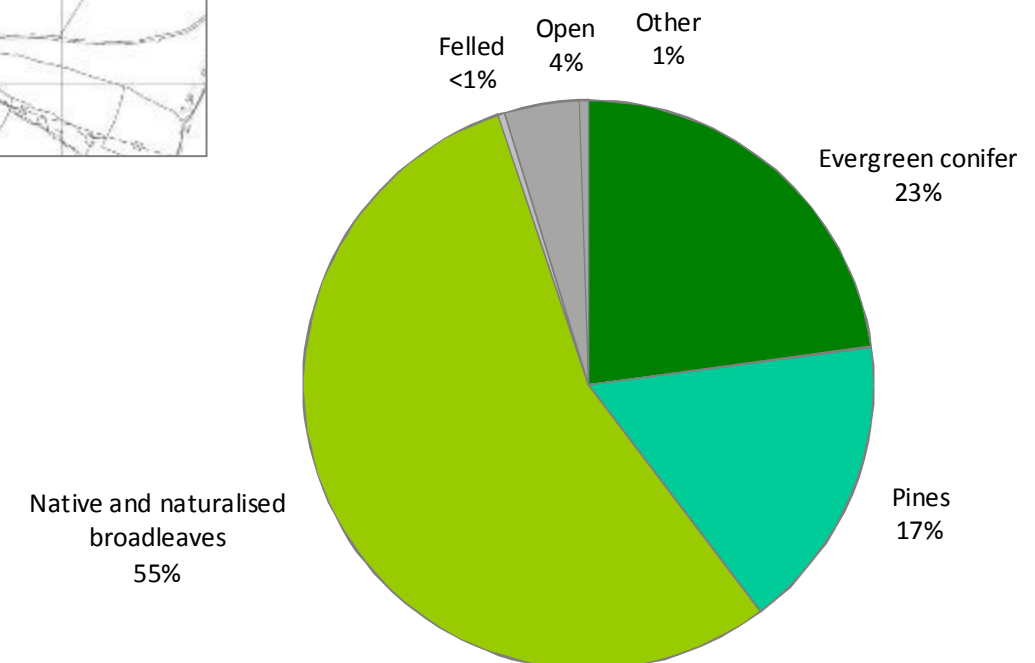
Legend

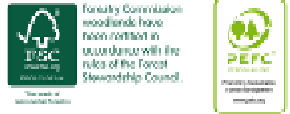
- Evergreen Conifer
- Pines
- Larches
- Native & naturalized broadleaves
- Non-native broadleaves
- Open/other



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Ordnance Survey [100021242]

Note: Beech, sycamore and sweet chestnut are considered to be not within their native range but are considered to be 'naturalised'





Class 1 - Semi-Natural Woodland
(> 80% site native species)



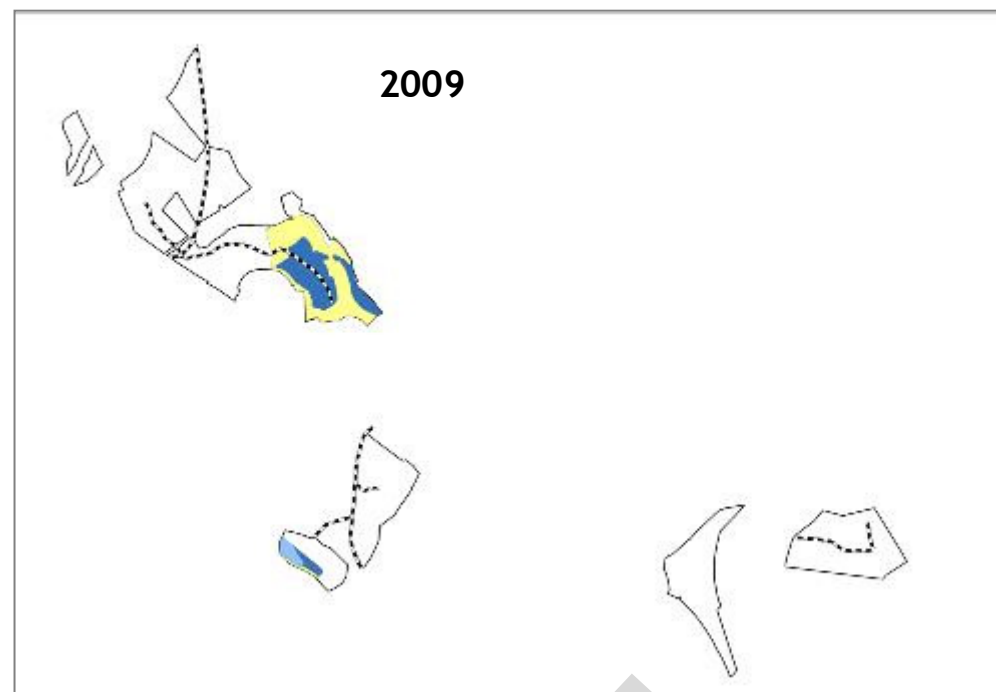
Class 2 - Plantation Woodland
(50 - 80% site native species)



Class 3 - Plantation Woodland
(20 - 50% site native species)



Class 4 - Plantation Woodland
(< 20% site native species)

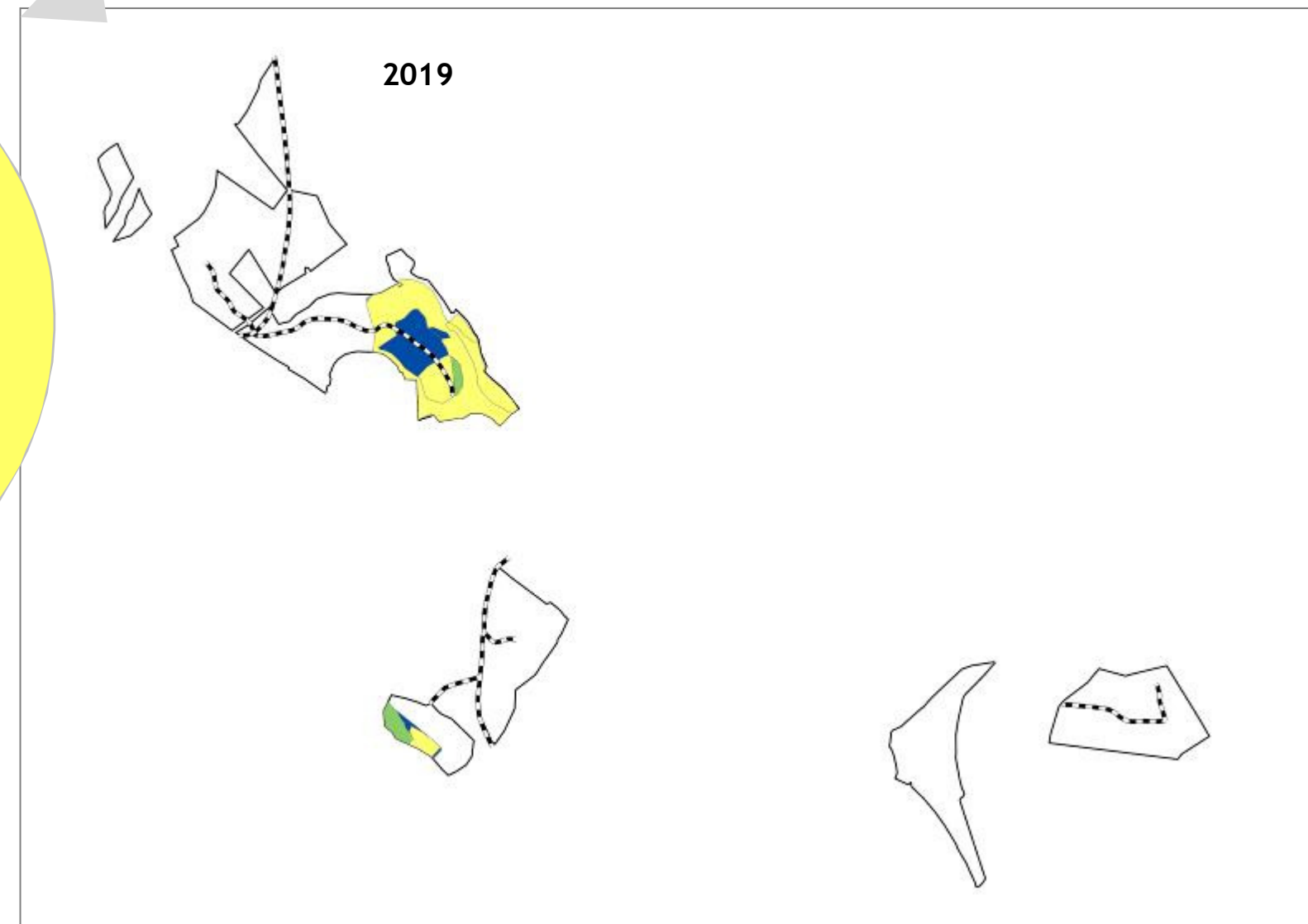
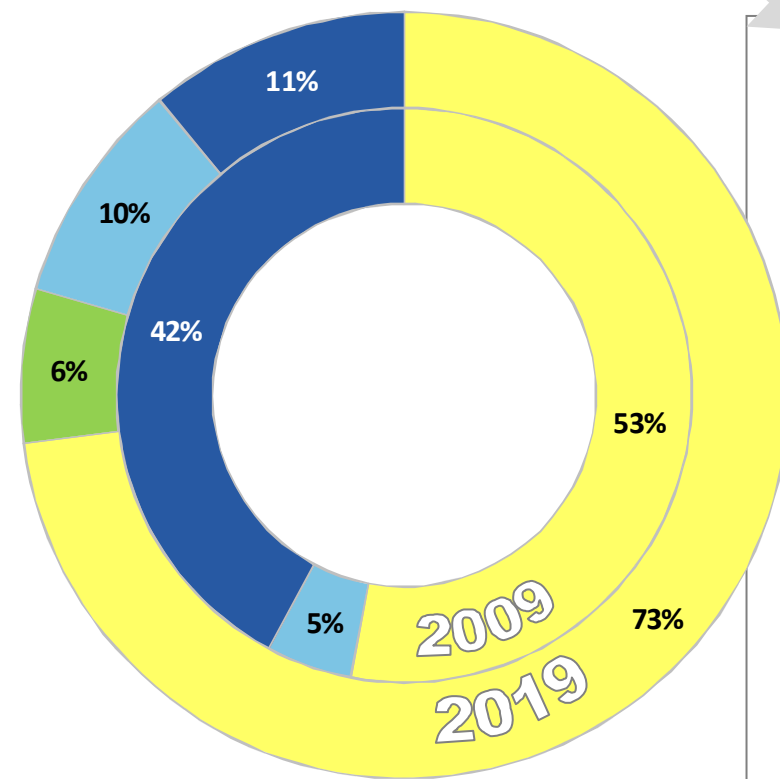


Naturalness on Ancient Woodland

Naturalness is the measure to show the percentage of site native tree species in a given area. This measure is used to record and monitor the naturalness and restoration of Ancient Woodland Sites previously planted with non-native species.

Classes 2, 3 and 4 are classified as Plantations on Ancient Woodland Sites (PAWS). Areas of Semi-Natural Woodland (Class 1 - > 80% site native species) are mostly found towards the bottom of valleys, in wetter riparian areas where the soils are richer.

The transformation of Classes 2, 3 and 4 AWS towards Class 1 is a key objective of this Plan and is in line with Forestry England, *Keepers of Time* Policy (Forestry Commission, 2005).



Legend

- Class 1 - > 80% Site Native Species
- Class 2 - 50-80% Site Native Species
- Class 3 - 20-50% Site Native Species
- Class 4 - <20% Site Native Species

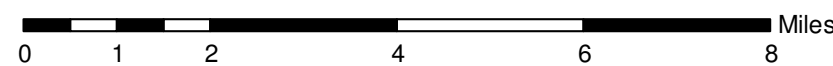
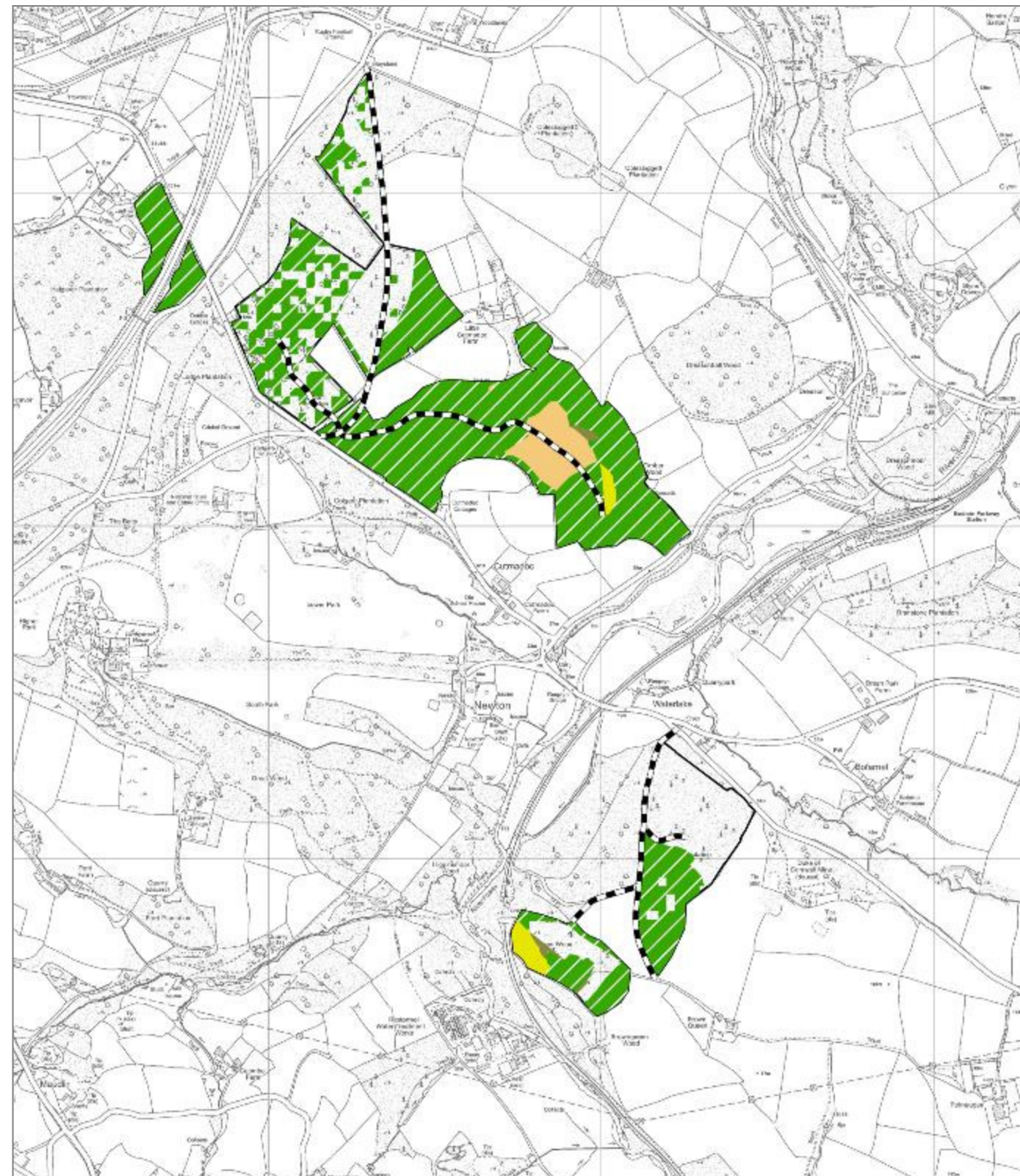


PAWS Management

Restoration of Plantations on Ancient Woodland Sites (PAWS) has already begun and the continued restoration of ancient woodland is going to take a considerable amount of time and resource because of the limited native remnants from which sites can regenerate.

Therefore a proactive yet realistic approach will be used to transform these sites over a period of time. The aim of the transitional period to woodland containing 80% or more of native species should be to achieve:

- a varied age structure with varying ratios of high canopy, secondary canopy and understory throughout.
- transition that ensures a minimum future content of 3 native species, with 4 to 5 species being the preferable target.
- a minimal reliance on monocultures especially of birch, ash, hazel or oak. In practice this may involve either underplanting or group felling and planting within existing mid rotation broadleaf crops.
- restoration of beech and sweet chestnut stands will not be prioritised as these species are naturalised and offer greater broadleaf diversity and therefore resilience.
- If adequate regeneration is not evident in the 'Transition' and 'Preparation' zones after 10 years a reappraisal of the prescription will be needed.



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Legend

- Building Block
- Transition Zone
- Preparation Zone
- Non-native Zone

Transition Zone

The indicative proportion of native tree species is 50% or more of the crop. Removal of remaining conifer will be achieved through repeated thinning operations.

The establishment period to predominantly native woodland within this category is anticipated to be 20 - 30 years but is dependant on successful regeneration and establishment although maybe sooner depending on the level of conifer needing to be removed. Scattered individual conifers or small groups may remain.

Preparation Zone

Areas within this category contain less than 50% of native tree species but have a proportion greater than 20% of the crop and the area neighbours an area of significant native species cover which can be utilised as a seed source.

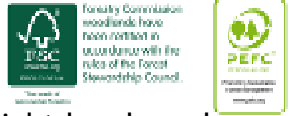
Enhancement of native content will continue through thinning of the conifer content.

These areas will be thinned heavily to release ancient woodland remnants and features and to encourage natural regeneration and intrusion in to the non-native crop.

The anticipated time scale for establishment of predominantly native species is expected be around 50 - 60 years or so, but could be as long as 70 - 80 depending on success of establishing the future crop.

Non-native Zone

The proportion of native tree species within a management area is less than 20% of the crop. Thinning in both these sub-categories should encourage crown development of broadleaf components. Progress will be monitored and crops moved into the Preparation zone depending on development of stand structure and the response of natural regeneration.



Clearfell coupes will simply be managed through clearcutting (of over 0.25ha) and restocked either through natural regeneration, replanting or a combination.

Long term retentions are in place where the coniferous elements are to be retained in perpetuity for cultural/landscaper or environmental purpose.

Uniform shelterwoods are predominately broadleaved dominated and ASNW sites which will be managed using seeding fellings with possible under planting of site suitable species to control light levels and develop good timber quality. Small coppice coupes of less than 0.25ha may be used to inject diversity into the broadleaf woodland

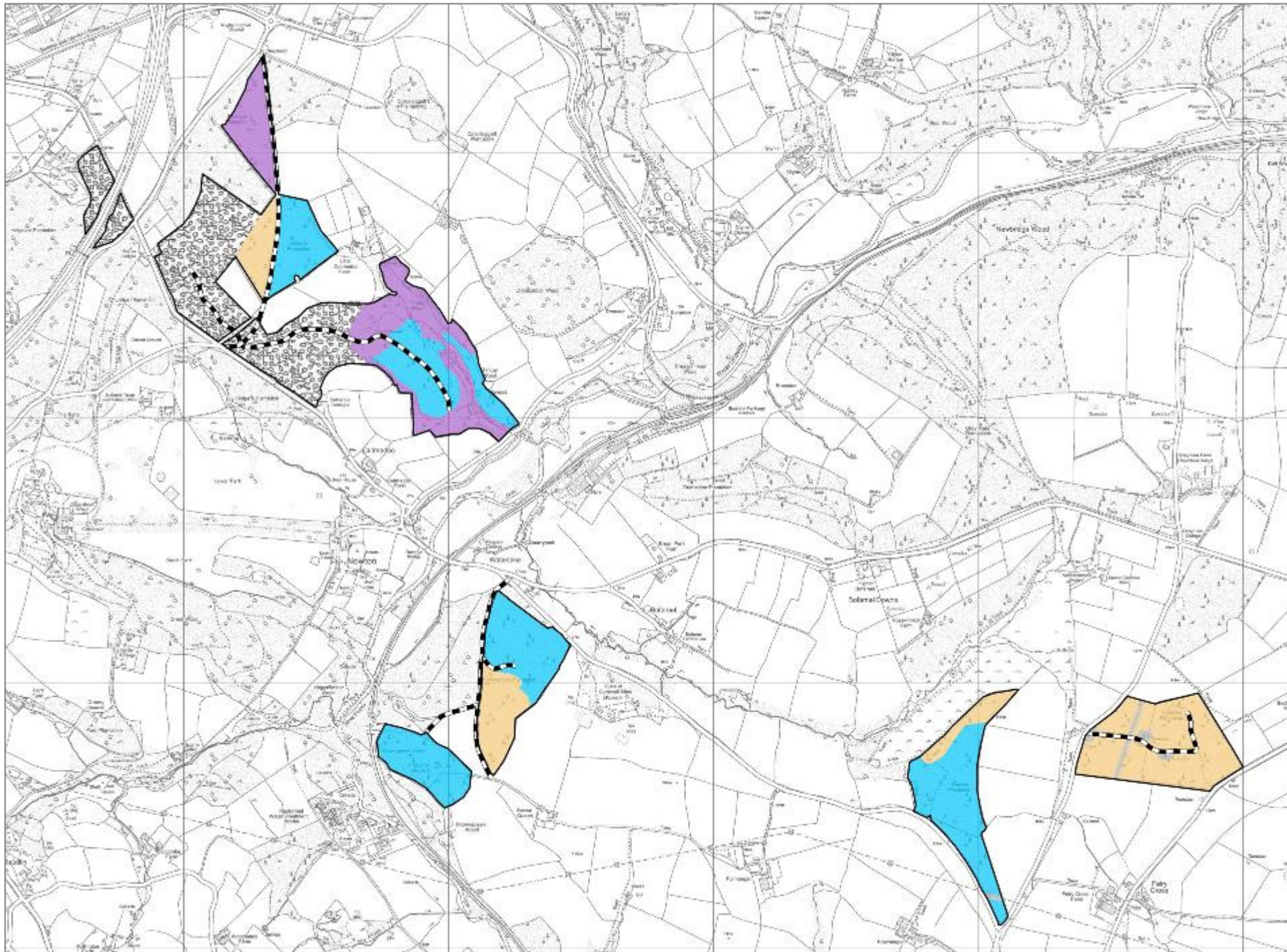
Irregular shelterwoods will look to develop a complex LISS structure through the identification and thinning towards quality final crop trees for the future.

Group selections are used on windfirm, accessible crops to proactively diversify the woodland structure and composition, through creating gaps in the canopy and the possible the use of enrichment replanting.

Minimum Interventions are predominantly inaccessible or ecologically valuable areas where management will only occur to protect and ensure the future succession of key habitats and species.

Open space is managed to ensure forest cover does not exceed 2m in height, a tolerance of 20% forest cover will be accepted on some lower priority sites.

Wooded Heath will be managed as transient heathland by creating dynamic habitats of patchy open space, conifer high forest and regenerating scrub. These areas will continue to be thinned heavily to reduce the density of conifer cover and to achieve a scattered distribution of widely space trees. In doing so the remaining trees will provide shade and cover for ground flora and fauna to thrive whilst suppressing weed growth. This will deliver ecosystem functioning for a wide array of species.



Thinning

Areas will be assessed and approved for thinning on a site-by-site basis by the local Beat Team. As attempts to improve the structural diversity of the crops are made, initiation of thinning may be made early (uneconomic) or later to address windfirm concerns. The intention to intervene every 5 years as well as on multiple occasions may not be appropriate and therefore will be administered in an adaptive approach by the Beat team.

Conifer Thinning

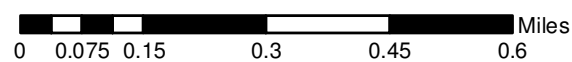
Areas of conifer are assessed for thinning every 5 years with the targeted removal of larch species a key objective. Other factors such as the quantity, condition, age and distribution of any broadleaf content, will also help decide if an area of conifer is to be thinned or not, with light levels, existing ground vegetation and any evidence of natural regeneration also impacting on how many trees are marked for removal.

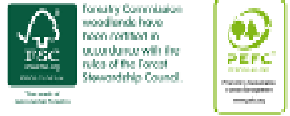
Broadleaf Thinning

Broadleaf high forest will be assessed for thinning every 10 years with a visual inspection of the stand. Thinning will allow sub-dominant broadleaves sufficient light and space to mature or will release existing advanced regeneration. Younger patches of regeneration can be thinned to favour site native species with trees of good form and vigour being retained. Where broadleaves consist primarily of a single species, it may be possible to enlarge natural gaps through irregular thinning rather than create new gaps through group felling, however, in all cases the size of gap will be dependent on slope, aspect and site fertility and must not be detrimental to crop stability.

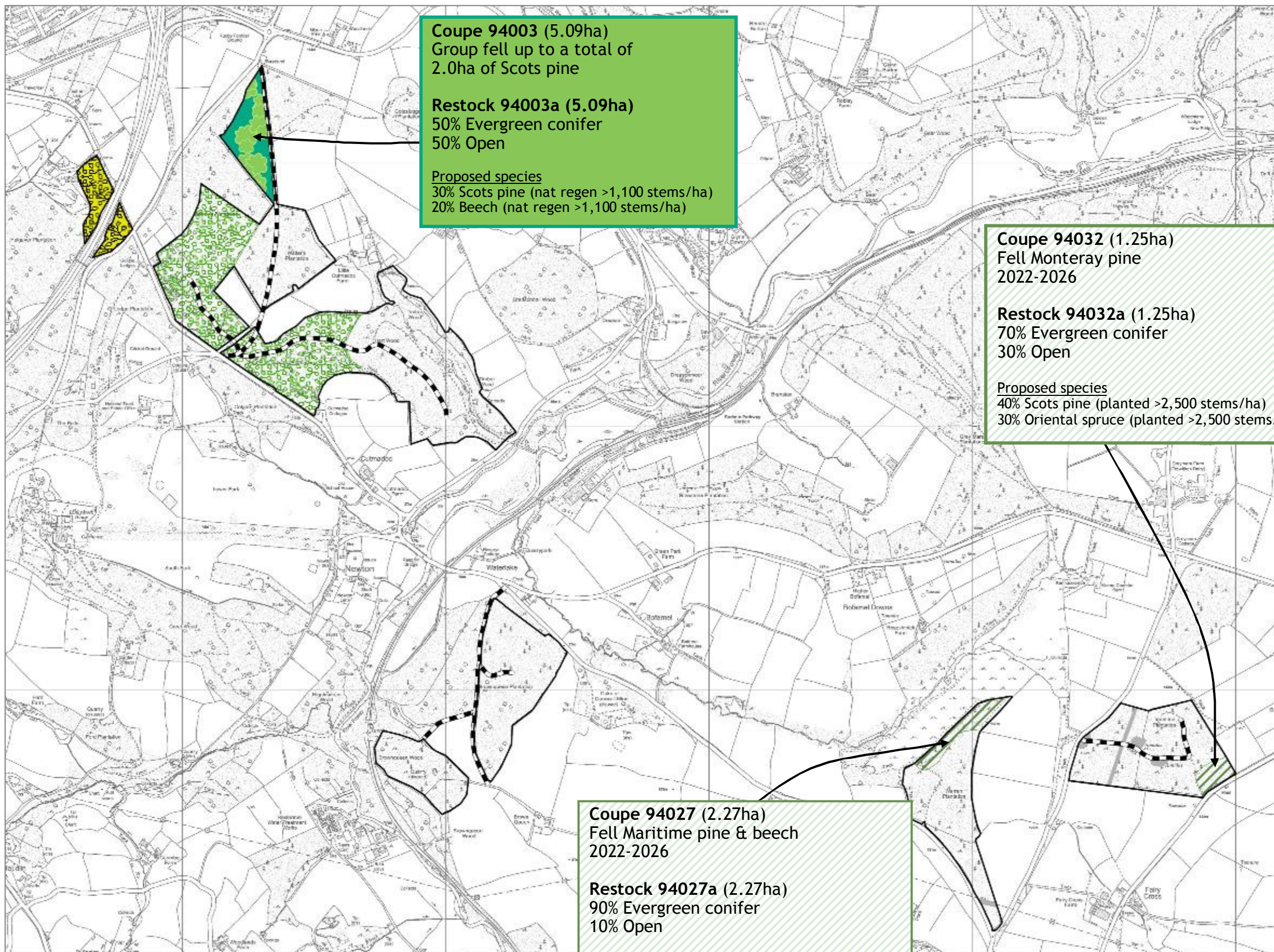
Legend

- Clearfell
- Long Term Retention
- Shelterwoods
- Group Selections
- Open
- Minimum Intervention





Felling and Restocking 2020 - 2030



Coupe 94003 (5.09ha)
Group fell up to a total of 2.0ha of Scots pine

Restock 94003a (5.09ha)
50% Evergreen conifer
50% Open

Proposed species
30% Scots pine (nat regen >1,100 stems/ha)
20% Beech (nat regen >1,100 stems/ha)

Coupe 94032 (1.25ha)
Fell Monterey pine
2022-2026

Restock 94032a (1.25ha)
70% Evergreen conifer
30% Open

Proposed species
40% Scots pine (planted >2,500 stems/ha)
30% Oriental spruce (planted >2,500 stems/ha)

Coupe 94027 (2.27ha)
Fell Maritime pine & beech
2022-2026

Restock 94027a (2.27ha)
90% Evergreen conifer
10% Open

Proposed species
40% Maritime pine (planted >2,500 stems/ha)
30% Oriental spruce (planted >2,500 stems/ha)
20% Beech (planted >1,100 stems/ha)

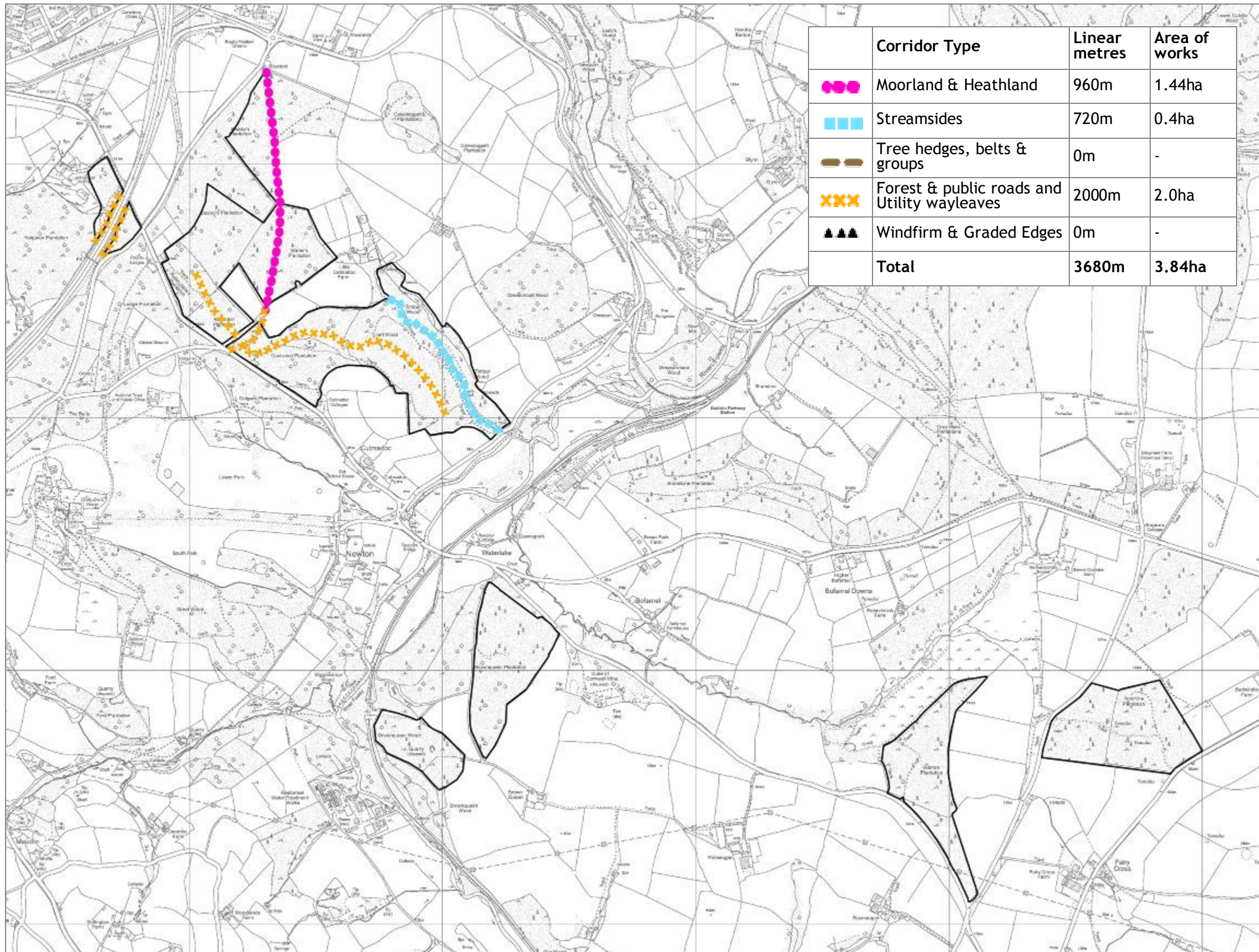
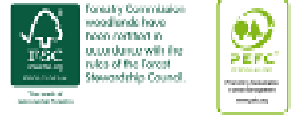
Legend

- Fell 2017-2021
- Fell 2022-2026
- Fell 2027-2030
- Group Selection
- Minimum Intervention
- Natural Reserve
- Other / Open land

NB. Whilst 'Restock Proportion' is often prescribed at 100-90% Evergreen Conifer the use of suitable broadleaves to build in resilience and utilise site conditions is anticipated and in places is proposed.

The District legends have been updated – the same map in the old legend style is viewable on page 20.

Declaration by Forestry England as an Operator.
All timber arising from the Forest Enterprise estate represents a negligible risk under EUTR (No 995/210)



	Corridor Type	Linear metres	Area of works
	Moorland & Heathland	960m	1.44ha
	Streamsides	720m	0.4ha
	Tree hedges, belts & groups	0m	-
	Forest & public roads and Utility wayleaves	2000m	2.0ha
	Windfirm & Graded Edges	0m	-
	Total	3680m	3.84ha

Corridor Works 2020 - 2030

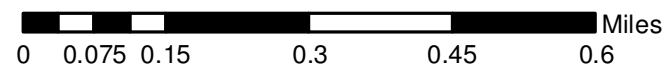
An outline of the intended corridor management prescriptions for the Plan area for the next 10 years, as outlined in Environmental Corridors Policy document.

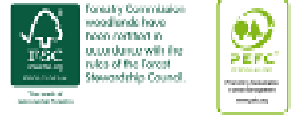
Legend

- Moorland & Heathland
- Streamsides
- Tree hedges, belts & groups
- Forest & Public Roads & Utility Wayleaves
- Windfirm & Graded Edges

Declaration by Forestry England as an Operator.

All timber arising from the Forest Enterprise estate represents a negligible risk under EUTR (No 995/210)





Management Prescriptions 2020 - 2051

An outline of the intended management prescriptions for the Plan area for the next 30 years, including silvicultural, felling and open proposals.

Legend

- Fell 2017-2021
- Fell 2022-2026
- Fell 2027-2031
- Fell 2032-2036
- Fell 2037-2041
- Fell 2042-2046
- Fell 2047-2051
- Fell beyond 2051
- Conifer Retention
- Mature Broadleaf Habitat
- LISS
- Group Selection
- Coppice
- Wood Pasture
- Minimum Intervention
- Natural Reserve
- Other / Open land



Declaration by Forestry England as an Operator.




All timber arising from the Forest Enterprise estate represents a negligible risk under EUTR (No 995/210)

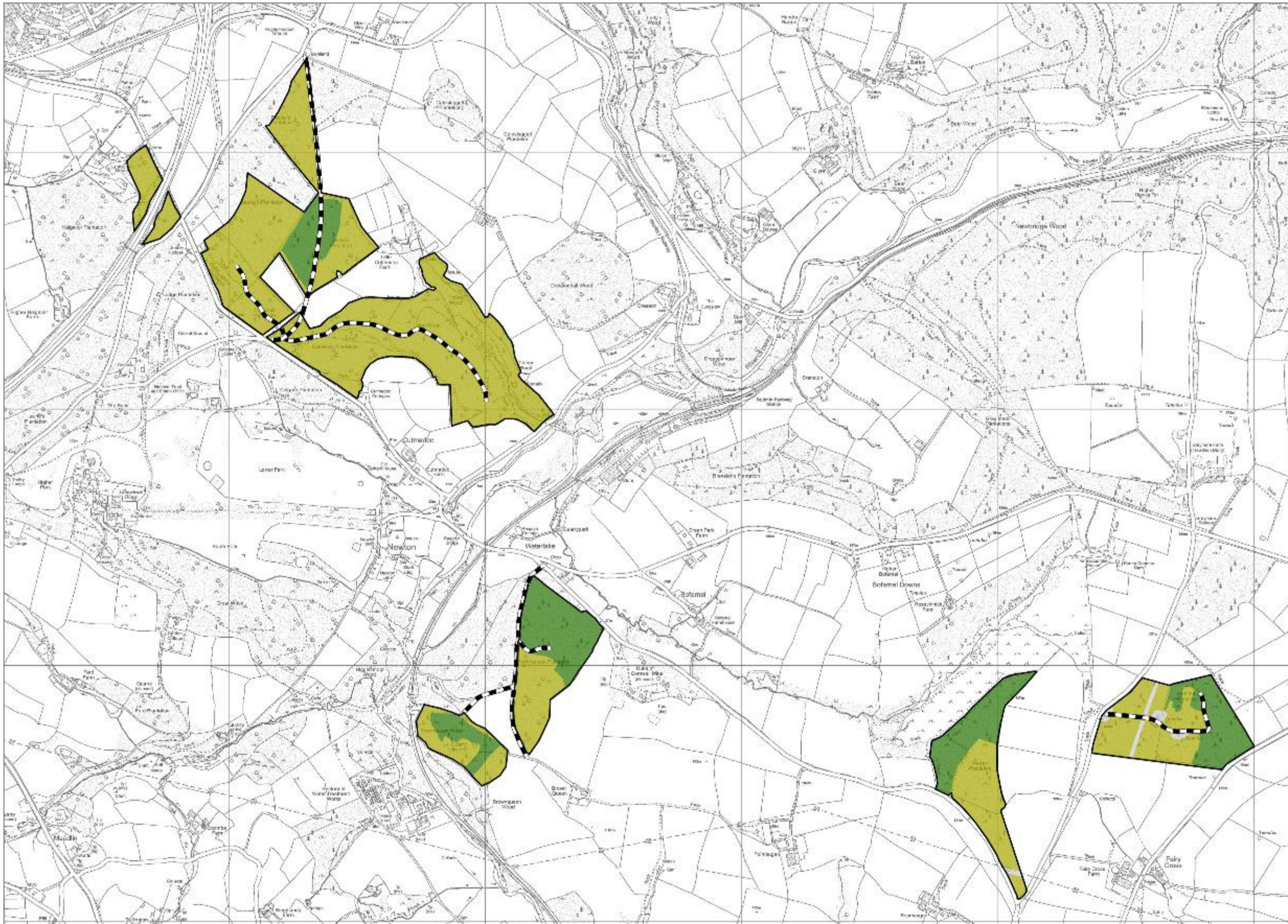


Restock Prescriptions

An outline of the intended restocking prescriptions through planting or natural regeneration for the next rotation, following the removal of the current stock.

Legend

-  Conifer dominant forest
-  Broadleaf dominated forest
-  Open/other dominated forest



Declaration by Forestry England as an Operator.

All timber arising from the Forest Enterprise estate represents a negligible risk under EUTR (No 995/210)



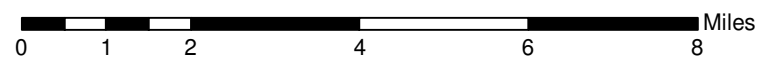
Indicative Future Species 2030

The projections made are indicative of species composition in ten years time. They do not constitute a guarantee and merely act as an indicator of how the vision for the Plan area will be delivered over time.

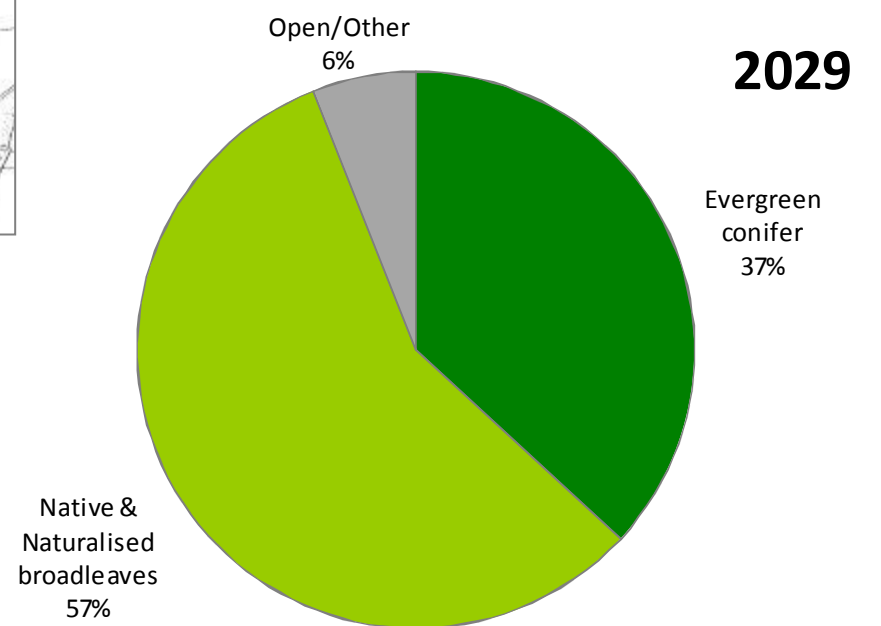
Legend

- Evergreen Conifer
- Deciduous Conifer
- Native & naturalized broadleaves
- Non-native broadleaves
- Open/other

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Declaration by Forestry England as an Operator.
All timber arising from the Forest Enterprise estate represents a negligible risk under EUTR (No 995/210)





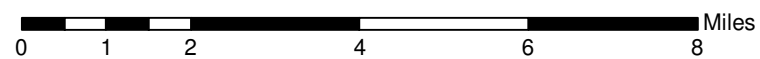
Indicative Future Species 2049

The projections made are indicative of species composition in ten years time. They do not constitute a guarantee and merely act as an indicator of how the vision for the Plan area will be delivered over time.

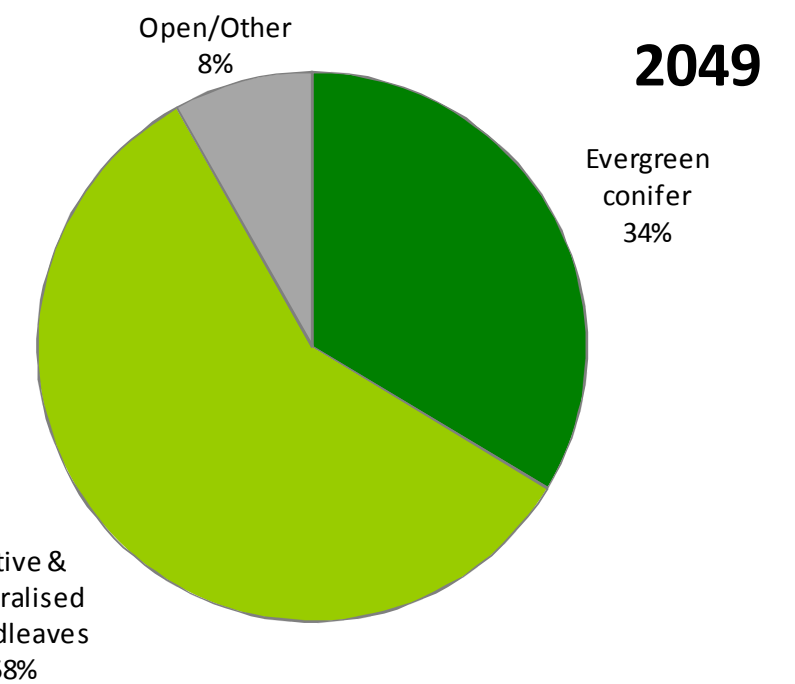
Legend

- Evergreen Conifer
- Deciduous Conifer
- Native & naturalized broadleaves
- Non-native broadleaves
- Open/other

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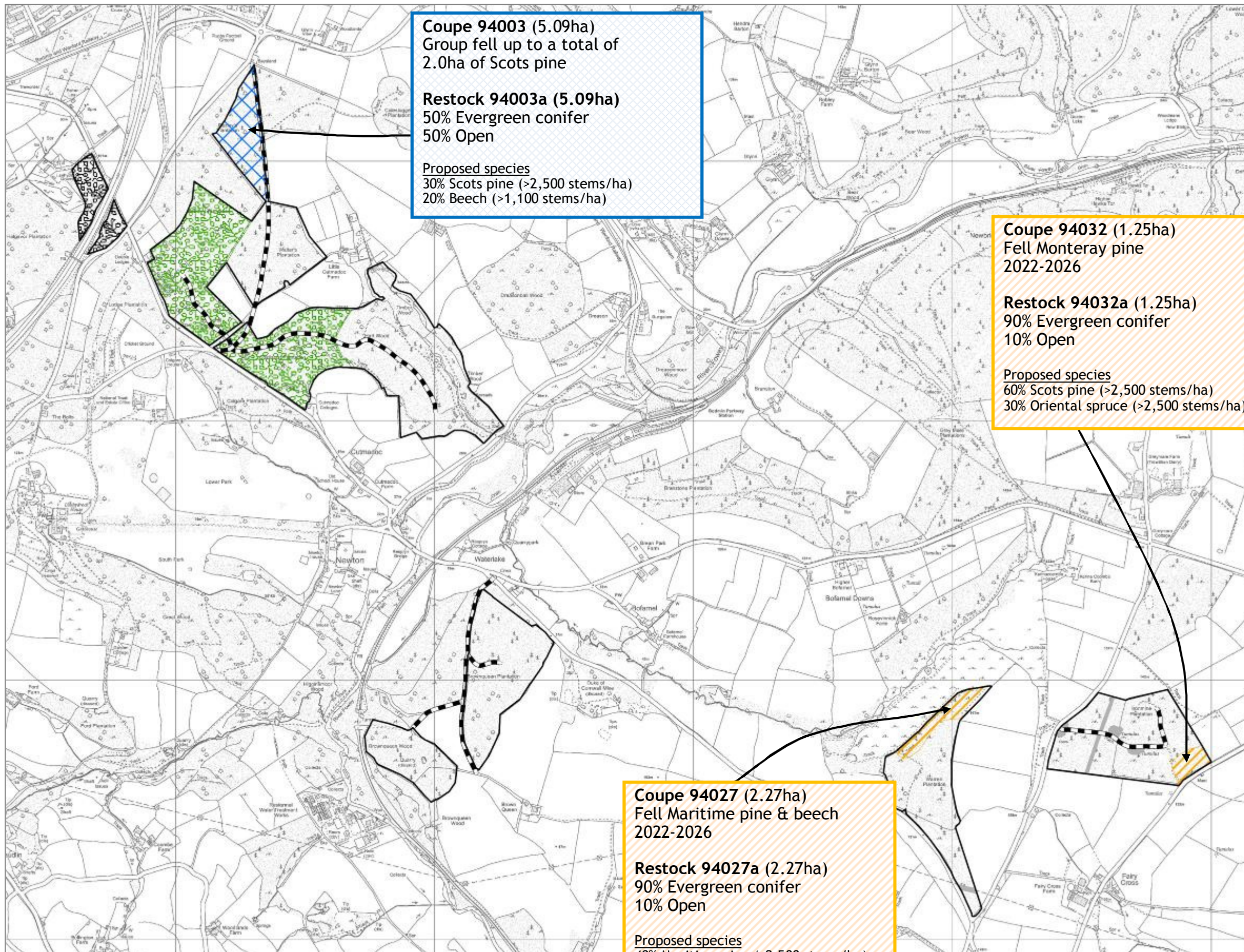


Declaration by Forestry England as an Operator.
All timber arising from the Forest Enterprise estate represents a negligible risk under EUTR (No 995/210)





Felling and Restocking 2020 - 2030 OLD LEGEND



Coupe 94003 (5.09ha)
Group fell up to a total of 2.0ha of Scots pine

Restock 94003a (5.09ha)
50% Evergreen conifer
50% Open

Proposed species
30% Scots pine (>2,500 stems/ha)
20% Beech (>1,100 stems/ha)

Coupe 94032 (1.25ha)
Fell Monterey pine
2022-2026

Restock 94032a (1.25ha)
90% Evergreen conifer
10% Open

Proposed species
60% Scots pine (>2,500 stems/ha)
30% Oriental spruce (>2,500 stems/ha)

Coupe 94027 (2.27ha)
Fell Maritime pine & beech
2022-2026

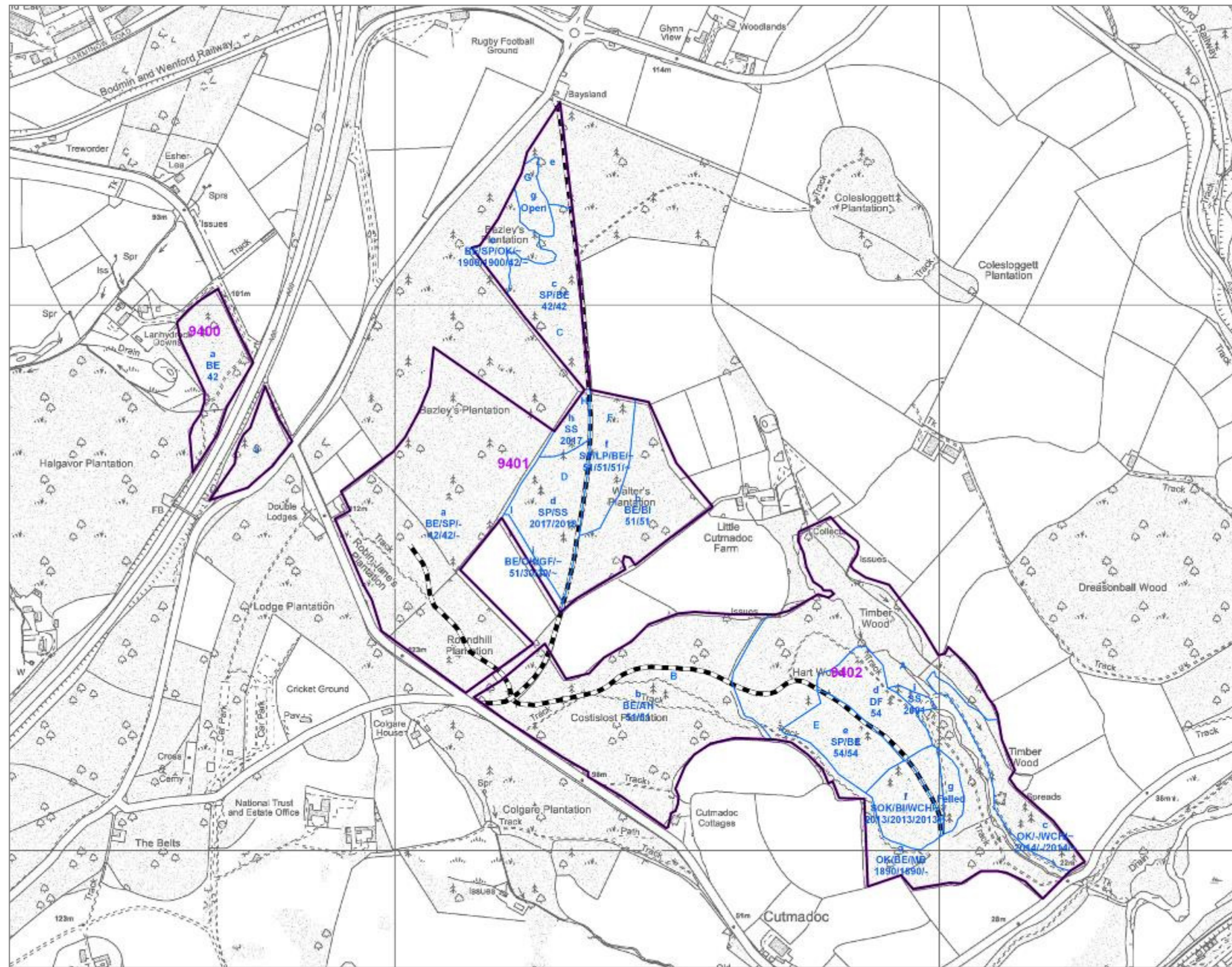
Restock 94027a (2.27ha)
90% Evergreen conifer
10% Open

Proposed species
40% Maritime pine (>2,500 stems/ha)
30% Oriental spruce (>2,500 stems/ha)
20% Beech (>1,100 stems/ha)

- Legend**
- Fell 2019 - 2021
 - Fell 2022 - 2026
 - Fell 2027 - 2030
 - Group selection
 - Coppice
 - Conifer Retention
 - Wood Pasture
 - Minimum Intervention
 - Natural Reserve
 - Open
 - Class A/B Roads
 - Class C Roads

Declaration by Forestry England as an Operator.
All timber arising from the Forest Enterprise estate represents a negligible risk under EUTR (No 995/210)

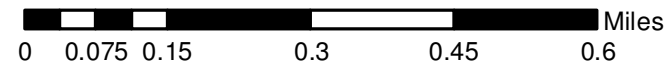
NB. Whilst 'Restock Proportion' is often prescribed at 100-90% Evergreen Conifer the use of suitable broadleaves to build in resilience and utilise site conditions is anticipated and in places is proposed.



Stock Data 2019 Hartwood

Legend

- Compartments
- Sub-Compartments

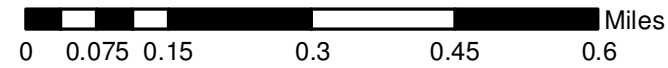


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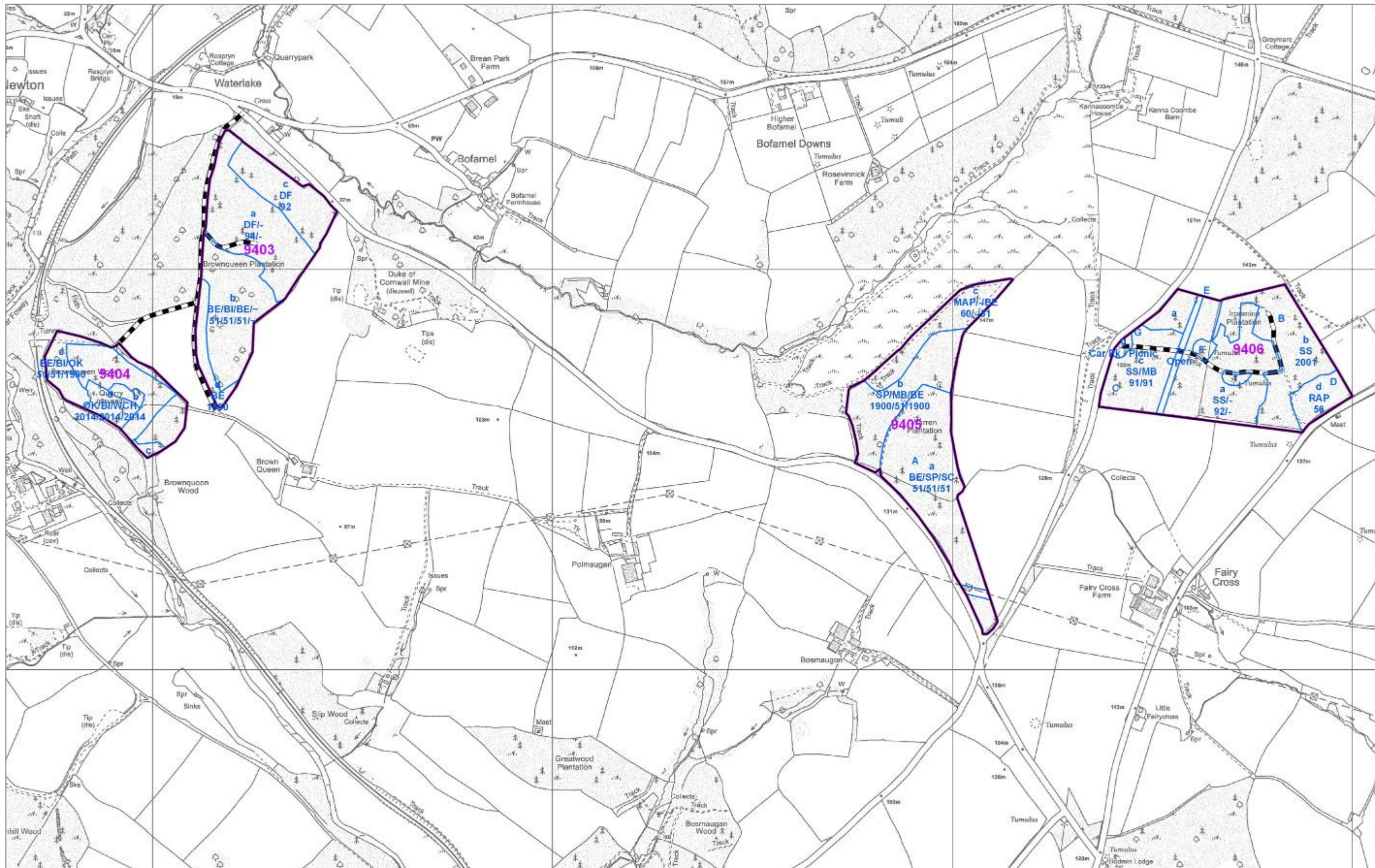
Legend

- Compartments
- Sub-Compartments



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Stock Data 2019 Brown Queen, Warren & Ironmine



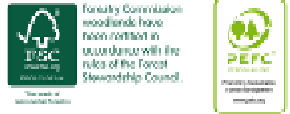


APPENDIX 3 Glossary

Term	Abbreviation	Description
Ancient Semi-Natural Woodland	ASNW	An ancient woodland site, where trees and other plant species appear to of established naturally rather than having been planted. Predominantly these sites will contain 80% or over of site native species or species native to the surrounding area.
Alternatives to Clearfell	ATC	Alternative to Clearfell is similar to CCF and refers to management systems where stands are regenerated without clearfelling.
Ancient Woodland Site	AWS	A site that has technically been wooded since 1600AD and is unlikely to have been converted to farmland in the last few centuries.
Continuous Cover Forestry	CCF	Continuous Cover Forestry is an approach to forest management that enables an owner of woodland to manage the woodland without the need for clearfelling. This enables tree cover to be maintained, usually with one or more levels and can be applied to both conifer or broadleaf stands. With Conifer it is possible to regenerate the crop a lot faster than in broadleaf crops, where the canopy is generally removed a lot slower and over a much longer time span. A decision to use CCF must be driven by management objectives and will have long-term vision often aimed at creating a more diverse forest, both structurally and in terms of species composition. There are no standard prescriptions meaning CCF is very flexible in ensuring opportunities can be taken advantage of as they arise. This development of a more diverse forest is a sensible way to reduce the risks posed by future changes in the climate and biotic threats.
Clearfell	C/F or CF	To cut and remove all trees from a certain area of woodland.
Crop		A stand of trees. Often associated with stands completely or partially managed for its timber. Just as farmers manage crops so does forestry the only difference is a farmers' rotation is shorter and often realised in 1 year. Trees are a much longer term crop with rotations varying from 6 years to 400 years. (also see definition for rotation)
Enrichment planting		Planting different species within areas of regen that helps diversify the range of species in a wood and in doing so can make it more resilient to future climate change and future threats from disease. Enrichment may be desirable in areas where success of regeneration is uneven, patchy or where a regen crop is limited by the number of species present.
Group felling / group planting		This is where small areas of woodland are felled hence the name "group felling" and then either allowed to develop through the use of nat-regen or in this case planted hence "group planting". These techniques can help to develop structure* within a wood over a given length of time and is often used in conjunction with continuous cover. *Either in terms of age or number of tree species present, since shelter and shade are provided by the remaining upper storey one can consider a larger number of tree species when deciding what to plant.
Hectare	Ha	Unit of area equating to 2.47 acres.
Native (and honorary native)		The trees making up the woodland are part of England's natural, or naturalised flora. Determined by whether the trees colonised Britain without assistance from humans since the last ice age (or in the case of 'honorary natives' were brought here by people but have naturalised in historic times); and whether they would naturally be found in this part of England.
Natural Regeneration	Regen or nat-regen	Trees growing on a site as a result of natural seed fall, and can be used as a management process and can allow cleared areas of woodland to germinate, grow and develop naturally. This process can happen anywhere and woods can be managed to encourage nat-regen although there is no guarantee of success. In these instances, or if nat-regen is unlikely for a variety of reasons, one can use enrichment planting or group planting to achieve the same affect. The process usually relies on an overstorey of "parent trees" being present or on parent trees being close by to provide the seed. These parent trees will usually of been thinned and managed with natural regeneration in mind. Existing areas of nat-regen are then usually developed through carefully thinning the surrounding woodland over a number of years, to give more light and space to ensure the young trees can establish themselves into larger trees eventually allowing them to be incorporated ('recruited') into the main crop for the next rotation at some point in the future. Usually done in small groups or in strips this system can allow a varied woodland structure to develop over time. Protection from competing plant species and mammal browsing might be required in the early stages by fencing or using tree shelters.



<p>Rotation</p>		<p>Generally a commercial term used to describe the length of time an area of trees is growing for, from the time of planting to the time of felling. For broadleaves a rotation is generally a lot longer than that of conifer species* and can broadly speaking be anywhere between 80 years to 3-400 years, as opposed to conifer crops whose rotation is generally shorter but can vary from 20-25 years to 120 years plus.</p> <p>*The exception being that of coppice where rotation length can vary from 5 or 6 years up to 30 years plus depending on management objectives.</p> <p>“First rotation” would refer to an area of wood planted on open ground not previously wooded. And so “second rotation” is one where woodland has been cleared and replanted.</p>
<p>Shelterwood</p>		<p>A management system that is applicable to conifer or broadleaf, where tree canopy is maintained at one or more levels without the need to clearfell the whole site. Felling can occur, but generally in small “groups” whose size shape and spatial distribution will vary depending on site conditions. The “groups” are then either: allowed to develop and establish by the use of natural regeneration, are planted or are established using a mixture of both techniques. This known as a “group shelterwood system”</p> <p>A variation on this is “Single tree selection”. This variation removes individual trees of all size classes more or less uniformly throughout the stand to maintain an uneven-aged stand and achieve other stand structural objectives. While it is easier to apply such a system to a stand that is naturally close to the uneven-aged condition, single tree selection systems can be prescribed for even-aged stands, although numerous preparatory thinning interventions must be made to create a stand structure where the system can truly be applied.</p>
<p>Silviculture</p>		<p>A term coined during late 19th century from the Latin <i>silva</i> meaning 'wood' and the French <i>culture</i> meaning 'cultivation' and so Silviculture is the art and science of controlling the establishment, growth, composition, and quality of forest vegetation to achieve a full range of forest resource objectives.</p>
<p>Stand</p>		<p>A group or area of trees that are more or less homogeneous with regard to species composition, density, size, and sometimes habitat.</p>
<p>Thin</p>	<p>TH</p>	<p>Selective removal of trees from a wooded area, giving remaining trees more space to grow into larger trees. Thinning is done to:</p> <ul style="list-style-type: none"> Improve the quality and vigour of remaining trees. Remove trees interfering with mature or veteran broadleaf trees. Give space for tops (or “crowns”) of broadleaf trees to develop and potentially act as a future seed source. Give space for natural regeneration to grow and develop with the intention of recruiting these younger naturally grown trees as a part of the future woodland structure. Create gaps for group planting or enrichment. Remove species of tree that may compromise the intended management objective of the woodland eg: non-native or invasive species such as Sycamore, Western Hemlock or birch. Improve the economic value of a wood. Help realise opportunities to enhance ecological value. <p>NOTE: This list is not in any order of priority and will vary depending on management objectives.</p>
<p>Yield Class</p>	<p>YC</p>	<p>A method of measuring the growth rate or “increment” of a crop of trees by age and height; measured in m³ per Ha per annum. E.g. A crop with a YC of 16 is one that has an annual increment of more than 16m³ but less than 17m³, although generally only even numbers are used when stating YC.</p>



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