Forestry Commission England

Herodsfoot Forest Plan

2017 - 2027

West England Forest District

Ben Robinson
FCE File Ref: OP10/95
OLD Ref: PE16

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

Declaration by FC as an Operator.

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

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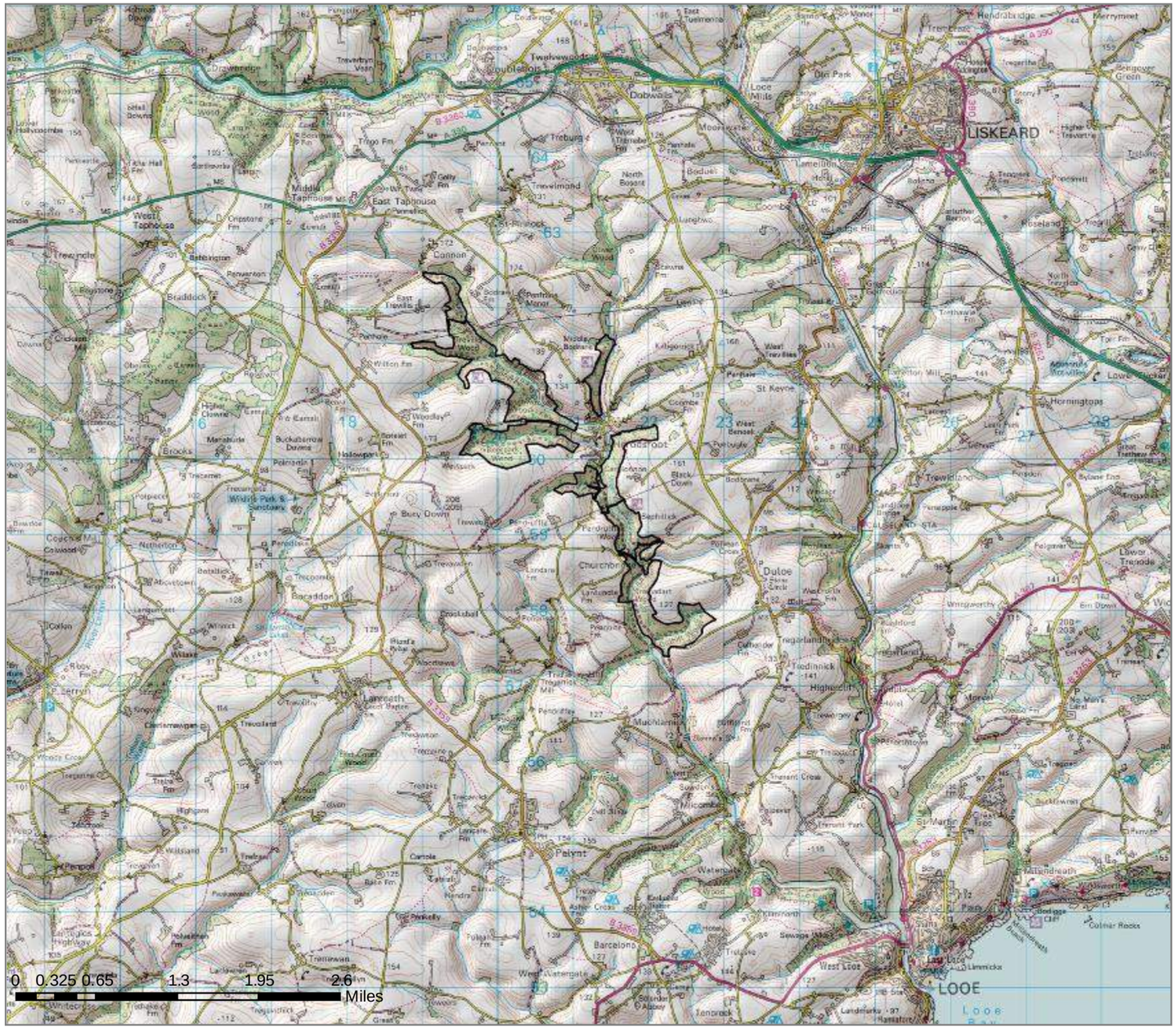
Location

The Herodsfoot Forest Plan area lies in eastern Cornwall approximately 5 kilometres south west of Liskeard and a similar distance north of Looe. The Plan area is made up of a series of steep sloped forest blocks totalling 294ha. These forests surround the hills around the village of Herodsfoot.

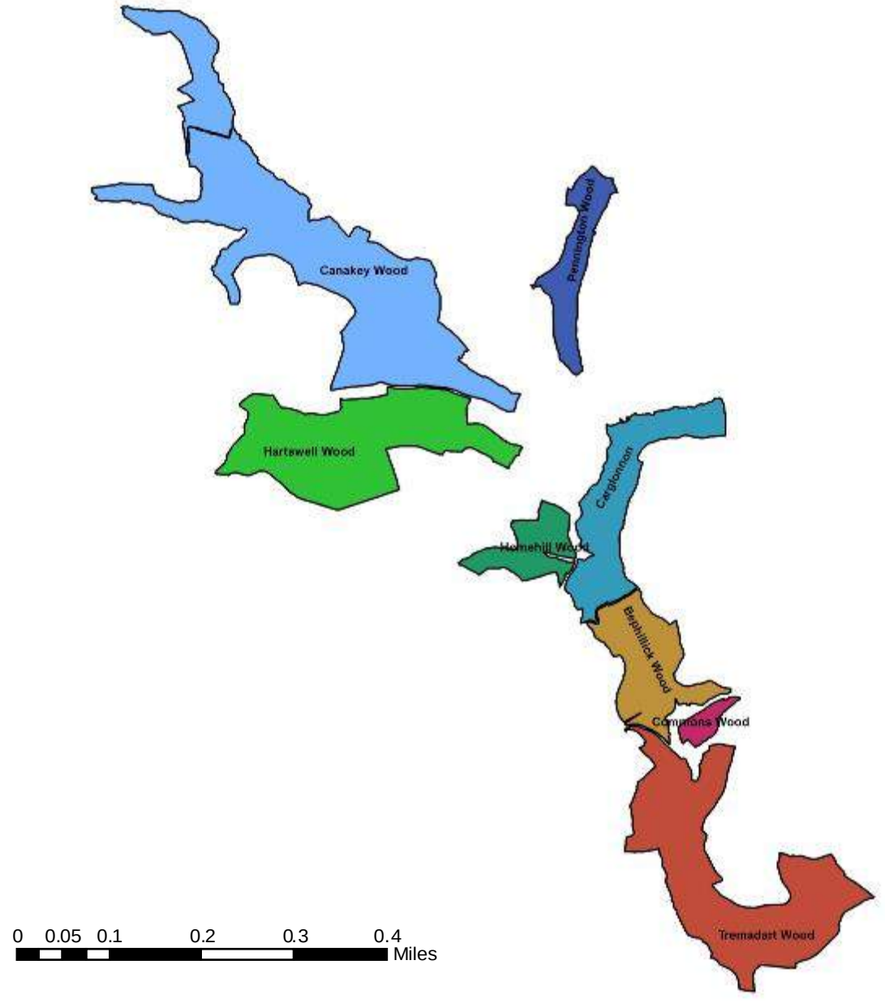
The Plan area sits within a wooded valley landscape and provides both a visual feature and recreational attraction for the surrounding area. Numerous watercourses dissect the forest blocks which are then feed into and make up the West Looe River.

The majority of the land is at 25-135 metres above sea level and is undulating to very steep in places. The climate is warm and fairly moist with an average annual rainfall of 1100—1400mm, a soil moisture deficit of around 140mm, and an accumulated temperature over 5°C of 1800°C.

The soils are primarily poor and fresh upland brown earths (1u) underlay with shallow rock.



Forest Name	Area	Plan Area
Bephillick Wood	23.3 ha	8%
Canakey Wood	97.3 ha	33%
Carglonnon	28.6 ha	10%
Commons Wood	3.4 ha	1%
Hartswell Wood	52.9 ha	18%
Homehill Wood	12.2 ha	4%
Pennington Wood	15.0 ha	5%
Tremadart Wood	61.3 ha	21%
	294 ha	**100%**



Summary

About

The Herodsfoot Forest Plan area is made up of a series of forest blocks totalling 294 hectares in Cornwall. As forest blocks set within the intimate wooded valley landscape they have very high natural and landscape diversity and value.

The forests managed as part of the public forest estate principally comprise of Cannakey (97ha), Tremadart (61ha), Hartswell (53ha) and Carglonnon (29ha) woods around the village of Herodsfoot.

The public forest here is a predominantly conifer on ancient woodland (PAWS) having been planted to address the national timber shortage of the early Twentieth Century. The area is known to produce high quality Douglas fir which makes up the majority of the trees here supplemented by hemlock and spruce with larch having been removed due to disease in 2010/2011. Areas of remnant ancient semi-natural woodland do remain and are made up of oak and birch with beech. 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 a rich for ecology and includes NVC W10 Priority Lowland Mixed Deciduous (oak/birch) Woodland which is habitat in part for dormice, raptor and otter.

Large areas are made up of the Plan area are Open Access with a number of Rights of Way also traversing the forest. There is an 11ha Forest Holidays site situated in Canakey Wood, referred to as Deer Park and contains 47 cabins, therefore Canakey has a greater focus on recreation provision with a number of waymarked trails in place. The majority of other recreation usage is made up of walkers with some limited amount of usage by horse riders and mountain bike riders.

Objectives

The core aim of the plan is to produce woodlands with increased conservation and landscape benefits whilst maintaining a viable timber output. The long term aims of management here are to continue the process of restoring Ancient Woodland while increasing resilience to climate, pest and disease risks, and to develop the forest for people. The social, economic and environmental objectives of management here are to:

- The continued production of sustainable and marketable woodland products.
- To conserve, maintain and enhance cultural and heritage assets.
- The provision and maintenance of recreation facilities.
- Protect and enhance woodland and open habitats and their associated species.
- To protect enhance and restore areas of ancient woodland in line with the 2005 'Keepers of Time' policy.
- The delivery of well-designed proposals in keeping with the local landscape character.

What we'll do

The current plan outlines management proposals including felling and restocking over several decades, with felling licence approval for operations up until 2027.

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. Prescribed proactive management of the broadleaf areas w

The Plan makes provision to ensure proposals are in keeping with the neighbouring intimate wooded landscape.

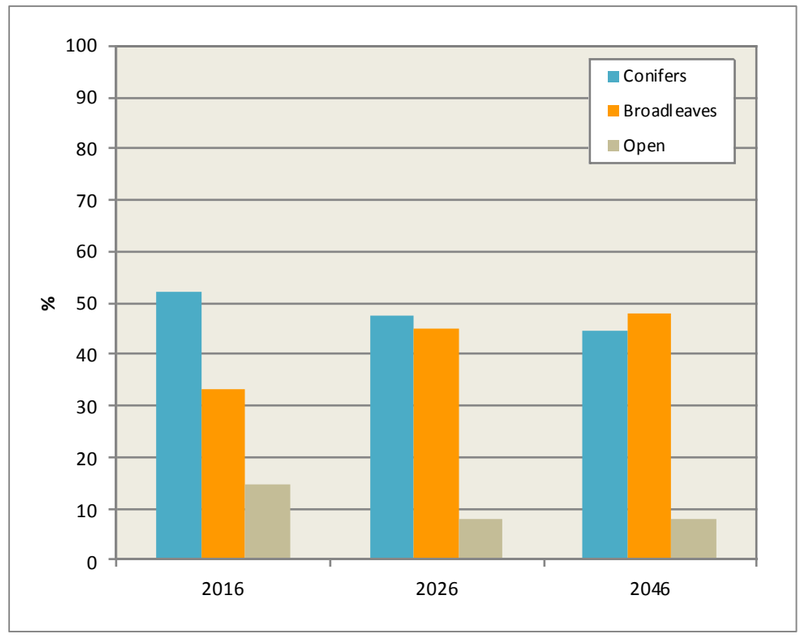
Implementation and maintenance of an environmental corridor system will continue to increase diversity of habitat and internal landscaping.

The planned areas of clearfelling, restocking and permanent open space creation during the ten years to 2027 are summarised in the chart below.

HECTARES	Conifers	Broadleaves	Open space
Clearfelling	6.35	3.43	-
Restocking/Regeneration	-	6.35 (+20.31)	-

In addition to these defined operations, ongoing thinning and selective felling of both conifers and broadleaves will be carried out in 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 expected within the plan period and over time is indicated in the middle and right hand columns of the chart.



Tenure & Agreements

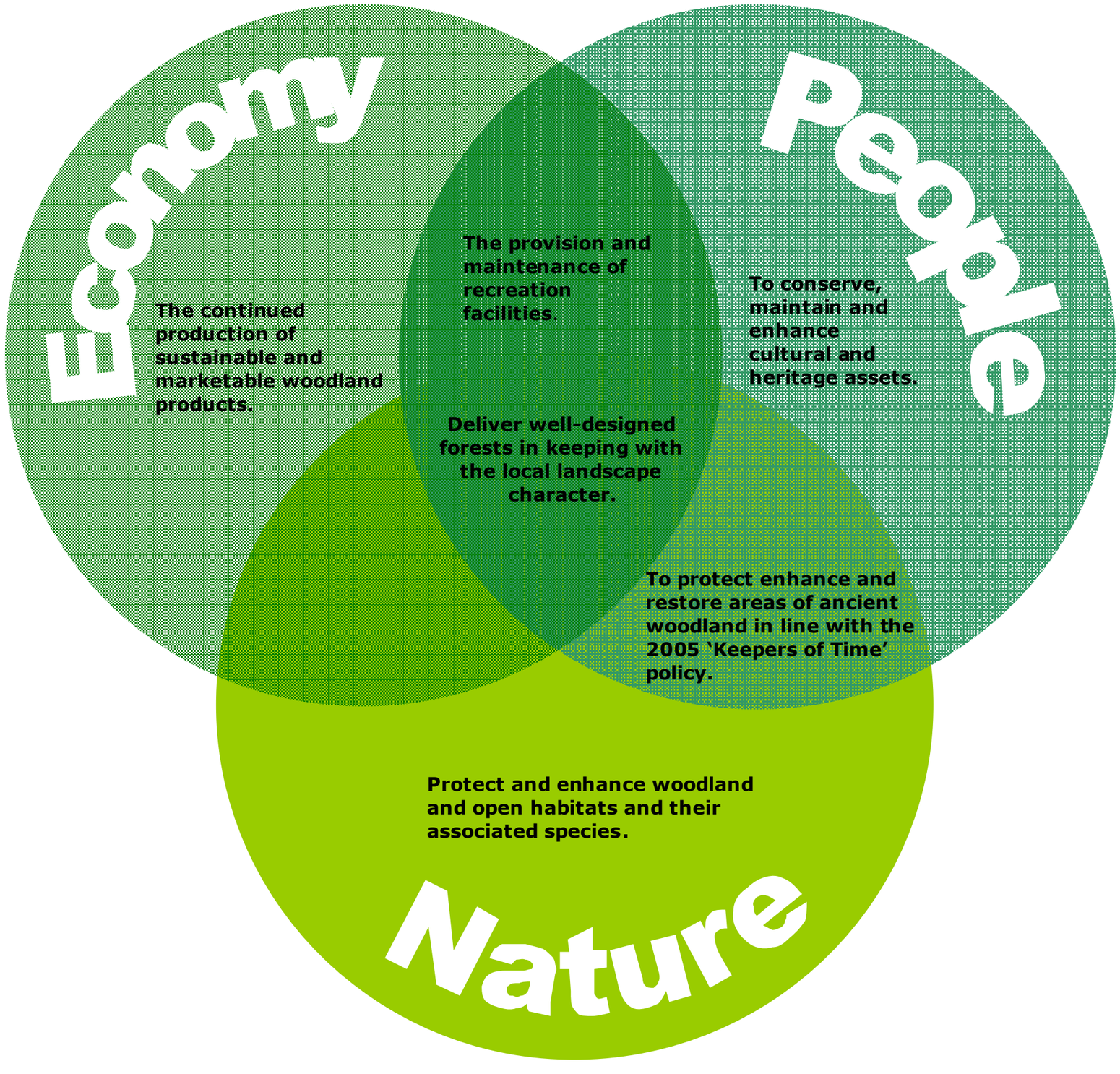
The blocks north and west of Herodsfoot village are held under freehold together with a proportion of Homeshill Wood. The blocks to the south are predominantly leasehold, 25ha of which is leased from the Duchy of Cornwall, with the remaining 99ha leased from the Church of England.

Forest Holidays have an 11ha site situated in Canakey Wood, referred to as Deer Park. As one of the original Forest Holiday locations, the site now contains 47 cabins and brings in numerous visitors to the forest and surrounding area throughout the year.

Legend

- Freehold
- Leashold
- Forest Holidays

0 0.05 0.1 0.2 0.3 0.4 Miles



Management Objectives

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).

The core aim of the plan is to produce woodlands with increased conservation and landscape benefits whilst maintaining a viable timber output. The long term aims of management here are to continue the process of restoring Ancient Woodland while increasing resilience to climate, pest and disease risks, and to develop the forest for people.

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.

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

Declaration by FC as an Operator.

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

Meeting Objectives

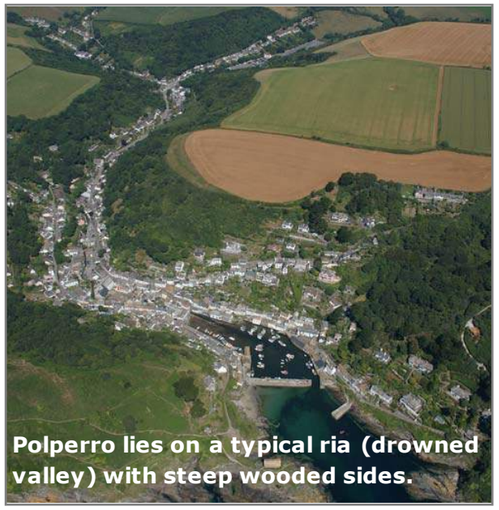
Objective	Meeting Objective	Monitoring
The continued production of sustainable and marketable woodland products.	The majority of the Plan area will remain productive through thinning yield. Minimal clearfell timber production will occur from the conifers.	Comparison of total production forecast yield (4,000m³ (2021) and 8,500m³ (2027)) with actual production at the Forest Plan (FP) five and ten-year review. Pre– thinning survey and post thinning control.
To protect enhance and restore areas of ancient woodland in line with the 2005 'Keepers of Time' policy.	Targeted felling of conifer crops and suppression of non-native regeneration to aid natural native regeneration and native species replanting	Analysis and comparison of SCDB 'naturalness' scores through the Forest Plan review process.
To conserve, maintain and enhance cultural and heritage assets.	Liaise with Cornwall Archaeology Service prior to commencement of works in proximity to heritage assets. Where appropriate limit shrub encroachment on features.	Operational site planning of harvesting and restocking operations will help monitor the effect of management. Feature condition monitored through Review process and records updated.
Deliver well-designed forests 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
Protect and enhance woodland and open habitats and their associated species.	Felling together with a delayed restock program will continue to diversify stand and age structure. Operational site planning should highlight opportunities where conservation benefits can be delivered. Appropriate reinstatement works will be carried out once operations have been concluded. Creation of >10% transitory and permanent open space	Monitored via Review process, through local records and updated sightings. Analysis and comparison of SCDB open space 10% through the Forest Plan review process. Operational site planning of harvesting and restocking operations will help monitor the effect of management
The provision and maintenance of recreation facilities.	Management of existing facilities will be maintained by the Beat team, including road and ride corridors and car parks. Visitor numbers will be maintained. Management proposals in keeping with the aims and vision of Deerpark Forest Holidays site	Beat team will monitor usage and ensure the up keep of the signage and car parks. Discussion at the time of Review process, as well as ongoing dialogue with FH staff.

Landscape Character

152 Cornish Killas National Character Assessment Profile

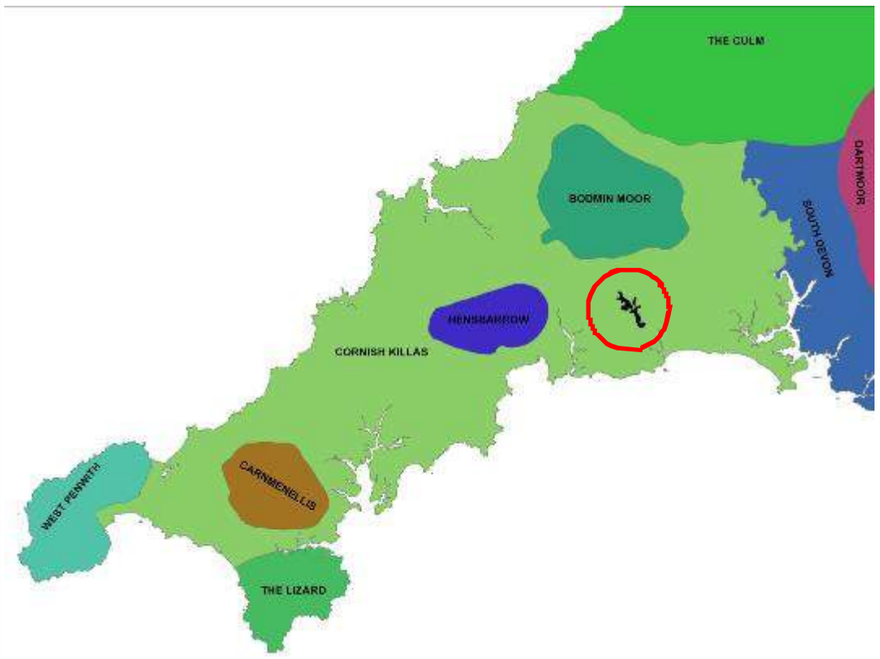
Source: Natural England (2012)

The Cornish Killas National Character Area (NCA) forms the main body of the Cornish landmass (222,098 ha) around the igneous outcrops of Bodmin Moor, Hensbarrow, Carnmenellis, West Penwith and The Lizard NCAs. The open character of the landscape and the general lack of tree cover mean that long views are afforded across Cornwall to neighbouring NCAs and out to sea.



Polperro lies on a typical ria (drowned valley) with steep wooded sides.

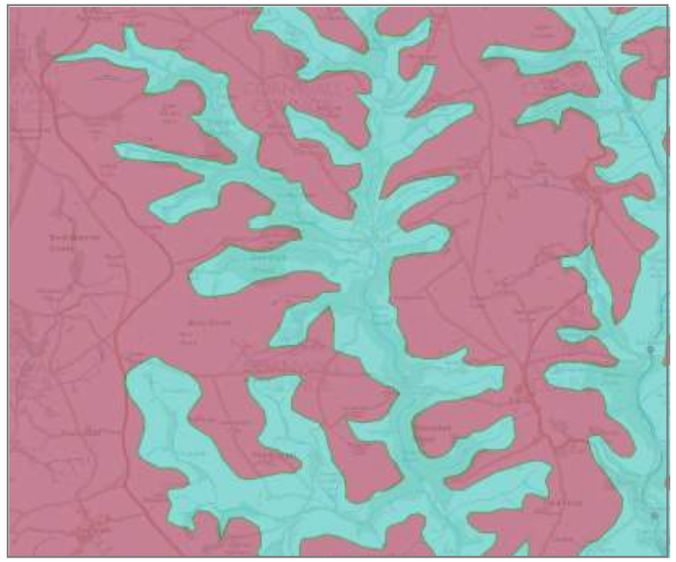
Broadleaved wooded valleys, dominated by internationally important western oak woodland habitat are a key feature which dissect the plateau and lead to the south coast. These deep, complex, narrow valleys are cloaked by sessile oak woodland – much of it ancient and of international nature conservation importance – which continues down to the water's edge. The undulating land grades into tidal inlets, reedbeds and sandy coves, occasionally rising to rocky headlands. Farmsteads shelter in the upper valleys, and the steep slopes often have an intricate pattern of small fields.



CHARACTER DESCRIPTION — Looe Valley Rivers

Source: Cornwall County Council (2008)

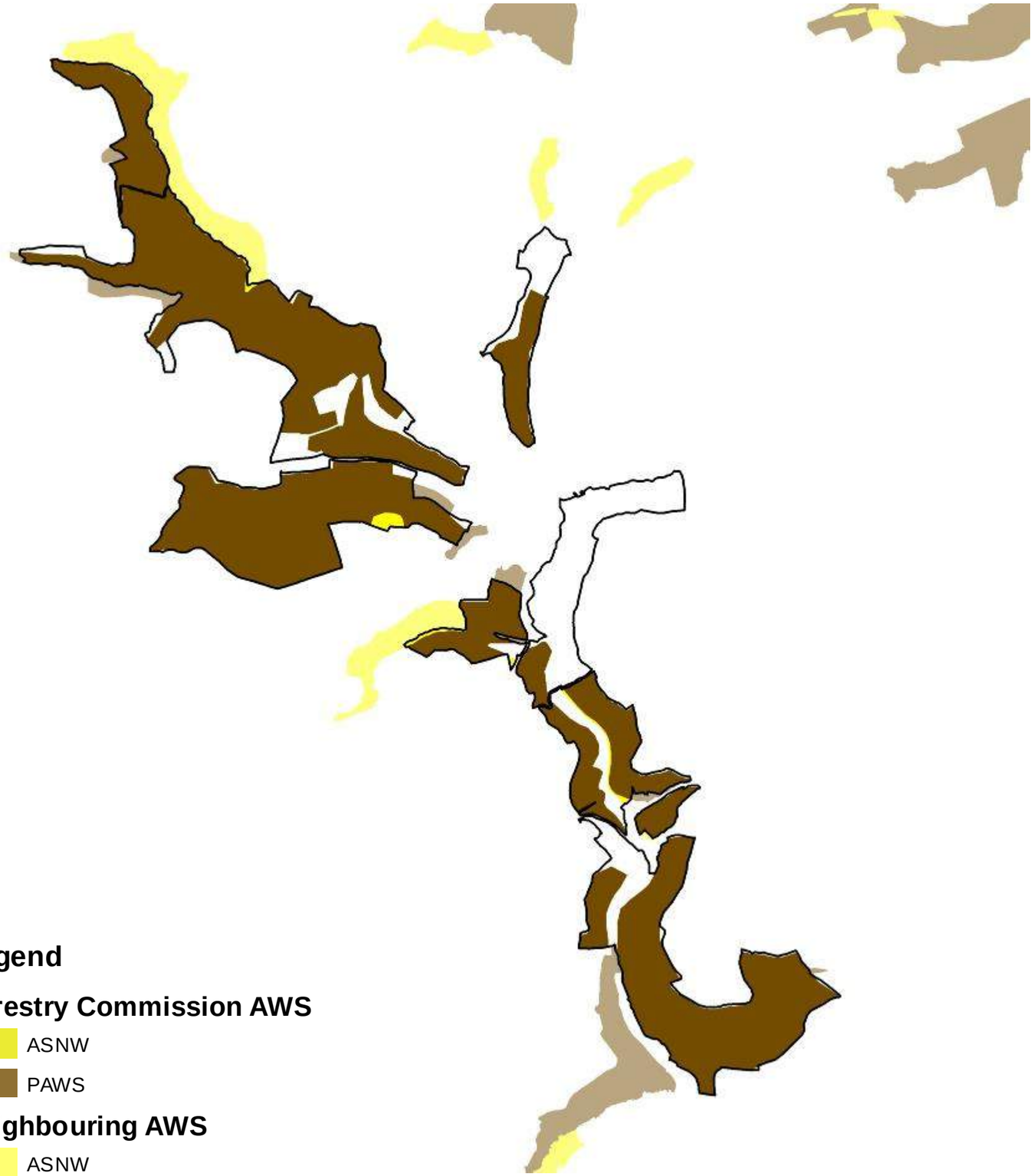
The deep narrow wooded twin river valleys (East and West Looe) flow south into the sea at Looe with the headwaters lying due north around Dobwalls and St Cleer/ Liskeard, but the latter lies on the plateau above the valley, in LCA 32 (Bodmin Moor). The incised river valleys contain few settlements the main ones being Herodsfoot in the north and Looe at the coast. The LCA has significant areas of well-wooded valleys with broadleaved woodland and coniferous plantation, with farmed land mostly improved grassland with very little arable and estuary of the East and West Looe rivers at Looe. Extensive conifer plantations exist in West Looe valley around Herodsfoot but more dispersed in East Looe valley but most noticeably around Moorswater. Much of the woodland in the valleys is Ancient Woodland such as at Kilminorth. There are small fields of mainly medieval enclosure with occasional scattered larger fields. Boundaries are curving and sinuous.



Generally in good condition, but loss of oak woodland to conifer plantations has impacted on the visual appearance of wooded slopes and biodiversity. Impact of urban development on edge of Liskeard and transport corridors is localised and moderate, due to landform, woodland and landcover. Aesthetically a small scale enclosed network of tight narrow valleys with well wooded steep sides. With little development and few access points except on foot, the area is tranquil, especially the West Looe valley. The wider tidal areas also have a timeless feel as they snake between the high banks where the trees come down to the water's edge. The bustle of the busy town and port of Looe makes a strong contrast.

Protect	Vision	Plan
• Deep narrow twin valley systems running north-south to the coast. • Densely wooded, especially on the side of West Looe valley and in the small ria system near the coast, and with mainly pastoral farmland in pockets throughout. • Woodland and landform create a sheltered enclosed environment in the valleys.	The two valleys are different in that the West Looe valley is undeveloped and well wooded whilst the East nature of the valleys and their tranquillity whilst maintaining the balance between Looe as a working port and holiday destination.	Support measures for woodland management and encourage further planting in appropriate areas. Support measures for the rivers and water ways to be managed appropriately.

Designation



Legend

Forestry Commission AWS

- ASNW
- PAWS

Neighbouring AWS

- ASNW
- PAWS

Ancient Woodland

The Plan area and local landscape is host to considerable areas of designated Ancient Woodland sites (AWS), both remnant ancient semi-natural woodland (ASNW) and plantation on ancient woodland sites (PAWS). Of the total Plan area, over 80% is designated Ancient Woodland (235ha). The vast majority of this Ancient Woodland is PAWS, having been planted with non-native conifer in the 1960s. The few areas of remaining ASNW are small, fragmented and oak dominated.

Area			
ASNW	**PAWS**	**Secondary**	**TOTAL**
3.1 ha	232.6 ha	58.3ha	**235.7 ha**

0 0.05 0.1 0.2 0.3 0.4 Miles

Analysis & Concept

Analysis: Western hemlock and to a lesser degree Grand fir is of seeding age and is beginning to have a detrimental impact on the Ancient Woodland features of the woodlands.

Concept: These crops will be targeted before other restoration or broadleaf management felling will occur.

Analysis: The woodland blocks and surrounding landscape are dominated and shaped by the numerous water courses which feed into the West Looe River.

Concept: Management of these areas will be to complement the visual and ecological value the watercourses and valleys provide to area. This will be achieved through a proactive but sensitive approach, maintained and enhancing the broadleaf component often through coppicing.

Analysis: Herodsfoot village is nestled in the middle of the woodland block and is dominated by the steep wooded landscape

Concept: Following considerable felling due to Phytophthora ramorum and therefore impact on the landscape. Proposals will look to move away from clearfelling and towards greater broadleaf cover.

Analysis: A Forest Holidays site contains 47 cabins and brings in numerous visitors to the forest and surrounding area.

Concept: Management of the surrounding crops and open space will complement the Cabin site, to enhance the visitor experience . This will be achieved in agreement with local and national Forest Holidays staff.

Analysis: A few small areas of remnant ancient semi-natural woodland as well as 'Class 1' broadleaved areas are found scattered across the Plan area. These predominantly consist of oak with beech intrusion.

Concept: These areas will be managed to ensure that the features are preserved and enhanced in perpetuity.

Analysis: Considerable felling under SPHN due to *Phytophthora ramorum* infection of larch has led to significant number of broadleaf restock sites on Ancient Woodland, being achieved through a mixture of replanting or regeneration.

Concept: These areas will need regular monitoring with intervention likely required to ensure the site meets the objective of adequate broadleaf establishment. Where stocking is not sufficientlu stocked (2,700 stems/ha at year 10) sites will need enriching with suitable native species.

Analysis: The woodlands sit within a valley system surrounded by an elevated plateau of agricultural pastoral and arable fields.

Concept: Long distance views of the woodlands are minimal given the complexity of the incised valley system, however short distance views are significant given the steep and close valley sides.

Analysis: The woodlands provide and support habitat for species such as otter and trout. Ecosystem protectionary functions for soil stability and water quality

Concept: Areas close to rivers will be managed sensitively as riparian zones, where soil and nutrient stability are prioritised. The target will be to reach a maximum of 50% forest cover of site appropriate wet woodland species.

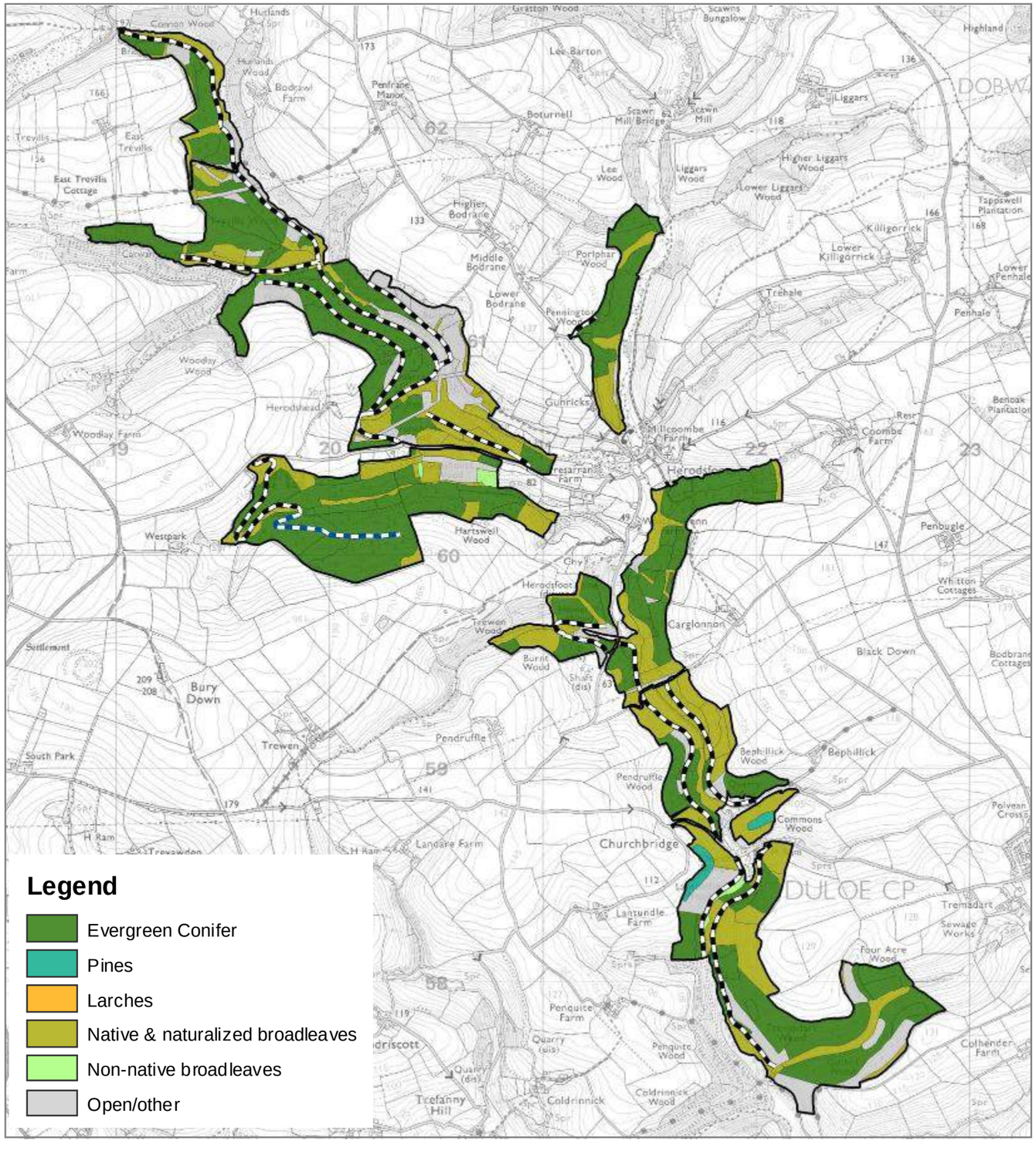
0 0.05 0.1 0.2 0.3 0.4 Miles

Woodland Composition

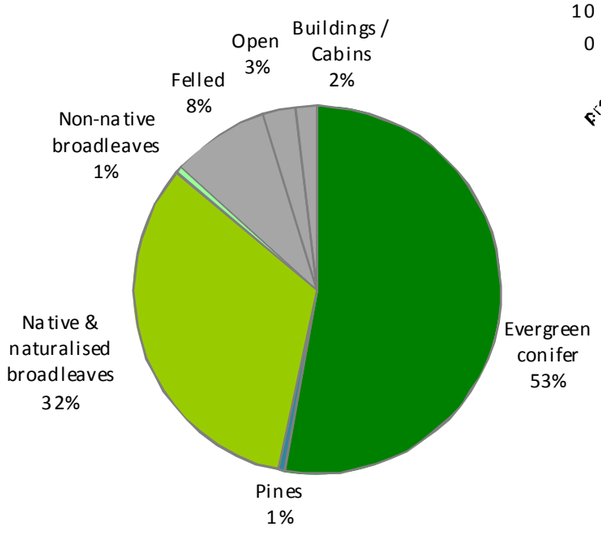
The Plan area is conifer dominated with some ancient semi-natural and native broadleaf remnants. The Plan Area had contained some significant larch components until recently, but has now been removed following *Phythophotora ramorum* infection and Statutory Plant Health Notice felling. This has led to a large proportion of recently felled and now planted or regenerating areas. The majority of conifer components are made up of quality Douglas fir (97ha) with Norway and Sitka spruce and Western hemlock the major supplementary species. The broadleaf components are predominantly made up of sessile oak, cherry and beech. Ash, birch, alder and sycamore are evident as pioneer species within discrete areas of the Plan area.

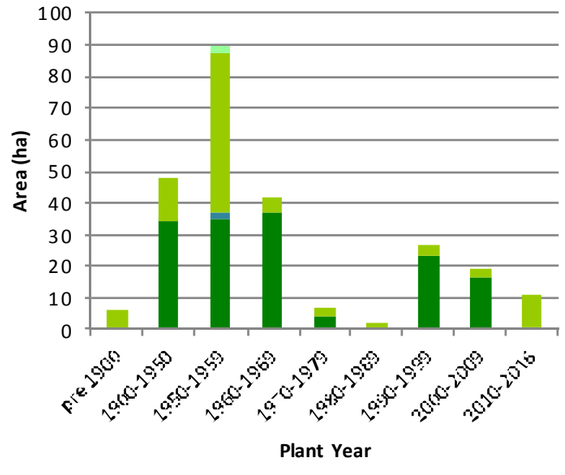
The age of conifer crops is well spread with considerable levels of planting having occurred in the 1950s and 60s and 1990s and 2000s. Broadleaf crops also vary in age with significant planting and regeneration establishment occurring in the 1950s. The thinning of conifer crops has ensured that understorey development is beginning to establish, which in time will deliver a more structurally diverse woodland composition.

The broadleaf components of the Plan area comprise a mixture of ancient semi-natural oak, and beech assemblages and younger plantings and regeneration. The majority of stands are even aged with understory development evident but not always establishing as a secondary crop. Where broadleaf features within conifer crops these have been favoured and halo thinned where appropriate to assist crown development.



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 & Restored Plantation Woodland
(> 80% site native species)

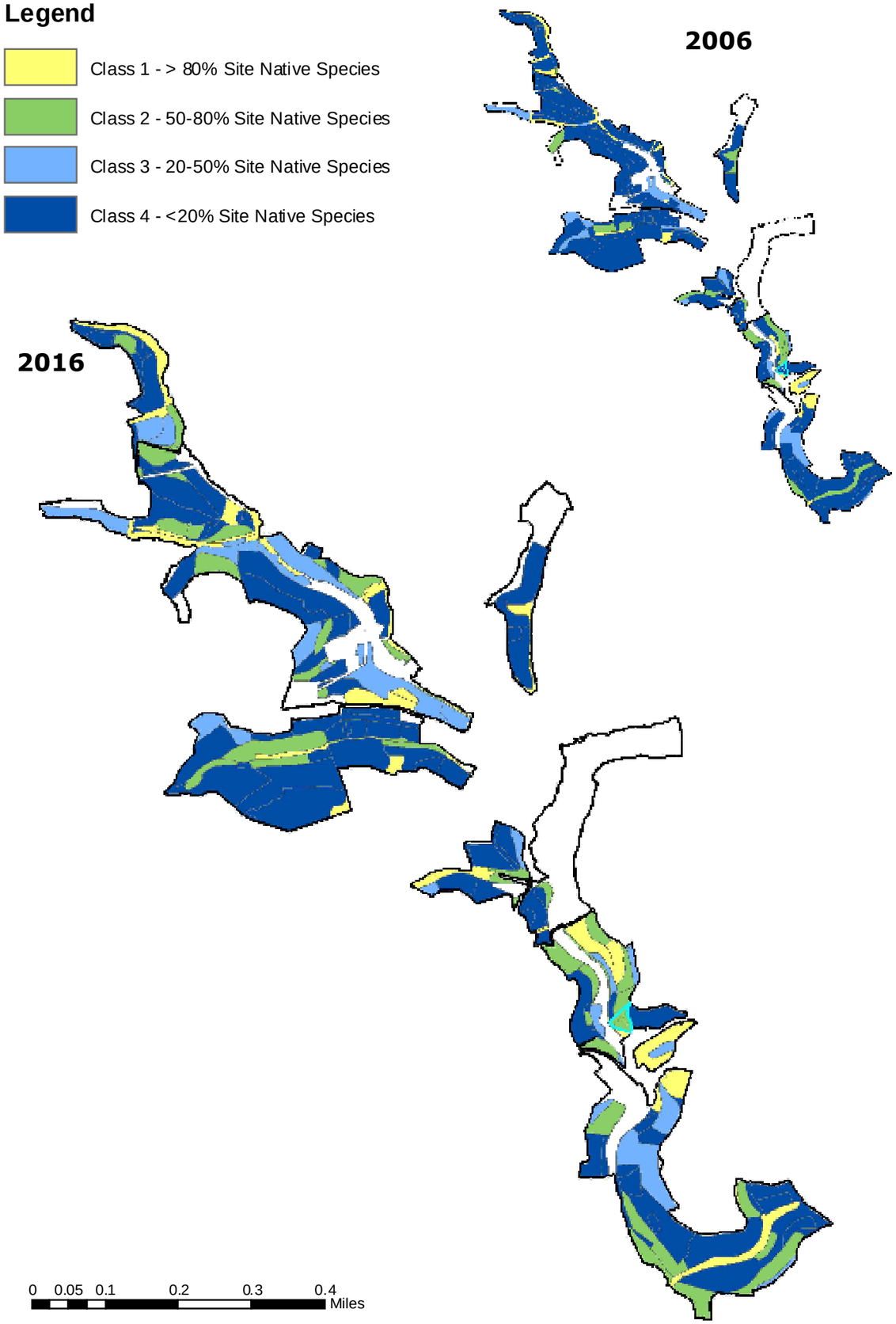
Class 2 – Plantation Woodland

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

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

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



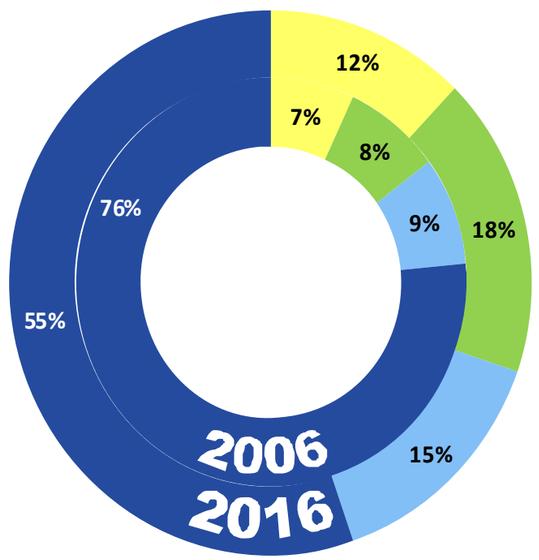
Naturalness on PAWS

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 condition 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 and restored PAWS (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 the Forestry Commission England, *Keepers in Time* Policy (Forestry Commission, 2005).

There has been gradual yet significant change in the naturalness of the AWS across the Plan area since 2006. The development of native species within stands has occurred in all three naturalness classes which is enabling the gradual restoration of PAWS sites.



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

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 either depending on development of stand structure and the response of natural regeneration.

Clearfell Zone

One clearfell will be used to convert PAWS in 15-20 years time. This is felling of Western hemlock and is required to ensure the integrity of the coupe which is predominantly secondary woodland. This will be restocked with site suitable native species

Legend

- Building Block (native seed source)
- Transition Zone
- Prepartion Zone
- Non-native Zone
- Clearfell

PAWS Management

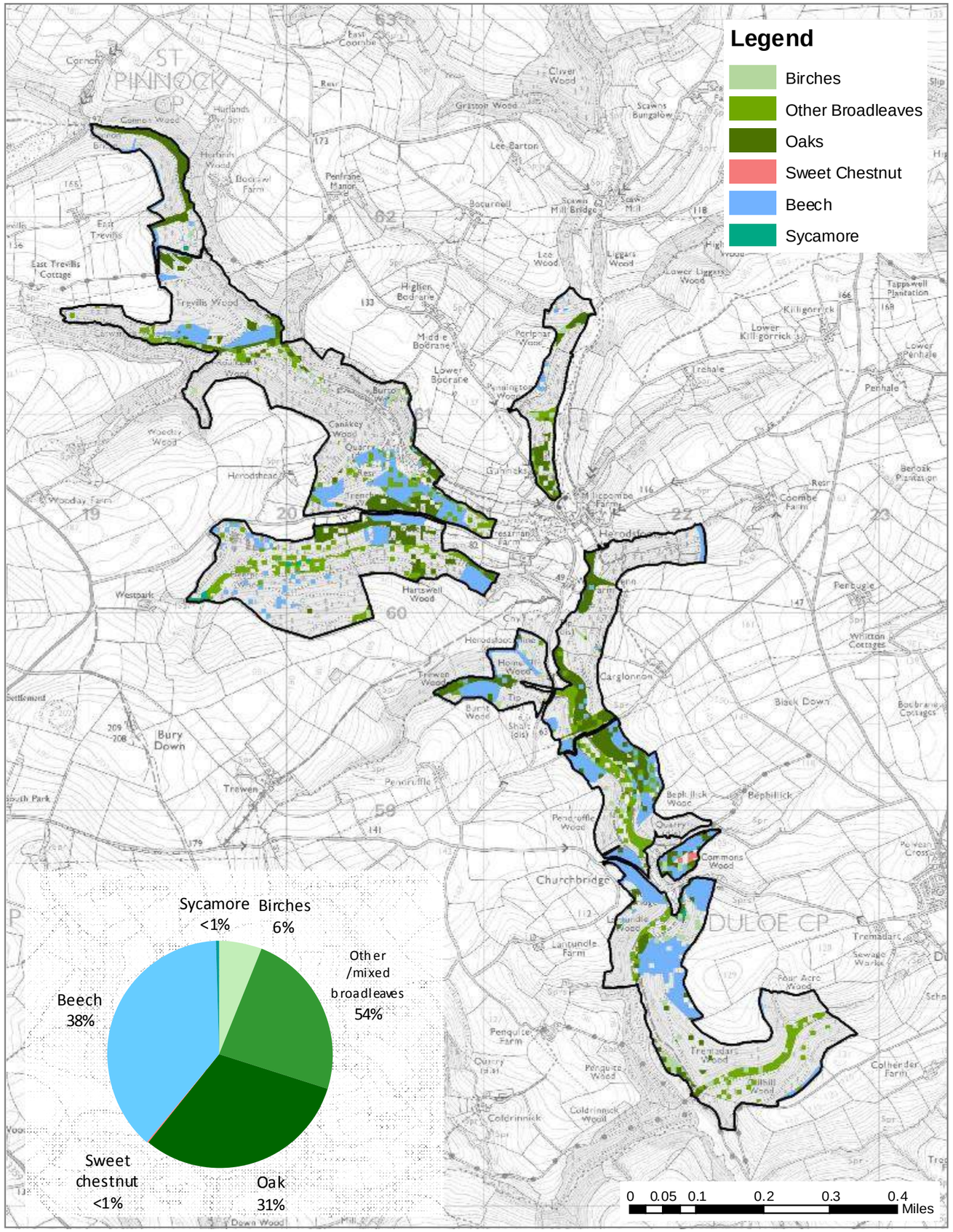
Restoration of Plantations on Ancient Woodland Sites (PAWS) has already begun and this continued restoration is going to take a considerable amount of time and resource because of the limited native remnants from which sites can regenerate.

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 through out.
- 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 to be 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.

0 0.05 0.1 0.2 0.3 0.4 Miles



Broadleaf Management

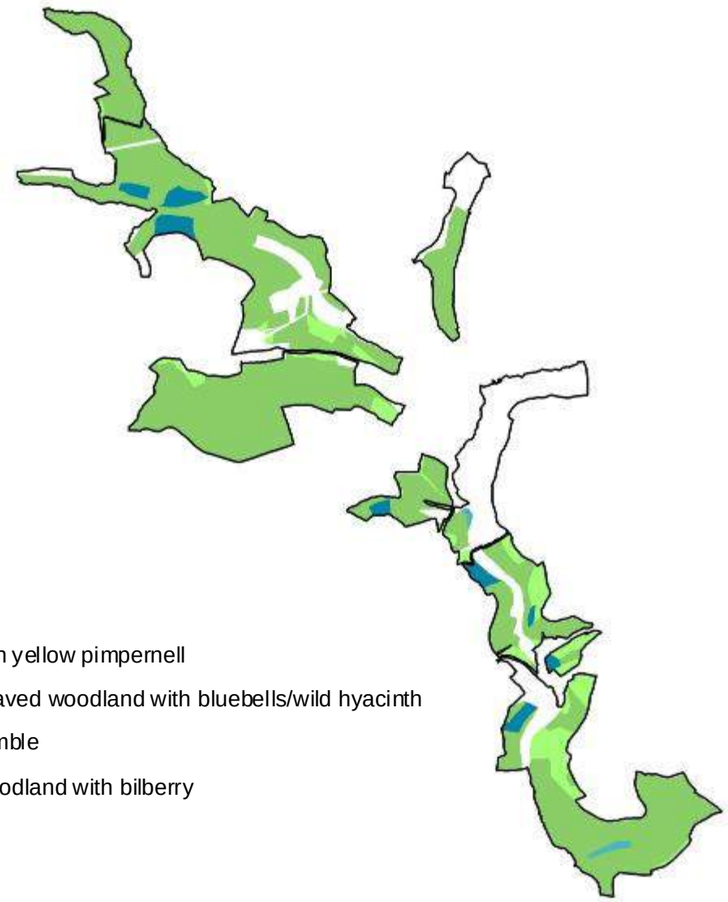
The majority of the Plan area consists of National Vegetation Classification (NVC) type W10 lowland mixed broadleaved woodlands with some W16 lowland oak/birch and W7 ash/alder woodlands along lower slopes and valley bottoms. These classifications give a good indication of the target future species for PAWS restoration and if sites were left to natural succession.

These sites will be managed on shelterwood systems whereby the new crop will be regenerated from selected seed trees, or through coppicing of oak, sweet chestnut and hazel stools where appropriate. Light levels will be managed to minimise weed encroachment and grazing pressure from deer to limit regeneration predation following thinning operations.

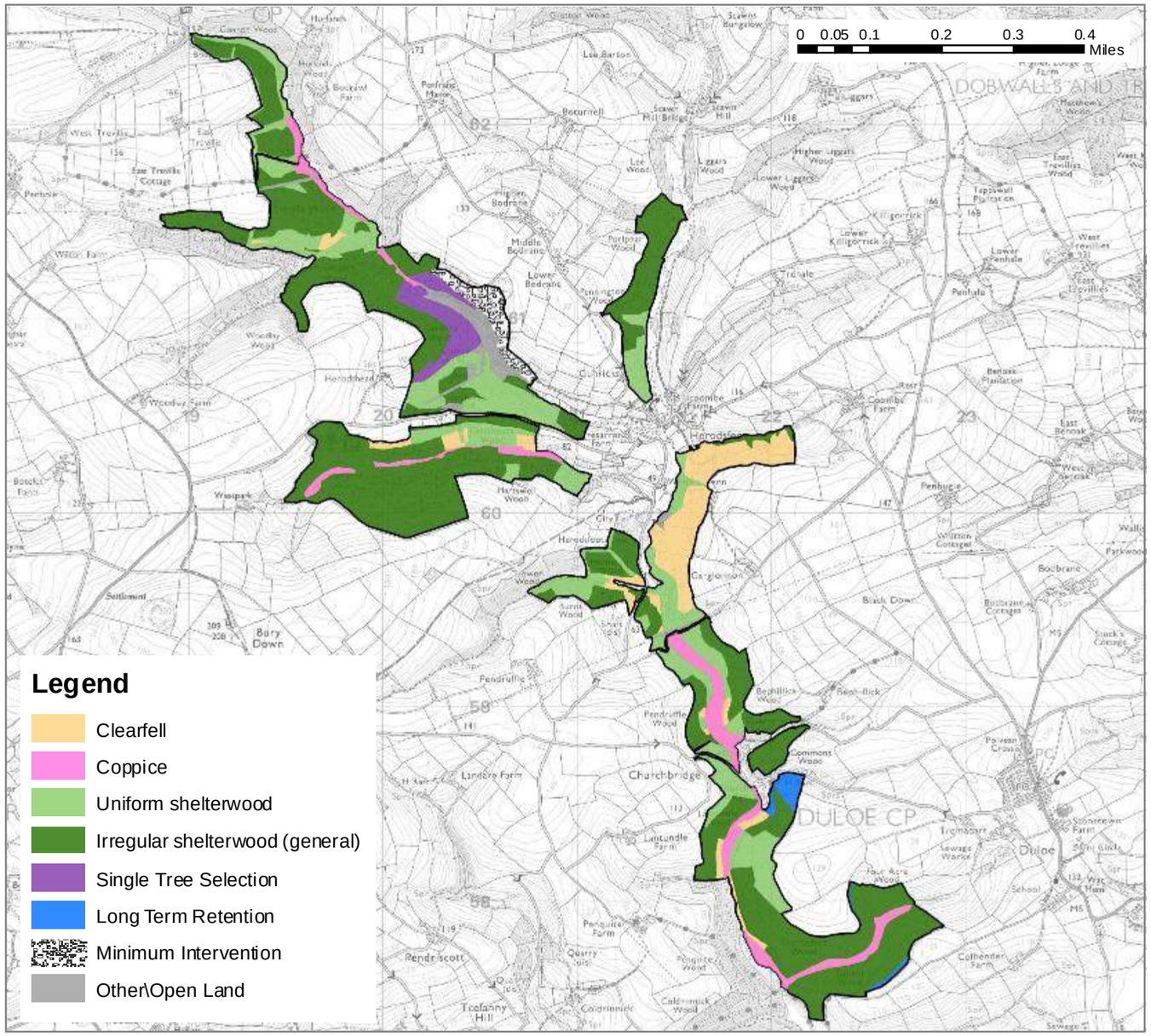
The discreet areas of planted poplar, found mainly in riparian areas, will be removed under the *Design and Management of Environmental Corridors* (Lucas, 2006) agreement.

Underplanting with species such as hazel, lime and hornbeam may be considered on the few ash dominated sites to ensure greater resilience to *Chalara fraxinea*. The re-introduction of coppicing will help to inject natural diversity and thus resilience into the woodland in light of climate change and increased pests and diseases. Planting will also be used on sites where regeneration does not meet an average of 3,000 stems/ha by year 10.

National Vegetation Classification

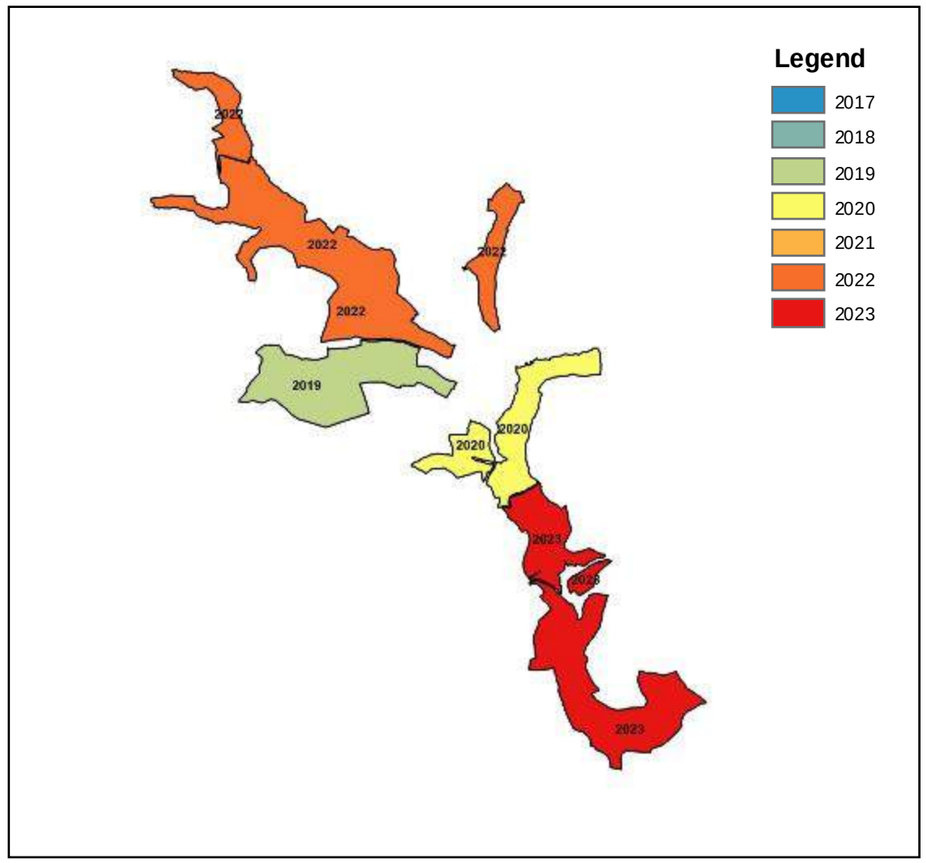


Silviculture



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. These gaps will be utilised for enrichment planting using a mix of native species other than those occurring in the overstorey - rather than reliance on natural regeneration.

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.



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

Coppicing of hazel, oak and sweet chestnut stands will be used in discrete riparian areas. Coupes will be no larger than 0.5ha and will only be used where resources allow for adequate deer proof fencing. Standards will be retained where deemed as appropriate future crop trees.

Minimum Interventions are predominantly inaccessible or ecologically valuable areas where intervention 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.

Uniform shelterwoods are predominately broadleaved domimated 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.
Irregular shelterwoods will look to develop a complex CCF structure through the identification and thinning towards quality final crop trees for the future.

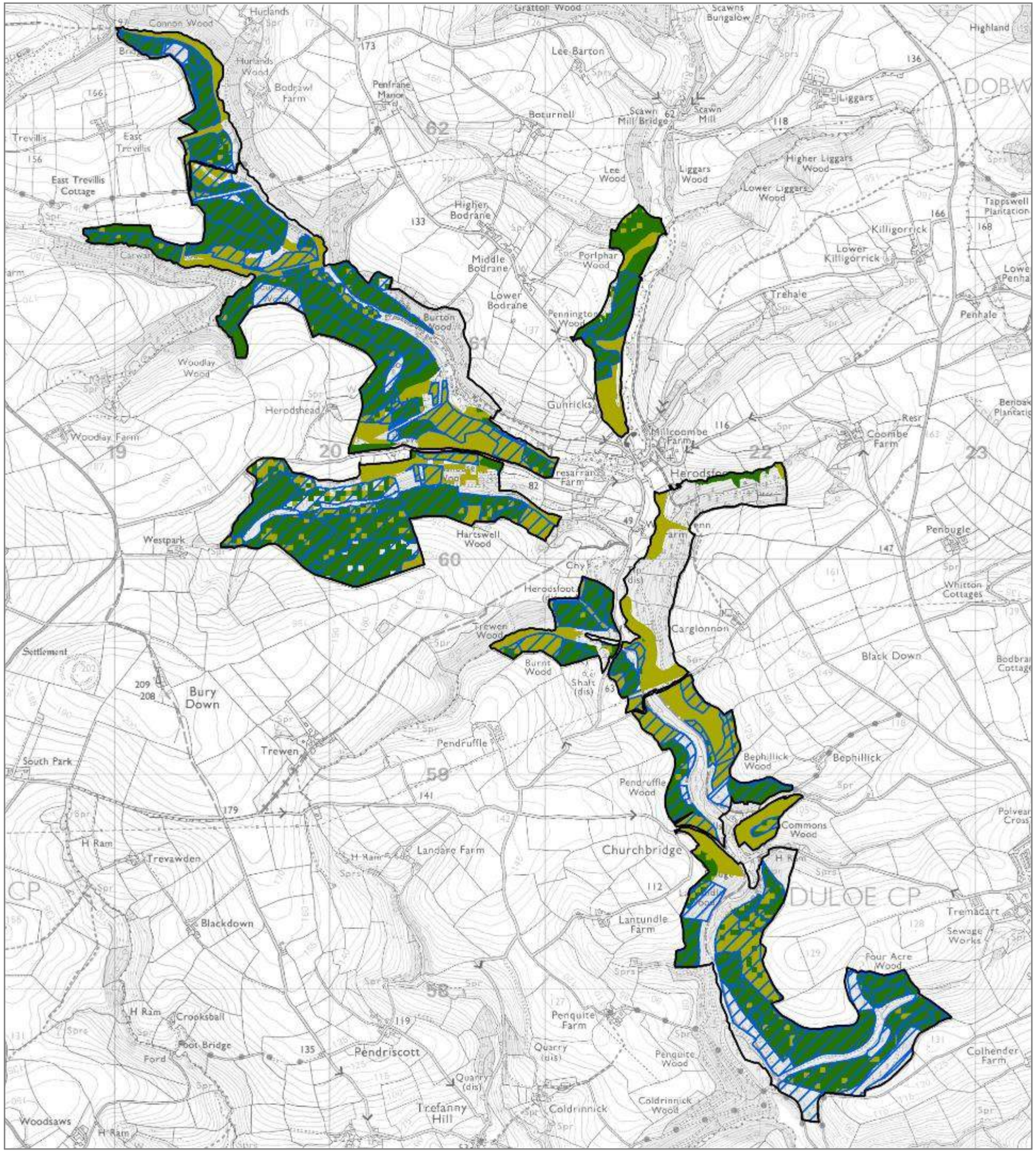
Single-tree selections are used on existing complex structured stands or sensitive sites often important for amenity value, such as in close proximity to the Forest Holidays site.

See page 15, Alternatives to Clearfell for more information

Alternatives to Clearfell

PAWS managed under continuous cover (or shelterwood and selection) systems will be thinned to favour broadleaf components. The targeted removal of Western hemlock and Grand fir species will limit the adverse impact dense w. hemlock has on natural regeneration. As a result this will increase the resilience of the woodlands as well as the regeneration potential of native species.

Uniform shelterwoods are predominately oak dominated sites which will be managed using seeding fellings, following the identification of final crop trees. Under planting of site suitable species, such as hazel may be considered, all other mixed broadleaf stands will be managed irregularly through thinning. Irregular shelterwoods on PAWS will look to favour the development of regenerating native broadleaves and target the removal of mature conifer components.



Legend

- Broadleaf ATC
- Conifer ATC
- PAWS ATC

0 0.05 0.1 0.2 0.3 0.4 Miles

Felling and Restocking
2017 - 2027

Coupe 95253 (1.52ha)
Fell 2022-26 (W. hemlock & G. fir)

Restock 95253a (1.52ha)
100% Native broadleaf

Coupe 95664 (0.47ha)
Fell 2022-26 (W. hemlock)

Restock 95664a (0.47ha)
100% Native broadleaf

Coupe 95284 (0.82ha)
Fell 2022-26 (W. hemlock, WR. cedar & G. fir)

Restock 95284a (0.82ha)
100% Native broadleaf

Coupe 95905 (0.46 ha)
Fell 2017-21 (Douglas fir)

Restock 95905a (0.46ha)
100% Evergreen conifer

Coupe 95471 (0.54 ha)
Fell/Coppice 2017-21 (Broadleaf)

Restock 95471a (0.54ha)
70% Broadleaves coppice
30% Retained broadleaf standards

Coupe 95604 (0.48 ha)
Fell/Coppice 2017-21 (Broadleaf)

Restock 95604a (0.48ha)
70% Broadleaves coppice
30% Retained broadleaf standards

Coupe 95976 (0.41 ha)
Fell/Coppice 2022-26 (Broadleaf)

Restock 95976a (0.41ha)
70% Broadleaves coppice
30% Retained broadleaf standards

Coupe 95490 (2.1ha)
Fell 2022-26 (W. hemlock)

Restock 95490a (2.1ha)
100% Native broadleaf

Coupe 95986 (0.63ha)
Fell 2022-26 (W. hemlock)

Restock 95986a (0.63ha)
100% Native broadleaf

Coupe 95702 (0.55 ha)
Fell/Coppice 2022-26 (Broadleaf)

Restock 95702a (0.55ha)
70% Broadleaves coppice
30% Retained broadleaf standards

Coupe 95244 (0.53 ha)
Fell/Coppice 2022-26 (Broadleaf)

Restock 95244a (0.53ha)
70% Broadleaves coppice
30% Retained broadleaf standards

Coupe 95901 (0.40 ha)
Fell/Coppice 2022-26 (Broadleaf)

Restock 95901a (0.40ha)
70% Broadleaves coppice
30% Retained broadleaf standards

Coupe 95356 (0.52 ha)
Fell/Coppice 2017-21 (Broadleaf)

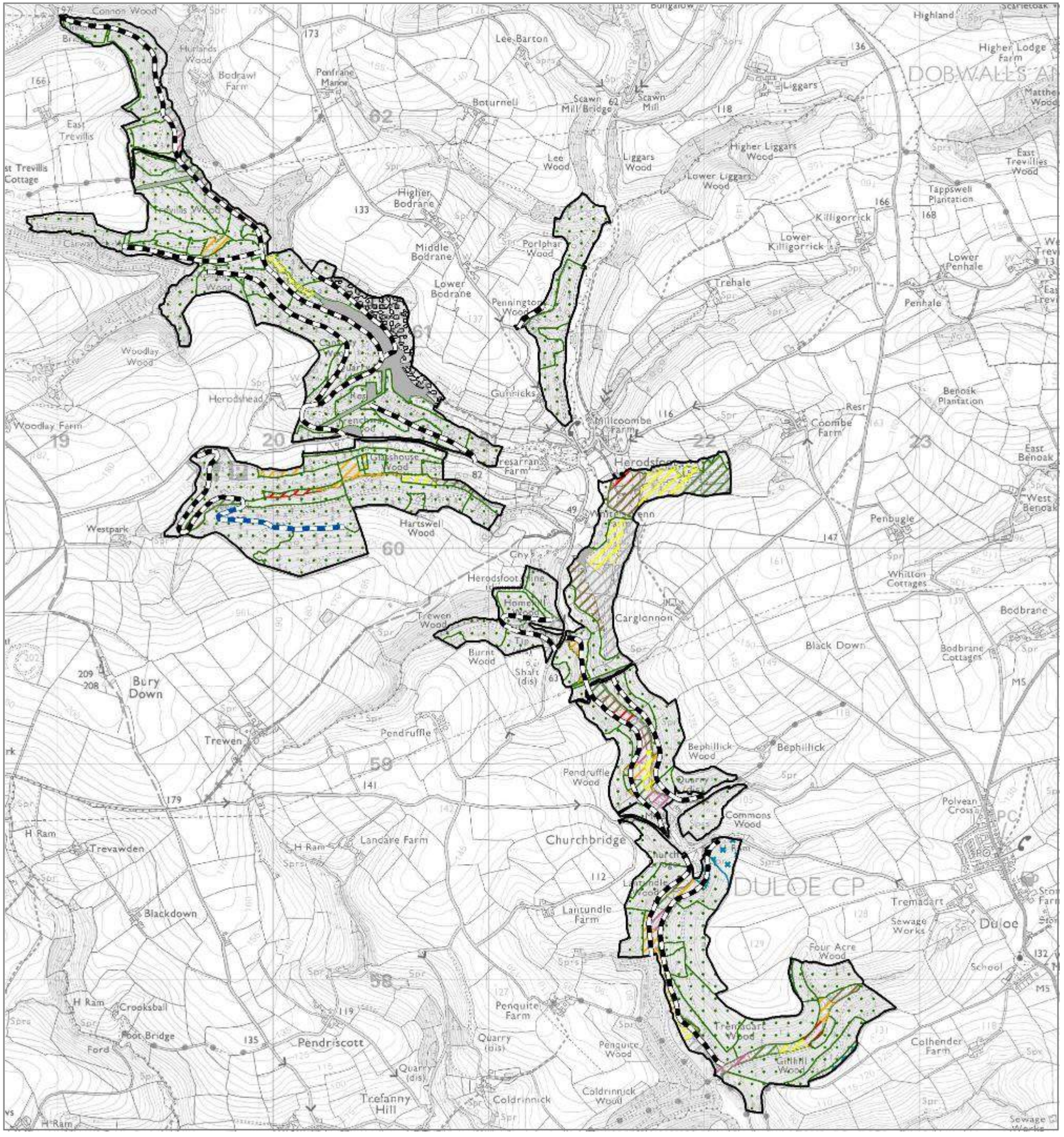
Restock 95356a (0.52ha)
70% Broadleaves coppice
30% Retained broadleaf standards

0 0.05 0.1 0.2 0.3 0.4 Miles

Legend

- Fell 2012 - 2016
- Fell 2017 - 2021
- Fell 2022 - 2026
- Wood Pasture
- Retentions
- Minimum Intervention
- Natural Reserve
- Open

Management Prescriptions
2016 - 2046



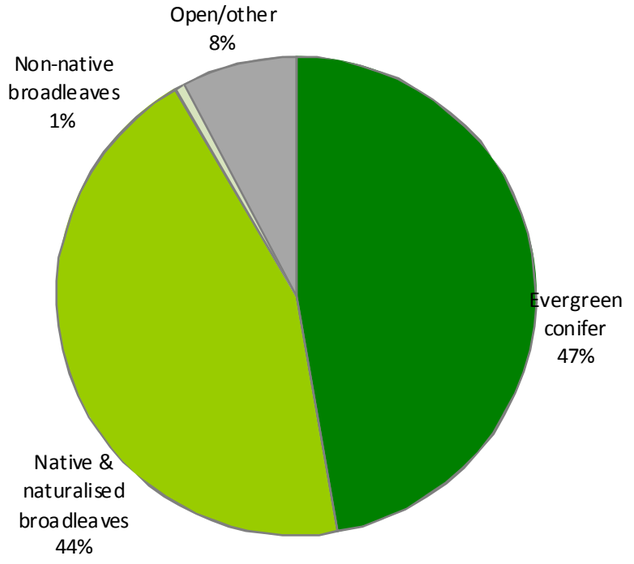
Legend

- Alternatives to Clearfell
- Fell 2012 - 2016
- Fell 2017 - 2021
- Fell 2022 - 2026
- Fell 2027 - 2031
- Fell 2032 - 2036
- Fell 2037 - 2041
- Fell 2042 - 2046
- Fell post 2046
- Wood Pasture
- Retentions
- Minimum Intervention
- Natural Reserve
- Open

0 0.05 0.1 0.2 0.3 0.4 Miles

Indicative Future Species 2027

The projections made are indicative of species composition in ten and thirty 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.

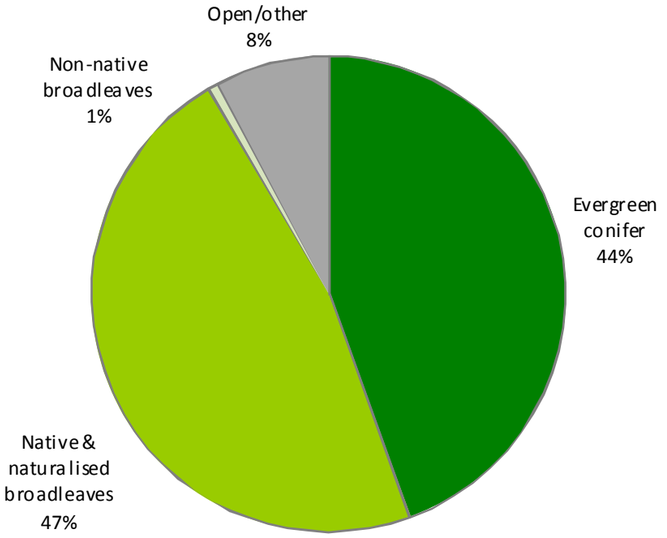


Legend

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

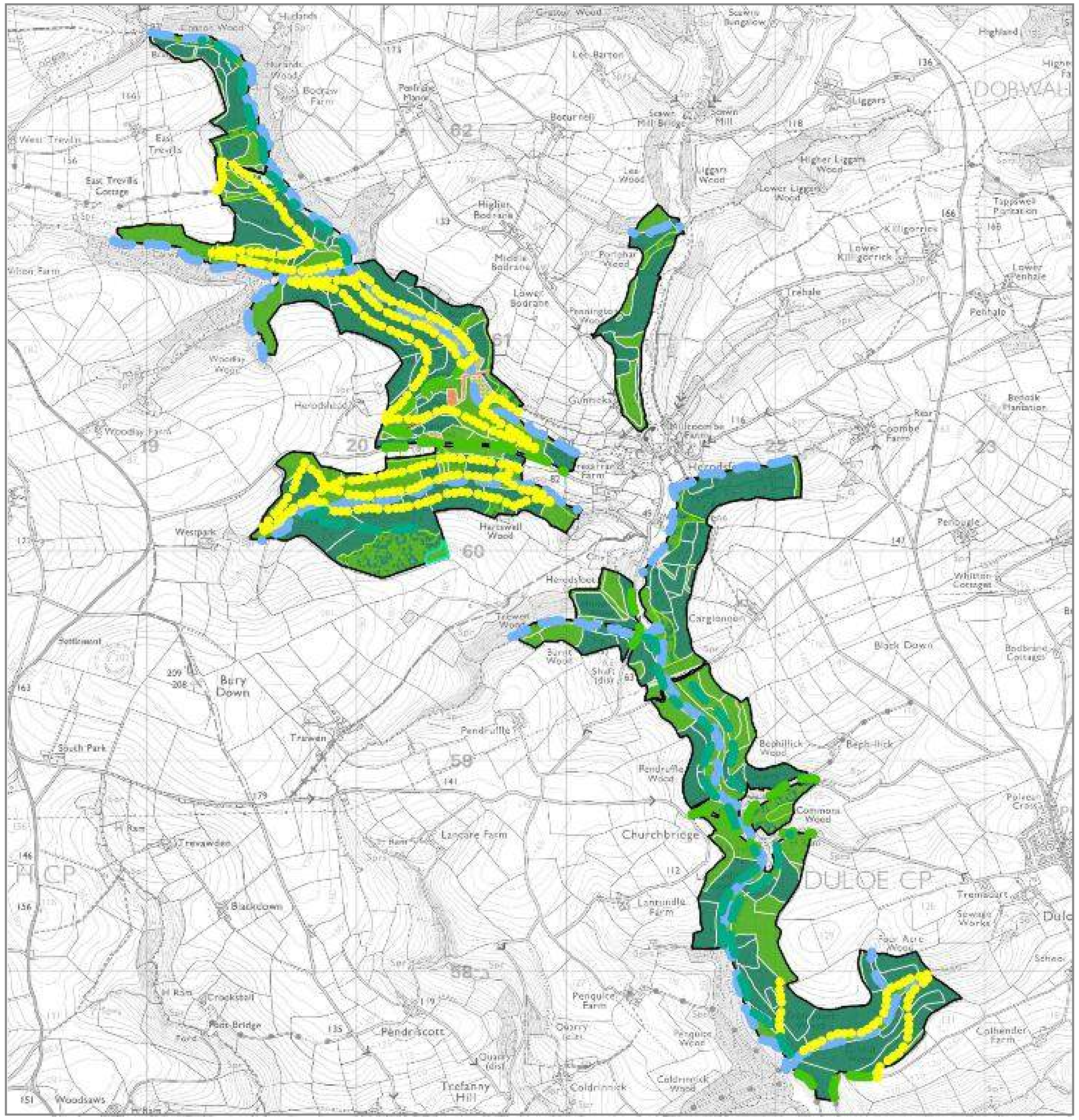
Indicative Future Species 2046

The projections made are indicative of species composition in ten and thirty 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



Legend

- Moor and Heath
- Hedgerow
- Forest Road Edge
- Conservation + Recreation
- Public Roadside
- Windthrow protection
- Watercourse
- Broadleaved Belt
- Lowland mixed deciduous woodland
- BROADLEAVED; MIXED/YEW WOODLANDS
- CONIFEROUS WOODLANDS
- BOUNDARY & LINEAR FEATURES
- BUILT UP AREAS & GARDENS

0 0.05 0.1 0.2 0.3 0.4 Miles

Conservation - Habitats

Ride and road sides, together with watercourses and hedgerow management will conform to the prescriptions outlined in the District document, *Design and Management of Environmental Corridors* (Lucas, 2006). This document outlines the management of light levels, pinch points and forest edge dynamics.

The road and ride network within the Plan area will be utilised to extend and connect ride side habitats and transient open spaces, this will be achieved through targeted widening and unstocking of edges to some coupes following felling operations to create a mixed transient open and scrubby habitat for a multitude of species.

A variety of deadwood will be retained according to the level of ecological value and in line with Guidance (Humphrey & Bailey, 2012). Retaining decaying snags and logs as well senescent native trees throughout the woodland will create suitable deadwood habitat for numerous associated species.

The streamsides and wet woodland found at the bottom of valley remain predominantly wooded with either ASNW broadleaf woodland or planted Douglas fir. The majority of these sites will be managed through thinning and the recruitment of suitable wet woodland species such as alder, willow and birch encouraged.The discreet areas of planted poplar, found mainly in riparian areas, will be removed under this agreement. Where appropriate (particularly in Carglonnon) secondary woodland sites are to be clearfelled with areas of open space and broadleaves will be included to add diversity and structure.

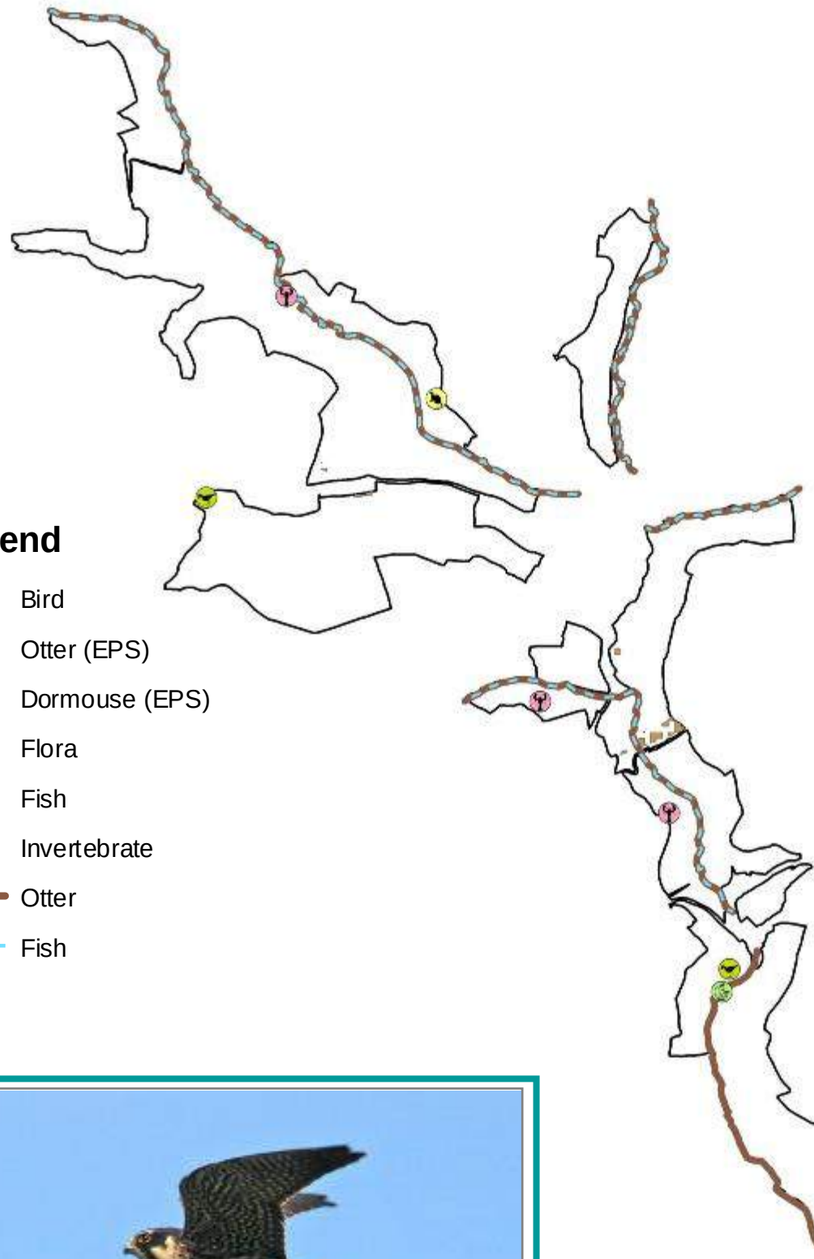
Lowland Mixed Deciduous Woodland

A number of areas of remnant lowland mixed deciduous woodland (as shown right) are found across the Plan area. These are predominantly made up of Penduculate oak, ash, birch beech and sweet chestnut. Some evidence of coppicing of hazel and sweet chestnut exists.

Management of these areas will be sensitive to ensure the quality is maintained in perpetuity. Thinning will be reviewed on a ten yearly cycle with the aim of enhancing and improving the condition of the habitat. Removal of invasive or un-suitable species, such as laurel, rhododendron or Western hemlock will ensure that this habitat is maintained and used as a building block for future native broadleaf restoration.

Conservation - Features

The Forest Plan area is used by a vast array of common and rare flora and fauna. The considerable contribution the forests and their associated areas make to habitat provision in the landscape is widely recognised. Some flora and fauna species can have a detrimental impact on the forest and its features if their numbers are too high. Species such as rhododendron, Japanese knotweed, wild deer and squirrel will all be managed in line with District Strategy to ensure that their pressure does not have a negative impact on the condition of habitats and crops.



Otter - are known to use the length of the River Looe and is widespread across most rivers in Devon and Cornwall. This European Protected Species experienced a decline in previous decades but has recovered well in the south west of England. They inhabit streamside and wetland areas and the riparian woodland habitats found within the Plan area are ideal for nesting otter. The management of riparian wet woodland will ensure that a lush diversity of open space, scrub and high forest will ensure otter habitat is enhance and preserved to support this species.

Brown/Sea trout are found in the rivers that dissect the woodlands. They are incredibly water temperature sensitive and therefore the management of shade in riparian zones will ensure that streamsides are not over -exposed to light. Coppicing in small blocks (no greater than 0.6ha) will deliver transient areas of shade and open clearing streamside and thus enhance the ecosystem functioning of the riparian zone.

Dormouse favourable habitat is found throughout the Plan area and therefore this species could be inhabiting the woodlands. This European Protected Species requires pinch points across corridors to allow habitat connectivity between broadleaved woodland, particularly in stands with a high hazel and/or sweet chestnut components. The increase in coppicing in hazel dominated stands will significantly enhance habitat quality with prescriptions outlined in the Environmental Corridors document also ensuring appropriate habitat provision and management will be in line with Best Practice Guidance (FC & NE, 2007).

Raptor - notably hobby (above) and buzzard are known to nest and hunt within the forest areas. Many of the species choose to rest in high well branched conifer trees and then feed over open ground, making the forests ideal raptor habitat in an otherwise varied landscape. The management of appropriate large or potentially large trees for long retentions will ensure that habitat provision is maintained.

Merveille du Jour - is found across a number of sites in the Plan area. These, like many other Lepidoptera, choose to inhabit woodland clearings and ride and roadsides. Continued forest management through felling and notably corridor work will ensure that their habitat is maintained.

0 0.05 0.1 0.2 0.3 0.4
Miles

Recreation and Public Access

The Plan area experiences a high level of formal and informal recreational usage. The blocks north and west of Herodsfoot village are held under freehold and are therefore Open Access. Together with the Forest Holidays cabin site, this area has a greater focus on recreation provision with a number of waymarked trails in place. The blocks to the south are predominantly leasehold which means access is limited to De Facto along the Public Rights of Way which run north to south.

The use of the Plan area by local individuals as well as numerous visitors and tourists demonstrates the value of the forests to the local community, these features will be maintained in balance with ecological value. The Plan area also absorbs a lot of the recreational pressure as an alternative to nearby coast and numerous informal car parking facilities are available.

Legend

- Barrier
- Footbridge
- Accommodation

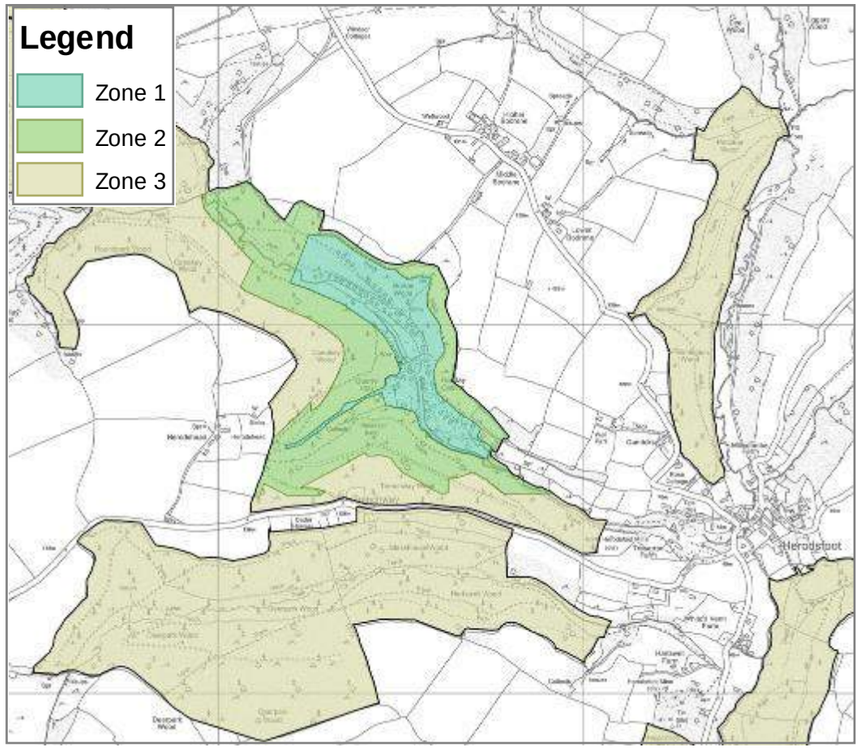
Routes

- Easy
- Moderate
- Difficult
- Footpath
- Bridleway
- Byway
- Roads
- Rides

0 0.05 0.1 0.2 0.3 0.4 Miles

Forest Holidays

Zone Designation



Zone 1

Area is leased and managed by Forest Holidays. The small amount of forest in this area is managed in agreement with Forestry Commission to maintain a high level of visitor safety and experience.

Zone 2

Area is owned and managed by the Forestry Commission and is within immediate proximity to the Forest Holidays site. Forest management in this area is in agreement with Forest Holidays to complement the cabin site and enhance visitor experience. See adjacent map for further detail.

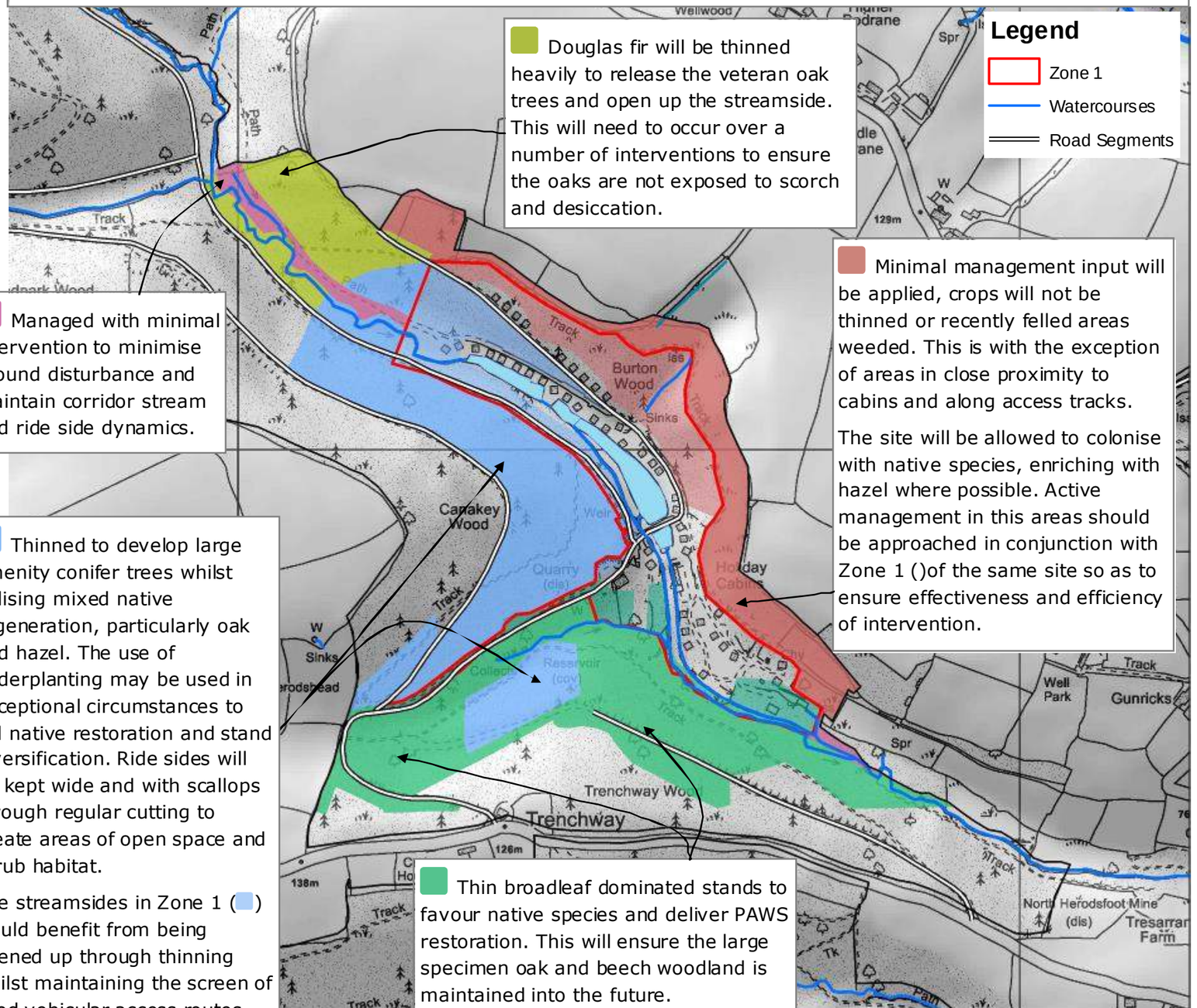
Zone 3

Area is owned and managed by the Forestry Commission and is the wider forest within a close distance of the Forest Holidays site. Forest management in this area is outlined within this Plan document, is consulted on by Forest Holidays and looks to complement the user experience where possible.

0 0.05 0.1 0.2 0.3 0.4 Miles

Zone 2 Management

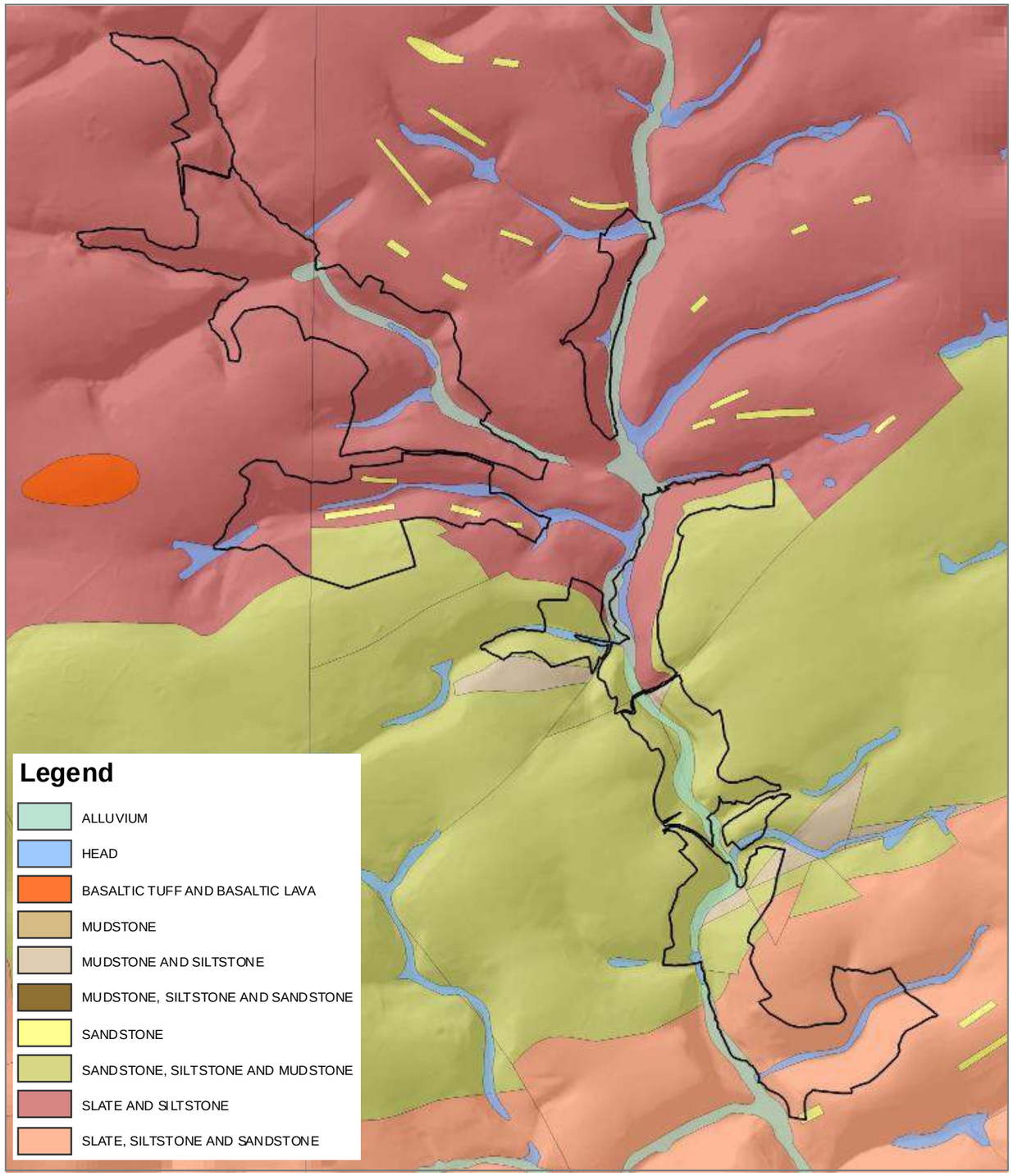
Zone 1 is also coloured to suggest treatments to complement Zone 2 management. The completion of Zone 1 work is the at the discretion of Forest Holidays.



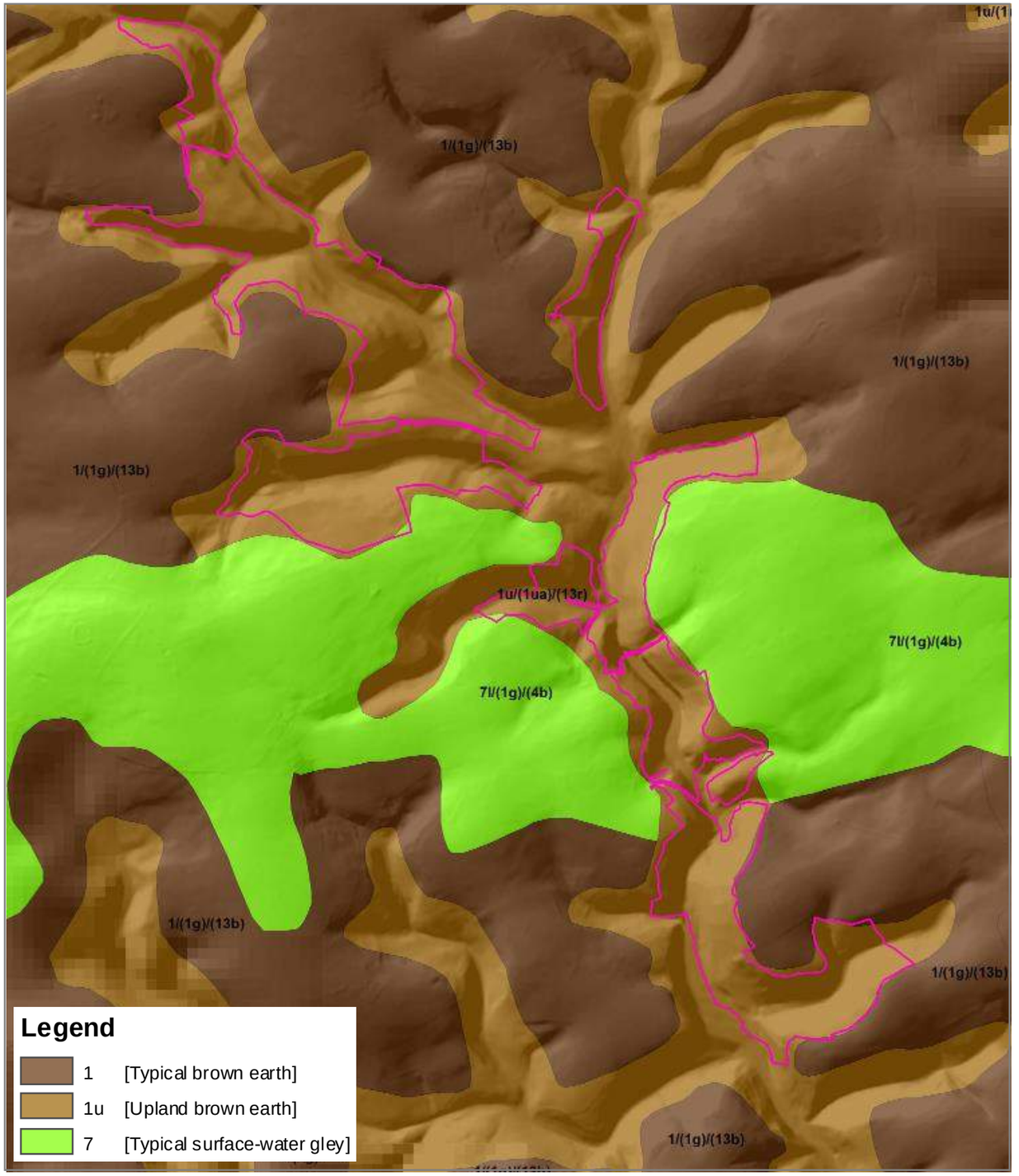
0 0.05 0.1 0.2 0.3 0.4 Miles

APPENDIX 1

Geology



Soils

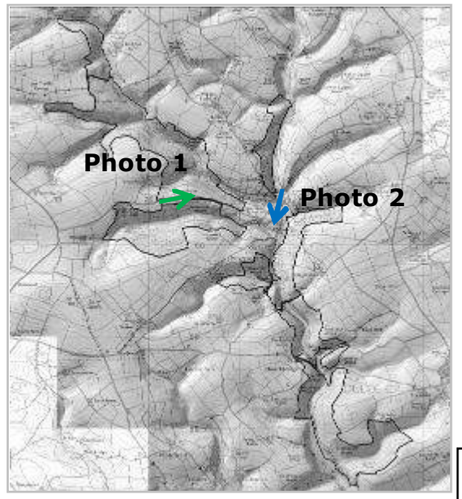


Landform Analysis

The landscape analysis is used to assess the landform patterns and demonstrates how it is in keeping with the surrounding landscape character.

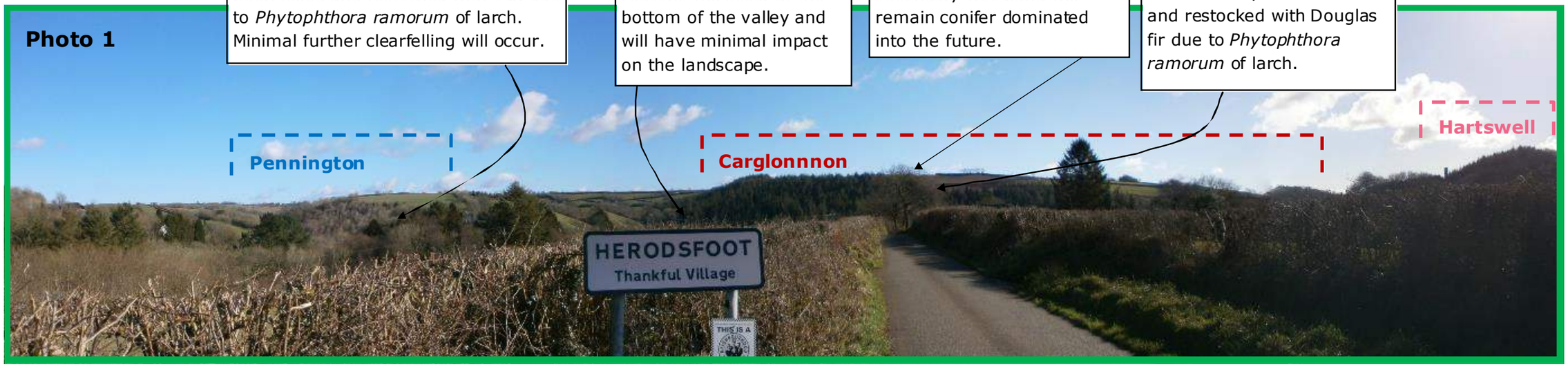
One's eye is naturally dawn up the valleys and down the ridges. These principles will be used to design the shape of future coupes. Ensuring that the shape and size of felling and restocking areas do not detract from the natural appearance of the forest and its contribution to the landscape character,

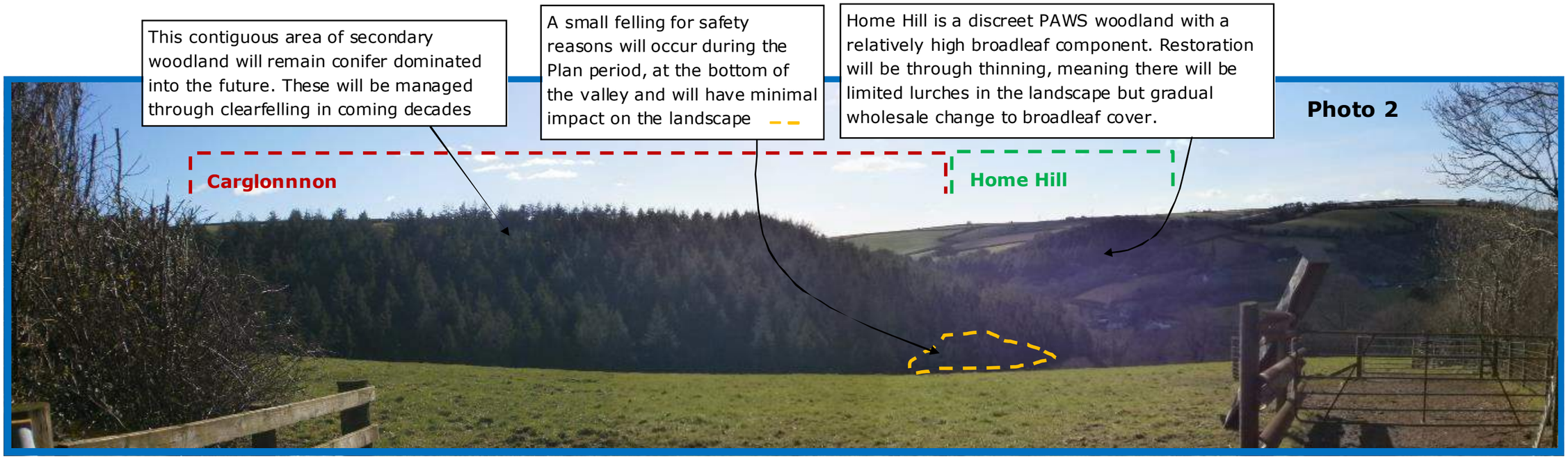
0 0.05 0.1 0.2 0.3 0.4 Miles



Landscape Analysis

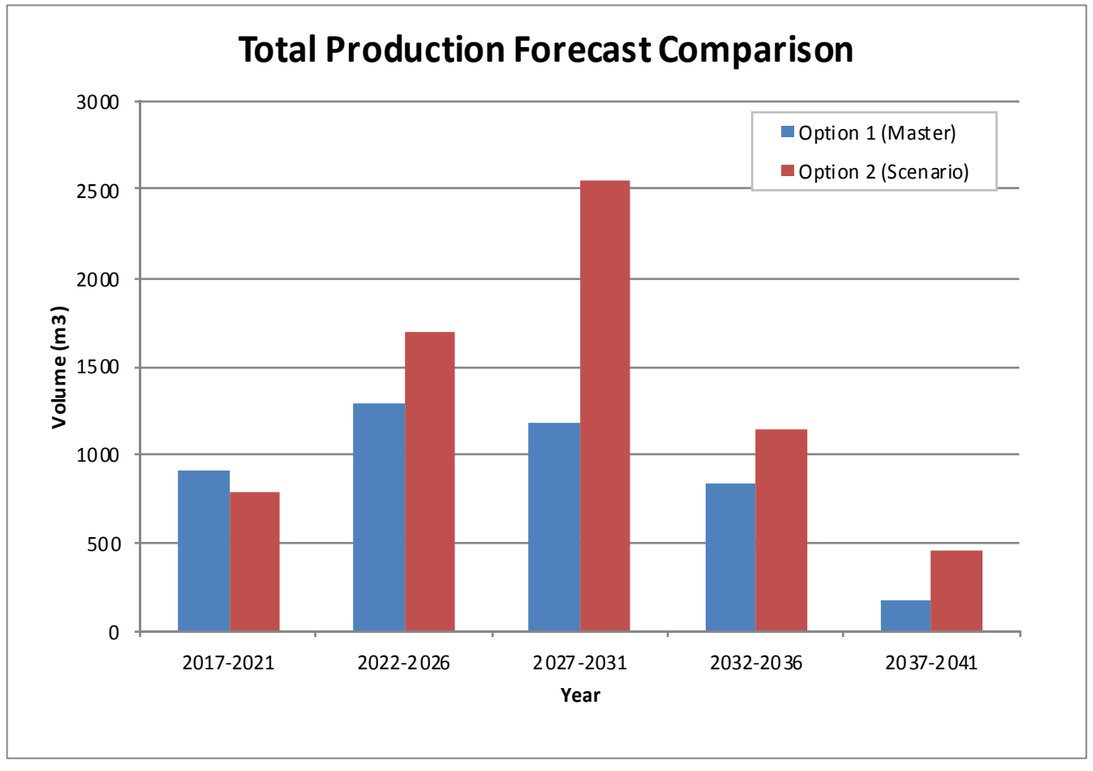
The intimate nature of the incised valley landscape mean that multiple short distance views are more common than long distance vistas. As a result opportunities to complete long-distance landscape analysis is limited.

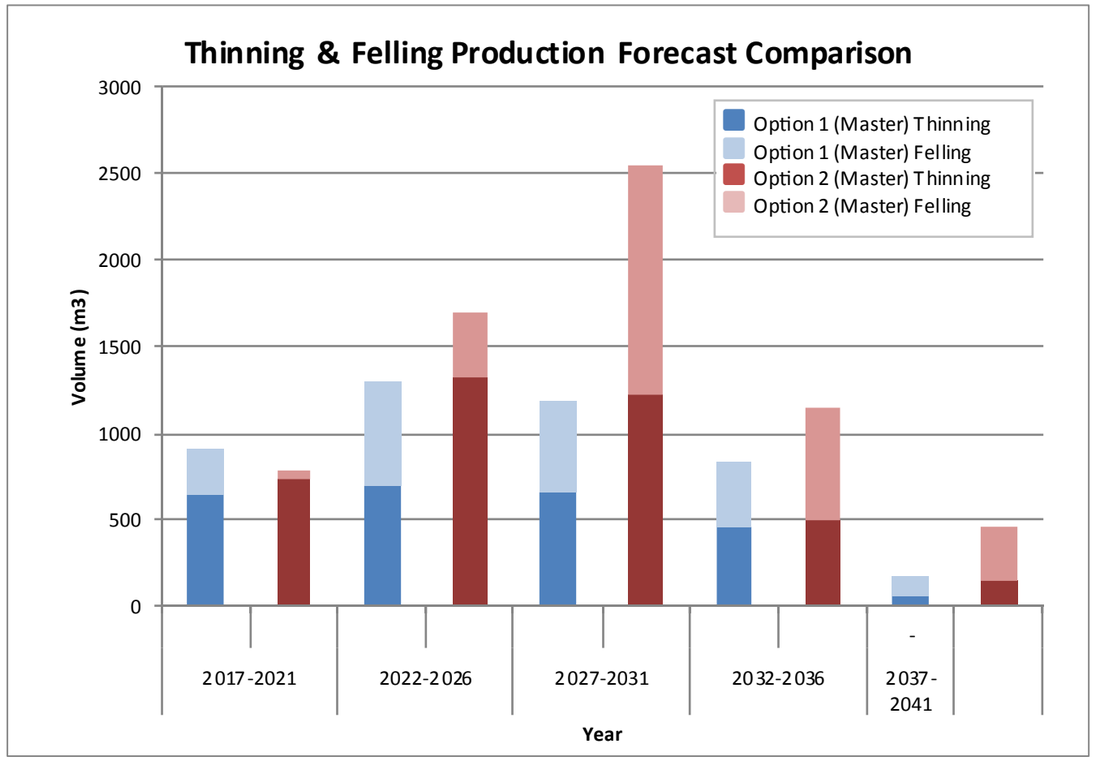




APPENDIX 2 — Option Testing

Option 1 – Current Forest Plan (Master)	Option 2 – Proposed Forest Plan (Scenario)
The continued production of sustainable and marketable woodland products.	
Production is realised through a mixture of clearfelling and thinning. This produces regular and stable production but will have considerable cost and ecological implications for re-stocking on ancient woodland.	The reduced clearfelling programme as well as delayed thinning in light of Phytophthora ramorum does produce greater timber output over time. Notably in period 2027-31 where a number of clearfells in Carglonnon take place.
To protect enhance and restore areas of ancient woodland in line with the 2005 'Keepers of Time' policy.	
The Plan makes no reference to Keepers in Time, due to the time when it was written. Management is through clearfell and restock with conifer. This is wholly incompatible with the Policy.	Plan makes significant and clear provision for the restoration of PAWS thorugh gradual thinning and enhancement of broadleaf remnants. This will achieve the Policy over time whilst retaining ecosystem functioning.
To conserve, maintain and enhance cultural and heritage assets.	
Plan makes no mention or provision for the protection and enhancement of any heritage assets, unscheduled or unknown.	The minimal number of recorded important heritage features mean that these features are to be identified and protected at the time of operation
Deliver well-designed forests in keeping with the local landscape character.	
Whilst the original clearfell programme was well integrated into the landscape, odd clear-fell coupe shapes following multiple amendments threaten the value of the local area.	The move away from clearfell is in keeping with the local landscape value. The acknowl-edgement of the gradual reduction is in line with local aspiration and Policy.
Protect and enhance woodland and open habitats and their associated species.	
The Plan makes provision for open space and other valuable habitats such as ASNW but does not make them a core objective	The Plan identifies and prescribes management for current and future key habitats and corridors.
The provision and maintenance of recreation facilities.	
Plan makes minimal reference or significance of recreational facilities.	The Plan acknowledges the value of the woodland to recreation provision and takes steps to ensure this is maintained, with proposals integrated with the Forest Holidays site





Utilities

Legend

- Powerline Overhead
- Powerline Underground
- Gas Pipeline
- Telephone Line Underground
- Telephone Line Overhead
- water_pipeline
- Class A/B Roads
- Class C Roads

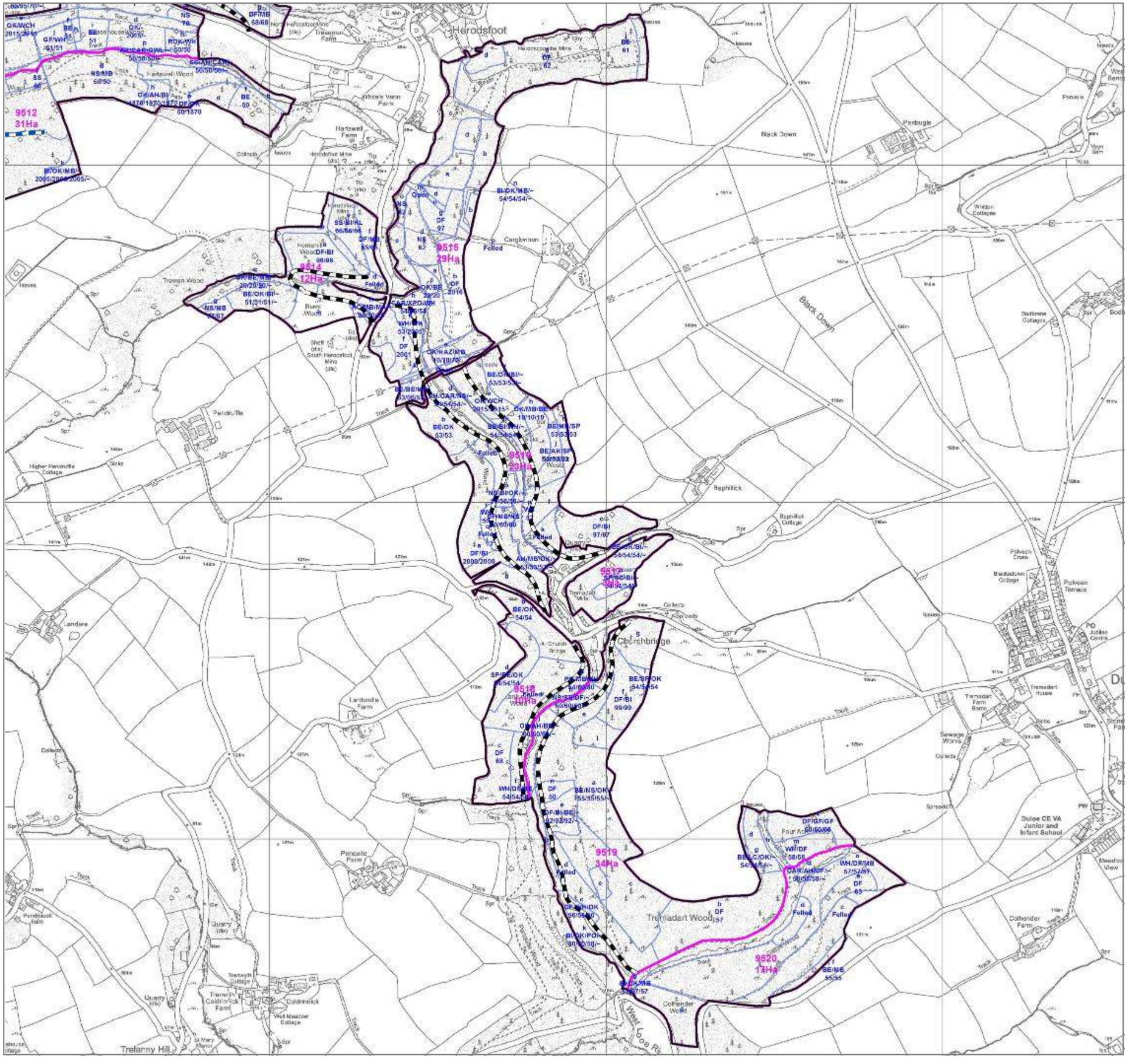
0 0.05 0.1 0.2 0.3 0.4 Miles

Stock Data North - 2016

9508 26Ha
9509 30Ha
9510 27Ha
9511 22Ha
9512 31Ha
9513 15Ha

0 0.05 0.1 0.2 0.3 0.4 Miles

Stock Data South - 2016



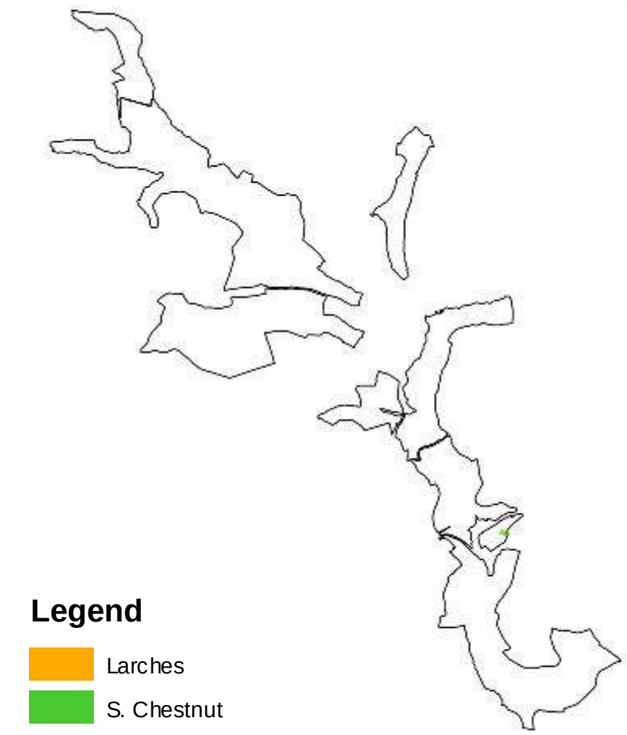
Pests & Diseases

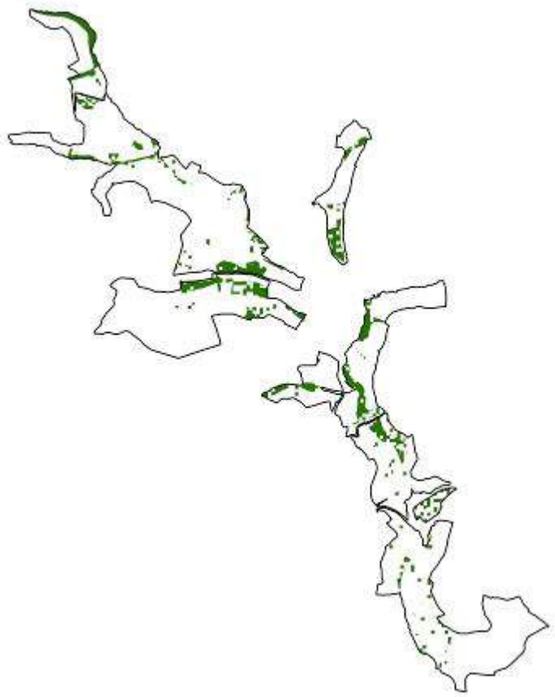
Name: *Phytophthora ramorum* (PR)

First appearance: 2009

Attacks: Larches

P. ramorum was first found in the UK in 2002 and until 2009 in the woodland environment had largely been associated with rhododendron species acting as a host from which spores are produced. In August 2009 P. ramorum was found on a small number of dead and dying Japanese Larch in South West England, causing particular concern since some affected trees were not close to infected rhododendron and showing a significant change in the dynamics of the disease than experienced previously. Following this testing in Devon and west Somerset confirmed the presence of PR in mature Japanese larch as well as species in its under-storey, including sweet chestnut, beech, birch, oak, Douglas fir and Western hemlock. On some sites there is little or no rhododendron present. It is now known that Japanese larch can produce very high quantities of disease-carrying spores when actively growing in spring and summer, at much higher levels than those produced by rhododendron. These can be spread significant distances in moist air. PR is a notifiable disease dealt with by felling the infected area under a statutory plant health notice (SPHN) issued through FERA and the Forestry Commission. Herodsfoot has suffered considerably at the hands of PR and now contains minimal amounts of larch or Sweet chestnut following SPHN and compulsory felling in 2013.



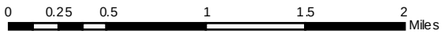


Name: Oak 'dieback' or 'decline'

First appearance: unknown

Affects: Oak

Oak 'dieback' or 'decline' is the name used to describe poor health in oak trees and can be split into Chronic decline and Acute decline. Chronic decline is protracted taking effect on the Oak over a number of decades whilst Acute decline is much swifter acting over much shorter periods usually five years or so. Symptoms can be caused by a range of living agents e.g. insect and fungal attack, or non-living factors, e.g. poor soil and drought. Factors causing decline can vary between sites, as can the effects of the factors through time. Oak decline is not new; oak trees in Britain have been affected for the most part of the past century. Both native species of oak are affected, but Pedunculate oak (Quercus robur) more so than Sessile oak (Quercus petraea). Successive exposure to any of these agents on a yearly/seasonal basis further reduces the health of the tree(s) and predisposes it to other living (Biotic) agents that can often spell the eventual death knell for the tree.



Name: *Chalara fraxinea*

First appearance: currently N/A

Attacks: Ash

Pretty rampant in Europe, showing up in the United Kingdom 2012 mainly in East Anglia and along the East coast of England. The disease has now spread significantly throughout the country and is found in the local region. The disease cause considerable bleeding and defoliation leading to the death of the tree.

Name: Dothistroma Needle Blight (DBN)

First appearance: mid 1990s

Attacks: Pine species

Often referred to as Red Band Needle Blight (RBN) and can reduce growth rates by between 70 and 90%. Effects of RBN are managed through thinning the wood more heavily than you would normally to introduce higher levels of air flow through the remaining crop. However, Herodsfoot contains a relatively small component and therefore its impact has been fairly limited.

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.

Rotation		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. *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. "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.
Shelterwood		A management system that is applicable to conifer or broadleaf, where tree canopy is maintained at one or more levels without the need to clear-fell 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" 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.
Silviculture		A term coined during late 19th century from the Latin *silva meaning* 'wood' and the French *culture* 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.
Stand		A group or area of trees that are more or less homogeneous with regard to species composition, density, size, and sometimes habitat.
Thin	TH	Selective removal of trees from a wooded area, giving remaining trees more space to grow into larger trees. Thinning is done to: 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. **NOTE:** This list is not in any order of priority and will vary depending on management objectives.
Yield Class	YC	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.

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