

# STARA WOODS

## WOODLAND CONSERVATION MANAGEMENT PLAN



Produced by



## SITE DETAILS

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**Name** Stara Woods  
**Address** Starabridge, Nr. Rilla Mill, Liskeard, Cornwall  
**Grid refs** SX 289 741  
**Hold #**  
**FC Ref #**  
**Area (Ha)** 14.6  
**Access** Access tracks to main plantation area (shared access).  
Partial track at base of second plantation. No  
vehicular access to Ancient Woodland area.  
**Town** Rilla Mill  
**Parish** Linkinhorne  
**District** Cornwall  
**Contact**  
  
**Phone**  
**E-mail**  
**Vendor #**  
**SBI #**  
**Ownership** The woodland is owned by a charitable organisation  
which has full management rights.

### SUMMARY

Stara Woods are made up of a mixture of coniferous plantation and semi-natural woodland. The whole site is on anciently wooded ground, but retention of the ancient ground flora is sporadic.

There is one plantation of Douglas Fir (known as Colquite Wood) with over 80yr old standards, dense Douglas regeneration and significant patches of semi-natural regrowth.

A second plantation (known as Broadwood) mainly of Douglas Fir and Japanese Larch, is younger and shows less semi-natural growth.

There is also one area of semi-natural woodland (known as Treovis Wood) which retains some of the ancient woodland structure in parts but elsewhere is dominated by Beech and Birch.

The whole site is on steep sides of the Lyhner valley, which is a particularly well wooded catchment. There is open public access to the whole site and it is used frequently.

# HABITAT ASSESSMENT

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## FEATURES SUMMARY

<b>Cmpt.</b>	<b>Feature</b>	<b>Area</b>	<b>NVC</b>	<b>Phase I</b>	<b>%</b>
1a	Mature Douglas Fir plantation	1.9	W10	A.1.3.2	13
1bi	Regenerating Douglas Fir plantation with Semi-Natural Woodland	2.3	W10	A.1.3.2	16
1bii	Mature Douglas Fir plantation with Sweet Chestnut coppice under.	0.3	W10	A.1.3.2	2
1c	Western Red Cedar Plantation remnant ground flora	0.4	W10e	A.1.3.2	3
2a	Mixed Coniferous plantation with ancient hedge banks	1.5	unclassified	A.1.2.2	10
2bi	Mixed Broadleaved plantation, heathy outcrops	1.6	unclassified	A.1.1.2	11
2bii	Wet Grassland	0.2	MG10a	B.2.1/B.5	1
2c	Mixed Coniferous plantation large area of windthrow River	1.4	unclassified	A.1.2.2 G.2.2	10 0
3a	Hazel and Birch scrub woodland	0.9	W10c	A.1.1.1	6
3bi	Beech and Birch dominated woodland with Holly	2.9	W14	A.1.1.1	20
3bii	Flush woodland with Ash	0.3	W7a	A.1.1.1	2
3biii	Oak dominated over stood coppice	0.9	W10e	A.1.1.1	6

## WOODLAND FEATURES ASSESSMENT

### **Main species**

The plantation woodlands are mostly mixtures of Douglas Fir (*Pseudotsuga menzeisii*). On the eastern side of the river they are well understocked with either Beech and (*Fagus sylvatica*), Holly (*Ilex aquifolium*), Sweet Chestnut (*Castanea sativa*), or more diverse mixtures of Ash (*Fraxinus excelsior*), Hazel (*Corylus avellana*), Downy Birch (*Betula pubescens*) and Sycamore (*Acer pseudoplanatus*), with occasional specimens from the previous communities. There is also here one small plantation of Western Red Cedar (*Thuja plicata*) with some Ash and Hazel regrowth underneath.

The plantation on the western side of the river has some large blocks of Japanese Larch (*Larix kaempferi*). There is very little sub-canopy under these plantations but canopy gaps and relict hedge banks show old growth of Oaks (*Quercus petraea/robur* hybrids).

The riverside has a mixed canopy of Alder (*Alnus glutinosa*) and Ash with some re-growth of Downy Birch (*Betula pendula*). On the western slopes and riparian flats there has been recent broadleaved planting of Oak and Silver Birch (*Betula pendula*), which is much interspersed with natural regrowth of Alder, Oak and Downy Birch.

The semi-natural woodland has three significant canopy mixtures. One is an area of recent re-growth dominated by Hazel and Downy Birch. The

main part of the woodland is a Beech dominated canopy with either Holly or Downy Birch as the main associate although there are a good number of Oaks in here. Past a large wet flush dominated by Ash and Sycamore, the furthest part of the semi-natural woodland is made up of Oak canopy here more strongly Sessile Oak (*Quercus petraea*) with holly and hazel under.

**Other species**

Rowan (*Sorbus aucuparia*) is the most common sub-dominant associate occurring in the semi-natural regrowth under the eastern plantation and occurring with some frequency in the semi-natural woodland, particularly in the recent regrowth. Elder (*Sambucus nigra*) occurs often under the plantations particularly the more dense western side. Guelder Rose (*Viburnum opulus*) occurs frequently along the river bank.

**Canopy Cover**

Canopy cover through the woodland varies considerably. The larger Douglas Fir plantations on the eastern slope are well spaced enough to allow significant coppice growth underneath them, although regrowth in felled areas is dense, and both coppice regrowth and natural regeneration have been relatively unhindered. The canopy will, however, have to be thinned further if the natural regrowth is to be encouraged beyond pole stage.

The plantations on the western side are more closed in general. A large windthrow has created a significant canopy gap but this is in one block and expands the existing gap created by the previous fell. Whilst regeneration will be further benefited, habitat benefits usually associated with canopy gaps will be less significant with one large gap than with many smaller gaps.

Canopy cover in the semi-natural woodland is not broken enough to ensure regeneration, light is already limited by the Northerly aspect and the prevalence of Beech and the canopy will need to be much more broken to ensure continuous cover with gaps of at least 0.3Ha.

Canopy cover along the river bank is less significant in terms of regeneration, but allowing light to reach the river in places is important to the river's ecology and fish stocks, particularly significant as the river has recent records of Otter (*Lutra lutra*).

**Age range**

The Larger Douglas Fir are >80yrs old interspersed with regrowth from about 5-10 yrs. The remaining plantation timber is even aged around 40yrs. The semi-natural woodland is also relatively even aged, falling into three main groups; younger growth in one area about 10-15 yrs and 30-40 yrs in the Beech.

The Old Oak is difficult to age accurately because it is all over stood coppice growth, but from stool circumference it would be well in excess of 300yrs.

An even aged structure puts the woodland at greater risk from large destructive events such as freak storms which in small woodlands can threaten the continuity of the habitat.

**Structural Diversity**

The Eastern Douglas Fir plantation is well structured, even though there appears to have been only one felling recently, the range of species in the regrowth and the spacing of the Douglas Fir standards has allowed a full

range of canopy heights to develop. There is also a good range of density among the regrowth.

The Western plantation has some structural range around the wind throw but it is not well interspersed or graded and is absent within the plantation. These small blocks of structurally uniform plantations, however, do not impose heavily on the habitat value of the woodland because of the surrounding diversity.

The Semi-natural woodland is more significant in its lack of structural diversity, particularly in the Beech dominated areas. A range of canopy and sub-canopy heights encourages a wider range of nesting birds, and invertebrates as well as allowing different light conditions, particularly important on Northerly slopes.

### **Timber Spacing**

The Older Douglas Fir is spaced at approximately 10m, the Japanese Larch and Younger Douglas is at 4-6m. The new broadleaved plantation has been spaced at 3m.

### **Under. Spacing**

There is no commercial under wood.

### **Regeneration**

Regeneration in the Eastern Douglas Fir plantation is good, both Douglas Fir and native species are well represented and in sufficient density to ensure continuous cover.

Regeneration in the remaining plantations is entirely absent, although the survival within them of relict hedges and sporadic native trees would provide a good seed source given sufficient canopy gaps.

Regeneration in the semi-natural woodland is limited to the shade bearing species Beech, Holly and Sycamore. Only in the wet flushes has Ash managed to reach pole stage, but it is unlikely to grow further without more light. In conditions such as these, Beech will increase its dominance of the canopy if left unmanaged.

### **Ground Flora**

There are five distinctive ground flora assemblages in the woodland.

Firstly under the eastern plantation, particularly on the outskirts of the Western Red Cedar and upper slope, there is a good relic population of woodland herbs dominated by Bluebell (*Hyacinthoides non-scripta*) in the upper parts and by Wood Anemone (*Anemone nemorosa*) and Primrose (*Primula vulgaris*) around the Western Red Cedar. These species respond well to the light conditions within a medium cycle coppice regime.

Remaining areas of this compartment are dominated by Bramble (*Rubus* agg.) but with some significant outcrops of Wood Sorrel (*Oxalis acetosella*) and Greater Woodrush (*Luzula sylvatica*) but lacking the grasses typical of W11 woodlands.

Along the less wooded part of the riparian zone it is open enough to allow the development of wet grassland with Yorkshire Fog (*Holcus lanatus*), Soft Rush (*Juncus effusus*) and Marsh Thistle (*Cirsium palustre*). On the rock outcrops above this section of river is an acidophilous assemblage of Bilberry (*Vaccinium myrtillus*) and Common Cow-wheat (*Melampyrum pratense*) grading to Ling (*Calluna vulgaris*) across the slope. On the open ground here there is *Atrichum tenellum* a Red Data Book Listed moss of open acidic disturbed ground.

The ground flora in the semi-natural woodland is less diverse than that under the Eastern plantation, dominated by Ivy (*Hedera helix*) and Bramble in most places with Wood Sage (*Teucrium scorondium*) in patches under the regrowth. Greater Woodrush increases in cover towards the older Oak part of the wood and typical wet flush species such as Opposite leaved Golden Saxifrage (*Chrysoplenium oppositifolium*) are present in these habitats.

The rocky stream edge is the most significant plant habitat in the woodland. There are good populations here of Wilson's Filmy fern (*Hymenophyllum wilsonii*) and the similar Tunbridge Filmy Fern (*Hymenophyllum tunbridgiense*) has been recorded in the area and the two often grow together. Both are Red Data Book listed plants. Of more significance than the vascular flora here is the bryophyte flora containing a huge range of species including *Sphagnum quinquefarium*, rare in this part of Cornwall. Unlike typical vascular plants of the woodland floor, these pteridophytes and bryophytes do not respond well to increased light of variable condition but need constant humidity levels, management around the stream should concentrate on continuous cover. A full bryophyte list is included in this survey.

#### **Nvc**

The original woodland flora under the eastern plantation show a strong correlation with W10e *Quercus robur* – *Pteridium aquilinum* – *Rubus fruticosus* Woodland *Acer psuedoplanatus* *Oxalis acetosella* sub-community even though the tree species were not dominant enough to classify. The wet grassland by the river is mostly MG10a *Holco-Juncetum effusi* Rush Pasture with occasional S23 water margin vegetation. The plantations on this side of the valley are not diverse enough to warrant NVC classification, although the small acidic outcrop is likely to be W16b *Quercus spp.* - *Betula spp.* - *Deschampsia flexuosa* Woodland *Vaccinium mytilus* – *Dryopteris dilatata* sub-community. The semi natural woodland is not clearly defined, but grades between W14 *Fagus Sylvatica* - *Rubus fruticosus* Woodland where Beech dominates, through W7 *Alnus glutinosa* – *Fraxinus excelsior* – *Lysimachia nemorum* Woodland in the wet flushes to W10e *Quercus robur* – *Pteridium aquilinum* – *Rubus fruticosus* Woodland *Acer psuedoplanatus* *Oxalis acetosella* sub-community where Oak regains dominance. Again even though the upper slopes become quite acidic, they lack the grasses of W11.

#### **Geology**

The woodland is on the boundary between the moorland Granites and the Devonian Mudstones and both rock types break the surface with Granite being limited to occasional outcrops in the highest part of the woodland.

#### **Soil**

Soils are almost entirely Brown Earths slightly to moderately acidic and gleyed in places. They are thin on the slopes and easily eroded but tracks and exposure from felling. Long, down-slope felling coupes and tracks should be avoided.

#### **Drainage**

Drainage is generally good, there are some patches of wet ground near the river but these are open at present.

<b>Catchment</b>	The woodland drains directly into the River Lyhner, a particularly well wooded catchment with good habitat value including records of Otter.
<b>Aspect</b>	The woodland covers West, East and North facing slopes.
<b>Exposure</b>	The worst exposure in the woodland is on the western side of the river where there is a gap in the valley creating a wind tunnel from the North. The plantation here has already been thrown when the outer edge was removed during earlier operations. The broadleaved plantation in its place will be less vulnerable, but still good structural diversity will be essential on this slope.
<b>Deadwood</b>	<p>There is inadequate deadwood throughout the woodland. Deadwood supports a specific range of invertebrate which would otherwise be absent from the wood.</p> <p>There is potential also for coarse woody debris to build up in the smaller river of the semi-natural woodland which is again a specific, but scarce habitat.</p> <p>All naturally fallen timber should be left in place. Clearance of the wind-thrown plantation would not have a significantly detrimental impact on the deadwood habitat in the woodland because the area is so exposed, although some timbers should be left in place.</p>
<b>Ancient Trees</b>	There are no ancient trees within the woodland.
<b>Other Habitats</b>	The wet grassland, whilst not being of particular wildlife significance of its own is a valuable contribution to the open ground in the woodland and should be retained.
<b>Network links</b>	There is ancient woodland adjacent to the site as well as good connectivity down the Lyhner Valley and the generally well hedged landscape. The site is, however, on the moorland boundary and migration from up the valley is unlikely.
<b>Visibility</b>	The woodland is visible from a few private dwellings adjacent to it and forms a significant feature of the landscape because of its visibility from the moors.
<b>Timber Quality</b>	<p>The Mature and Semi-mature Douglas Fir is of high quality and the Japanese Larch acceptable.</p> <p>The Western Red Cedar is a valuable timber but the current crop is too young to harvest and it should be noted that bringing this crop to harvestable age would conflict with the potential for restoration of the relic ground flora beneath it.</p>
<b>Animal Damage</b>	Browsing by Deer is remarkably low considering the wooded landscape. Regeneration seems to be relatively unhindered.
<b>Access</b>	There is full permissive access to the whole woodland as well as one statutory public footpath. The access in part is historical and could not be

receded.

## **Management**

There has been one significant felling of Douglas Fir about 15 yrs ago in the eastern plantation.

The western Japanese Larch plantation was part felled about two yrs ago and re-planted with broadleaves.

The plantation above this has been sporadically thinned.

There is no evidence of recent management in the semi-natural woodland.

## NOTABLE SPECIES

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### SURVEY RESULTS

#### Previous Records

**Sources** National Biodiversity Network

**Records From**

1990

**Area**

3km of site

**Inclusion**

BAP and RDB listed species

**Species Recorded**

**Count**

**Notes**

Dormouse

*Muscardinus avellanarius*

>1 record

Otter

*Lutra lutra*

>1 record

Small Pearl-bordered Fritillary *Boloria selene*

>1 record

#### Surveys Carried Out

##### **Dormouse Survey**

**Method** Search of suitable habitat for nuts and nests

**Date By Location**

06/03/09 JB Cmpt 1

**Habitat**

Douglas Fir regeneration

**Conditions**

Varied

**Species Recorded**

**Count**

**Notes**

Dormouse

*Muscardinus avellanarius*

unconfirmed

nuts found in quantity  
tube survey in progress

##### **Bryophyte Survey**

**Method** Walk over site

**Date By Location**

24/04/09 BS Whole site

**Habitat**

**Conditions**

Drizzle, warm

**Species Recorded**

**Count**

**Notes**

List attached

### INTERPRETATION

The presence of Dormice requires specific management. The legal requirements are discussed under 'Constraints', but from a habitat point of view, they require three main features to be constantly in place; dense vegetation in the lower canopy, sufficient fruiting shrubs, lack of disturbance during summer. These can be achieved even during management operations by ensuring that cuts are made sequentially leaving un cut areas as refuges, piling brash in a line across the cut area to provide shelter, leaving shrub to develop at the edges of compartments and tracks and cutting only in the winter and early spring.

The significance of the rare bryophytes and implications for management is discussed under 'Ground Flora'.

## DESIGNATIONS

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<b>Area</b>	<b>Habitat/Species</b>	<b>Designation</b>
Cmpt 3	Semi-Natural Woodland	Ancient Semi-Natural Woodland
Cmpt 1-2	Plantation	Plantation on Ancient Woodland Site
Cmpt 2-3	Upland Oakwoods	BAP Priority Habitat
Cmpt 3	Filmy Fern ( <i>Hymenophyllum</i> spp.)	Red Data Book Listed Locally Rare
all	Otter ( <i>Lutra Lutra</i> )	Sch 5 Wildlife and Countryside Act BAP Listed Species
all	Dormouse ( <i>Muscardinus avellanarius</i> )	Red Data Book Listed Locally Rare Sch 5 Wildlife and Countryside Act BAP Listed Species
Cmpt 2	Plantation	WGS Woodland Creation Grant Scheme (2004)
Cmpt 3	<i>Atrichum tenellum</i> (a moss)	Red Data Book Listed Nationally Scarce

## MANAGEMENT PRESCRIPTIONS

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**Main Objective** To maintain and enhance the existing habitats whilst protecting designated species and making sustainable use of the timber resource.

**Threats** The main threat to the woodland is in the Ancient Semi-Natural Woodland through lack of management to break up its even-agedness and Beech dominance. In the plantations the main threats are windthrow and lack of native regeneration through inadequate felling.

**Constraints** The habitat of the Dormouse (*Muscardinus avellanarius*) is protected by several designation including the Habitats Regulations Which make illegal any damage to it or its habitat. Management will need to follow Natural England guidance. Public access will have to be constrained during management operations.

### OBJECTIVES

No	Objective	Indicator	Projects	
			Monitoring	Management
1	Maintain structural diversity sufficient to ensure natural regeneration.	Age range of trees.	Monitoring natural regeneration.	Selective Felling. Protect Natural Regeneration. Remove Non-native Beech And Sycamore Outside Felling Areas. Coppice Selected Coupe.
2	Create non-woodland habitats within 5-10% of the woodland area and increase deadwood habitat.	Area occupied by specified habitats.	(Habitat network map.)	Coppice Selected Coupe. Remove Tree Cover Streamside. Cut Back Scrub From Grassland. Cut Ride/track/boundary Edge. Deadwood Management. (Pond Creation.)
3	Maintain invasive and non-native species levels below 5% in ASNW.	Area occupied by specified spp..	Monitoring invasive spp.	Selective Felling. Remove Non-native Beech And Sycamore Outside Felling Areas.
4	Increase native cover in PAWS including remnant ground flora.	Area of native cover	Monitoring native cover in PAWS.	Selective Felling. Coppice Selected Coupe. Protect Natural Regeneration. Remove Non-native Beech And Sycamore.
5	Create access network to facilitate both woodland management and permissive public access.	Presence of network.		(Create Forestry Access Track.) (Build Footbridge.) (Create Disabled Access Path.) Maintain Footpaths. (Build Shelter/hide For Public Use.)

6	Identify and maintain populations of designated species.	Population of spp.	Monitoring designated spp.	(Species Management Plans.)
7	Generate income from timber and woodland resources to fund management.	Cash flow		(Timber Sales And Conversion.) (Other Woodland Activities.)

Projects within brackets have separate specifications not included in this management plan.

## **MANAGEMENT PROJECTS**

No	Project	Season	Cmpt	Area (ha)
1	<b>Selective Felling</b> – Fell marked area, leave all marked trees and regeneration of native species. Cut timber to specified length and stack trackside. Cut and pile brush.	November to March	3b	0.3
			1c	0.5
2	<b>Protect natural regeneration</b> – Walkthrough and find natural regeneration. Protect with cane and rabbit guard where significant browsing damage has been observed. Remove protection from outgrown trees.	April, May	all	
3	<b>Remove non-native Beech and Sycamore outside felling areas</b> – Fell marked non-native trees. Cut timber to specified length and stack trackside. Cut and pile brush.	November to March	all	
4	<b>Coppice Selected Coupe</b> – Cut stems from stool to near ground level (cut through main stem where shoots emerge too high). Reserve suitable shoots to layer into gaps to maintain at least one stool per 10m <sup>2</sup> . Leave all trees marked as standards including singling coppice stools where marked. Cut timber to specified length and stack trackside. Cut and pile brush.	November to March	3a	0.5
			1b	0.8
5	<b>Remove Tree Cover Streamside</b> – Fell selected trees as marked. Cut timber to specified length and stack trackside. Cut and pile brush. Operation to be repeated once regrowth is established.	November to March	2b	n/a
6	<b>Cut Back Scrub From Grassland</b> – Remove significant scrub encroachment from marked open area.	November to March	2b	0.1
7	<b>Cut Ride/Track/Boundary Edge</b> – Create, by felling, 3m edges to compartment boundaries and tracks as marked. Cut timber to specified length and stack trackside. Cut and pile brush. Operation to be repeated every 6 years on shrub growth and every 3 years on tall herb growth.	November to March	all	n/a
8	<b>Deadwood Management</b> – All natural fallen or standing deadwood to be left where safety assessment allows.		all	

## MONITORING PROJECTS

Project [spec, timing]	Cmpt	Area
<b>Monitoring Natural Regeneration</b> – Done as part of walkthrough in regeration project	all	
<b>Monitoring Invasive Species</b> – Done as part of walk through in invasive Sycamore and Beech project	all	
<b>Monitoring Designated Spp.</b> – Assess by walkthrough, the extent of Filmy fern <i>Hymenophyllum spp.</i> and identify species. Note occurrence of Otter sign (spraint, tracks, holts), Dormouse sign (nuts, nests) and other notable species in central record to be created.	all	