



COED CADW  
WOODLAND  
TRUST

# Coed Nant Gwernol and Coed Hendrewallog

## Management Plan

# 2017-2022

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## THE WOODLAND TRUST

### INTRODUCTION

The Trust's corporate aims and management approach guide the management of all the Trust's properties, and are described on Page 4. These determine basic management policies and methods, which apply to all sites unless specifically stated otherwise. Such policies include free public access; keeping local people informed of major proposed work; the retention of old trees and dead wood; and a desire for management to be as unobtrusive as possible. The Trust also has available Policy Statements covering a variety of woodland management issues.

The Trust's management plans are based on the identification of Key Features for the site and setting objectives for their management. A monitoring programme (not included in this plan) ensures that these objectives are met and any necessary management works are carried out.

Any legally confidential or sensitive species information about this site is not included in this version of the plan.

### PLAN REVIEW AND UPDATING

The information presented in this Management plan is held in a database which is continuously being amended and updated on our website. Consequently this printed version may quickly become out of date, particularly in relation to the planned work programme and on-going monitoring observations. Please either consult The Woodland Trust website [www.woodlandtrust.org.uk](http://www.woodlandtrust.org.uk) or contact the Woodland Trust ([wopsmail@woodlandtrust.org.uk](mailto:wopsmail@woodlandtrust.org.uk)) to confirm details of the current management programme.

There is a formal review of this plan every 5 years and a summary of monitoring results can be obtained on request.

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## WOODLAND MANAGEMENT APPROACH

The management of our woods is based on our charitable purposes, and is therefore focused on improving woodland biodiversity and increasing peoples' understanding and enjoyment of woodland. Our strategic aims are to:

- Protect native woods, trees and their wildlife for the future
- Work with others to create more native woodlands and places rich in trees
- Inspire everyone to enjoy and value woods and trees

All our sites have a management plan which is freely accessible via our website [www.woodlandtrust.org.uk](http://www.woodlandtrust.org.uk). Our woods are managed to the UK Woodland Assurance Standard (UKWAS) and are certified with the Forest Stewardship Council® (FSC®) under licence FSC-C009406 and through independent audit.

In addition to the guidelines below we have specific guidance and policies on issues of woodland management which we review and update from time to time.

We recognise that all woods are different and that the management of our sites should also reflect their local landscape and where appropriate support local projects and initiatives. Guidelines like these provide a necessary overarching framework to guide the management of our sites but such management also requires decisions based on local circumstances and our Site Manager's intimate knowledge of each site.

The following guidelines help to direct our woodland management:

1. Our woods are managed to maintain their intrinsic key features of value and to reflect those of the surrounding landscape. We intervene when there is evidence that it is necessary to maintain or improve biodiversity and to further the development of more resilient woods and landscapes.
2. We establish new native woodland using both natural regeneration and tree planting, but largely the latter, particularly when there are opportunities for involving people.
3. We provide free public access to woods for quiet, informal recreation and our woods are managed to make them accessible, welcoming and safe.
4. The long term vision for our non-native plantations on ancient woodland sites is to restore them to predominantly native species composition and semi-natural structure, a vision that equally applies to our secondary woods.
5. Existing semi-natural open-ground and freshwater habitats are restored and maintained wherever their management can be sustained and new open ground habitats created where appropriate.
6. The heritage and cultural value of sites is taken into account in our management and, in particular, our ancient trees are retained for as long as possible.
7. Woods can offer the potential to generate income both from the sustainable harvesting of wood products and the delivery of other services. We will therefore consider the potential to generate income from our estate to help support our aims.
8. We work with neighbours, local people, organisations and other stakeholders in developing the management of our woods. We recognise the benefits of local community woodland ownership and management. Where appropriate we allow our woods to be used to support local woodland, conservation, education and access initiatives.
9. We use and offer the estate where appropriate, for the purpose of demonstration, evidence gathering and research associated with the conservation, recreational and sustainable management of woodlands. In particular we will develop and maintain a network of long-term monitoring sites across the estate.
10. Any activities we undertake will conform to sustainable forest management principles, be appropriate for the site and will be balanced with our primary objectives of enhancing the biodiversity and recreational value of our woods and the wider landscapes.

## SUMMARY

This public management plan briefly describes the site, specifically mentions information on public access, sets out the long term policy and lists the Key Features which drive management actions. The Key Features are specific to this site - their significance is outlined together with their long (50 year+) and short (5 year) term objectives. The short term objectives are complemented by a detailed Work Programme for the period of this management plan. Detailed compartment descriptions are listed in the appendices which include any major management constraints and designations. A short glossary of technical terms is at the end. The Key Features and general woodland condition of this site are subject to a formal monitoring programme which is maintained in a central database. A summary of monitoring results is available on request.

## 1.0 SITE DETAILS

<b>Site name:</b>	Coed Nant Gwernol and Coed Hendrewallog
<b>Location:</b>	Abergynolwyn
<b>Grid reference:</b>	SH683063, OS 1:50,000 Sheet No. 124
<b>Area:</b>	15.79 hectares (39.02 acres)
<b>Designations:</b>	Ancient Semi Natural Woodland, National Park, Planted Ancient Woodland Site

## 2.0 SITE DESCRIPTION

### 2.1 Summary Description

Take a ramble along the stunning Nant Gwernol river as it cascades down from the hills and get close to some of our most elusive wildlife at Coed Nant Gwernol and Coed Hendrewallog. Roam the riverside trail under a canopy of ancient and new woodland. Highlights include expansive views of Cader Idris, waterfalls and the ruined mine workings of Bryn Eglwys quarry.

## 2.2 Extended Description

Occupying the eastern side of the narrow valley of the upland stream from which it takes its name, natural parts of Coed Nant Gwernol are typical upland oakwood with a developing understorey of hazel and other shrubs. Local flushing produces conditions which encourage areas of ash with hazel understorey and localised sycamore.

Other sectors have been affected by coniferisation: two blocks nearest Abergynolwyn were felled in the 1980s and one restocked with native broadleaves, the other with a larch / oak mix; a block of older larch farther upstream was felled in 2002 and restocked with native broadleaves.

Fringes of pasture enclosed with the woodland in 1993 were already slowly turning to scrub when in 2000 Coed Cadw acquired 4.6 hectares of adjoining fields and planted them as part of the Woods On Your Doorstep project and named them Coed Hendrewallog. The new woodland covers 2 separate parcels of previous rough grazing and corridors of open ground have been left unplanted to retain various views.

The unclassified road along the north-eastern boundary provides restricted management access via three new field gate entrances. Leading off the road are several new permissive pedestrian footpaths, including a spinal route through the new planting and a public footpath which crosses the site to join the established riverside footpath through Coed Nant Gwernol. The latter path passes next to waterfalls and pools and provides a very attractive walk which features in publicity produced by the Talylyn Railway (who have an access point for visitors to the wood from their nearby terminus) and Natural Resources Wales (who promote extensive walks including two circuits passing through Trust property). A new path was built at the southern end of Coed Nant Gwernol in 2004 to provide a further link with the paths in Coed Hendrewallog.

There is restricted parking at the entrance into Coed Hendrewallog closest to Abergynolwyn, but access is encouraged by walking from the village or the Nant Gwernol station nearby.

Adjoining land to the north and east is grazed rough pasture. Across the river is woodland, much of it planted ancient woodland, managed by Natural Resources Wales.

The key features of the site are:

Connecting People with Trees and Woods  
Ancient Woodland Site  
New Native Woodland

## 3.0 PUBLIC ACCESS INFORMATION

### 3.1 Getting there

Coed Nant Gwernol and Coed Hendrewallog are near the village of Abergynolwyn, on the B4405 in Meirionnydd, 19km (approx. 12 miles) south-west of Dolgellau.

**By train**

The nearest train station is 11.3km (seven miles) away at Tywyn. The Talyllyn Railway terminus station adjoins the main line station and their trains run right to Coed Nant Gwernol. The timetable alters seasonally (see their website [talyllyn.co.uk](http://talyllyn.co.uk) or phone 01654 710472).

**By bus:**

Bus service 30 travels between Tywyn and Dolgellau via Abergynolwyn.

Check out the times and route at [traveline.cymru](http://traveline.cymru) or phone 0800 464 0000.

**By car:** From the A487 northbound, turn left onto the B4405 just after Corris for Abergynolwyn.

From the A487 southbound, turn right onto the B4405 just after the Minffordd pub for Abergynolwyn.

**Parking.**

While it is possible to drive up the narrow, steep and winding road to the entrances into the wood's northern boundary, it is not recommended as the route has several gates, and parking is only possible at the second entrance where there is only room for one or two cars. Visitors are strongly recommended to park in the public car park in the village centre (there is a convenient café and pub nearby). Turn into the narrow lane which goes alongside the Ganolfan community centre in the middle of the village. This road climbs very steeply as it leaves the village and has some sharp turns. Enter via a path heading right, off the road on the first bend. Or access from the Talyllyn railway.

## 3.2 Access / Walks



Coed Nant Gwernol and Coed Hendrewallog can be reached via a public footpath from either a parking area by the community café in the centre of Abergynolwyn, or from the nearby Nant Gwernol station on the Talylynn Railway, a heritage railway linking Abergynolwyn and Tywyn (parking for around 10 cars).

The neighbouring woodland is managed by Natural Resources Wales who maintain waymarking for two trails passing through the wood.

A public footpath allows access along a track linking to the old gated quarry road from the northern end of the site. Additional permissive paths and three further stile access points were installed along the north-eastern boundary in Coed Hendrewallog in 2000.

Leading off the road are several new paths, including a route through the new planting and a footpath which crosses the site to join the riverside path through Coed Nant Gwernol which passes waterfalls and pools. A new path was built at the southern end of Coed Nant Gwernol in 2004 to provide a further link with the paths in Coed Hendrewallog.

Paths in Coed Nant Gwernol are earth and rock, with some slate chip and often narrow in places. There are several flights of steps, some of which are made from exposed bedrock and are typically wet. Handrails and footbridges are provided in places. Paths in Coed Hendrewallog are grassy.

Benches are provided at several locations and there are three interpretation panels at the main entrance points.

#### Cascade Trail 1.6km/one mile, Moderate

The Cascade Trail climbs uphill, closely following the tumbling river. It then crosses a wooden bridge onto the old tramway and descends steeply alongside part of the old Allt Wylt incline back to Nant Gwernol station.

#### Quarryman's Trail 6.4km (four miles), Strenuous

This is a fairly strenuous walk with long climbs and steep descents. Highlights include expansive views of Cader Idris, waterfalls and the ruined mine workings of Bryn Eglwys quarry.

The Talylynn Railway publish a booklet called 'Talylynn Railway Walks', one of which includes a walk through Coed Nant Gwernol. Natural Resources Wales maintain waymarked trails in their adjoining Nant Gwernol forest, two of which pass through Coed Nant Gwernol; a leaflet describing the trails is available from their website ([naturalresources.wales](http://naturalresources.wales)) and from the Talylynn Railway and local tourist information centres.

## 4.0 LONG TERM POLICY

Visitors to Coed Nant Gwernol & Coed Hendrewallog will be aware of the special features of the wood and of the Trust's role in caring for it. Locals, walkers and families will use local amenities such as the café or railway station and will discover the site on foot from these locations. Visitors will feel welcome to explore the woods and will have the option of a moderate or strenuous circular walk, promoted in conjunction with our neighbours. Signage and walking events will encourage visitors to support the Trust, as members or volunteers. On-going maintenance and replacement of the visitor infrastructure will therefore be required.

Coed Nant Gwernol will remain a high forest, largely dominated by oak but with a variety of other canopy species present. There will be a well-developed understorey comprising site native shrubs, notably hazel, and including locally frequent regeneration of native trees. The age structure will diversify over time, with many mature trees retained to senescence and an increasing volume of standing and fallen deadwood. The ground flora will be typical of ancient woodland, with a mix of ericaceous ground flora, Atlantic mosses and woodland wildflowers according to soil conditions, with occasional bramble and bracken in the field layer. The habitat will therefore remain suitable for BAP species such as bats, dormice and otters, which forage in riparian woodland.

Over time, the planted woodland will establish: planted trees will reach early maturity/ reproductive age and the area will develop a ground and field layer that contains some of the species typical of the mature woodland below (at which point the key features can be combined). Planting will be supplemented by natural regeneration, providing a buffer to the existing woodland. Pockets of open ground and scrub to the margins will provide a transition zone between the wood and the open hill. Invasive species will be rare or absent and browsing/ pests and diseases will not impact significantly on the ability of the wood to regenerate.

There will typically be limited need for intervention in the habitat, except to complete the restoration of the remaining threatened PAWS stand and to control threats such as rhododendron and conifer regeneration.

## 5.0 KEY FEATURES

The Key Features of the site are identified and described below. They encapsulate what is important about the site. The short and long-term objectives are stated and any management necessary to maintain and improve the Key Feature.

### 5.1 Connecting People with woods & trees

#### Description

Coed Nant Gwernol & Coed Hendrewallog is an attractive woodland located in the village of Abergynolwyn. It is accessible via a public footpath from a parking area (c. 10 cars) by the community café in the village centre, or from the nearby Nant Gwernol station on the Talyllyn Railway (a heritage railway linking Abergynolwyn and Tywyn). The neighbouring woodland is managed by Natural Resources Wales, who maintain waymarking for two trails passing through the wood. The yellow 'Cascade Trail' is a 1 mile moderate grade loop from Nant Gwernol station, which is linked to Coed Nant Gwernol on the eastern bank of the river by a footbridge (NRW). The Cascade Trail climbs uphill, closely following the tumbling river. It then crosses a wooden bridge (exiting Trust land) onto the old tramway and descends steeply alongside part of the old Allt Wylt incline back to Nant Gwernol station. The blue Quarryman's Trail is a four mile strenuous walk, which continues upstream from the wooden footbridge past the waterfall and follows a steep set of steps through the new planting of Coed Hendrewallog, where it leaves the wood through a kissing gate and loops round past Bryn Eglwys quarry. Highlights include expansive views of Cader Idris, waterfalls and the ruined mine workings of Bryn Eglwys quarry. NRW recently installed branded signage in the village car park to promote the local walks.

A public footpath also provides public and management access along a track linking to the old gated quarry road from the northern end of the site. When Coed Hendrewallog was purchased and planted in 2000 as part of the Woods on Your Doorstep scheme, additional permissive paths and three further stile access points were installed along the north-eastern boundary.

Paths in Coed Nant Gwernol are earth and rock, with some slate chip, often narrow and with revetments retaining the path edge in places. There are several flights of steps, some of which are made from exposed bedrock and are typically wet. Handrails and footbridges are provided in places. Paths in Coed Hendrewallog are grassy and typically uneven, as they have not been surfaced or recently benched. The main waymarked trails and the access from the village are well used by tourists and locals/ dog walkers, however, paths in Coed Nant Gwernol attract infrequent access. Benches are provided at several locations and there are three interpretation panels at the main entrance points (updated and replaced in 2017, along with all Trust Welcome signage, gates and stiles at the main entrance ways). NRW maintain branded directional signage to the Nant Gwernol station/ village.

The local population is relatively small, however, the wood lies within the Snowdonia National Park and is close to the popular walking area around Cader Idris. The heritage railway is one of the major draws to the area and runs a programme of events during the holiday season, from kids' crafts to 'race the train' events. Occasional use of the gorge of the Nant Gwernol by local outdoor centres has also been noted.

There was significant community involvement at the time of the Millennium planting, however there are no longer any formal volunteers and the Trust has not used the wood to host events in recent years.

Visitors to the wood currently comprise primarily mature walkers, although some older families staying in the locality may visit in the summer months, following waymarked routes particularly from the train station.

## Significance

The site is valued by local people as it provides accessible and extremely scenic walking opportunities on their doorstep year-round. The river and ancient woodland context are particularly appealing also to visitors, of interest to walkers, photographers and families using the train as the basis of a day out from popular local coastal resorts. There is significant historical interest in the locality, in particular archaeology associated with the old Bryn Eglwys slate quarry and redundant hydro that powered the slateworkers' cottages until the 1960s. Local walks and heritage are promoted by Natural Resources Wales (physical waymarking is supported by information available on the NRW PlaceTales App and a walks leaflet) and Nant Gwernol station is the final destination of the Talyllyn heritage railway.

The wood is located in Southern Snowdonia, an area where the Trust is focusing its efforts at a landscape scale. The vision is to 'promote the distinctive identity of the Meirionnydd Tree-scape, with the Trust at its heart, increasing visitor appreciation of woods and trees and encouraging everyone to explore beyond the key tourist areas.'

### **Opportunities & Constraints**

There is already good heritage information available about the site and visitors are directed to the site via the two circular trails maintained by NRW. The local infrastructure is good, including heritage rail links, nearby parking, toilets, café and pub facilities etc. There are opportunities to improve the visibility of the Trust's role through replacing entrance infrastructure and signage at all access points (in progress at the time of this plan review). There are also opportunities to provide guided walks tying in to the existing infrastructure e.g. from the café or as an excursion from the Nant Gwernol station in conjunction with partners: this could raise awareness of the Trust and the importance of ancient woodlands among key potential supporters, including mature walkers and older families, and would be a way in which local people could support the Trust as volunteers. There is an option to work in future with the local community to replace faded and illegible interpretation in the village centre to highlight the woodland walking opportunities for visitors.

The terrain in the valley is steep and the ancient woodland designation precludes any expansion of the path network within the ancient woodland area, or major surfacing works. The shallow soils and heavy rainfall necessitate regular maintenance and repairs of some of the gorge path sections. There are no 'easy' grade waymarked loops. Paths in Coed Hendrewallog are currently rough, although this could be resolved by benching them out if there was sufficient demand. There is no on-site parking or large open areas where groups could easily gather within the woodland. Increase off-path exploration could create desire lines especially on the river bank and potentially disturb wildlife.

### **Factors Causing Change**

Recent extreme weather events have caused damage to paths and infrastructure: this is likely to increase. The Trust relies on joint promotion of the walking trails and on external organisations such as the railway and community café to bring visitors into the area: if these initiatives were to cease, it would be difficult to engage with any non-local visitors.

### **Long term Objective (50 years+)**

Visitors to Coed Nant Gwernol & Coed Hendrewallog will be aware of the special features of the wood and of the Trust's role in caring for it. Locals, walkers and families will use local amenities such as the café or railway station and will discover the site on foot from these locations. Visitors will feel welcome to explore the woods and will have the option of a moderate or strenuous circular walk, promoted in conjunction with our neighbours. Signage and walking events will encourage visitors to support the Trust, as members or volunteers.

### Short term management Objectives for the plan period (5 years)

The Trust will engage more effectively with the existing visitor demographic in the area in a number of ways:

All signage and entrances will be renewed and new interpretation panels installed which feature the two waymarked trails (by end 2017), making the Trust's stewardship of the wood clear and highlighting the wood's special features, as well as orienting first time visitors.

As part of a cluster of Trust 'welcome sites' within Meirionnydd, by end 2019, walking opportunities at the site wood be promoted via a cluster booklet and a feature sculpture installed as a focal point. Gpx files and further information will be made available on the Trust website and guided walk leader volunteers will run a programme of scheduled and on-demand walks for local and tourist audiences.

The current path and viewpoint network and infrastructure will be maintained to a safe standard to provide varied walking opportunities, in particular the moderate Cascade and strenuous Quarryman's circular trails, with any significant weather damage rectified as soon as possible along these routes.

By the end of the plan period, volunteer walk leaders will have been recruited in North West Wales and will have instigated a basic programme of seasonal/ themed walks that raise awareness of the Trust and instil a love of woods and trees among visiting walkers and families. They will work with other local partners or attractions to plan and promote the events: at least one larger scale event will be held during the coming plan period, attracting new mature visitors/ older families to the site.

Subject to opportunity, by 2022, the Trust will work with partners as appropriate to signpost visitors to the site from other appropriate local information points e.g. the village car park and Cadair Idris, to help promote the local woodland walking opportunities and links to village amenities.

## 5.2 Ancient Woodland Site

### Description

Semi-natural areas of woodland of Coed Nant Gwernol generally comprise typical upland oakwood with a developing shrub understorey, notably hazel: mostly W11 NVC type with abundant bluebell in ground flora, tending to W17 with ericaceous flora in drier places. In scattered pockets on sweeter flushes near to the Nant Gwernol, ash and hazel woodland occurs (NVC type W9), with ferns and bluebell common in the ground flora, together with localised ramsons and wood anemone. *Tilia cordata* and *Ulmus glabra* are present in the gorge at the south-eastern extremity (compartment 4b). A light thinning of oak was carried out in compartments 3a and 4b in 2002. The woodland habitat is enhanced by its position next to Nant Gwernol which is an attractive upland stream, subject to rapid rises according to rainfall, and is characterised by waterfalls and deep pools, running in places in sections of gorge. A tributary stream which forms the boundary between compartments 2 and 3 also runs in a steep gorge.

There are three zones of planted ancient woodland. At the north-west tip of the wood, an area of conifer was clearfelled in 1990 and restocked with broadleaf: this area is now considered 'restored', with a closed broadleaf canopy and AWI flora. The second is a plantation of Japanese larch (with some planted oak): following thinning in 2002 and 2014 to favour the oak, this area is starting to develop a more semi-natural structure with a mossy ground layer and developing understorey. A third, older pure plantation of larch was felled in 2002 and restocked with native broadleaves (mainly oak and ash). This too is now considered restored, as AWI flora is recovering and canopy closure achieved.

### Significance

The woodland is an ancient woodland - in itself scarce and irreplaceable - and comprises two UK Biodiversity Action Plan (BAP) and European priority woodland habitats: upland oakwood [W11/17] and upland mixed ashwoods [W9]. During the last plan period it was discovered that the wood is home to dormice (Section 7 and European Protected Species), limited in distribution in the UK and thought to be declining: these are probably part of a meta-population linked to Pant Perthog near Corris, however, population distribution and size is not known. The woodland habitat is likely to be of value to a number of fauna groups/species including invertebrates, birds and bats and otters may on occasion use the riparian corridor, although there are no known records. A lichen survey also indicated some species of interest. The restoration of planted ancient woodland is the only way to expand the area of ancient semi-natural woodland habitat in the UK.

### Opportunities & Constraints

The restoration of former conifer stands to semi-natural broadleaved woodland is already well advanced: one or two further interventions should be sufficient to render the whole site restored. There is strong natural regeneration of site-native species, with particularly good coverage of hazel and other shrub species, allowing a diverse and multi-layered structure to develop rapidly in the absence of grazing. The wood is well connected in the landscape, which should help to improve its resilience to factors such as climate change and disease and allow species to move through the landscape.

There is poor management access to much of the site, although it is unlikely that significant silvicultural management operations would in any case be desirable in the foreseeable future. The popularity of the wood with walkers will necessitate some tree safety management along the footpath network, however, in much of the site, trees can be retained to senescence and deadwood retained in situ.

The confirmed presence of dormice will require adherence to best practice to avoid disturbance or harm, as per an environmental assessment, and specific high impact operations, if proposed, could require a licence. There may be opportunities for suitably licensed volunteers to establish a monitoring programme to learn more about the local population.

### **Factors Causing Change**

The arrival of ash dieback is likely to shift the species composition on the milder soils, with sycamore likely to occupy much of the niche it leaves behind.

The adjacent conifer plantations managed by Natural Resources Wales will provide a seed source of conifer in the medium to long term, which may require control if it establishes and increases. Management decisions in adjacent woodland/ ancient woodland could impact on habitat connectivity or lead to greater exposure/ windblow (if widespread clearfell was undertaken).

Rhododendron is rare, however may reinvade from sources in the wider landscape.

Coarse vegetation is currently occasional, but could expand into areas of windblow or in response to increase in nitrogen deposition or warming temperatures.

If proposals for a new hydro scheme on the Nant Gwernol were to be resurrected, this could cause localised damage to ancient woodland and modify river levels and humidity.

Browsing impacts and the impact of pests such as squirrels are currently insignificant, however, livestock trespass, deer population growth or invasion by grey squirrels could in the long term impact on the wood's ability to regenerate or on ground flora diversity.

### **Long term Objective (50 years+)**



Coed Nant Gwernol will remain a high forest, largely dominated by oak but with a variety of other canopy species present. There will be a well-developed understorey comprising site native shrubs, notably hazel, and including locally frequent regeneration of native trees. The age structure will diversify over time, with many mature trees retained to senescence and an increasing volume of standing and fallen deadwood. The ground flora will be typical of ancient woodland, with a mix of ericaceous ground flora, Atlantic mosses and woodland wildflowers according to soil conditions, with occasional bramble and bracken in the field layer. The habitat will therefore remain suitable for BAP species such as bats, dormice and otters, which forage in riparian woodland.

The remaining PAWS stand will be restored, with a canopy comprising >80% native broadleaves, a developed understorey and robust ground flora, however, scattered larch and pine may still be retained on the upper slopes.

In time, new native woodland in Coed Hendrewallog will come to resemble the ancient woodland in species composition and ground flora, providing a buffer and transition zone between high forest and the rough open ground above.

Invasive species will be rare or absent, with no increase in conifer cover, and browsing/ pest impacts will not impede the wood's ability to regenerate or significantly deplete the ground/ field layer vegetation.

Ideally, plantations on adjacent ancient woodland sites would also be restored, broadening the extent and resilience of the oakwood habitat at Nant Gwernol and providing optimal habitat for species such as dormice.

#### **Short term management Objectives for the plan period (5 years)**

Rhododendron and conifer regeneration will be rare, with no reproductive specimens: this will be achieved by periodic monitoring and manual control by pulling of seedlings/ cutting of conifer saplings as required. Disturbance of dormice during routine maintenance works will be avoided by adherence to best practice as set out in an environmental assessment, to be reviewed alongside the management plan on a five yearly basis.

The proportion of conifer in the canopy of PAWS zone 2 will be further reduced by a 20% thin to waste (possibly by ring-barking, to minimise the risk of harm to dormice) toward the end of the current plan period, releasing planted and regenerating broadleaves and achieving a basal area in the mid teens to encourage regeneration. On re-assessment in 2022, the stand will be deemed secure/ robust.

In five years time, the woodland condition assessment will not identify any major changes: natural regeneration will remain at least locally frequent and the understorey, field and ground layers will continue to develop with abundant site native species. While some loss of ash is to be expected, no significant canopy gaps or spikes of coarse vegetation are expected to result.

## 5.3 New Native Woodland

### Description

Coed Hendrewallog comprises areas of former rough pasture and bracken planted with native broadleaved trees and shrubs during 2000 under the Woods On Your Doorstep project. Coed Nant Gwernol, when purchased by the Trust in 1993, also included some areas of open ground to its upper edge: these have been allowed to gradually infill with natural regeneration following the control of dense bracken. Planting includes sessile oak, ash, alder, hazel, crab apple, hawthorn and rowan. Unplanted corridors retain views down to the Dysynni valley, over Abergynolwyn, across to Bryneglwys quarry and to other local features. The planting provides a buffer upslope of the ancient woodland areas and a transition between high forest and the open hill.

### Significance

Planting and regeneration extends the existing semi-natural ancient woodland and widens the buffer zone around the gorge's humid micro-climate. It also provides landscape benefits in contrast with the extensive conifer plantations which otherwise dominate the valley. Retained views were identified as important during the consultation process on the creation of the new woodland. The new planting has apparently been colonised by dormice and uncommon birds such as spotted flycatcher have been seen foraging along the scrubby woodland edge.

### Opportunities & Constraints

The planting site is quite exposed, so establishment has, as expected, been rather slow. Ultimately, invasion of the view corridors by scrub growth is inevitable unless periodically cut. Good levels of natural regeneration within the wood suggest that the site is productive and natural regeneration should eventually supplement the planted species, although there is a fairly dense grassy sward which may inhibit seed setting.

The confirmed presence of dormice will require adherence to best practice to avoid disturbance or harm, as per an environmental assessment, and specific high impact operations, if proposed, could require a licence. There may be opportunities for suitably licensed volunteers to establish a monitoring programme to learn more about the local population.

### Factors Causing Change

Ash dieback is affecting a proportion of the planted trees, although impacts on canopy closure appear to be minimal. Blackthorn scrub may gradually expand at the expense of planted species. Conifer/ rhododendron could colonise from neighbouring plantations.

### Long term Objective (50 years+)

Over time, the planted woodland will establish: planted trees will reach early maturity/ reproductive age and the area will develop a ground and field layer that contains some of the species typical of the mature woodland below (at which point the key features can be combined). Planting will be supplemented by natural regeneration, providing a buffer to the existing woodland. Pockets of open ground and scrub to the margins will provide a transition zone between the wood and the open hill. Invasive species will be rare or absent and browsing/ pests and diseases will not impact significantly on the ability of the wood to regenerate.

### Short term management Objectives for the plan period (5 years)

The stockproof boundary to the NE of the property will be maintained as per the Trust's obligations. All remaining tree guards will be removed by the end of the plan period. In five years' time, the woodland condition assessment will note at least occasional natural regeneration into the planted stands and current stocking density/ canopy closure will be maintained.

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## 6.0 WORK PROGRAMME

Year	Type of Work	Description	Due By
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## APPENDIX 1: COMPARTMENT DESCRIPTIONS

Cpt No.	Area (ha)	Main Species	Year	Management Regime	Major Management Constraints	Key Features Present	Designations
1a	1.79	Oak (sessile)	1990	High forest	No/poor vehicular access within the site, Very steep slope/cliff/quarry/mine shafts/sink holes etc	Connecting People with woods & trees	Ancient Semi Natural Woodland, National Park
<p>Coed Nant Gwernol. Previously coniferised ancient woodland site on the steep valley side of Nant Gwernol, restocked in 1990 by the previous owner mainly with oak and ash with rowan and birch. Dense bramble and bracken have slowed establishment. Scattered mature oak around the edges and in a strip along the river. There are waterfalls and deep pools in the river which runs in a gorge at the southern end. Contains both the main footpath entrance from Abergynolwyn and the linking path to Nant Gwernol station on the Talyllyn Railway.</p>							
1b	0.38	Hawthorn species	2000	Wood establishment	Very steep slope/cliff/quarry/mine shafts/sink holes etc	Connecting People with woods & trees	National Park
<p>Coed Hendrewallog. Previously rough pasture dominated by bracken which was sprayed with asulam and the land planted in 2000 with native trees and shrubs as part of the Woods On Your Doorstep project. An unplanted corridor retaining views down to the Talyllyn Railway Nant Gwernol terminus has become obscured by growth of trees in compartment 1a below, but the view is still available through trees farther into the latter. It contains the main management access point and track into the western end of the woodland. A small number of over-mature conifers are retained along the roadside.</p>							
2a	1.96	Japanese larch	1986	PAWS restoration	Mostly wet ground/exposed site, Sensitive habitats/species on or adjacent to site, Very steep slope/cliff/quarry/mine shafts/sink holes etc	Connecting People with woods & trees	National Park

Coed Nant Gwernol. A plantation of Japanese larch (1.7ha) and oak (0.6ha) planted in 1986 on the steep valley side of Nant Gwernol. The oak is scattered in pockets amidst the larch and some thinning of the latter was carried out in 2003/ 2014 to favour the oak. There is a fringe of mature oak along the river. There are waterfalls and deep pools in the river; the whole compartment is rather wet and prone to intermittent springs. The stream forming the boundary with compartment 3 runs in a steep gorge. Accessible via the main access track and the riverside footpath.

3a	3.83	Oak (sessile)	1900	High forest	No/poor vehicular access within the site, Sensitive habitats/species on or adjacent to site, Very steep slope/cliff/quarry/ mine shafts/sink holes etc	Connecting People with woods & trees	Ancient Semi Natural Woodland, National Park
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Coed Nant Gwernol. More or less pure oak woodland, of uncertain age but fairly even aged and with no very large old trees; some trees are of coppice origin. Tends to a more diverse age structure and with more ash and hazel on sweeter flushes south-eastwards where scattered sycamore is also common. The oak was lightly thinned in 2002. Ground flora a matrix of mosses, and ferns/bramble, the latter over excellent displays of bluebells. The stream forming the boundary with compartment 2 runs in a steep gorge and there are waterfalls and deep pools in Nant Gwernol, alongside which the main footpath runs.

3b	0.32	Woody shrubs	1993	Wood establishment		Connecting People with woods & trees	National Park
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Coed Nant Gwernol. Once open bracken/bramble dominated ground above the break of slope of the steeper valley of Nant Gwernol, enclosed with the woodland from the adjacent pasture when the latter was sold off in 1993. The bracken was sprayed with asulam in 2000 to encourage further natural regeneration of native trees and shrubs (blackthorn, rowan, hazel and oak are present). The compartment is developing to resemble the oakwood habitat adjacent.

3c	0.83	Ash	2000	Wood establishment		Connecting People with woods & trees	National Park
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Coed Nant Gwernol. Once open bracken/bramble dominated ground above the break of slope of the steeper valley of Nant Gwernol, enclosed with the woodland from the adjacent pasture when the latter was sold off in 1993. The bracken was sprayed with asulam in 2000 to encourage further natural regeneration of native trees and shrubs (blackthorn, rowan, hazel and oak are present). The upper half of the area was planted with native broadleaved trees in tandem with planting in the adjacent Coed Hendrewallog in 2000. The compartment is developing to resemble the mixed woodland habitat adjacent.

3d	2.14	Oak (sessile)	2000	Wood establishment		Connecting People with woods & trees	National Park
Coed Hendrewallog. New broadleaved woodland planted (part of the Woods On Your Doorstep project) in 2000 with native trees and shrubs on previously rough pasture dominated by bracken which was sprayed with asulam. Unplanted corridors retain views down to the Dysynni valley and to Abergynolwyn. Paths radiate into a spinal route through Coed Hendrewallog from two public access points off the minor road above.							
4a	0.70	Ash	2002	High forest	No/poor vehicular access within the site, Very steep slope/cliff/quarry/ mine shafts/sink holes etc	Connecting People with woods & trees	National Park
Coed Nant Gwernol. Previously a plantation of Japanese larch felled in 2002 and restocked with native broadleaved trees. A footbridge over Nant Gwernol is an entrance from woodland managed by Natural Resource Wales to the riverside public footpath, from which a link path was created in 2003 via compartment 4b into Coed Hendrewallog.							
4b	1.15	Oak (sessile)	1900	High forest	No/poor vehicular access within the site, Very steep slope/cliff/quarry/ mine shafts/sink holes etc	Connecting People with woods & trees	Ancient Semi Natural Woodland, National Park
Coed Nant Gwernol. Oak woodland with ash and hazel on wet flushes and areas of small-leaved lime and wych elm near the gorge. Ground flora ferns/bramble. Oak was lightly thinned in 2002, providing timber for construction of a new path created in 2003 to link the riverside path with Coed Hendrewallog. Occasional rock outcrops, and an attractive waterfall on Nant Gwernol, viewed from the new path.							
4c	1.00	Ash	2000	Wood establishment	Very steep slope/cliff/quarry/ mine shafts/sink holes etc	Connecting People with woods & trees	National Park
Coed Nant Gwernol (NB combines cpts. 4C & 4D from previous management plan). A mosaic of naturally regenerating woodland and previously open ground enclosed with the woodland from the adjacent pasture when the latter was sold off in 1993. Some areas are rather wet in parts, but steeper areas are drier with bracken/bramble. The area was planted with native broadleaved trees in tandem with planting in the adjacent Coed Hendrewallog in 2000.							

4d	1.64	Oak (sessile)	2000	Wood establishment		Connecting People with woods & trees	National Park
<p>Coed Hendrewallog (NB replaces previous cpt. 4D from previous management plan which is now subsumed into current cpt. 4C). New broadleaved woodland (part of the Woods On Your Doorstep project) planted in 2000 with native trees and shrubs on previously rough pasture dominated by bracken which was sprayed with asulam. Significant areas of wet ground dominated by Molinia were left unplanted, as were corridors to retain views up to Hendrewallog farmhouse and across to the slate tips of Bryneglwys quarry. There are two public access points off the minor road above, with a further management access at the far south end.</p>							



## Appendix 2: Harvesting operations (20 years)

Forecast Year	Cpt	Operation Type	Work Area (ha)	Estimated vol/ha	Estimated total vol.
2021	2a	Thin	1.90	37	70

## GLOSSARY

### **Ancient Woodland**

Ancient woods are defined as those where there has been continuous woodland cover since at least 1600 AD. In Scotland ancient woods are defined strictly as sites shown as semi-natural woodland on the 'Roy' maps (a military survey carried out in 1750 AD, which is the best source of historical map evidence) and as woodland all subsequent maps. However, they have been combined with long-established woods of semi-natural origin (originating from between 1750 and 1860) into a single category of Ancient Semi-Natural Woodland to take account of uncertainties in their identification. Ancient woods include Ancient Semi-Natural Woodland and plantations on Ancient Woodland Sites (see below). May support many species that are only found in ancient woodland.

### **Ancient Semi - Natural Woodland**

Stands in ancient woods defined as those consisting predominantly of native trees and shrubs that have not obviously been planted, which have arisen from natural regeneration or coppice regrowth.

### **Ancient Woodland Site**

Stands in ancient woods that have been converted to plantations, of coniferous, broadleaved or mixed species, usually for timber production, including plantations of native species planted so closely together that any semi-natural elements of the understorey have been suppressed.

### **Beating Up**

Replacing any newly planted trees that have died in the first few years after planting.

### **Broadleaf**

A tree having broad leaves (such as oak) rather than needles found on conifers (such as Scots pine).

### **Canopy**

The uppermost layer of vegetation in a woodland, or the upper foliage and branches of an individual tree.

### **Clearfell**

Felling of all trees within a defined area.

### **Compartment**

Permanent management division of a woodland, usually defined on site by permanent features such as roads. See Sub-compartments.

### **Conifer**

A tree having needles, rather than broadleaves, and typically bearing cones.

### **Continuous Cover forestry**

A term used for managing woods to ensure that there are groups or individual trees of different ages scattered over the whole wood and that some mature tree cover is always maintained. Management is by repeated thinning and no large areas are ever completely felled all at once.

### **Coppice**

Trees which are cut back to ground levels at regular intervals (3-25 years).

### **Exotic (non-native) Species**

Species originating from other countries (or other parts of the UK) that have been introduced by humans, deliberately or accidentally.

### **Field Layer**

Layer of small, non-woody herbaceous plants such as bluebells.

### **Group Fell**

The felling of a small group of trees, often to promote natural regeneration or allow planting.

### **Long Term Retention**

Discrete groups of trees (or in some cases single trees) that are retained significantly past their economic felling age. Operations may still be carried out within them and thinning is often necessary to maintain stability.

### **Minimum Intervention**

Areas where no operations (such as thinning) will take place other than to protect public safety or possibly to control invasive exotic species.

### **Mixed Woodland**

Woodland made up of broadleaved and coniferous trees.

### **National vegetation classification (NVC)**

A classification scheme that allows an area of vegetation to be assigned to the standardised type that best matches the combination of plant species that it contains. All woodlands in the UK can be described as being one of 18 main woodland types (W1 - W18), which principally reflect soil and climatic conditions. For example, Upland Oakwoods are type W11, and normally occur on well drained infertile soils in the cooler and wetter north and west of Britain. Each main type can be subdivided into numerous subtypes. Most real woods contain more than one type or sub-type and inevitably some woods are intermediate in character and can't be properly described by any sub type.

### **Native Species**

Species that arrived in Britain without human assistance.

### **Natural Regeneration**

Naturally grown trees from seeds falling from mature trees. Also regeneration from coppicing and suckering.

## **Origin & Provenance**

The provenance of a tree or seed is the place where seed was collected to grow the tree or plant. The origin is the geographical location within the natural range of a species from where seeds/tree originally derives. Thus an acorn collected from a Turkey oak in Edinburgh would have an Edinburgh provenance and a southern European origin.

## **Re-Stocking**

Re-planting an area of woodland, after it has been felled.

## **Shrub Layer**

Formed by woody plants 1-10m tall.

## **Silviculture**

The growing and care of trees in woodlands.

## **Stand**

Trees of one type or species, grouped together within a woodland.

## **Sub-Compartment**

Temporary management division of a compartment, which may change between management plan periods.

## **Thinning**

The felling of a proportion of individual trees within a given area. The remaining trees grow to fill in the space created.

## **Tubex or Grow or Tuley Tubes**

Tubes placed over newly planted trees or natural regeneration that promote growth and provide protection from animals such as rabbits and deer.

## **Weeding**

The control of vegetation immediately around newly planted trees or natural regeneration to promote tree growth until they become established. Either by hand cutting or with carefully selected weed killers such as glyphosate.

## **Windblow/Windthrow**

Trees or groups of trees blown over (usually uprooted) by strong winds and gales.