COED CADW
WOODLAND
TRUST

Allt Boeth

Management Plan
2017-2022

MANAGEMENT PLAN - CONTENTS PAGE

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MAPS

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 Consequently this printed version may quickly become out of date, particularly in relation to the planned work programme and on-going monitoring observations.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 or contact the Woodland Trust (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.

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. 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

Site name:	Allt Boeth
Location:	Pontarfynach
Grid reference:	SN736777, OS 1:50,000 Sheet No. N/A
Area:	22.01 hectares (54.39 acres)
Designations:	Ancient Semi Natural Woodland, Planted Ancient Woodland Site

2.0 SITE DESCRIPTION

2.1 Summary Description

Allt Boeth is located at the head of Cwm Rheidol, a few miles east of Aberystwyth. Set dramatically among the steep, ancient-wooded valley sides above the Rheidol gorge, it is an area of predominately planted ancient woodland of former oceanic oak-birch woodland. Pine predominates, but other planted species include larch, spruce and beech. In places, particularly where pine has been ring-barked in the past decade, the semi-natural characteristics are returning.

Allt Boeth provides a particularly special opportunity as a site for demonstrating and monitoring the process of restoring plantation ancient woodland, through the transformation of even-aged stands to continuous cover forestry.

2.2 Extended Description

Allt Boeth is 22.5ha of predominately planted ancient woodland at the head of Cwm Rheidol, 10 miles East of Aberystwyth. As the kite flies, it is a short distance from the village of Pontarfynach / Devil's Bridge, however the site is not accessible from this direction, and access to the woodland is direct from the public highway running up from Cwm Rheidol. It is set dramatically among the steep wooded valley sides above the Rheidol gorge, and the internationally important ancient woodlands surrounding Allt Boeth, as well as the remnant fragments occurring within the site itself, give a good indication of the restoration potential of this site. The woodland at Allt Boeth is generally on quite shallow and freely draining acid loamy soils over Silurian sedimentary rocks of Llandovery-age. The existing planted stands of mainly pine, larch, spruce and beech are largely on former acidic oceanic woodland where sessile oak, birch and rowan would have been the predominate canopy cover, with ground vegetation dominated by bilberry, heather, bracken and bramble Small pockets of base enrichment occurs lower down in the gorge, where ash and wych elm feature in the canopy, along with more scarce species such as small-leaved lime and spindle, and locally uncommon plants such as wood-spurge, mountain melick and lesser meadow-rue. Old hazels, oak and rock outcrops beside the river occur in humid conditions, and support noteworthy oceanic and old-woodland lichens and bryophytes. The site is also of note due to its proximity to the recent pine marten release site, and it may become an important part of the future population range of this species.
Allt Boeth provides a particularly special opportunity as a site for demonstrating and monitoring the process of restoring plantation ancient woodland through the transformation of even-aged stands to continuous cover forestry.

Allt Boeth is also steeped in the cultural heritage of this part of Mid-Wales, and particularly the hive of mining activity in the Rheidol valley. This includes a long leat, associated with the mines further down the valley. Numerous charcoal platforms are dotted across the site. The woodland is also visible from the Vale of Rheidol railway, a major tourist attraction in West Wales, and forms the backdrop to the most spectacular part of the route.
Access to the site is at the far end of the public highway running up Cwm Rheidol, where a surfaced timber stacking area exists at the entrance to the site. This also provides parking opportunities for visitors. The site is criss-crossed by public footpaths with spectacular views of the Rheidol valley and Mynach Falls which link Cwmrheidol with Ystumtuen, Pontarfynach and Parsons Bridge. The landscape here has a particularly dramatic, remote and wild feel about it.
The key features of Allt Boeth comprise:

-Plantations on Ancient Woodland Sites, which have been intensively modified by the introduction of non-native species

- Ancient Semi-natural woodland, being those areas largely unaffected by coniferisation, and with notable lower plant communities

- Informal public access

3.0 PUBLIC ACCESS INFORMATION

3.1 Getting there

Directions to main entrance:
From the A44 at Capel Bangor, take the minor road signposted to Cwm Rheidol and the brown signs to the Butterfly House and Rheidol Hydro Scheme. Travel along this minor road, past the reservoirs and the Rheidol Visitor Centre/Butterfly House entrance. Continue along the minor road to the head of the valley. The road narrows and becomes more of an unsurfaced track for the last few hundred metres. On a switchback corner at the far end, there is a flat stacking and turning area which is the entrance to the site and has some space available for parking.

By bus:
The nearest bus stop is in Aberffrwd. It is served by the T22 service (Aberystwyth to Cwmystwyth via Devil's Bridge). The walk from Aberffrwd to the woodland up Cwm Rheidol could be made into a circular walk, joining up with the other Rheidol Woodlands and the National Nature Reserve. That said, Allt Boeth is still about 3 miles from Aberffrwd. Alternatively, there is a more frequent service (No. 525) along the A44 (Aberystwyth to Llanidloes) which would mean alighting at Capel Bangor. However, this is over 6 miles walk from the site. For further information, contact Traveline Cymru on 0871 200 2233 or visit traveline.cymru

By train:
The nearest mainline station is at Aberystwyth. This is over 10 miles from the site. However, there is also the narrow-gauge tourist line from Aberystwyth to Devil's Bridge (Vale of Rheidol Railway). There are stops at Aberffrwd and Devil's Bridge, and a further two stops between them. This runs mainly from February to October and most frequently through the summer months. This may be able to be linked up with Allt Boeth by means of a circular walk. Although as the crow flies, Devil's Bridge is close to the site, it is separated by a steep gorge and not a straightforward walk between the two. For further information, contact Traveline Cymru on 0871 200 2233 or visit traveline.cymru

By car:
From the A44 between Aberystwyth and Llangurig, when you are at Capel Bangor, take the minor road signposted to Cwm Rheidol and the brown signs to the Butterfly House and Rheidol Hydro Scheme. Travel along this minor road, past the reservoirs and the Rheidol Visitor Centre/Butterfly House entrance. Continue along the minor road to the head of the valley. The road narrows and becomes more of an un-surfaced track for the last few hundred metres.

Parking: There is no surfaced or purpose-built car parking at Allt Boeth but you can park cars at a flat stacking and turning area which is the entrance to the site. Depending on the amount of any stacked timber or equipment here at the time, it is probably possible to fit approximately 8-10 cars here.

By bike:
The journey along Cwm Rheidol would make a nice cycle ride, although the last few hundred metres of un-surfaced track would only be suitable for certain bicycles. There are no facilities for locking/tethering at the wood, so bicycles would simply have to be locked and left at the stacking/turning area at the site entrance.

3.2 Access / Walks

Allt Boeth has a good network of paths and tracks enabling visitors to explore, although walkers should be aware that, given the nature of the terrain, most routes are either steep, or can be loose or wet in places, and good boots are advised.

At present there is one main way-marked trail within Allt Boeth, which starts from the easternmost entrance, from the main lane up from Cwm Rheidol, this runs through Allt Boeth and into the adjacent National Nature Reserve woodland. This forms part of the long-distance trail known as the ‘Borth to Devil’s Bridge to Pontrhydfendigaid Trail’ (also known as the Mal Evans Way). Further information about this can be found on the internet. The total length of the trail is 18 miles and the section through Allt Boeth is arguably one of the most dramatic stretches of the walk. There are additional way-marked public rights of way through the site, leading to the north and the area around Ystumtuen.

The existing paths at Allt Boeth could easily be linked with other rights of way in the Rheidol valley and made into a great day’s walking. As described in the section above, this could easily be linked with public and tourist transport options such as the Vale of Rheidol Railway. The nearby areas of National Nature Reserve Woodland could be visited as part of this longer walk.

4.0 LONG TERM POLICY

In the long term, Allt Boeth will represent a fine example of a restored ancient woodland site. The restored woodland will be maintained in a good ecological condition and future visitors to this part of West Wales will experience dramatic and rich Atlantic woodland where plant life is lush and abundant and wildlife is diverse. The process of restoration and transformation to continuous cover forestry will have been closely monitored over the years and the site will have yielded insightful data on the biological changes that have occurred over the years, and as a result of different management interventions. This data and information will have been promoted and shared with others, and many people will have heard of Allt Boeth, as a place that actively demonstrated the changes that arise as a result of restoration management, and as a place where variation in management techniques and more novel silvicultural management options have been explored.

The woodland as a whole will develop much more structural diversity through the process of continuous cover transformation. In time, native broadleaved trees will predominate with only scattered and occasional conifer and non-native broadleaved trees remaining, but through the continuous cover transformation and thinning selection process, this will vary depending on the perceived impact. To an extent this will also be underpinned and informed by the monitoring data. Ultimately, the woodlands will provide better opportunities for plant and fungi species lost from the wider landscape and as the structural and biological diversity of the site increases, the site shall become of use to a wider array of fauna, including hopefully, an established population of pine marten. As the canopy becomes more dominated by native broadleaved species, silvicultural interventions will become infrequent and of lower intensity. Sessile oak would be expected to be the most abundant canopy tree; however, there should be a good degree of tree species diversity within the constraints of the soil and aspect, with plenty of hazel stands lower in the gorge. The remnant features of the ancient woodland will be secure and a significant expansion of woodland ground flora should be expected over a fifty year period, as conifer and beech cover in Allt Boeth reduces. Conifer regeneration will generally be limited to where it is perceived to be having a limited impact on the integrity of the ancient woodland, and all invasive non-native species will be under control or have been successfully eradicated. There will be sufficient recruitment of young broadleaved trees to ensure continuity of canopy cover and genetic turnover; however, this may be unevenly distributed.

Visitors to the site will come to appreciate this dramatic landscape and the path network will continue to facilitate access, although the sense of remoteness and peacefulness will be maintained. Those that do visit will do so in safety. Infrastructure will generally be low key, although further interpretative information may be installed to help explain the restoration process and the journey that the site has been through.

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 Ancient Semi Natural Woodland

Description

All of the woodland at Allt Boeth is regarded as ancient, although much has been heavily modified by human activity. A small proportion of Allt Boeth is characterised as semi-natural ancient woodland: relatively small areas remain with dominant native broadleaf canopy and understory in a semi-natural structure, having escaped coniferisation. These lie principally on the steep slopes immediately adjacent to Afon Rheidol, although as areas of planted ancient woodland are classed as restored, these will then effectively become part of this feature and will be managed accordingly. For most of the site, the woodland type could be characterised as upland oakwood, mainly comprising sessile oak and birch (NVC W17/ W11). However, areas of base-enrichment or flushing do occur, with a component of ash, elm, hazel and small-leaved lime (NVC W9). Very small fringes of wetter patches alongside the Afon Rheidol occur, typically with alder and willow. The shrub layer is generally sparse, with scattered rowan and hazel alongside patches of strong native tree regeneration. The ground layer is typically ericaceous, with areas of bramble, grasses, cow-wheat and bracken, but more diverse (e.g. with dog's mercury) in NVC W9 areas in the Rheidol gorge. In areas of higher humidity (the river gorge) bryophytes, ferns and lichens, become a more abundant component of the flora, including nationally rare species for which the UK has an internationally responsibility for their conservation. Whilst more semi-natural in character, these areas do contain non-native invasive species such as Rhododendron and Japanese Knotweed as well as some non-native tree regeneration.

Significance

Oceanic woodland of this type (particularly the areas in the Rheidol Gorge that are characterised by high humidity) is a globally scarce habitat, sometimes referred to as temperate rainforest. The woodland in the Rheidol valley contains some of Wales' finest examples, and although the woodland at Allt Boeth more impacted as the result of past silvicultural management, some of the fragments along the Afon Rheidol do fall into this category. The ancient woodland adjacent to Allt Boeth to the south (on the other side of the Rheidol) and immediately adjacent to the east forms part of the Coedydd a Cheunant Rheidol / Rheidol Woods and Gorge Special Area of Conservation (SAC), Coedydd a Cheunant Rheidol (Rheidol Woods and Gorge) Site of Special Scientific Interest (SSSI) and Coed Rheidol National Nature Reserve (NNR).

The Ancient Semi Natural Woodland types present - upland oakwood and upland mixed ashwood - are both priority habitats in the UK and Ceredigion Biodiversity Action Plans and the UK holds a high proportion of the global resource for these habitat types.
Habitats Directive Annex II habitat – Upland Oakwoods with Blechnum spicant (hard fern).

The gorge is important for lower plant species and although this needs to be fully evaluated further through more comprehensive survey, the lichen community is already considered of international importance due to the presence of rare species, such Graphina pauciloculata.

There is a significant extra dimension to this site in its proximity to the recent pine marten release site, and the historic records of a pine marten population in the Rheidol area. The Vincent Wildlife Trust has deployed cameras, tubes and den boxes at Allt Boeth to research their movements. In 2010 specially designed den boxes were installed to help to reintroduce this species to the area. It is thought likely that Allt Boeth will play a part in the future population range of pine martens in this part of Mid-Wales, and there is also potential for this site to be used for monitoring of both pine marten populations and the link with grey squirrel predation and breeding pressure impacts. The project has now released individuals over the course of two years, and radio-tracking work has established that there has been some use of Allt Boeth by individual pine martens. The site is likely to be the focus of future pine marten monitoring work.

Opportunities & Constraints

The main opportunity to enhance the remnant fragments of ancient woodland at Allt Boeth are through the restoration of adjacent PAWS and through the continued control of invasive and impactful species such as Rhododendron, conifer regeneration and small isolated pockets of Japanese Knotweed. The high humidity areas in closest proximity to the Rheidol river will always be limited in extent. The lower plant interest here needs to be fully evaluated further which will yield further information on where the most significant interest lies. In terms of constraints, the terrain is challenging, and the most semi-natural ancient woodland is probably located in the steepest and rockiest parts of the Rheidol gorge area. Access to the Ancient Semi-Natural Areas is on foot only, and the nearest tracks suitable for vehicles are quite far away meaning that any extraction of timber from these areas is never likely to be feasible. Nor would it ever really be desirable.

Factors Causing Change

Natural regeneration of conifers and Rhododendron into the ASNW areas from surrounding woodland is an on-going threat. Management decisions taken on adjacent land e.g. lack of control of non-natives, may have on-going consequences for Allt Boeth.

Tree disease is a threat. Ash dieback could have an impact on tree species diversity and specifically on lichen and bryophyte diversity: whilst a small component of the woodland numerically, ash supports a different community of epiphytes associated with base-rich bark. Larch is a small component of the site but Phytophthora ramorum is not considered a significant potential issue here.

All these factors could interact with the long term impacts of climate change, which are likely to result in warmer, drier summers and mild wet winters. The habitat, particularly humidity-sensitive bryophytes and lichens, is high on the climate vulnerability index, although oak woodland cover is likely to persist and expand to higher ground in a regime of higher temperatures.

There is some thought that Hydro-Electric Power (HEP) abstractions may have significantly modified the hydrology of the Rheidol but these modifications may not have started prior to the last comprehensive bryological assessment of the Rheidol gorge and a more current assessment may yield more information on any impact of this HEP scheme. Future management of flows could impact on hydrological conditions in the gorge.

The level of usage of the Rheidol Gorge for recreation is unknown, but this is a risk, and should be informally monitored to ensure that levels do not put pressure on the lower plant communities on the banks and river-rocks of the Rheidol.

The natural ranges of flora and fauna within the UK is likely to shift in the very long term, under current climate predictions, which may favour some northward moving species, while detrimental to others. Risks associated with dry summers - for instance fires, soil depletion and changes in water quality - may be heightened.

Long term Objective (50 years+)

The current area of semi-natural woodland will be maintained, and ultimately expanded as the plantation ancient woodland upslope is restored. The canopy cover within the woodland will, barring any major natural events, remain at 80% or more. Native tree species diversity will be encouraged - implying some resilience to impacts such as tree disease – it is expected that sessile oak is likely to dominate the canopy for the foreseeable future, alongside smaller proportions of ash, birch, rowan, elm and alder. There will be many mature and veteran trees (at least several per hectare on average), providing substrates for specialist lower plants and refuges for species such as bats and potentially an established pine marten population with natural den sites. An accumulating volume of fallen and standing deadwood will be noticeable, again supporting a number of specialist species. The under-storey will be generally sparse but with patches of un-coppiced hazel, rowan and birch colonising canopy gaps. Holly will be a part of the woodland flora but will never dominate the understory. Sufficient natural regeneration will occur to allow periodic recruitment of new canopy trees, but the structure will not be uniform across the feature.

The lower plant communities of the gorge woodland will remain in good condition: the distribution and abundance of both common and typical, as well as the uncommon, species of moss, lichen and liverwort will be stable or increasing within the core humid areas of the gorge, so long as macro-climatic conditions allow. A good covering of more generalist epiphytic species will be found throughout the woodland. Woodland ground flora will also be abundant, including vascular plant species that are indicative of ancient woodlands in this part of Wales such as bluebell, dog's-mercury, cow-wheat, slender St. John's-wort and various grasses sedges and rushes such as great wood-rush, hairy wood-rush and wood-melick. Populations of locally or nationally uncommon plants that are thought to occur within the site will be maintained, including mountain melick grass, wood-spurge and lesser meadow-rue, as well as the small-leaved lime. Ericaceous plants such as heather and bilberry will occur, and often dominate, with small amounts of bramble and bracken. Invasive species will be absent.

Informal recreational use will not be harmful to the special flora and fauna known to occur here.

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

There will be little or no silvicultural intervention within the steep ravines in the woodland. In addition to the difficulty of access, there is also no identified reason to carry out any thinning or felling of trees in this area. The focus of management in the Semi-natural ancient woodland areas of the site will be to ensure that all non-native invasive are under control and to remove conifer and non-native broadleaf regeneration at a stage before it becomes too impactful. Non-native conifer regeneration will be occasional and rhododendron rare, with no flowering specimens.

Species interest and locations of particularly rare lower plants on the Allt Boeth side of the Rheidol Gorge will be confirmed by survey, and this may well identify a need for silvicultural intervention – for example if smooth-barked oceanic species are highlighted as particularly notable and well-developed, then there may be a need to encourage further hazel regeneration and also to maintain continuity of young (and therefore smooth barked) oak and ash for example.

Management prescriptions:
* Control non-native conifer/ broadleaf regeneration, Japanese Knotweed, and rhododendron seedlings/ regrowth by pulling/ cutting and herbicide (glyphosate) if required.
* Ring-bark any remaining mature non-native conifers and broadleaves within the semi-natural woodland in the gorge.
* Bryophyte and lichen assessment survey of Allt Boeth, with a specific focus on evaluating the importance of the woodland immediately adjacent to the Rheidol river.

5.2 Planted Ancient Woodland Site

Description

The majority of Allt Boeth is an Ancient Woodland Site which was replanted in the mid-1950s with a mix of exotic conifers and broadleaves. The current condition of the PAWS feature is varied depending on the non-native species involved, and the impact of extensive ring-barking which has been carried out as a PAWS restoration tool in the past decade. For most of the site, the woodland type, in a semi-natural state, would be upland oakwood, dominated by sessile oak, birch, rowan and pockets of hazel (NVC W17/ W11), with ground flora dominated by ericoids (heather and bilberry), bracken and bramble in places, and a bryophyte carpet, with scattered plants typical of these sorts of wooded acidic soils such as hard-fern, slender St John's-wort, common cow-wheat, bitter-vetch and goldenrod. In its current state, this is rarely well developed, although again, in some of the ringbarked stands of Corsican pine, the recovery of this vegetation is happening. The sub compartment descriptions will go into further detail on the condition and remnant features of the different PAWS areas, but in summary, in the most recent PAWS assessment survey (2015), the majority of the site (13.6ha) was considered to be in a 'threatened' condition, with the remainder of the site being considered either to be secure or restored (including woodland of ancient semi-natural character), although obviously general threats of rhododendron or conifer reinvasion exist here. Within the threatened PAWS compartments, there are varying levels of priority in terms of management interventions required, and the sub-compartment descriptions and the work-programme will emphasise the priorities. All of the PAWS restoration will be managed through a transformation to continuous cover forestry system which will ensure the gradual process of restoration. Currently, different sub-compartments are in different stages of transformation, and whilst for some these early-stage transformations are more straightforward through a graduated density thinning programme (e.g. in the Sitka spruce/birch stands), other more mature even-aged stands require a later-stage transformation process. The detailed Monitoring and Demonstration Plan for Allt Boeth provides more detail on the aims of the investigative management that will be carried out on the site.

In terms of the recent history of the site and its management, Allt Boeth was still ancient semi-natural woodland until around 1954 when it was largely cleared and planted with conifers. The previous owner acquired the site in 2001. Little work was carried out on the property for some time so the process of restoration was started late. In terms of recent management, the site has been in a Better Woodlands for Wales Scheme, which has progressed restoration work. This included reinstating a track network, felling works, ring barking conifers, eliminating rhododendron, replacing stock fencing and selectively thinning trees with the aim of reverting the woodland to a more semi-natural state. There is a continuing need for more selective thinning and interventions associated with continuous-cover forestry transformation, track maintenance and the control of invasive species. Despite difficult external and internal access and working conditions, timber has been harvested and extracted by lorries from the stacking area at the entrance to the wood. With the current track infrastructure, at least 7ha of the site is considered to have stands of extractable timber using conventional forestry equipment. Working circles have been devised to define and differentiate the various stand types and the operations required to restore semi-natural woodland and the compartment descriptions and work programme further describe these working circles and operations. Generally, the restoration work is divided into two types of operations. These are either cost operations such as further ring-barking, rhododendron and invasive species control where no timber revenue is set against costs, or longer term transformation to continuous cover where restoration is gradual and where timber revenues are produced. Due to the different age classes,

species mixtures and the vagaries of the terrain some operations will first need to be funded, then costs and revenues will be equal and operations will breakeven, and will then generate a net income from harvesting. This will happen as stands mature and as transformation to continuous cover improves the cost-effectiveness of operations. Transformation to continuous cover will be controlled by selective felling to favour native broadleaves, either remnant veterans or young natural regeneration, both of which are found within the various stands. Enrichment planting may be considered where transformation to native woodland is particularly constrained by planted exotics such as beech that will delay establishment of native tree species.

Significance

PAWS areas have the potential for restoration to native upland oakwood (W11/17) with small pockets of upland mixed ash-wood (W9) - priority habitats in the UK and local Biodiversity Action Plans. Restoration would significantly buffer and enhance SAC features in the adjacent designated areas of ancient woodland (as referred to in the ASNW key feature above) and allow for long-term expansion of nationally uncommon species. Ancient woodland cannot be recreated, so the opportunity to restore damaged elements of ancient woodland is a crucial opportunity to secure a threatened natural resource.

The PAWS at Allt Boeth is located within close proximity to the release area for re-establishing a population of Pine Marten in Wales, being led by Vincent Wildlife Trust. The project has now released individuals over the course of two years, and radio-tracking work has established that there has been some use of Allt Boeth by individual pine martens. A number of hair-tubes and den-boxes are already installed on site, and the site is likely to be the focus of future pine marten monitoring work. The mass of standing, fallen and in-places hung-up, dead timber has created a structural diversity which is considered greater than most typical PAWS sites and this may have some relevance to the use of the site by martens.

Opportunities & Constraints

There is a significant opportunity identified at Allt Boeth to use the varied PAWS compartments for demonstrating and monitoring the restoration process and the transformation of the site to continuous cover forestry. Some of the conifer, beech and red-oak stands at Allt Boeth will provide a timber resource, for sale or use in situ, as a by-product of conservation interventions, and where this is in-line with the demonstration and monitoring plan for the site. Management access is not readily available for all PAWS areas and this may render works less economic. Notes are made on this in the sub-compartment descriptions.

Allt Boeth provides a particularly special opportunity as a site for demonstrating and monitoring the process of restoring plantation ancient woodland through the transformation of even-aged stands to continuous cover forestry. The variation in stand types also means this monitoring can take place from different stages of transformation. The process of restoration to native woodland and the transformation of the stands will be monitored by the use of continuous cover forestry monitoring techniques. These are specialist forest inventory protocols designed for use in irregular woodlands and designed to allow multiple parameters to be recorded and compared spatially and temporarily. This allows comparisons between different sites within and outside of the woodland and the ability to tract progress or changes and trends over time. The fixed-point sample plots that will be established as part of this forest inventory will also be the focal points for further biological monitoring activity. Particular attention will be on ground vegetation, through a comprehensive phytosociological survey of all vascular plants, bryophytes and lichens occurring in the ground layer (National Vegetation Classification survey) and as epiphytes. Consideration is being given to other taxa that may also be monitored at these fixed points, including breeding bird surveys, grey squirrel populations and/or tree damage, and potentially ad-hoc invertebrate surveys.

Adjacent ASNW provide refuge for species which can then expand into restored PAWS areas, therefore there is high potential to restore the woodland to a high quality habitat, increasing native woodland cover. There are a number of remnant ancient woodland features also occurring within the PAWS areas, including pre-plantation broadleaf trees, ground flora and archaeological/cultural features such as charcoal burning platforms.

Care is required in the vicinity of badger setts during active management work. Work in the vicinity of the gorge must take into account the need to maintain a steady humidity and be undertaken gradually: in particular, lichen-bearing species such as hazel will require protection during operations.

Factors Causing Change

Regenerating conifers, beech and regrowth from red-oak and will be an on-going threat while seeding canopy trees and other local seed sources remain. That said, no sub-compartments currently suffer from a mass of non-native regeneration. Upper levels of the site may be prone to windblow, and dead and dying ringbarked pine may snap and cause damage to regenerating and established native broadleaves nearby.

Tree disease is also a threat. Phytophthora ramorum, present nearby, is not considered a high risk to Allt Boeth. The stands of larch do not form a large part of the site. Ash dieback could have a significant impact on tree species diversity and specifically on lichen and bryophyte diversity in the Rheidol gorge: whilst a small component of the woodland by size, the areas of base-enriched soils with ash support a different community of epiphytes associated with base-rich bark.

Long term Objective (50 years+)

In fifty years, all planted ancient woodland stands will be restored to woodland strongly characterised by a semi-natural species composition and structure, largely dominated by native broadleaved canopy species, particularly sessile oak, birch, rowan and hazel also present. Ash, elm, alder and willow also occur more frequently in wetter areas at the bottom of the Rheidol gorge. Some non-native conifer species and beech may still occur, but they will be having a limited impact on the ecological integrity of the site and will generally be as part of a high-quality irregular stand. A typical Atlantic woodland flora will have recovered across most of the site, with conifer regeneration and coarse vegetation being occasional and localised. Rhododendron will be absent. Lower plant communities will recover and spread from existing ASNW areas into restored PAWS, which in time will come to resemble the rich neighbouring ASNW areas. Mature and veteran trees and deadwood will be frequent.

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

The level of threat to PAWS stands will be reduced across the site, and by the end of the plan period, no areas will be deemed to be 'critical', and all 'threatened' sub-compartments will have received some management intervention in order to move them towards an improved condition. For most stands, this will involve a process of restructuring which will move them toward a more varied structure and species composition. Conifer and non-native broadleaved regeneration will be occasional, and controlled where it is deemed to be a potential impact on the ecological integrity of the site. Rhododendron will be rare with no flowering specimens.

Retained broadleaves will be protected during operations. Some thinning work may involve extraction where the trees are accessible and where this is in-line with the monitoring and demonstration plan, but a proportion of felling to waste and further ring-barking is anticipated, increasing the deadwood component of the woodland.

Management prescriptions:
* Thin priority PAWS in sub-compartment 1a, 3a, 4a, 6a, 7a and 8a. Extract timber from 1a, 4a, 6a, 7a and 8a, and a proportion of the marketable spruce from 3a. Thinning criteria to be in-line with aims of Monitoring and Demonstration Plan:
- Subcompartment 1a - BE/SP graduated density 2nd thinning middle rack removal using selective felling quality criteria in the sides (GD T2). Continue selective felling regime in future interventions. First thin 2011, second thin 2017, selective felling 2022, repeat selective felling on 5-year cycle.
- Subcompartment 7a - BE/SP graduated density 2nd thinning middle rack removal using selective felling quality criteria in the sides (GD T2). Continue selective felling regime in future interventions. Monitor natural regeneration, control undesirable, species and consider enrichment planting to meet PAWS restoration objectives.
- Compartments 4a, 6a and 8a – CP, HL and RO graduated density 2nd thinning applying selective felling criteria in minor species demonstration areas. Monitor regeneration and enrich if undesirable species.
- Subcompartment 3a – include 3 demonstrative management interventions across 7 sub-compartment demonstration areas: 1) Graduated density middle rack removal, selective thinning in the sides to favour all native broadleaves (GD T2). All felled material harvested and extracted to landing (B1 and B2 Demonstration Areas). 2) Graduated density middle rack removal, selective thinning in the sides to favour all native broadleaves (GD T2). Thinning to waste (B3, B4 & B5 Demonstration Areas). 3) No rack removal, all individual tree selection, no felling, ring-bark selected stems (B6 and B7 Demonstration Areas).
* Clearfell small (0.1ha) Lawsons Cypress compartment (9a), monitor natural regeneration and consider planting if not forthcoming, or largely undesirable species.
* Thin-to-waste/ring-bark PAWS in sub-compartment 12a, 13a, 14a, 15a, 16a, 21a, 23a. Continue thin-to-waste on a 5-year cycle to initiate regeneration. Selective fell and extract when larger tree sizes break-even.
* Control rhododendron and conifer regeneration (in those largely restored sub-compartments), by manual means where possible, using spot application of glyphosate where necessary.
* All management interventions will be monitored in accordance with the Monitoring and Demonstration Plan for the site, and information about changes to the stand structure and composition will be analysed along with data on vegetation changes and other ecological parameters. This will be focused within the main AFI Research Stand.

5.3 Informal Public Access

Description

Allt Boeth is at the far end of the public highway running up Cwm Rheidol, where visitors would be able to park vehicles. The site is crossed by public footpaths with spectacular views of the Rheidol valley and Mynach Falls which link Cwmrheidol with Ystumtuen, Pontarfynach and Parsons Bridge. The landscape here has a particularly dramatic, remote and wild feel about it. The paths and tracks enable visitors to explore, although walkers should be aware that, given the nature of the terrain, some routes are either steep, or can be loose or wet in places, and good boots are advised.

At present there is one main way-marked trail within Allt Boeth, which starts from the easternmost entrance, from the main lane up from Cwm Rheidol, this runs through Allt Boeth and into the adjacent National Nature Reserve woodland. This forms part of the long-distance trail known as the 'Borth to Devil's Bridge to Pontrhydfendigaid Trail' (also known as the Mal Evans Way). Further information about this can be found on the internet. The total length of the trail is 18 miles and the section through Allt Boeth is arguably one of the most dramatic stretches of the walk. There are additional way-marked public rights of way through the site, leading to the north and the area around Ystumtuen.

The existing paths at Allt Boeth could easily be linked with other rights of way in the Rheidol valley and made into a great day's walking. As described in the section above, this could easily be linked with public and tourist transport options such as the Vale of Rheidol Railway. The nearby areas of National Nature Reserve Woodland could be visited as part of this longer walk. There is not a complete circular walk within the boundaries of the site, however, a small circular walk of 1.5 miles could easily be made by continuing west along the main 'Borth to Devil's Bridge' trail, until this doubles-back NW along the valley of the Afon Tuen (a tributary of the Rheidol), and after about a ¼ mile it is possible to follow another public footpath back down through a sloping field to the northern boundary of the site. The path then winds down to the main track which can be followed to site entrance.

The wood may be of interest to specialist audiences e.g. botanists, bird-watchers, forestry professionals or enthusiasts, volunteers or adventurous types who may be interested in using the gorge for activities. The current usage of the Rheidol gorge or river is unknown.
As part of the Monitoring and Demonstration Plan for the site, it is anticipated that there will be significant use of the site for more formal public and invited events as part of the interpretation and demonstration of the restoration work occurring on the site.

Significance

The Woodland Trust believes that everyone should have access to woodland and the recreational benefits it brings and has a policy of providing open access for quiet recreation on its sites wherever safe and reasonable to do so. Allt Boeth is a dramatic site with good footpath access through it, and much internal visual interest. There is much potential to absorb more visitors in a popular tourist area, through simple facilities, signage and promotion.

The site presents excellent opportunities to demonstrate core Trust activities such as ancient woodland restoration.

The property is an important part of the local cultural landscape.

Opportunities & Constraints

There are good existing internal paths, albeit without a circular route entirely within the site boundary, although as described in the description above, a small circular walk is possible by following footpaths outside the site boundary. There are opportunities to improve intellectual access. There are opportunities to work with other teams within the Trust to connect the property with specialist audiences through visits and the other work identified in the Monitoring and Demonstration Plan for the site. Technology provides opportunities to develop intellectual as opposed to physical access to the site.

Steep slopes, particularly down to the gorge, will constrain range of users and the less-able access potential is very restricted. Road access to the landing at Allt Boeth is possible in most cars, but it is poorly surfaced in places and so some people may not be keen to drive all the way to the site.

There is a potential constraint in encouraging access away from the main paths due to the amount of standing deadwood arising from past ring-barking operations.

Factors Causing Change

None identified. Currently the main right of way through the site (Borth to Devil’s Bridge Trail) appears to be maintained, potentially by Ceredigion Rights of Way, and it is assumed that this annual maintenance will continue.

Long term Objective (50 years+)

Allt Boeth will be of interest both to local people and wider Trust supporters. Visitor numbers will be modest but can be expected to somewhat increase over time, including both locals and visitors to this part of Mid-Wales who are keen to explore dramatic locations and paths. The paths and tracks for walkers will take in all the landscape highlights in safety.

No inappropriate usage will threaten the conservation interests of the site. Visitors to the wood enjoy quiet recreation via the existing paths, making for a pleasant experience. Passage along all of these paths will be hindered only by very wet and unavoidable conditions. The wood continues to be an attractive feature in the landscape, and the gradual transformation of the even-aged stands to an irregular forest structure and composition will have been subtle.

Supporters without the opportunity to visit the gorge woodland will nonetheless understand the significance of the unique temperate rainforest habitat and get a flavour of its particular atmosphere. Specialist audiences will be engaged with and inspired by the story of the Trust's actions on the site.

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

Permissive and public footpaths will be maintained as accessible and safe for visitors through estates maintenance contract.
Entrance signage across the site will be installed to ensure that visitors are aware of the Trust's ownership.

Some initial basic interpretation will be developed on-site, including some off-site materials to promote the wood. Subsequent specific interpretation will be developed in-line with the aims of the Monitoring and Demonstration plan.

Trees near the public highway and paths will be regularly inspected and work undertaken as reasonable to preserve public safety.

Visits by specialist groups will be encouraged and supported.

Rides and extraction routes suffer minimum damage after harvesting through careful contract management and appropriate restoration.

Management prescriptions:
* Install new wooden signage/ interpretation at all main site entrances.
* Inspections of 'Zone A' and 'Zone B' trees - undertake any work deemed essential to reduce likelihood of damage to persons and property, taking into account low levels of public access.
* Develop on- and off-site interpretation to promote and explain the restoration work occurring here and the monitoring that is going to underpin our understanding of the changes. This will be carried out in line with the Monitoring and Demonstration Plan for the site.

6.0 WORK PROGRAMME

Year	Type of Work	Description	Due By

APPENDIX 1: COMPARTMENT DESCRIPTIONS

Cpt No.	Area (ha)	Main Species	Year	Management Regime	Major Management Constraints	Key Features Present	Designations
1a	2.87	Corsican pine	1955	PAWS restoration	Archaeological features, Gullies/Deep Valleys/Uneven/ Rocky ground, Sensitive habitats/species on or adjacent to site, Very steep slope/cliff/quarry/ mine shafts/sink holes etc		Planted Ancient Woodland Site
Significant amount of dead or dying Corsican pine, largely as a result of extensive ring-barking operations in the past decade. Some stem collapse or snap, but generally standing dead. The result is a good amount of native broadleaved regeneration (mainly sessile oak and birch with scattered holly, hazel, rowan), and strong recovery of ground vegetation (heather and bilberry regaining their dominance). Occasional beech/red oak/conifer regen from adjacent stands. 2015 PAWS assessment condition: Zone 2 Threatened. Priority is to ensure standing dead and fallen timber has no impact on adjacent public highway to the west of the compartment. Archaeology – mine leat. Monitoring and Demonstration a) Outside of AFI Research Stand (Unsampled). b) 1 Pine marten den box (ref. Box 9) is located within this sub-compartment. c) Pine Marten Hair Tube Monitoring.							
1b	4.05	Beech	1955	PAWS restoration	Sensitive habitats/species on or adjacent to site		Planted Ancient Woodland Site

Located at the site entrance. Mainly dominated by mature shade-casting beech and scots pine, with very sparse ground flora in the stand and most remnant ground flora confined to stand edges, small pockets, or racks. Smaller stands dominated by red oak, and larch. Few mature or pre-plantation native broadleaves within the stand. Undergoing a late transformation of a mature stand to continuous cover forestry. Recent management includes line-thinning/rack creation (T1 2011), which has started to let light into the stand and will aid future harvesting operations. 2015 PAWS assessment Zones 1, 4, 5, 6, 7, 8 condition: Threatened, but high priority. Charcoal platforms feature occurs within compartment. Pre-plantation deadwood is rare. Public right of way (Borth to Devil's Bridge Trail) runs along bottom edge of compartment, and main track above runs east.

Monitoring and Demonstration –
a) Within AFI Research Stand – Full Forest Inventory (Sample Plots 1, 2, 3, 4 & 5)
b) Ground Vegetation (NVC) and Epiphyte Monitoring (Sample Plots 1, 2, 3, 4 & 5)
c) Fixed Point Bird Monitoring (Sample Plots 1, 2, 3, 4 & 5)
d) Demonstration Management Area (A1, A2)
e) Pine Marten Hair Tube Monitoring.

1c	3.16	Sitka spruce	1999	PAWS restoration	Sensitive habitats/species on or adjacent to site		Planted Ancient Woodland Site

The compartment is a 18 year old restocked clearfell site with mainly Sitka spruce but with strong native regeneration (mainly birch). Broadleaf area along upper public footpath bisection with oak and birch regen & W17 ground flora. Sitka Spruce line thinned once (to waste) in 2013. Poor to zero ground flora, except where thinned. W17 ground flora and bryophytes including slender St John's-wort, goldenrod, Dicranum majus. A small distinctive area at the southern end of this sub-compartment is more dominated by Lawson's cypress. Opportunity to demonstrate different management interventions at this early-stage transformation, with the subcompartment divided into several Demonstration Management Areas. Public right of way runs along track on bottom edge of and then up via a smaller path to the boundary of the site and adjacent field. 2015 PAWS Assessment Zones 3 and 9 - Threatened.

Monitoring and Demonstration –
a) Within AFI Research Stand – Full Forest Inventory (Sample Plots 6 to 10)
b) Ground Vegetation (NVC) and Epiphyte Monitoring (Sample Plots 6 to 10)
c) Fixed Point Bird Monitoring (Sample Plots 6 to 10)
d) Demonstration Management Area (B1, B2, B3, B4, B5 and B6).
e) Pine Marten Hair Tube Monitoring.

1d	6.16	Corsican pine	1955	PAWS restoration	Gullies/Deep Valleys/Uneven/ Rocky ground, No/poor vehicular access to the site, Sensitive habitats/species on or adjacent to site, Very steep slope/cliff/quarry/ mine shafts/sink holes etc		Planted Ancient Woodland Site
Compartment largely dominated by pine which has almost entirely been ring-barked (& some previously dead). Some stem collapse but generally standing dead. Excellent regeneration of sessile oak and birch & scattered rowan and hazel regeneration, some at pole stage now, and strong recovery of W17 vegetation. Occasional beech/conifer regen from adjacent stands. Small stands of other conifers and red oak. 2015 PAWS assessment Zones 10 to 18 - condition: Threatened, but large parts considered Secure. This generally steep rocky compartment is now essentially in the process of rapid restoration now. Archaeology – mine leat. Monitoring and Demonstration a) Outside of AFI Research Stand (Unsampled). d) 1 Pine marten den box (ref. Box 11) is located within this sub-compartment. e) Pine Marten Hair Tube Monitoring.							
1e	1.97	Hybrid larch	1999	PAWS restoration	No/poor vehicular access to the site, Sensitive habitats/species on or adjacent to site		Planted Ancient Woodland Site
Larch compartment. JL thinned to waste. Excellent Oak and Birch regen & ground flora. Oak regeneration in SW corner of 21a where larch has been clear-felled is supporting notable ancient woodland lichens including even on small diameter oak regen (e.g. with Normandina pulchella) and old larch stumps with W17 Atlantic oak wood bryophytes including Bazzania trilobata, Dicranum majus. 2015 PAWS assessment condition Zone 21: Threatened. Public right of way (Borth to Devil's Bridge Trail) runs through compartment.							

1f	1.35	Sessile oak	1900	Min-intervention	Gullies/Deep Valleys/Uneven/ Rocky ground, No/poor vehicular access to the site, Sensitive habitats/species on or adjacent to site, Very steep slope/cliff/quarry/ mine shafts/sink holes etc		Ancient Semi Natural Woodland, Planted Ancient Woodland Site
Partly Rheidol gorge section of ASNW mature sessile oak, with scattered rhododendron, and a felled area with restocked native broadleaves (P99) and natural regeneration. 2015 PAWS assessment condition Zones 19 and 20: Secure.							
1g	1.99	Scots pine	1955	PAWS restoration	Gullies/Deep Valleys/Uneven/ Rocky ground, No/poor vehicular access to the site, Sensitive habitats/species on or adjacent to site, Very steep slope/cliff/quarry/ mine shafts/sink holes etc		Ancient Semi Natural Woodland, Planted Ancient Woodland Site
Rheidol gorge, steep wooded slope. Some areas with strong base-enrichment occurring. Rich ancient woodland flora including epiphytes and ground flora. Rhododendron, Jap knotweed to be controlled. Spindle, small leaved lime also occur here. Other parts of the Rheidol gorge, where native ASNW has been underplanted with P55 Lawson's and Pine. 2015 PAWS assessment condition Zones 22 to 27: Threatened, but with some more Secure areas well characterised as ASNW.							

Appendix 2: Harvesting operations (20 years)

Forecast Year	Cpt	Operation Type	Work Area (ha)	Estimated vol/ha	Estimated total vol.
2019	1b	Thin	4.05	77	310
2019	1c	Thin	3.06	75	228
2019	1c	Clear Fell	0.10	620	62
2019	1d	Thin	0.68	72	49
2019	1e	Thin	1.97	65	128
2019	1f	Selective Fell	0.57	65	37
2019	1g	Selective Fell	1.99	65	129
2023	1b	Selective Fell	4.05	77	310
2023	1c	Thin	3.06	75	228

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.