

GUIDING PRINCIPLES

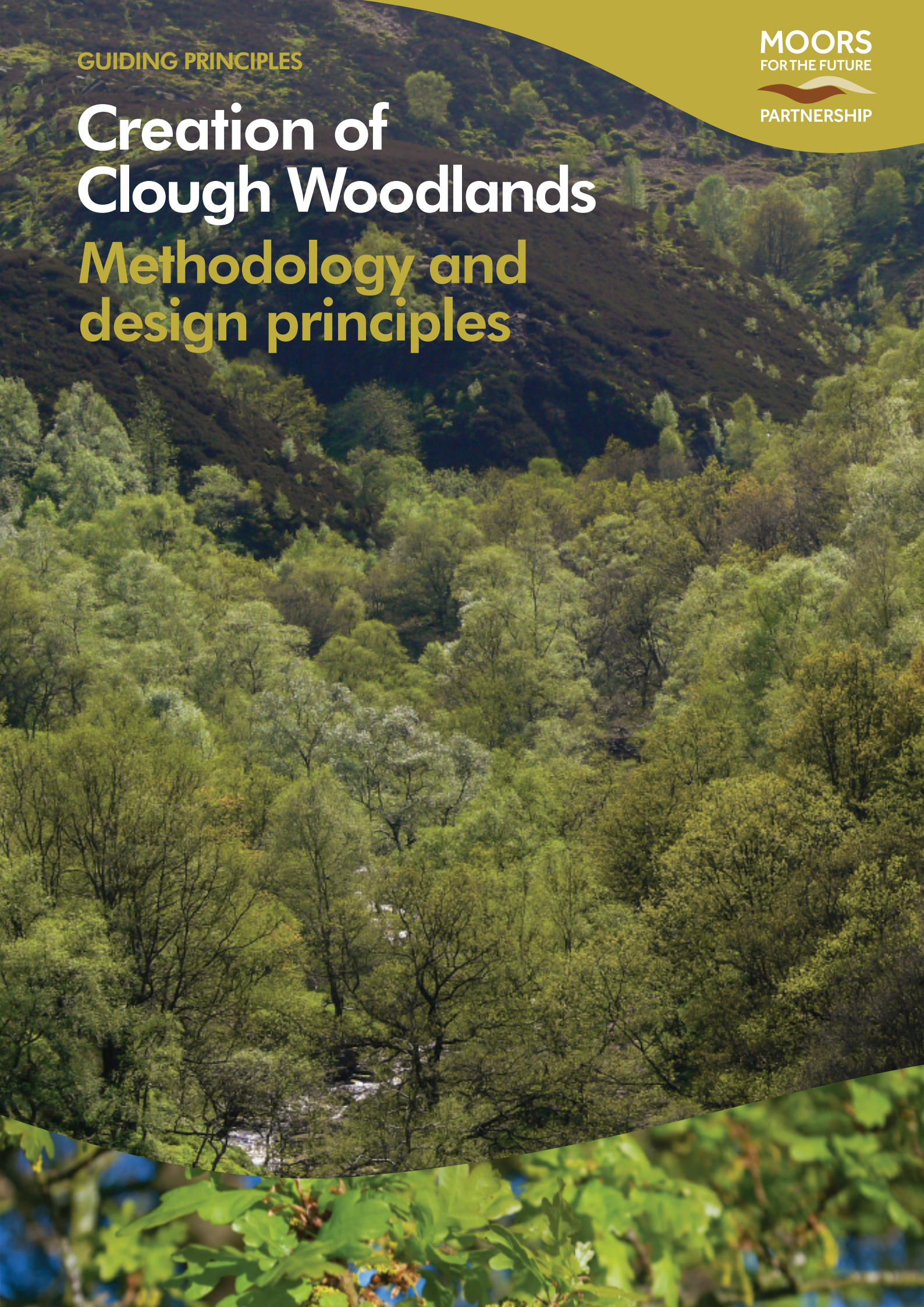
MOORS  
FOR THE FUTURE



PARTNERSHIP

# Creation of Clough Woodlands

## Methodology and design principles



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# 1 Introduction

This document outlines guiding principles and considerations for the creation of native clough woodland in the Dark Peak and South Pennines.

Clough woodlands are areas of steep-sided woodland found on valley sides on the edge of open moorland. They are of value for:

- **Wildlife**

Providing habitat for woodland plants, invertebrates and birds such as Redstart and Wood Warbler as well as shelter for species more associated with adjacent areas of moorland. The presence of clough woodlands also provides opportunities for the development of diverse edge habitats.

- **Water, air and land management**

Clough woodlands can help to improve water quality as well as contributing to the reduction of downstream flood risk. Woodland canopy adjacent to watercourses provides shade, thereby helping to control water temperature with resulting benefits for freshwater ecology and chemistry. Woodlands can also play a part in the control of atmospheric pollutants as well as reducing soil erosion and increasing the stability of slopes.

- **Landscape**

Areas of clough woodland enhance the landscape by increasing its diversity.

- **Agriculture and forestry**

Clough woodlands can be used to provide shelter and shade for livestock, in addition to which they can help to control Bracken. Appropriately managed, they can also be a source of timber for wood crafts.

- **Control of wildfires**

Although the role of native woodland in wildfires has not been well studied, clough woodlands may play a role in reducing the spread of wildfires as they are regarded as a 'low-risk habitat' in contrast to 'high-risk' moorland, heathland and grassland habitats and may also reduce the 'chimney effect' of moorland cloughs.<sup>1</sup>

Although clough woodlands are an integral part of the moorland landscape, they have declined over the years, in part due to high grazing pressure, and this has led to small, fragmented areas of woodland with poor connectivity for wildlife and a decline in biodiversity. There is therefore much potential for their re-establishment – something which also contributes to objectives set out in the Government's 25-year Environment Plan (2018) including:

- increasing woodland cover
- creating wildlife-rich priority habitat
- improving water quality
- safeguarding and enhancing natural beauty

This document covers key points that should be considered when planning the development

of clough woodlands before plans are sent for wider consultation. In particular, it covers:

- a methodology for woodland creation
- aspects of a site that need to be considered when designing woodland
- actions to mitigate against any negative impacts on a site's protected or special features

The various stages (initiation, planning, execution and review) to be considered when developing a proposal for a clough woodland are shown in Table 1 'Project stages in the planning and creation of clough woodland' (below) with Table 2 'Guiding design principles and methodology for native woodland creation' (page 18) giving more detail on how specific aspects of a potential clough woodland site can be protected from possible adverse impacts of woodland development.

This document should be used alongside the following:

- *Specific Guiding Principles for Woodland Creation* – these two accompanying guidance documents detail considerations for woodland creation specific to the relevant National Character Area (NCA) i.e. Dark Peak NCA and South Pennines NCA
- National Vegetation Classification (NVC) *Woodland Design Prescriptions* (Appendix 1)

Advice on such matters as methodologies for tree planting and ground clearance may be obtained from either the Forestry Commission or the Woodland Trust.

In planning and developing clough woodlands, it is essential to bear in mind that these comprise just one part of an overall vision for upland management, which also includes the restoration of bogs and other open moorland as well as the control of invasive species such as Rhododendron.

<sup>1</sup> See [www.forestresearch.gov.uk/research/building-wildfire-resilience-into-forest-management-planning/](http://www.forestresearch.gov.uk/research/building-wildfire-resilience-into-forest-management-planning/)

**Table 1: Project stages in the planning and creation of clough woodland**

INITIATION	PLAN	EXECUTE	REVIEW
Environmental Impact Assessment Screening	Creation of Consultation and Communication Plan	Tender works	Ongoing monitoring and management
Identification of: – key species – key habitats – features of special interest – access considerations – landscape considerations – stakeholders	Identify and develop proposals to work with: – landowners – tenants – local bodies and interest groups – statutory and regulatory bodies	Commence works on ground	
	Consultation with stakeholders to verify EIA screening assessment		
	Creation of draft plans for future monitoring and management		
	Preparation of draft plans for creation of woodland		
	Consultation on plans for creation of woodland		
	Gain approvals and consents for work		
	Landscape Visual Impact Assessment required		

## 2 Woodland creation methodology

### 2.1. Standards

Woodlands should be planned in accordance with the UK Forestry Standard and should also be designed to meet the principles and objectives outlined in:

- *Woodland for Water: Woodland Measures for Meeting Water Framework Directive Objectives* (Forestry Commission)
- *Keeping Rivers Cool – Creating Riparian Shade for Climate Change Adaptation* (Woodland Trust)

### 2.2. Woodland types and species selection

Any new woodland should be created in accordance with the National Vegetation Classification (NVC) appropriate to the site. Relevant NVC categories include:

- NVC woodland W17 – Upland Oak-Birch woodland with Bilberry
- NVC woodland W11 – Upland Oak-Birch woodland with Bluebell
- NVC woodland W4 – Birch woodland with Purple Moor-grass
- NVC woodland W7 – Alder-Ash woodland with Yellow Pimpernel

Species should be matched to the appropriate NVC classification, with local site variation, taking account of factors such as soil type, soil moisture level and exposure. Schemes may, for example, grade from wet woodland in clough bottoms through mature oak-dominated woodland, to birch, rowan and scattered scrub on higher slopes.

Appendix I provides greater detail on matching woodland design and composition to the four NVC classifications listed above.

The Ecological Site Classification (ESC) tool should also be used to inform species choice. The *ESC Decision Support System (ESC-DSS)* is a PC-based system (accessible via [www.forestdss.org.uk/geoforestdss/esc4m.jsp](http://www.forestdss.org.uk/geoforestdss/esc4m.jsp)) which assists forest managers and planners in the selection of tree species most ecologically suited to sites, as opposed to the approach of selecting a species and then trying to modify the site to suit this. The tool provides a user-friendly way of deciding upon options for tree species and native woodland communities on specific sites. The ESC-DSS simply requires the user to input two pieces of information:

- Grid reference
- Soil type

ESC-DSS also supports the modelling of various climate change scenarios; a process which can be used to help improve the resilience of any woodland planted.

Local knowledge from Forestry Commission field staff and ecologists should also be used to inform species choice.

### 2.3. Provenance

Whenever possible, planting schemes should use stock of local provenance. Locally sourced trees and shrubs from a wide range of species are encouraged because:

- Ensuring local provenance means regional differences, variations and genetics are maintained, so the trees are most adapted to the place they are planted.



- It is likely that there would have been greater diversity in native clough woodland composition in the past and using a range of species can help to recreate this.
- Using a variety of native species can support the conservation of scarcer trees and shrubs and their associated invertebrates, mosses and lichens.

However, consideration should also be given to the genetic resilience of planting schemes – with a variety of provenance zones possibly being of benefit in helping to maintain resilient woodland in the face of climate change and any future pests or diseases. The future resilience of English woodlands relies on informed species selection taking into account predicted changes to climate conditions. Projected increases in temperature, changes in the seasonality of rainfall and an increased frequency of extreme events all add complexity to species selection. The ESC-DSS tool has the capacity to be used to decide on tree species most suited to future climate change predictions at a particular site.

### 2.4. Ground preparation

Areas to be developed as woodland may require Bracken clearance with either mechanical machinery such as a topper or flail, or manual clearance using hand tools. This will result in suitable planting areas or areas of bare ground that will aid and focus natural colonisation.

In some cases, it may be more appropriate to use herbicides to prepare the ground prior to any seeding or planting. The method of application should be dependent on the site – with particular consideration being given to the proximity of water courses, hill slope stability and sensitivity of existing vegetation.

Advice should also be sought from local ecologists to determine the presence of species which may be sensitive to particular herbicides as well of species (e.g. Twite) that may be adversely affected by the wholesale clearance of bracken.

### 2.5. Tree planting

The number of trees planted (as a proportion of the total number eventually reached on site) will vary depending on site characteristics. Ideally, more than 50% of tree establishment should be allowed to happen naturally; meaning that only around 50% will need to be planted. However, this is dependent on a site's potential for natural colonisation and so should be

undertaken in line with local conditions, for example, the natural availability of seed of required tree species.

The planting of trees should focus on heavier-seeded species and those less likely to colonise areas naturally, e.g. Sessile Oak and Hazel. Heavier-seeded species may be best planted higher up on clough slopes, which will allow young trees from these species to colonise the lower slopes in the longer term.

Trees should be planted at varied spacing following the principles for the creation of new native woodland described in 'Forestry Commission Bulletin 112 – Creating New Native Woodlands'. This varied spacing will create a more natural woodland structure in order to mimic natural colonisation.

## 2.6. Woodland establishment

Natural colonisation is generally the preferred method of woodland establishment. In most cases, this will require livestock to be excluded from the site with stock fencing.

Natural colonisation is preferred as it results in a natural look and feel, creates woodland with tree species best suited to the site and conserves local genetic distinctiveness and diversity. The ability for a site to be colonised naturally will however depend on site characteristics such as aspect, exposure, seed source, existing soil conditions and vegetation and seed source.

MFFP is aiming to ensure that, for every project, 40% of the site comprises open ground; with the remaining 60% being covered with trees of varying densities. Conditions should be created to allow natural colonisation to achieve at least 1,600 established trees per hectare. This figure is an average across the site – with denser trees in less ecologically sensitive areas balancing lighter planting in more sensitive areas.

Supplementary seeding is to be encouraged where this uses appropriately sourced seed from local woodland.

## 2.7. Fencing

It may be necessary to partially or entirely fence out cloughs to facilitate initial woodland establishment and assist with future management. Fences could then be removed if no longer serving a purpose – with the length of time a fence is in place being decided on a case-by-case basis.

In some instances, enclosures may provide an additional use as grazing enclosures prior to seeding or planting. Here, grazing could be used as a tool to manage existing vegetation and create bare ground. Fences may also be used as a management tool to control future woodland grazing.

The siting of fences will often require input from local graziers to ensure that no animal welfare issues are created. Close consultation with farmers and graziers with local knowledge will inform the design and location of fences in a way which could provide benefits to livestock movements and gathering. The location of fencing also needs to take into account access and the proximity of archaeological features as well as appropriate measures to protect wildlife.

Consideration could also be given to rabbit- or hare-proof fencing where this is required to protect the growing trees.



## 2.8. Grazing

Any land subject to a Woodland Creation Agreement under the Countryside Stewardship Scheme must not be used for any agricultural activity, including grazing, for a period of:

- at least five years following the final capital payment
- five years after the last payment of the 10-year maintenance period

After the five-year obligation period (or the 10-year Woodland Maintenance Agreement) the woodland becomes a permanent land use change.

Landowners can continue to claim their Basic Payment Scheme (BPS) payments both through the Woodland Creation Capital Agreement and until the end of any subsequent ten-year Woodland Maintenance Agreement.

A decision on whether or not to retain enclosures in the longer term will need to be made on a site-by-site basis towards the end of these conditions being in place.

For schemes not under the Countryside Stewardship Scheme, occasional grazing may be beneficial to aid establishment. Appropriate grazing regimes for such a purpose should:

- avoid grazing in spring and summer to protect woodland understorey
- allow grazing in winter in order to remove dense scrub

Where livestock is excluded from cloughs, grazing levels for the remaining adjacent areas of open moor will need to be re-assessed and possibly adjusted to ensure that livestock densities remain sustainable and that there are no adverse impacts on animal welfare or the conservation objectives for the site. Other considerations for scheme design include ensuring the movement of stock and allowing livestock continued access to water.

In places where schemes are intended to be achieved through planting, the presence of grazing livestock and wild grazing animals such as deer will need to inform the choice of individual tree protection.

In some cases, the exclusion or reduction of grazing for a 15-year period, followed by the reintroduction of grazing, may deliver significant benefits. However this will depend significantly on the rate of natural colonisation and the stock density of grazing reintroduced.

## 3 Mitigation measures

Areas under consideration for woodland development may contain features of cultural, geological and ecological value. Where this is the case, careful consideration needs to be given to ensuring that such features are not adversely impacted by the woodland scheme. Table 2 'Guiding principles for native woodland creation: overarching design principles and methodology' summarises how specific aspects of a potential clough woodland site can be protected from possible adverse impacts of woodland development.

If appropriate scheme design cannot mitigate against the potentially adverse impact of woodland creation, consideration should be given to reducing the scheme's area or, in extreme cases, not developing the woodland at all.

### 3.1. Cultural heritage and geology

It is essential that heritage assets and sites of geological interest are not compromised or damaged as a result of woodland creation and management. Site-specific recommendations should be identified through consultation with relevant local groups, stakeholders and statutory bodies.

Historic England must be consulted about any works that have the potential to damage Scheduled Monuments.

#### 3.1.1. Tree planting

Trees should not be planted on, or within close proximity to archaeological features. In the case of geological features it might be possible (following consultation) to, plant trees with a wide spacing (up to 15 metres).

#### 3.1.2. Open ground

Open ground should be incorporated into the woodland design to avoid any damage to special features. Where groups of archaeological features are close together these will need to be incorporated into larger areas of open ground, taking into account their landscape setting. In some circumstances, it may be important to protect the visibility of monuments in the wider landscape or from key viewpoints.

#### 3.1.3. Fences

Fences must not cross known archaeological features and should be sited at least 10 metres away from any identified features.

### 3.2. Ecology

Habitats and species of national and international importance must be protected under the scheme design. The ecological objectives of woodland creation should be consistent with ecological management objectives, including those outlined in:

- any Biodiversity Action Plan (BAP) for the area
- documents for areas designated as a Site of Special Scientific Interest (SSSI)
- documents for areas designated as a Special Protection Area (SPA)
- documents for areas designated as a Special Area of Conservation (SAC)

Experts should be consulted when developing proposals to inform the design and management of woodland proposals and to mitigate any detrimental effect on habitats or the species they support.

Natural England's 'Mosaic Approach' guidelines for habitat establishment and management should be used as a guiding principle with the objective being to achieve a diverse mosaic of upland habitats with a diversity of structures and age. Target areas identified in proposals should be those habitats that have a relatively low conservation interest.

In addition, projects should aim to enhance habitat connectivity, for example by maximising opportunities to extend existing woodland, restore relic ancient woodlands and link fragmented woodland to create larger wooded areas. Any woodland creation should also be considerate of other needs for connectivity, for example maintaining the connectivity of open areas for species such as Water Vole.

#### 3.2.1. Open ground

Habitat features as outlined in designations can be incorporated into proposals, insofar as the proposal is beneficial and contributes to the diversity of the habitat. Open ground and widely spaced trees (up to 15 metre spacing) can be incorporated into proposals – though, in some areas, a 20 metre buffer will need to be applied around habitats.

Information about likely nesting sites and habitat for birds, as well as the presence of mammals and invertebrates, will dictate how much open ground is required and where this is to be located. For example, Ring Ouzels can nest in cloughs where they may be displaced by woodland planting. Open ground may also be needed to protect ground-nesting birds such as Twite (which nest in and around areas of Bracken), mammals that use open ground for feeding, and light-sensitive invertebrates. Similarly, open ground may need to be incorporated into schemes to protect specialised plant communities, mosses, liverworts and lichens which are intolerant to shading, as well as those that are associated with rock outcrops. Areas of dry and wet heath may be of particular value and planting on these should be avoided.

Where open ground is required, trees should be planted with an adequate buffer. Local experts should be consulted on a site-by-site basis to determine the exact size of buffer required.





### 3.2.2. Fences

Fences should be carefully located to ensure there is no negative impact on protected species or other species of interest and their associated habitats, for example by:

- ensuring that fences close to watercourses do not damage or disturb Water Vole burrows or cause undue disturbance during installation
- siting fences where there is a relatively low risk of impeding the flight of birds
- siting proposed fence lines to avoid badger setts and other features associated with protected wildlife
- including reflector strips on wire fences where appropriate to increase visibility to flying birds
- siting fences below the ridge line to avoid displacement of birds and minimise the creation of predator perches
- considering any potential negative effects resulting from displaced livestock or walkers

Schemes should also ensure that potential nest sites are not obscured by fencing or developing woodland. Fence installation works should not take place at times of year that are detrimental to the conservation objectives for the site. For example, transportation of materials and fence installation should take place outside the bird breeding season.

Where access is required across open moorland, routes should be carefully chosen to avoid damaging any sensitive habitats. Low-ground-pressure vehicles may be required or materials may need to be airlifted to the site.

### 3.2.3. Trees

Clough woodland schemes should generally be restricted to steeper sides, slopes, cloughs and valleys; with flat and gently sloping moorland areas excluded from planting and with the expected tree height lying below the crest level of the clough/moorland interface. This is to avoid any displacement of birds from otherwise suitable nesting habitat on the moor as well as to minimise the creation of predator perches. Planting should also be done in such a way that it benefits priority species in the area.

There are places in the Dark Peak where extending scattered trees or open woodland above the break of slope and on to less-sensitive open moorland areas may be appropriate. Appropriate local advice should be taken if this is being considered. This approach is however unsuitable for the South Pennines area due to the potential presence of Twite.

For habitats specifically identified in designations, tree cover should be less than 20% or at another level appropriate to the site.

### 3.2.4. Grazing

Any exclusion of livestock will potentially provide additional benefits, including the recovery of existing heavily grazed habitats. Moorland berries, such as Bilberry, Crowberry and Rowan, are important in late summer and autumn and reduced grazing will benefit the flowering and fruiting of these shrubs in locations where they are currently suppressed. This will provide additional food resources for birds and a range of invertebrates, notably the declining Bilberry Bumblebee which feeds on Bilberry flowers.

Woodland schemes should ensure that important grazed areas used by wading birds are not inadvertently excluded from grazing and also that nesting sites and feeding habitat are not separated by long distances. Careful fence design may resolve this issue, for example by allowing a degree of controlled grazing within fenced areas.

Some cloughs and stream valleys support important flushes or other rare/uncommon flora. These areas are likely to require some level of grazing which will ensure that they remain as open sunlit habitats and that the ground flora does not become too dense for these rare/uncommon species to flourish.

Occasional or light grazing amongst trees may also prevent the ground becoming choked with undesirable vegetation as well as allowing more desirable woodland ground flora to flourish.



## 3.3. Species control

### 3.3.1. Deer and squirrel

Deer and squirrel management may be required to ensure successful and sustainable woodland establishment.

Monitoring of deer numbers will be required to identify significant population increases and to enable appropriate action to be taken in good time. The presence of sustainable numbers of native deer species would however be a welcome benefit.

### 3.3.2. Predators

Woodland creation may increase predator numbers, such as corvids, Fox, Weasel and Stoat. Legal predator control may be required to support shooting, farming and conservation interests. To be effective, such predator control will need to be site specific, sustained and well-timed.

Ensuring significant proportions of open ground within proposed schemes (up to 40%) together with widely spaced trees and shrubs (up to 15 metres) will facilitate pest and predator control.

### 3.4. Access

All proposals must take into account existing Public Rights of Way (PRoW) and Countryside and Rights of Way (CROW) Access Land and not cause any obstructions to these. Local Access Groups and other relevant stakeholders may need to be consulted.

Where appropriate opportunities exist to enhance access routes, these should be incorporated into the woodland scheme. Where sites have existing access infrastructure to enable disabled access, this should on no account be compromised.

#### 3.4.1. Fences

Fences crossing Public Rights of Way should be avoided as far as practically possible.

Where the crossing of major paths or bridleways is unavoidable, the relevant Highway Authority must be consulted.

New fence lines within Access Land should include stiles approximately every 200 metres along the fence with at least one of these being visible from every point along the fence in order to facilitate walker access. Barbed wire should not be used.

On popular paths, gates may be preferable to stiles. These should be self-closing and of sufficient quality to ensure that livestock cannot gain undesired access into or out of the fenced area.

#### 3.4.2. Grazing

Gates should be considered for fenced areas where there is a possibility that trespass livestock may enter. Adequate access controls are also necessary for the easy and swift removal of livestock to prevent damaging effects to the establishing woodland.

To facilitate livestock movement during woodland establishment and beyond, there should be at least two gates including slip gates included in the scheme design – generally at opposite ends of enclosures.



#### 3.4.3. Fire management

The relevant local Fire Operations Group (FOG) must be consulted on clough woodland proposals in order to ensure that key access routes for managing moorland fires are not compromised. The current FOG Moorland Fire Plan should inform scheme design.

### 3.5. Landscape

The creation of woodland should be consistent with any local strategies for the landscape. In addition, the shape of the woodland should be in keeping with the characteristics of the landscape and the planting scheme should aim to achieve visual diversity of open ground, tree spacing, species and habitat pattern and structure. In general, tree and shrub spacing should be less dense as it extends higher up the clough slopes.

Woodlands should be planted in natural and organic shapes, with irregular vegetation both at the edges and within. The scale of the woodland should be proportionate to that of the landscape it sits within. Landscape benefits could be significantly enhanced in areas where proposed woodland abuts existing conifer plantations, especially if liaison with plantation owners ensures a graduation from conifer to mixed-broadleaf along the plantation margins. This will have the added benefit of reducing the risk of fire in conifer plantations.

Priority iconic views should be retained from key public viewpoints. This may be informed by consultation with key stakeholders, for example local planning authorities (including, where relevant, the Peak District National Park Authority). Landscape Visual Impact Assessments may be required to ensure successful engagement and buy-in from local communities.

Natural colonisation will provide a better visual impact, compared to the trees and shrubs in plastic shelters/guards with wooden stakes often associated with planting. Where planting is required, appropriate coloured tree guards should be chosen to minimise visual impact.





Fences should not be sited along the top of an edge or escarpment and should be sited to avoid hard edges which contrast with the landscape (for example, by running fence lines directly perpendicular to a slope). Consideration should be given to the visibility of a fence and effects of livestock gathering, sheltering and grazing along the fence line – which could potentially make the fence a more prominent feature in the landscape.

### 3.6. Supervision and monitoring

Practical works will require careful supervision and monitoring, particularly in designated areas (e.g. SSSI, SPA, and SAC).

In designated areas and areas of heritage sensitivity (e.g. Conservation Areas and Scheduled Monuments) supervision and monitoring by the land owner/manager will be required to ensure that both initial woodland creation works and subsequent natural colonisation do not have a negative impact on the ecology or any heritage assets and their settings and that conservation objectives are met.

Generally, the following monitoring should be carried out:

- baseline surveys in the first year alongside the identification of control sites
- sites monitored annually for at least 3–5 years after enclosure, to identify priorities for maintaining open ground

For successful woodland establishment, regular monitoring will be required to inform the following:

- beating up
- replacing tree stakes
- repairing fences and ensuring PRoW remain clear and that access controls are still in place
- management of natural regeneration so that it does not encroach on archaeological features or other special features
- managing invasive species

## 4 Consents

### 4.1. Land drainage consents

The Relevant Local Authority is responsible for Main Rivers<sup>2</sup> and is the Lead Local Flood Authority for Ordinary Watercourses. Although consent is not required for the planting of trees on the banks of the latter, the Lead Local Flood Authority should nevertheless be consulted in line with best practice and partnership working.

### 4.2. Flood defence consents

The Environment Agency may require Flood Defence Consent for planting within 7–16 metres of Main Rivers. This is known as the byelaw strip and different widths apply in different regions. Local Flood Defence teams should be consulted to check if this is required.

### 4.3. SSSI consents

For all woodland proposals on land designated as an SSSI, the landowner is responsible for obtaining consent from Natural England for all operations requiring consent as specified in the list of operations likely to damage the special interest for that SSSI.

### 4.4. Herbicide consents

The Environment Agency will need to grant consent for any herbicide application in or near water.

### 4.5. Habitats Regulation assessment

Woodland proposals within the SAC and SPA will require screening under the Conservation of Habitats and Species Regulations 2010 (the 'Habitats Regulations'). The appropriate authorities (Forestry Commission and Natural England) will undertake an initial screening to assess whether a scheme might have a significant effect on the site's conservation objectives.

A more detailed assessment will be required for schemes where it is uncertain whether or not the scheme will adversely affect the integrity of the site.

### 4.6. Scheduled Monument consent

Consent from the Secretary of State for Digital, Culture, Media and Sport (via Historic England) is needed for any works on a Scheduled Monument.

<sup>2</sup> A 'Main River' is a watercourse marked as such on a Main River map

## 5 Management objectives

Site-specific management objectives should be established on a case-by-case basis to support individual woodland creation schemes and their future management.

Below are some generic management objectives which can be tailored to individual sites:

- Maintain 50% shading of watercourses with species appropriate to the site
- Maintain maximum 20% open ground if appropriate to site
- Maintain up to 20% scattered tree cover on protected habitats
- Maintain a 20 metre buffer on habitats that require open ground, e.g. acid flushes or crags and rock ledges

Sufficient resources must be committed by the landowner/ agreement holder in order to successfully deliver grant-funded woodland creation, meet agreed site management objectives and to fulfil the following responsibilities:

- Contractual obligations under any grant scheme
- Regulatory and statutory responsibility



## 6 Useful resources

### Defra

- *Countryside Stewardship Manual: Woodland Creation Grant*, 2017  
<https://www.gov.uk/guidance/create-woodland-overview>

### Forestry Commission

- *Ecological Site Classification Tool*, 2017  
<https://www.forestryresearch.gov.uk/tools-and-resources/ecological-site-classification-decision-support-system-esc-dss/>
- *Forestry Commission Bulletin 112 – Creating New Native Woodlands*, 1994  
<https://www.forestryresearch.gov.uk/research/archive-creating-new-native-woodlands/>
- *The UK Forestry Standard*, 2017  
<https://www.gov.uk/government/publications/the-uk-forestry-standard>
- *Woodland for Water: Woodland Measures for Meeting Water Framework Directive Objectives*, 2011  
<https://www.forestryresearch.gov.uk/research/forest-hydrology/woodland-for-water-woodland-measures-for-meeting-water-framework-directive-objectives/>

### Natural England

- *The Mosaic Approach: Managing Habitats for Species (B2020-009)*, 2013  
<http://publications.naturalengland.org.uk/publication/6415972705501184>

### RSPB

- *Bird species and their likely response to clough woodland creation in the northern Peak District*  
MFFP Library

### Woodland Trust

- *Keeping Rivers Cool – Creating Riparian Shade for Climate Change Adaptation*, 2016  
<https://www.woodlandtrust.org.uk/publications/2016/02/keeping-rivers-cool/>

**Table 2: Guiding design principles and methodology for native woodland creation** <sup>3</sup>

	General comments	Fences	Open ground	Grazing	Tree planting	Woodland establishment	Consultation	Consents needed	Future management
<b>Woodland creation</b>	Woodlands to be planted in accordance with the UK Forestry Standard and with the aim of achieving the National Vegetation Classification appropriate to the site.	Partial or entire fencing out of cloughs may be required.  Fences may be necessary to facilitate both initial woodland establishment and future management but should be removed when no longer serving a purpose.	For every project, 40% to be open ground with the remaining 60% covered with trees of varying densities.	Grazing may need to be excluded to help woodland establishment.  Grazing should always be excluded where woodland is to be established by natural colonisation.  Where grazing is permitted, saplings will need to be adequately protected, with an appropriate grazing regime put in place.	Planting schemes should favour trees of local provenance.  Planting should be carried out in accordance with <i>Forestry Commission Bulletin 112 – Creating New Native Woodlands</i> .  Tree planting density should be around 1,600 trees per hectare, with denser planting confined to less sensitive habitats.	Around 50% of tree colonisation should occur naturally.  Some additional seeding can be used for lightly spaced trees.	Yes – Environment Agency, Natural England, Forestry Commission.	Land Drainage Consent Flood Defence Consent Herbicide Consent	Monitoring will be required to determine if any additional bracken control is needed and to maintain the quality of tree planting, e.g. by replacing broken stakes.
<b>Habitat</b>	Planting must be consistent with ecological management objectives, including those in: <ul style="list-style-type: none"> <li>any Biodiversity Action Plan for the area</li> <li>documentation for areas designated as a Site of Special Scientific Interest (SSSI)</li> <li>documentation for areas designated as a Special Protection Area</li> <li>documentation for areas designated as a Special Area of Conservation.</li> </ul> Planting should be done in accordance with Natural England's 'Mosaic Approach'.	Construction of fences needs to be carried out with consideration to conservation objectives. For example, it should not take place during bird breeding season and should be done in a way that avoids vehicle damage to any sensitive habitats.  Fences should not interfere with wildlife or cause undue disturbance (for example to Water Vole burrows).  Fences should not impede bird flight and should not be sited so that they can be used as hunting perches by birds of prey.	Open ground and widely spaced trees (up to 15m spacing) should be incorporated into proposals.  A 20m buffer should be applied around habitats identified as needing to be left as open ground.	The impact of grazing – or the removal of grazing on the habitat – needs to be considered, as do stocking levels in and around areas where woodland is being created.	The tree line should generally be below the crest level of the clough/ moorland interface.  In sensitive areas, trees should not cover more than 20% of the area.	Woodlands should be established to improve connectivity using opportunities to extend existing woodland or link fragmented woodland.  Connectivity for other habitats – for example open ground – should also be maintained.	Yes – Natural England, Peak District National Park Authority.	SSSI Consent Habitat Regulations Assessment	Where sites are designated, supervision and monitoring will be required by the land owner/manager to ensure that both initial woodland creation works and subsequent natural colonisation do not have a negative impact on ecology and that conservation objectives are met.  Generally, project partners recommend the following monitoring: <ul style="list-style-type: none"> <li>Baseline surveys in the first year – ideally accompanied by identification of control sites</li> <li>Sites then monitored annually for at least 3–5 years after enclosure to identify priorities for maintaining open ground.</li> </ul>
<b>Cultural heritage and geology</b>	Heritage assets and Sites of Special Geological Interest must not be compromised or damaged.	Fences should not cross any known archaeological features and should be at least 10m from these.	Areas of open ground should be used to protect archaeological features.	Grazing can help maintain open ground thus protecting archaeological features from tree growth.  However, stocking levels and type of animal need very careful consideration to avoid surface damage.  Thought should also be given to the routes along which animals pass to get to and from grazing areas.	Tree planting should not be close to archaeological features.  Tree planting with wide spacing (up to 15m) might be possible for sites of geological interest.	Natural colonisation is not encouraged in close proximity to archaeological features.	Consult local authority archaeologists, Conservation Officers and others if relevant e.g. National Trust archaeologists when working on National Trust sites.  Heritage Impact Assessments (including Landscape Visual Impact Assessments) may be beneficial, especially around the settings of Scheduled Monuments and/or Listed Buildings.	Historic England must be consulted regarding any works with the potential to damage Scheduled Monuments. This is needed to establish that damage won't occur and also to devise suitable mitigation measures.  Consultation should also include consideration of the setting of Scheduled Monuments and Listed Buildings.  Consent is not likely to be given at all to schemes that have the potential to damage Scheduled Monuments.	Future management of natural colonisation may be required to ensure the integrity and conservation of archaeological features.  This may either be achieved through appropriate grazing regimes or manual clearance.  Mechanical machinery should not be used to clear bracken around sites of archaeological or geological interest.

<sup>3</sup> Table 1 is on page 3

**Table 2: Guiding design principles and methodology for native woodland creation (continued)**

	General comments	Fences	Open ground	Grazing	Tree planting	Woodland establishment	Consultation	Consents needed	Future management
<b>Landscape</b>	<p>The creation of woodland should be consistent with any local landscape strategies.</p> <p>In addition, woodland should be in keeping with the characteristics of the landscape and the planting scheme should aim to achieve visual diversity.</p>	<p>Fences should not be sited along the top of an edge or escarpment.</p> <p>They should be sited to avoid hard edges which contrast with the landscape. (For example, running fence lines directly perpendicular to a slope.)</p>	Visual diversity should be maintained by incorporating open ground.	Consideration should be given to visibility of fences as well as to the visual impact of livestock gathering, sheltering and grazing along the fence line, which has the potential to make a fence a more prominent feature in the landscape.	<p>Visual diversity should be maintained through natural tree spacing, species selection, habitat pattern and structure.</p> <p>In general, tree and shrub spacing should be less dense as it extends higher up clough slopes.</p>	<p>Tree guards of an appropriate colour should be used to minimise visual impact.</p> <p>Natural colonisation will provide a better visual impact than planting.</p>	<p>Priority and iconic views should be retained from key public viewpoints. This may be informed by consultation with key stakeholders.</p> <p>Landscape Visual Impact Assessments may be required to achieve successful engagement and buy-in from local communities.</p>	n/a	Monitoring should ensure that woodland is managed in such a way that it remains in keeping with the local landscape.
<b>Access</b>	All woodland proposals should take into account existing Public Rights of Way and CRoW Access Land and not cause any obstructions.	<p>Fences crossing Public Rights of Way should be avoided as far as practically possible.</p> <p>New fence lines within Access Land should include stiles approximately every 200m along the fence – at least one of which should be visible from every point along the fence to facilitate walker access.</p> <p>Barbed wire should not be used.</p>	n/a	<p>Adequate access controls should be put in place for swift and easy removal of livestock in order to prevent damage to establishing woodland.</p> <p>To facilitate ease of livestock movement during woodland establishment and beyond, there should be at least two gates – generally at opposite ends of enclosures.</p>	n/a	n/a	Local Access Forums	<p>Where fence lines cross paths, the relevant Highways Authority must be consulted.</p> <p>The relevant local Fire Operations Group must be consulted to ensure that the woodland does not compromise access to moorland in the event of a fire and that the plan is in keeping with the current Moorland Fire Plan.</p>	Management is needed to ensure that Public Rights of Way remain clear and that access controls remain in place.
<b>Species control</b>	Woodland creation may increase predator numbers as well as numbers of species such as deer and squirrel.	Hare- and rabbit-proof fencing may be required.	Open ground and widely spaced trees and shrubs will facilitate pest and predator control.	n/a	n/a	n/a	Yes	SSSI Consent	<p>Legal predator control may be required to support shooting, farming and conservation interests.</p> <p>To be effective, this needs to be site-specific, sustained and well timed.</p> <p>Monitoring of deer numbers will be necessary and deer and squirrel management may be required to ensure successful woodland establishment.</p>

## Appendix 1: NVC Woodland Design Prescriptions

From Forestry Commission Bulletin 112: Creating New Native Woodlands

### a. Birch woodland with Purple Moor-grass (NVC woodland W4)

**Zone:** Throughout the wetter regions of Britain and locally in the lowlands where site conditions are suitable.

**Soil types:** Flushed and unflushed acid peats, and peaty surface-water gleys.

**Geology:** Peats or over-impervious shales and clays, or heavy superficial deposits, where flushed with base-poor waters.

**Terrain and site types:** Margins of blanket mires, valley bogs and hillslope and valley-side flushes and the margins of cut-over or drained raised mires.

**Major recommended trees:** Downy Birch

**Minor recommended trees:** Goat Willow, Alder

**Recommended shrubs:** Grey Sallow, Eared Willow, Bay Willow (in northern Britain)

#### Optimal precursor vegetation:

- Wet grasslands and rushy pastures with Purple Moor-grass, Soft Rush, Sharp-flowered Rush, Yorkshire Fog, Brown Bent, Common Bent, Sweet Vernal Grass, Greater Bird's-foot Trefoil, Marsh Thistle, Devil's-bit Scabious, Wild Angelica, Tormentil
- Wet heath, degraded mires and flushes with Purple Moor-grass, Cross-leaved Heath, Heather, Sweet Gale, Heath Rush, Mat Grass, Deer Grass, Star Sedge, Carnation Sedge, Sharp-flowered Rush, Marsh Violet, Common Cotton-grass

**Desired invaders:** Tufted Hair-grass, Creeping Soft-grass, Bramble, Honeysuckle, Broad Buckler Fern, Narrow Buckler Fern, Smooth-stalked Sedge

**Woodland structure and pattern:** Semi-natural stands of this sort of woodland usually have a vigorous and dense cover of young Birch or an open and decrepit canopy of older trees. Plantings can aim for a little more diversity by varying the abundance of associates and, especially on flushed ground, wider spacing will encourage the development of a richer field layer. Drier sites offer less promise of variety but open areas can have transitions to heath vegetation. A shift on to acid peaty mineral soils on surrounding terrain is common and here Oak-Birch woodland with Bilberry would be usual.

### b. Alder-Ash woodland with Yellow Pimpernel (NVC woodland W7)

**Zone:** Throughout the wetter regions of Britain, particularly around the upland fringes of the north and west.

**Soil types:** Moderately base-rich and mesotrophic surface-water gleys and flushed brown earths, and some ground-water gleys.

**Geology:** Impervious sedimentary shales and clays, and heavy superficial deposits like boulder clay and clayey head or downwash.

**Terrain and site types:** Valley sides and hill slopes with flushes and seepage lines, streamsides and older alluvial terraces, and waterlogged brows and plateaux.

**Major recommended trees:** Alder, Ash

**Minor recommended trees:** Downy Birch, Goat Willow, Pedunculate Oak, Sessile Oak, Rowan, Holly, Bird Cherry (in northern Britain)

**Major recommended shrubs:** Grey Sallow, Hazel, Hawthorn

**Minor recommended shrubs:** Elder, Guelder Rose, Blackthorn, Bay Willow (towards northern Britain)

#### Optimal precursor vegetation:

- Tall-herb fens and rushy pastures with Meadowsweet, Soft Rush, Sharp-flowered Rush, Tufted Hair-grass, Rough Meadow Grass, Sweet Vernal Grass, Marsh Thistle, Wild Angelica, Common Valerian, Creeping Buttercup, Marsh Marigold, Cuckoo Flower, Common Dog Violet, Water Mint, Stinging Nettle

**Desired invaders:** Creeping Soft-grass, Wood Sorrel, Yellow Pimpernel, Opposite-leaved Golden Saxifrage, Remote Sedge, Smooth-stalked Sedge, Pendulous Sedge, Lady Fern, Broad Buckler Fern, Marsh Hawk's-beard (in northern Britain)

**Woodland structure and pattern:** Characteristically semi-natural stands of this kind of woodland have a rather open and irregular cover of trees and shrubs, some keeling over where the ground slumps. More widely spaced plantings will also encourage the retention or development of a richer associated flora and, even where there is no grazing, the wetness and instability of the ground will help discourage canopy closure. Stands will often be small, marking out isolated slope flushes, but plantings should not be too closely crowded by the surrounding woodlands. Transitions on such drier slopes will usually be to mixed broadleaved or Oak-Birch woodlands and, on any alluvium or peat below, to Alder-Reed or Alder-Nettle woodlands.

**c. Upland Oak-Birch woodland with Bluebell (NVC woodland W11)**

**Zone:** Throughout the cooler and wetter uplands of northern and western Britain.

**Soil types:** Acidic brown earths and podzolic brown earths.

**Geology:** Non-calcareous shales and softer lime-poor igneous and metamorphic rocks, lime-poor superficial deposits like boulder clay, fluvio-glacial sands and gravels, head and colluvium<sup>4</sup>.

**Terrain and site types:** Valley sides and hill slopes around the upland fringes and on well drained terraces of larger rivers.

**Major recommended trees:** Sessile Oak, Downy Birch

**Minor recommended trees:** Silver Birch, Pedunculate Oak (locally), Rowan, Holly, and Aspen (local)

**Recommended shrubs:** Hazel, Hawthorn, Juniper (in more open places)

**Optimal precursor vegetation:**

- Grasslands with Sheep's Fescue, Red Fescue, Sweet Vernal Grass, Common Bent, Yorkshire Fog, Heath Bedstraw, Tormentil, Common Dog Violet, Field Wood-rush, Yarrow
- Fern vegetation with some of the above and Bracken, Lemon-scented Fern, Hard Fern, Broad Buckler Fern, Great Wood-rush

**Desired invaders:** Bluebell, Primrose, Pignut, Wood Sorrel, Wood Sage, Creeping Soft-grass, Wood Anemone

**Woodland structure and pattern:** Semi-natural stands have little diversity among the trees and shrubs, a feature accentuated by the widespread use of the woodlands as Oak-coppice with grazing or by the spread of Birch following the removal of all good-quality timber. However, more open areas can be given mixtures of Rowan, Birch, Juniper and Holly. Open areas will show a strong tendency to become bracken-dominated, but where this has an understorey of Bluebell there is greater interest. Rocky ground and wetter places promise more diversity in associated herbaceous vegetation, and, in some of the latter, plantings can encourage development of Alder-Ash-Yellow Pimpernel woodland.

<sup>4</sup> Material that accumulates at the bottom of a steep slope

**d. Upland Oak-Birch woodland with Bilberry (NVC woodland W17)**

**Zone:** Throughout the cooler and wetter upland fringes of northern and western Britain.

**Soil types:** Rankers, podzolic brown earths and podzols.

**Geology:** Sedimentary sandstones and grits, igneous rocks like lime-poor granites and lavas, quartzites and gneisses, and pervious lime-poor superficial deposits like coarse fluvio-glacial sands and gravels.

**Terrain and site types:** Scarps, valley sides and hill slopes, often with rugged terrain, around the upland fringes of the north and west.

**Major recommended trees:** Sessile Oak, Downy Birch

**Minor recommended trees:** Pedunculate Oak, Silver Birch, Holly, Rowan

**Recommended shrubs:** Hazel (only on better soils), Hawthorn (only on better soils), Juniper (in more open places)

**Optimal precursor vegetation:**

- Grasslands and heaths with Heather, Bilberry, Bell-heather, Crowberry, Cowberry, Wavy Hair-grass, Sheep's Fescue, Mat Grass, Common Bent, Sweet Vernal Grass, Heath Bedstraw, Tormentil, Hard Fern
- Tall-herb and fern vegetation with some of the above and Bracken, Broad Buckler Fern, Great Wood-rush, Wood Sorrel

**Desired invaders:** Few herbs other than those listed above. Further west, there is an increasingly rich bryophyte flora in woods of this kind, particularly where boulders and crags provide sheltered and shaded niches.

**Woodland structure and pattern:** Many existing stretches of this kind of woodland show a preponderance of Oak in former coppice or of Birch where this has spread after clearance. Even in new woodlands there is limited scope with this type for species diversity among trees and shrubs. However, variations in the pattern of the few important trees and shrubs, local concentration of minor components on patches of richer soils and inclusion of unplanted areas will give some variety and opportunity for transitions to heath and fern-rich vegetation. Only on bouldery sites will the full richness of mosses and liverworts develop and, on deeper soils, the spread of bracken is always a threat.



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