

COUNTY DURHAM
LANDSCAPE GUIDELINES

Woodland & Forestry

Making a difference where you live



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These guidelines are reproduced from the Durham Landscape website where some of the information can be viewed in an online GIS mapping facility. For more information visit www.durham.gov.uk/durhamlandscape

Native Woodlands in County Durham

Native woodlands

Native woods are composed of native trees and shrubs. They include ancient semi-natural woodlands, secondary semi-natural woodlands and planted native woodlands.

Ancient semi-natural woodlands are native woods that have been in continual existence since at least 1600. In some cases, they form a direct link back to the original wildwood which established after the last Ice Age 10,000 years ago. Ancient woodlands are made up of plants that have arisen largely from natural processes although their composition and structure may have been affected by human activities like coppicing, pollarding, selective felling, or the grazing of livestock. The continuity of woodland over centuries makes many of these the most biologically complex and valuable of our woodlands.

Secondary semi-natural woodlands are woods that have arisen more recently through natural colonisation – on waste ground, abandoned pasture and heath, or clear-felled plantations. They often contain a high proportion of native species – but with prevalence particularly in more recent woods, of ‘pioneers’ like birch. They are generally less biologically complex than ancient woodlands and don’t contain the less mobile plant and animal species that are slow to colonise new sites. They nevertheless often do have a relatively high nature conservation value. Recent woods in particular often contain herbaceous species and grasses characteristic of more open ground but in decline in managed farmland.

Planted native woodlands are plantations which include a significant proportion of native species. The trees may be genotypes selected for their commercial or ornamental properties and may include UK native species not native to the locality, like Beech, or non-natives like Sycamore or Chestnut. Like secondary woodlands they are generally less biologically complex than ancient woodlands but functionally may be similar, and particularly if, having been planted close to older woods, they have been colonised by native ground flora.

Native woodland types

The plant communities found in semi-natural woodlands vary across the county, reflecting changes in geology, soils, climate and the influence of human activity. Some woodland types are closely associated with one landscape type or natural area; others are more widespread in their distribution and show little change in their composition over a broad geographical range. Some, like wet woodlands, are associated with very localised conditions which may occur across a range of landscape types.

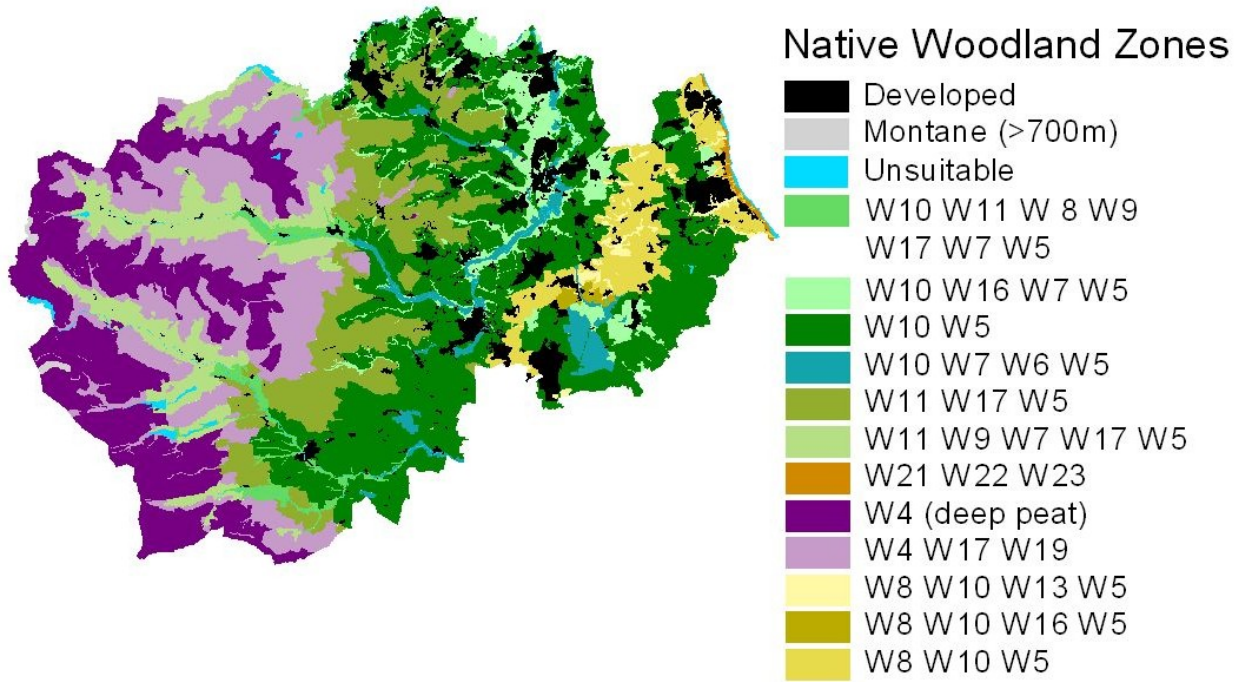
The base-poor soils which cover much of the county generally support woodlands dominated by oak. More diverse woods on the fertile soils of the lowlands give way to species-poor oak and oak-birch woods on the thinner, more acidic, or less fertile soils of the uplands. Oak-birch woods are also found locally in the lowlands on thin acidic soils over coal measures outcrops, and on pockets of free- draining glacial sands and gravels. Lowland Ash woodlands are found on the base rich soils of the limestone denes and escarpment, and upland Ash woods in the gorges, ravines and gills of the Pennines. Wet woodland communities occur across the county on wet or waterlogged soils. They are particularly characteristic of floodplains and valley floors, and the flat carrs of the lowlands, but also occur on wet flushes in drier woodlands and on the peaty soils in the uplands.

Native woodland types, classified using the National Vegetation Classification System (NVC), found in County Durham include:

- Lowland Ash Woodland (W8)
- Upland Ash Woodland (W9)
- Lowland Oak Woodland (W10)
- Lowland Oak Birch Woodland (W16)
- Upland Oak Birch Woodland (W11)
- Upland Oak Birch Woodland (W17)
- Birch Woodland (W4)
- Bay Willow Woodland (W3)
- Alder Carr Woodland (W5)
- Valley Fen Alder Woodland (W6)
- Alder Ash Woodland (W7)
- Yew Woodland (W13)
- Juniper Woodland (W19)
- Hawthorn Scrub (W21)
- Blackthorn Scrub (W22)
- Gorse Scrub (W23)
- Bramble Scrub (W24/25)

Plant communities can vary within a few metres in a semi-natural woodland in response to changes in conditions and some woodlands may contain a number of different woodland ‘types’. A typical upland gill in the Durham Dales will cut down through sequences of limestones, sandstones and shales. A gill woodland may contain areas of ash woodland on base rich soils, alder-ash communities on flushed slopes, and areas of oak-birch woodland on acidic soils. Most of the county’s ancient semi-natural woodlands are in gills, denes & gorges, and many of these lie on the variable and thinly bedded strata of the carboniferous period. Where the solid geology is more massive or masked by relatively homogenous drift, the composition of the woodland flora may be more uniform.

The map below shows the distribution of native woodland types in the county in the form of broad zones where particular combinations of woodland types may be found depending on localised ground conditions. You can view this as an interactive map on the **Durham Landscape** website.



Existing plant communities are also heavily influenced by management - by grazing, coppicing, selective felling or planting. Upland oak-birch woodlands may be dominated by oak where they have been regularly coppiced in the past, or by birch if they have been clear felled at some stage. In grazed woods and wood pasture, past and present grazing pressures will heavily influence the ground flora. Many semi-natural woodlands have been modified by planting – either of native species or of commercial or exotic species – and this can mask their underlying type.

Identifying ancient semi-natural woodlands

Ancient woodlands vary from large woodlands with a well-documented history to smaller, less obvious areas in larger plantations. There are a number of ways of finding out whether a tract of woodland is of ancient origin, or on an ancient site: -

- English Nature maintains an Inventory of Ancient Woodland which shows the location of ancient semi-natural woodlands (ASNW) and plantations on ancient woodland (PAWS) sites. This inventory can be viewed in an interactive mapping environment at www.magic.co.uk. The inventory is by no means exhaustive and does not identify woodlands of less than 2 hectares.
- Looking at the ground flora can also identify ancient woodlands or ancient woodland sites. Where a number of key indicator species are found together, there is a high likelihood that the wood in which they occur is of ancient origin. Indicator species are particularly useful for identifying ancient woodland sites on fertile ground in the lowlands. Some upland and lowland oak-birch woodlands lack many of these species and have a ground flora similar to adjacent areas of heathland. Some common and easily recognisable species are shown below, together with a larger list of species associated with ancient woodland sites in County Durham.

- Looking at historical maps can also help identify old woodland sites – you can view historical Ordnance Survey maps from around 1860 to the present day on the County Council website.
- Place names on old maps can often give clues to the age and historical character of a wood. *Hagg* or *Hag* in Durham is commonly associated with older coppice woods as is *Coppy*. Individual species may also be reflected in the name: Oak (*Oakes*, *Akk*), Holly (*Hollin*), Ash (*Esh*, *Ashes*), Birch (*Birks*), Hazel (*Hesle*), Yew (*Eu*), Alder (*Aller*). ‘*Black*’ wood may refer to upland alder woods. The name *Plantation* usually indicates that a woodland was planted, but may also be applied to older woods that were absorbed into plantations during periods of improvement or modernisation.
- Location can also be an indicator - over much of County Durham ancient woodlands are typically found on steeply sloping features like denes and bluffs, the surrounding areas having long been cleared for agriculture. Ancient woodland sites can often be found on steep ground within larger, and later, plantations. They may also be found near parish boundaries as land close to the village was more convenient for agriculture.
- Ancient woodlands often have an irregular shape, either because of the shape of the natural features they follow or because they are a remnant of larger woodlands reduced by piecemeal enclosures or *assarts*. Ancient woodlands may also be associated with features like wood banks and charcoal hearths or pits.

Ancient woodland indicator species

Common and easily recognised species associate with ancient woodland sites include:



Bluebell

Ramsons

Primrose

Dog's mercury

Wood anemone

The wider range of species associated with ancient woodlands in County Durham include:

Herbaceous Plants

Barren strawberry *Potentilla sterilis*

Bluebell *Hyacinthoides non-scriptus*

Bugle *Ajuga reptans*

Common cow-wheat *Melampyrum pratense*

Common dog violet *Viola reichenbachiana*

Dog's Mercury *Mercurialis perennis*

Early purple orchid *Orchis mascula*

Enchanter's nightshade *Circaea lutetiana*

Goldilocks buttercup *Ranunculus auricomus*

Great bell flower *Campanula latifolia*

Heath bedstraw *Galium saxatile*

Herb paris *Paris quadrifolia*

Herb-robert *Geranium robertianum*

Lords-and-ladies *Arum maculatum*

Moschatel *Adoxa moschatellina*

Pignut *Conopodium majus*

Primrose *Primula vulgaris*

Grasses

Giant fescue *Festuca gigantea*

Hairy brome *Bromus ramosus*

Wood false-brome *Brachypodium sylvaticum*

Rushes & Sedges

Greater woodrush *Luzula sylvatica*

Hairy woodrush *Luzula pilosa*

Ferns & Horsetails

Broad buckler fern *Dryopteris dilatata*

Hard fern *Blechnum spicant*

Hard shield fern *Polystichum aculeatum*

Hart's tongue *Asplenium scolopendrium*

Lady fern *Athyrium filix-femina*

Ramsons *Allium ursinum*

Sanicle *Sanicula europaea*

Small cow-wheat *Melampyrum sylvaticum*

Sweet violet *Viola odorata*

Toothwort *Lathraea squamaria*

Tormentil *Potentilla erecta*

Wild strawberry *Fragaria vesca*

Wood anemone *Anemone nemorosa*

Wood Avens *Geum urbanum*

Wood horsetail *Equisetum sylvaticum*

Wood sage *Teucrium scorodonia*

Wood sorrel *Oxalis acetosella*

Wood speedwell *Veronica montana*

Wood spurge *Euphorbia amygdaloides*

Woodruff *Galium odoratum*

Yellow archangel *Lamium galeobdolon*

Yellow pimpernel *Lysimachia nemorum*

Wood meadow-grass *Poa nemoralis*

Wood melick *Melica uniflora*

Wood millet *Millium effusum*

Wood sedge *Carex sylvatica*

Male fern *Dryopteris filix-mas*

Narrow buckler fern *Dryopteris carthusiana*

Scaly male-fern *Dryopteris affinis*

Soft shield fern *Polystichum setiferum*

Wood horsetail *Equisetum sylvaticum*

Native Woodland Types

The woodland types described below are based on plant communities identified in the National Vegetation Classification (NVC) system.

The main semi-natural native woodland types found in County Durham are listed below and described in detail over the following pages.

- Lowland Ash Woodland (W8)
- Upland Ash Woodland (W9)
- Lowland Oak Woodland (W10)
- Lowland Oak Birch Woodland (W16)
- Upland Oak Birch Woodland (W11)
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- Yew Woodland (W13)
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- Hawthorn Scrub (W21)
- Blackthorn Scrub (W22)
- Gorse Scrub (W23)
- Bramble Scrub (W24/25)

Lowland Ash Woodland - NVC W8

Fraxinus excelsior – Acer campestre – Mercurialis perennis woodland.

Distribution

Typical of the East Durham Limestone Plateau and localised sites in the Tees Lowlands. Transitional in the North Pennines and Dales Fringe with W9.

Character

Dene & escarpment woodlands on the limestones of the East Durham Plateau. Secondary woodlands of abandoned limestone quarries. Gorge and ravine woodlands in the Dales Fringe.

Geology

Magnesian Limestone. Carboniferous Limestone.

Soils

Shallow soils over limestone, Brown Calcareous Earths.

Species

Ash and Wych Elm are the dominant species with Sycamore often replacing Elm where it is diseased. Common Oak is locally common. Hazel is often dominant in the understorey with a range of other shrubs including Hawthorn, Blackthorn, Elder, Guelder Rose, Privet, Goat & Grey Willow. Field Maple is occasionally present in the south & east. Yew is locally abundant on shallow soils. Dogwood is found locally as are Small-leaved Lime, Spindle and Spurge Laurel.

Ground Flora & Fauna

Dog's Mercury, Sweet Woodruff, Sanicle, Ramsons, Wood Anemone, Cuckoo Pint. Alkaline Ash bark supports rich lichen flora. Invertebrate fauna particularly important.

Structure

Semi-natural woodlands have a high degree of species and structural diversity. Ash and Elm are dominant in the canopy although most woodlands have been heavily affected by Elm disease. The understorey is usually well developed and diverse.

Management principles

- Prevent grazing by livestock or browsing by deer – particularly in small woods.
- Progressively remove non-native species.
- Maintain and increase the numbers of old trees and dead wood.
- Low intervention approaches are usually best & particularly for small woods.
- Use low impact felling & extraction techniques - minimise the scale of disturbance at any one time.
- Maintain areas of open ground.
- Use low-key establishment techniques - particularly natural regeneration.
- When planting is necessary use native species of local origins.

Planting sites for new woods

Escarpment and coastal Dene sites on calcareous soils. Limestone quarries. On grassland sites specialist advice should be taken on the value of existing vegetation. On upland and upland fringe sites W9 may be a more appropriate model.

Design principles

Simple planting mixtures based on Ash, Hazel and Hawthorn together with smaller numbers of minor species such as Oak and Blackthorn. Other species can be introduced in small numbers or left to colonise naturally. Rare species such as Small-leaved Lime and Spindle should generally be avoided. Field Maple should be used sparingly in the north. The provision of some open space and lower density planting may foster the development of a herb rich ground flora.

Further Information

Forestry Commission Forestry Practice Guide 3: Lowland Mixed Broadleaved Woods

Upland Ash Woodland – NVC W9

Fraxinus excelsior – Sorbus aucuparia – Mercurialis perennis woodland.

Character Area

North Pennines, Pennine Dales Fringe.

Character

Riparian woodlands of incised limestone gorges and upland gills.

Geology

Carboniferous limestone.

Soils

Thin soils over limestone, basic brown earths.

Species

Ash and Wych Elm are dominant species. Downy Birch, Sessile Oak and Rowan are common. Hazel is often dominant in the understorey and influential in the canopy. Bird Cherry, Hawthorn and Holly are common. Elder and Grey Willow are occasionally present. Aspen is found in ravine sites.

Ground flora & fauna

Herb & fern rich. Dog's Mercury, Bluebell, Primrose, Wood Anemone, Wood Avens, Dog Violet, Wood Sorrel, Sanicle, Wood Cranesbill, Globeflower, Marsh Hawksbeard. Lady Fern, Male Fern, Broad Buckler Fern, Hard Shield-fern. Alkaline bark of Ash supports rich lichen flora. Invertebrate fauna particularly important.

Structure

Semi-natural woodlands have a high degree of species and structural diversity reflecting the complex interactions of terrain, soils and surface and ground water on typical gill/gorge sites. Riparian Ash woodlands may show transitions to Oak/Birch woodland (W11) on steeper upper slopes & base poor soils or Alder/Ash woodland (W7) on flushed slopes & wetter valley bottoms.

Management principles

- Prevent grazing by livestock or browsing by deer – particularly in small woods.
- Where grazing is long established, fit stocking periods & densities to conservation goals.
- Maintain and increase the numbers of old trees and dead wood.
- Low intervention approaches are usually best & particularly for small woods.
- Felling – minimise the scale of disturbance.
- Maintain areas of open ground.
- Use low-key establishment techniques – particularly natural regeneration.
- When planting is necessary use only native species of local origins.

Planting sites for new woods

Extensions to existing woodlands. Upland gills & ravines on limestone.

Design principles

Simple planting mixtures based on Ash and Hazel together with smaller numbers of minor species such as Birch, Oak and Rowan. Others species can be introduced in small numbers or left to colonise naturally. The provision of some open space and lower density planting may foster the development of a herb rich ground flora. Downy Birch could be used as a nurse species on exposed sites and its proportions in the canopy later reduced.

Further information

Forestry Commission Forestry Practice Guide 4: Upland Mixed Ashwoods

Lowland Oak Woodland - NVC W10

Quercus robur - *Pteridium aquilinum* - *Rubus fruticosus* woodland.

Region

Widespread on moderately acidic or neutral soils across the county.

Character

Existing semi-natural features are mostly riparian woodlands related to minor valleys, ravines, bluffs and river terraces.

Geology

Base poor superficial deposits. Boulder clays. Sands & gravels. Alluvium.

Soils

Base poor brown earths & gleys.

Species

Common Oak is the dominant species, often Sessile Oak in the upland fringes, and Silver Birch is common. Sycamore may be present in disturbed woodlands. Hazel is often dominant in the understorey. Hawthorn and Holly are common. Ash and Wych Elm are found in smaller numbers as are Rowan, Wild Cherry and Crab Apple. Elder, Blackthorn and Guelder Rose are often present. Small-leaved lime is rare & restricted to a few river gorge sites.

Ground flora & fauna

Bluebell and Wood Anemone are characteristic as are Bracken, Foxglove, Red Campion, Wood Sorrel, Wood Sage, Male Fern & Broad Buckler Fern. Bramble, Honeysuckle, Ivy. Ground flora is often strongly influenced by past management.

Structure

Variable. Typically a canopy dominated by Oak and Birch over a well developed understorey, often with under-scrub of Bramble, Honeysuckle or ivy.

Management principles

- Prevent grazing by livestock or browsing by deer – particularly in small woods.
- Maintain and increase the numbers of old trees and dead wood.
- Progressively remove non-natives at a pace flora & fauna can adapt to.
- Restore coppicing only where its history is well established and the effects on existing flora & fauna are understood.
- Low intervention approaches are best for small woods.
- Timber production - minimise the scale of disturbance.
- Use low-key establishment techniques - particularly natural regeneration.
- When planting is necessary use only native species of local origins.

Planting sites for new woods

Typical woodland type for most of Lowland Durham, for base poor soils on the East Durham Plateau and for much of the Pennine Fringe, penetrating into the uplands on valley floors. Extensions to existing sites.

Design principles

Planting mixtures based on Oak, Birch, Hawthorn, Hazel and Holly. Others species can be introduced in small numbers or left to colonise naturally. Silver Birch may be used as a nurse species on difficult sites and its proportions in the canopy later reduced. Rare species such as Small-leaved Lime should not be used as their natural distribution could be obscured by indiscriminate planting.

Further information

Forestry Commission [Forestry Practice Guide 3: Lowland Mixed Broadleaved Woods](#).

Lowland Oak-Birch Woodland - NVC W16

Quercus spp.- *Betula* spp. - *Deschampsia flexuosa* woodland

Region

A scattered distribution in the Coalfield Pennine Fringe, Pennine Dales Fringe and Wear Lowlands.

Character

Existing sites form part of other Oak or Oak- Birch woodlands.

Geology

Free draining base poor superficial deposits such as fluvio-glacial sands & gravels.

Soils

Acid sands, rankers, base poor brown earths, podzolic brown earths, humo-ferric podzols, stagno-podzols.

Species

Silver Birch, Downy Birch and Sessile Oak are the dominant species (occasionally Common Oak). The understorey is sparse, sometimes including Rowan or Holly.

Ground flora & fauna

Species poor with Wavy Hair-grass and Bracken with Heather and Bilberry.

Structure

Semi-natural woodlands have little species diversity and are often dominated by Birch. Many have been heavily influenced by grazing.

Management principles

- Prevent grazing by livestock or browsing by deer – particularly in small woods.
- Maintain and increase the numbers of old trees and dead wood.
- Progressively remove non-natives at a pace flora & fauna can adapt to.
- Low intervention approaches are best for small woods.
- Timber production - minimise the scale of disturbance.
- Use low-key establishment techniques - particularly natural regeneration.
- When planting is necessary use only native species of local origins

Planting sites for new woods

In natural distribution limited to acidic free draining sites within more extensive Oak and Oak-Birch woodland in the lowlands and podzols in the upland fringes. May be a useful model for planting on disturbed substrates such as mineral spoils including sands and colliery shales.

Design principles

Simple planting mixtures dominated by either or both species of Birch and Oak with smaller numbers of Rowan and Holly.

Further information

Forestry Commission Forestry Practice Guide 3: Lowland Mixed Broadleaved Woods & Practice Guide 1: Lowland Acid Beech and Oak Woods

Upland Oak- Birch Woodland - NVC W11

Quercus petraea - *Betula pubescens* - *Dicranum majus* woodland.

Region

A scattered distribution in the North Pennines, Coalfield Pennine Fringe, Pennine Dales Fringe. Formerly more widely distributed.

Character

Existing woodlands are typically small woodlands of steep valley slopes & gills or the upper margins of gill & gorge ash woods marking the transition to more acidic soils.

Geology

Base poor superficial deposits including boulder clays, fluvio-glacial sands & gravels.

Soils

Base poor brown earths. Podzolic brown earths.

Species

Downy Birch and Sessile Oak are the dominant species. The understorey is sparse with Hazel, Rowan and Holly common.

Ground flora & fauna

Bluebell, Primrose, Pignut, Wood Sorrel, Bluebell, Wood Anemone, Wood Sage, Creeping Soft-grass.

Structure

Semi-natural woodlands have little species diversity and are often dominated by Oak where they have been coppiced or birch where under managed or disturbed and have often been influenced by grazing. The canopy is often low (<10m) and relatively open, and trees are often multi-stemmed.

Management principles

- Prevent grazing by livestock or browsing by deer – particularly in small woods.
- Maintain and increase the numbers of old trees and dead wood.
- Progressively remove non-natives at a pace flora & fauna can adapt to.
- Restore coppicing only where its history is well established and the effects on existing flora & fauna are understood.
- Low intervention approaches are best for small woods.
- Timber production - minimise the scale of disturbance.
- Use low-key establishment techniques - particularly natural regeneration.
- Increase species diversity in species poor woods.
- When planting is necessary use only native species of local origins.

Planting sites for new woods

Moderately acidic upland and upland fringe sites. Reclaimed sites on moderately acidic soils.

Design principles

Planting mixtures dominated by Birch and Oak with smaller numbers of Hazel, Holly and Rowan.

Further information

Forestry Commission [Forestry Practice Guide 5: Upland Oakwoods](#).

Upland Oak-Birch Woodland - NVC W17

Quercus petraea – *Betula pubescens* – *Oxalis acetosella* woodland.

Region

A scattered distribution in the North Pennines, Coalfield Pennine Fringe, Pennine Dales Fringe and more rarely Wear Lowlands. Formerly more widely distributed in the uplands & upland fringes.

Character

Existing woodlands are typically small woodlands of steep valley slopes on thin soils.

Geology

Carboniferous sandstones & grits & shales

Soils

Shallow acidic soils, humo-ferric podzols, humic rankers.

Species

Downy Birch and Sessile Oak are the dominant species. Rowan is common Holly and Hazel are less frequent. Structure and species composition may be influenced by grazing.

Ground flora & fauna

Heather, Bilberry, Wavy hair-grass, Sheep's fescue, Hard fern, Tormentil, Bracken, Broad buckler fern, Great wood-rush, Wood sorrel.

Structure

Semi-natural woodlands have little species diversity and are often dominated by Oak where they have been coppiced or birch where under-managed or disturbed. The canopy is low (<10m) and relatively open, and trees are often multi-stemmed.

Management principles

- Prevent grazing by livestock or browsing by deer – particularly in small woods.
- Maintain and increase the numbers of old trees and dead wood.
- Progressively remove non-natives at a pace flora & fauna can adapt to.
- Restore coppicing only where its history is well established and the effects on existing flora & fauna are understood.
- Low intervention approaches are best for small woods.
- Timber production - minimise the scale of disturbance.
- Use low-key establishment techniques - particularly natural regeneration.
- Increase species diversity in species poor woods.
- When planting is necessary use only native species of local origins

Planting sites for new woods

Shallow acidic soils in the uplands and upland fringes. Mineral wastes, colliery shales.

Design principles

Planting mixtures dominated by Birch and Oak with smaller numbers of Rowan, Hazel and Holly.

Further information

Forestry Commission Forestry Practice Guide 5: Upland Oakwoods.

Birch Woodland - NVC W4

Betula pubescens - *Molina caerulea* woodland.

Region

W4 communities are rare in Durham. They are likely to have occurred more widely on mires and wet heaths in the upland fringes of the North Pennines, Coalfield Pennine Fringe & Pennine Dales Fringe.

Character

Open woodland on the edges of bogs and mires.

Geology

Peats.

Soils

Peats, peaty gleys.

Species

Downy Birch is the dominant species with occasional Goat Willow, Common Alder, Grey Willow, Eared Sallow, Bay Willow or Rowan.

Ground flora & fauna

Purple Moor Grass, Sphagnum & other mosses. Broad Buckler Fern. Soft-rush.

Structure

Usually an open low (6-8m) canopy of widely spaced, often multi-stemmed trees. Birch is dominant, other species occurring as scattered specimens or local concentrations reflecting soil/drainage patterns.

Management principles

- Timber production is rarely practical or desirable. Low intervention approaches are best.
- Maintain the wetness of the site - avoid changes in hydrology through on or off-site drainage.
- Light grazing is often a natural part of the ecology of wet birch woods - stock may need to be periodically excluded to promote regeneration & overstocking should be avoided.
- Birch and willow regenerate well on wet ground – planting is rarely necessary.
- Maintain and increase the numbers of old trees and dead wood.
- Avoid damage from the tracking of vehicles or poaching by stock
- Maintain areas of open ground.

Planting sites for new woods

On many suitable sites the existing vegetation will be of sufficient value to preclude tree planting. In many suitable areas the landscape will be very open and tree planting may not be appropriate. Degraded fell land on humic gleys & peats. Woodland / wetland interfaces.

Design principles

Mosaics of woodland and heath. Stands in oak-birch woodlands on wetter ground.

Further information

Forestry Commission Forestry Practice Guide 8: Wet Woodlands.

Alder – Ash Woodland - NVC W7

Alnus glutinosa - *Fraxinus Excelsior* - *Lysimachia nemorum* woodland

Region

Scattered distribution across the north and west of the county. North Pennines, Coalfield Pennine Fringe, Pennine Dales Fringe, Wear Lowlands

Character

Alder & Ash stands on flushed slopes within other woodlands. Typical of the lower slopes of upland ravine ash woods and oak woods.

Geology

Carboniferous Limestones, Millstone Grits, Coal Measures.

Soils

Flushed mineral soils. Moderately base rich & mesotrophic.

Species

Common Alder, Ash, Downy Birch. If not grazed there may be an understorey including Goat Willow, Grey Willow, Hazel, Hawthorn, Rowan & Bird Cherry.

Ground flora & fauna

Yellow Pimpernel, Creeping Buttercup, Opposite-leaved Golden-saxifrage, Soft Rush, Tufted Hair-grass.

Structure

Open stands often dominated by Alder with an understorey of Hazel, thorn and willow. Often modified by grazing or coppicing.

Management principles

- Prevent grazing by livestock – and particularly in small woods.
- Maintain and increase the numbers of old trees and dead wood.
- Progressively remove non-natives at a pace flora & fauna can adapt to.
- Low intervention approaches are usually best although timber production may be an option on drier sites carrying better quality Ash.
- Restore coppicing only where its history is well established and the effects on existing flora & fauna are understood.
- Use low-key establishment techniques - particularly natural regeneration.
- When planting is necessary use only native species of local origins
- Maintain areas of open ground.

Planting sites for new woods

Lower valley slopes & flushes within other woodland types in the uplands and upland fringes. Avoid areas where existing vegetation has a conservation value.

Design principles

Strongly related to topography and drainage. Planting mixtures should be dominated by Alder on wetter sites. On drier sites a higher proportion of Ash and a greater diversity of shrub species may be appropriate.

Further information

Forestry Commission Forestry Practice Guide 8: Wet Woodlands, Guide 4 Upland Mixed Ashwoods.

Alder Carr Woodland - NVC W5

Alnus glutinosa - *Carex paniculata* woodland

Region

Sparse distribution across the county.

Character

Alder Carr. Fringes of swamp or fen.

Geology

Impervious drift materials. Fen peats.

Soils

Wet and waterlogged organic soils, base rich and moderately eutrophic. Surface water gleys.

Species

Alder, Downy Birch, Grey Willow.

Ground flora & fauna

Greater Tussock-sedge, Marsh Horsetail, Tufted Hair Grass, Marsh Marigold, Meadowsweet, Wild Angelica, Common Valerian, Pendulous sedge & ferns.

Structure

In mature stands Alder dominates the canopy with an understorey of Grey Sallow

Management principles

- Timber production is rarely practical or desirable. Low intervention approaches are best.
- Maintain the wetness of the site - avoid changes in hydrology through on or off-site drainage.
- Exclude livestock unless grazing is long established and known to be beneficial.
- Alder & willow regenerate freely on wet ground – planting is not always necessary.
- Maintain and increase the numbers of old trees and dead wood.
- Avoid damage from the tracking of vehicles or poaching by stock.
- Maintain areas of open ground.

Planting sites for new woods

New wetland sites. Avoid areas of existing conservation value.

Design principles

Simple planting mixtures of Alder and Grey Willow with smaller numbers of Birch..

Further information

Forestry Commission Forestry Practice Guide 8: Wet Woodlands.

Valley Fen Alderwood - NVC W6

Alnus glutinosa - *Urtica dioica* woodland

Region

Single site in Coalfield Pennine Fringe at Witton-le-Wear Nature Reserve. Likely to have occurred locally on alluvial terraces of river floodplains, flatts & carrs, particularly in the Wear Lowlands & Tees Lowlands.

Character

Carr woodland on river floodplains or fringing open water.

Geology

All

Soils

Moist eutrophic soils. Alluvial soils. Fen peats.

Species

Alder, Crack Willow, Downy Birch, Grey Willow and Elder.

Ground flora & fauna

Stinging Nettle, Bramble, Honeysuckle

Structure

Dominated by Alder, occasionally by Crack Willow, with an understorey of Grey Sallow.

Management principles

- Periodic coppicing (10 -20 years) for firewood/charcoal markets can be beneficial to maintain ground flora & encourage butterflies. Avoid large scale or sudden changes - retain some large trees and mature coppice stools.
- Exclude livestock unless grazing is long established and known to be beneficial.
- Alder & willow regenerate freely on wet ground – planting is not always necessary.
- Maintain and increase the numbers of old trees and dead wood. Pulling over individual trees can allow light into the woodland floor and create valuable dead wood habitat.
- Avoid damage from the tracking of vehicles or poaching by stock
- Maintain areas of open ground.

Planting sites for new woods

Floodplain sites on alluvial soils. Flatts and carrs of lowland plains.

Design principles

Simple planting mixtures of Alder and Grey Willow with smaller numbers of Birch and Crack Willow.

Further information

Forestry Commission Forestry Practice Guide 8: Wet Woodlands.

Bay Willow Woodland - NVC W3

Salix pentandra - *Carex rostrata* woodland.

Region

Coalfield Pennine Fringe.

Character

Single site in Durham at Causey Bank Mires associated with W5 alder woodland.

Geology

Basin mire.

Soils

Peat or peaty gleys flushed with base rich ground water.

Species

Bay Willow, Grey Willow, occasionally Eared Sallow or Downy Birch.

Ground flora & fauna

Diverse tall herb community: Angelica, Meadowsweet, Cuckoo flower, Bottle Sedge, Marsh-marigold, Marsh-bedstraw, Water Avens, Marsh Valerian, Marsh Thistle, Water Horsetail.

Structure

Uneven low canopy of bushy willows

Management principles

- Timber production isn't practical or desirable. Low intervention approaches are best.
- Maintain the wetness of the site - avoid changes in hydrology through on or off-site drainage.
- Exclude livestock unless grazing is long established and known to be beneficial.
- Willows regenerate well on wet ground – planting is rarely necessary.
- Maintain and increase the numbers of old trees and dead wood.
- Avoid damage from the tracking of vehicles or poaching by stock
- Maintain areas of open ground.
- When planting use cuttings or sets from local willows.

Planting sites for new woods

Peat or peaty gleys flushed with base rich ground water. Avoid areas of existing conservation value.

Design principles

Simple mixtures dominated by Bay and Grey Willow with smaller numbers of Birch and Eared Sallow.

Further information

Forestry Commission Forestry Practice Guide 8: Wet Woodlands.

Yew Woodland - NVC W13

Taxus baccata woodland

Region

East Durham Plateau.

Character

Yew dominated stands in coastal dene Ash woodlands.

Geology

Magnesian Limestone.

Soils

Thin soils over limestone outcrops.

Species

Yew dominated: species poor. Very occasional Elder, Hawthorn or Ash.

Ground flora & fauna

Very sparse. Occasional Dog's Mercury, Stinging Nettle, Ivy, Bramble.

Structure

Closed dense canopy of Yew to 10m. No understorey.

Management principles

- Timber production isn't practical or desirable. Low intervention approaches are best.
- Exclude livestock.
- Maintain and increase the numbers of old trees and dead wood.
- Use low-key establishment techniques - particularly natural regeneration.
- When planting is necessary use plant material of local origins.

Planting sites for new woods

Stands within new ash woodlands on limestone outcrops. Coastal denes. Magnesian Limestone quarries

Design principles

Stands of pure Yew.

Further information

Forestry Commission Forestry Practice Guide 3: Lowland Mixed Broadleaved Woods

Juniper Woodland - NVC W19

Juniperus communis - *Oxalis acetosella* woodland

Region

North Pennines. Formerly found in small pockets on the coast and in Coalfield Pennine Fringe heathlands.

Character

Open low scrub of rocky moorland margins and hill stream valleys.

Geology

Carboniferous Limestones & Millstone Grits, Magnesian limestones, Coal Measures.

Soils

Various. Acidic and podzolic brown earths. Podzols

Species

Juniper is the dominant species with occasional Downy Birch, Rowan and Hawthorn.

Ground flora & fauna

Bilberry, Heather, Cowberry, Wavy Hair-grass.

Structure

Open scrub heavily influenced by grazing. Very diverse form. Irregular canopy.

Management principles

- Seek specialist advice.
- Prevent grazing by livestock and rabbits.
- Where grazing is long established, and stands are healthy, fit stocking periods & densities to conservation goals.
- Avoid burning of heather other than in a controlled form to promote juniper regeneration.
- Control competing vegetation such as gorse and bracken.
- Create areas of bare ground to encourage regeneration.
- When planting is necessary use plant material of local origins.
- Seedlings take many years to establish - protect with tree guards or small rabbit-proof enclosures and maintain these carefully.

Planting sites for new woods

Coastal slopes & denes, lowland & mid altitude heath, upland gills & moorland fringes.

Design principles

Stands of pure juniper. Minor species in smaller numbers.

Hawthorn Scrub - NVC W21

Crataegus monogyna - *Hedera helix* scrub

Region

Widespread

Character

Diverse

Geology

Absent only from peat.

Soils

Most neutral or base-rich soils.

Species

Hawthorn is dominant, often accompanied by Blackthorn, Elder, Rose & Bramble species, Honeysuckle with Rowan, Ash or Hazel as trees. On the Magnesian Limestone species such as Privet & Dogwood may occur, and a wider range of roses (*R. pimpinellifolia*, *R. mollis*, *R. coriifolia*, *R. afzeliana*). Blackthorn may replace hawthorn as the dominant shrub on the coast being more tolerant of salt spray.

Ground flora & fauna

Ivy & Bramble

Structure

Extremely variable from scattered shrubs to dense continuous cover.

Management principles

- Intervention rarely required unless encroaching on other valued habitat.
- Maintain or create areas of open space.

Planting sites for new woods

Woodland margins, road verges, coastal and escarpment sites.

Design principles

Grassland/scrub mosaics. Design to promote diversity of structure and a high proportion of open space. Planting mixtures dominated by shrub species common in the locality (Hawthorn, Blackthorn, Dog Rose etc.) with occasional trees (Ash, Rowan). Less common species could be allowed to colonise naturally.

Blackthorn Scrub - NVC W22

Prunus spinosa - *Rubus fruticosus* scrub

Region

Widespread but sparse. More common on the East Durham Plateau

Character

Woodland margins. Abandoned grassland.

Geology

Generally associated with mesotrophic soils, avoiding both strongly acid soils, droughty rendzinas and infertile sites.

Soils

Absent from peat. More common on Magnesian Limestone.

Species

Blackthorn overwhelmingly dominant with occasional Hazel or Wild Privet.

Ground flora & fauna

Ivy & Bramble

Structure

Dense Blackthorn dominated thickets usually to 4m in height.

Management principles

Intervention rarely required unless encroaching on other valued habitat.

Planting sites for new woods

Coastal sites. Woodland margins on moist, moderately base rich soils.

Design principles

Blackthorn dominated stands.

Bramble Scrub - NVC W24/W25

Rubus fruticosus scrub

Region

Widespread

Character

Low spreading scrub of woodland edge, roadside, derelict land.

Geology

Any except acidic peats.

Soils

Wide range of soils from mildly acidic to calcareous.

Species

Variable. Bramble with individual Rose sp., Hawthorn, Blackthorn or Elder. On coastal sites low scrub may occur in more open situations & contain a greater range of species (Rosa canina, R. pimpinellifolia, R. mollis, R. coriifolia, R. afzeliana, Salix repens)

Ground flora & fauna

Usually absent

Structure

Mosaic of grassland & bramble with occasional trees & shrubs, particularly bird sown species.

Management principles

Intervention rarely required unless encroaching on other valued habitat.

Planting sites for new woods

Woodland margins. Road verges.

Design principles

Low edge of Bramble and Rose to other mixtures.

Gorse Scrub - NVC W23

Ulex europaeus scrub

Region

Widespread. Absent from high moorlands.

Character

Continuous or open scrub.

Geology

Absent only from peat.

Soils

Free draining, mesotrophic & oligotrophic.

Species

Usually dominated by Gorse, occasionally with Broom and Bramble

Ground flora & fauna

Usually absent

Structure

Gorse dominated low canopy 2 - 3m either continuous or in a mosaic with grassland.

Management principles

Intervention rarely required unless encroaching on other valued habitat.

Planting sites for new woods

Infertile sites - mineral wastes. In most cases there will be alternatives with greater nature conservation or landscape value. Management can be a problem, particularly fire hazard & encroachment of other habitats.

Design principles

Single species stands of Gorse or Gorse and Broom.

Managing Native Woodlands

The need for management

Many of the county's native woods have not been systematically managed for many years. In some cases neglect has allowed natural processes to create habitats of considerable value. In other cases the selective felling of timber species, overgrazing by livestock, or the introduction of non-natives (either deliberately or through the colonisation of woods damaged by Dutch Elm Disease) has diminished their ecological value or their productivity.

Historically most of the county's woodlands would have been managed either as coppice, wood pasture or high forest subject to selective felling under shelterwood or group felling systems. In the industrial period the demand for pit-wood and competition from coal as a fuel led to coppice systems being abandoned and some woodlands being clear-felled and replanted. In the twentieth century some woodlands were felled during the first and second world wars and abandoned to regenerate naturally. Later in the century many were felled and replanted with commercial species.

The management of native woods today should aim either to maintain the natural conditions of 'wild' woodland through minimal intervention, or the semi-natural conditions created by traditional forms of management – high forest, coppice or wood-pasture. Heavily modified or replanted native woods may need more active restoration.

Published Guidance

The Forestry Commission has published guidance on managing semi-natural woodlands as part of The UK Forestry Standard (Standard Note 5) together with a series of detailed Practice Guides on the management of a range of different types of semi-natural woodlands. Some of these can be downloaded from the Forestry Commission website at <http://www.forestry.gov.uk/publications>.

General principles

- Get to know the wood. Observe and map its physical characteristics, variations in slope, drainage, aspect and soils, the structure of its canopy and understorey, and the composition of its ground flora. Identify relic features like veteran trees, wood banks, charcoal hearths and trackways.
- Find out as much as you can about its history and ecology. The County Ecologist and Wildlife Trust may have information on its flora and fauna, and the County Archaeologist and local history societies on its historical interest.
- Find out if there are any environmental designations – SSSI, County Wildlife Sites, Scheduled Ancient Monuments, Conservation Area, Tree Preservation Orders etc - that might affect how the woodland needs to be managed.
- Find out about any protected species that may be affected by operations (particularly bats and red squirrel). Contact specialist groups if necessary.
- Take advice. The Forestry Commission provide advice, grants and useful publications on managing native woods. They can also recommend specialists for carrying out more detailed assessments. A Woodland Assessment Grant may be available to help you undertake assessments of ecological, landscape, historical and cultural factors and for community involvement.
- Consider the interests of local communities. Many ancient woodland sites are places of local folklore and tradition and may contain features of value to local communities.
- Draw up a management plan and monitor its implementation.
- Minimise intervention generally and only carry out management works where you have specific objectives – doing nothing is often a valid option.
- Maintain semi-natural woodland types. Management should be tailored to the native woodland types present in the wood.
- Maintain or restore diversity of structure. A range of age classes is generally preferable to even-aged stands.
- Maintain or restore species diversity. Reintroduce important species characteristic of the native woodland types if they have been lost to selective felling or grazing.

- Maintain diversity of habitats within and around the wood and particularly features like open glades and wetlands. When creating or restoring areas of open space relate it to wetlands, watercourses, rides, outcrops and cultural features.
- Maintain a mature habitat. Retain old trees, and dying and diseased trees where it is safe to do so, along with standing and fallen deadwood.
- Minimise the scale and pace of change – wildlife takes time to adjust.
- Use low impact felling and extraction techniques. Extraction along established rides, with low ground pressure vehicles or with horses can help minimise damage to sensitive ground flora.
- Remove non-native species progressively unless, like Rhododendron, they are causing specific problems.
- Prevent excessive browsing by deer, rabbits or hares, particularly when restocking
- Use natural regeneration where possible for restocking. When planting is necessary use the appropriate species for the native woodland types present on site, and use plant material of local origin or from the nearest FC Seed Zone. Plant in irregular patterns influenced by variations in soils, landform and vegetation, and vary the spacing to create a varied woodland structure.
- Preserve historical features like ancient rides, wood banks, charcoal pits and archaeological features and keep them clear of planting or natural regeneration.
- Look to areas surrounding the woodland for opportunities to extend it, or manage them sensitively to compliment the woodland habitat – for example by creating conservation headlands around arable fields, or restoring hedgerows to improve connectivity.

Coppice

Some native woodlands in the county show evidence of having been managed as coppice in the past. Coppicing on a regular cycle can create conditions favourable to certain species and particularly spring flowering plants like bluebell, primrose and celandine, and some species of butterfly. Restoring neglected coppice can be of benefit to those species in the right circumstances but may also be damaging to established shade and moisture-loving flora and fauna where coppicing cycles have been abandoned for a long time. Reinstatement of coppicing regimes may only be appropriate where:

- the underwood was coppiced within the last 50 years or so and has sufficient vigor to respond to coppicing;
- the wood is large enough (>5Ha) to contain practical compartments of different ages;
- coppicing on a regular cycle can be sustained in the future;
- the flora and fauna present on site would benefit from the conditions created by coppicing;
- grazing by livestock and browsing by deer can be controlled.

Coppicing small areas within a wood managed as high forest – particularly along rides or margins - can be a useful way of retaining a cycle of habitats or creating structural diversity.

Wood pasture

Wood pasture is woodland that has traditionally been grazed, resulting in a mosaic of habitats – woodland, grassland or heathland – often with veteran open grown or high forest trees. Wood pastures are very variable in character and include ancient deer parks, ornamental parklands, winter- grazed woodlands in the uplands, juniper woods, and more recent encroachments of woodland onto heath and pasture.

The oldest wood pastures are generally the most biologically diverse and often support a rich invertebrate population. Younger or less diverse wood pastures may still have value and can be particularly important for species like Black Grouse and Nightjar.

Grazing in woodlands – whether by livestock, deer or rabbits - can suppress or destroy the natural ground flora, damage mature trees, and prevent natural regeneration. At high levels it can seriously reduce the ecological value of a woodland and may ultimately lead to its disappearance. It is a particular threat to small woodlands and should generally be controlled. Removing grazing from established wood pasture, however, leads to regeneration as young woodland, and a decline in habitat diversity. The decision to exclude stock from a grazed woodland or to re-introduce livestock to a formerly grazed woodland needs to be taken carefully and will depend on a number of factors, and in particular whether:

- the site has a long history as wood pasture;
- the ground flora is dominated by species suited to open conditions;
- grazing would clearly be of benefit to rare or important species present on site or in the locality;
- grazing levels would not prejudice the long-term survival of the woodland component.
- In most cases it would be useful to take specialist advice from the Forestry Commission or DEFRA.

Restoring ancient woodlands

Planted ancient woodland sites (PAWS) and modified ancient woods.

Many ancient woodlands in County Durham have been felled and replanted within living memory. Much of their biological and historical interest has been lost, but some elements - flora and fauna, veteran trees, old wood banks and tracks – may survive. Other ancient woods, while not comprehensively felled, have been substantially modified over the years by the introduction of commercial or ornamental species. Restoring replanted or modified woodlands to a more natural condition can allow the biodiversity of the woodland to recover over time.

Identifying planted ancient woodland sites

The process of identifying PAWS is essentially the same as for ancient semi-natural woodlands, although some of the evidence on the ground can be more difficult to find. The presence of ancient woodland indicator species in the ground flora can give an indication of both the history of the site and the extent to which it is likely to respond to restoration. See Section 2.1 [Native Woodlands in County Durham for more information.](#)

Published guidance

The Forestry Commission has published guidance on managing semi-natural woodlands as part of The UK Forestry Standard (Standard Note 5) together with more detailed guidance in FC Practice Guide: Restoration of native woodland on ancient woodland sites. Some of these can be downloaded from the Forestry Commission website at <http://www.forestry.gov.uk/publications>.

Restoration and restocking

Restoration is usually best achieved by the gradual removal of introduced species, and a phased transition to native woodland, either through natural regeneration or planting. Maintaining woodland cover in this way reduces the disturbance to existing flora and fauna as well as landscape and visual impacts. In some woodlands clear felling by compartment may be the only practical option, and particularly in stands of under-thinned softwoods vulnerable to wind-throw. In such cases compartments should be kept as small as practical to minimise disturbance.

As much of the relic biodiversity of PAWS resides in the soil and the ground flora it is particularly important to minimise physical disturbance generally and to use low impact felling and extraction techniques.

General principles

- Get to know the wood. Identify and map areas of ancient woodland, replanted or modified ancient woodland, secondary woodland and plantation. Identify relic features like veteran trees, stands of native species, ancient woodland ground flora, wood banks or charcoal hearths. Observe variations in slope, drainage, aspect and soil that may influence the composition of the native woodland types, described in the previous section, you wish to restore.
- Find out as much as you can about the history and ecology of the wood. The County Ecologist and Wildlife Trust may have information on its flora and fauna, and the County Archaeologist and local history societies on its historical interest.
- Find out if there are any environmental designations – SSSI, County Wildlife Sites, Scheduled Ancient Monuments, Conservation Area, Ancient Woodland etc - that might affect how the woodland needs to be managed.
- Find out about any [protected species](#) that may be affected by operations (particularly bats and red squirrel). Contact specialist groups if necessary.

- Take advice. The Forestry Commission provides advice, grants and useful publications on restoring and managing native woods. They can also recommend specialists for carrying out more detailed assessments. A Woodland Assessment Grant may be available to help you undertake assessments of ecological, landscape, historical and cultural factors and for community involvement.
- Consider the interests of local communities. Many ancient woodland sites are places of local folklore and tradition and may contain features of value to local communities - like landmark exotic trees.
- Draw up a management plan and monitor its implementation.
- Restore the native woodland types, described in the previous section, that would have been present historically on the site.
- Minimise the scale and pace of change – wildlife takes time to adjust. Remove non-native species progressively where practical, prioritising areas with remnants of native woodland ground flora.
- Maintain a mature habitat where possible. Retain old trees and dying and diseased trees where it is safe to do so, along with standing and fallen deadwood.
- Use low impact felling and extraction techniques. Extraction along established rides, with low ground pressure vehicles or with horses can help minimise damage to sensitive ground flora.
- Preserve historical features like ancient rides, wood banks, charcoal pits and archaeological features and keep them clear of planting or natural regeneration.
- Maintain diversity of habitats within and around the wood and particularly features like open glades and wetlands. When creating or restoring areas of open space, relate it to wetlands, watercourses, rides, outcrops and cultural features.
- Use natural regeneration where possible for restocking. When planting is necessary – for example where there are few native trees of seed-bearing age or where browsing by deer make natural regeneration difficult - use the appropriate species for the native woodland type, described in the previous section, likely to have been present on site. Planting patterns should be naturalistic. Plant material should be of local origin or from the nearest FC Seed Zone, see Section 4.4: Origins of seed and planting stock.
- Give veteran trees space – don't restock too close to them.
- Look to areas surrounding the woodland for opportunities to extend it, or manage them sensitively to compliment the woodland habitat – for example by creating conservation headlands around arable fields, or restoring hedgerows to improve connectivity.

Managing Plantations

The need for management

Many of the county's woodlands are plantations. They vary from large forests and plantations established for timber production in the C19th and C20th centuries to smaller mixed or broadleaved woodlands planted for shelter or farm timber, or as part of designed parklands and estates. Older planted woods have in some cases developed characteristics of semi-natural woodland. Some plantations are managed by selective felling under shelterwood or group felling systems. Others are managed under rotational clear cutting regimes.

While many plantations sit well in the landscape and are an integral part of its character, there are those which were planted with little regard to landscape character, biodiversity, water quality or archaeology. Management, harvesting and restocking operations bring opportunities to restructure plantations to improve their fit with the surrounding landscape, enhance their amenity and wildlife value, and reduce their impact on archaeological features and natural resources.

Published guidance

The Forestry Commission has published guidance on managing, felling and restocking planted woodlands as part of The UK Forestry Standard (Standard Notes 1, 4 and 6) together with a range of Management Handbooks on individual topics. Some of these can be downloaded from the Forestry Commission website at www.forestry.gov.uk/publications.

General principles

COUNTY DURHAM LANDSCAPE GUIDELINES: WOODLAND & FORESTRY
WOODLAND MANAGEMENT: **MANAGING PLANTATIONS**

- Plan ahead. Long term felling and restocking plans can help integrate environmental objectives with silvicultural and financial considerations. In large woods, re-structuring may need to be undertaken over more than one rotation.
- Get to know the wood. Identify and map any areas of native woodland and notable features like outcrops and watercourses, specimen or veteran trees, native ground flora and cultural features. Analyse the age and species structure of the wood and look for opportunities to increase diversity when felling and restocking.
- Find out as much as you can about the wood's history and ecology. The County Ecologist and Wildlife Trust may have information on its flora and fauna, and the County Archaeologist and local history societies on its historical interest or archaeological features within it.
- Find out if there are any environmental designations – SSSI, County Wildlife Sites, Scheduled Ancient Monuments, Conservation Area, Tree Preservation Orders etc - that might affect how the wood needs to be managed.
- Find out about any protected species that may be affected by your proposals (particularly bats and red squirrel). Contact specialist groups if necessary.
- Take advice. The Forestry Commission provide advice, grants and useful publications on managing native woods. They can also recommend specialists for carrying out more detailed assessments. A Woodland Assessment Grant may be available to help you undertake assessments of ecological, landscape, historical and cultural factors and for community involvement.
- Where possible introduce group felling or continuous cover systems to maintain maturity of habitat and continuity in the landscape. Where this is not possible for the whole woodland, identify any areas
- that can be managed under continuous cover as part of a network of permanent woodland, open ground, watercourses and semi-natural habitats.
- Approach restocking as if designing from first principles. Identify features in need of improvement and avoid repeating existing design problems.
- Maintain diversity of habitats within and around the wood and particularly features like stands of native species, open glades and wetlands. Design in new areas of open ground related to wetlands, watercourses, rides, outcrops and cultural features.
- Increase structural diversity by felling parts of even-aged woods at different times. Avoid felling larger areas that required. Design felling compartments to reflect the scale and form of the topography.
- Consider restocking wholly or partly with native broadleaves and particularly on sites close to existing ancient woodland or other valued habitats, in sensitive landscapes, or where there is potential for growing marketable hardwoods.
- Consider not restocking at all when planting has taken place on areas of sensitive habitat or archaeological interest, or in situations where woodland no longer seems appropriate for environmental or silvicultural reasons.
- When restocking with softwoods, increase the proportion of native broadleaved trees and shrubs. Locate them strategically along margins, rides, crop edges, glades and watercourses.
- Adjust the edge structure when restocking to improve its appearance in the landscape and its nature conservation value. Irregular woodland and crop edges containing permanent broadleaved trees and shrubs can improve biodiversity and crop stability.
- When planting broadleaves for timber or environmental reasons, use species characteristic of the native woodland types described in the Section 2.1, and suited to the site, where possible. Use plant material of local origin or from the nearest FC Seed Zone unless particular timber provenances are essential. See Section 4.4: Origins of seed and planting stock.
- Take care when planting mixtures - particularly of evergreen and deciduous species – to avoid obtrusive geometric patterns in views from the wider landscape.
- Retain old and veteran trees and dying or diseased trees where it is safe to do so, along with standing and fallen deadwood. Give veteran trees space – don't restock too close to them.
- Use low impact felling and extraction techniques in areas of archaeological or ecological sensitivity.

- Remove trees carefully from archaeological features and keep them clear of regeneration.
- Manage rides, road edges and open spaces sympathetically where they have nature conservation value.
- Identify social & recreational impacts. Where appropriate hold discussions with the local community.
- Look to areas surrounding the woodland for opportunities to extend it, or manage them sensitively to compliment the woodland habitat – for example by creating conservation headlands around arable fields, or restoring hedgerows to improve connectivity.

Woodland Planting

Site selection

Published Guidance

There is some guidance on site selection in The UK Forestry Standard (Standard Note 2). This can be downloaded from the Forestry Commission website at www.forestry.gov.uk/publications.

The County Durham Woodland Strategy (consultation draft 2004) contains a spatial strategy for new woodland planting which identifies broad sensitivities and priorities for woodland creation at a landscape scale. This can be viewed, along with an interactive map at www.durham.gov.uk/durhamlandscape.

General Principles

- Find out if there are any environmental designations – SSSI, County Wildlife Sites, Scheduled Ancient Monuments etc – that might affect the suitability of the site for planting. The Forestry Commission's Land Information Search can be used to find some of the national designations affecting your site.
- Avoid areas of archaeological sensitivity. The County Archaeologist and local history societies may have information on elements of historical interest. Much of the Sites and Monuments Record is available online on at [www.durham.gov.uk/archaeology/Keys to the Past](http://www.durham.gov.uk/archaeology/Keys%20to%20the%20Past), but only shows recorded sites. Look out for features on the ground like rig and furrow and old boundaries. Try to select sites that enhance the setting of historic features and designed landscapes rather than those that obscure them.
- Avoid areas of ecological sensitivity. The County Ecologist and Wildlife Trust may have information on features of nature conservation interest. Avoid planting on BAP priority habitats and consider secondary impacts (shading, drainage, fragmentation, tree seeding) that might affect them.
- Consider landscape character. The Character Area Overviews in the following section give guidance on character, sensitivity and priorities for new woodland planting in County Character areas.
- Avoid sites that obscure important local views.
- Take advice. The Forestry Commission provide advice, grants and useful publications on creating new woodlands.
- Look for sites that provide opportunities to enhance biodiversity – for example by buffering, extending or linking native woodlands, or providing habitat for BAP priority species like Black Grouse.
- Look for sites that strengthen landscape character – by echoing the pattern of woodland cover characteristic of the local landscape; by screening 'detractors' like industrial buildings, masts and pylons, busy roads etc; or by restoring derelict or degraded land.
- Look for sites that offer new opportunities for recreation – especially near towns and villages – or where new paths and trails might enhance the local footpath network.
- Look for sites that offer opportunities to improve water quality - for example by restoring bank side vegetation to river & streamsides, or by buffering streams and ditches against run-offs from agricultural land.
- Discuss proposals for new woodland with interest groups or the local community to identify local sensitivities and priorities.
- Take account of, deer, rabbit and squirrel strategies of local management groups and the potential impacts of new woodland on these.

Woodland Design

Published Guidance

The Forestry Commission has published guidance on designing new woodlands as part of The UK Forestry Standard (Standard Notes 1, 2, 3 & 6) together with a range of detailed Guidelines on different aspects of woodland design. Some of these can be downloaded free from the Forestry Commission website (<http://www.forestry.gov.uk/publications>).

General Principles

- Take advice. Forestry Commission woodland officers can provide valuable advice on woodland design.
- Take account of the character of the local landscape, or the broader landscape type to which it belongs, and in particular the scale and form of existing woodlands, field patterns and topographic features. The Character Area Overviews in the following section give guidance on design issue for new woodland planting in County Character areas.
- Fit margins and internal boundaries to the landform, and particularly where the topography is strongly expressed. In landscapes where field patterns are strong, ensure that woodland edges respect and interlock with the boundary network.
- Where the character of the landscape allows, try to make woodlands large enough to have robust woodland core habitats and to prevent edge conditions from dominating.
- Maintain locally important views or vistas.
- Incorporate designated and protected sites, and other features of historic or nature conservation value, sensitively into the design.
- Allow for 10 -20% of open space within the woodland and design it to maximise biodiversity and amenity value. Relate it where possible to existing topographic or cultural features or features of conservation potential. Where none exist, use it to develop permanent internal or external edges in harmony with the landform and to create structural and habitat diversity.
- Ensure that the network of open space is well linked – both internally and externally to surrounding open habitats - to allow movement of light-loving species.
- Allow for the future effects of tree growth on open spaces, important views, designed landscapes and access routes.
- Design rides and utility wayleaves to compliment the landform and allow space for the development of edge habitats.

Native woods

- The general design principles apply equally to new native woodlands but some elements need special emphasis to encourage a more natural woodland ecosystem to develop.
- Pay particular attention to the design of open ground. For some woodlands this may be up to 40% of the woodland area.
- Plant at varied densities to help initiate structural diversity.
- Plant internal and external edges irregularly with decreasing planting density towards the edges leaving room for natural colonisation.
- Leave unplanted any areas where locally native trees are likely to colonise naturally.

Community Woodlands

The Forestry Commission defines community woodlands for the purposes of the English Woodland Grant Scheme as those where the public have free quiet enjoyment in daylight hours for 11 months of the year. For local people to gain real benefit from community woodlands they need to be fully involved in the woodland's design and management. The Forestry Commission has published a Practice Guide: Involving Communities in Forestry through Community Participation, and a toolbox for public involvement in forest and woodland planning. Both can be downloaded free from their website. Design considerations:

- Involve the local community in the design process.
- Identify potential conflicts between different objectives (access, timber production, wildlife) and try to address them through design – separating functions where necessary.
- Don't invite vandalism. Avoid fencing where possible. Use small planting stock. Minimise opportunities for fly tipping. Respond quickly to repair damage or remove rubbish.
- Where levels of access are likely to be high use robust and vandal resistant species and particularly along access rides and paths.

Short Rotation Coppice

Short rotation coppice (SRC) is a new element in the landscape and needs to be designed with some care. Forestry Commission Guideline Note 002: Short Rotation Coppice in the Landscape gives detailed advice on the design of SRC plantations and landscape character, and can be downloaded free from www.forestry.gov.uk/publications.

Species Selection

Published Guidance

The Forestry Commission has published guidance on species selection for new woodlands as part of The UK Forestry Standard (Standard Note 2, 3). This can be downloaded from their website www.forestry.gov.uk/publications. The commission has also produced an electronic Ecological Site Classification decision support system to assist in identifying species and native woodland communities suited to an individual site. This can be purchased as a CD from their website.

General Principles

- Select tree species that are suited to both the site conditions and the intended objectives for the woodland. When planting new native woodlands select species characteristic of the native woodland types (Background section) characteristic of the local landscape and suited to the site conditions. You can view an interactive map at www.durham.gov.uk/durhamlandscape of the distribution of native woodland types in County Durham.
- Plant canopy and understorey species in proportions and assemblages found in the native woodland type and respond to variations in ground conditions across the site. Avoid planting locally rare or uncommon species. On difficult sites consider increasing the proportion of hardy pioneer species like birch or alder to act as a nurse. Consider natural regeneration where this is feasible.
- If timber production is an important objective select core species capable of producing quality timber on the site, plant at densities recommended by the FC, and use certified stock. Where possible use species characteristic of native woodlands in the locality – either as timber species or as fringe and nurse species.
- When planting new conifer woodlands introduce some native broadleaved species both in the main crop and in fringes, along watercourses, along rides and internal compartment boundaries, and, where space permits, in permanent stands of native woodland. When planting mixtures of evergreen and deciduous species (such as larch) avoid strong geometric patterns.
- Don't plant potentially invasive species next to existing native woodland or important semi-natural habitats. Where planting invasive species use a buffer zone to reduce seed dispersal.

Difficult sites

On sites with difficult ground conditions – and particularly derelict or reclaimed land – the choice of suitable species may be limited. Such sites are often of nature conservation value or potential because of their lack of fertility. While some exotic species may do well on poor sites, they can usually be successfully planted with native species in mixtures based on the native woodland types found on infertile ground, or secondary semi-natural woodlands that have naturally colonised similar sites. These are likely to best compliment other habitats on the site and help assimilate the site visually into the local landscape.

Climate change

Climate change is likely to bring changes in site conditions over the life of newly planted woodlands but the nature of those changes is difficult to predict. It seems likely that in northern England most of our native woodlands will remain relatively well suited to the conditions and the best advice available is to continue to plant native woodlands based closely on current site conditions. Where timber production is an important objective species and provenance should be well adapted to both current and predicted future climatic conditions. As one of the more significant changes is likely to be increased summer dryness, planting species able to cope with drought conditions may be prudent. Advice on this can be found in FC Information Note: Climate Change and British Woodland which can be downloaded from their website.

Non-woodland trees

When planting trees and shrubs in non-woodland situations – hedgerow and field trees, amenity planting – the use of native species, or species characteristic of the local landscape, helps to conserve local landscape character. You can view an interactive map at www.durham.gov.uk/durhamlandscape of the distribution of native species by County Character Area, or find out more about individual species in the Background section. When planting hedges and hedgerow trees the hedgerow species mixes recommended for the Durham Field Boundary Restoration Grant are a useful guide. This is also available on the council's website

Origins of seed and planting stock

Background

There is evidence that in some cases varieties or 'ecotypes' of the same species can be better adapted to local conditions (particularly climate) than other ecotypes, or have characteristics (timing of bud burst, flowering or leaf fall) to which others species like birds and invertebrates are locally adapted.

Little is known about the importance of genetic variation for many of our native trees and shrubs. In some cases local genotypes may be the result of genetic impoverishment through isolation and inbreeding or selective felling of higher quality trees. Local genetic diversity is likely to be a more important issue for species where the modern population is largely wild than for species which are largely represented by planted (and therefore selected or imported) stock.

In order to conserve genetic diversity a precautionary approach is recommended here which involves using local plant material where possible when planting native species. Guidance on the issue for individual species is given in Background: Trees & shrubs native to County Durham.

Published guidance

The Forestry Commission Practice Note, Using Local Stock for Planting Native Trees and Shrubs, gives guidance on the production and use of local stock for native species. It can be downloaded from their website www.forestry.gov.uk/publications. The Commission defines four broad regions of provenance in the UK which are subdivided further into local seed zones. You can view an interactive map at www.durham.gov.uk/durhamlandscape showing the recommended local seed zones for planting in County Durham

Flora Locale have produced a Guidance Note, Sourcing Native Flora, which can be downloaded from their website www.floralocale.org.

General principles

- On sensitive sites – in or adjacent to ancient woodlands and other semi-natural habitats – use natural regeneration or plants grown from nearby wild populations where possible. Where this isn't possible use plants from the appropriate FC local seed zone.
- On less sensitive sites use plants from the appropriate FC local seed zone where possible. Where material isn't available from the same seed zone use material from the nearest adjacent zone in the same elevation band.
- For locally rare or uncommon species use only material collected from nearby wild populations.

The North Pennines



Existing Woodland

Woodland cover in the North Pennines is sparse and largely restricted to the moorland margins and to the dales, which are relatively well wooded in their lower reaches. Small gill and riverside woods are typical of the middle dale. There are scattered areas of juniper scrub in the moorland margins, most notably at Holwick in upper Teesdale. Wooded gorges and ravines are a notable feature of lower Teesdale and lower Derwentdale. Small conifer plantations and shelterbelts are common in the lower and middle dales and larger areas of commercial forestry in the moorland fringe.

Native Woods

Upland oak woodlands are found on the glacial drift of the dale floors and the lower dalesides, and upland oak –birch woodlands on the peaty gleys & podzols of the moorland fringes. Gill and riverside woodlands are typically a mixture of upland ash and oak woodland communities, the alternating strata of Carboniferous rocks giving rise to a variety of ground conditions that are reflected in both the woodland canopy and the ground flora. Upland ash woodlands are found on shallow soils over outcropping limestones, with alder-ash communities on wetter flushed slopes, and oak or oak-birch communities on the more acidic strata and drift. Birch woods are found on very wet ground and are likely to have been more extensive in the past on the fringes of bogs and mires. Juniper scrub occurs in the moorland margins, along becks, gills and crags on a range of calcareous to slightly acidic soils. Alder carr woodland is found on fertile soils on the margins of ponds and wetlands.

Secondary semi-natural woodland and scrub communities are found in abandoned quarries, old railway lines and road verges. These are variable in structure and are typically dominated by pioneer species such as birch, rowan, hawthorn, and shrub willows. A transition between upland oak and ash woodlands and their more diverse lowland counterparts occurs in the lower dale.

Characteristic native woodland types in the North Pennines (identified here by their National Vegetation Class) include:

- Upland Ash Woodland (W9)
- Lowland Ash Woodland (W8)
- Upland Oak Woodland (W11)
- Lowland Oak Woodland (W10)
- Upland Oak Birch Woodland (W17)
- Alder Ash Woodland (W7)
- Alder Carr Woodland (W5)
- Birch Woodland (W4)
- Juniper Woodland (W19)
- Hawthorn Scrub (W21)
- Blackthorn Scrub (W22)
- Bramble Scrub (W24/25)

Semi-natural woodlands in the North Pennines are often small and isolated. Few are actively managed and many suffer from overgrazing by livestock, which inhibits natural regeneration and results in a sparse understorey and ground layer. Juniper scrub in particular is diminishing under grazing pressure. Some ancient

woodlands have been replanted with commercial species but retain some of their characteristics and ground flora.

Objectives for native woods in the North Pennines include:

- conserving semi-natural woodlands and improving their management, and particularly the woods of dale side gills and dale floor gorges;
- conserving and restoring juniper scrub;
- restoring replanted or modified ancient woodlands.

Plantations

Most plantations in the North Pennines date from the 19th century and 20th century, although some are contemporary with farms and field walls of the 18th century. Smaller plantations are common in the middle and lower dale. Medium scale plantations, often rectilinear blocks of commercial softwoods, are scattered throughout the moorland fringe and are often associated with reservoirs in tributary dales. There are a small number of larger forestry estates such as Weardale Forest, Hamsterley Forest, and The Stang, in the moorland fringes. Older plantations are often a mixture of broadleaves and conifers with beech, sycamore, oak, scots pine and larch widely planted. Sycamore is common as a shelter tree around farmsteads. In larger plantations conifers, and particularly Sitka spruce, are the dominant species.

There is a long tradition of plantation forestry in the uplands and it is an important component of its landscape character in places. There are circumstances, however, where planting has taken place on important habitats or archaeological features, or with little regard to the underlying topography or character of the landscape. Objectives for plantations in the North Pennines include restructuring commercial plantations to improve their relationship with the surrounding landscape, to restore damaged habitats and archaeological features and to increase their biodiversity.

This might include

- removing areas of planting (or if necessary whole plantations) from archaeological remains or sensitive habitats like heathland and wetland;
- conversion of softwood plantations to native woodland - and particularly on sites close to ancient woods;
- increasing the proportion of native broadleaved species - and particularly along watercourses, margins and rides;
- redesigning woodland edges and compartments to give a more naturalistic fit with the surrounding landscape.

New Woodland

Planting sites

Priorities for new planting in the North Pennines include: -

- Planting in areas where new woodland would strengthen landscape character and enhance biodiversity, and particularly where they would extend or link existing semi-natural woods.

As existing semi-natural woods tend to survive as linear fragments in gills and along watercourses, planting new native woodlands in gills, ravines and river corridors offers the greatest potential for consolidating and linking the woodland habitat network, as well as creating new woods that are characteristic of the local landscape. Extending woodland planting into moorland gills may also be of benefit to certain species, such as black grouse, as may the planting of open woodland or wood pasture in the moorland fringes.

- Planting in and around quarries and other mineral workings.

Planting in and around mineral workings can help improve their appearance by screening intrusive features and assimilating artificial landforms. The benefits of woodland planting may need to be balanced against other opportunities for habitat creation, and planting should only take place where woodlands are a characteristic feature of the surrounding local landscape.

- Planting around upland reservoirs and water supply infrastructure

Planting around upland reservoirs can help screen features like draw down zones, dams and infrastructure and help assimilate the reservoir into its surroundings - and particularly where planting is native and naturalistic in design.

- Planting areas of juniper scrub, particularly on sites where it has occurred in the past or to consolidate and extend existing sites.

Planting juniper is generally a specialist exercise involving the use of locally grown plant material. Opportunities to plant close to existing juniper woods may be limited. They may be benefits in creating new areas on alternatives sites – like former mineral workings – or incorporating some juniper into planting mixtures for other woodland types.

Care needs to be taken on all sites in this sensitive landscape not to plant on areas of existing ecological or archaeological value. Advice should be taken from English Nature and/or the County Ecologist on sites close to designated areas.

Planting design

New woodlands should generally have a strong relationship with the underlying topography, following natural gills, steep slopes, river terraces and ravines. In the more ordered landscapes of the lower and middle dale where field patterns are strong, new woodlands should respect and interlock with the field pattern. In the less structured landscapes of gills, dale side bluffs and moorland fringes, naturalistic planting design with areas of open space and varied planting densities will be more appropriate. Fencing should be visually light (post and wire) where possible and avoid skylines.

Species selection

New planting in the North Pennines should generally be of native species characteristic of the local landscape. The priorities for new woodlands in the area are generally for new native woodlands. For these, existing native woodland types can be used as a guide to species selection

On the base poor gleys and brown earths, which cover much of the dale floor and lower dale sides, oak (W10) and oak-birch woodlands (W11) would be the most appropriate models for new planting. On poorer soils, humic gleys, rankers & podzols in the moorland fringe, oak-birch (W17) and birch (W4) would be more appropriate. Similar communities could be used in reclaiming acidic mineral wastes and overburdens. On valley sides, gorges and gills where limestones are exposed, and on base rich substrates in limestone quarries, ash and alder-ash communities (W9 and W7) are the most appropriate models. Alder woodlands may be useful models for planting on wet ground within other woodlands (W7), or in association with wetland features (W5 W6) or on land subject to seasonal flooding (W6). The planting of juniper scrub (W19) is generally a specialist exercise.

An interactive map of the distribution of native woodland types in County Durham can be viewed at www.durham.gov.uk/durhamlandscape.

The West Durham Coalfield



Existing Woodland

The pattern and extent of woodland cover varies considerably across the coalfield which is heavily wooded in places and very open in others. Linear ancient semi-natural woodlands lie in denes and steep riverside or valley-side bluffs where they have survived on land too steep for agriculture. Plantations are generally scattered thinly across the valley sides and ridge tops, although there are heavy concentrations in parts of the Browney, Deerness, Derwent, Wear and Pont Valleys. The southern edges of Hamsterley Forest also fall into the coalfield landscape. Secondary semi-natural woodlands are a common feature - including birch woodlands that have naturally colonised marginal upland fringe enclosures and heaths, or woodland sites felled during the Great War. More diverse and variable scrub communities are found on derelict land, abandoned railways lines and road verges.

Native Woods

Oak woods are strongly associated with the acidic and neutral soils of the West Durham Coalfield. Lowland oak woodland communities are found on the more fertile soils of the valleys, being replaced on thinner soils over acid strata in the denes by lowland oak-birch communities. In the upland fringes these give way progressively to their less diverse upland counterparts. Alder-ash communities are found on flushed slopes in dene woodlands. Alder carr woodlands are found on wet fertile soils on the margins of ponds and wetlands and valley fen alderwood on seasonally flooded land along the river. A less common wet woodland type, bay willow woodland, is found on a single site at Causey Bank Mires. Secondary semi natural woodland and scrub communities are typical of derelict land, abandoned railway lines, steep pastures, and the broad verges of enclosure roads. These are highly variable in structure and typically dominated by pioneer species like birch, sycamore, ash, rowan, hawthorn, gorse and dogrose. On wetter ground goat willow, grey willow and eared sallow are common.

Characteristic native woodland types in the West Durham Coalfield (identified here by their National Vegetation Class) include:

- Lowland Oak Woodland (W10)
- Upland Oak Woodland (W11)
- Lowland Oak Birch Woodland (W16)
- Upland Oak Birch Woodland (W17)
- Bay Willow Woodland (W3)
- Alder Carr Woodland (W5)
- Valley Fen Alder Woodland (W6)
- Alder Ash Woodland (W7)
- Hawthorn Scrub (W21)
- Blackthorn Scrub (W22)
- Gorse Scrub (W23)
- Bramble Scrub (W24/25)

Native woodlands on the coalfield tend to occur as relatively isolated fragments. Many have been modified by the planting of exotic or commercial species and a number were felled and replanted with conifers in the 1950s and 1960s. While some are managed under WGS contracts – including a number managed by local

authorities, the Woodland Trust and the Wildlife Trust, many receive no active management. Objectives for the coalfield's existing native woods include:

- Conserving semi-natural woodlands and improving their management.
- Restoring replanted and modified ancient woodlands.

Plantations

Many plantations on the coalfield have their origins in agricultural improvements of the 18th century and 19th century when many new plantations were established on recently enclosed fell land. During the same period many existing parklands were improved or extended and new parklands laid out. Many plantations from this period have been felled and replanted more than once in their history although some older trees, often beech or sycamore, survive. Other plantations were established in the post-war period when substantial areas were planted for taxation purposes on larger estates and a number of ancient woodlands were felled and replanted. These are usually dominated by softwoods, particularly scots pine and larch, although some contain a proportion of broadleaved species such as beech and oak. Larger plantations including Hamsterley Forest were established in the upland fringes by the Forestry Commission: here sitka spruce is the dominant species. Younger plantations of conifers and native or exotic broadleaved species, varying from large woodlands to narrow shelterbelts and small copses, are a common feature of restored opencast land and reclaimed colliery land.

Many plantations in the area are managed under Woodland Grant Scheme contracts but take-up is very variable. Many plantations receive little active management due to the current economics of forestry. A number of plantations have been planted in recent decades on sites of nature conservation value – particularly lowland or mid-altitude heath. Others – and particularly shelterbelt systems on restored opencast land - have a rather arbitrary relationship with the underlying ridge & valley topography and linear grain of the coalfield landscape.

Objectives for the area's plantations include:

- restructuring commercial plantations to improve their relationship with the surrounding landscape and to restore damaged habitats like replanted ancient woodlands and planted heaths
- progressive conversion of some softwood plantations to native woodland - and particularly on replanted ancient woodland sites, in denes and riverside bluffs, and sites close to ancient woods to expand the native woodland habitat resource;
- increasing the proportion of native broadleaved species in softwood plantations - and particularly along watercourses, margins and rides;
- removing planted woodland from sensitive habitats like blanket bog and heathland;
- reshaping woodlands and woodland edges to fit better with the valley topography – and particularly linear shelterbelt systems.

New Woodland

Planting sites

Priorities for new planting in the West Durham Coalfield include:

- Creating new native woodlands, and particularly where they would contribute to wildlife goals – for example by extending or linking isolated ancient woods.

As existing semi-natural woods tend to survive as linear features in denes and along watercourses, planting new native woodlands in and around these areas offers the greatest potential for consolidating and linking the woodland habitat network. There may also be merit in planting additional woodlands in heavily wooded areas away from the river corridors to create more robust forest habitat networks in those areas. In selecting sites care needs to be taken to avoid features of value in this landscape - areas of heathland vegetation, old field boundaries, old semi-improved pastures and areas of rig and furrow. Planting new areas of juniper scrub on heaths and fells can help restore what was once a more widespread feature of coalfield heaths.

- Increasing woodland cover and particularly in those areas affected by opencast mining, on reclaimed land, and in the urban fringe;

The coalfield landscape as a whole is a priority area for new woodland planting due to its legacy of environmental degradation and its proximity to urban populations. It is a relatively robust and heterogeneous landscape with a long history of plantation forestry that can accommodate new commercial and multi-purpose

woodlands as well as new native woodlands without weakening its character. There are some sensitivities in the landscape (see above) but many sites will be suitable for new woodland planting.

- Creating new community woodlands close to Towns & Villages

The West Durham Coalfield is heavily populated and many towns and villages have little access to woodland or natural green space. Planting community woodlands close to urban populations can provide an important recreational resource for local people as well as improving the appearance of the urban fringe.

- Creating new woodlands in the restoration of mineral workings

The restoration of mineral workings – and particularly opencast coal and brick shale sites – offers opportunities to expand native woodland cover to deliver biodiversity, landscape and community benefits.

In selecting sites for new planting care needs to be taken to avoid features of existing ecological or archaeological value and particularly earthworks like rig & furrow, old semi-improved pasture and meadows, heathland, small scale pre-enclosure field systems and industrial relics.

Planting design

New woodlands should respect the linear grain of the landscape and where possible follow watercourses, minor valleys and steeper valley slopes. Linear shelterbelts and longer woodland edges running across the contours should be avoided. In areas with strong enclosure patterns, new woodlands should respect and interlock with the surrounding field pattern.

Species selection

The coalfield has a long tradition of commercial forestry and plantations of both broadleaves and conifers are characteristic features of the landscape. Many of the priorities for new woodland planting are for new native woodlands. For these, existing native woodland types can be used as a guide to species selection.

In the valleys of the coalfield lowland oak woodland communities (W10) are the most appropriate models for new planting on typical agricultural soils, and lowland oak-birch communities (W16) on free draining sandy sites, thin acidic soils, or reclaimed ground. On upland fringe sites their less species-rich upland counterparts (W11, W17) will be more appropriate. Alder communities are well suited to wet ground: W7 on flushed soils, W5 in association with ponds and wetland features, or W6 on land subject to seasonal flooding on river floodplains.

On the more fertile soils of the lower coalfield valleys opportunities may exist for the production of good quality hardwoods with planting mixtures designed for silvicultural purposes. Where possible these should use the native broadleaved species found locally in native woodlands. In parts of the upland fringe, softwood plantations are a more characteristic feature of the local landscape, with Larch and Scots Pine the most commonly planted species. New softwood plantations should include a proportion of locally native broadleaved species and particularly along watercourses, margins and rides.

An interactive map of the distribution of native woodland types in County Durham can be viewed at www.durham.gov.uk/durhamlandscape

The Dales Fringe



Existing Woodland

The narrow gorge of the River Tees and the incised denes of its tributaries, most notably the Deepdale Beck and the River Greta, are lined with ancient woodlands. Away from the river corridors the landscape is fairly open with scattered plantations, small copses and shelterbelts. Heavily wooded parklands are a notable feature of the area, many incorporating areas of replanted or heavily modified ancient woodland.

Native Woods

The riverside and dene woodlands of the Dales Fringe contain a range of ground conditions which are reflected in the woodland communities they support. On exposed Carboniferous limestones, ash woodland communities transitional between lowland and upland types are found. Oak woodland communities - including those with lowland and upland characteristics – occur on more acidic substrates and are likely to have been much more widespread in the past on the neutral gleys and brown earths which cover much of the area. Upland oak and oak-birch woodlands are also likely to have been more extensive in the upland fringes: only isolated fragments survive today. Alder-ash communities are found on flushed slopes in ravine woodlands. Alder carr woodland is found on wet fertile soils on the margins of ponds and wetlands. Valley Fen Alderwood occurs in small pockets on seasonally flooded land along the river. Scrub occurs in patches on disturbed ground, old railway lines, road verges and steep pastures.

Characteristic native woodland types in the Dales Fringe (identified here by their National Vegetation Class) include:

- Lowland Ash Woodland (W8)
- Upland Ash Woodland (W9)
- Lowland Oak Woodland (W10)
- Upland Oak Woodland (W11)
- Upland Oak Birch Woodland (W17)
- Alder Carr Woodland (W5)
- Valley Fen Alder Woodland (W6)
- Alder Ash Woodland (W7)
- Hawthorn Scrub (W21)
- Blackthorn Scrub (W22)
- Gorse Scrub (W23)
- Bramble Scrub (W24/25)

Woodlands in the Dales Fringe tend to be actively managed as many form part of larger estates where they are managed under Woodland Grant Scheme contracts. The area does contain a large number of replanted or heavily modified ancient woodland sites – including both dene woods and larger woods on better ground.

Objectives for the area's existing native woods include:

- conserving and restoring semi-natural oak and ash woodlands in denes and on riverbanks;
- restoring replanted or modified ancient woodlands.

Plantations

The area contains many plantations, most of which have their origins in landscape and agricultural improvements of the 18th century and 19th century when many older parklands were redesigned and new plantations established on recently enclosed fell land. Many parkland woods are made up of broadleaves or mixed conifers and broadleaves, with beech, oak, ash and sycamore typical species together with more exotic and ornamental species. Other plantations are predominantly coniferous and dominated by scots pine, larch and spruce. Most are actively managed under Woodland Grant Scheme contracts. Objectives for the area's plantations include:

progressive conversion of some softwood plantations to native woodland - and particularly on sites close to ancient woods to expand the native woodland habitat resource;

increasing the proportion of native broadleaved species in plantations, and particularly along watercourses, margins and rides.

New Woodland

Planting sites

Priorities for new planting in the Dales Fringe include:

- Creating new native woodlands, and particularly where they would extend or link isolated ancient semi-natural woods in denes and the corridors of rivers and streams.

As existing semi-natural woods tend to survive as linear features in denes and along watercourses, planting new native woodlands in and around these areas offers the greatest potential for consolidating and linking the woodland habitat network. There would also be merit in planting additional woodlands in heavily wooded areas away from the river corridors to create more robust forest habitat networks in those areas. Care needs to be taken to avoid features of value in this landscape and particularly old field boundaries, old semi-improved pastures and areas of rig and furrow.

- Planting in and around quarry sites and mineral workings – to improve their appearance and to restore them in a way that complements and enhances the character of the local landscape.

Planting in and around mineral workings can help improve their appearance by screening intrusive features and assimilating artificial landforms. The Dales Fringe contains a number of limestone and sandstone quarries where new woodland planting – along with other forms of habitat creation – could bring biodiversity and landscape benefits.

In selecting sites for new planting care needs to be taken to avoid features of existing ecological or archaeological value and particularly earthworks like rig & furrow and cultivation terraces, old semi-improved pasture and meadows, and small scale pre-enclosure field systems.

Planting design

In the enclosed and ordered landscape of the dales fringe where field patterns are generally strong, new woodlands should respect and interlock with the surrounding field pattern.

Species selection

The priorities for new woodlands in the area are generally for new native woodlands. For these, existing native woodland types can be used as a guide to species selection. On the neutral or acidic soils which cover much of the dales fringe, lowland oak woodland (W10) communities are the most appropriate models, with upland oak and oak-birch woodlands (W17, W11) on upland fringe sites and acidic or infertile soils elsewhere. Ash woodland (W8, W9) communities are likely to be appropriate on base rich soils and thin soils over Carboniferous limestone outcrops. Alder communities are well suited to wet ground: W7 on flushed soils, W5 in association with ponds and wetland features, or W6 on land subject to seasonal flooding on river floodplains.

On the more fertile soils of the lower vale opportunities may exist for the production of good quality hardwoods with planting mixtures designed for silvicultural purposes. Where possible these should use the native broadleaved species found locally in native woodlands. In parts of the upland fringe, softwood plantations are a more characteristic feature of the local landscape, with Larch and Scots Pine the most commonly planted species. New softwood plantations should include a proportion of locally native broadleaved species and particularly along watercourses, margins and rides.

An interactive map of the distribution of native woodland types in County Durham can be viewed at www.durham.gov.uk/durhamlandscape

The East Durham Limestone Plateau



Existing Woodland

Trees and woodlands are sparse in the open landscape of the East Durham Plateau. Small semi-natural woods and larger areas of scrub are found on the steeper slopes of escarpment vales and spurs. Larger semi-natural woodlands are found in the denes of the coastal plateau. Exposure and salt-laden winds limit tree growth elsewhere on the coast. Inland there are localised concentrations of deciduous and mixed plantations in areas of parkland and planned estate landscapes.

Native Woodland

Lowland ash woods and localised pockets of yew woodland are found on thin soils over limestone in denes and steeper escarpment slopes. Lowland oak woodlands are less common but were probably more widespread in the past on the neutral boulder clays that cover the limestone in most areas. Small pockets of free draining glacial sands and gravels may have supported areas of lowland oak-birch communities. Alder carr woodlands are found on wet fertile soils on the margins of ponds and wetlands. Secondary semi natural woodland and scrub communities are typical of derelict land, old railway lines and quarries and unmanaged limestone grasslands on the escarpment and coast. This is highly variable in structure and usually dominated by pioneer species like birch, sycamore, ash, rowan, hawthorn, gorse and dogrose. On wetter ground goat willow and grey willow are common. Scrub on the limestone is often dominated by hawthorn or gorse, or by blackthorn on the coast, but more diverse scrub containing a wide range of rose and shrub willow species is also characteristic. Isolated clumps of juniper scrub occur on the coast, and were more extensive in the past.

Characteristic native woodland types in the Wear Lowlands (identified here by their National Vegetation Class) include:

- Lowland Ash Woodland (W8)
- Lowland Oak Woodland (W10)
- Lowland Oak Birch Woodland (W16)
- Alder Carr Woodland (W5)
- Yew Woodland (W13)
- Juniper Woodland (W19)
- Hawthorn Scrub (W21)
- Blackthorn Scrub (W22)
- Gorse Scrub (W23)
- Bramble Scrub (W24/25)

Native woodlands in the East Durham Plateau occur as isolated fragments and some have been modified by the planting of exotic or commercial species. Dutch Elm disease has altered the structure of many woods, with sycamore often replacing the native wych elm in the canopy. Some are managed by conservation bodies under WGS contracts; others receive no active management.

Objectives for the area's existing native woods include:

- Conserving and restoring semi-natural woodlands.

Plantations

Plantations are relatively scarce on the East Durham Plateau though there are localised concentrations associated with parkland and estate landscapes laid out in the 18th century and 19th centuries. Most plantations from this period have been felled and replanted more than once in their history although some older trees survive. They are often composed of broadleaved species such as beech, sycamore, oak and ash,

or mixtures including conifers, particularly scots pine and larch. Exotic conifers and hardwoods are often present in the more ornamental woodlands & copses of parklands. A number of limestone denes contain softwood plantations and there are some substantial plantations of conifers in the Wingate area. Younger plantations of conifers and native or exotic broadleaved species, often narrow shelterbelts and small copses, are a common feature of reclaimed colliery land and land filled quarries.

Some plantations in the area are managed under Woodland Grant Scheme contracts but take-up is very variable - many receive little active management due to the current economics of forestry. Priorities for the area's plantations include

Progressive conversion of some softwood plantations to native woodland - and particularly those on replanted ancient woodland sites, in limestone denes, and sites close to ancient woods to expand the native woodland habitat resource.

Increasing the proportion of native broadleaved species in softwood plantations - and particularly along watercourses, margins and rides.

New Woodland

Planting sites

Priorities for new planting in the East Durham Plateau identified in the Landscape Strategy include:

- Creating new native ash and oak woodlands and particularly where they would contribute to wildlife goals – for example by extending or linking isolated ancient woods on the escarpment and in coastal denes. Creating new wet woodlands on poorly drained land of the Clay plateau.

Existing semi-natural woods survive in this landscape as isolated fragments and the plant communities within them are often strongly related to the underlying limestone which itself outcrops in a fragmented pattern other than along the escarpment. On thin soils over limestone – typical of the escarpment - there are often conflicting priorities for habitat creation, and particularly the restoration of magnesian limestone grassland. There may be opportunities to plant new ash woodlands on the scarp in association with grassland restoration scheme. There may also be merit in seeking to increase woodland connectivity by planting oak and ash woodlands on the mosaic of limestone and drift east of the scarp where nature conservation sensitivities are lower. Conflicts with grassland habitat creation priorities also occur in the coastal denes, but are less acute where the denes cut down through base-poor drift rather than limestone: woodland creation is a clearer priority here. The poorly drained clays of the clay plateau offer opportunities to create wet woodlands in association with existing wetlands.

- Increasing woodland cover generally, and particularly in the urban fringe and along major transport corridors.

The coalfield landscape of the East Durham Plateau is a priority area for new woodland planting generally due to its legacy of environmental degradation and proximity to urban populations. While some parts of the landscape are currently very open in character, the landscape as a whole is generally robust and heterogeneous. It contains some heavily wooded areas as well as areas heavily influenced by urban and industrial development where new planting would strengthen landscape character by helping to screen, contain and assimilate built development. This is particularly true in areas around major industrial estates, road corridors (the A19 for example) and active limestone quarries. There are areas where the historic character of the landscape has been weakened by agricultural intensification – particularly through the loss of field boundaries. The development of new woodlands here would help to create new and attractive landscapes – albeit very different from those of the past. There are some sensitivities in the landscape – sites of nature conservation or historical interest in particular - but many sites are generally suitable for new woodland planting.

- Creating new community woodlands close to towns and villages

The East Durham Plateau is heavily populated and many towns and villages have little access to woodland or natural green space. Planting community woodlands close to urban populations can provide an important recreational resource for local people as well as improving the appearance of the urban fringe environment.

- Restoring derelict land and improving the landscape of reclaimed land by planting native woodlands.

Pockets of derelict land occur across the East Durham Plateau. Some have nature conservation sensitivities. Planting new native woodlands as part of their reclamation can help restore them to a beneficial use and assimilate them into the wider landscape.

- Creating new woodlands in the restoration of mineral workings

In the restoration of limestone quarries there are often conflicting priorities for habitat creation, and particularly the restoration of magnesian limestone grassland which is an important BAP priority habitat. There are circumstances where it is appropriate to develop new ash & yew woodlands as part of quarry restoration and particularly where this helps to screen or assimilate the quarry into the local landscape.

- Developing areas of woodland and scrub in cliff top denes or as screening for nearby development.

The coast is currently very open in character and, as with other parts of this landscape, there are often other priorities for habitat creation – particularly maritime grassland. The development of woodland and scrub habitats can be complimentary to those goals and help to create a more visually diverse and naturalistic coastal environment, and particularly in the shelter of cliff-top denes, and where they could help screen settlement edges, allotment gardens and industrial development,

Planting design

On the scarp and the coastal limestone plateau new woodlands should follow the topography, of steep slopes, incised denes and dry valleys. Elsewhere woodland edges should respond to, and interlock with, field patterns where these are strong. On the coast, planting design should be naturalistic, responding to the topography and forming mosaics with open grassland at varying planting densities.

Species selection

Many of the priorities for new woodland planting are for new native woodlands. For these, existing native woodland types can be used as a guide to species selection.

The East Durham Plateau contains a broad range of soils from calcareous brown earths to heavy gleys which support very different plant communities. It is likely that on the base poor soils that cover much of the area, lowland oak woodlands (NVC W10) would be the best models for new planting with lowland ash woodlands (NVC W8) on base rich soils over limestone. In many areas a mosaic of the two reflecting ground conditions would be more appropriate. In some circumstances – particularly on exposed limestones in abandoned quarries - Yew Woodland (NVC W13) might be established. On less fertile sites, and in particular colliery shales, oak-birch woodlands (NVC W16) may provide useful models although these are not strongly characteristic of the area. On road verges, limestone quarries and coastal areas the development of scrub, dominated by hawthorn or blackthorn may be more appropriate than woodland. Alder woodlands may be useful models for planting on wet ground within other woodlands (NVC W7), or in association with wetland features (NVC W5) .

On the better soils of the Plateau opportunities may exist for the production of good quality hardwoods with planting mixtures designed for silvicultural purposes. Where possible these should use the native broadleaved species found in the semi-natural woodlands associated with the plateau landscape.

An interactive map of the distribution of native woodland types in County Durham can be viewed at www.durham.gov.uk/durhamlandscape

The Wear Lowlands



Existing Woodland

The pattern and extent of woodland cover varies considerably in the Wear Lowlands which are heavily wooded in places and very open in others. Ancient semi-natural woodlands lie in denes and gorges and on steep bluffs overlooking the Wear floodplain. Heavily wooded parklands lie along the Wear corridor, spreading onto the adjacent valley terraces which are otherwise very open with thinly scattered small plantations. Secondary woodlands and scrub are found on derelict land, abandoned railway lines and road verges.

Native Woods

Oak Woodlands are strongly associated with the acidic and neutral soils of the Wear Lowlands and are typical of denes and gorges. They include lowland oak woodland communities on better soils and lowland oak-birch communities on infertile sandy soils associated with heathlands, or on thin soils over acid coal measures in the denes. On wetter sites alder woodland communities are found: alder-ash communities on flushed slopes in dene woodlands; alder carr woodlands on wet fertile soils on the margins of ponds and wetlands; valley fen alderwoods on seasonally flooded land on the river floodplain. These are likely to have had a more widespread distribution on the Wear floodplain in former times. Secondary semi natural woodland and scrub communities are typical of derelict land, abandoned railway lines, steep dene pastures, and road verges. These are highly variable in structure and typically dominated by pioneer species like birch, sycamore, ash, rowan, hawthorn, gorse and dogrose. On wetter ground goat willow, grey willow and eared willow are common.

Characteristic native woodland types in the Wear Lowlands (identified here by their National Vegetation Class) include:

- Lowland Oak Woodland (W10)
- Upland Oak Woodland (W11)
- Lowland Oak Birch Woodland (W16)
- Upland Oak Birch Woodland (W17)
- Alder Carr Woodland (W5)
- Valley Fen Alder Woodland (W6)
- Alder Ash Woodland (W7)
- Hawthorn Scrub (W21)
- Blackthorn Scrub (W22)
- Gorse Scrub (W23)
- Bramble Scrub (W24/25)

Native woodlands tend to occur as relatively isolated fragments, although some are quite large and there is a degree of continuity along the main watercourses. Many have been modified by the planting of exotic or commercial species and a number were felled and replanted in the C20th. While some are managed under WGS contracts – including those managed by local authorities and the larger estates, many receive no active management.

Objectives for the area's existing native woods include:

- conserving semi-natural oak and birch woodlands and improving their management;
- restoring replanted or modified ancient woodlands.

Plantations

Many plantations on the Wear Lowlands are associated with parkland and estate landscapes laid out in the 18th century and 19th centuries. Most plantations from this period have been felled and replanted more than once in their history although some older trees survive. They are often composed of broadleaved species such as beech, sycamore, oak and ash, or mixtures including conifers, particularly scots pine and larch. Exotic conifers and hardwoods such as horse chestnut, sweet chestnut and hornbeam are often present in the more ornamental woodlands & copses of parklands. Younger plantations of conifers and native or exotic broadleaved species, often narrow shelterbelts and small copses, are a common feature of restored opencast land and reclaimed colliery land.

Some plantations in the area are managed under Woodland Grant Scheme contracts but take-up is very variable - many receive little active management due to the current economics of forestry. Objectives for the area's plantations include:

- Progressive conversion of some softwood plantations to native woodland - and particularly on replanted ancient woodland sites, in denes and riverside bluffs, and sites close to ancient woods to expand the native woodland habitat resource.
- Increasing the proportion of native broadleaved species in softwood plantations - and particularly along watercourses, margins and rides.

New Woodland

Planting sites

Priorities for new planting in the Wear include:

- Creating new native woodlands, particularly where they would extend or link existing ancient woods, along watercourses and on floodplains.

As existing semi-natural woods tend to survive as linear features associated with the denes, gorges and floodplains of the main watercourses, planting new native woodlands in and around these areas offers the greatest potential for consolidating and linking the woodland habitat network. In selecting sites care needs to be taken to avoid features of value in this landscape - areas of heathland vegetation, old field boundaries, old semi-improved pastures and areas of rig and furrow and other archaeological features.

- Increasing woodland cover in the more open valley terraces and particularly in areas affected by opencast mining, on reclaimed land, in the urban fringe, and within the Great North Forest.

The coalfield landscapes of the Wear Lowlands are priority areas for new woodland planting generally due to their legacy of environmental degradation and proximity to urban populations. While some parts of the landscape are currently very open in character, the landscape as a whole is generally robust and heterogeneous. It contains some heavily wooded areas as well as areas heavily influenced by urban and industrial development where new planting would strengthen landscape character by helping to screen, contain and assimilate built development. There are some sensitivities in the landscape (see above) but many sites are suitable for new woodland planting.

- Creating new community woodlands close to Towns & Villages

The Wear Lowlands are heavily populated and many towns and villages have little access to woodland or natural green space. Planting community woodlands close to urban populations can provide an important recreational resource for local people as well as improving the appearance of the urban fringe.

- Creating new woodlands in the restoration of mineral workings

The restoration of mineral workings, and particularly opencast coal and brick shale sites, offers opportunities to expand woodland cover to deliver biodiversity, landscape and community benefits.

Planting design

In the incised valleys of the Wear and its tributaries new woodlands should generally respect the linear grain of the landscape and follow watercourses, denes, steep bluffs and valley sides. In the more open rolling terraces, and particularly in areas with strong enclosure patterns, new woodlands should respect, and interlock with, the surrounding field pattern.

Species selection

Many of the priorities for new woodland planting are for new native woodlands. For these, existing native woodland types can be used as a guide to species selection.

Over most of the Wear Lowlands lowland oak woodland communities (W10) are the most appropriate models for new planting on typical agricultural soils, together with lowland oak-birch communities (W16) on free draining sandy sites, thin acidic soils, or reclaimed ground. Alder communities are well suited to wet ground: W7 on flushed soils, W5 in association with ponds and wetland features, or W6 on land subject to seasonal flooding on river floodplains.

On the relatively fertile soils of the Wear Lowlands opportunities may exist for the production of good quality hardwoods with planting mixtures designed for silvicultural purposes. Where possible these should use the native broadleaved species found locally in native woodlands.

An interactive map of the distribution of native woodland types in County Durham can be viewed at www.durham.gov.uk/durhamlandscape

The Tees Lowlands



Existing Woodland

Woodlands are generally sparse in the open landscape of the Tees Lowlands. Narrow ancient semi-natural woodlands are found along the Tees and small farm woodlands are scattered across the area. There are some locally heavily wooded areas associated with parkland and estate landscapes of Windlestone, Hardwick and Sellaby and parts of Raby and Wynyard, and there are tracts of wooded farmland in the Embleton and Hurworth area.

Native Woods

Native woodlands in the Tees lowlands are largely restricted to the banks of the Tees where lowland oak woodlands are found on steep river banks and river terraces, with pockets of lowland ash woodland communities on small limestone outcrops. Lowland oak woodlands are likely to have been more widespread in the past on the glacial boulder clays, sands and gravels and river terrace deposits that cover most the Tees plain. Alder carr woodlands are occasionally found on fertile soils on the margins of ponds and wetlands and these together with valley fen alderwoods are likely to have been more common in the past, and particularly in the flatts and carrs of the River Skerne, the Bishopton and Langley Becks, and along the Tees floodplain.

Characteristic native woodland types in the Wear Lowlands (identified here by their National Vegetation Class) include:

- Lowland Ash Woodland (W8)
- Lowland Oak Woodland (W10)
- Alder Carr Woodland (W5)
- Valley Fen Alder Woodland (W6)
- Hawthorn Scrub (W21)
- Blackthorn Scrub (W22)
- Gorse Scrub (W23)
- Bramble Scrub (W24/25)

Native woods along the Tees have a relatively high degree of connectivity although they are generally small and narrow which limits their value for some woodland species. There are a small number of replanted ancient woods that contain relics of semi-natural vegetation.

Objectives for the area's existing native woods include:

- Conserving riverside and carr woodlands and improving their management
- Restoring replanted or modified ancient woodlands

Plantations

The small farm woodlands scattered across the landscape are very variable in character and include both broadleaved, mixed and coniferous plantations. Most probably have their origins in the 18th and 19th centuries. The larger and more numerous plantations of wooded parklands are also very diverse in character and often contain more ornamental and exotic species. Many of the estate woodlands of the Tees Vale in the west are managed under Woodland Grant Scheme contracts. Take-up elsewhere is generally low suggesting

relatively low levels of active woodland management. The principal objective for the management of plantations in the Tees Lowlands is to bring more woodlands into active management.

New Woodland

Planting sites

Priorities for new woodland planting in the Tees Lowlands include:

- Creating new native oak and alder carr woods and particularly where they would contribute to wildlife goals – for example by extending or linking isolated ancient woods.

As many of the area's native woods are small and narrow fragments, planting on adjacent land – the floodplain or river terraces - can help make these woodlands more robust. The lowlands also contain many areas of flat and poorly drained land where new wet woodlands, a BAP priority habitat, could be established.

- Re-establishing bank side vegetation

The Tees Lowlands are drained by numerous small watercourses where bank side vegetation is generally sparse. Establishing new river and streamside woods can help buffer watercourses from agricultural activities and improve water quality.

- Creating new community woodlands and particularly close to larger settlements

The Tees lowlands in County Durham are generally sparsely populated but contains larger settlements such as Sedgefield and Newton Aycliffe. Planting community woodlands close to urban populations can provide an important recreational resource.

Planting design

Species selection

The Tees Lowlands does not have much of tradition of commercial forestry and softwoods in particular are not characteristic features of the landscape. Many of the priorities for new woodland planting are for new native woodlands. For these, existing native woodland types can be used as a guide to species selection.

Over most of the Tees Plain lowland oak woodlands (NVC W10) are the most appropriate models for new native woodland planting on typical agricultural soils, with ash woodlands (NVC W8) restricted to occasional and very localised carboniferous limestone exposures along the Tees, and localised outcrops of Permian limestone in the Ingleton and Killerby areas. There may be opportunities to develop alder woodlands (NVC W5 and W6) on wet eutrophic sites along watercourses, around wetlands, and on alluvial floodplains and flat carr land.

Given the fertile soils of the area opportunities exist for the production of good quality hardwoods with planting mixtures designed for silvicultural purposes. Where possible these should use the native broadleaved species found in the native woodlands associated with the lowland landscape.

The area is predominantly arable and close to potential markets for wood-fuel products such as short rotation coppice. This requires the use of specific willow and poplar cultivars. The use of a permanent infrastructure of native woodland in short rotation plantations can help assimilate them into the local landscape and provide benefits to wildlife.

An interactive map of the distribution of native woodland types in County Durham can be viewed at www.durham.gov.uk/durhamlandscape.

Help & advice

Organisations

Forestry Commission www.forestry.gov.uk: Advice and support for woodland planting and management. Felling control. Planting and management grants. Publications.

North East England Conservancy Office (Chester-le-Street, Derwentside, Durham City and Easington)
1 Walby Hill
Rothbury
Morpeth
Northumberland
NE65 7NT
T 01669 621591
F 01669 621454
E northeast.fce@forestry.gsi.gov.uk

Southern Area Office (Wear Valley, Teesdale, Sedgfield)
Redford
Hamsterley
Bishop Auckland
DL13 3NL
T 01388 488721
F 01388 488762
E northeast.fce@forestry.gsi.gov.uk

Northwoods www.northwoods.org.uk : Training, advice and support for tree and timber businesses in the North East.

Northwoods
1 Walby Hill
Rothbury
MORPETH
Northumberland
NE65 7NT
T 01669 621 489
F 01669 621 522
E enquiries@northwoods.org.uk

Tyne Tees Farming and Wildlife Advisory Group (FWAG): Advice for farmers and land managers on conservation issues.

Enterprise House
Harmire Enterprise Park
Barnard Castle
Co Durham
DL12 8XT
T 01833 696634
E tynetees@fwag.org.uk

Groundwork West Durham & Darlington www.groundwork-westdurham.org.uk: Advice and support for community-based environmental schemes in Derwentside, Wear Valley and Teesdale districts.

Grosvenor House
29 Market Place
Bishop Auckland
Co Durham
DL14 7NP
T: 01388 662 666
F: 01388 661 941
E: west.durham@groundwork.org.uk

Groundwork East Durham www.groundwork-eastdurham.org.uk: Advice and support for community-based environmental schemes in Chester-le-Street, Durham City, Sedgefield and Easington districts.

Seaton Holme
Hall Walk
Easington Village
Peterlee,
Co Durham
SR8 3BS
T: 0191 527 3333
F: 0191 527 3655
E: east.durham@groundwork.org.uk

Durham Wildlife Trust www.wildlifetrust.org.uk: Advice on nature conservation issues. Links to specialist groups giving advice on individual species (Red Squirrel, Otter, Water Vole, Bats, Badger, Butterflies).

Rainton Meadows
Chilton Moor
Houghton-le-Spring
Tyne & Wear
DH4 6PU
T 0191 5843112
F 0191 5843934
E info@durhamwt.co.uk

DCC Access and Rights of Way Section www.durham.gov.uk: Advice on access and public rights of way issues.

Access & Rights of Way Section
Countryside Group
Environment
Durham County Council
County Hall
Durham
DH1 5UQ
T 0191 3833239
E prow@durham.gov.uk

British Horse Loggers www.britishhorseloggers.org: Information and training on the use of horses in forestry and woodland management. Contacts & contractors.

Heavy Horses
Hill Farm
Stanley Hill
Bosbury
Ledbury
Herefordshire
HR8 1HE
T 01531 640 236
E doug@heavyhorses.net

Durham Biodiversity Partnership www.durhambiodiversity.org.uk: The Durham Biodiversity Action Plan – including woodland habitat action plans - can be accessed or downloaded from this site.

Fieldfare Trust www.fieldfare.org.uk: Guidelines on countryside access for disabled people.

MAGIC www.magic.gov.uk: Online Geographical Information System showing boundaries of national environmental designations and land management initiatives.

Grants and funding

The English Woodland Grant Scheme

The Forestry Commission's suite of grants covering Woodland Creation, Woodland Planning, Woodland Assessment, Woodland Regeneration, Woodland Improvement and Woodland Management. For more information visit the Forestry Commission website (www.forestry.gov.uk) or contact the North East England Conservancy Office on 01669 621591 (north and east Durham) or 01388 488721 (south and west Durham)

National Tree Week

The Tree Council's festival to mark the start of the tree planting season. Durham County Council offer grants for tree planting of £150 to schools, community groups and parish councils. Advice and information is also available on what trees to plant and how to give them the best possible start. For more information contact the Landscape Section, Environment on Tel: 0191 383 4076.

County Durham Environmental Trust (CDENT)

CDENT provide grants through the Landfill Tax Credit Scheme on projects which offer significant and lasting benefit for the environment and people in areas served by contributing waste management companies. For more information visit the CDENT website (www.cdent.co.uk) or contact them on 0191 383 4630.

Publications

The following, and many other, useful publications can be purchased or downloaded from the Forestry Commission website (www.forestry.gov.uk)

The UK Forestry Standard: the government's approach to sustainable forestry (Forestry Commission, Edinburgh 2004) ISBN 0 85538 626 6

The UK Woodland Assurance Scheme guide to certification (UKWAS, Edinburgh, 2000) ISBN 0 85538 511 1

Certification Standard for the UK Woodland Assurance Scheme (UKWAS, Edinburgh, 2000) ISBN 0 85538 510 3

Creating New Native Woodlands_ Bulletin 112. Rodwell, John S: Patterson, Gordon S (HMSO, London 1994) ISBN 0 11710 313 6

The management of semi-natural woodlands: 3. lowland mixed broadleaved woods. Practice Guide (Forestry Commission, Edinburgh, 2003) ISBN 0 85538 582 0

The management of semi-natural woodlands: 4. upland mixed ashwoods. Practice Guide (Forestry Commission, Edinburgh, 2003) ISBN 0 85538 583 9

The management of semi-natural woodlands: 5. upland oakwoods. Practice Guide (Forestry Commission, Edinburgh, 2003) ISBN 0 85538 584 7

The management of semi-natural woodlands: 6. upland birchwoods. Practice Guide (Forestry Commission, Edinburgh, 2003) ISBN 0 85538 585 5

The management of semi-natural woodlands: 8. wet woodlands. Practice Guide (Forestry Commission, Edinburgh, 2003) ISBN 0 85538 587 1

Restoration of native woodland on ancient woodland sites. Practice Guide. Thompson T, Humphrey J W, Harmer R & Ferris R (Forestry Commission, Edinburgh, 2003) ISBN 0 85538 579 0

Forest Design Planning: a guide to good practice. Practice Guide. Bell, S (Forestry Commission, Edinburgh, 1998) ISBN 0 85538 362 3

Forest landscape design guidelines Guideline (HMSO, London, 1994) ISBN 0 11710 325 X

Lowland landscape design guidelines Guideline (HMSO, London, 1992) ISBN 0 11710 303 9

Forests and water guidelines Guideline (Forestry Commission, Edinburgh, 2003) ISBN 0 855386 150

Forests and archaeology guidelines Guideline (Forestry Commission, Edinburgh, 1995) ISBN 0 855386 329 1

Forest nature conservation guidelines Guideline. (HMSO, London, 1990) ISBN 0 11710 292 X

Community woodland design guidelines Guideline (HMSO, London, 1991) ISBN 0 11710 300 4

Involving communities in forestry through community participation. Practice Guide 10 (Forestry Commission, Edinburgh, 1996) ISBN 0 85538 271 6

Creating and managing woodlands around towns Management Handbook 11. Hodge, Simon J (HMSO, London, 1995) ISBN 0 11710 328 4

Using local stock for planting native trees and shrubs. Practice Note 008. Herbert, R (Forestry Commission, Edinburgh, 1999) ISBN 0 85538 503 0

The following handbooks can be purchased or downloaded from the British Trust for Conservation Volunteers website (<http://www.btcv.org>)

Woodlands: a practical handbook. Agate, E (BTCV) ISBN 0 946752 33 8

Tree planting and aftercare: a practical handbook. Agate, E (BTCV) ISBN 0 946752 25 7

The Urban Handbook: a practical guide to community environmental work (BTCV, Wallingford, 1998) ISBN 0 946752 15 X

The following guidelines can be downloaded from the National Urban Forestry Unit website (<http://www.nufu.org.uk>)

Designing urban woodland

Engaging communities with urban forestry

Funding Urban Forestry

Managing Urban Woodland