

Devon hedge management 4: hedgerow trees

Hedgerow trees are a prominent feature across much of the Devon countryside. As well as being attractive and significant features within the landscape they bring other benefits, providing shelter and shade for farm animals and an important habitat for wildlife. If well-managed, they are also a potential source of wood for the fire or even of timber.

Despite these advantages, hedgerow trees are not universally liked. The shade cast can result in gaps in the hedge beneath or reduce the productivity of adjoining land, and frequent hedgerow trees make hedge trimming more time-consuming and costly.

This section provides information on the types, status and importance of hedgerow trees in Devon and, in support of their conservation and amenity benefits, promotes further planting across the county. It also suggests measures that can be taken to reduce any adverse impacts on farming.

Many Devon hedgerow trees are now nearing the end of their lives: a large proportion of them were established at a time of agricultural decline at the end of the 19th century, and the life expectancy of a hedgerow tree is unlikely to exceed 150 years (although pollarding can greatly extend this). Without a concerted and sustained effort to establish new hedgerow trees in coming years, there will be a gradual but profound change to the Devon landscape, likely to be greatly exacerbated by new diseases, especially ash dieback.



Hedgerow trees like this oak are of great landscape and wildlife value. ©Tom Hynes

The numbers and status of hedgerow trees in Devon

The Forestry Commission census of woodlands and trees (1979-1982) estimated that there were 7.3 million non-woodland trees across Devon. Of these, more than half a million were found as isolated trees in boundaries such as hedges, banks, fences and walls. By far the most widely represented species were oak and ash, forming 29% and 26% respectively of all such trees.

A far larger number of trees - more than 3 million - were found in linear features such as deliberately grown avenues, shelterbelts or in overgrown hedges. Classic Devon examples of such linear features are the avenues of beech which line many roads across Exmoor and the Blackdown Hills. A similar number of trees were recorded in very small clumps, some of which were within or immediately adjacent to hedges.

Nationally, between 1998 and 2007, 4.5% of emergent hedgerow trees were lost, a rapid rate of decline, and there is no reason to suspect that trees in Devon are faring any better. The same national survey (Countryside Survey 2007) suggested a dramatic decrease in the number of young or small trees. Clearly, the decline in overall numbers is at least partly due to far too few young trees being allowed to grow to maturity. Indeed, modelling reveals that for a stable population, 45% of hedgerow trees need to be 20 cm or less Diameter Breast Height (DBH). In Devon, parish surveys carried out between 2007 and 2009 suggest that just 26% of our trees fall into this size class.

The reasons why there are fewer hedgerow trees now

- Loss due to disease, particularly Dutch elm disease: it is now rare to see mature elms. Although elms remain a common hedgerow shrub across much of the county, saplings tend to succumb to the disease when about 10 cm DBH. Now ash dieback disease poses a major risk to our ash, and it seems likely that we will soon face another period of catastrophic hedgerow tree loss.

- Routine hedge management with tractor and flail has greatly reduced the number of saplings left to form the hedgerow trees of the future.
- Increasing numbers of mature trees are being felled, particularly along roads and public rights of way, because they pose a perceived, or actual, risk to human safety. (The National Tree Safety Group gives guidance on this subject, see *Further information* on page 7.)

The value of hedgerow trees

In the past, hedgerow trees were deliberately encouraged to provide firewood, timber and shelter for stock, and even forage (by pollarding or high pruning ('shredding') leafy limbs during the summer).

Hedgerow trees remain important as shelter for livestock, and are likely to become increasingly important as shade providers in the summer, reducing heat stress. They are occasionally valued for game purposes, encouraging birds to rise to the gun, and are often promoted as visual barriers. They also help to remove pollutants from the air, especially useful in our towns and cities.



This beech hedge has grown into a fine line of mature trees.
©Robert Wolton



The stone faced bank on either side of this oak has recently been restored. ©Stephanie Knight

Today, hedgerow trees are increasingly cherished for their wildlife and landscape value. It is these trees that give our landscape so much of its character, making many areas appear densely wooded even though they contain few real woods.

Recent research has revealed that hedgerow trees attract insects and other wildlife in numbers out of all proportion to the land they occupy. A study in Oxfordshire (Merckx *et al.* 2012) found that hedged landscapes with hedgerow trees attracted 60% more moths by number, and 40% by species, than those without such trees. It appears that the trees act as beacons in the landscape, attracting insects together with their predators like birds and bats.

Mature elm, large-leaved lime, buckthorn and many fruit trees only thrive outside woodlands and indeed some cannot survive in closed canopy woods. Hedgerow trees and shrubs come into flower earlier than those grown in woodland, and are likely to have larger crops of flowers and fruits.

Well over half (60%) of the 107 Species of Principal Importance for the conservation of biodiversity listed under Section 41 of the Natural Environment and Rural Communities (NERC) Act (2006) which are significantly associated with hedges are reliant at least in part on hedgerow trees: they are the single most important structural component of hedges for threatened species, either alone or in combination with other components like the shrub layer and margins.

Old and veteran trees are especially important for wildlife, providing habitat for beetles, flies and fungi, as well as for roosting bats and hole-nesting birds.

Special wildlife associated with hedgerow trees in Devon includes:

- Brown hairstreak butterflies congregate around the canopies of prominent trees to mate, favouring ash.
- Cirl bunting, tree pipit and spotted flycatcher are all birds of conservation concern that use hedgerow trees as song posts - the last also habitually hunting from tree perches.
- Most British bats favour mature hedgerow trees as rich hunting sites because they concentrate prey, and as route markers. Holes, splits and crevices are used for roosting or breeding.
- Trunks and twigs can support profuse lichen growth, including threatened species like the string-of-sausages lichen *Usnea articulata*.
- Devon whitebeam *Sorbus devoniensis* is an internationally rare tree that can be found in Devon's hedges. The centre of its world population is in this county.

The establishment of hedgerow trees

The top priority for hedgerow tree conservation in Devon is to recruit new ones to replace the diminishing stock of mature trees which give such character to the Devon landscape. If just 2,000 to 3,000 new trees are planted or allowed to grow each year, our hedgerow tree population would quickly start to recover. With ash dieback looming on the horizon, we may, however, have to do much more than this. Devon has some 6,000 farms greater than 20 ha in size - if each farmer encourages just one additional tree each year that would be a very good start.

It is important to select carefully those hedges in which to encourage trees, to maximise their benefits and avoid future problems. Planting in hedges running north-south can limit crop shading and give better shelter from prevailing westerly winds. Remember to avoid creating visibility problems along roads and not to plant close to buried cables or beneath overhead lines: the management of trees close to electricity and telephone lines is expensive and time consuming.

Ensure any new trees are protected from grazing animals, either with suitable tree shelters or by fences.

One mature tree approximately every 40-50 metres will usually be about the right spacing - to achieve this, it is wise to encourage at least twice as many young trees. Try to avoid spacing the trees evenly since they can then look unnatural in the landscape.

New hedgerow trees can be encouraged in several ways:

1. Tagging existing young trees

Suitable saplings and shoots can be selected from within a hedge and marked, with special tags or even with strips of coloured tough plastic bags. These should be tied to a side branch rather than the main stem. This approach costs little, uses



Young trees need to be clearly marked over a period of several years so that operators of flail cutters can easily see them. ©Robert Wolton

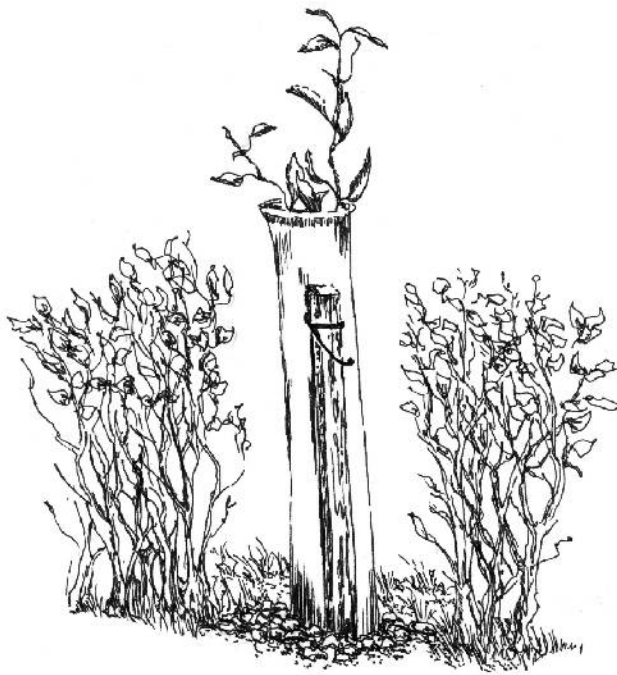
naturally occurring trees suited to local conditions, and is unlikely to require any protective fencing. Selection is best carried out in the winter, when the form of the young growth can easily be seen - try and select saplings or shoots from coppice stools that are straight and sturdy, and not distorted at the base.

Importantly, experience shows that because tagged trees can rapidly become concealed within surrounding growth, they need to be made obvious for five or more years to operators of flail cutters if not to be lost. This usually involves regular hand pruning of adjacent growth and frequent tag replacement. Local communities and volunteer groups may be able to help farmers with this.

To avoid any such difficulties, it is often best to select and retain suitable trees when a hedge is being laid or coppiced. Try to avoid selecting spindly trees with thin trunks and no side branches until near the top.

2. Planting into new hedges

Perhaps the best time to plant hedgerow trees is when new hedges are being established. This will provide the greatest choice of location, encourage strong early growth, and make it easier to control weeds. Do ensure, though, that the young trees are well protected against grazing animals.



Tree shelters protect saplings and clearly mark the new trees. Heather Harley after original in first edition.

3. Planting trees in existing hedges

Sometimes the only way to establish new hedgerow trees is to plant them into existing hedges, although this is often difficult because of strong competition from the trees and shrubs already present. Such newly planted trees and self-seeded saplings are likely to produce better timber than those growing from existing stools.

To reduce root and light competition, try to plant into gaps. Planting in the centre of a hedge is likely to make subsequent management of the hedge easier than planting on the sides or at the foot of the bank. Consider planting when steeping (laying) or coppicing a length of hedge so that competition for light is reduced.

For best results, pit plant transplants (whips) and protect them with tree shelters. Transplants are cheaper, survive better and grow faster than larger tree stock: it is very difficult to establish standards in existing hedges.

Tree shelters produce a micro-climate which aids the establishment and growth of saplings; they also prevent browsing damage from wild animals and, most importantly, clearly mark the location of new trees so that

these are avoided when the hedge is trimmed. However, they can also result in weaker roots systems, and greater susceptibility to later wind blow.

To promote strong growth in the critical early years, new trees are likely to need watering in dry weather and surrounding vegetation controlled to prevent them being swamped. The use of herbicides or sheet mulching will suppress the growth of herbaceous weeds.

Reducing impacts on crops, and preventing gap formation and damage to bank structure

The shade cast by hedgerow trees, and their high demand for water, frequently results in gaps developing in the shrub layer beneath and can reduce crop growth nearby. Also, large trees can lead to bank damage through: shading out protective herbaceous vegetation making banks vulnerable to stock and water erosion; through their roots rocking when the tree is blown by the wind and breaking up the bank; or even through pulling the bank apart if a tree blows over. To reduce these risks, consider the following:

- Remove the lower limbs of hedgerow trees to lift the canopy well above the height of the shrubs. This also allows agricultural vehicles to pass beneath the tree and may improve its timber value - but on the other hand reduces the wildlife value of the tree. (The Arboricultural Association provides further guidance on tree pruning - see *Further information* on page 70.)
- Plant shade tolerant species such as holly in gaps beneath hedgerow trees.
- Maintain banks in good condition, casting-up fallen soil and protecting them from stock erosion as necessary.
- Consider planting species which have a small canopy like crab apple, rowan, hawthorn or field maple, or which cast light shade like aspen and wild cherry.



This hedgerow ash was pollarded 28 years ago. Pollarding can greatly lengthen the lifespan of trees.
©Tom Hynes

Selecting the right species

Plant native species, preferably those characteristic of the local landscape. Think about speed of growth, importance for wildlife, timber value and the attractiveness of flowers or foliage. The guidelines below may help:

- **Ash**

The second most common tree across the county, important for wildlife and landscape. Grows fast, casts a light shade and is excellent for firewood. However, not recommended for planting until the threat from ash dieback recedes. Surface rooting, so can deprive adjacent trees and shrubs of nutrients and water.

- **Beech**

Highly characteristic of high ground in parts of Devon, particularly Exmoor, the Dartmoor fringes and the plateaus of the Blackdown Hills, where it occurs as a single species hedge or as avenues of mature trees. Less appropriate elsewhere because it casts heavy shade and is likely to cause gaps below.

- **Crab apple**

These can grow very well in hedges, and are excellent for wildlife as well as for making jelly.

- **Field maple**

Forms an excellent medium-sized hedgerow tree with good autumn colour. Patchily distributed across lowland areas but common in the east of the county. Favours well drained, base-rich soils.

- **Hawthorn**

A single mature hawthorn tree can produce as many flowers and berries as 200 metres or more of regularly trimmed hedge.

- **Hornbeam**

Mature trees can reach a height of 30 m and live for more than 300 years, especially if they are coppiced or pollarded. Hornbeam produces good timber and makes excellent firewood and charcoal. Hornbeam could be a substitute to plant if ash trees are lost to ash dieback.

- **Pedunculate oak**

The dominant hedgerow tree in Devon and one of the most valuable for wildlife and landscape. Highly recommended in most lowland areas.

- **Rowan (mountain ash)**

This small but attractive tree is particularly associated with higher ground and acidic soils such as on Dartmoor. Flowers and berries are excellent for wildlife.

- **Sycamore**

Tolerant of pollution and exposed conditions. This can be seen along the north Devon coast where the hedges are buffeted by strong salt-laden winds. Good for lichens. Casts very dense shade.



Veteran trees, with hollows, splits and cracks, like this old oak stool growing on a hedgebank, are especially good for wildlife. ©Robert Wolton



Small fruit and berry-producing trees like this rowan can make good hedgerow trees. ©Robert Wolton

- **Wild cherry (gean)**

The flowers, leaves and fruit all have value for wildlife whilst the wood has timber value as well as being good firewood. Can be propagated from root suckers.

- **Wild pear**

A columnar tree, with plentiful white blossom in early spring and good autumn leaf colour. An excellent wildlife plant that will do well on most soils, in full sun or part shade. The fruits can be eaten raw (when sweet enough) or made into jams and jellies.

- **Wild service**

The leaves bear some similarity to those of field maple and sycamore but have several sharply pointed lobes and turn a rich coppery red before falling in autumn. The flowers provide pollen and nectar for insects, while the berries are eaten by birds. Prefers heavy soils and will grow on clay. Mature trees can grow to 25 m.

The suitability of these species will be affected by climate change. Information and guidance on tree and shrub species selection for adaption and resilience to climate change is provided by Forest Research - see *Further information* below. Planting non-native but long naturalised trees in hedges, such as cherry plum and walnut, may become increasingly appropriate.

Further information

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