

2. Improving your woodland

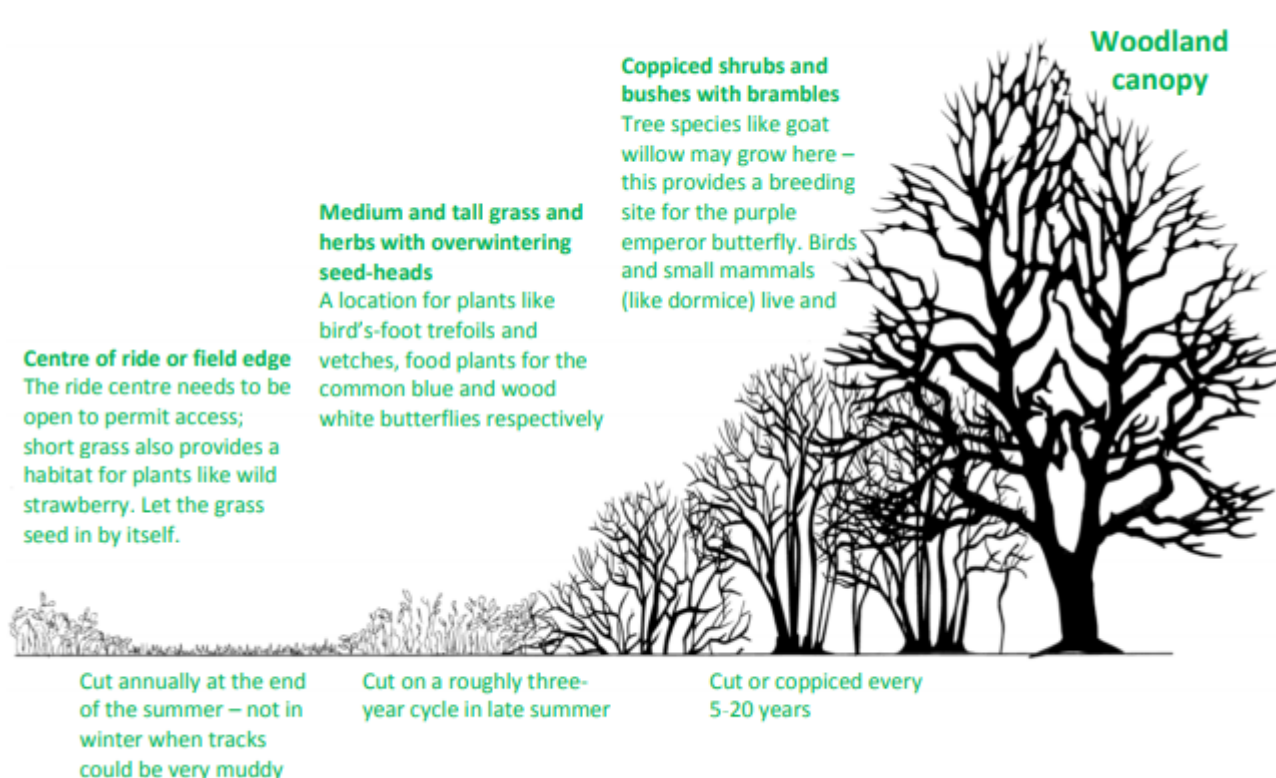
Now that you have had a good look at your wood, you may find that there are some improvements that can be made. This section aims to give you general ideas, and prepare you for some of the terms used by woodland managers and contractors. Other books are available which can give much more detailed advice and some of these are listed under 9. Sources of further information and advice. The aspects of management described in this section are some of the most important things to consider in small lowland woods. Many of the practices described have been carried out for centuries and have been shown to lead to improvements in the wildlife value of woods, and in their capacity to produce timber.



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Managing woodland tracks

Many woods lack open space and sunlight on the woodland floor, so flowers and butterflies that favour open space environments at the woodland edge cannot thrive. One of the simplest things you can do is to look for old woodland tracks (often called rides) or glades, and open them out. To let in maximum light with minimum tree felling, concentrate on any rides running in a generally east–west direction, because they get more sunlight. The diagram below gives an idea of the lay-out of an 'ideal' ride and shows you how to manage it to benefit wildlife.



You should find that the sunny ride edges quickly develop grasses and a range of plants that are scarce or not found elsewhere in the wood. These might include violets, primroses and red campion or, on sandy soils, heathers and bilberry. Shrubs such as goat willow may grow on ride and glade edges; this is a food source for many butterflies and other insects. Another benefit to opening up the ride system is that access for management is greatly improved. Wet rides soon become heavily rutted and sometimes unusable when traversed by today's low impact timber harvesting machines during winter months. Even small-scale work requires access, usually by four-wheel drive vehicles. Providing drier rides will attract coppice workers and firewood contractors to work in your wood. Another important aspect often overlooked is the need for off road stacking of produce. These are places where timber can be temporarily stored to dry out for firewood or await uploading onto timber lorries. These do not need to be permanent hard standing areas.

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They can be expanses of open ground left for nature between periods of use every 10–15 years. In some kinds of woodland, brambles may grow quite densely at first. These are an excellent food source for butterflies and bees, birds and small mammals, and bramble thickets make great places for birds to nest. So while you might wish to keep brambles from pathways, don't treat them as weeds. You will be surprised to see what natural bulbs and seeds are waiting in the ground for the opportunity to flower, and what seeds will come into the wood on the wind. Avoid planting 'improved' varieties from the garden which could easily take over and out-compete the natural plants. Garden varieties often flower and seed at different times to the native plants, which can make them much less useful as food sources for native insects and other wildlife.



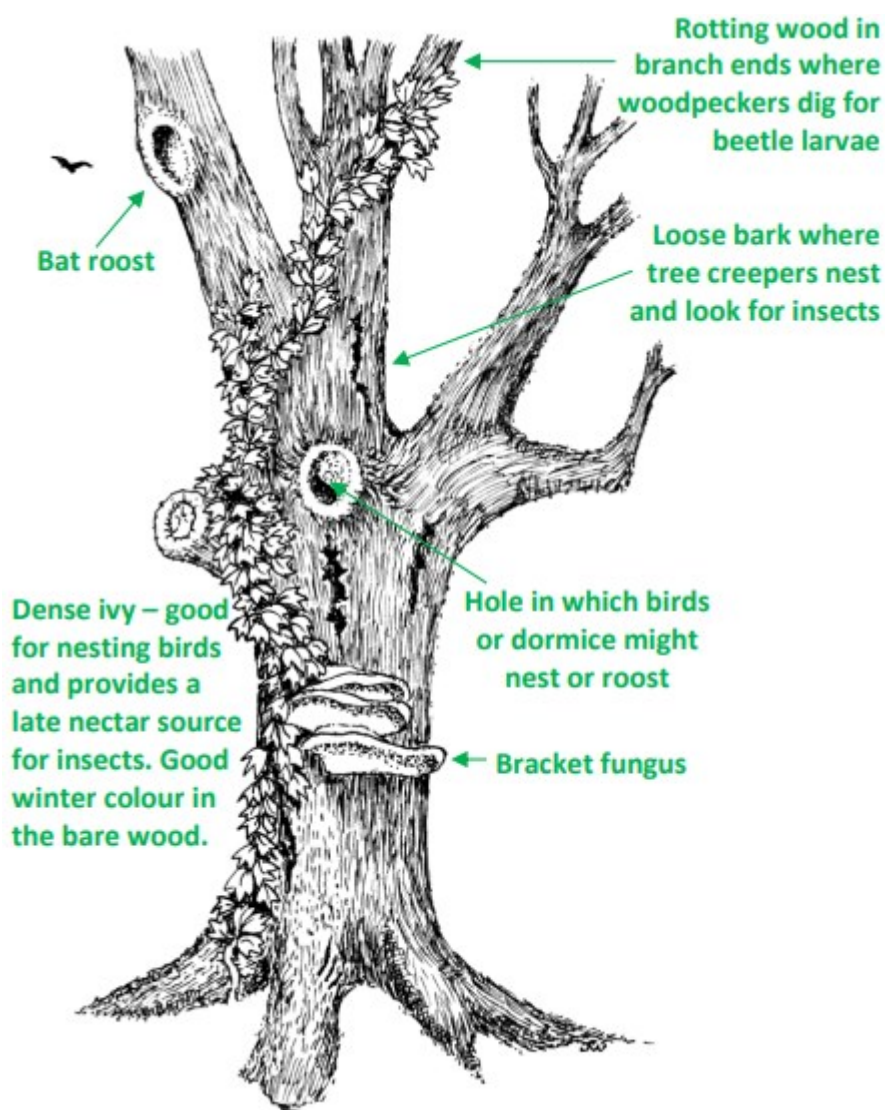
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Deadwood and old trees

Try to resist the urge to 'tidy up' the wood; dead wood and dying trees are very useful as homes for a large range of wildlife like bats, fungi, lichens and mosses. Around a third of woodland bird species nest in holes in trees, insects such as the rare violet click beetle are found in hollow trees, and birds such as woodpeckers feed by seeking out insects under bark. Dead wood is not a threat to the health of the re-

maining trees. Standing dead trees provide a different kind of habitat from dead wood lying on the woodland floor, and it's not just completely dead trees that contribute. As trees reach old age, rot-holes, hollow trunks and dead branches all start to make these 'veteran' trees more interesting as habitats for wildlife. If you have very old trees or dead trees in your wood, and they are not posing imminent danger to people or property, i.e. not standing near a footpath, building or road, then leave them to decay naturally. Ancient hollow trees are particularly important features to retain. Even if your wood has no old trees, dead branches in the crowns are a useful habitat and should, if possible, be left. If there is not much fallen dead wood, you could create 'habitat piles' – piles of cut wood stacked in a shady area of the woodland

and left to rot away. If you really can't resist the urge to tidy up, remember that it's better to stack dead wood into neat piles and leave it in the woodland than to remove it altogether. Of course these piles should not be your firewood stores because you could burn all the creatures that are sheltering there. Another feature of woods that many people try to control is ivy on trees. Contrary to popular belief, ivy does not strangle or damage trees, and has particularly high wildlife value. It should be left on the trees to provide nest sites, winter shelter and food for birds and insects.



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Remember, you may want to keep your garden 'spick and span' but natural processes are worth encouraging in your wood. Intensive care of a wood is not necessary and may be harmful.



Establishing new trees

Encouraging mature, dying and dead trees in the wood is good, but you will also need to consider the other end of the age spectrum, the new trees. As well as being the next generation to ensure a constant supply of middle-aged and older trees, the dense growth of young trees makes a valuable habitat in its own right. Establishing new trees can make the wood look more interesting, and in some cases may be desirable for introducing different tree species. New trees can be allowed to grow naturally from seed, or you can plant them. Using natural processes ensures that the trees which develop will, like their parents, be well-adapted to the local environment and so should do well in your wood. However, rabbits and deer can cause a problem by eating your tree seedlings (see below: 'Wildlife issues: Deer and other browsers'). If you need to plant trees then it is usually best to use stock sourced from parent trees in your local area. There are several stages involved in tree establishment; below are some tips to help ensure success.



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Clearing space for the trees

You may already have some space in your wood where you want to establish new trees, for instance areas covered in bracken. But, as described earlier, some open space is valuable, and ways of managing edges have already been described. If you do not already have spaces, and your wood is lacking in young trees, space can be created by felling. To give the trees enough light and moisture to grow, the establishment area should be at least twice as wide as the height of the surrounding trees. Keep the shapes of clearings natural and in keeping with the landscape. Young trees should always be planted outside the canopy of existing trees – they neither like being too dry, nor being dripped on after rain, but do need a lot of light. Felling is something that should be undertaken by a professional, and you must also consider whether you need consent from the local authority or a felling licence from the Forestry Commission (see 8. Supporting Information). Local contractors may also be able to help find markets for the timber, thereby reducing the cost of the operation.



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Choosing the species

If you are planting, you have the option of choosing the species you want in the wood. Section 3. Native tree and shrub species gives guidelines on choice of species, and there are many publications that can give you further guidance; some of these are listed under 'Publications and websites' in section 9. Sources of further information and advice. In general, if you are looking to improve wildlife habitats, aim to choose species which are native to your locality. Looking at those already growing in your area will give guidance on which ones do well. If you are lucky enough to have an ancient semi-natural woodland, resist the temptation of introducing any new species. Instead, try to improve the conditions for this to occur naturally.



Of course different tree species will vary in their suitability for factors such as timber production or firewood use. Amongst our native species, oak, ash, cherry and beech are renowned for their timber qualities. Sycamore and sweet chestnut though not native are also highly valued, but the general

view is that non-native species like sycamore should not be planted in ancient woodlands where they can out compete native species. Most species of tree are suitable for firewood once they have been cut and dried for a year or two. Our forebears would have had a use for most species of tree, whether it be hazel for bean poles, hornbeam for chopping blocks, alder for clogs or birch for brooms.

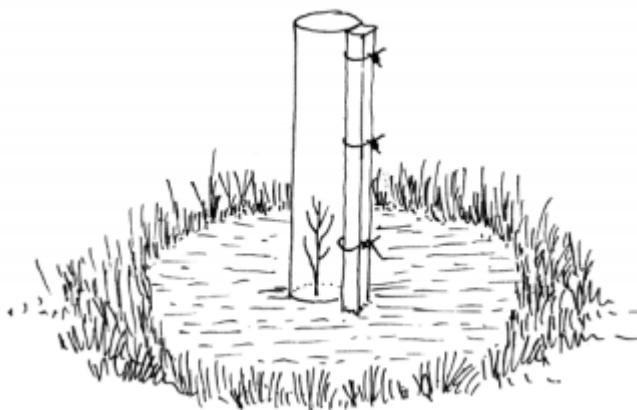
Conifers generally grow faster and produce more timber than broadleaves, so can be valuable as crops. They can also help to provide shelter and visual diversity in winter when other trees have lost their leaves. Felling licence regulations however nowadays prevent the conversion of broad-leaved woodlands to conifer woodlands, so these can only be planted as replacements for other conifers. An exception to this is the native yew – a species which was venerated in the past, and will produce valuable timber in the future. In ancient woodlands it is often desirable to replace any conifers felled with native species as a means of improving the woodland habitat for the native flora and fauna. Native flora will often quickly re-establish itself from seed deposited in the soil long ago before the conifers were planted. It often only needs the extra light and disturbance that the tree felling will provide to re-establish native plants that were thought to have gone long ago.

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Planting

Surprisingly, it is best to avoid planting large trees. The best trees to plant are bare-rooted trees, up to 60 cm high, obtained from a reputable forestry nursery. Your local Forestry Commission office can supply lists of such nurseries. The trees should be handled carefully and the roots should not be allowed to dry out or become damaged. Once planted, the soil should be firmed around the roots using, for example, steady pressure from the toe of your boot. Planting should, ideally, take place in the autumn although spring planting is possible providing it is done while the tree is still dormant, before the buds start to open.



Protection and weeding

Your new trees will be very attractive to animals looking for tasty young growth to browse – rabbits and deer are likely to eat your trees within months of planting if they are not properly protected. In small areas of planting, the most cost-effective form of protection is usually a tree shelter. At least 1.2 metre high shelters are necessary to protect against muntjac and roe deer, and for red, sika and fallow deer, 1.8 metre high shelters are needed.

Tree shelters not only protect the trees but also serve to mark them when brambles and weeds grow up around them. The shelters should split open as the tree grows, but it may be necessary to slit them with a knife after a few years to avoid constricting the tree. Leave the split shelters in place for 7-8 years to protect the trees from ‘fraying’ (deer rubbing) which can occur for some years after planting.

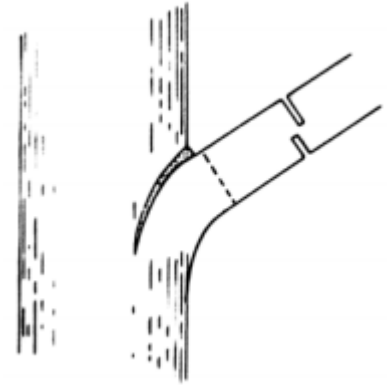
Weeds compete for water and nutrients, so the new trees need to be kept free of weeds, especially grasses, if they are to establish successfully. Aim to keep a weed-free spot of at least 1 metre diameter around each tree from April to August. The cheapest way of doing this is by using herbicides. The tree shelter has the added benefit of preventing spray drift from reaching the young tree. Always read the instructions on the label before using any chemical and if in doubt seek professional advice. If you prefer not to use herbicide, you could mulch the trees with well-rotted bark, or with plastic sheeting held down with turves. Surprisingly, strimming, mowing or hand weeding close to the trees is not a good way to care for them. Not only is there a high risk of damage to the trees, but grasses and weeds grow back more vigorously after this treatment and compete even more strongly for nutrients and water. Weeds need to be controlled for at least three years after planting, or more if the trees appear to be struggling to establish.

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Pruning

The most valuable trees for timber are those where the trunk is perfectly straight and branch free. To achieve this, the trees must either be allowed to grow extremely densely, or you can remove unwanted branches with secateurs while the branches are very small, i.e. not thicker than a finger. For larger branches use a saw or loppers; remove the weight of the branch first, before removing the stub as shown in the diagram. This helps to avoid tearing the bark below the cut. Even if timber is low on your list of priorities, there is no reason why some of your trees cannot be cultivated in this way (maybe 100 per hectare). Eventually this could yield a valuable resource for which your descendants may thank you.





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Coppicing

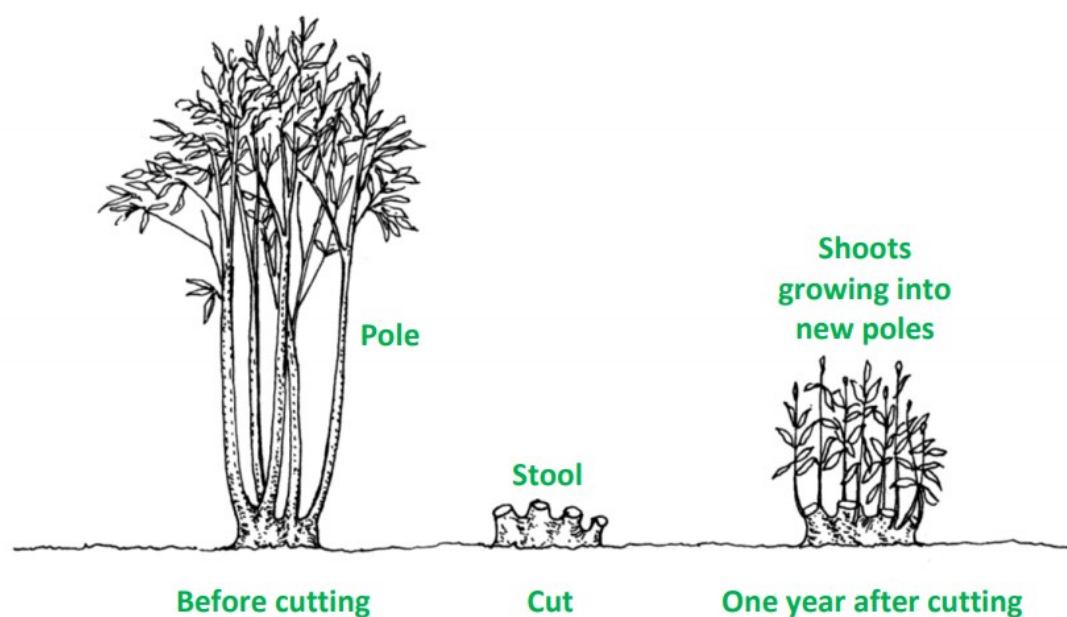
We often hear that coppicing is good for wildlife. So, should you coppice your wood? When you coppice, you cut down to ground level all of the multi-stemmed broadleaved trees and shrubs in a block. The stumps or 'stools' shoot and in five to 20 years produce a crop of poles that is cut again.

Coppicing creates ideal conditions for some wild flowers in the first few years after cutting – the sudden influx of sunlight can stimulate a wonderful display. As the coppice grows and becomes denser, good conditions for nesting birds are created.

Many old woods were managed as 'coppice-with-standards'. This is where the coppice, for example hazel, forms an 'underwood' below large standard trees such as oak or ash. Such woods have often fallen into neglect, since many of the traditional markets for their products have been lost.



If you have such a wood, you could consider restoring traditional management practices. However, coppicing is only appropriate for woods that have been managed in this way in the relatively recent past – in the last 60 years or so. Woods that have not been coppiced for a very long time or have never been coppiced may be best managed in other ways.

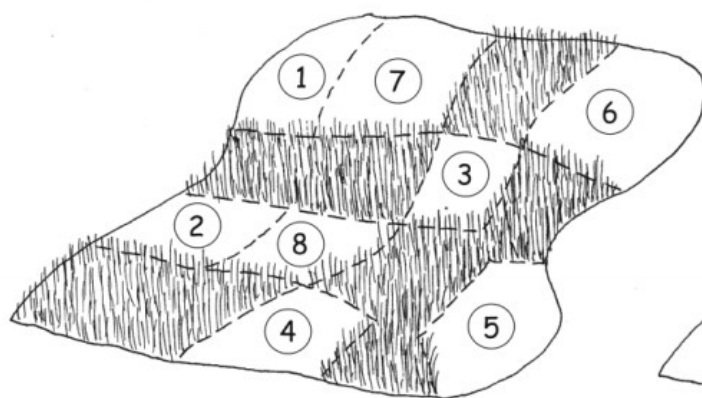


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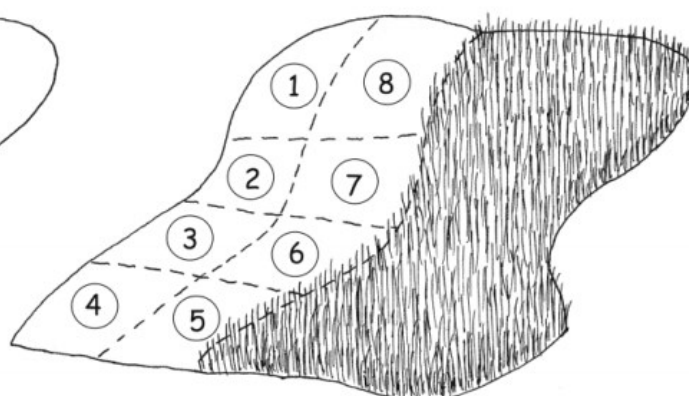
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To bring such a wood back into good heart, the standards will probably have to be thinned out to let more light down onto the underwood. To give the underwood sufficient light, the standards should form a scattered canopy covering not more than a fifth of the area – up to about 20 mature standards per hectare, with some 20 other young trees being brought on to form the standards of the future. The underwood can then be coppiced in blocks (variously known as ‘coupes’, ‘cants’ or ‘parcels’) to establish a chequerboard pattern throughout the wood, which wildlife will follow. The coupes should not be too small or the coppice will be shaded. In addition, if small coupes are not adequately protected from browsing they are, in effect, secluded ‘salad bowls’ for deer to enjoy! As a rough guide, coupes should be between 0.25 and 1 hectare in size, but take up not more than a fifth of the wood at one time. An ecological survey of the wood will help you to decide which pattern of coppicing and length of coppice cycle is most appropriate for the species in your wood.



Eight years of coppice cutting spread through the wood: species like dormice can still move between suitable sites without descending from the trees



Eight years of coppice cutting in neighbouring areas: better for species like fritillary butterflies with poor colonising ability

When considering coppicing a new area inspect the adjacent woodland. If it is very dark and has not been thinned for quite a while, it would help to let as much light in from the sides as it does from directly above the coppice by thinning the adjacent woodland (see ‘Thinning’, below).

A small coupe in an otherwise dark woodland will not have sufficient light to grow well. For this reason it is often better to cut your first coupe on a ride edge, opening up the ride at the same time to provide easy access plus the added advantage of extra side light.

From the above description, you will see that to restore such a wood is a major undertaking, and will completely alter the ‘feel’ of the wood. It may be a good idea to have a look at some restored coppice woods before you take the plunge with your own wood. Your local Forestry Commission office may be able to direct you to such woods in your area.

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Even if your wood seems ideal for coppicing, the problem of browsing should not be ignored, particularly in lowland woods. Deer and rabbits love to browse new coppice shoots and repeated browsing will kill even a large, ancient coppice stool (stump) within a few years. Unless the local rabbit population is very high, however, it is generally deer that cause the biggest problem, simply because they are taller and the coppice takes much longer to grow beyond the reach of their mouths. Many parts of the country have high deer populations and even those with few deer are unlikely to remain this way for long, so it is not advisable to consider coppicing without putting in place adequate protection for the stools. The most effective form of protection is a deer fence, and temporary fences can be put in place for three years or so until the regrowth is taller than 1.5 metres. The Forestry Commission has a helpful leaflet on deer fencing (FC Practice Note 9 Recommendations for fallow, roe and muntjac deer fencing www.forestry.gov.uk/PDF/fcpn9.pdf/\$FILE/fcpn9.pdf).

An alternative that many people use is dead hedging (making a fence with the cut coppice tops or brash) or piling light brash over each stool. Unless a great deal of effort is made to form a barrier that will be effective for three years or more, such methods are not to be recommended. Furthermore, such piles of twigs can form excellent hiding places for rabbits to feed on the coppice in relative safety. If you plan to pile brash around individual stools, remember that the ground flora between the stools has no protection and is likely to be eaten. In time interesting species like orchids and wild daffodils can disappear, thereby negating some of the beneficial effects of your work. Ideally, control of rabbits and deer should also be carried out. This should be considered and undertaken in co-operation with neighbours across the feeding range of the animals. If you are in any doubt about whether coppice will be damaged, seek advice from your local Forestry Commission Woodland Officer, or avoid coppicing altogether.

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Thinning

In many woods, the trees are growing so closely together that very little light gets to the woodland floor. In some types of wood this is good for the species living there, but in many others, it means that few herbs and shrubs can survive and the wood looks dark and uninviting. The trees are all competing with each other for light and they often become tall and spindly.

Thinning removes the less healthy or less desirable trees and gives the remaining trees more space to develop. It also allows light to the woodland floor, encouraging an 'understorey' of small plants, shrubs and trees to develop. Thinning occurs naturally in a wood as weaker trees die, and your involvement should be seen as 'working with nature'. The art of the forester is to change the light levels to the benefit of the understorey and ground flora, to allow the remaining trees to develop better crowns but without letting in too much wind, which may cause damage.



To find out if your wood might benefit from thinning, stand in the wood when the leaf is on the trees and look upward. If the canopies of all the trees are touching, and you can see very little sky, then it may well be time to do some thinning. In a well-managed productive forest, thinning is an operation that is carried out at regular intervals throughout the life of the trees: maybe every ten or fifteen years for broadleaved trees, and more often for conifers.

Thinning is an operation for a professional to undertake, and you should engage a reputable contractor if you think that your wood needs thinning. Take your contractor's advice about the timing of the work; generally the bird nesting season (end of March to July) should be avoided, and when ground conditions are very soft work will need to stop. You will probably need a felling licence from the Forestry Commission if you want to thin (see 'Tree felling laws and grants' in section 8. Supporting information).

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Invasive plants

Certain plants are unwelcome invaders of our woods. One of the most damaging, and unfortunately most common, is rhododendron (*Rhododendron ponticum*). This is the mauve flowered variety that can spread through woods, sometimes producing dense thickets up to 10 metres high. The thick evergreen foliage smothers native plants, and its roots exude a 'cocktail' of toxic chemicals including cyanide which further poisons the ground. Eventually nothing is left beneath the trees but rhododendron, to the detriment of wildlife.

The best way to eliminate rhododendron depends on the height to which it is growing, but may include spraying with herbicide, grubbing it out or cutting it and treating the stumps. Local woodland agents and contractors can advise.

Other exotic species that invade and damage woods include laurel, gaultheria, Himalayan balsam, Japanese knotweed, periwinkle and bamboo. Many of these are introduced to woods when people unthinkingly dump 'harmless' garden waste.

Sycamore is a species whose value causes much debate. It is not a native tree and supports a lower diversity of insects than most native trees. It comes into leaf early, so shading springflowering plants. Its leaf litter rots slowly and does not provide such a good environment for the ground flora. For these reasons, it should be discouraged from our most important woods, the ancient semi-natural woodlands.

It would be wrong to be too hard on sycamore, however. Where it is growing well away from these special woods, it can be promoted, grow vigorously and yield high quality timber, and it supports rare mosses and lichens as well as large numbers of certain insects. Unfortunately it is favoured, with other trees such as beech, by grey squirrels (see 'Wildlife issues: deer and other browsers' below).

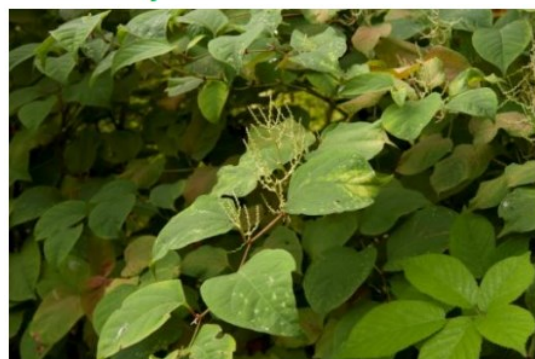
There may be financial support for work to remove invasive species from important woods. Contact your local Forestry Commission Woodland Officer.



Rhododendron ponticum



Himalayan balsam



Japanese knotweed

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Woodland wildlife

The best way to encourage wildlife to your wood is to manage a diverse range of habitats as described in previous sections. You can also add nest boxes for birds, including raptors such as owls, and for bats and dormice. The choice of tree species that you plant can increase the availability of food and nectar sources. See section 3. Native tree and shrub species for further information. For more detailed information, including how you manage your woodland for the benefit of wildlife, see section 6. Biodiversity.

Hazelnuts opened by dormice have a characteristic smooth, circular hole in them – finding these in your wood tells you that it is a home for dormice



Hazelnut life size



Dormouse about half life size

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Wildlife issues: deer and other browsers

In addition to the species that you want to attract to your wood, don't forget there are some animals that harm woods. One of the most damaging is deer, many of which are introduced species e.g. muntjac and fallow, the populations of which are currently many times higher than they would have been in the past when coppice management was widespread. The presence of a 'browse line' – a lack of green leaves on the bottom metre or so of the trees and shrubs of the woodland – indicates that there are a lot of deer using the wood. Rabbits and hares may also be browsing in the wood, although in general they cause less damage than deer. Some browsing is beneficial to woodland, so the aim is not to stop all browsing but instead to manage the amount, making it sustainable.

Loss of vegetation from the bottom layer of the wood has a variety of impacts. Wild flowers are eaten, the lack of cover stops ground-nesting birds from breeding, tree seedlings cannot grow up to form the next generation of trees, coppice is destroyed. The threats that deer pose to coppice are covered under 'Coppicing', above.



High deer fencing

In small woods it is difficult to control deer effectively by culling, although owners can help by co-operating with neighbours. If deer numbers cannot be controlled, then it is very important to protect vulnerable young trees or coppice with shelters or fencing (see 'Coppicing' and 'Establishing new trees: Protection and weeding', above). Where ground flora is being damaged or where browsing is removing the shrub layer, it may be best to exclude deer from certain areas, or even the entire wood, by using fences. The Forestry Commission has a helpful leaflet on this (FC Practice Note 9 Recommendations for fallow, roe and muntjac deer fencing [www.forestry.gov.uk/PDF/fcpn9.pdf/\\$FILE/fcpn9.pdf](http://www.forestry.gov.uk/PDF/fcpn9.pdf/$FILE/fcpn9.pdf)).

For further information on monitoring and controlling deer, contact The Deer Initiative (www.thedeerinitiative.co.uk). For an introduction to identifying damage caused by deer, see this video produced by the High Weald AONB www.youtube.com/watch?v=yNgxr5qxpKg.

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Another animal which damages woods is the grey squirrel. Introduced from America, it strips bark from trees, disfiguring them badly or killing them. Where owners are trying to grow quality timber of species like sycamore and beech they may need to control grey squirrel numbers using special traps or bait. Unless done in co-operation with neighbours, in a small wood such action is often inappropriate. You can at least avoid attracting them to your garden by using specially protected bird feeders. In mainland areas where red squirrels are present the grey not only out-competes them for food but also passes on a virus which reduces the red squirrels' already small numbers. The only lowland strongholds for the native red squirrel are islands such as the Isle of Wight. If you are in a red squirrel area, it is a good idea to seek specialist advice on habitat management for red squirrels, so as to give these threatened animals the best possible chance.



Grey squirrel damage

European Protected Species

There are a number of species that are now given additional protection under the Wildlife and Countryside Act that use woodland. These are:

- ☐ All 17 species of bat
- ☐ Dormouse
- ☐ Great crested newt
- ☐ Otter
- ☐ Sand lizard
- ☐ Smooth snake
- ☐ Wildcat



Advice and 'Good Practice Guides' are available from the Forestry Commission website. It is the responsibility of woodland owners to be aware of this extra protection before starting any work, however small.