



Woodland Management and Tree Planting

Woodland Management

Woodlands are an important feature of many golf courses. These areas of native trees and thick undergrowth not only make the golf course environment an attractive place to play, they also provide nest sites and feeding areas for a variety of small birds and mammals and other wildlife and reduce soil erosion, flooding, air and noise pollution.

Good woodland management, not only enhances and improves wooded areas for wildlife it will also reduce maintenance inputs in the long term. There are often further opportunities to continue with such good practice in other open areas out of play.

It may be advisable to work in conjunction with your **Local Biodiversity Action Plan (LBAP) officer** in an attempt to incorporate the golf course within the overall Tree and Woodland Management Plan for the immediate area. Working in partnership will ensure linkage between habitats is maintained on a wider landscape scale and as a consequence biodiversity will prosper. Such a plan should give a costed and timetabled approach, and identify actions required to integrate golfing, wildlife and landscaping issues. Additionally it would support any applications for funding.

A **Tree and Woodland Management Plan** should include:

- A description of the existing woodland cover and an ecological appraisal.
- Management strategies.
- Costings and potential funding sources

Your LBAP or Local Authority Arboricultural Officer should be able to provide further information on such specialist consultants to help produce a plan. The main management objectives should be:

- To increase woodland **structural diversity**, from high canopy, canopy trees to the lower growing shrubs of the understory and wood edge.
- To increase **species and age diversity** by utilising an appropriate native assemblage of species offering differing relative growth rates to ensure long term continuity.

- To **open glades** in established woodland areas to add to biodiversity by **allowing more light** to penetrate the canopy and provide conditions for an herbaceous layer to thrive.
- To **link patches of habitat** in order to allow movement of organisms from one area to another and prevent populations becoming isolated.

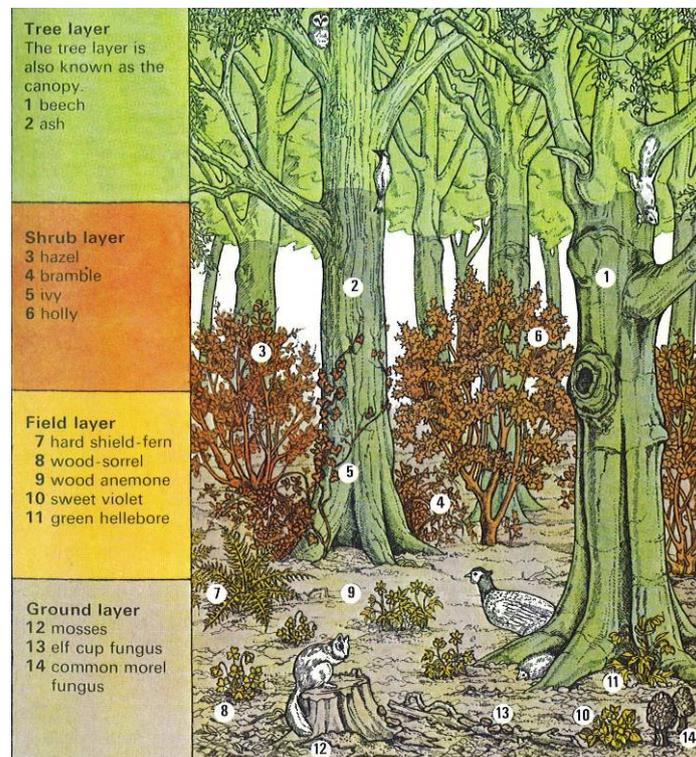


Figure 1. *Illustrating an idealised beech woodland structure* (Source: Miller, 1991)

Conifer Plantation Management

On many golf courses, conifer plantations have been introduced over the years for shelter, structure, backdrops and texture on the course. Many were also planted during the war years as a fuel source. In predominantly broadleaved settings and on links courses, these plantations may look out of place. However, all plantations and woodlands require management at intervals to ensure their long term health and to improve structure and biodiversity.

Commercial stands of trees require tending to and thinning every so often to divert growth on to the better quality stems but also in the case of conifers, to provide individual stems with sufficient space to sway. Swaying action enables stems to develop a slight taper and structural stability which in turn helps increase a stem's resilience against windsnap, or windthrow. If a stand is not managed and thinning avoided over a long period of time, this leads to an over stocked stand of mature trees

that haven't developed their stem taper and stability. Such a stand is therefore more vulnerable to windthrow, particularly those trees on the edge. Furthermore, once a stand has developed these characteristics thinning is no longer advisable as creating spaces within the stand will lead to catastrophic windthrow of the entire stand.

Dense plantations of conifers in particular are renowned for casting excessive shade. Planting near tees and greens, where shade impacts greatly on turf quality, or perhaps on areas of heather growth should be avoided at all costs. Should shading severely affect your playing surfaces then it may be necessary to relocate/rebuild it.

Thinning is very important in conifer plantations, to allow individual trees to strengthen and become more wind firm, reducing the potential for large scale loss of trees during storms. An initial thinning should take place 3-5 years after planting of whips to allow the remaining trees to grow stronger. Obviously, this varies on a case by case basis depending on growth rate. Trees removed during thinning should consist of the least healthy specimens e.g. those that are split stemmed, spindly, deformed or leaning. If the plantation has almost matured and not been subjected to regular management, dense clusters within the plantation should also be targeted. The aim should be to remove every third or fourth tree in this case, with some edge trees being left to give protection to the centre of the plantation.

In dense conifer plantations that have seen little management, further thinning should then be undertaken approximately five years later at which time the club could then begin to consider under planting with predominantly native species which would increase age, colour, texture and species diversity within the plantations. This will reduce the dense monoculture, increase their interest and value to the golfer, as well as making them more valuable as wildlife habitat.

This whole process can be done gradually, either by scalloping the current woodland edge, planting larger growing native tree species nearest the remaining conifers, followed by smaller native shrub trees closer to the fairways or by opening glades in the plantations. The most appropriate method depends on the location, shape and condition of the plantation itself.

To maximise biodiversity potential, allow a couple of machine widths of herbaceous rough grassland to colonise along the edge of the woodland shrubs, follow this with semi-rough and finally with fairway cut.

Felling Licenses

A **felling license** may be required in some cases so it would be worth contacting the Forestry Commission to seek advice on the most appropriate felling and disposal methods.

<http://www.forestry.gov.uk/forestry/INFD-5ZGKSJ>

Before felling any large trees (i.e. stem diameter 40cm at 1 metre) it is always advisable to engage the services of a professional **bat specialist** to conduct a survey. Although, there may be a charge for this service, it should be less than a fine for breaking the law. If bats are discovered in a tree then work can still go ahead at certain times of the year if a fully licensed bat handler is present and the appropriate mitigation factors have previously been undertaken. For more information on bats and surveyors in Scotland refer to: <http://www.bats.org.uk/pages/bctscotland.html>

Also see the Forestry Commission guide to **Woodland Management for Bats**

<http://www.forestry.gov.uk/forestry/INFD-6K3CXY>

Any **wildlife boxes** must also be vacant when felling occurs. It is important that any felling works/vegetation clearance is NOT carried out during the breeding season of the inhabitants. We suggest no felling between April – September (inclusive) as many species will try to have several broods if the weather is favourable or if their first brood was unsuccessful due to adverse weather or predations. See Forestry Commission guide to **Woodland Management for Birds**

<http://www.forestry.gov.uk/forestry/INFD-6JDHQV>

Tree Planting Guide

Here are some pointers to help you plan and carry out a simple small tree planting scheme.

Before you start

Ask yourself some questions:

- Are you likely to have difficulty keeping your trees regularly weeded, tended and protected during their first few years of establishment?
- Is your chosen site a valuable feature as it is, such as a wild flower meadow or wetland area, which would be best left un-planted?
- Does your site conceal an important historical or archaeological feature such as an earthwork or structure that would be damaged by trees?
- Will the roots of the trees cause damage later to walls, drains or underground services?

- Will the shade cast cause nuisance to tees and greens or block views when the trees mature?
- Will overhead wires become entangled with the trees?
- Is the site so exposed that no trees grow in the area nearby?
- Is your site underneath the shade of existing mature trees?
- Is the site often water-logged?

If the answer to any of these is yes, then think alternative sites should be considered.

Timing

In general, the best time for planting trees is late winter or early spring (December – early March). If that doesn't fit your schedule, then aim for planting trees in autumn. Summer is a bad choice, because the weather's too hot and the actively growing trees too susceptible to damage. Weather also restricts your options in the winter, because the cold causes the ground to freeze. If you've had the foresight to do all your digging ahead of time (before the ground freezes), it's not impossible to plant trees in winter. But unless you can water them sufficiently, early-to-mid winter is not the best planting time, either.

Planting trees when they're dormant is advisable, since that's when handling them is least disruptive to the trees. When do trees go dormant? In Scotland, trees begin to enter dormancy at some point in the autumn and begin to leave it at some point in the spring.

Where to start

For deciduous trees and shrubs buy small bare-rooted transplants, 60-90 cm in height (2' - 3') which are cheap, easy to transport and plant, and establish quickly. Evergreen trees and shrubs are available either bare-rooted or in small pots. Generally, you don't need to spend money on large standard or pot-grown trees which are expensive, cumbersome and prone to die-back under stress. Invest your resources in good site preparation and good after-care instead.

Selecting the right species

Have a look at what is already growing well in your surrounding area. That gives a good guide to what suits the character and wildlife of the area and will stand a better chance of survival. For

further information see [SNH's list of approved for planting in Scotland-](#)

<http://www.snh.gov.uk/docs/B1111499.pdf>

Choose carefully which species are planted around greens and tees to avoid excessive leaf /pine needle removal in autumn.

Poplars for example have very strong and invasive root systems, so they must not be planted too close to drainage pipes as this can lead to blockages and breakages. Poplar is also a surface rooting species, and there are many cases of surface roots disrupting playing surfaces.

Where to buy them

Tree Nursery Scotland - <https://treenurseryscotland.wordpress.com/>

Flora Locale - www.floralocale.org.uk

What about accessories?

Guards, shelters, stakes etc can also be obtained from nurseries and tree suppliers - but only use these if you really need to. You must protect the trees from rabbits (which will gnaw the bark off within days and kill the lot) so if you have rabbits, use a spiral plastic rabbit guard held in place with a small bamboo cane - cost about 60p. Or use a tree shelter (the plastic boxes which fit over trees) with a small stake for rabbit protection and added growth enhancement - cost about £1 a set (but not advised for exposed coastal sites).

Generally, don't stake your trees - it only encourages them to grow weak and spindly. And don't use fertilisers and bone-meal - infertility is seldom a problem when planting trees in the correct area.

Moving and storing trees

Treat your trees gently. Don't let the frost get at the roots. Above all, don't let the root hairs dry out even for a short time. Keep the trees well wrapped during transport and storage and if you cannot plant them within a week of receiving them, heel them in by standing the trees in a trench and cover the roots with soil.

Common mistakes: leaving the trees hanging around in bags so that they dry out; leaving the roots out in the wind and sun at planting time.

Site preparation

Clear brambles, nettles and other weeds from the planting site. If the soil has been compacted then it will need ripping or cultivating to allow the passage of air, water and roots.

Layout and spacing

Small trees are usually planted at 2 - 3 metre spacings. (Why so dense? Allowing for some dying or failing to flourish, you are still left with a good choice of fine trees to grow on. The denser planting also encourages upward competition between the trees, leading them to gain height rather than just spreading outwards.)

When planning layout, remember: don't plant under the shade of existing trees - most trees need full daylight overhead to thrive. Also, don't plant right up against paths, fences and walls - they bush out as they grow.

Straight-line planting of trees on the course are perhaps being used to define holes. More appropriate planting would be a series of copses along the line of existing trees. This would give more structure and definition, and if carefully placed would give the impression of a continuous band of trees. If designed carefully they could be used to shape holes, and create the correct level of challenge required.

An informal layout, avoiding straight lines, is usually the most appropriate. Where you are planting a mixture of species, aim to plant trees of each species in a small group (say 4 - 5 of species A, then 4 - 5 of species B, then 4 - 5 of species C, then 4 - 5 of species A again).

Planting the trees

Dig a hole big enough for the roots to spread out. Loosen the soil at the bottom. Bash in a cane or stake in the middle of the hole if you are going to use a guard or shelter. Hold the tree upright with one hand, with the root collar at ground level, and back-fill the hole with crumbled soil with the other hand. Gently shake the roots as you back-fill to settle the soil around them. Finally firm the soil down really hard with your boot so that the tree doesn't work loose later. Do back-fill up to ground level - don't leave the tree standing in a dip that will collect water. Fit the guard or shelter if you are using one.

Common mistakes: trees planted too deep (stem will rot) or too shallow (roots showing) or not vertical (will grow in a curve) or not firmed down enough; rabbit guards or shelters flopping around loose or pulling the tree over.

After-care - the important bit

The key thing which will determine whether your tree planting will be a success or failure is **weed control**.

Grass and weeds compete for soil moisture so needs to be removed, suppressed and killed in a metre diameter circle around each tree. Because the main threat to tree survival and growth is drought stress in our dry springs and summers, when weeds actively transpire the moisture out of the soil. Simply cutting grass only encourages it to grow and transpire more vigorously, at the trees' expense. Mulching is fine. Use straw, grass cuttings, old carpet, black polythene or mulch mats (but don't pile up against the tree stem).

Hoeing or cultivating is fine but labour intensive. Cutting taller weeds is fine, if it stops bracken, nettles, brambles, etc over-topping or smothering the trees. Herbicide use (with care) is fine - a spot treatment of "tumbleweed" or similar glyphosate based herbicide applied in April or May - but read and follow the instructions carefully and don't let the herbicide touch the trees!

Common mistakes: allowing trees to become neglected and overgrown with weeds; mowing and strimming around the base of trees; damaging the bark with strimmer cord or mowing machinery. Strimmers also damage tree roots due to vibrations.

Tree Pests and Diseases

For information on how to tackle common tree pests and diseases see-

<https://www.woodlandtrust.org.uk/visiting-woods/tree-diseases-and-pests/key-threats/>