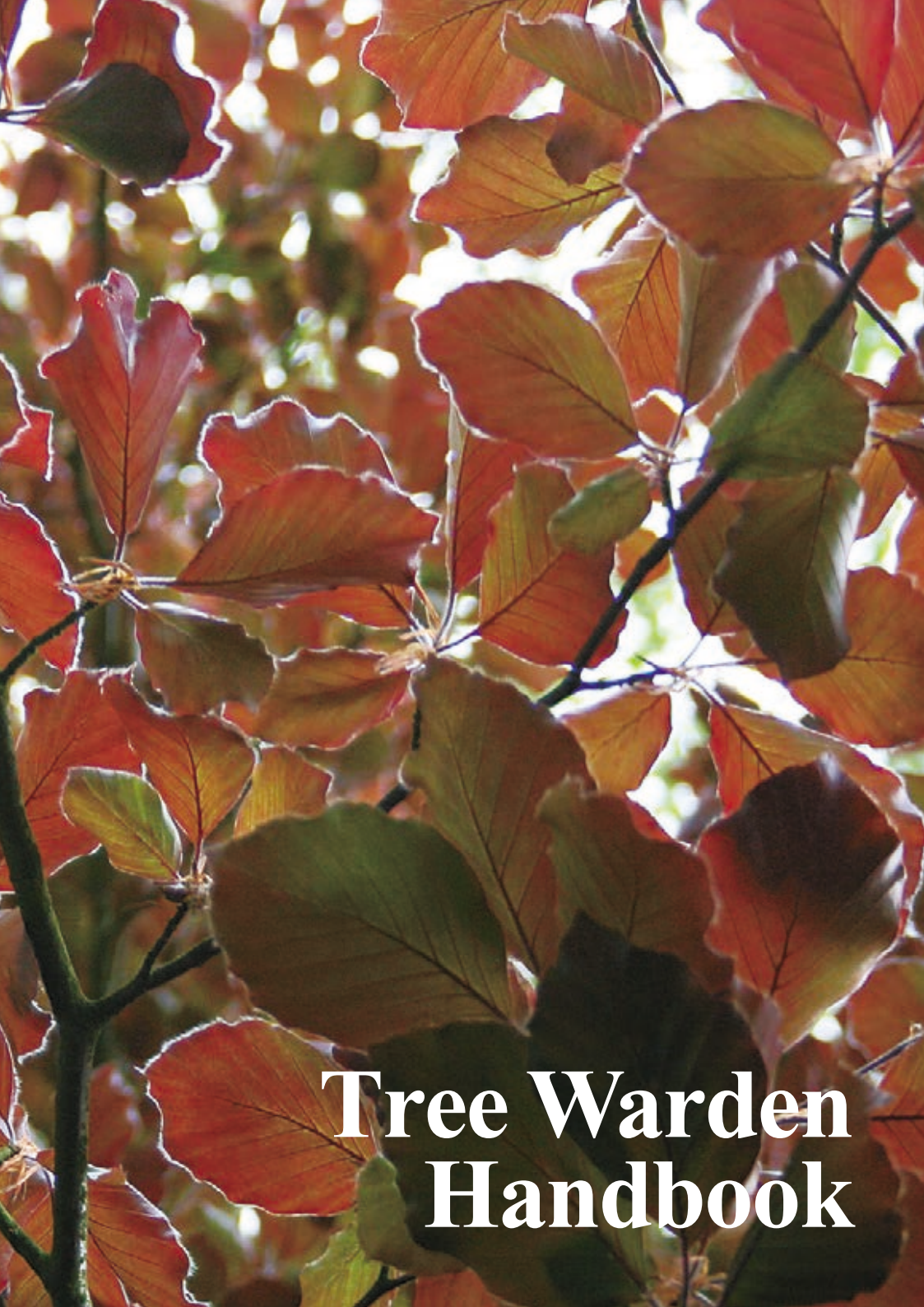




Tree Warden Handbook



TREE WARDEN HANDBOOK CONTENTS

- 1 Championing your local trees
- 2 Trees – their value to the community
- 3 How to grow your own trees
- 4 Tree planting – planning and practice
- 5 Managing and caring for trees
- 6 Trees – threats and challenges
- 7 The law and its impact on trees
- 8 Organising tree events and projects
- 9 Ancient trees – hunting and championing
- 10 Taking action for hedge trees
- 11 What's wrong with my tree?
- 12 Hedgerow harvest
- 13 Paving the way for street tree planting
- 14 Creating fruitful hedges
- 15 Treezilla – building an online map of trees

As of March 2015, the registered address of The Tree Council is:
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Tel: 020 7407 9992
Email: info@treecouncil.org.uk
Website: www.treecouncil.org.uk
Registered charity number: 279000



1 CHAMPIONING YOUR LOCAL TREES

Thank you for being part of The Tree Council's Tree Warden Scheme – a national project that depends very much on local tree champions like you.

Your contribution as a Tree Warden to your local network makes a real difference to the quality of your neighbourhood. There has never been a more vital time to be involved in conserving your community's treescape.

This handbook is designed to help you in your role by giving some basic information and suggesting where to find out more. It has been designed to be practical – you can take all or part of it out in the field – and flexible. New sections will be added from time to time. We have ideas for these, but would also like to hear what you would find helpful (please contact us at the address on the back page).



The Tree Council's
Tree Warden Scheme

in partnership with National Grid and supported
by the Government's Cleaner, Safer, Greener Initiative

The Tree Warden Scheme

The Tree Council launched the Tree Warden Scheme in 1990 to harness the power of local volunteers for the good of their communities' trees. It has co-ordinated it nationally ever since, working with local authorities, voluntary organisations, parish councils and local partnerships to set up and develop Tree Warden networks in town, city and countryside across the UK.

Since 1997, The Tree Council's Tree Warden Scheme has been supported by National Grid. In 2005, the Government began backing the scheme – through its 'Cleaner, Safer, Greener' initiative – to help extend Tree Wardening further into urban areas.

The role of Tree Wardens

The Tree Council's Tree Warden Scheme gives people who feel that trees matter an opportunity to champion their local trees and woods by carrying out or encouraging practical projects and involving their neighbours whenever possible. Community involvement is a central aim of the scheme.

Volunteer Tree Wardens work closely with local authority officers and conservation bodies, who are fundamental to the scheme's success – whether by co-ordinating local networks, offering practical advice or providing training.

The range of Tree Warden activities includes:

- ▶ planting and caring for trees, and managing local woods

- ▶ setting up tree nurseries using seeds collected locally
- ▶ surveying trees and gathering information about them
- ▶ providing early warning of threats, disease, decay, or vandalism
- ▶ getting together with like-minded people for training and field trips
- ▶ working with local groups and schools – teachers often welcome projects that link with the National Curriculum
- ▶ developing imaginative initiatives, such as tree adoption, to encourage others to value the community's trees – and so help to reduce vandalism
- ▶ leading guided tree walks and giving talks to local groups
- ▶ spearheading Tree Council initiatives, such as its Hedge Tree Campaign to reverse the decline of trees in hedges
- ▶ helping farmers to lay hedges or tag hedge trees for protection.

Tree Wardens are not expected to be experts – and they do not have any special powers. The idea is that this handbook (and its suggestions about where to find out more), together with training provided locally, will give volunteers the necessary fundamental knowledge.

As a Tree Warden you should not:

- ▶ advise whether or not a tree is safe: if it falls you would be liable and you are not insured for this
- ▶ undertake practical work outside your ability or without appropriate permission
- ▶ enter private land without the owner's agreement
- ▶ attempt to handle tree disputes yourself
- ▶ carry out chemical weed control without having completed the certificated training

- ▶ use a chainsaw without having completed the certificated training or without insurance
- ▶ allow anyone carrying out work on trees to disturb wildlife during the breeding/nesting season.

Involving the public

The Tree Council is an umbrella body for organisations working together for trees – planting, caring for and enjoying them.

Founded in 1974, today it is the UK's lead tree campaigning partnership.

Its goals are:

- ▶ to make trees matter to everyone
- ▶ more trees, of the right kind, in the right places
- ▶ better care for all trees, of all ages
- ▶ to inspire effective action for trees.

Tree Wardens are key to achieving these goals. Their support is vital to the success of Tree Council initiatives which are aimed at getting as many people as possible involved in planting, caring for and enjoying trees and woods.

These initiatives include:

- ▶ Seed Gathering Season (23 September to 23 October) – making the most of trees for their seeds, nuts, fruits and autumn colours. People can go for a walk to collect seeds from local parks and woods or take part in organised events.

- ▶ National Tree Week (end of November/beginning of December) – the annual winter tree planting festival and celebration of trees and woods. As well as tree planting at sites throughout the UK, activities include tree dressing, woodcrafts, walks, talks and story-telling.
- ▶ Tree Care Campaign (March to September) – highlighting the need for better care for all trees, of all ages, to ensure their survival and increase their number. People are particularly encouraged to care for trees they have recently planted.
- ▶ Walk in the Woods (throughout May) – encouraging more people to get out and enjoy trees in woods, parks and tree-lined streets. They can either go for a healthy walk with friends and family or take part in guided walks, open days and other events in town, city and countryside.

The Tree Council also works with its member organisations and other partners on tree issues of particular concern, and Tree Wardens have an important part to play in these, too. They include:

- ▶ the Green Monuments Campaign, a major drive for proper safeguards for heritage trees and for them to be designated as 'green monuments' (see section 7, *The law and its impact on trees*)
- ▶ the Hedge Tree Campaign to increase awareness of why and how hedge trees matter, reverse their decline by planting new ones and saving existing saplings, and manage and maintain ancient trees in hedges. This supports the Government's Hedgerow Action Plans.

Sponsors of The Tree Council's Tree Warden Scheme

National Grid, one of the world's largest utilities, has worked in partnership with The Tree Council since 1990 and supported its Tree Warden Scheme since 1997. The expert advice National Grid receives from The Tree Council, together with the support of Tree Wardens, is vital in helping the company to manage trees in a safe and sustainable way.



Communities and Local Government is backing The Tree Council's Tree Warden Scheme with a grant from its Special Grants Programme in support of the Government's 'Cleaner, Safer, Greener' agenda. This funding is helping to extend Tree Wardening further into inner cities and other urban communities.



You and your local network

The amount of time you devote to Tree Wardening is up to you. We hope, however, that you will be as active as possible. What is important is that you feel that trees really matter – to your local community and to the wider world. You will find the contact details for your network co-ordinator and other useful numbers, such as your local authority officers, in the back of your folder.

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2 TREES – THEIR VALUE TO THE COMMUNITY

Trees have a vital role to play in every community, providing a wide variety of benefits and improving the quality of life for people who live, work, learn or spend their leisure time there.

However, there is still much work to be done to get everyone to appreciate the real value of trees in their patch and to realise that there is much that they can do to ensure existing trees are cared for and more trees are planted.

Tree Wardens, as champions of their local trees, are well placed to spread the word. To help them do this, some of the reasons why trees really matter to a community are outlined in this section.



**The Tree Council's
Tree Warden Scheme**

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Trees and people

Trees and woods strengthen communities by providing opportunities for people to work together for the benefit of the local environment, building a strong sense of ownership and so helping to avoid vandalism. Planting a tree is an easy, enjoyable way to do something for the environment and can help bring a community together.

Trees can increase community pride and make local woods and parks great places to visit and enjoy with family and friends. They are fun to walk, ride, cycle or play among or just explore.

They also offer opportunities for environmental education: ‘outdoor classrooms’ in which young people can learn about the environment in an enjoyable way, linked to the National Curriculum.¹





Trees and local landscape

Trees and woods enhance any landscape – urban or rural – in a variety of ways. They:

- ▶ form significant features – in isolation or as hedge trees, street trees, belts, copses, woodlands, parklands – contributing to the distinctiveness of the local landscape
- ▶ make towns and cities greener and more attractive
- ▶ help to regenerate derelict and damaged land, improving its appearance and its wildlife and recreation value
- ▶ screen ‘eyesores’.

Trees and the environment

Trees and woods affect the quality of the local environment. They:

- ▶ help to reduce air pollution from the burning of fossil fuels, as the canopy of trees acts as a filter for particulate pollution
- ▶ screen noise and reduce people’s perception of noise, lowering levels by as much as six to eight decibels
- ▶ reduce soil erosion – vegetation and plant litter reduce the speed at which raindrops hit the ground, tree roots bind and stabilise the soil

- ▶ reduce the amount of agricultural chemicals, particularly nitrates, that enter rivers and lakes
- ▶ lower the risk of flash floods because their canopies intercept rain which then evaporates or drips gradually to the ground
- ▶ act as traffic calmers when they line urban roads (traffic goes more slowly along a tree-lined street or road).

Trees and healthier living

Trees and woods make a very positive contribution to people's health. They:

- ▶ help lower blood pressure, reduce stress and speed recovery from stress and anxiety – the effect of a green environment
- ▶ contribute to providing healthy, calming, affordable and environmentally-friendly places for recreation
- ▶ shade out solar radiation
- ▶ help people with respiratory problems, such as asthma and bronchitis – leaves filter dust and absorb harmful gases
- ▶ speed up post-operative recovery; rates have been shown to increase among patients in hospital wards which overlook wooded settings
- ▶ provide local opportunities for regular, short, walks – the sort of moderate physical activity shown to reduce the risk of heart attacks, strokes, and other illnesses
- ▶ are important for the health of elderly people: recent Japanese research shows that having nearby parks and tree-lined streets in large cities means that pensioners can keep active, feel positive about their community, and live longer²

- ▶ are a source of ingredients for some modern pharmaceuticals and also for herbal medicines.

Trees and the local climate

Trees help moderate the climate – locally, nationally and globally. They:

- ▶ reduce summer temperatures in towns and cities by providing shade and protection from the sun's rays
- ▶ provide winter shelter, saving energy consumption through their moderation of the local climate
- ▶ absorb carbon dioxide, a major greenhouse gas, through their leaves
- ▶ slow wind speeds and reduce the impact of rainstorms.

They also have a modest impact on global warming because:

- ▶ individual trees take up carbon as they grow and store it until they reach senescence (begin to decline)
- ▶ continuous cover woodland acts as a carbon sink (store), constantly recycling the carbon as old trees die and rot, and new trees grow
- ▶ commercial woodland stores carbon until it is felled, and the products that the wood is turned into continue to do this until they decompose or are burned
- ▶ trees are a source of renewable energy, reducing the need for fossil fuels.

However, a huge number of new continuous cover forests would be needed to offset the greenhouse effect without other measures being taken.

Trees and the economy

Trees are important for creating sustainable communities. They:

- ▶ bring jobs and opportunities for sustainable development through planting and aftercare, forestry (directly and indirectly through related industries) and through recreation and tourism
- ▶ draw new businesses to an area, attracted by the tree-rich setting – CBI surveys show that employers choose workplaces in pleasant environments
- ▶ create leafy working surroundings or nearby places to visit during the lunch break, helping to cut down stress and improve productivity
- ▶ are a source of useful and home-grown products, which means less has to be imported from abroad (timber for furniture and buildings, renewable fuel such as charcoal, wood pulp for paper, fruit, and medicine such as the chemical extract for an anti-cancer drug)
- ▶ affect property prices – studies have shown that values are higher where houses are associated with mature trees.³



Trees and wildlife

The wildlife value of the UK's trees and woods is enormous and they help to sustain and increase local biodiversity. For example, the UK Biodiversity Group has recorded 1,500 insect species, including butterflies and moths, 65 bird species and 20 mammal species, such as dormice and bats, in hedge trees alone.

- ▶ Woodland supports more breeding bird species than any other habitat in the UK and is home to a whole range of plants, including stunning swathes of anemones, aconites and bluebells in spring.
- ▶ An individual tree offers shelter, food, nesting sites and various other benefits for wildlife in a relatively small area.
- ▶ The early leafing and flowering of many trees and shrubs provides food in the spring for insects – in turn, prey for birds and mammals – and species such as oak, elm and ash are particularly valuable habitats. For example, throughout their range, oaks support 400 plus insect species, elms 124 insect species, and ash 68 species of invertebrate and more than 200 species of lichen.
- ▶ Trees can bring more wildlife into the heart of towns and cities, close to where about 90 per cent of the population lives.

Rare species

Trees and woods provide habitat for all or part of the life cycle of many rare or disappearing species, including:

- ▶ birds such as nightjar, woodlark, spotted flycatcher, nightingale, tree sparrow and circl bunting
- ▶ bats, including the rare barbastelle and Bechstein's – associated with ancient trees – and the greater horseshoe, natterer's, whiskered and Brandt's which fly along tall hedges and woodland edges to catch their food
- ▶ other mammals, like red squirrel and dormouse, and otter along river banks
- ▶ butterflies, such as heath fritillary, purple hairstreak (in oaks), white-letter hairstreak (in elms) and hedge brown
- ▶ moths, including endangered species such as waved carpet (in alder, birch, willow), barred tooth striped (in ash – rare), argent and sable (in birch – extremely rare), square spotted (in birch), white spotted pinion (in elm – extremely rare) and small eggar
- ▶ plants like mistletoe, herb paris and oxlip.

Rotting wood in living and standing dead trees provides habitats for beetles such as stag beetles, some of which are particularly rare.



Where to find out more

Trees in Your Ground, The Tree Council

Colorado Tree Coalition, USA www.coloradotrees.org

Cabe Space – The Commission for Architecture and the Built Environment
www.cabespace.org.uk

Green Space – incorporating the urban parks forum www.green-space.org.uk

Common Ground www.commonground.org.uk

Communities and Local Government www.communities.gov.uk

Community Forests www.communityforest.org.uk

BEN, the Black Environment Network www.ben-network.org.uk

National Orchards Forum www.nat-orchard-forum.org.uk

Trees are good www.treesaregood.com

The Healing Power of Trees, *Tree News* magazine (published by The Tree Council), autumn 2002

Perception, Attitudes and Preferences in Forests and Woodlands, Forestry Commission Technical Paper 18

Trees Matter – booklet re-published in 2005 www.treesforcities.org

Green Places – magazine www.landscape.co.uk

Trees in Towns 2 – research to be published by Communities and Local Government

References

- 1 www.forestschoools.com and www.foresteducation.org
- 2 Urban residential environments and senior citizens' longevity in megacity areas: the importance of walkable green spaces. *Journal of Epidemiology and Community Health* 2002; 56: 913-18
- 3 USDA Forest Service Pacific Southwest Research Station
www.fs.fed.us/psw/programs/cufr/

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3 HOW TO GROW YOUR OWN TREES

Propagating trees is a rewarding activity that many Tree Wardens carry out. It can be a great way to engage young children and get the community involved. With a suitable tree, the right method of propagation and the minimum amount of space and equipment, most people will end up with more trees than they are likely to need.

This section outlines the main methods of propagation, and lists trees that are suitable for each of them and the equipment needed. The tree lists are by no means comprehensive so, once familiar with the various techniques, experiment and find out what works – if in doubt try it.



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Why and how to propagate

Reasons for propagating trees include to:

- ▶ produce stock with a known provenance
- ▶ increase the stock of a rare species
- ▶ save money
- ▶ educate.

It is also very rewarding.

Trees can be propagated:

- ▶ from seed
- ▶ from cuttings
- ▶ by layering
- ▶ by grafting.

Each tree species will propagate more successfully using a particular method, for example:

- ▶ oak is usually propagated from seed
- ▶ willow is best propagated by taking hardwood cuttings
- ▶ magnolia can be layered from branches that sweep the ground
- ▶ apples are usually grafted because they do not come true from seed. Grafting, rather than taking a cutting, enables the grower to limit the size of the tree or put more than one variety on a tree.

Propagation from seed

Propagation from seed is probably the easiest way to produce new trees.

Common trees that are suitable for propagation from seed include: oak, ash, beech, sycamore, rowan, hawthorn, silver birch, horse chestnut, sweet chestnut, field

maple, lime, holly, yew, hazel, elder, crab apple, mulberry, wild cherry, Scots pine, strawberry tree and laburnum. Any ornamental tree that produces seed is also worth trying.

The seeds of different species ripen at different times, and ripening times also vary from year to year, depending on the weather. The amount of seed produced is also variable, and in some years a particular seed may be hard to find or be of poor quality and will therefore not germinate well.

Collecting seed

Seeds should be picked when they are ripe, or collected when they are freshly fallen. Collect seeds from healthy well-grown trees and avoid collecting in wet weather when seed is damp and will not store well.

It is worth bearing in mind that some tree seeds are poisonous. The commonest of these are yew and laburnum but there are others. If children are going to be involved in collecting, it is best to check to make sure.¹

For information about Seed Gathering Season events see section 8, *Organising tree events and projects*.

Seed preparation

To replicate what happens in nature, seeds will need different preparation before sowing, depending on whether they are:

- ▶ pods – e.g. Indian bean tree, laburnum
- ▶ winged seeds – e.g. ash, silver birch
- ▶ nuts – e.g. hazel, oak
- ▶ fleshy fruits – e.g. elder, crab apple
- ▶ cones – e.g. pine, alder.

Pods

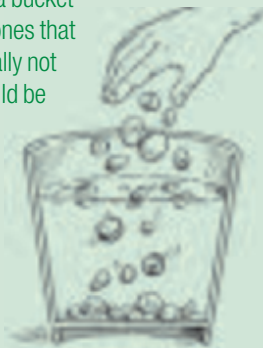
Break open and strip out the seeds.

**Winged seeds**

Break open and strip out the seeds.

**Nuts**

Put the nuts in a bucket of water – the ones that float are generally not viable and should be discarded.

**Fleshy fruits**

Remove the flesh, either by cutting the fruit in half to reveal the seeds or, if the fruits are small, by mashing them and putting the resulting pulp in a sieve and rinsing it under running water.

**Cones**

Put in a paper bag and leave until the cones have opened. Then shake the bag and the seeds will be caught in it.



To germinate, most native tree seeds and some ornamental ones require stratifying. This involves trying to simulate a cold winter because the seed is programmed to germinate in the spring as the temperature rises.

With all seeds that require stratifying, the easiest way is to sow them in a seed bed and then leave them over the winter. Another way to treat small seeds is to soak them in cold water for 24 hours and then put them in a plastic bag (clearly labelled) in the bottom of the fridge for a couple of months.

Stratifying seeds outside

For a large quantity of seed or to stratify larger seeds, mix them into moist compost then put the mixture in a covered bucket and leave it outside all winter. Cover the top with netting to stop mice and squirrels eating the seeds.



Once collected, prepared and stratified, seeds can be sown in containers or directly into the ground – either in a seedbed or in the site where they are to grow.

Sowing seed in containers

Almost any container that will hold soil or compost is suitable for growing tree seedlings, so this is an ideal opportunity to recycle:

- the cartons that fruit juices come in

- large yogurt pots – make a hole in the bottom
- plastic milk bottles – cut the top off and make a hole in the bottom.

The advantage of using cardboard cartons is that a seedling's roots do not get disturbed during the planting. This is because the carton is biodegradable and therefore can be put in the ground with the seedlings still growing in it.

If soil is unavailable then use a peat-free or loam-based compost.

Cells and root trainers

If space is limited or a large number of trees are being grown, consider using special 'cells' or root trainers which can be obtained from specialist suppliers.²



Large seeds

Larger seeds can be sown individually by:

- ▶ making a small hole in the compost, using the end of a pencil or finger
- ▶ dropping the seed in
- ▶ covering it with the compost.

The seed should not be planted too deep but should have roughly its own depth of compost above it.

Small seeds

Sow small seeds by:

- ▶ putting a pinch at a time on to the surface of the compost
- ▶ covering them with a sprinkle of sharp sand or compost.

When the seeds have germinated, gently pull out the weaker, smaller seedlings, leaving one good seedling in each pot.

Growing on the seedlings

Once seeds have been sown, put them outside in a sheltered spot out of direct sunlight and strong wind. Large seeds and nuts will need protection from rodents so cover with netting – the netting bags from oranges are good for this – which should be removed once the seeds have germinated.

The compost should be kept moist but not waterlogged or the seedlings will rot. Once their roots have filled the container, seedlings may be either potted into larger containers and grown on, or planted out.

To see if a seedling requires either potting on or planting out, put a hand over the compost surface to support the tree seedling and

gently turn the pot upside down. Tap and remove the root ball from the pot – if the roots are starting to fill the pot, spiralling round the inside, then it is time to pot on or plant out.

Sowing seeds in the ground

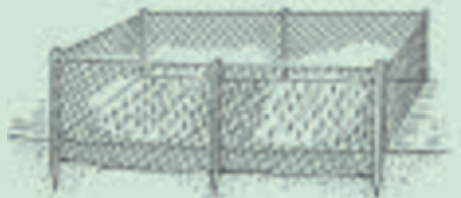
Seeds can also be sown directly into the ground – this is a good method if there is the space.

In a seedbed

Mark out the seedbed and prepare (as for any seeds) by digging over and removing all weeds. If the soil is heavy, dig in coarse grit or sharp sand to make the seedbed free-draining. Plant large seeds individually, using a pencil or a finger to make holes at regular intervals. For small seeds, sow into a drill – a groove made in the soil with a finger or a stick so that seeds can be sown in a straight line, making it obvious which are tree seedlings and which are weeds. Thin the seedlings once they have germinated.

Seedbed

Protect seeds with a wire fence. Seedlings will need watering in dry weather. They can be planted out the following autumn once they are large enough to handle.



Direct sowing

Direct sowing or seeding by hand or machine on to the site where the trees are wanted is an historic technique still sometimes used for creating woods.

It needs a great deal of management during the first five years. However, on suitable sites without large numbers of small mammals or deer to nibble the young shoots, trees can establish more quickly than if they had been grown from seed elsewhere and then planted out.³

Natural regeneration

It is through natural regeneration – new trees growing from seeds which have fallen on the site – that woodlands can sometimes restock themselves.

As a restocking process it came back into fashion in the late 1980s, partly because it was seen as ‘more natural’ and often more effective than planting.⁴

Propagating from cuttings

This method is best used to propagate particularly vigorous species and those that do not produce viable seed or do not come true from seed. There are several types of cutting used to propagate trees:

- ▶ hardwood
- ▶ semi-ripe
- ▶ softwood
- ▶ root.

Hardwood cuttings

Trees suitable for propagation from hardwood cuttings include willow, alder, plane, poplar, mulberry, dogwood and fig.

Hardwood cuttings are taken in winter when the tree is dormant.

- ▶ Water during dry weather.
- ▶ Lift cuttings the following autumn, once the leaves have fallen.
- ▶ For small cuttings, use a trowel, being careful to get as much of the root ball as possible.
- ▶ For larger cuttings, use a spade and cut around the root ball.

Taking hardwood cuttings

Cut strong vigorous shoots from this year's growth.



Choose a sheltered spot out of direct sun.
Using a spade, cut a trench in the soil.
If the ground is heavy fill the bottom of the trench with grit or sharp sand to improve drainage.



Insert the cuttings, being careful to keep them the right way up.



With some trees that have small buds it is easy to get this wrong.

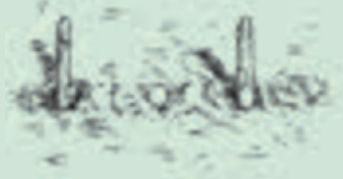
2



One way to avoid this is to do a straight cut at the bottom (1) of the cuttings and a slanted one at the top (2) when preparing them.

1

Firm them in, being careful not to damage the buds – and re-firm if lifted by frost.



For multi-stemmed trees, leave several buds above the soil surface.



For single-stemmed trees, the top of the cutting should be just below the soil surface.



Only lift cuttings when they can be potted on or planted out straight away.



Semi-ripe cuttings

Evergreens such as holly, box and many conifers can be propagated using semi-ripe cuttings. These are taken towards the end of summer from this season's growth.

- ▶ Cut 5cm to 20cm (2 to 8in) pieces of stem, depending on the size of the plant.
- ▶ Strip the leaves off the cuttings, leaving about three leaves at the tip of each one.
- ▶ Trim the ends just below a leaf joint.
- ▶ Dip in rooting powder.
- ▶ Insert into a pot of gritty compost.
- ▶ Cover with a plastic bag or put in a propagator.
- ▶ Once cuttings have rooted, plant in individual pots and harden off outside in a sheltered spot.

Semi-ripe cuttings

Remove the bottom few leaves. If the remaining leaves are large, trim them to reduce water loss.



Insert five or six cuttings in a ring around the edge of a 10cm (4in) pot or large yogurt pot filled with gritty, free-draining compost. Remember to make a hole in the bottom for drainage.

Softwood cuttings

Softwood cuttings should be taken at the height of the growing season in late spring or early summer, using the tip of the growing shoot. Suitable trees for softwood cuttings are ornamental cherries.

- ▶ Trim cuttings to about 5 to 10cm (2 to 4in) just below a leaf joint.
- ▶ Remove the bottom leaves.
- ▶ Dip the cut end in rooting powder.
- ▶ Insert in a pot or seed tray filled with free-draining compost.
- ▶ Cover with a plastic bag.
- ▶ Put on a window sill or in a propagator out of direct sunlight.

Softwood cuttings root quickly. Once they have rooted, carefully lift and plant out into individual pots.

Root cuttings

Traditionally, many trees were propagated using root cuttings. A spade would be used to cut through roots. The cut roots would throw up shoots or suckers and these would then be used to produce new trees. Elms were propagated widely in this way because they do not produce reliable viable seed.

Root cuttings are still worth considering for elm, willow and poplar.

- ▶ Take root cuttings in January and February – when the soil is not frozen but before the tree has started into growth.
- ▶ Choose a healthy tree.
- ▶ Dig into the soil and use a knife to remove sections of root that are about pencil thickness.

- ▶ Carefully replace the soil and firm down with a foot.
- ▶ Cut the roots into manageable sections that will fit into a seed tray or box and cover with soil.
- ▶ Once the roots have sprouted, cut off the shoots and put these in pots, using a rooting powder (as for softwood cuttings).

Root cuttings

Lay the roots on a bed of compost so they do not touch each other.

Cover with a thin layer of compost – keep the compost damp.

Leave in a cold frame or cover with plastic and put in a sheltered position until the roots produce shoots.



Once the roots have started to shoot – and have at least three sets of leaves – they are ready to pot on.

Shoots will keep appearing, so cuttings can continue to be taken until the roots are exhausted.



Use a sharp knife to cut the shoot off at soil level.



Pot up the shoots – treat as softwood cuttings and handle by gently holding the leaves, not the stem.



Label and put in a sheltered position outside to grow on.



Layering

Layering is a method of propagation that mimics nature – many trees and shrubs do it naturally when their branches touch the ground. For this reason this method is more commonly used to propagate shrubs with branches that sweep the ground.

Suitable trees are the evergreen and deciduous magnolias.

- ▶ In early spring take a vigorous pliant branch.
- ▶ Bend it down so that last season's growth touches the soil.
- ▶ Where it touches the soil, cut a small notch in the bark.
- ▶ Scrape a shallow trench in the ground.
- ▶ Pin the branch down on to the soil with a bent piece of wire – cut up coat hangers are good for this.
- ▶ Cover with soil.

Simple layering

The branch will root and be ready to be separated from its parent by the following spring.



Grafting

This is a more difficult technique for the amateur but it is widely used commercially to produce both ornamental and fruit trees. It is used because:

- ▶ the tree matures more quickly as the graft material is being joined to an established root system

- ▶ the type of rootstock used will influence the habit of the tree so it is possible to produce trees of different sizes
- ▶ some trees, including ornamental hybrids, do not come true when grown from seed.

There are many different methods of grafting. However, the basic principle is to

join the graft material or scion from one tree – usually a bud or shoot – with the rootstock from another (usually of the same genus) to make a new tree. Both are cut and the two surfaces are bound together until they fuse and become one. The resulting tree will then grow with some of the characteristics of its rootstock.⁵

Where to find out more

The Good Seed Guide, The Tree Council

How to Propagate, John Cushnie

RHS Propagating Plants, Alan R Toogood

Trees: Their Use, Management, Cultivation and Biology.

A comprehensive guide, Bob Watson

BPG Notes. Best Practice Guidance for Land Regeneration, Forest Research

Royal Horticultural Society www.rhs.org.uk

References

- 1 *Guide to Poisonous Plants* www.vth.colostate.edu/poisonous_plants
- 2 Horticultural Trades Association www.the-hta.org.uk
- 3 Forestry Commission booklet *Creating New Broadleaved Woodland by Direct Seeding* www.forestry.gov.uk
- 4 Natural regeneration – Forestry Commission www.forestry.gov.uk
- 5 *Grafting Fruit Trees*, Larry Southwick

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4 TREE PLANTING – PLANNING AND PRACTICE

Planting new trees – of the right kind and in the right places – is something all Tree Wardens can do to improve their environment. Planting is also a fun way of getting the community involved in their local trees.

This section sets out the main points that Tree Wardens will need to consider, whether they are carrying out the planting themselves or taking the lead in community tree planting. It gives tips on choosing a planting site and selecting the appropriate species and size of stock, planting techniques and methods of tree protection.



**The Tree Council's
Tree Warden Scheme**

in partnership with National Grid and supported
by the Government's Cleaner, Safer, Greener Initiative

Planning tree planting

Selecting the correct planting sites and the right trees is critical – mistakes can be long lasting and difficult to rectify.

An important factor to take into account is what the area may look like in 20, 50 and 100 years. A single well-placed tree can grow to be seen above the rooftops and may give more visual benefit than several scattered small ones. The ideal is a tree able to grow to full maturity with little or no surgery. Mature trees do not necessarily take up large amounts of space.

Choosing a planting site

Options include:

- ▮ front and back gardens
- ▮ existing tree pits
- ▮ roundabouts
- ▮ grass verges
- ▮ traffic islands
- ▮ housing estates (but beware of underground services)
- ▮ parks and open spaces
- ▮ alongside public footpaths
- ▮ school/college grounds
- ▮ city farms
- ▮ local nature reserves (without disturbing the ecological balance)
- ▮ woodland (without disturbing the ecological balance)
- ▮ golf courses
- ▮ hospital grounds
- ▮ industrial estates
- ▮ shops and office car parks
- ▮ playing fields
- ▮ derelict land
- ▮ development sites.

Assessing a site

Here are some important points to consider about a site.

Ownership of the land

Trees may only be planted with the landowner's permission.

- ▮ Will the owner carry out planting?
- ▮ If not, will permission be given for planting?
- ▮ Can planting be planned to meet the owner's objectives and also benefit the community?
- ▮ What is the foreseeable future of the site (and therefore the trees)? Seek assurance from the owner.
- ▮ Who will look after the newly-planted trees? This needs to be agreed.

Proximity to buildings and other structures

Many recent buildings will have adequate foundations to enable selected trees to be planted nearby.

- ▮ Tree-related subsidence usually occurs only on shrinkable clay soils where foundation damage may result from roots extracting water.
- ▮ Poplars and willow species should be planted with caution in built-up areas on clay as they require so much water.

See section 6, *Trees – threats and challenges*.

Ultimate size of the proposed tree

Trees grow in height and spread over a life of 100 years or more, and might eventually cause problems in terms of shade, light and building foundations.

- ▮ What will be the ultimate spread and height of the tree?

- ▶ How far will the roots spread? They may extend as much as twice the ultimate height of the tree.

See section 6, *Trees – threats and challenges*.

Safety concerns

There are some sites where planting trees could be hazardous.

- ▶ Before carrying out any work, it is vital to check whether any services are likely to be running underground. Seek advice from the local authority about this.
- ▶ Trees will require constant pruning in order to maintain statutory clearance if planted under overhead services (such as electricity cables and phone wires).
- ▶ Trees should not be planted where they could obscure road sight lines, road signs or street/security lighting.

The local ecology

Ecological factors may mean that it is best not to plant trees at all.

- ▶ Is natural regeneration already taking place? If so, this may be preferable for wildlife.
- ▶ Is the site already valuable tree habitat, like thickets and old orchards, which should normally be retained?
- ▶ Will trees shade out old grassland, streams or ponds, or damage heath, peat or very damp ground such as bogs (which should be left unplanted)?
- ▶ Are there good reasons for the site being treeless (e.g. it is heavily grazed, too exposed, thin or polluted soil, or waterlogged ground)?

Choosing the right species

- ▶ Copy nature by planting trees already successful on or near the site.
- ▶ For a rural site, choose species in keeping with the existing woodland.
- ▶ In urban areas, options range from ornamental planting schemes to creating new ‘natural’ areas.
- ▶ Choose species for urban areas that are tolerant of atmospheric pollution and soil chemicals such as road salt (see also section 6, *Trees – threats and challenges*).
- ▶ Consider the eventual height and spread of trees in relation to nearby roads, buildings and overhead lines.
- ▶ Fallen fruits from trees such as hybrid hawthorns and rowans make pavements slippery.
- ▶ Large leaves from species like horse chestnuts may also make pavements slippery.
- ▶ Trees which extract moisture from shrinkable soil may affect nearby foundations.
- ▶ Trees that produce poisonous fruits (e.g. yews and laburnum) are unsuitable for children’s play areas and where animals graze.
- ▶ Trees with fruit that causes stomach ache (e.g. crab apples) are best avoided near play areas.
- ▶ Some trees, like white poplar, false acacia and wild cherry, have suckers and surface roots which may disrupt paving or light structures such as boundary walls.
- ▶ Trees casting dense shade and reaching large dimensions, such as oaks and beeches, can shade windows and gardens.

Choosing the right size of stock

Once the tree species has been chosen, the next step is to select the planting stock.

Generally, the smaller a tree is when planted, the more readily it becomes established and begins to grow.

This is because small trees have a relatively large root system in relation to their canopy or leaf surface area. This means the aerial portion of the tree can be well supplied with water, oxygen and minerals which are essential once a tree has started into growth.

It is not uncommon for a self-set tree seedling or whip to outgrow a larger tree (even one that is well-maintained) and reach maturity before it.

However, if the aim is to have instant effect, it is a good idea to choose a standard or semi-mature tree.

Seedlings, transplants and whips

- ▶ Very cheap – so a good way to achieve large-scale planting.
- ▶ Easy to plant – so ideal for community/school planting involving volunteers.
- ▶ Readily stand the stress of transplanting.

Feather

- ▶ Relatively cheap – so still practical for large projects.
- ▶ More likely to be damaged or stressed during planting than smaller stock.
- ▶ Requires more skill in planting because it needs to be well-anchored in the soil to reduce the risk of wind damage.

Normal trade descriptions of trees of various sizes – used throughout the nursery trade



Seedling height: 0.2 to 0.9m (8in to 3ft)
Transplant height: up to 1.25m (4ft)



Whip height: 1m to 1.75m (3ft 3in to 5ft 9in)
Feather height: 1.25 to 2.5m (4ft to 8ft)

Standard

- ▶ Relatively expensive to buy and also requires more planting preparation.
- ▶ Less susceptible to damage during planting than smaller stock.
- ▶ A good way to achieve immediate impact in gardens, streets or shopping precincts.

Heavy standard

- ▶ An expensive option.
- ▶ Good for achieving effect in prestigious sites.



Standard with leader height: 2 to 3.5m
(6ft 6in to 11ft 6in)

Standard with branching head height: 2 to 3.5m (6ft 6in to 11ft 6in)



Multi-stemmed height: various

Also available are:

Heavy standard same as standard but height 3.5m (11ft 6in) or more, girth 140mm (5in)

Semi-mature size varies

Semi-mature

- ▶ The most expensive option.
- ▶ Achieves instant impact but needs very careful planting and a great deal of maintenance (particularly watering) for a long time after planting.

Types of stock

As well as being available in different sizes, trees are produced in different types of stock.

- ▶ Bare-root – grown in open ground, dug up in winter and sold with no soil

covering the roots; usually small stock, i.e. whips and feathers.

- ▶ Root balled – like bare root but sold with a covering of soil and wrapped in hessian for transportation; usually larger stock, i.e. standards and upwards.
- ▶ Containerised – like root balled but put into a container for sale.
- ▶ Container-grown – most common type of stock in garden centres; all sizes are now available.

Obtaining trees

One way to obtain new trees is to grow them from seeds or by taking cuttings or grafts (see section 3, *How to grow your own trees*). If this is not an option, here are points to consider when buying them.

Ordering trees

- ▶ If ordering native species, check their origin and be wary if the nursery is unable to supply the information. Some nurseries list the origin of each species in their catalogues.
- ▶ Some nurseries will raise plants from seed of acceptable origin if collected and supplied by the customer.
- ▶ Place orders early with a reputable nursery to ensure a prompt delivery; if possible stipulate a date.

Local suppliers, listed in the *Yellow Pages* under ‘Nurseries – Horticultural’ or ‘Garden Centres’, will mostly specialise in container-grown ornamental stock. However, many will supply other types of tree to order. For sources of native trees in quantity, a good starting point is the local wildlife trust or BTCV office, or even the local authority officer.

For large numbers of trees it is best to place orders by July or August for supply in the late autumn/winter.

Beware of accepting substitute tree species which seldom have the desired characteristics of the plants ordered.

Inspect the trees as soon as they arrive and return them immediately to the nursery if they are unfit for planting: e.g. have broken leading shoots or side branches, damaged bark or dried-out and damaged roots. For container-grown trees, check they are not pot-bound.

Planting the trees

To give new trees the best possible start and the greatest chances of survival, there are a number of key considerations.

When to plant

Bare-root trees should be planted during the dormant season. Container-grown trees can be planted all year round. In all cases, avoid days when the ground is frozen.

A good time to plant is during The Tree Council's National Tree Week (end of November/beginning of December). In dry areas, late autumn planting is best for most species as this gives trees a chance to become established before spring droughts. In wet areas, early spring planting is best. Ideally, the site should be drained of excess water. Where soils are wet and then freeze there is a risk of 'frost lift' which can devastate newly-planted trees, though this is

unlikely in most years. Evergreen trees are best planted either early or late in the planting season. Spring planting should not take place until the soil has begun to warm.

Although container-grown trees can be planted at any time of year, the same guidelines will give best results for them too. If planting is in late spring or summer, container-grown trees should be watered during dry spells for the first growing season (see section 5, *Managing and caring for trees*).

Pre-planting care

Many bare-root trees are already dead when planted. This is often because of careless handling between the time they are lifted from the nursery and final planting-out. Unfortunately, these trees are not easy to identify before planting and the first sign of a problem may be when they fail to grow.

It is essential to ensure that:

- ▶ bare-root trees are delivered with their roots wrapped in plastic
- ▶ if not planted immediately, bare-root trees are removed from the bags and heeled-in, see diagram (for 24 hours or less, bags of trees may be stored in a cool shady position out of the wind)
- ▶ as much short fibrous root is kept on the trees as possible
- ▶ trees are safeguarded from damage, such as broken stem tops and bark stripped from stem or roots
- ▶ trees are stored only where there is free drainage, so that they do not stand in waterlogged conditions
- ▶ roots are protected from heat.

Ideally, trees should be lifted, transported and replanted without interruption. However, they may need to be stored before planting and the best way to store bare-root trees is by heeling-in.

Heeling-in

Dig a trench in good fresh moist soil which will not dry out or become waterlogged. Cultivated nursery ground is ideal, provided it is shaded.

Dig the trench with a sloping back, deep enough for the tree roots to be completely covered.

Trees in bundles should be separated and spaced along the trench, otherwise those in the centre may dry or – in the case of evergreens – heat up. Putting a marker stick every 50 or 100 trees saves counting later.

Place the trees with their roots completely in the trench but with their tops out.

Cover the roots with soil and firm it lightly by treading.



Preparing the ground

Before trees are planted, the ground may need some preparation, particularly in urban areas where soil compaction is often a problem.

Compaction can happen on brownfield sites, on land where there is a plough pan (an area of the ground compacted by frequent ploughing) and on new development sites (see section 6, *Trees – threats and challenges*).

In severe cases it stops the tree roots from establishing, so the trees fail to grow well and may eventually die.

If the planting site suffers from soil compaction then ideally the area should be subsoiled.

This is a process that loosens the soil and breaks up the compaction or plough pan. It is usually done with a mechanical digger.¹

If subsoiling is not practical, a solution can be to plant in large planting pits where material has been introduced to improve drainage and add nutrients.

Planting small trees

There are three ways to plant small trees:

- ▶ notch planting
- ▶ turf planting
- ▶ mound and ridge planting.

Notch planting

Notch or slit planting with a garden spade is the quickest, but not the most reliable, method for planting small trees.

It is generally suitable for mass planting of bare-rooted transplants and whips under 90 cm (3ft) high. It should not be used in wet soil, for large or expensive trees or where failures must be minimised.

Notch planting

Where there is a thick grassy mat, clear a bare patch about 0.5metre (19in) in diameter by scraping off vegetation and the top inch or so of soil with a spade or mattock.



Use the spade to cut through the turf into the soil to a depth that will accommodate the roots of the tree being planted.



Push the spade backwards and forwards in the slot to create a hole large enough for the roots.



Hold the tree in place and firm the soil around the stem with the heel.



Turf planting

This method is useful for planting small trees in wet ground, especially peaty soils, as it improves drainage around roots.

Turf planting

Cut out a square of turf and turn it grass side down.
Cut a notch into the turf and soil below. Insert the roots, then firm.

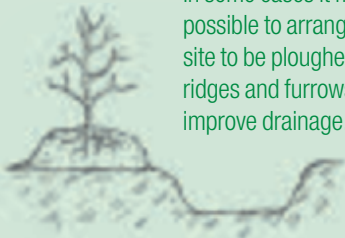


Mound and ridge planting

For poorly-drained sites where the turf is difficult to cut, mound planting provides extra freely-draining soil for roots.

Mound and ridge planting

In some cases it may be possible to arrange for the site to be ploughed to create ridges and furrows to improve drainage.



In exposed sites, plant on the downwind side of the mound/ridge.



In all cases it is important to apply a mulch at the time of planting because this will reduce the need to weed and water, helping to ensure the survival of the tree (see section 5, *Managing and caring for trees*).

Protecting trees from damage

Trees, especially when young, are extremely vulnerable to damage from animals and people. Protection requires planning.

Points to consider

- **Cost:** protective measures can add considerably to initial costs. It is usually cheaper to protect groups rather than individual trees.
- **Maintenance:** all forms of protection add to maintenance costs.
- **Appearance:** protection can sometimes be unsightly.
- **Land take:** protective measures often reduce the land available for other uses.
- **Susceptibility to animal damage:** is the species of tree particularly susceptible? Could a more resistant species be planted?

The choice: fences, guards or shelters

The cost of individual tree protection increases with the number of trees, but fencing costs relate to the size and shape of land enclosed, irrespective of the number of trees. Long, thin or complex shapes are the most uneconomical to fence, with squares and wide rectangles being the cheapest.

Tree shelters (wire mesh or plastic) are the most common tree protection for plantings of less than a hectare (2.5 acres). For larger areas, perimeter fencing is usually cheaper,

but it will not deter rabbits or squirrels. Shelters make it easier to locate newly-planted trees for weeding and maintenance. They also protect against damage by animals and herbicide around the base. Plastic shelters act like mini-greenhouses. Growth can be up to five times the normal rate in the first two years.

Methods of tree protection

- ▶ Stock-proof fencing: essential if animals are to graze nearby. Fencing must be at least two metres from any new planting.
- ▶ Rabbit-proof fencing: around plantations where there is a problem – but ensure the rabbits are not fenced inside.
- ▶ Shelters for individual trees: it is important to find out which animals are likely to threaten the survival of newly-planted trees and then use shelters and stakes of the appropriate height.

Choice of shelter and stake

Shelter	Stake	Animals
0.6m (2ft)	0.8m (2ft 6in)	Rabbits and hares
1.2m (4ft)	1.2m (4ft)	Sheep and roe deer
1.8m (6ft)	1.8m (6ft)	Fallow, sika and red deer
1.8m (6ft)	Heavy duty	Cattle and horses

Rabbit sleeves, spirals, Nettleon guards and grow-tubes

Choose a guard of a size which is appropriate to the threat (see table).



There is a risk that spiral guards will unravel and damage the tree.



Extruded plastic tubes protect individual trees.

The top of any stake must be below the top of the tube to prevent the tree chafing later.

Push the end of the guard into the ground around the base of the tree.



Make sure tall shelters are well attached to firm, strong stakes so that the shelter does not move and damage the tree.



There are various types of extruded plastic tubes, but all have the same function. There are also different ways of attaching them to a stake.



Using wire
or zip ties



or using
tree ties.

Tree guards

Stout, tall metal guards deter vandalism of individual standard trees.



Break up compacted soil to improve drainage and aerate the roots.



Gently tease out the roots that have wound around the inside of the pot.

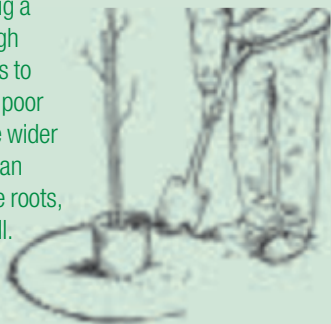


Planting large trees

Although labour-intensive, pit planting is the best method for large trees because it ensures plenty of room for the roots. It is essential for trees over 90cm (3ft) tall. It is also worthwhile when planting only a few trees or where failures would be expensive or difficult to replace.

Pit planting

In good soil, dig a hole big enough for all the roots to spread out. In poor soil, dig a hole wider and deeper than needed for the roots, and partly refill. Consider adding a soil improver.



Use a stake if the tree is over 1.5m (5ft). Drive the stake into the bottom of the pit and then place the tree on the downwind side. Stakes should not be more than a third of the height of the tree.



Keep the top of the root ball level with the soil surface.

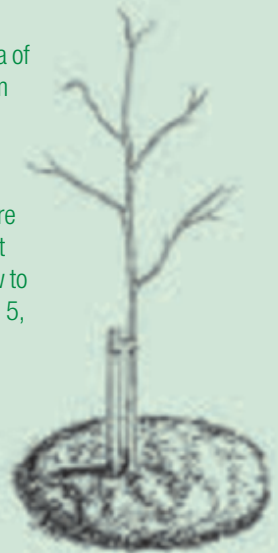


Backfill and gently shake the tree up and down to ensure a good contact between root and soil. Once the roots are covered continue treading more firmly until the hole is over-filled, leaving the soil slightly above the surrounding ground. Treading in is most important when pit planting. Many failures are due to lack of firming. In heavy soils, do not firm so much that the soil becomes compacted.



Water the tree.
Drench the soil with at least five litres of water. The amount will depend on the size of the tree being planted.

Clear grass and weeds for an area of approximately 1 m (3ft) diameter around the tree, and apply a layer of mulch. For more information about mulches and how to apply see section 5, *Managing and caring for trees*.



Watering tubes

Whether to use a watering tube will depend on the situation.

Heavy standards planted into pavements are often planted with a watering tube to make it easier to get large quantities of water to the roots. However, this may encourage roots to stay within the planting pit and not grow into the surrounding ground.



Staking and tying large trees

Recommendations for staking trees have changed in recent years. Tying a tree just below the start of the crown using a tall stake is not now recommended. This is because the stem cannot sway, so little increase in stem diameter occurs from crown to base. Swaying in the wind stimulates growth of stem diameter.

With no stake, the whole tree sways, stimulating maximum diameter growth near the root collar (i.e. the transition from stem to root). Where support is necessary (normally if the tree is more than 1.5m (5ft) tall), stake the tree sufficiently to anchor the root ball in the ground, but allow the stem to sway in the wind.

For large trees, two-thirds of the stake should be below ground. It needs to be driven into the base of the pit to make it stable.

Using a single stake

Position the stake first, on the side of the tree facing towards the prevailing wind, to reduce chafing in storms. Position the tree 25 to 50mm (1 to 2in) from the stake.



Attaching tree ties with pads

Fix the pad 25mm (1 in) from the top of the stake.

Thread the belt through and either fasten the buckle or tack as shown to allow adjustment as the tree grows.

The right size of pad is important. If it is too small it can split as the tree grows. The belt should form a loop and not be drawn in tightly by the pad.



No stake should extend higher than a third of the height of the stem. Use a single flexible tie, to allow movement. Old inner tubes and tights are suitable, though not particularly attractive. A pad between the stake and the tree is always necessary.

Other methods of staking trees

There are also various methods for staking trees in particular situations.

Guy ropes

Only suitable for large heavy standard trees on sites where there is no risk of people tripping.



Angled stake

Used for trees with a large root ball.
Driven into the ground after planting.



If trees are well tended, roots should have grown enough to anchor them two years after planting, when stakes should be removed. Sometimes it is best simply to cut off the stake at soil level (being careful not to damage the bark). This will avoid disturbing the roots.

Double stake

For windy exposed sites.



Tree anchors

This is a method of securing newly-planted container-grown and root-balled trees without using a stake.

The anchor is placed over the root ball around the trunk and attached to the bottom of the tree pit at three points. It is then tensioned to hold the tree securely in place. This is an expensive option so is used only on prestigious sites, usually with larger stock.

Where to find out more

Hillier Gardener's Guide to Trees and Shrubs

Collins Tree Guide

The Garden Tree, Alan Mitchell and Allen Coombes

The Royal Horticultural Society Encyclopedia of Gardening

Trees in Your Ground, The Tree Council

Trees: Their Use, Management, Cultivation and Biology.

A comprehensive guide, Bob Watson

References

- 1 *Tree Roots and the Built Environment* – Urban soils for amenity trees, page 79, DCLG Research for Amenity Trees No 8

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5 MANAGING AND CARING FOR TREES



Thousands of young trees die through lack of aftercare. However, everyone can play a part in helping to change this.

They can give a few minutes of essential annual care to any trees they have recently planted – and this section explains what that involves. They can also keep an eye on young trees in their communities and, if they seem to be needing care, encourage whoever owns or manages them to do something about it.

This section also looks at the various management techniques used to care for trees of all ages – including mature and ancient trees. However, most of these should only be carried out by experts.



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Caring for newly-planted trees

Annual care for trees in their first five years is vital. Large numbers of young trees die from neglect, especially from the failure to carry out basic weed control.

For information about caring for new trees before planting, see section 4, *Tree planting – planning and practice*.

It is important to check on newly-planted trees and woodlands at least once a year and carry out a few simple maintenance tasks including:

- ▶ watering (if necessary)
- ▶ fertilising (if necessary)
- ▶ clearing grass and weeds
- ▶ adjusting/replacing/removing tree stakes and ties
- ▶ checking guards and shelters
- ▶ ensuring roots remain covered
- ▶ pruning carefully (if required).

Watering

Except in long dry spells, it is rarely necessary to water transplants or whips (again, see section 4), provided they were planted at the right time of year, with the roots kept moist, and attention is paid to weeding and mulching (see page 3).

This is important both at the time of planting and in the first few years after that.

Watering may be necessary for larger stock, although once the trees become well established, most will need watering only during droughts.

If watering standard and semi-mature trees, give them a very thorough soak – about 50 to 75 litres per tree (10 to 15 gallons), depending on the size, every other week in dry weather during the growing season.

Watering ‘little and often’ will only encourage surface rooting, increasing the tree’s vulnerability to drought and scorching by the sun.

Fertilising

This should not usually be necessary – even for trees planted on poor soil, provided plenty of compost or manure was put in the planting pit. This organic matter will include enough slow release nutrients to sustain the tree for its first few years.

Weed control

Grasses and other fast-growing, herbaceous perennials compete with young trees for moisture, nutrients, space and light. To help the tree get established, it is important to keep an area of about a square metre (just over a square yard) around it free of weeds for at least three years.

Hand weeding

Hand weeding can be time-consuming, but may be a good way of involving local communities in caring for trees they have recently planted. Surface tree roots should not be disturbed.

Pull out grasses, woody plants and herbaceous perennials so that they are uprooted. They should not be cut back or mown, as this encourages growth. Hoeing runs the risk of damaging the roots.

Mulching

Mulching is a simple and effective way of controlling weeds and it also:

- ▶ keeps the ground moist and cool
- ▶ means there is no need to use lawn mowers or strimmers near the tree, risking damage to the bark which might kill the tree
- ▶ avoids using chemicals.

Organic mulches also gradually improve the soil as they decompose, particularly if it is compacted or eroded.

Mulches are especially useful for trees of standard size and over, and planting community woodlands. They should be applied immediately after planting, but not until any weeds have been pulled up and the tree has been watered. One application of mulch is usually adequate, but trees benefit from mulching in later years if there is little natural plant litter. It is best applied early in the year when the ground is moist – but after all weeds have been cleared.

- ▶ Do not apply mulches during frost or drought.
- ▶ Do not spread mulch too thickly as it may inhibit gas exchange.

Loose organic mulches include:

- ▶ leaf litter
- ▶ spoiled hay (available from farms)
- ▶ well-rotted manure
- ▶ well-rotted lawn clippings – or grass clippings from the previous cut
- ▶ composted bark
- ▶ wood chips – although not fresh ones because there is a danger of nitrogen loss from the soil as they degrade.

Loose organic mulches

Spread a layer of organic material – 50 to 100mm (2 to 4in) deep – around the stem in a circle of about 1m (3ft) diameter.

For woodlands, spread the mulch over the entire planting area.

Keep mulch away from the stem to avoid rot.



Mulch mats are available from garden centres and other suppliers of forestry products. They are easy to fit, much less bulky than loose mulch, relatively inexpensive (depending on the type and number ordered), and disintegrate after about five years. Roofing felt or old carpet are cheap alternatives for small plantings.

Mulching with mats

Outer edges should be pushed into the soil



or partially buried to anchor them.



Chemical weed control

Chemical weed control is often used on large-scale plantings of small stock – whips and transplants – where hand-weeding and mulching are not cost effective. However, the use of pesticides is now well regulated.¹

The Pesticides Control Act 1988 regulates the sale, supply, storage and use of pesticides. Certificates of competence are required by:

- ▶ any contractor (volunteer groups are classed as contractors)
- ▶ anyone who was under 25 on 1 January 1989 who uses pesticides approved for use in agriculture, horticulture and forestry, unless under the direct personal supervision of a certificate holder.

There are suitable chemical treatments for grasses and grass/broadleaved weed mixtures, bracken, heather, woody weeds, gorse, broom and rhododendron, for conifer plantations, mixed woodlands and amenity trees.²

Stakes and ties

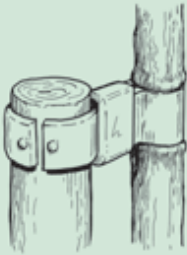
It is important to check the stakes and ties on young trees regularly and remove them as soon as possible.

Ties which are retained too long and start to constrict the trunk or which break or slip so the stake causes abrasion, can result in permanent, sometimes terminal damage to trees.

Stakes and ties

Check the stake and the tie. Is the tie too tight? The tree stem should not be under pressure from the tie, and should not rub against the stake or guard.

If the tie is left on the tree too long, the trunk will eventually grow around it, causing scarring and damage that may lead to disease and decay.



Does the tree still need a stake? A young tree should need one only until its roots have grown into undisturbed soil to give it stability.

If, once the tie has been undone, the tree leans and the roots move



or, if the tree is top heavy and bends over



shorten the stake and replace the tie at the top of the stake.



Guards

Check tree guards in spring and autumn to ensure they are effective (no bark is missing or twigs bitten or broken off) and not rubbing or cutting into the tree.

- ▶ If a guard is inadequate or the risk has changed, consider different protection, e.g. a taller tube to protect against deer, or fencing to keep off cows and other farm animals.

- ▶ Repair/replace damaged guards.
- ▶ If a guard is damaging the tree, adjust, modify or replace it.
- ▶ Remove the guard when there is no longer a risk of damage and clear away any material that has built up inside.

Wind and frost

Exposure to a cold wind can kill roots. Check trees in the first weeks after planting, especially after storms or hard frosts, or in early spring before the leaves flush, to see if any roots have become uncovered. Once the soil has thawed, tread around any loose roots to keep the soil firm and stem upright.

Pruning newly-planted trees

Careful pruning of young trees can prevent problems in later life, but bad pruning can kill trees or make them hazardous, so training is important.

As well as pruning to remove dead or diseased twigs or branches, formative pruning is important to produce a strong lead shoot. In larger stock – feather and upwards – this will have been done by the nurseryman as part of the process of producing the trees.

With whips, transplants and seedlings this should be carried out when the tree has developed sufficiently, sometime after its second year.

For more information on *Pruning and tree surgery*, see page 8.

Caring for established trees

Established trees – those that have been planted for more than 10 years in the case of standards or those that have outgrown their tree guard and stake – still benefit from care.

Mulching

Mulching can have the same benefits for mature trees as for newly-planted (see page 3). To be most effective it should be spread 50 to 100mm (2 to 4in) over an area twice the height of the tree. Keep the base of the trunk free of mulch – leave an area 25 to 50mm (1 to 2in) – or the bark may get moist and this could lead to decay.

Regular inspection

Trees benefit from regular check-ups which can help prevent major problems. Like young trees, therefore, mature trees should be inspected at least once a year to look out for any tell-tale signs such as:

- ▶ reduction in twig growth – compare it with growth over the past three years
- ▶ fewer or smaller leaves
- ▶ fewer buds
- ▶ dieback in the crown (dead branches in the upper part of the tree)
- ▶ trunk decay – signs include loose bark or fungi
- ▶ misshapen, spotted, discoloured or dead leaves that could be caused by insects.

To fertilise or not

Trees develop in balance with their environment, absorbing water and dissolved minerals where they are available. If water or a particular mineral becomes in short supply

then growth of the whole tree will reduce, but the tree certainly will not die from ‘starvation’. Before rushing in with fertilisers there should be a demonstrable need, based on a soil and foliar analysis combined with a whole tree assessment. This will enable a tree care professional to advise on the best kind of fertiliser, timing and application rates.

However, some trees, particularly in urban settings – where they are under extra stress – may not be getting enough nutrients from the soil, and fertiliser may be necessary. This can increase growth, improve a tree’s health and reduce susceptibility to pests and disease. Again, before applying fertiliser take professional advice.³

Pruning established trees

Pruning an established tree can remove dead and diseased wood, or branches infested with pests, make the tree more vigorous and improve its structure. Deadwood is an important habitat and part of the natural process of a tree. If it is in a woodland and not going to cause problems if it drops a branch, it is a good idea to consider whether management is really necessary.

Careful pruning or tree surgery may also mean that a ‘problem’ tree does not have to be felled on the grounds of safety or because of the risk of structural damage to nearby buildings.

However, it is vital to check first whether the tree is covered by any legislation, such as a Tree Preservation Order (see section 7, *The law and its impact on trees*).

Work on large established trees should be carried out by an expert, as it may require special equipment, training and experience.³

It may involve tree climbing, removing large branches and using a chain saw – in which case protective clothing must be worn and training and insurance are advisable. They are essential if working on someone else’s land or removing tree branches overhanging someone else’s property (see section 7, *The law and its impact on trees*).

A professional arborist can also advise what pruning is really necessary. It is important that nothing is done without a reason because any work could change how the tree grows, or even damage it.

Caring for ancient trees

Britain is thought to have more ancient trees than any other country in Europe, providing valuable wildlife habitats and enriching our heritage. Many of them have lasted so long because they were ‘working’ trees, that is their wood and leaves were a crop.

The management techniques used to produce this crop – often coppicing or pollarding (see page 13) – may have helped them to survive.

Their continued survival – often as living, decaying trees – depends on continued care. What this care involves can vary from one ancient tree to the next, with factors such as species, where it is growing, whether it has

been actively managed at some time in its life and how long ago this ceased, all playing a part.

Anyone planning to manage an ancient tree should get expert advice. However, the general rule is to do as little as possible, particularly when it comes to surgery – and only when there is a clear need, such as action to keep the tree alive as long as possible or to make it safe.

If possible, spread the work over several years. The longer ago that the tree was last worked on, the smaller the amount of tree surgery that should be done at one time.

As there is no such thing as a completely safe tree, it is also important to carry out a risk assessment as part of the management plan and then take appropriate action to reduce the risk to a reasonable level.

As part of caring for the tree itself, it is also important to manage the surrounding land by, for example:

- ▶ minimising disturbance and competition for water, light and nutrients from other vegetation
- ▶ preventing physical damage to the tree, such as fire, compaction, cultivation and deep ploughing which could harm the roots.

Ideally, fallen branches and dead wood should be left where they are, as they provide habitat for many of the organisms associated with ancient trees.⁴

Pruning and tree surgery

Pruning and training a tree correctly helps to keep it strong and healthy. It also regulates its shape and size, which can be particularly important for trees in gardens, streets and other urban landscapes. Poor pruning, however, can damage a tree for its lifetime, so all work should be carried out by experts.

As small, accurate cuts are generally less damaging than large ones, formative pruning to train a young tree can prevent the need for more drastic surgery later when it can be much more stressful for the tree. The idea is to create a framework of evenly-spaced branches so that the tree needs less corrective pruning to maintain safety and the desired appearance as it matures.

It is usually best to prune deciduous trees when dormant – in late autumn or early winter – before spring growth. Other times are possible, except late winter or early spring when many trees exude sap (bleed) if cut. Trees that bleed a lot even towards the end of their dormant season, such as birches, horse chestnuts, walnuts, maples and cherries, should be pruned in midsummer after new growth has matured. Also avoid heavy pruning after a spring frost.

Evergreens need little or no pruning except to remove dead, damaged or diseased branches, crossing stems and badly-placed laterals (side branches). This should be done in late summer.

For work on large trees, anyone other than a qualified arborist should consult an expert³.

Quotations are usually free, but there may be a fee for advice.

No work should be carried out during the breeding season if, for example, there is any risk of disturbing nesting birds (see section 7, *The law and its impact on trees*).

Formative pruning

- ▶ Remove any dead, diseased, or damaged wood.
- ▶ Cut out weak or crossing branches while maintaining the tree's natural form.
- ▶ Decide which branches to prune back or remove.
- ▶ Never cut flush with the stem or trunk – always outside the branch collar (the slight swelling on the branch where it joins the trunk) – to avoid damaging the tree's natural protective zone.

It is not necessary to apply wound paint or dressing. Research shows that they do not reduce decay or make the tree heal more quickly, and they rarely prevent disease.

Removing a thin branch

For branches of less than 2.5cm (1in) diameter, make a single cut with a pruning saw or secateurs.



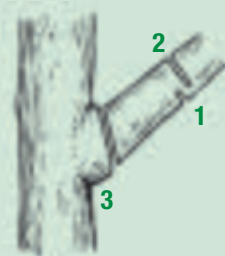
Removing a thicker branch

1. Using a saw, make a shallow undercut at least 30cm (12in) from the trunk.

2. A little further out, make a deeper cut from above.

Removing the bulk of the branch in this way prevents it breaking off and ripping back the bark, making it vulnerable to infection.

3. To remove the remaining stub, undercut just outside the branch collar, then cut through from above. If the collar is difficult to find, cut through the stub at a short distance from the trunk, making the cut so that it slopes outwards away from the tree.



If the aim is to shorten a branch, rather than remove it completely, cut it back to a sideshoot or healthy bud, facing outwards. Do not cut too far from the bud as this leaves an entry point for disease. Cutting too close could damage the bud.

For trees with alternate buds, make an angled cut 3 to 5 mm (1/8 to 3/16 in) above a bud so that the base of the cut is level with the top of the bud on the opposite side of the stem.

Pruning opposite buds

For trees with opposite buds, make a straight cut directly above a strong pair of buds.



Removing a crossing branch

Branches that cross should be removed as they may rub together, causing damage to the bark – so letting infection in.



For most young trees it is best to maintain a single dominant leader to grow into the main trunk.

Removing a competing leader

If a young tree develops a second leader – a co-dominant stem – remove one of them to avoid possible future branch failure.



Creating a new leader

If a leader is damaged it can be replaced by training another shoot.

Choose a strong shoot and tie it to a cane. Cut off the old, damaged leader.

Once the new leader is growing strongly, remove the cane.



Pruning feathered trees

Remove any competing or crossing shoots to leave a single main leader.

Take out any spindly or badly-placed laterals to achieve a framework of evenly-spaced and well-balanced branches.



Pruning a central-leader standard – ‘feathering’

Feathered whips can gradually be pruned to form a standard, something which can also occur naturally. This ‘feathering’ channels food to the main stem which becomes thicker and stronger.

Year one: Remove any weak or competing leaders.

On the bottom third cut back laterals to the main stem.

In the middle section, cut back laterals by half.

Years two and three: Repeat the procedure until the tree has about 1.8m (6ft) of clear stem.



Pruning a weeping standard

Cut back lower laterals on main stem.

Prune vertical or crossing branches that spoil the shape, but leave some semi-upright stems to grow downwards naturally and produce weeping branches.

Rub or pinch out any growths on the main stem as soon as they appear.



Surgery/pruning – mature trees

Certain types of pruning or tree surgery can help keep mature trees healthy, safe and attractive – but it is always best done by an expert.³

Crown thinning

Crown thinning involves removing selected branches within the tree canopy to allow more light to penetrate through and reduce the wind resistance of the tree. It does not affect the height or the shape of the tree.

Crown thinning

Trees may be thinned by up to 30 per cent – one branch in three.

Dead wood and crossing branches should be pruned out as a priority as the tree is thinned.



Crown lifting

Removing a tree's lower branches can be done to allow access, clearance for buildings, vehicles or pedestrians, or to open the view beneath the canopy.

Crown lifting



Crown reduction

The aim of crown reduction is to reduce the height and spread of a tree while retaining its natural shape. One reason for doing this is to help to create the statutory clearance that is required for power and telephone lines.

Not all tree species respond well to this treatment.

Crown reduction

Cut back leaders and branch terminals to branches that are at least one-third the diameter of the cut stem.



Other tree management techniques

There are various ways of managing trees – some for aesthetic reasons and others more for economic and safety reasons. As with any kind of surgery on a mature tree requiring a chain saw, this is something for experts to carry out. However, it is important for Tree Wardens to understand the techniques so that they can explain to others in their community about how and why trees are managed.

Coppicing and pollarding

Coppicing and pollarding are two management techniques which were traditionally practised to give a regular supply of firewood, forage for animals, building timber or pliable stems for basketwork and fencing.

Today, pollarded trees and coppiced woodlands are particularly important for their wildlife value and as landscape features. Pollarding is also still used to restrict the size of street trees.

Coppicing is the regular pruning of a tree close to the ground so that many new strong shoots grow from the base.

Trees are normally coppiced on a seven to 20-year cycle, depending on the species. Traditionally coppiced trees include hazel to produce a good crop of nuts and materials for fencing or making hurdles.

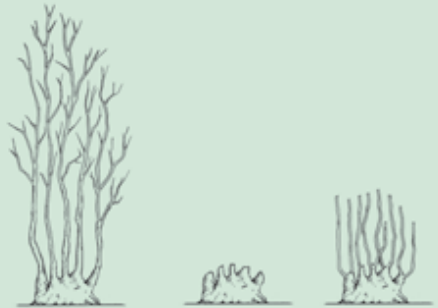
Pollarding involves pruning a tree back to its main stem or branch framework, stimulating new shoots above the height where animals can graze.

It is important to seek expert advice in the management of ancient pollards. However, coppicing or pollarding young trees or managing traditionally-coppiced woods are all useful practical activities with which many Tree Wardens get involved.

Coppicing

Copice in late winter or early spring.

Cut back all stems to the base, leaving the swollen basal wood unpruned.



Pollarding

Managing pollards is best carried out by a professional who has specialist experience.

The basic technique is to cut back the branches every few years when the tree is dormant.



Creating a pollard

This is normally done when the tree is between 10 and 15 years old and has a trunk diameter of between 100mm and 300mm (4 and 12in) depending on the species.

Cut the leader at between 2 to 5m (6 to 15ft) from the ground to:

- ▶ remove the tree's crown completely or
- ▶ leave a framework of main branches that are also shortened to the required pollard height.

Then remove all lower lateral branches.

Maintaining a pollard

Re-growth can be cut back on a two to 30-year cycle, depending on the species, the tree's situation and the type of timber required. This cutting will create a swollen pollard head in the case of a single stem pollard, or a series of pollard knuckles on a branching pollard.

- ▶ Willow is normally cut every year or every other year to produce thin pliable timber for weaving.
- ▶ Oak was traditionally cut on a much longer cycle to produce building timber.
- ▶ Street trees like lime and London plane are maintained on a five to 20-year cycle – not for their timber but to restrict their size.

Creating a branched pollard



Creating a willow pollard

Willows pollard easily – new growth can be cut back each year in early spring while the tree is dormant.



Pleaching

Pleaching is a popular way of training and shaping street trees in mainland Europe – a more formal version of pollarding. It is also used in formal gardens to create avenues of trees with their trunks left bare and their upper branches intertwined and woven to look like a hedge on stilts. The species most often used are lime, hornbeam, sweet chestnut and horse chestnut.

Topiary

Clipping hedging into a particular shape is back in vogue again. Most small-leaved evergreen slow-growing trees – such as yew, box, privet and holly – can be managed as topiary.⁵

The more informal Japanese cloud pruning has also recently become popular. The aim is to produce a manageable tree – half-way between topiary and bonsai. The tree, such as Japanese holly, is pruned to a few bare

architectural stems, stripped of foliage except for a ball of green at the end. Cloud pruning is suitable for urban plantings where there may not be space for large trees.

Bonsai

The ancient Japanese technique of bonsai is used to produce trees that are miniaturised versions of their mature or veteran selves.

Bonsai trees are used extensively in formal Japanese gardens but have become popular in the west, particularly in small urban gardens where space is limited. They can be cultivated from seed.⁶

Training fruit trees

Fruit trees are pruned to maximise their fruiting potential. Over the years this has developed into something of an art-form, with pruning sometimes being carried out for ornamental reasons as well as to increase the yield.⁷

Where to find out more

The Royal Horticultural Society Encyclopedia of Gardening, published by Dorling Kindersley Ltd

The Tree and Shrub Specialist, David Squire

Pruning Trees and Shrubs, Tony Kirkham

Trees: Their Use, Management, Cultivation and Biology.

A comprehensive guide, Bob Watson

Pruning for Quality: A National Forest Guide www.nationalforest.org

Veteran Trees: A guide to good management

www.woodland-trust.org.uk/ancient-tree-forum

References

- 1 www.pesticides.gov.uk
- 2 Department of the Environment booklet *Guidance for the control of weeds on agricultural land* (1992)
Forestry Commission Booklet 51 *The Use of Herbicides in the Forest* (revised 1986) www.forestry.gov.uk
- 3 Arboricultural Association www.trees.org.uk
International Society of Arboriculture www.isa-uki.org
- 4 Ancient Tree Forum, *Veteran Trees: a guide to good management*
- 5 *Topiary*, Christopher Crowder and Michael Ashworth
- 6 *Complete Book of Bonsai*, Harry Tomlinson
- 7 *Pruning Fruiting Plants*, Richard Bird

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6 TREES –THREATS AND CHALLENGES

Trees are vulnerable to all sorts of hazards that can result in their loss, especially in urban environments where they are under particular stress.

Tree Wardens can help ensure good management of trees by understanding what the issues are – and explaining them to their neighbours. It should also help them to spot bad practice by contractors so that they can report this to the local council.

This section outlines some of the challenges. It covers trees and development, trees and existing buildings, and problems associated with particular situations.



**The Tree Council's
Tree Warden Scheme**

in partnership with National Grid and supported
by the Government's Cleaner, Safer, Greener initiative

Trees and new development

Accidental or deliberate damage to trees during building work or installation of utility services can happen very easily and quickly.

By monitoring local development sites and ensuring protective fencing remains in place (see below), Tree Wardens can do a lot to prevent this happening. However, it is important that they do not trespass or put themselves or others at risk, as construction sites can be dangerous places.

Local planning authorities have a duty to preserve and protect trees when granting permission for development work.

The planning permission should include details of which trees are to be retained and how they should be protected. Planning conditions are available for inspection (contact the local planning office).

Tree Wardens can play a positive role in checking that the conditions are adhered to and alerting the tree or enforcement officer before damage occurs to legally-protected trees (see section 7, *The law and its impact on trees*).

British Standard BS:5837

British Standard BS:5837 *Trees in relation to construction – recommendations* provides comprehensive guidance on reducing the adverse effects of development on trees.

Understanding it can enable Tree Wardens to be effective eyes and ears for planners and local authority officers when development is taking place.

Protective fencing

The standard recommends establishing a Root Protection Area (RPA) around any trees that are to be retained on a development site, and protecting them with a fence. This will exclude construction activities and therefore protect the trees. Ideally (although this is not part of the British Standard), the RPA should cover at least the extent of the crown spread or half the height (whichever is greater).

The precise position of protective fencing should be specified in the planning application or shown on plans agreed before development begins (i.e. to meet all conditions). The land within the fence should be kept clear and not used for storing or disposing of materials or equipment.

This RPA requirement is frequently overlooked, not enforced, or not maintained during the development. The trees that could give the site maturity may be killed as a result of neglect, although the symptoms may not show for a number of years after the damage occurs.

Threats to trees on development sites

During development, attempts will often be made to move the protective fencing. Soil dumping is a common reason for breaching the fence. More insidious are threats like washings from cement mixers. The washings must therefore all be directed away from the root protection area around retained trees.

There is a range of other potentially damaging activities for Tree Wardens to look out for during building work. They can then alert the local authority which may be in a

position to protect the trees. Threats include:

- ▶ trenching and excavation
- ▶ soil compaction
- ▶ soil stripping
- ▶ toxic materials
- ▶ fires
- ▶ mechanical damage to trunk or crown
- ▶ unauthorised tree surgery.

Trenching and excavation

Digging a trench through a root system will sever roots, suddenly cutting off some of the water-absorbing tissue of the tree. The leaves will then have to survive the drying effects of the wind and the shortage of water needed for photosynthesis, with a reduced ability to supply replacement water.

The severity of the damage will depend upon how close the excavation is to the trunk. Cutting a straight line trench close to the trunk may not kill the tree unless it is under stress because of other damaging agents.

If the tree is otherwise healthy, this action may result in dieback in the crown, but perhaps half or more of the root system will remain to supply water. However, loss of roots may make the tree so unstable that it needs to be felled. Root damage can be minimised by hand-digging.

Soil compaction

Vehicles, stacked materials, or people constantly walking over the ground will all put pressure on the soil and so close the pores, affecting water movement and reducing gaseous exchange with the atmosphere. The roots then suffocate, and dieback may occur in the crown.

Soil stripping

Removing soil from around a tree can damage it because most of its fine, water-absorbing roots are near the surface. Removing even a thin layer of soil is likely to damage some of these roots. Even if it does not, the temperature and moisture content of the soil will be altered. The stripping machine will also compact the soil. Where changes in the soil occur slowly, for example along footpaths and near trees in the countryside or on playing fields, the trees show no adverse effects. That is because the process is slow and progressive and roots can develop in other parts of the root system to compensate for the loss.

Toxic materials

Toxic materials should be stored in areas where any spillage will not affect nearby trees. They should not be stored within the protective fencing.

Fires

No fires should be lit where flames could extend to within 5m (16ft) of tree foliage, branches or trunk, bearing in mind the wind direction and size of the fire. For large fires, the distance may have to be extended to 20m (66ft). Fires can scorch and kill leaves and cambium (the live layer of tissue underneath the bark). By heating the soil they can also kill underlying tree roots. Smoke and hot air from a fire can also damage a tree.

Damage to trunk or crown

Lorries, diggers, cranes and other machinery, or heavy objects leaning against the trunk, can break branches and damage bark, allowing disease to enter the tree.

Tree surgery

Tree surgery may be necessary on the site. Check with the local authority about what tree surgery has been authorised and report any that appears to be unauthorised.

Trees and existing buildings

The height to which trees will grow is dictated by site conditions, particularly exposure to wind. Trees rarely grow more than 25-30m (80-100ft) high in most parts of the UK.

Indirect damage

Exceptionally, roots may extend down 3m (10ft) but most are in the upper 600mm (2ft) of soil. This is partly because oxygen becomes less plentiful deeper in the soil.

A tree is shaped like a wine glass in the middle of an upturned dinner plate, which represents the root system. The roots may spread outwards a distance equivalent to up to twice the height of the tree.

Overall, therefore, a tree occupies a much larger area than the branch spread may suggest. Root growth is random and it is difficult to predict where roots may be in the soil.

Generally, in the absence of a shrinkable clay soil and providing a building has adequate foundations, there should be no risk of tree-related subsidence damage.

Direct damage

Trees which are growing within 1.5m (5ft) of lightly-loaded structures, such as garages or garden walls, can, however, cause damage

as their roots and trunk grow in diameter, bringing them into conflict with the structure.

When this happens there are several options.

- ▶ Cut back the roots — but seek advice from an arboriculturist about the significance of this for the health and safety of the tree. It may be possible to excavate and sever the roots so that the health and stability of the tree are not compromised.
- ▶ Construct foundations that bridge over a root – if cutting it is not advisable.
- ▶ Remove the structure and rebuild elsewhere – the risk of root damage is virtually eliminated if it is built more than 2m (6ft) away from a tree.
- ▶ Cut down the tree – but this is not necessarily a solution to direct damage and it is important to consult an expert before doing this.

Paths and drives

Tree roots can damage paths and driveways at great distances from the trunk (depending on species and growing conditions).

Where this happens it usually takes the form of slight lifting or distortion of the surface. Sometimes the lifting and distortion can be severe.

The risk of such damage is difficult to predict but it is more likely with some species such as ash and lime (which have more extensive roots) than with others such as oak and rowan.

Trees in gardens

Trees in gardens make a very important contribution to the local treescape but they are subject to many pressures. Even trees covered by a Tree Preservation Order or Conservation Area regulations (see section 7, *The law and its impact on trees*) can be at risk from accidental or deliberate damage.

Deliberate removal

There are several reasons why trees may be lost from gardens. However, vigilant Tree Wardens can make a difference by being the eyes and ears of their community and making the case for trees (see section 2, *Trees – their value to the community*).

New owners

It is often not until house buyers have moved into their new home that they think about the impact a tree may have on their enjoyment of it.

They may then decide that the tree is taking up too much space, its roots are drying the soil and making gardening difficult, its low branches are preventing grass cutting, or it is affecting their television reception. As a result, they may start removing branches or even cutting down the tree.

Car parking

Many trees are lost because of the increasing tendency to tarmac, concrete or pave over front gardens for off-street car parking. This happens particularly in urban areas where large houses have been turned into flats and there is a need to provide extra parking. Not

only are the trees lost, but the additional hard surface increases the amount of rain run-off, which can increase the risk of flooding in the area.

Infilling

Infilling is becoming common in towns and suburbs where there is pressure to provide new homes. The result is that boundary hedge lines – with their large trees – between back gardens can be lost to development.

Tree Wardens have a vital role to play by alerting the local authority when valuable trees like these are threatened. The trees could, for example, be given protection under the Town & Country Planning Act (see section 7, *The law and its impact on trees*).

Accidental damage

Trees in gardens are also vulnerable to various types of accidental damage. Tree Wardens can play a role by talking about the issues to their neighbours.

Threats include:

- ▶ changes in soil level
- ▶ garden chemicals
- ▶ excess organic matter
- ▶ too much water
- ▶ too much fertiliser.

Changes in soil level

Raised beds are not a good idea under trees because soil piled up around the trunk can affect the bark and may even kill the tree. It is very important, therefore, to avoid raising the soil level within the spread of a tree's branches.

Garden chemicals

Products for feeding and weeding lawns are designed to favour grasses at the expense of broadleaf weeds. Trees are either broadleaf or coniferous, so chemicals around a tree's roots can lead to damage or even death.

Paving and gravel are often sprayed to kill weeds. If the chemicals come into contact with the bark they may be absorbed into the tree, causing damage. They may also seep into the ground and, if absorbed, could damage or kill trees.

Excess organic matter

Adding too much organic matter as a soil improver or mulch can increase the soil's water holding capacity and so favour the development of pathogens such as phytophthora which can kill roots. Piling grass cuttings under a tree runs the risk of creating heaps of slowly rotting vegetation against the trunk. The process of composting generates moisture and heat that can damage the tree.

Too much water

When a tree shows signs of yellowing or browning leaves, often the first reaction is to water. This is dangerous because too much water can be more damaging than a water shortage. Before treatment it is important to identify the cause, or at least understand the likely mechanism behind the symptoms.

Too much fertiliser

Trees develop in balance with their environment, absorbing water and dissolved minerals where they are available.

If water or a particular mineral becomes in short supply then growth of the whole tree will reduce, but the tree will not die from 'starvation'. Before rushing in with fertilisers there should be a demonstrable need resulting from a soil and foliar analysis combined with a whole tree assessment.

Trees in public areas

Trees in streets and other public areas, such as parks, school grounds and local green spaces, also make a vital contribution to the local treescape.

They are under many of the same pressures as trees in gardens, but are also subject to particular threats including:

- ▶ vandalism
- ▶ neglect
- ▶ pollution.

Vandalism and its prevention

It is often difficult to predict where and when vandalism is likely to occur, but trees near seats are particularly at risk. Trees planted in shrubberies or raised planters seem less prone to vandalism.

Damage to young trees

Vandalism, especially breaking the stems of recently-planted trees, tends to be localised. Where it is a problem, there are some actions that can be taken to deter it.

- ▶ Remove a broken or dead tree and its supporting stakes quickly – otherwise it can give the impression that nobody cares and this may encourage further vandalism.

- ▶ Replace the tree – if it is vandalised again, consider working with the local school, youth or residents' group and get them involved. People are less likely to damage something in which they have an investment.
- ▶ Consider the size of the planting stock – planting the largest tree possible may not be the best solution because it is more visible. Small trees may be less of a target.
- ▶ Consider the size of the stake – a tall stake provides a pivot point around which the tree can be bent and broken more easily than if the pivot is lower (i.e. the stake is shorter), where the stem is thicker and the bending force can be dispersed over a greater length of trunk.
- ▶ Consider using a mulch to control weeds around the base of each tree, but allowing grass and other tall weeds to grow up between the young trees to make them less obvious.

If the main stem of a tree has been snapped, with care a new crown can be trained from the re-growth that usually develops. But it is often better to plant a new tree, as the damaged one is unlikely to make a well-formed tree.

Damage to mature trees

Graffiti is probably the most durable vandalism on mature trees. Paint sprayed on trunks may damage thin-barked species, such as beech, sycamore, maple, ash and birch.

Although the paint will have very little effect on the tissues of trees with thick bark, such as oaks and chestnuts, attempts to remove it could be damaging. This is because paint

strippers are based on strong organic solvents that can be absorbed into the bark. Allowing the paint to weather away may be the best option.

Neglect

Neglect of ties and stakes causes widespread tree damage. Ties which are too tight can constrict tree trunks. If a tie has broken or slipped, there is the risk that the stake will scrape the tree, causing permanent abrasions and sometimes terminal damage. Tree Wardens have a vital role to play here (see section 5, *Managing and caring for trees*).

Pollution

Many trees are also susceptible to atmospheric and soil pollution and these are considerations when choosing what types of trees to plant in urban sites (see section 4, *Tree planting – planning and practice*).

Salting roads and pavements to prevent them icing over in winter can damage trees because the salt is washed down into tree pits in great concentrations. Where trees are likely to be vulnerable to salt damage, there may be alternative de-icing agents (such as calcium magnesium acetate) that are less damaging to trees. However, these are more expensive.

Climate change

Climate change is something that could increasingly affect the UK's treescapes. It may influence the choice of trees which are planted, perhaps with a move away from native towards ornamental species that will survive in a more extreme climate.

Where to find out more

Refer to the Tree Advice Trust for help www.treehelp.info

Forest Research www.forestresearch.gov.uk

BS:5837 *Guide for trees in relation to construction*. British Standards Institution 1991. ISBN 0 580 20245 3 www.bsi-global.com

BS:3998 British Standards Recommendation for Tree Work. British Standards Institution 1989 www.bsi-global.com

NJUG 10 www.njug.co.uk

Horticulture Week 19.10.06 Landscape Review. Root and branch revolution of lollipop designs

Tree Roots and the Built Environment, Research for Amenity Trees No8 DCLG

Woodland under threat www.woodland-trust.org.uk/campaigns

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7 THE LAW AND ITS IMPACT ON TREES

Tree Wardens should be able to assist local communities by having a basic knowledge and understanding of the laws relating to trees. This can help to protect trees and guide those who own trees on suitable management.

This section gives an overview of the subject, covering tree owners and their duty of care, and the legislation that has an impact on trees.

The general principles set out in this section hold across England, Wales, Scotland and Northern Ireland but there are some important variations. Advice should be sought from:

- ▶ National Assembly for Wales
- ▶ Scottish Parliament
- ▶ Northern Ireland Assembly



**The Tree Council's
Tree Warden Scheme**

in partnership with National Grid and supported
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Tree owners and neighbours

There are generally no restrictions on what owners may plant or allow to grow on their land and how big their trees can be.

However, tree owners do have a duty of care to people and property that could be affected by tree roots or branches, and are subject to several laws affecting trees. They are liable for any harm or damage their trees cause other people or their property if this was foreseeable and if they failed to take action to prevent it.

The people next door also have both rights and responsibilities.

The best way to avoid conflict is for neighbours to talk to each other about any concerns over trees or plans to carry out work on them.

Tree ownership

- ▶ A tree is owned by the person on whose land the trunk stands, irrespective of whether it is self-seeded or was planted.
- ▶ All parts of the tree, wherever they grow, remain the property of that owner.
- ▶ This ownership includes fruit, such as apples or pears, on overhanging branches, even when it has fallen. An owner is entitled to enter adjoining land to retrieve the fruit.
- ▶ Windblown seeds, such as ash and sycamore, are unlikely to be considered the property of the tree's owner. Leaves and flowers that wither and fall are also unlikely to be considered still to belong to the owner of the tree.

Roots and overhanging branches

Tree owners do not have to cut back branches overhanging another person's property or prevent roots growing into the neighbour's soil. However, that neighbour has a right to 'Abate a Nuisance' by cutting back encroaching branches or roots to the boundary.

- ▶ There is no obligation to ask the owner's permission but it is prudent to do so in the interests of neighbourliness.
- ▶ There is no right to enter the owner's property when cutting back the branches or roots. Crossing the property boundary could result in a claim of trespass or action for criminal damage.
- ▶ Removed branches or roots remain the property of the tree owner and must be offered back. They should not be used or disposed of without his/her agreement. They can be returned to the tree owner's property, but only without causing damage. It is not uncommon for disputes to arise as a result of someone throwing material back over the boundary to the tree owner's land, so this is best avoided.

Care is needed when cutting roots and branches as this may affect the tree's stability and its ability to take up water and nutrients. The nearer to the trunk cutting occurs, the greater the risk. A tree owner may have a claim if the tree dies or falls over as a result of the neighbour cutting its roots, or if pruning ruins the tree's appearance or shortens its life.

It is possible to apply for a court order requiring a tree's owner to prevent the roots and branches from encroaching over the

boundary, but this is expensive and there is no guarantee that the court application will be successful.

Falling trees and branches

Despite some people's perceptions, the risks from falling trees and branches are minimal because of the way trees usually develop. Branches can break and trees may fall because of structural problems, disease or damage, but strong winds are usually a factor when this happens.

If a tree does cause damage, its owner may be liable to pay compensation if the reason the tree failed would have been obvious to a prudent person beforehand and the risk had not been properly managed.

Owners should therefore inspect trees regularly, particularly those growing where, for example, a falling branch could cause damage or injury. Anyone who feels unqualified to assess their trees should seek advice from someone experienced in arboriculture who is insured to give advice to tree owners.¹

There are also statutory laws which enable local authorities to deal with dangerous or problematic trees.

Highways Act 1980

- ▶ If a tree overhangs a public road or footpath so that it obstructs vehicles or pedestrians, or interferes with sight lines, signs or street lights, the Highway Authority can instruct the owner or occupier to deal with the tree to remove the problem.

- ▶ Highway Authorities can also instruct owners to deal with dangerous trees that are within falling distance of public roads and footpaths.
- ▶ The Highway Authority can carry out the work and recover the costs if a tree owner fails to do as instructed.

Local Government Act 1976

Under the Local Government (Miscellaneous Provisions) Act 1976, local authorities are empowered to take action in respect of trees on private property where they are in a dangerous condition.

This means that:

- ▶ The council may, if it wishes, take action in response to a written request from either a tree owner or, more commonly, an adjoining landowner. Although this is discretionary, it would not be appropriate for a council to ignore such requests from concerned people. It should inspect the allegedly dangerous tree and consider the merits of action.
- ▶ The council can instruct the owner to fell or prune a dangerous tree. If the owner fails to do this, the council can undertake the work and recover costs. If an owner refuses to pay, a Land Charge can be placed on the land and when that is next sold the debt (with interest) must be settled before the new ownership can be properly registered.

The powers under this act are not often used but they can be particularly valuable for dangerous trees on private land that is unregistered and where ownership is not known.

Tree roots and foundations

The threat of root damage to foundations is probably people's biggest worry about trees near buildings. Much of this concern is unwarranted, but trees may cause damage in some circumstances (usually subsidence damage on shrinkable clay soils) and their owner could be liable for compensation.

There needs to be reasonable evidence that the tree is responsible, the damage was reasonably foreseeable and that the tree owner should have known this and taken action.

Increasingly, property owners (or their insurers or agents) ask tree owners to fell trees that may possibly be damaging a building but where detailed investigations have not been carried out.

It is reasonable for the owner to ask to see evidence showing that the tree is the principal cause of damage. Such evidence should usually include any reports by structural engineers, arboriculturists or root identification experts that have been prepared for the claim. The tree owner or his/her insurance company may then decide to appoint experts to corroborate or challenge these findings.

Even if the tree has stood on the site for hundreds of years and a new nearby building suffers damage, the tree's owner could still be liable.

Many trees grow close to buildings without causing damage. Attempts to produce an objective system of subsidence risk assessment in relation to trees have been

unsuccessful because of the complex and variable nature of the interacting system (climate, soil, building and tree). It is therefore very difficult to show that tree damage to a building would have been foreseeable.

Even if there is evidence that a tree is involved in damage to a building there may be no need to remove it. In some cases it may be sufficient to prune the tree to reduce its water use, and therefore its influence on the surrounding soil. However, this will depend on the advice of the arboriculturist.

See section 5, *Managing and caring for trees* for more about trees in relation to buildings.

Poisonous trees

As many garden and woodland trees have fruits, leaves, or other parts that are poisonous if people eat them, it is highly unlikely that a tree owner would be liable if someone became seriously ill or died after eating them. In fact, despite the folklore, few do die from eating parts of trees and they appear to be mainly suicides.

However, with livestock the legal situation is different because vegetation is often part of an animal's normal diet. Many animals have died as a result of eating poisonous plants. The most common cases relate to yew foliage and cattle and horses – and anecdotal evidence suggests that dead clippings may be more harmful than live branches.

Where poisonous trees grow near a boundary, care must be taken to reduce to a reasonable level the risk of them being eaten

by a neighbour's animals. Walls, hedges and fencing should be checked and made secure and any overhanging branches cut back. It should not be necessary to prevent such trees growing up to the boundary as courts have ruled that if an animal leans over a boundary and eats poisonous foliage this is not the tree owner's fault.

Clippings of poisonous foliage should never be left on site or thrown over a boundary into land where animals are present or likely to be there in the near future.

Light, views and TV reception

Disputes can arise when trees are blamed for loss of light, view or television reception.

Light

There is no absolute right to light from across a neighbour's land, but in some circumstances it can be 'earned'.

- ▶ Under the Prescription Act 1832 a right to light to a building can be acquired, provided the light has been uninterrupted for at least 20 years. The courts do not appear to have determined a case where trees have infringed such a right (only new buildings and structures). The problem is that the prescriptive right may be forfeited if the tree blocks light for more than 12 months without an objection being raised. As trees grow slowly it is difficult to prove the precise moment that the problem becomes significant.
- ▶ A right to light can be granted as a legal covenant between parties and documented in the property title deeds.

- ▶ With gardens, shading and blocking of light are unlikely to be considered a significant nuisance by a court unless they jeopardise the livelihood of the owner of the shaded land (e.g. a commercial crop grower).

Views

There is no right in law to a view across another person's property, and a view obstructed by the growth of trees cannot legally be regarded as a nuisance.

Television reception

There is no legal right to television reception. The TV licence is just a permit to operate a receiver, it does not guarantee reception.

There are no court precedents in respect of television reception and trees, and it is thought unlikely that trees on neighbouring land that block a signal would be regarded as a nuisance in law.

High hedges

Recent legislation has, however, changed the situation in the case of high hedges. Local authorities now have powers under the Anti-Social Behaviour Act (2003) to deal with complaints about neighbours' high hedges that are made up of mostly evergreen or semi-evergreen species and more than 2m (6ft 7in) tall.

If unsuccessful attempts have been made to resolve a hedge dispute, individuals can complain about the height of a hedge (not its length, width or its roots). For a fee (paid by the complainant), the council will investigate and make a judgement. It can

require remedial action, which could involve cutting the hedge to a specified height, not less than 2m (6ft 7in), and keeping it no taller than that. The council's decision is binding and enforceable, but there is a right of appeal for both the complainant and the hedge owner.

Complaints can be made only by someone in a residential property. A new owner can complain about a hedge even though the previous owner may have accepted the situation.

See back page for *Where to find out more*.

Legal protection for trees

Parliament has passed various laws that protect trees, directly or indirectly.

Tree Preservation Orders

Tree Preservation Orders (TPOs) are used to protect selected trees where removal would have significant impact on the environment and its enjoyment by the public.

They are made by local authorities (under the Town and Country Planning Act 1990) on individual trees, groups of trees or woodlands deemed to be a public amenity. They can apply to trees on either private or public land.

A TPO extends to the whole tree, including roots, and prohibits felling, pruning or uprooting without council consent. The council will decide whether or not a breach of a TPO will lead to prosecution.

When making a TPO, the council must provide the landowner with a copy of the order and the tree(s) must be identified on a map. Local authorities are obliged to keep a full register of all TPOs in their jurisdiction, available for public inspection at any reasonable time.

What the legislation requires

If anyone wishes to fell, prune or uproot a tree covered by a TPO, they must:

- ▶ apply in writing to the council, setting out the work they wish to carry out and the reasons for it
- ▶ not carry out any work until written permission has been granted
- ▶ strictly adhere to the work approved and conditions imposed in terms of extent of pruning and type of operation.

If consent is refused or no decision is received within eight weeks of applying, an appeal may be made to the relevant Secretary of State.

Consent to fell a preserved tree will normally involve a condition requiring replacement planting. If a tree is felled in breach of a TPO there is a legal requirement to replace it with another tree of the same species at the same place.

Consent is not needed for cutting down or pruning a preserved tree (or tree in a Conservation Area – see next page) if it is dead, dying or has become dangerous. However, unless the tree is obviously dead or the danger is imminent, the council should be consulted. The felled tree must, by law, be replaced with another tree of the same species at the same place.

More information is available on the Communities and Local Government website.²

Trees and development

Planning authorities must consider the preservation and planting of trees in any development proposal. However, a balance between all the various interests has to be made and planning permission may allow the removal of some trees (preserved or not) when development begins.

- ▶ A Tree Preservation Order may be made to safeguard trees on a site where development – new roads, houses, offices, supermarkets – is proposed.
- ▶ Planning conditions can require the temporary protection of trees on development sites as well as new tree planting, together with appropriate maintenance for a reasonable period of time.

See section 6, *Trees – threats and challenges*, for more information.

Conservation Areas

Conservation Areas are designated by councils to protect them from inappropriate development and change. Owners are not formally notified when Conservation Areas are made and it is therefore always wise to check whether a property is in one before doing any tree work there.

What the designation means for trees

Most trees in Conservation Areas have a form of blanket temporary protection. Within a Conservation Area, anyone proposing to

fell, prune or uproot a tree which is not protected by a TPO but has a trunk diameter over 75mm (3in) when measured at 1.5m (4ft 6in) from ground level, is required to give six weeks' notice in writing to the local authority, stating what they wish to do and the reasons for it.

If the council does not want the work to take place, it may make a TPO on the tree and the TPO procedures would then apply. If the council does not make a TPO then – after six weeks – the specified work may proceed. If it is not completed within two years, a further notice is needed.

Working on trees in Conservation Areas before the six weeks' written notification has expired is a criminal offence and it is open to the council to prosecute if it wishes.

More information is available on the Communities and Local Government website.²

Trees in the countryside

The Forestry Commission administers regulations under the Forestry Act 1967 on tree felling, particularly in the countryside.

The regulations do not apply to Northern Ireland or the Inner London boroughs but do apply to trees in urban woodland, on amenity land and playing fields, and in private parks.

Felling licences

A licence from the Forestry Commission is normally required to fell (though not prune) growing trees, but in any calendar quarter

(e.g. 1 January to 31 March) an owner may fell up to 5cu m (175cu ft) volume of timber provided not more than 2cu m (71cu ft) are sold. (A single large tree may be more than 5cu m (175cu ft) in timber volume). Felling must not commence until a licence has been issued.

Licences are not required if any of the following conditions apply.

- ▶ Felling is in accordance with an approved plan of operations under a Forestry Commission grant scheme.
- ▶ The trees are in a garden, orchard, churchyard or public open space.
- ▶ The trees are all below 8cm (3in) in diameter, measured 1.3m (4ft 3in) from the ground (woodland thinning, below 10cm (4in) in diameter; coppice or underwood, below 15cm (6in) in diameter).
- ▶ The trees need to be felled to allow permitted development or statutory works by public bodies.
- ▶ The felling is in compliance with an act of Parliament.
- ▶ The felling is to prevent a danger.

The licensing process

- ▶ Felling licence applications should be made on freely-available forms to the relevant regional offices of the Forestry Commission.
- ▶ Usually the Commission will arrange for the trees to be inspected. It may also consult local authorities and other statutory bodies to ensure that environmental or land-use aspects of the proposal are taken into account.
- ▶ When licences are granted there is

usually a requirement to undertake appropriate replacement planting or management for natural regeneration.

- ▶ There is an appeal process against replanting conditions – or against refusal of a licence.

A licence is valid for a set period and if it expires before felling is completed a replacement must be obtained before work can continue. Any felling without the necessary licence could result in prosecution.

There is a public register of all applications on the Forestry Commission website.³

Wildlife legislation

Wildlife legislation also has a bearing on trees.

Sites of Special Scientific Interest

Under the Wildlife and Countryside Act 1981, Natural England (formerly English Nature), Scottish Natural Heritage, Countryside Council for Wales and the Department of the Environment (Northern Ireland) designate Sites of Special Scientific Interest (SSSIs) for their geological or ecological value.

The intention is that the occupier of the land should not do anything that would destroy or damage the special features noted in the designation.

The designator has to notify the landowner or occupier of the boundary of an SSSI and of any operations or management practices which would affect the site. The landowner

must notify the designator of an intention to carry out any of the operations given in the SSSI notification in time for discussions to take place.

As far as trees are concerned, this not only affects existing woodland SSSIs but also proposed planting on non-woodland SSSIs. Examples might include ‘downland’ or ‘wetland’, the value of which would be reduced if planted with trees. These habitats can be affected not only by the shading and other changes brought about by tree cover, but also by operations such as drainage, fertilising or herbicide application that may be part of the tree planting programme.

Where felling operations on an SSSI are involved, the designator must be notified – whether or not an application has to be made to the Forestry Commission for a felling licence. If a licence is required, the designator should be notified at the same time as applying for a licence to the Forestry Commission. Discussion with the designator will form part of the normal consultation carried out by the Commission on felling licence applications. Similar arrangements apply when felling is proposed under one of the Forestry Commission’s grant schemes.

Other wildlife protection

The Wildlife and Countryside Act (1981) and associated legislation give statutory protection to wild birds, bats and some other mammals, invertebrates and plants. All birds and their nests are now protected (except in specific circumstances set out annually by the Government).⁴

When carrying out work on trees, check carefully that there are no nesting birds and carry out a bat and dormouse survey of trees with significant cavities and bark crevices.

Green Monuments

In contrast to historic buildings, there are no legal safeguards specific to ancient or heritage trees. Many such trees are unprotected by law and could be damaged or felled without contravening any regulations.

Such protection that does exist for heritage trees – ‘green monuments’ – is coincidental and not by design, and there are limitations. For example:

- ▶ to qualify for a Tree Preservation Order (see page 6), a tree normally has to be at least partly visible from a public place – some heritage trees are on private ground and are not even visible from a public footpath
- ▶ many heritage trees are unlikely to qualify for a TPO because an order cannot be made for trees considered to be dead, dying or dangerous
- ▶ permanent protection for heritage trees in a Conservation Area (see page 7) requires the local authority to serve a TPO on the tree (but see above)
- ▶ planning conditions can safeguard a tree for only a specific, short time (and are specific to the approved development)
- ▶ habitat designations, such as Site of Special Scientific Interest (SSSI), also have their limitations, including the fact that a single tree is not regarded as a habitat.

Often heritage trees survive today largely thanks to the individuals, past and present, who have cared for them. While some trees may remain in benevolent ownership, others may not: it takes only one person in the life of a tree to neglect, mutilate or destroy it.

The value of trees of historical, cultural and ecological importance is already formally recognised in many other countries (e.g. Japan, Finland, Czech Republic, Poland and Germany) and in state legislation in the USA (e.g. California and Pennsylvania).

The Green Monuments Campaign is a concerted effort by The Tree Council and its member organisations to change the

situation in the UK and to gain special protected status for such heritage trees – designation as ‘green monuments’.

The Tree Council’s Green Monuments Campaign seeks:

- ▶ safeguards for green monuments
- ▶ encouragement for custodians to look after them
- ▶ support and advice on their care.

Tree Wardens can help raise awareness of the issues in their communities and with politicians. They can, for example, write to their MPs, saying how important they think heritage trees and The Tree Council’s Green Monuments Campaign are.

Right, the original Bramley apple tree – one of the UK’s ‘green monuments’ – stands in a private garden. It is cherished by its owner but its only official protection is that it stands in a Conservation Area.



Where to find out more

TPO information www.communities.gov.uk

Arboriculture Research and Information Note 142-98-EXT. *Tree Roots and Foundations*. Tree Advice Trust

Mynors, C (2002) *The Law of Trees, Forests and Hedgerows*. Sweet & Maxwell, London.

ODPM (2004). *Protected Trees: A Guide to Tree Preservation Procedures*. www.communities.gov.uk

ODPM (2005) *High Hedges Complaints: Prevention and Cure*. www.communities.gov.uk

Rubenstein, R. (1963). *John Citizen and the Law*. 5th Edition (Edited by C.R. Rubenstein). Penguin Books, London.

Green Monuments Campaign www.treecouncil.org.uk

References

- 1 Arboricultural Association www.trees.org.uk
International Society of Arboriculture www.isa-uki.org
- 2 www.communities.gov.uk
- 3 www.forestry.gov.uk
- 4 www.defra.gov.uk

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8 ORGANISING TREE EVENTS AND PROJECTS

Many Tree Wardens carry out projects and organise events in their community. Some of these will be small enough for individuals to do on their own or with a couple of friends, and planning for these will be largely informal. Others may be bigger events, involving members of the public and possibly even contractors. These will require more detailed organisation and may involve fundraising, seeking publicity and carrying out risk assessments.

However, all projects and events require a degree of preparation. This section gives examples of various types of events and projects – including activities as part of Tree Council initiatives which depend very much on Tree Warden support for their success. It also outlines some of the key points to consider when organising them, offers tips on fundraising, publicity, risk assessment and insurance, and gives templates that can be adapted for local use.



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Template for success

Many organised events involve the same principles, with only the details varying. To illustrate the general steps for a successful, safe, productive event a detailed analysis follows of one of the most widespread activities in which Tree Wardens get involved – planting events during The Tree Council's National Tree Week.

The key considerations (see right) also apply to many other sorts of activity, so even for other times of the year the example of National Tree Week can provide guidance.

National Tree Week event

National Tree Week, the annual winter tree planting festival, is a great chance for the community to do something positive for the local treescape. It is a nationwide celebration of trees and woods – which The Tree Council began in 1975 and has continued to foster ever since.

The success of National Tree Week depends very much upon enthusiasts across the country organising tree planting and other events, and inviting other people to join in. It takes place at the end of November/beginning of December.

The dates vary slightly each year but they are available on the Tree Council website. It also carries details of events, so sending information to The Tree Council is a way to get free publicity.¹

The practical side of choosing the right site, selecting trees of an appropriate size, planting the trees properly and planning for their aftercare is covered in separate sections.

Key considerations

Here are some of the points to consider when planning an event.

Choosing a date

- ▶ What else is going on that day?
It is a good idea to avoid dates when there are other, competing local activities or events, if at all possible. Ask around before setting the date and then publicise it well in advance so that other event organisers have plenty of notice. (See page 10 for tips on publicity.)

Participants

- ▶ Who is doing the planting – and what is their ability, experience and expertise?
Possibilities include:
 - school children (what age?)
 - Scout and Guide groups
 - Tree Wardens
 - contractors
 - faith groups
 - young offenders
 - disability groups
 - BTCV volunteers
 - park friends groups
 - conservation groups
 - local businesses
 - the general public.
- ▶ How many people will be taking part?
This partly depends on how many will be needed for the planned planting and how many the event can accommodate. If the

aim is to plant a wood and large numbers are expected, ensure there are enough tools, and organise teams with well-briefed leaders. Ensure all organisers/helpers are clearly identified so that people know where to ask for help.

- ▶ Is there something for everyone attending to do?

To keep younger children engaged, activities like tree dressing could run alongside the tree planting. It is important that everyone has a job to do and feels included – even little children can water the trees, using small watering cans. See also *Working with children*, page 5.

Trees and tools

- ▶ How many trees will be planted?
The number of trees will determine how long the event will last and how many people will be needed. It is important to make sure the planting target is met and not leave people feeling they have not achieved the day's objective.
- ▶ What size are the trees?
Large trees take longer to plant, so are particularly suitable for teams of people. Planting standards, large root balled or container-grown trees (see section 4, *Tree planting – planning and practice*) will require people capable of digging tree pits and using a post driver to put in the stakes. So, if the event is for children, there will need to be enough adults to do the heavy work.
- ▶ How are the trees being obtained – and who is organising this, the tree stakes and mulch?
If the trees are being delivered in advance of the day they will need to be stored.

Someone will need to be available to take delivery and ensure they are stored in a suitable place (see section 4, *Tree planting – planning and practice*).

- ▶ Who is providing tools – and how many?
It sounds obvious, but having enough tools is important. People will get bored if they have to stand around waiting for tools to become available. If necessary, ask participants to bring their own.

Budget and programme for planting

- ▶ Is there a budget – and who is responsible for managing it?
Larger events may be funded by grants and will need careful budgeting. It is essential to make someone responsible for this so that the money can be accounted for.
- ▶ How long will the event last – and how will it end?
It is important to decide in advance how long the event will last and what it is hoped to achieve – and to let participants know. Rather than just leaving people to drift away at the end, the event could culminate in lunch, perhaps soup and sandwiches. This will need organising, so someone needs to take responsibility for it. Alternatively, people could be asked to bring their own refreshments. It is also important to thank everyone for taking part – and if someone like a local councillor is at the event, he or she could be asked to do this.
- ▶ What happens if the weather is awful?
Have somewhere to shelter and plans for if the weather is too bad to plant at all. There are very few days when it is not possible to plant trees, if the project is

properly prepared, but deep snow or a really hard frost (with the ground frozen for a few days) will mean cancellation or postponement. If there are no other activities people can do that day, put posters up at the site explaining that the event has been postponed – and giving a new date. Give a phone number in all publicity (see page 10) for people to contact to check the event is going ahead. If people have registered in advance, contact them to let them know if there is any change of plan.

- Where are the nearest essential facilities? Let people know whether there are toilets on site. If there are not, this will limit the length of the event. New trees may require watering, and if so there will need to be plenty of water on site – a bowser if there is no tap.
- Will there be additional activities to entertain/raise funds? This could be an opportunity to raise funds for future events by selling refreshments.

Insurance, health and safety

- Is the event covered by insurance and who is responsible for finding this out? Tree Wardens should check with their network co-ordinator that they are covered by the network's insurance for the planned event. The insurance may require a risk assessment and an identified first-aider at the event.
- Has a risk assessment been carried out? Doing a risk assessment may seem over the top for a small event, but it can be simple (see page 14). In any case, at the start of the tree planting it will be

necessary to brief all the planters. A risk assessment will make this easier as it will highlight dangers.

- Who is responsible for briefing participants about health and safety? Go through the risk assessment so participants understand any dangers – e.g. a fork through a Wellington boot or a spade hitting someone if people are too close. Make sure everyone can tell who the first-aider is – he/she could, for example, wear a fluorescent jacket or cycle visibility belt.

Information for participants

- Do people need to book in advance to take part – or can they just turn up? Make this clear in any publicity. Either way, keep a register of all attendees for safety reasons. This information can also be used to tell people about future events – though, for data protection reasons, check they are happy for their contact details to be used in this way.
- Is the site/event accessible to everyone? Families need to know whether it is suitable for pushchairs, and people with disabilities need to know if there is wheelchair access to the site and what the terrain is like when they get there.
- How are people getting to the event? Let people know about public transport links and where there is car parking.
- What should participants wear? It is best to advise people about the type of clothing they will need – e.g. stout boots (with steel toecaps if possible) and wet weather gear – and what the plan is for bad weather. It is particularly important to explain all this in publicity

if the event is likely to involve new people.

► Will dogs be welcome?

Make it clear in any publicity whether dogs are allowed – on leads and controlled by their owners – or not. This is important information not only for dog owners but also for others who may be considering taking part. There are, for example, some ethnic groups who regard dogs as dirty animals, rather than pets.

See page 10 for more tips on publicity, including the importance of obtaining consent from people who are photographed.

Working with children

All organisers at an event specifically for children need to have an up-to-date enhanced Criminal Records Bureau check and an up-to-date First Aid at Work certificate unless the children are coming with their parents or carers.

In that case make it clear that parents or carers are responsible for their children.

There is a whole raft of legislation relating to working with children.

It is advisable that anyone who intends organising an event without parents, guardians or teachers ‘in loco parentis’ has a recognised qualification in youth work or has undergone appropriate training.

Action points

Based on the considerations which have just been outlined, draw up a list of tasks in no particular order (that comes later). These could be:

- hire tools
- organise refreshments
- contact local schools
- arrange delivery of trees
- fundraise
- contact local press and radio station
- invite local councillor/the mayor/local celebrity
- work out budget
- send details of events to The Tree Council for free listing on the website
- visit site to prepare it and mark out where trees should be planted
- produce poster and distribute
- organise registration
- brief team leaders
- risk assessment
- first-aider.

There will be others that are specific to the particular tree-planting event.

A good way to start planning is to write each task on a separate Post-it Note and put the notes in the order the tasks need to be done.

This will give a timetable and, if the event is being organised by a team, help allocate each task to a person.

It is a good idea to give one person the role of co-ordinator, responsible for organising meetings, managing the budget and updating everyone.

Tree Care Campaign event

The Tree Council's Tree Care Campaign runs from March to September and highlights the need for better care for all trees, of all ages, in order to ensure their survival and increase their number. For more information see section 5, *Managing and caring for trees*.

Although tree care for mature and veteran trees often requires skilled professional work, everyone can do something to help young trees survive the critical first five years. Thousands of recently-planted trees die every year from the lack of a few minutes of timely care. A good way to keep people involved and interested in the trees they have planted, perhaps during National Tree Week, is to organise activities that involve caring for those trees in their early years (there are ideas for this in section 5, see above).

When planning a Tree Care Campaign event follow the same process as for organising a tree planting (see page 2).

In particular remember:

- ▶ Careful planning – be realistic about what can be achieved and clear about what is wanted. Give clear instructions and, if using tools, it is good practice to do a risk assessment and make sure everyone knows who is the first-aider. Check insurance cover with the network co-ordinator.
- ▶ Protective clothing – if participants will need gloves, for example, let them know in advance or provide enough to go round.
- ▶ Rewards/thanks – refreshments might be

a good idea and it is very important to thank everyone who has taken part.

- ▶ Time of year – avoid frosty weather if pruning trees because the frost may cause die-back in the newly-cut branch. If weeding around the base of trees, avoid wet weather because trampling feet could compact the soil (again, see section 5). If the event has to be cancelled, let everyone know. If the weather is likely to be hot, provide drinking water and suggest participants protect themselves from the sun.

Woodland management events

Woodland management events in more established woodlands can include activities like brush clearing, thinning and coppicing. These could be an opportunity to bring in an expert and combine the event with training.

Anyone using power tools, like chainsaws and brush cutters, at an event needs a recognised NPTC (National Proficiency Training Council) qualification and public liability insurance. Or use a contractor who has these.

Walk in the Woods event

Walk in the Woods is The Tree Council's month-long festival to encourage everyone to enjoy trees and woods in spring. Across the UK, walks, talks and other events take place in town and countryside in May – a great month to go down to the woods or to a local park or just enjoy tree-lined streets. Spring flowers, birdsong and fresh green leaves make them particularly inviting.

This is a good time to organise an event and get new people interested in trees – especially in their local patch. A particular aim of Walk in the Woods is to attract people who rarely, if ever, visit woods – even those on their doorstep.

Activities

Walk in the Woods activities include:

- ▶ bluebell walks
- ▶ dawn chorus events
- ▶ moth, bat and/or badger watches
- ▶ woodland open days
- ▶ teddy bears' picnics
- ▶ treasure hunts
- ▶ games and story-telling
- ▶ tree trails around towns.

Organisation

Most of the principles in the National Tree Week event section (page 2) apply, including the value of a simple risk assessment that can be used to brief everyone (see page 13).

Some events can be extremely popular. For example, a bat walk in a nature reserve usually locked at dusk could be heavily oversubscribed, so it is advisable to ask people to book. Similarly, if this is the first time a particular walk has been organised, and there is no experience of how many people may attend, getting them to book in advance could be helpful.

Building confidence

Many people take part in organised walks because they do not feel confident enough to go on their own and may not be used to being in natural surroundings on uneven paths.

For them – and others, just in case – it is important to give plenty of information when publicising the walk (see page 10), such as its length, terrain, the time it will take, what they should wear, who the walk is suitable for and whether dogs are permitted. Knowing what to expect should give them more confidence.

A map and contact phone number are useful to hand out at the start of the walk, and do a head count before setting off – then check once in a while that no one is 'lost'.

As Walk in the Woods events are often aimed particularly at children, the information on page 5 (*Working with children*) is particularly relevant. Also, ask the network co-ordinator about insurance, health and safety and risk assessment.

Seed Gathering Season event

The Tree Council's Seed Gathering Season starts on 23 September (the autumn equinox, considered to be the first day of autumn) and continues until 23 October, giving everyone plenty of days on which to hold events. These dates may change from year to year so check on The Tree Council website.¹

Activities

Seed Gathering Season events could be:

- ▶ walks to collect seeds to start a tree nursery
- ▶ workshops to use hedgerow and orchard fruits to make jams, pies, cordials and herbal remedies
- ▶ an event explaining how to plant and grow trees from seed
- ▶ an Apple Day event (21 October)

- ▶ a competition to collect the most acorns in an afternoon or the most kinds of tree seeds
- ▶ guided walks enjoying the beauty of autumn colours.

Many of the principles in the National Tree Week event section (see page 2) apply, including the value of a simple risk assessment that can be used to brief everyone (see page 13).

What to do with the seeds

Consider what to do with seed collected:

- ▶ is there a need for a particular tree species in the area?
- ▶ is the aim to preserve something rare?

One option is to set up a tree nursery at a local school, city farm or community garden and in years to come use the trees for local National Tree Week events.

However, a tree nursery is a long-term commitment. Seedlings require care, particularly if grown in pots or cells. They will need regular watering especially in a dry summer. If the tree nursery is at a school, is there an interested teacher or caretaker to take this on when children are on holiday?

Seedlings also require potting on or planting out to thrive. Planting them out in their final position will be at between two and five years, depending on species and site. Tree seedlings that become pot-bound will never make good trees once planted out.

For more information see section 3, *How to grow your own trees*. The Tree Council has

also published a useful booklet with lots of information to get people started.²

Hedge Tree Campaign event

Hedge trees are a traditional part of the UK landscape and havens for wildlife. Yet, of an estimated 1.8 million hedge trees, nearly a third are over a century old and may disappear any time over the next 25 years. Without an immediate effort to establish new hedge trees, there will be profound changes to the UK landscape and its biodiversity.

With the help of its Tree Wardens and its member organisations – including many local authorities – The Tree Council, in partnership with National Grid, is running a countrywide Hedge Tree Campaign.

This will increase awareness of why hedge trees matter, halt their decline and help the Department for Environment, Food and Rural Affairs (Defra) meet an important national Hedgerow Action Plan target – to ensure there is no net loss of hedgerow trees in the UK.

Hedge tagging

An activity that can contribute to the success of the campaign is making sure that self-sown saplings or newly-planted trees survive to become mature hedge trees. In fact, the campaign depends on volunteers gaining owners' permission and then tagging safely and responsibly. It is then up to the farmers/landowners to make sure that hedge-cutter operators leave tagged saplings to grow into trees.

Choosing saplings to tag

- ▶ It is easier to identify species when saplings are in leaf, ideally in the summer, but tagging can be done at any time before hedge cutting.
- ▶ Select saplings from a mixed hedge which has not been trimmed for two or three years.
- ▶ If possible, select a sapling with a single straight stem. Stems that have been flailed, laid or coppiced will be damaged; new shoots may decay and the mature tree may lose limbs.
- ▶ Saplings should be at least 20m (6ft) or more apart (unless the aim is to create a screen or small copse).
- ▶ Choose saplings well back from public roads or tracks used by wide machines.
- ▶ Do not choose saplings that are beneath or within 10m (33ft) of overhead power lines or other overhead services.

Organisation

Many of the principles in the National Tree Week event section (page 2) apply, including the value of a simple risk assessment (see page 13) that can be used to brief everyone.

Practical tips

- ▶ Strong gloves, coat and boots are recommended against thorns and prickles.
- ▶ Tag only a few saplings each year to achieve a balanced age structure in future.
- ▶ The simplest method is to tie The Tree Council's brightly-coloured tags loosely around side shoots or main stems.
- ▶ Hand-trim the hedge for about a metre around the tagged sapling to make it visible, or ask the hedge-cutter operator to leave an area to be hand-trimmed later.

- ▶ If a tree is difficult to reach, put a tagged stick near it – in the ground or hedge. If the marker is temporary, do this just before hedge cutting starts.
- ▶ Alternatively, consider putting a permanent, clearly visible stake in the hedge, next to the tree.
- ▶ Consider using tree guards or shelters as protection from cattle and other animals.
- ▶ Record the tagged trees and show the landowner and hedge cutter where they are.
- ▶ Remove tags and markers once the hedge has been cut.
- ▶ Revisit the trees annually to replace the tags for as long as they are needed.
- ▶ Hedge work should take place only if there is no risk to nesting wild birds.

Safety

- ▶ Always work in pairs, particularly when dealing with tall, overgrown hedges and ditches or when using a step-ladder.
- ▶ If tagging trees beside a road, take extra care; always wear high-visibility fluorescent clothing.
- ▶ Young people should always be accompanied by a parent or guardian.

Management

- ▶ Even when saplings have grown above the hedge, the hedge-cutter must be reminded to avoid them.
- ▶ Check the saplings each year and hand trim around them.

Publicising the issues

As well as organising practical events to carry out hedge tree tagging, Tree Wardens may want to organise publicity events to start a local campaign to protect hedge trees

and raise public awareness of the issues. The Tree Council produces a free Hedge Tree Campaign leaflet with more information. Tree tags can be obtained from The Tree Council.

Tree Warden fundraising

Funding may be needed for an event or project, or fundraising could be a project in its own right. Either way it will enable tree champions to do more.

The local Tree Warden network may include a group who focus on fundraising for projects or it might be an idea to start one.

Grants

There are many sources of funding and they change frequently. To fund a larger project – over £5,000 – do a search using one of the grant finder packages available through the local voluntary sector support agency, community council or local authority.

Here are some ideas for sources of small grants.

- ▶ National Lottery Awards for All is designed to fund small local community projects of up to £5,000.
- ▶ The Tree Council Schools and Communities Grant Scheme funds 75 per cent of the cost of tree-planting projects with a total project cost up to £700.
- ▶ Local councils often have a small grant scheme for environmental projects – call the network co-ordinator or look on the website.
- ▶ B&Q has for several years run a scheme

giving tools and plants to the value of £200 to community projects. Ring the local B&Q for information.

- ▶ *The Tree Guardian* newsletter gives regular updates on sources of funding.

Fundraising events and activities

Local fundraising events and activities can be very effective and are good opportunities to publicise the Tree Warden network and its achievements. Fundraising can include:

- ▶ jumble sales
- ▶ pub quizzes
- ▶ cake sales at work
- ▶ sponsored events
- ▶ stalls at village fetes and community fun days
- ▶ charity auctions
- ▶ appeals in a local paper
- ▶ sponsorship from a local company.

It may be worth contacting other Tree Wardens, park friends groups, or a local school, Women's Institute, Scout or Guide group with experience of fundraising. Think about how much it is hoped to raise and what it will go towards so this can be included in the publicity.

Publicising an event

Well-planned publicity will help to ensure a good turnout and that the objective of the event is achieved. It should also make more people aware of Tree Wardening (and its importance for local trees) and this may make it easier to publicise future events and activities. Even if the event is a private one, it is worth considering publicity before and/or

afterwards. Gaining media coverage can help to attract volunteers. It may even help with future fundraising by increasing awareness among potential supporters.

Points to consider

- ▶ Who is responsible for publicising the event?

There could be someone in the organising team with particular aptitude or experience. Or there might be support from the local authority press office or within another organisation closely linked with the local Tree Warden network. If posters are being produced, someone needs to be responsible for distribution.
- ▶ What form is the publicity going to take?

Possibilities include posters; leaflets; websites (including The Tree Council's annual Seed Gathering Season, National Tree Week and Walk in the Woods on-line events listings); news releases (sent to local newspapers and radio stations); telephone calls/emails to journalists; and inclusion in community or local authority newsletters (like local newspapers, these often carry 'What's on' information) or events leaflets.
- ▶ Is there a budget?

Press releases can be emailed, saving postage, but posters and leaflets need to be printed.
- ▶ Timing: when does the publicity need to go out? Deadlines will be different for the different forms of promotion, so it is important to timetable the publicity. For example, getting an event mentioned in a local authority events leaflet (which might cover a whole year) could mean

sending details months in advance and magazines also have a long lead time. Weekly newspapers normally need information about two weeks in advance.

- ▶ Will journalists be invited to the event?

If so, make it clear in a separate invitation or on the press release (either at the top – before the headline – or at the bottom in the notes to editors) sent at least three or four days in advance of the event.
- ▶ Is the event going to be photographed – by the organisers, participants or the press?

If so, it is a good idea to get the consent of anyone in the photographs that they can be used for publicity purposes, and in the case of children it is essential to get the permission of their parents or guardians (see *Photography consent form*, page 15). If taking photographs to send to the press, try to get close-up shots of people in action (including two or three people at most) and avoid line-ups.

Information to include in publicity

Key points to include in all publicity are:

- ▶ what the event involves – e.g. a mass tree planting to create a community wood as part of The Tree Council's National Tree Week
- ▶ day and date
- ▶ start time – and how long it will last
- ▶ venue – including meeting point if that is not obvious
- ▶ who is organising it – e.g. Westcombe Tree Wardens
- ▶ how to book – if relevant – and if there is a charge.
- ▶ the national Tree Warden Scheme logo (contact the local co-ordinator to obtain this).

Important points to include whenever possible are:

- ▶ how to get there – e.g. public transport links and car parking
- ▶ accessibility – suitability for wheelchairs and pushchairs
- ▶ who the event is aimed at – e.g. everyone, adults only, children (what age range?) accompanied by adults
- ▶ if it is a walk, indicate how far or how strenuous
- ▶ a phone number for people to contact to see whether the event has been cancelled because of bad weather (particularly important for a tree-planting event)
- ▶ what to wear and what to bring
- ▶ refreshments – whether they will be provided/on sale, or people should bring their own
- ▶ dogs – whether they are allowed (on leads and under their owners' control) or not.

Posters and flyers

Posters are a good way to advertise the event on the site and on parish notice boards or in shop windows. They do not have to be elaborate or large – A4 or A5 can be useful sizes as they do not take up too much space (so more people may be willing to display them) and can be used as flyers to put through letterboxes. But the information must be clear and concise and details such as telephone numbers need double checking. If the event is part of one of The Tree Council's annual initiatives, such as Walk in the Woods, free posters may be available – with space to publicise local events. If so these can be downloaded from the Tree Council website or events organisers can ask for printed copies.

Press releases

A good starting point for gaining media coverage is to send a press release to local newspapers and radio stations – by post, fax or email. Even if contact is going to be made with a journalist by phone, it is often sensible to follow up the call with a press release. If targeting radio stations, ensure someone involved in organising the event is happy to give an interview if asked.

A press release should include all the key points mentioned above – answering the questions who, when, why, what, where? In particular it should:

- ▶ have a headline that catches the journalist's attention and says what it is about
- ▶ carry the date the release is sent out
- ▶ start with a short opening paragraph that outlines the story, with subsequent paragraphs elaborating on it
- ▶ explain what people are being asked to do
- ▶ highlight what is interesting about the event
- ▶ give details of how people can find out more about it
- ▶ be brief: preferably one page only, two pages maximum
- ▶ give any supplementary information as notes to editors
- ▶ be written in short sentences in short paragraphs and in plain English – no jargon
- ▶ mention any organisations which have given funding (often a condition of the grant)
- ▶ include a lively quote from someone connected with the event, giving their name and succinctly explaining who they are (e.g. Westcombe Tree Warden)

Key messages

The [insert name] Tree Warden Network is part of The Tree Council's Tree Warden Scheme, a national force of local volunteers who champion their communities' trees – in town, city or countryside.

Tree Wardens can get involved with activities ranging from planting and caring for trees to gathering information about local trees and developing imaginative projects to encourage others, including schoolchildren, to value local trees and woods.

Environmental charity The Tree Council launched the national Tree Warden Scheme in 1990 and has co-ordinated it ever since, working with local authorities, voluntary organisations, parish councils and local partnerships to develop Tree Warden networks throughout the UK.

The Tree Council's Tree Warden Scheme is run in partnership with National Grid and backed by the Government department, Communities and Local Government, in support of the Government's 'Cleaner, Safer, Greener' agenda.

- ▶ have – at the end – a contact name and phone number for the press to call for more information
- ▶ include brief details about the Tree Council's Tree Warden Scheme (including the key messages above) with further details in a note to editors about Tree Wardening.

Decide whether a hazard is significant, and whether it is covered by satisfactory precautions so that the risk is small.

For instance, electricity can kill but the risk in an office is remote, provided that 'live' components are insulated and metal casings properly earthed.

Risk assessment

A risk assessment is just a careful examination of what could cause harm to people at the planned event. It helps weigh up whether enough precautions have been taken to reduce the risk. The aim is to make sure that no one gets hurt or becomes ill. Accidents and ill health can ruin lives, and possibly lead to increased insurance costs and court cases.

A hazard is anything that can cause harm. Risk is the chance, high or low, that somebody will be harmed by the hazard.

Five steps to assess the risks

- ▶ Look for the hazards.
- ▶ Decide who might be harmed and how.
- ▶ Evaluate the risks and decide whether the existing precautions are adequate or not.
- ▶ Record findings.
- ▶ Review assessment and revise if necessary.

EXAMPLE – Risk assessment

Doing a risk assessment is common sense, but necessary. It does not have to be complicated. This example shows the sort of simple form required. If planning to use machinery that could cause harm, or if there is an awkwardly steep path on a walk where someone could be hurt, check that all reasonable precautions to avoid injury will be taken.

Activity: guided walk Location: Furze Forest
Date: 00.00.0000 Carried out by: A N Other

Hazard	Impact	Likelihood	Risk management	Residual risk
Uneven path	Walker falls, leading to serious injury	Medium	Walkers wear appropriate footwear	Low
Inadequate signage	Walkers get lost	Medium	Walkers given a map at the start of the walk	Low
	Walkers suffer from dehydration and distress	Medium	Walkers advised to carry water by walk leader	Low
Steep gradient	Walkers unable to complete walk	High	Walkers advised of gradients and levels of fitness required	Low
	Walker suffers heart attack leading to serious injury or death	Medium	Walk leader competent first-aider	Low
Muddy paths	Walkers get muddy clothes	High	Walkers wear appropriate clothing	Low
	Walkers slip and fall causing serious injury	Medium	Walkers wear boots with a good tread	Low
Adjacent shoot	Walker suffers shotgun injury leading to death	Medium	Walkers advised of the danger and told to keep to the prescribed paths	Low
Sun/hot weather	Walkers suffer sunstroke, sunburn and dehydration	High	Walkers advised to wear hats and sunscreen and carry water	Low

Photography consent form

To help spread the word about the importance of trees, it is helpful for us to have photographs or video footage of our activities. We may use these for educational, promotional and publicity purposes. We may also lend them to third parties (including newspapers and magazines) to help raise awareness of our work.

Please could you confirm that you agree to photographs/video of you (or your child/ward) being used in these ways by signing below.

Name of person in photograph _____

Age (if under 18) _____

(If under 18) Parent/guardian's name _____

Address _____

Telephone _____

Signature (or signature of parent/guardian) _____

Date _____

EVENT DETAILS (to be completed by the event organiser)

Organisation _____

Address _____

Event _____

Date _____

Name of photographer/copyright holder _____

Photographer contact details _____

Where to find out more

The Hedge Tree Handbook – The Tree Council

Ramblers Association www.ramblers.org.uk

Health and Safety Executive www.hse.gov.uk

Forestry Commission Active Woods campaign www.forestry.gov.uk/active

National Lottery www.lotterygoodcauses.org.uk

Government funding www.governmentfunding.org.uk

Grant making organisations www.fundinginformation.org.uk

References

1 www.treecouncil.org.uk

2 *The Good Seed Guide* – The Tree Council

3 www.awardsforall.org.uk

4 Tree-planting grants www.treecouncil.org.uk

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9 ANCIENT TREES – HUNTING AND CHAMPIONING

The United Kingdom is thought to have the highest number of ancient trees in Northern Europe, yet there is no official, centralised record of their individual location in rural and urban landscapes. Tree Council member organisations the Woodland Trust and the Ancient Tree Forum believe that there are 500,000 ancient and veteran trees currently undetected or unrecorded.

Tree Wardens have a unique opportunity to help record the exact location of ancient and veteran trees in their own communities – with the aim of securing their future by heightening awareness of these cultural icons and tenements of biodiversity.

This is an opportunity to get local people involved in championing the amazing trees that have watched their neighbourhood grow and develop around them. To help Tree Wardens achieve this, methods and support are outlined in this section, which has been written by the Woodland Trust and the Ancient Tree Forum.



**The Tree Council's
Tree Warden Scheme**

in partnership with National Grid and supported
by the Government's Cleaner, Safer, Greener initiative

What is an ancient tree?

An ancient tree is one that makes you go “wow, it’s huge, fatter than any other tree like that round here”.

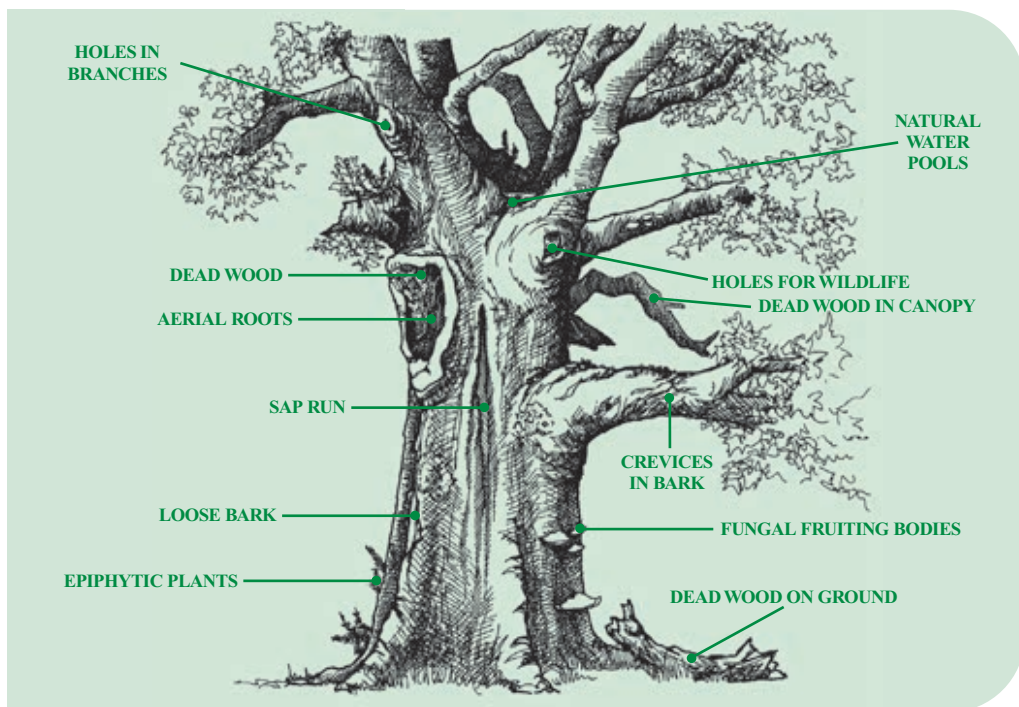
Trees have three stages in their lives – formative, full to late maturity and ancient. The length of these stages can vary, depending on a variety of issues such as the environment in which the tree has lived and what happens to it during its lifetime.

To recognise an ancient tree look for one with a very wide trunk relative to other trees of the same species. The trunk may be

hollow and the canopy will be retrenching or ‘growing downwards’. This is because the canopy is shrinking, therefore giving an ancient tree its distinctive squat, fat appearance. In addition, an ancient tree is one that is old in comparison with other trees of the same species.

Even when a tree is in this ancient stage it may stay alive for many decades and often centuries. The older the tree the more valuable it becomes as a heritage tree.

The Ancient Tree Hunt website¹ can help you gather further evidence about ancient tree characteristics specific to your area of the country.



Veteran trees are the future generation of ancient trees and need just as much support to secure their future so that they can make it through to the next phase of their life. Their common characteristics include important wildlife and habitat features such as hollowing or associated decay, fungi, holes, wounds and large dead branches.

Veteran trees are generally middle-aged trees (although they may sometimes be younger) which prematurely have the same characteristics as an ancient tree.

Pollards are trees that have had their canopies cut back on a regular cycle and can often live longer than a tree that has not been cut regularly. Veteran and ancient pollards are traditional ‘working’ trees that are very important from a social history perspective and therefore should be championed. (For details of pollarding see section 5, *Managing and caring for trees*.)

Why hunt for ancient trees?

Trees and woods are good for us in so many ways but we often don’t notice them until they are threatened. Don’t wait until a planning application affects them or you hear chainsaws on site. Look around and identify all the trees that are important to you and then record them on the UK’s first official, centralised database¹. This map will then be used to alert local planning authorities to the trees that we think should be protected in development proposals.

Ancient trees are living relics of incredible

age that inspire in us feelings of awe and mystery. They are especially important as part of our heritage and culture. Over the centuries, they have inspired artists, writers, poets and scientists and are mentioned in sacred texts.

They also support wildlife that cannot live anywhere else. Ancient trees are home to hundreds of very specialised fungi, lichens and invertebrates, many of which are extremely rare.

Yet, as described in section 7, *The law and its impact on trees*, there is no legal safeguard specific to ancient or heritage trees. That is in direct contrast to historic buildings.

This is why individuals or community groups often feel passionate about championing ancient and veteran trees that are at risk from development or poor management techniques. So why not gather people together to take part in the Ancient Tree Hunt?

The most effective first step to get local ancient trees recognised is to register them with the Ancient Tree Hunt. This is a campaign to register all the ancient, veteran and notable trees in the UK so that the three partners involved – the Woodland Trust, the Ancient Tree Forum and the Tree Register of the British Isles – can lobby to get our ancient trees recognised at the same level of importance as listed buildings.

Once you have registered your discoveries with the Ancient Tree Hunt, pass this

information on to your local planning authority and through your local elected representative make sure it influences the trees and woods strategy for your area. Encourage your local authority to protect these trees as part of its duty to look after biodiversity in all its actions.

How to record ancient trees

You could record ancient and veteran trees as an individual Tree Warden, but it's more fun to do this with friends and neighbours – so why not get involved in running a recording event in your area? (See section 8, *Organising tree events and projects*.)

The Tree Council, as part of its Green Monuments Campaign, wants to help the Woodland Trust discover as many ancient trees as possible and, as its ambassadors, you have access to a number of resources for free.

The Woodland Trust has received funding from the Heritage Lottery Fund, Esmée Fairbairn Foundation, Scottish National Heritage and Welsh Council for Volunteer Action (among others) to produce an online recording system for communities to log their ancient tree records. This sits within the Ancient Tree Hunt website¹ under 'Recording'.

This funding also means that there are resources available to help you run community events such as recording sessions and ancient tree walks.

Advice for running both of these events can be found on the same website¹ under 'More Stuff / Tree Wardens'. It includes downloadable resources and inspirational footage of Jill Butler, conservation policy officer for the Woodland Trust and Ted Green, co-founder of the Ancient Tree Forum, which can be used to enthuse a community into action for ancient trees.

The Woodland Trust, in association with the Tree Register of the British Isles, has created a guide to measuring ancient trees. An electronic version is available on the home page of the Ancient Tree Hunt website¹ and a paper version is available through the project assistant at the Woodland Trust². This is a great resource to hand out at events to help people in your local area measure and record ancient and veteran trees accurately.

The Ancient Tree Hunt wants to collate cultural information as well as detail relating to biodiversity. Through events you could find like-minded people to help you discover additional information.

For example, the trees within your community may be part of a habitat that is recognised in the UK Biodiversity Action Plan. Alternatively they may be host to species protected by law such as any bat, some species of decaying wood fungi, insects that live on decaying wood or lichens associated with the bark. This type of specialist information can be recorded in the blogs for each tree.

If it is likely that a legally-protected species or a priority Biodiversity Action Plan

species is present and at risk, local authorities should be prompted to require a relevant survey to be completed to secure the future of the ancient tree in the event of development or to assist in effective management by the land owner.

Secondly, always research the history of the place in which you find an ancient or veteran tree. The tree may be the last remaining vestige of an old historic park, woodland or hedgerow, setting the tree in its historical context and emphasising its contribution to distinctive ‘sense of place’ (just as they do with built monuments).

You may find this information through a local history society or in your local library or county archive. There are some very helpful websites where you can access old maps and there is an Old Maps layer in the search facility on the Ancient Tree Hunt website¹. Also, take a look at modern and old aerial photos to find out more about other trees in the neighbourhood.

All your discoveries and images can be uploaded on to the recording system through the photo upload section and the ‘blog’ – the online comments book for each tree located in each record.

Securing their future

Ancient trees need to be recognised as being as culturally important as built heritage. This is why the Ancient Tree Hunt is backing the Tree Council’s Green Monuments Campaign.

Depending on where you live, there may be opportunities to give special protection to trees with historic or biodiversity value through Tree Preservation Orders (TPOs). Or the trees may be within an area covered by other designations such as local sites, the registers or inventories for gardens, historic parks, demesnes and designed landscapes, ancient woodland, and Sites of Special Scientific Interest (SSSI).

Be aware that in some countries within the United Kingdom there are exemptions in the TPO legislation for trees that are dead, dying or dangerous. Where these are interpreted narrowly, local authorities may have difficulty in protecting many of our oldest trees with the most historic and wildlife values.

Greater consideration may be given to the trees that are protected. Without protection it is possible that trees may be felled before any planning application is made. This is why it is preferable to have identified and protected valued trees as part of a Local Development Framework plan in advance of planning applications. A TPO will help to make sure that they are not removed pre-emptively or without due consideration. Inclusion in the Ancient Tree Hunt database helps you to show your local authority the tree’s importance on a national scale if a threat does occur.

As Tree Wardens you can support community campaigns by understanding how the planning system works. By supporting people through knowing what to say about a tree or a group of trees, it will

help them make the strongest case and give trees the best chance of protection in the event of a development threat. (See section 6, *Trees – threats and challenges* and section 7, *The law and its impact on trees*.)

In some parts of the UK, government planning policy specifically requires local authorities to avoid the loss of ancient and veteran trees. Check to see if this applies in your area.

You may view planning applications at your local authority offices and many also have on-line facilities. They should show all the trees on the site and those adjacent to it, plus the developer's proposals for retention, protection, management or removal. It is worth checking that all the trees you think are important have been included in the plans.

BS:5837 (see section 6, *Trees – threats and challenges*) recognises that some trees are of such importance and sensitivity that they should significantly influence both the design and layout of the development so that they can be properly retained during the construction phase.

The design should also take account of the long-term setting for important trees and how they will relate to the use of the area in the future.

There are some good guidelines³ from Natural England which demonstrate the management issues and duty of care that should be associated with ancient trees, set out as a standard in *Veteran Trees: a guide to good management*⁴.

Threats to ancient and veteran trees don't just come from development. Management of ancient trees can be quite specialised and therefore may require expert advice.

The Ancient Tree Forum, in association with the Woodland Trust, has a number of management guides available as free downloads from its website⁵.

You can also refer to the Natural England guidelines³ for a good reference on management.

If a tree is at risk of being felled, a licence may be required from the Forestry Commission for most woodlands and trees other than those in gardens, churchyards and urban situations (see section 7, *The law and its impact on trees*.) There are exemptions for dangerous trees. It will be well worth discussing the case with the local Forestry Commission woodland officer if a group of trees is threatened.

Influencing people

Please remember that landowners have been the custodians of our ancient and veteran trees so it is best if we can work with them. We want to help them take care of the trees that you record as valuable in your local landscapes.

Utilise your networks within the local authorities and parish councils. Your district councillors are very important people. They can listen and represent your concerns and can advise you on how best to make your

voice heard. Parish or town councillors may also have a wealth of experience; they know the system and personalities and therefore can help you target your activity to best effect.

Remember your networks with tree officers, forestry officers and other specialists who advise planning officers about trees, nature conservation and landscape issues on development sites. They will be assisted by strong community backing and can help you get to local networks of people who you can encourage to take part in the Ancient Tree Hunt. They will also be able to support a case for any threats to ancient and veteran trees.

Don't forget to mention that funding is now available to local authorities for green spaces and parks. However, you may need to ensure that they take mature and ancient trees properly into account in any future restoration plans.

Because trees are worth it

It is never too early to make a start on building up your knowledge of the trees you most value in your neighbourhood. Build a case on the Ancient Tree Hunt website¹ for

each tree that you would greatly miss if it was no longer there. This way you are officially entering your valuable trees on to the most comprehensive, centralised database in the UK, placing the ancient and veteran trees in your neighbourhood into a national context.

Utilise the Ancient Tree Hunt to involve the local community in building information about your local trees. This will give them a sense of ownership which will help reduce vandalism and will give you better support if trees come under threat.

If you need further support for a tree under threat, contact the Woodland Trust woods under threat team⁶ – it is not just about woods, it has plenty to say about individual trees too. It includes plenty of real examples that illustrate what others have done to save their trees. It also provides the latest guidance on changes in legislation; policy and practice that will help you keep everyone on their toes.

10,000 oaks of 100 years old are not a substitute for one 500-year-old oak

Oliver Rackham. *The history of the British countryside* (1986) Dent

Where to find out more

The law of trees, forests and hedgerows (2002), Charles Mynors. Sweet and Maxwell
Tree Preservation Orders A Guide to the Law and Good Practice (2000), Department for Communities and Local Government. www.communities.gov.uk

British Standards (BS:5837 Trees in relation to construction – recommendations (2005) and BS:3998 Tree Work – guidance (1989)),
available from www.bsi-global.com

www.treeregister.org – a unique record of notable and ancient champion trees in Britain and Ireland, supporting the Ancient Tree Hunt

References

- 1 www.ancienttreehunt.org.uk – take part in mapping 500,000 ancient, veteran and notable trees across the UK
- 2 The Woodland Trust, Autumn Park, Dysart Road, Grantham, Lincolnshire, NG31 6LL
- 3 www.naturalengland.org.uk
- 4 *Veteran Trees: a guide to good management* (2000), ed H. Read. Published by English Nature now Natural England
- 5 www.ancient-tree-forum.org.uk – advice and information on ancient and veteran trees
- 6 www.woodsunderthreat.org.uk – tell us about a wood or tree under threat and get lots more information about fighting a threat

This leaflet has been written for The Tree Council by the Woodland Trust and the Ancient Tree Forum – two Tree Council members



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10 TAKING ACTION FOR HEDGE TREES

Tree Wardens are key to The Tree Council's Hedge Tree Campaign to increase the number of trees in Britain's hedges – and awareness that hedge trees matter.

Delegates who gathered at a Tree Council conference in 2007 to work on an action plan for hedge trees highlighted the need to target more information at farmers, landowners, local authorities, interest groups (such as advisers and contractors) and community organisations (including parish councils). The aim is to increase awareness of the importance of hedge trees.

Tree Wardens, as local tree champions, are well placed to help get the messages across. They can also volunteer to carry out – with the permission of the landowner – some of the practical work required. This section is designed to give basic information for both these roles.



**The Tree Council's
Tree Warden Scheme**

in partnership with National Grid and supported
by the Government's Cleaner, Safer, Greener initiative

Britain's hedge trees

The Government's Hedgerow Habitat Action Plan includes a target to "increase the number of young hedgerow trees from the current estimated 15,000 in GB to 40,000 by 2010 and 80,000 by 2015 (excluding Northern Ireland)".

Intensification of farming in the second half of the 20th century resulted in the loss of thousands of miles of hedgerows, along with millions of hedge trees. The Dutch elm disease outbreak of the late 1960s onwards removed some 20 million elms from our countryside, mostly from hedgerows.

By 1998, there were only an estimated 1.8 million isolated hedge trees (ones with canopies that do not touch) in Great Britain, 98 per cent of them in England and Wales. (Trees growing together in hedges have not been counted.) Of these individual hedge trees, nearly a third were over a century old, so could disappear from the landscape at any time.

The 1998 survey also showed that fewer than one per cent of hedge trees were in the youngest age class (one to four years old) – too few to replace the existing mature trees when these reach the end of their lives.

This underlines the importance of a concerted effort to plant more new hedge trees and conserve the young trees already growing in hedgerows. But it is also vital to look after the mature and ancient hedge trees which are such significant landscape and wildlife features.

Common hedge tree species

Elm was once a common hedge tree, encouraged because of its valuable timber. Today, because of Dutch elm disease, mature elms are very rare. Oak and ash are now our commonest hedge trees, but many other species can be seen in hedgerows, from willows to birches to holly. As well as timber species, fruit and nut trees such as crab apple, wild cherry, hazel, elder, damson and pear have also been encouraged.

Variations between different parts of the UK contribute to local distinctiveness. In some areas, beech has become a widespread hedge tree: Exmoor is famous for its 19th-century beech hedgerows.

The value of hedge trees

Hedge trees are a characteristic feature of many of our most valued landscapes – without them, huge tracts of countryside would look very different.

Other reasons why they are important include:

- ▶ timber – which is partly why so many ancient hedge trees are coppiced or pollarded
- ▶ fuel – renewable energy which may again be in great demand
- ▶ as a source of food and drink – like damson jam and verjuice (crab apple cider)
- ▶ to screen eyesores and unsightly developments – and protect privacy.

They are also very important for wildlife, and shelter and shade for livestock.



Wildlife habitats

Hedge trees provide a whole range of habitats in one small area. Together with the hedgerow, they provide shelter, food, nesting sites, song posts and hiding places, as well as stepping stones between woodland habitats.

Many farmland birds use hedge trees: buzzards build their nests in the canopy, while woodpeckers and tree sparrows breed in holes.

Bats, including rarities like the barbastelle and Bechstein's, roost in crevices and tree holes.

The trunks of veteran trees in hedgerows can support rich lichen communities.

Butterflies, like hairstreaks, may be seen foraging for honey dew from aphids and laying their eggs high up in oaks and elms.

Shade and shelter

Shade is beneficial for grazing animals, farm buildings and people – and hotter

summers, wetter winters and more storms and gales may make this increasingly important.

Large hedge trees can shade out crops and grass, causing some economic loss. However, the effect will be less in hedgerows running north-south, and in those where the field margins are left uncultivated.

A tree's shade can also create gaps in the hedgerow beneath, but this problem can be reduced by removing its lower limbs and planting shade-tolerant shrubs like holly.

Establishing new hedge trees

There are several ways of establishing new hedge trees, and Tree Wardens can play an important role in making this happen, either by offering to carry out the work themselves – with the permission of the landowner – or encouraging farmers and other landowners to do so.

Methods include:

- ▶ selecting existing saplings (or promising coppice re-growth)
- ▶ planting trees in existing gaps
- ▶ creating new gaps in which to plant by cutting notches in the hedge
- ▶ planting trees beside the hedge rather than within it
- ▶ earmarking plants in a new hedge that can be nurtured to become full-grown trees.

Whether planting or selecting saplings in hedges, it is important that they are well back from public roads and will not obstruct rights of way or tracks used by wide machines. They should not be beneath or within 10m (33ft) of overhead services, such as power lines, as this may cause future problems.

Existing saplings

Select saplings that are growing straight up all the way from the base. This should produce a good strong trunk if protected from being cut (see page 6). Trees grown from stems that have been flailed, laid or coppiced may be so badly damaged that they are weak and unstable when mature.

It is often easiest to select and protect suitable saplings at the same time as laying or coppicing a hedgerow.

Planting new trees

Many hedgerows, particularly dense single-species hawthorn and blackthorn, will not contain suitable saplings. Here it may be better to plant trees. One option is to plant in gaps in the hedge. Use existing gaps if possible because there will be less

competition from existing plants. Otherwise, plant in a notch cut into the hedge.

Another option is to plant beside the hedge. This may take up more space, but it increases the hedgerow width and its wildlife value. It may also be easier to cut the hedge in future. There will be less root competition for nutrients and water, so the trees will probably grow faster.

Planting trees when creating a new hedgerow is a very effective way of producing new hedge trees. Ideally, use species which are already growing in the locality, and invest in sturdy plants.



Avoid planting trees on valuable habitats such as herb-rich grassland. Once the trees are planted, mark them on hedgerow plans and/or use a marker stake and tree tag (see page 6) if necessary, to help prevent the trees being cut along with the rest of the hedge.

When to plant

Plant bare-rooted trees at any time between November and March, but avoid days when the ground is frozen. Although container-grown trees can be planted at any time of year, if planting is done in late spring or summer they should be watered during dry spells throughout the first growing season. See section 4, *Tree planting – planning and practice*.

Size of stock

Whips – trees 1-1.75m (3ft 3in-5ft 9in) tall – are cheap, easy to move and usually establish better than larger trees. However, particularly in a new hedgerow, initially there may be little visible difference between the trees and the rest of the plants – and they will need highlighting so that hedge cutters know to avoid them (see tagging, page 6).

When planting into a gap in an existing hedge, larger trees are recommended, either feathered trees – about 2m (6ft 6in) tall – or standard trees – around 3m (9ft 9in) tall – depending on the height of the hedge. For more about choice of trees, see section 4, *Tree planting – planning and practice*.

Spacing

Young trees should be far enough apart to allow them to develop full crowns without

competing or producing too much shade. Also, mechanical cutters find it hard to work between trees that are close together.

Try to keep trees at irregular spacings to create a more natural landscape. Take cues from the local surroundings about what is most appropriate.

Stakes and shelters

Stakes or other supports are now only considered necessary for trees which are more than 1.5m (5ft) tall. See section 4, *Tree planting – planning and practice*.

Tree shelters encourage faster growth, make saplings more visible and therefore easier to look after, provide protection from grazing animals and make weed control easier. On the other hand, they can be unsightly and need to be removed from the trees when they have served their purpose – usually after three to five years.

On balance, it is generally better to use them, but be sure to visit the shelters from time to time to pull out any grass and weeds growing inside. See section 5, *Managing and caring for trees*.

Weed control

Pull up any grass and weeds within a square metre (just over a square yard) of the planted tree. Cover the cleared area with a mulch mat, bark or wood chippings, or an old piece of carpet. This helps to retain moisture near the roots and to reduce competition from weeds. For more about weed control, see section 5, *Managing and caring for trees*.

Managing hedge trees

Good management is key to the survival of hedge trees, as they can easily be lost or damaged by excessive hedge trimming, root compaction, grazing animals and lack of aftercare.

Protecting young hedge trees

Young trees need to be looked after for several years until they are big enough to be clearly visible. Much of this care is standard for newly-planted trees – see section 5, *Managing and caring for trees* – but there are also particular issues for hedge trees.

Hedge cutting

The shape in which a hedge is cut may have a significant effect on trees. An A-shaped hedge may be better than the more normal square one because trees can grow up through the middle of the hedge for longer, with less risk of being cut down.

However, if the top of the hedge is cut, the young trees will still be damaged whatever the shape. So, try to spot promising young saplings and tag them to ensure that they are not damaged when the hedge is cut.

Tagging

Brightly-coloured tags are a simple way to help hedge cutters avoid young trees – whether they are existing saplings or specially planted.

Tags will work, however, only if machine operators are warned to look out for and avoid marked trees. Tree tags can be obtained from The Tree Council.



When tagging a tree, hand-trim the hedge for about one metre on each side to make the sapling more visible. Then either place the tag on the tree (if it can be reached) or put it on a cane opposite the sapling.

For best results consider putting a strong, clearly-visible stake into the hedgerow on either side or adjacent to the chosen tree.

Keep a note of which trees are tagged and revisit them annually to replace any missing tags and to record survival rates.

Tree Wardens can help farmers and landowners by tagging hedge tree saplings for them. However, there may be reasons why trees are unacceptable in certain hedges and it is therefore essential to approach farmers and landowners for permission to go on their land – and to get their support.

There are more tips on hedge tree tagging in section 8, *Organising tree events and projects*.

Managing older trees

There are various techniques for managing established trees. Historically, the most common of these techniques was pollarding. Some trees, however, were left to grow normally and in maturity have become stag headed.

Pollarding

Pollarding has been a popular way of managing hedge trees throughout history. It involves cutting the crown off a tree at a height of 2-5m (6ft 6in-16ft) at regular intervals throughout its life. After pollarding, the trunk produces shoots at a height that keeps them away from grazing animals including deer. See section 5, *Managing and caring for trees*.

Old pollards often have immense character and in some parts of the countryside are age-old markers of parish boundaries. Pollarding keeps the tree vital by interrupting the normal aging process and, since the crown is smaller, reduces the likelihood of storm damage, so it often allows the tree to survive for longer.

Take advice from a qualified arboriculturist before attempting to pollard a mature tree and check if it is subject to a Tree Preservation Order. See section 7, *The law and its impact on trees*.

Stag-headed trees

When a tree becomes old it may be unable to provide water to the highest branches and as these die back it becomes stag-headed. This is a natural part of the tree's life cycle: it does not mean that the whole tree is about to die.

Stag-headed trees can carry on living for many decades or even centuries, and are often very beautiful.

In younger trees, stag-heading results from drought, disease, insect damage, root disturbance, sunburn (in beech) or pollution, and is a natural response to stress.

Try to find out what the cause is and whether anything can be done to alleviate the problem. Pruning may help to keep the tree alive.

Elm hedges

Elm trees, once the archetypal British hedge tree, will grow until they reach a size that makes them a suitable food source for the bark beetle that carries the Dutch elm disease. This usually takes 20 to 30 years.

Although the main stems will die, the root system will usually survive, allowing the trees to re-grow again from suckers in time. To keep an elm hedgerow looking healthy, consider coppicing the larger stems every 20 to 30 years, before the beetles re-infect the trees. Unfortunately, there is no known way to eradicate the disease from a hedgerow.

Funding

Some local authorities provide funding for establishing hedge trees. Grants are available to some farmers through green farming schemes (like Environmental Stewardship in England), both for looking after existing trees and for planting new hedgerows and hedge trees.

Where to find out more

The Hedge Tree Handbook – The Tree Council

Hedgerow planting: answers to 18 common questions – Natural England
www.naturalengland.org.uk

Hedge cutting: answers to 18 common questions – Natural England
www.naturalengland.org.uk

Hedgerow trees: answers to 18 common questions – Natural England
www.naturalengland.org.uk

Hedgerow Survey Handbook – Defra
 available from Natural England www.naturalengland.org.uk

A Cut Above The Rest – Hedgelink DVD on hedgerow management available from
enquiries@naturalengland.org.uk or telephone 0845 600 3078

www.hedgelink.org.uk – Hedgelink is the partnership of organisations and individuals
 leading and supporting the conservation of the UK's hedgerows

Hedges, E Pollard, M Hooper and N Moore

Hedges and Walls, T Williamson

The establishment of trees in hedgerows, S Hodge – Forestry Commission Research
 Information Note 195 1990

This leaflet has been produced as part of The Tree Council's Hedge Tree
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**The Tree Council's
 Hedge Tree Campaign**

In partnership with National Grid and supported
 by the Government's Cleaner, Safer, Greener initiative

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11 WHAT'S WRONG WITH MY TREE?

A growing tree can experience a range of factors which affects its ability to thrive. As the eyes and ears for their local trees, Tree Wardens are well placed to spot when one is looking unhealthy or to reassure concerned people about something which is not really a problem at all.

Signs of ill-health can indicate a deeper-seated problem, which may result in failure of part, or all, of the tree. So, recognising symptoms of ill-health can be invaluable in helping to manage local trees and reduce the likelihood of a major problem. In some cases, reporting a problem to the tree's owner could ensure the risk posed by a dying tree is reduced.

Some factors that make a tree look unhealthy are biological – the effect of fungi, bacteria, viruses, insects, mammals or birds. Others are caused by the weather – spring and autumn frosts or winter cold, ice and heavy snow, drought, flooding and water-logging, wind or lightning. Then there is damage from herbicides, salt or fire.

This section gives introductory guidance to help Tree Wardens understand what the problem might be, when to draw the owner's attention to the situation – whether the tree is publicly or privately owned – and when an expert should be called in. It indicates where action may be needed and where none is necessary – because the condition is merely unsightly, not serious.

Identifying the problem

If a tree looks sick, follow these steps to collect as much information as possible.

Step 1

Stand back and look at the tree carefully. Compare it with others of the same species in the area. What makes it look different?

Step 2

Are the symptoms uniformly distributed (see step 3) or localised in one part of the tree (see step 11)?

Step 3

Are the leaves smaller than is normal for the species or discoloured? If so, see step 4. Are there dead branches and where are they in the tree? If so, see step 4.

Step 4

Has the ground been disturbed near the tree? For example, has there been trenching near the roots or raising or lowering of soil levels? If yes, then human damage is likely to be the cause of the problem (see Section 5, *Managing and caring for trees*). Inform the owner, who may need to seek advice (see back page, *Where to find out more*). If the answer is no, see step 5.

Step 5

Are fungal fruit bodies evident? Fungal fruit bodies may be woody and persistent (e.g. *Ganoderma* species), or annual/seasonal, (e.g. *Inonotus* species, see *Top rots* page 4). If fungal fruit bodies are not evident, then it may be necessary to check at different times of the year. Check for

evidence of old fruiting bodies e.g. bits of old fungi around the roots or tree base. If fungus is found, try to establish the species and its possible effects (see back page). Are the fungi on the branches (see step 10) or trunk/root base? If on the trunk/root base:

- ▶ are there cavities (see step 6)?
- ▶ is there dead bark (see step 7)?
- ▶ is there loose bark (see step 8)?
- ▶ is there any seepage from the tree (see step 9)?

If no fungal fruit bodies are evident, but liquid is seeping from the tree, see step 9.

Step 6 (from step 5)

Assess the extent of any cavity (see *Top rots* page 4). Measure the diameter of the stem at the point of the cavity and measure the diameter of the cavity within the tree. If the cavity's diameter is more than 50 per cent of the tree's diameter at that point, inform the owner who may need to seek advice.

Step 7 (from step 5)

Is there dead bark, particularly towards the base of the trunk? Are there dead root buttresses? Are there calluses around the edges of the wound? If so, the problem is likely to be root death from:

- ▶ *Phytophthora* disease (page 4)
- ▶ other root-killing fungi (page 4)
- ▶ water stress (page 7)
- ▶ physical injury (see page 7).

Step 8 (from step 5)

Is the bark loose or hollow-sounding when knocked with a mallet? Does this symptom extend high into the tree? If so, it is likely to be caused by lightning (see page 7). If the

wood behind the loose bark is decayed, see step 6. Another possibility is that the tree has been physically injured (see page 7).

Step 9 (from step 5)

Is liquid seeping from the bark? If it is dark, there may be a fungal infection, see steps 5 and 7. If the liquid is white and/or frothy and/or smelling of alcohol and attracting wasps, bees and hornets, then bacterial wet wood could be the problem. Inform the owner who may need to seek advice (see back page).

Step 10 (from step 5)

Are major branches alive or dead? Is animal damage visible (see page 7)? Has lightning caused the problem (see page 7)? Are cavities or fruiting bodies visible in a branch? Are these near a branch fork or other structurally significant part of the tree? If yes, inform the owner who may need to seek advice.

If the branch is dead and it may fall, causing damage to people or property, inform the owner.

Step 11 (from step 2)

If the damage to the tree is localised, note the distribution of the problem.

If the damage is on one branch, see step 12.

If it is on many branches, see step 13.

Step 12 (from step 11)

Has the branch been broken, cracked or damaged? If it seems a risk to people or property, inform the owner who may need to seek advice. If the branch is not broken, are

the leaves misshapen or dying? This could be a symptom of a sap stream disease, e.g. verticillium wilt (see page 6).

Step 13 (from step 11)

Assess the characteristics of the problem.

a) Are there dead leaves and branches? If so, consider:

- water stress (page 7)
- frost/winter cold damage (page 6)
- chemicals (page 7)
- physical injury (page 7)
- top rot fungi (page 4)
- root killing fungi (page 4)
- a sap stream disease, e.g. verticillium wilt (page 6).

b) Are there discoloured, misshapen/deformed leaves? If so, consider:

- leaf spots (page 5)
- mildews (page 5)
- leaf miners (page 5)
- galls (page 5)
- chemicals (page 7)
- water stress (page 7)
- frost/winter cold damage (page 6)
- physical injury (page 7).

c) Are there dead branches, but others with healthy leaves? If so, consider:

- fungal infection, e.g. coral spot (page 6)
- bacteria, e.g. fireblight (page 6)
- mammal damage (page 7)
- lightning/fire damage (page 7)
- physical injury (page 7)
- chemical damage (page 7)
- water stress (page 7).

Factors affecting health

The next step is to try to identify the actual problem. Here are some of the options – and suggestions for what Tree Wardens might do. This is only a general overview. For suggestions about further information see back page, *Where to find out more*.

Biological

Phytophthora

Cause: Some species of *Phytophthora* (generally a soil-borne fungus) kill tree roots, blocking the passage of food and water around a tree. There are many species, affecting a wide range of trees, shrubs and herbaceous plants e.g. *P. ramorum* (sudden oak death).



Phytophthora

Damage: Some *Phytophthora* species can kill root and stem tissue, leading to rapid tree death, e.g. *P. cinnamomi*. Others cause a tree to die more slowly. These may affect leaves and shoot tips only, e.g. *P. ilicis* on holly. Yet others kill bark and lead to bleeding cankers – liquid oozing from the bark, e.g. bleeding canker of lime.

Action: There are no cures for most *Phytophthora* species. If the tree is in, or close to, a public space, report it to the owner who may need to seek advice (see back page).



Other root-killing fungi

Other root-killing fungi

Cause: There are many root-killing fungi species, growing in a wide range of trees. They include honey fungus (*Armillaria* species), *Meripilus giganteus*, and a range of *Ganoderma* species.

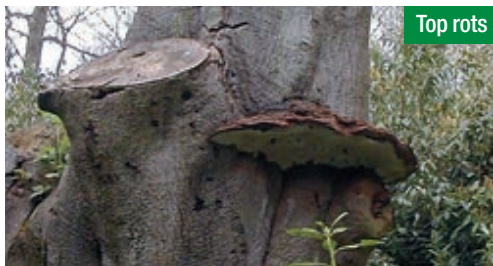
Damage: The base of the tree and roots can rot or die, weakening the tree and leading to possible instability or fracturing of the stem.

Action: If a root-killing fungus is suspected, inform the owner who may need to seek advice (see back page).

Top rots: stems, trunks and branches

Cause: Fungi on a wide range of trees, e.g. many-zoned polypore (*Coriolus versicolor*), shaggy bracket fungus (*Inonotus hispidus*), chicken of the woods (*Laetiporus sulphureus*), dryad's saddle (*Polyporus squamosa*) and *Ganoderma* species.

Damage: Decomposition of the wood, particularly the heartwood.



Top rots

Action: Although hollowing of a tree is a natural process, tree surgery might be needed to remove hazardous branches and stems. If a cavity is more than half the tree's diameter (at that point), inform the owner who may need to seek advice (see back page).



Mildews

Cause: Many fungi cause mildews on broadleaved trees.

Damage: These fungi produce a pale coating on leaves, ranging from white to brown, that kills leaf tissue, young shoots and fruit.

Action: These species are generally treated only in tree nurseries or on newly-planted trees. They can be treated with fungal sprays, but in public areas this must only be carried out by licensed professionals. Recovery is normal – no action is generally needed.



Leaf spots

Cause: Fungi or bacteria infect the leaves.

Damage: A typical fungal or bacterial leaf spot has a definite edge, making the leaf appear blotched or spotty. Unless the outbreak spreads to the twigs and kills them, the symptoms are generally cosmetic, e.g. tar spot (*Rhytisma acerinum*) on sycamore

leaves which does no major damage.

Action: Usually no action is required as this is largely cosmetic. Leaves can be gathered and burnt to reduce the source of infection.



Leaf miners

Cause: Leaf mines are caused by larvae of moths, beetles, bees or flies eating the internal green tissue of a leaf.

Damage: Patches occur on a leaf as an insect eats its way between the upper and lower surface. The patterns created by the different leaf miners help diagnose the problem.

Action: Although leaf mines can be unsightly, a tree's health is unlikely to be affected, so no action is required. Collecting the affected leaves and burning them during the winter can reduce the insect population the following year. *Note: The horse chestnut leaf miner is now appearing in vast numbers and affecting horse chestnuts extensively in some parts of the country.*

Galls

Cause: Insects, mites, fungi, bacteria and viruses can all cause a tree to produce a gall – an abnormal growth of plant tissues.

Damage: A wide range of gall shapes and



sizes can occur on trees and shrubs. Some are familiar like the “oak apple”; others are a result of introduced pests, e.g. knopper gall.

Action: Although galls can be unsightly, most present no significant threat to the health of a tree, so no action is required.

Sap stream diseases

Cause: Fungi affecting the water flow within the tree, e.g. verticillium wilt and Dutch elm disease.

Damage: The first signs of these diseases are usually withered, deformed or dead leaves at the end of branches. The symptoms may spread, leading to the death of the twigs, branches and possibly the whole tree. Caution is required as this can be confused with other causes, e.g. water and physical stress.

Action: With verticillium wilt, heavy watering may provide the tree with enough liquid to grow new shoots.



Coral spot

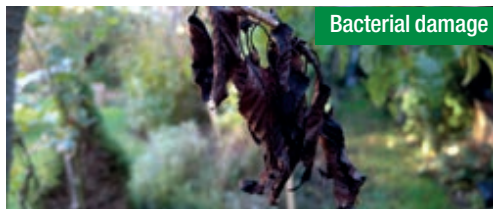
Coral spot

Cause: Infection by the coral spot fungus, *Nectria cinnabarina*.

Damage: This is a widespread fungus, but it is only significant when it affects newly-planted or young trees when it may result in dieback or death. Scattered twigs or branches may fail to produce leaves, or leaves wilt rapidly after they appear. The dead branch will be covered in bright pinkish pimples. On mature trees the damage is largely cosmetic.

Action: Remove diseased wood by formative

pruning of young trees. No action is required for mature trees.



Bacterial damage

Bacterial damage

Cause: A bacteria, e.g. fireblight (*Erwinia amylovora*), which blocks the vessels that transport food and water around a tree, or *Pseudomonas syringae* (canker of cherry).

Damage: Flowers, branches and whole trees can be affected, e.g. apples and pears. Look for browning and wilted leaves at the ends of branches. The infection is often mild, but can kill trees. Stone fruit species, e.g. cherry, are not affected by fireblight.

Action: Prune out diseased parts and burn them immediately. The final cut should be made at least 150mm (6in) below the area of infected material using pruning equipment sterilised with bleach or methylated spirits.

Weather

Late and early frosts

Cause: Frost in early autumn or late spring.

Damage: Death of shoots or twigs. Browning of leaves.

Action: Even if a tree looks unhealthy after frost damage, it will often recover. Generally no action is required.

Water stress

Cause: Lack of water or excess standing water.

Damage: Water stress causes withered leaves, reduced growth, possible defoliation and even dieback or death. Waterlogged soil can cause root death. *Note: The symptoms are similar to those of Phytophthora and in both cases the tree can eventually die. In waterlogged soils the roots become smelly and blue/black; with Phytophthora they die, but are not discoloured.*

Action: In long, dry summers, water young trees (see section 5, *Managing and caring for trees*). If a tree is suffering from waterlogging, suggest that the owner improves the drainage to remove the water.



Lightning and fire

Cause: Lightning strike, wildfires or bonfires.

Damage: A lightning strike can “cook” the plant material, resulting in death of bark, or even the whole tree. A long scar can appear in the bark from top to bottom, where the lightning passed. In extreme cases the tree can be blown to bits by a lightning strike. Fire damage is usually evident as brown/dead leaves on one side of the tree and/or blackened bark on the trunk or the underside of branches when recently formed.

Action: There is little action that can be taken, except to ensure that the remains are safe. Badly-burnt sections of a tree can be removed for cosmetic reasons.

Chemicals

Herbicides/salt

Cause: Carelessly applied pesticides or herbicides, or salt washed off from the road.

Damage: Yellowing leaves, leaf spots, distortion of growth and dead bark. With excessive exposure, trees can die.

Action: Record the chemical responsible for the damage (if known). Avoid further use of the chemical if possible. Monitor the tree and, if it appears to be ailing, inform the owner who may need to seek advice.

Physical injury

Damage

Cause: Mammals (including humans) and birds, wind, snow, ice and machinery.

Damage: Physical damage can include broken branches or trunks; stripped bark or bark with bite marks, cuts, cracks or holes; undermined roots; tree guards that are too tight; rubbing stakes; removed bark; premature loss of flowers and a wide range of other problems.

Action: In cases of severe physical damage, inform the owner who may need to seek advice (see back page). See also section 5, *Managing and caring for trees*.



Where to find out more

The Tree Council has compiled this section with the help of one of its members, the Tree Advice Trust.

The Tree Advice Trust

This independent charity runs the arboricultural advisory and information service. It has been giving independent and impartial advice to the public and professionals for over 20 years to help them resolve tree problems. Its Tree Helpline is staffed by qualified and experienced tree care specialists. Many problems can be answered on the phone and additional written information can be provided if necessary. The Trust also has specialists who can diagnose many tree disorders from samples sent in. Site visits can be made where telephone advice and samples cannot resolve the problems.

Visit www.treehelp.info for answers to frequently asked questions or contact the Tree Helpline: 09065 161147 (premium rate). Available on weekdays from 9am to 5pm. A message recording service is available at other times. For publications contact the Tree Advice Trust, Alice Holt Lodge, Wrecclesham, Farnham, Surrey GU10 4LH. Fax: 01420 22000.

Other sources of information include:

Ancient Tree Forum <http://frontpage.woodland-trust.org.uk/ancient-tree-forum/>. For advice on the management of veteran and ancient trees.

Arboricultural Association www.trees.org.uk. For a list of consultants and tree surgeons.

Forest Research www.forestresearch.gov.uk. For information about specific pests and diseases.

International Society of Arboriculture www.isa-arboriculture.org. For a list of tree surgeons.

Royal Horticultural Society www.rhs.org.uk. For advice on pests and diseases (members only).

Diagnosis of ill-health in trees, R G Strouts and T G Winter, HMSO 2000

Manchester Tree Warden Information Pack, 2008

Mushrooms, Roger Phillips, Macmillan 2006

The encyclopedia of fungi of Britain and Europe, Michael Jordan, David & Charles 2004

The principles of tree hazard assessment and management. David Lonsdale, Forestry Commission 1999

Tree diseases and disorders, H Butin, D Lonsdale and RG Strouts, OUP 1995

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12 HEDGEROW HARVEST

Hedgerow Harvest is a new Tree Council project that builds on exciting work being carried out as part of our Hedge Tree Campaign.

The project encourages local people to gather and grow food for free on their doorstep. It aims to build a network of hedgerow foragers who can inspire their neighbours, share their favourite recipes and carry out projects to plant productive hedges in their communities.

History

In the past, hedges were viewed as a valuable resource – people gathered everything from fruit to firewood from their local hedges and benefited from a free harvest of healthy local food. Unfortunately, this culture that connected food with where it comes from is being lost. Our grandparents and parents may remember blackberrying, but with urbanisation and the rise of convenience food, many of us wouldn't know what to pick or how to use it.

The use of hedges and their trees as food sources during World War II is well documented; there was even a Ministry of Food leaflet called *Hedgerow Harvest*. This sparked The Tree Council's interest in the potential for modern hedges to be used as a food supply. So, to whet your appetite for foraging, we have included a number of recipes on the Hedgerow Harvest website (see *Where to find out more*).

If anyone has recipes to share, upload them to the website.

Why hedges?

One reason the traditional linear structure of a hedge is so good for producing fruit and nuts is that it provides a great habitat for pollinating insects. It also allows sufficient sunlight to reach and ripen the developing fruit.

In some parts of the country, this simple idea of using a hedge as a linear larder has been taken further with the development of

specialised fruit production hedges. The Kent “orchard” hedge consisting of apple trees, the damson hedges of Shropshire and Herefordshire and the elder hedges of Hertfordshire were all planted to produce local food.

Where to plant

Hedges do not have to take up huge amounts of space and they are much more attractive than a wall or fence. Potential sites include around allotments, along the edges of parks, at city farms and around school grounds. Front and back gardens also provide great opportunities for planting.

What to plant

Be experimental – a hedge really just describes a way of managing woody vegetation. Planted in a line and trimmed regularly, most trees or shrubs will form a hedge.

When deciding what to plant, start by seeing what grows well in the locality and also consider planting a range of trees and shrubs that will give a good, long foraging season. Also remember that herbaceous plants in hedge bottoms can be a great source of early spring greens, from wild garlic to nettles.

Go to the Hedgerow Harvest website for a list of traditional hedging material and trees that will give a crop of fruit (see *Where to find out more*). The website also gives some more unusual ideas for hedge plants to extend the range of produce that can be harvested.

How to plant

Traditionally, there are two planting patterns for hedges. How a hedge is planted depends on how impenetrable it needs to become and the width of space available for it to grow.

Single row hedge

A single row of hedging planted at about 300mm centres is good for a narrow space such as beside a fence or path.



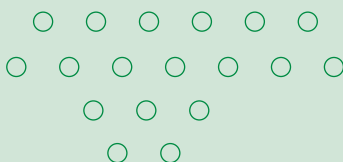
Double row hedge

A double row of hedging material planted in two rows 300mm apart and staggered at 300mm centres, will give a thicker hedge that takes up more space. However it provides a better screen and a good wildlife corridor.



Wavy edge hedge

A third approach, if there is space, for instance around the edge of a playing field or park, is to plant extra trees and hedging at intervals along the hedge line to turn it into linear woodland that is even better for wildlife and for foraging.



For more information on hedge planting see section 10, *Taking action for hedge trees*.

Foraging

A whole range of fruit, nuts, berries and leaves can be harvested from hedges.

Start in spring with wild garlic and young nettle tops. In early summer, there are elder flowers, young lime leaves, lime blossom and hawthorn leaves. In late summer, there are plums, cherries and soft fruits. Finally, in the autumn there are nuts, apples and berries.

Responsible foraging

Fruit is the property of the landowner, so it should be collected only with the permission of the owner.

Don't:

- ▶ forage along busy roads
- ▶ pick anything if you are not sure what it is
- ▶ let children eat food from hedgerows unless you are absolutely certain what they are picking is not harmful
- ▶ snap branches or damage trees to reach fruit.

Do:

- ▶ leave some fruit for other people and wildlife
- ▶ keep a note of any blossom in the spring, and return there in the autumn
- ▶ start collecting jars for jams and pickles, so they are ready when needed
- ▶ share produce with neighbours.

For more information about organising foraging walks and Seed Gathering Season events see section 8, *Organising tree events and projects*.

Where to find out more

Hedgerow Harvest www.hedgerowharvest.org.uk

The Hedge Tree Handbook, The Tree Council

Trees for your garden, Nick Dunn and The Tree Council

Food For Free, Richard Mabey

Slow Food UK www.slowfood.org.uk

Hedgelink www.hedgelink.org.uk

Wild Food: Foraging for Food in The Wild, Jane Eastoe and The National Trust

Hedge cutting: answers to 18 common questions, Natural England

Hedgerow trees: answers to 18 common questions, Natural England

Hedgerow Survey Handbook, Defra (available from Natural England)

Hedges, E Pollard, M Hooper and N Moore

The establishment of trees in hedgerows, S Hodge, Forestry Commission Research

Information Note 195 1990

The Community Orchard Handbook, Common Ground

This leaflet has been produced as part of the Hedgerow Harvest project which is funded by:



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13 PAVING THE WAY FOR STREET TREE PLANTING



Tree Wardens and other volunteers can play an important role in getting more street trees planted – but they should not tackle this on their own. It is vital to have local authority support, and the backing of either an enthusiastic councillor or local authority officer can be the key to succeeding with the project.

There are three routes Tree Wardens can take to get additional street trees in their communities:

- ▶ simply finding locations – such as empty planting pits – where the local authority could plant trees
- ▶ going a stage further and also helping to raise money for the planting
- ▶ deciding to be more proactive and to organise most of the process themselves, in close liaison with their local authority.

This section is aimed at helping Tree Wardens with this third approach by giving an insight into what might seem a rather complicated process. It outlines what is involved, whom to contact and what to consider so that the new street trees provide maximum effect for as long as possible.

The value of street trees

Trees have a particularly beneficial effect on people's lives in towns and cities. This ranges from improving the look of an area and its air quality to providing shelter and shade, and bringing communities together to plant and care for them (see section 2, *Trees – their value to the community*).

The need for a council 'buddy'

The most effective way of undertaking tree planting on a publicly owned highway is to identify a 'buddy' within the local authority – maybe the tree officer or an enthusiastic highway officer – who could effectively promote the scheme so that it is carried out under the auspices of the local authority. If the Tree Warden network coordinator is a local council officer, then he or she should be the first person to approach.

For anyone who has not gone through the processes required to plant street trees and has no model documents to use and adapt, the planning can take more than 10 weeks, including a minimum of five weeks for searches to be made and permissions to be sought and granted.

However, if planting is done in partnership with the local authority much of the burden of liability for permissions and consents can be avoided because the authority assumes this role as landowner and facilitator. In addition, The Big Tree Plant (see *Where to find out more*) allows volunteer groups to access grants if the local authority is an enabling partner and assisting in the delivery of the scheme.

Who must be consulted?

Before any tree planting can take place, various individuals and organisations must be contacted, including authorities, professionals and utility companies. It is very important to keep local residents and businesses in the loop too.

It will also be necessary to keep in touch with many of these people and organisations during the course of the project, particularly as some will need to be on hand when the actual planting gets under way.

The landowner – for permission to plant

Permission must be obtained from the landowner before any planting can take place. This is quite likely to be the local authority but, if not, it should be able to help find out who does own the land. Failing that, get in touch with the Land Registry Office.

The land might belong to, for example, the local authority or other public body; businesses; social or private landlords; utility or transport companies.

Some roads are the responsibility of the local authority – as the local highways authority – and major strategic roads are generally the responsibility of either the Highways Agency in England, Transport Wales or Transport Scotland.

The local authority will know which authority is responsible for the road or roads where tree planting is planned and how to apply for permission.

Neighbours – for support and commitment

It will be important to get local residents and owners of businesses on board. They may also want to help with planting and could prove useful allies by volunteering to carry out essential aftercare to ensure the young trees grow to maturity (see section 5, *Managing and caring for trees*).

Tree professionals – for help and advice

Seek advice from a professional arboriculturist (likely to be the council's tree officer) on what species of trees to select. It will be necessary to have the tree officer's approval of the species to be planted on local authority owned land. He or she should also be able to advise on species that are likely to be successful in the area, even if the planned planting site does not belong to the council.

Utility services – for vital information

In an urban area, any proposed tree-planting site is likely to be near, and often very close to, underground utility services – such as gas, electricity, telephone, water and sewage. If any pipes or cables are damaged during the excavation of planting pits, it could cause death or serious injury. In any case, the damage is likely to disrupt essential services. It is therefore vital – in fact, a legal requirement – that a properly experienced person (or persons) surveys the area for underground services.

What to consider

Suitability of the site

There are some basic points to consider when assessing whether a site is suitable. Find out whether the road:

- ▶ is used by a lot of traffic, is on a bus route or is used regularly by large lorries – if so, it will be necessary to plant small trees or ones with branches that grow upwards (*fastigiate*)
- ▶ falls within an area designated as of special archaeological interest – if so, permission will be needed to dig planting pits
- ▶ is subject to regulations that restrict the types of works that can be implemented (check local planning policies).

Check that:

- ▶ the pavement is wide enough for the chosen species to grow to maturity without making it difficult for people to walk past or for vehicles to use the road, and that the tree will be unconstrained by others competing for light and space
- ▶ the cost of shifting paving materials to make way for tree planting and replacing them afterwards is not going to make the project too expensive
- ▶ there is enough space to prevent roots harming foundations, or branches affecting nearby buildings or other structures as the tree grows – consult the tree officer about this
- ▶ the tree will not obstruct entrances to neighbouring sites or block excessive light from nearby windows
- ▶ there are no road signs, sight lines, CCTV cameras, street or security lights, or seats that would be affected by tree growth – trees should be planted sufficiently far away from such features so that both may coexist without conflict
- ▶ someone will take on the responsibility for maintaining the new trees.

If these checks raise any issues, they could ultimately result in the tree's removal.

Also assess whether:

- ▶ activities in the area will leave the tree vulnerable to damage by pedestrians, animals or vehicles – these may not rule out tree planting but tree guards or grilles may be required to protect growth and will need to be costed
- ▶ uses of the surrounding land and any potential future development or construction activity in the area could damage new trees.

Investigate:

- ▶ what the ground is like – it could consist of shale or building rubble
- ▶ whether the soil is at least 450mm (18in) deep, the required depth for tailor-made tree varieties (those created specifically for streets). However, this will be too shallow for many other trees. Check with the tree officer.

Cables, pipes and other infrastructure

In assessing a planting site, it is important to find out about underground services and overhead electricity cables and phone wires at an early stage. Seek advice from the local authority about this.

The investigation will involve:

- ▶ Consulting any local utility companies with infrastructure near the site. (See tips drawn from Plymouth Tree Wardens' experience of planting street trees, page 6.) Tree pits are often 450mm (18in) deep and services are commonly 300mm (1ft) to 1200mm (4ft) deep, with some

(sewers in particular) 1800mm (6ft) or more below ground.

- ▶ Assessing overhead wires, cables or overhangs to ensure there will be sufficient clearance as the tree grows – otherwise it may require frequent pruning. The required gap depends on the voltage of the cables.¹
- ▶ Ensuring that sufficient space will be allowed to prevent root growth from damaging or interfering with manholes or services inspection covers.
- ▶ Digging trial holes (as deep as the intended tree pit) to ensure no cellars, basements or underground car parks have been missed from previous checks.

The legal position

There are also legal requirements and it is important to consult the highway authority (see page 2) in order to check what these are and to ensure that they have all been met. Your local authority 'buddy' should be able to help you through this process.

For example, under Section 141² of the Highways Act 1980, it is an offence for anyone other than the highway authority to plant trees within 15ft of the centre of a made-up carriageway without a licence under Section 142³. However, Section 142 allows the highway authority to licence others to plant trees and shrubs "in such parts of the highway as may be specified in the licence". Such a licence or letter of authority would be subject to certain conditions.

In addition, if the highway needs to be temporarily excavated (to dig a tree pit), a

licence (a Section 171 permission) is needed under Section 171 of the Highways Act⁴.

It is also necessary to apply to the highway authority for a Section 50 street works licence under the New Roads and Street Works Act 1991 (NRSWA)⁵.

Definitions of ‘highways’ under these acts and others include the pavements, grass verges and tramways beside the actual carriageway.

In order for the project to go ahead, someone who is suitably trained and experienced in assessing, managing, signing, and controlling the risks to both pedestrians and traffic will be needed to lay out the working area and be present to work alongside the volunteers when they are planting trees.

This person will be required to have what is often referred to as a “Chapter 8 qualification” (see next section, Health and safety). Again, the local authority tree officer will be able to advise and in some cases may be able to provide qualified staff for the planting day.

Choice of species

Selecting the right species for the site will be critical. The local authority tree officer should be able to advise. See also *Where to find out more* for other information on species for specific environments.

For when and how to plant, see section 4, *Tree planting – planning and practice*. It will then be very important to ensure that the new trees are cared for (see section 5, *Managing and caring for trees*).

Health and safety

Involve a qualified operative

Volunteers are not insured to cordon off the pavement or stop traffic. It will therefore be necessary either for a Tree Warden to train for the required qualifications or to involve someone who already has them, perhaps from the local authority.

The NRSWA⁶ requires compliance with the Safety at Street Works and Road Works Code of Practice. This means that a suitably trained person needs to carry out a risk assessment and provide appropriate signage, as set out in Chapter 8 of the Traffic Signs Manual (TSM). Anyone carrying out this assessment and setting out signage on a highway is required to have a “Chapter 8 qualification” – in other words NRSWA City and Guilds qualifications in the following modules: Lighting, Signing and Guarding in the Highway, Excavation in the Highway and Reinstatement in the Highway. Somebody with the same module qualifications at Monitor level should also be present while the works are carried out.

Check that the work is insured

It is essential for the work to be covered by public liability insurance. Check with the local authority that its policy will apply. It will also be necessary for all volunteers to be insured for their involvement. Sometimes they will be covered by the local authority’s insurance, but that is usually only the case if a council employee is present. Otherwise, taking out a combined policy for conservation groups, offered by Tree Council member BTCV⁷, is recommended.

Carry out a risk assessment

A risk assessment is essential to ensure that all necessary precautions have been taken to reduce the risk of injury. See section 8, *Organising tree events and projects*, for more tips on carrying out a risk assessment and for a template of the sort of simple form that is required. Although the example given is an assessment for a public event, the principles remain the same.

Success story

Plymouth Tree Wardens recently planted trees along one of the city's highways. The project was one of several identified by The Tree Council and Plymouth Tree Partnership, which co-ordinates the city's Tree Warden network, to engage local people and enhance their streets as part of the Government's Big Tree Plant.

In planning the project, the Tree Wardens worked closely with Plymouth City Council and utility companies to make sure they had all the required permissions and the practical support of qualified operators on the day. For example, staff from the council's parks department were on hand so that health and safety requirements were covered.

Tree Wardens also spent time talking to resident and community groups about what was planned. This was key to success as it was important to make sure that the trees would be planted only where the community wanted them. In fact, some of the planting sites were suggested by local residents.

Here are some other tips, based on Plymouth Tree Wardens' practical experience.

Dealing with statutory services

There are several processes to go through to ensure that the planned planting site is properly surveyed for underground and overhead services.

- ▶ Each of the utility companies in the area will be known to the local authority street/highways works co-ordinator who will be able to supply details of contacts and each company's mapping response centre. These centres hold the legally required services route record.
- ▶ Contact these centres to ask for services route maps. These include gas, water and sewer pipes, electrical and communications cables, manholes, electrical supplies to street lighting, signs and parking barriers.
- ▶ Use the various maps and the site plan to get a good picture of where digging the planting pits will be difficult or simple, and to identify provisional planting positions.
- ▶ It will then be necessary for someone with the required qualifications to check the site. The local authority 'buddy' should be able to advise on how to go about organising this. There are, for example, 'dial before you dig' services that will arrange for qualified people to use a CAT scan device (similar to a metal detector) to locate services that are metal and/or carry an electrical current, and then mark them with paint spray. (This will not find all gas and water pipes, as some are not metallic.) The process will indicate where there are potential hazards and make it possible to select tree planting positions that are not too close to these services.

- ▶ A few days before the planting is going to be carried out, mark the centre and size of each planting position.
- ▶ On excavation day, a person who complies with the advice in HSE HSG47 Appendix 2⁸ (safe digging near underground services), will need to re-check the scan and carry out a trial digging **by hand**, using non-pointed, insulated tools.

Checklist of paperwork

Below is a checklist of the paperwork for the Plymouth Tree Wardens' project. All of it is mandatory under health and safety legislation, or required by insurers and local authorities.

As required by English law, the Tree Wardens drew up a method statement which defined and informed all those doing the work of the who, how, why, where, with, what and when, and the risk, risk mitigation, and remaining risks of the planting scheme. This method statement included:

- ▶ completed Section 171 Permission
- ▶ insurance certificate
- ▶ planting plan
- ▶ co-ordinated utility services plans
- ▶ list of applicable legislation
- ▶ general method statement
- ▶ job-by-job method statements
- ▶ job-by-job specific risk assessments
- ▶ general health and safety
- ▶ management structure for the project (roles and responsibilities)
- ▶ training that had been undertaken
- ▶ advice to be given on the day to members of the public helping to plant the trees
- ▶ communications on the planting day
- ▶ site access, safety barriers, signage, etc
- ▶ appendix giving full text of HSG47.

Essential information was put in a section in the front of the file (where it was readily available, on site, at all times) such as:

- ▶ emergency contacts for accidents, gas leaks, water leaks and electrical faults
- ▶ the name of the person in charge
- ▶ the first-aider
- ▶ the names of people – who would be present on the day of the planting – who have proof of competence in NRSWA/TSM “Chapter 8” (see Health and safety, page 5), and experience of how to dig safely near underground services (i.e. following the advice of HSE document HSG47)
- ▶ planting plan, drawn up by Tree Wardens and submitted to the tree officer early in the project.

The planting plan was based on an Ordnance Survey plan (1:2500 or 1:1250 scale) with proposed locations. Supporting photographs also provided useful information.

Other paperwork included:

- ▶ project planning documents such as:
 - equipment and materials lists, with details of the supplier and who was responsible for delivery
 - a schedule of responsibilities, from health and safety briefing to planting, site tidiness and providing refreshments
- ▶ a letter to each utility company and the highways department, explaining the project and asking for assistance of each of their plant protection teams
- ▶ services/utility drawings from: Wales and West Gas, South West Water, South West Drainage, Western Power supplies, British Telecom Openreach, Virgin.

Where to find out more

Trees in Your Ground – The Tree Council. Choosing and growing a wide range of species suitable for different sites www.treecouncil.org.uk

Common sense risk management of trees – National Tree Safety Group www.forestry.gov.uk/publications

Communities and Local Government www.communities.gov.uk/planningandbuilding

Department for Transport www2.dft.gov.uk/pgr/roads/network/local/streetworks/cop/safetyatstreetworksandroadworks.html

Health and Safety Executive www.hse.gov.uk

References

- 1 www.nationalgrid.com/uk/LandandDevelopment/DDC/devnearohl_final/appendixIII/appIII-part2/
- 2 www.legislation.gov.uk/ukpga/1980/66/section/141
- 3 www.legislation.gov.uk/ukpga/1980/66/section/142
- 4 www.legislation.gov.uk/ukpga/1980/66/section/171
- 5 www.legislation.gov.uk/ukpga/1991/22/section/50
- 6 www.legislation.gov.uk/ukpga/1991/22/contents
- 7 www2.btcv.org.uk/display/groupinsurance
- 8 www.hse.gov.uk/pubns/priced/hsg47.pdf

Sources of funding

The Big Tree Plant funding (Defra) to support planting by community groups throughout England until 2015 www.forestry.gov.uk/england-bigtreeplant or call 0800 856 7984

The Tree Council Tree Futures planting grants www.treecouncil.org.uk/grants

This leaflet has been funded by Tree Council member Barcham Trees



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 Website: www.treecouncil.org.uk



14 CREATING FRUITFUL HEDGES



Proper planting, and at the right time of the year, is critical to creating a productive fruiting hedge. However, that is far from the end of the story. The young plants will need a regular commitment of care and maintenance in their first few years, including formative pruning – partly to establish their shape but particularly to increase the amount of fruit they produce. Continued management of the maturing hedge and its trees is also important to optimise yield.

This section has been developed as a key part of The Tree Council's Hedgerow Harvest initiative to give guidance to Tree Wardens and their communities on caring for the hedges that they have planted specifically for fruit. The principles of pruning, for example, are the same as for any other trees and shrubs, but the main objective of maximising fruit production gives a slightly different slant.

The advice relates to the three main components of fruitful hedges:

- ▶ hawthorn, blackthorn and wild plum
- ▶ individual fruit trees
- ▶ fruit bushes/canes, including some that might not traditionally be found in a hedge.

Through the seasons

Here is a suggested annual maintenance plan to help ensure that young fruiting plants thrive in their early years and that, once mature, the hedge remains productive.

Spring tasks

Early spring is a good time to check the state of young hedge plants. Check that they are still alive (look for new buds or signs of coming into leaf) and that they are not overwhelmed by weeds. Water if necessary. For more about all of this, see page 3.

While carrying out these checks, also look to see whether the young plants – trees, shrubs or canes – need pruning, and schedule the work for an appropriate time of year (see page 6).

Summer tasks

Redcurrants, gooseberries and early or summer-fruiting raspberries should all be pruned in summer. Plums, gages, apricots and cherries (all of which are *prunus*) should also be pruned at this time – because of their susceptibility to peach leaf curl disease if the work is done in winter.

For the rest of the hedge it should be sufficient just to cut back any particularly vigorous growth that might be blocking a path, leaving the main pruning until later in the year. For more on this go to page 6.

Check whether young plants need watering (see page 3) and start harvesting the fruit of earlier labours.

Autumn tasks

The hedgerow harvest should be most prolific in autumn, so the main task will be to pick and process the produce.

As there are likely to be many visits to the hedge during harvest time, it is a chance to look out for pruning tasks for the coming winter (see page 4). Look out for any gaps in the hedge where trees, shrubs or canes that have died will need to be replaced during the winter.

Winter tasks

Between November and March is the best time to plant any new trees, shrubs or canes that are required to ‘gap up’ the hedge (i.e. to replace any that have died). So check that all the young plants are alive by looking for green under the bark of twigs. Gently scrape the surface of the bark with a fingernail or knife. If the twig is alive there will be green tissue just under the bark. If it is dead, there will be only brown dead wood. However, it is important to bear in mind that just because one or two twigs are dead, that does not necessarily mean the whole plant has died.

For tips on planting replacements see section 4, *Tree planting – planning and practice*.

Winter is also a good time to carry out formative pruning of apple and pear trees and to manage more vigorous shrubs like blackthorn to keep them in check so that they do not swamp the smaller fruit bushes and canes. See page 4 for more about pruning.

Routine maintenance

Like all young plants, fruiting trees and bushes require regular attention in their early years to ensure they survive.

Adjusting ties and stakes

It is important to check regularly the ties and stakes on young fruit trees, adjust them if necessary and remove them altogether as soon as possible.

Ties which become very tight because they are retained too long can constrict the trunk, and ties which break or slip so the stake causes abrasion can result in permanent, sometimes fatal damage.

For more about ties and stakes see section 5, *Managing and caring for trees*.

Checking guards and shelters

Inspect tree guards to ensure they are proving effective against grazing animals and are not damaging the growing tree (again, see section 5 for what to look for).

Controlling weeds

To help the hedge establish, it is important to keep its base largely free of weeds for at least five years. Weeds will compete with young hedge plants for moisture, nutrients, space and light.

Mulch is the most efficient method of keeping weeds under control. It should be applied immediately after planting (see section 4, *Tree planting, planning and practice*). The hedge will also benefit from being re-mulched in year two or three,

preferably early in the year when the ground is moist, but after all weeds have been cleared. For more about mulching, including suitable materials and how deep to spread them, see section 5, *Managing and caring for trees*.

If the hedge has been mulched correctly, there should be few weeds to deal with, but these should be pulled out by hand so that they are uprooted. Weeds should not be cut back or mown, as this encourages growth, and hoes can damage the roots of hedging plants. Also, lift up tree guards and hand weed to remove any competing plants that have grown up inside.

Hand weeding is a way to involve local communities in caring for their new fruiting hedge.

Once the area has been weeded, fill in any gaps in the soil around the roots and use a foot to firm the new soil. Cover with another layer of mulch (see section 5).

Watering

It is rarely necessary to water a new fruit hedge, provided it was planted properly at the right time of year (in the winter) and is well mulched and weeded. However, if there is a particularly long dry period – a dry spring following a dry winter – it may be necessary to water the hedge during the first couple of years.

A useful rule of thumb is a full watering can, poured slowly, or a couple of minutes with the hose for each metre of hedge. This allows water to penetrate deeper into the

soil, helping to ensure that the hedge plant's roots do not grow close to the surface (where they could dry out and the plant could die).

For more information see the Tree Care Campaign pages of The Tree Council website (see back page).

Pruning

There are general pruning principals that apply to all trees and shrubs, and specific techniques that should be used for particular types, but the aim is the same – to create a balanced plant that produces lots of fruit.

For many fruiting plants, pruning could be carried out at almost any time of the year, but – with a few important exceptions (see page 6) – winter is the ideal season for most. One reason is that the plants are dormant and the sap is not rising, so pruning is less likely to cause damage. It will also be before new shoots have appeared, which is important for those plants that fruit on the current year's wood (as opposed to those that fruit on old wood).

In winter, the young hedge will generally be without leaves so it is much easier to see and reach individual stems. There is also little risk of disturbing nesting birds.

The right tools for the job

The main tools required for pruning a fruiting hedge are:

- ▶ secateurs (bypass, not anvil, in order to get a good clean cut) – for smaller branches and twigs (generally less than 2cms [$\frac{3}{4}$ in])

- ▶ loppers for larger branches (generally 2cm – 5cm [$\frac{3}{4}$ in-2in])
- ▶ pruning saw (generally for larger than 5cm [2in]).

Choose the best quality tools that can be afforded. Keep them sharp, as blunt blades can cause 'tear' damage to the cut stems. Also keep them clean – there are plant diseases that can be spread on tools.

Why to prune

The main aim of pruning a fruit hedge is to increase the amount of fruit by:

- ▶ encouraging fruit bud formation
- ▶ creating an open structure to:
 - limit pests and diseases, particularly by making it easy for birds to see and get to caterpillars and bugs
 - let sunlight and air into the centre of the plant to help the ripening process and buds to develop for next year's crop, and generally encourage better quality fruit.

Pruning is also important for establishing a shape that is suitable for the space available. In addition, it is an opportunity to cut out old wood that no longer bears fruit and remove unwanted parts, such as overlong branches, crossing branches, or dead and diseased wood.

What to prune

- ▶ Remove crossing or rubbing branches.
- ▶ Take out any dead, dying or diseased branches.
- ▶ Cut off larger branches from the centre of the plant to allow light and air into the middle.

- ▶ Cut back leafy shoots so that the plant's energy is devoted to producing fruit.

How to prune

- ▶ Aim to make the smallest wound possible because large wounds take longer to heal and are more likely to allow diseases in.
- ▶ Make cuts that are slightly angled across the stem to avoid leaving areas where water can gather.
- ▶ Choose the right size of tool for the size of branch to avoid tearing the bark and damaging the tool.
- ▶ If the bark becomes ragged or split as a result of blunt equipment, sharpen the blade and re-prune the stem below the damaged wood.
- ▶ Cut just above buds, but do not leave too long a stem as this will die and can allow disease to enter the plant.
- ▶ When pruning a larger branch, cut above the branch collar. This is known as 'stub pruning'. Never cut through the branch collar or flush with the stem as this opens a larger wound than is necessary, allowing disease to enter the plant.
- ▶ Use a knife to cut off any rough edges caused by a pruning saw. Use pruning knives with curved blades to ensure a precise cut.

Pruning fruit trees

Formative pruning – establishing shape

The initial pruning of a young fruit tree is perhaps the most important, because this establishes its shape. In a fruit hedge, the aim should be to produce a tree with a clean trunk, tall enough so that the fruit

develops towards the top of the hedge, with a balanced shape to the canopy.

Below is a guide to how to achieve this balanced shape during the first three years. However, if the new trees are more than two years old when they are planted, some of these steps may already have been taken by the nursery from which they were obtained.

Achieving a balanced shape

Year one: Clean off the lower branches (feathers) up to 1.5 metres [5ft] while allowing the main leader to grow.

Year two: Once the leader has reached a height of more than 2 metres [6½ft], prune it back to the 2-metre point. This will encourage growth from the side branches in the top half metre, giving the tree a spreading shape.

Year three: Cut the side branches off by up to a third, leaving the most upright stem longer as the new leader.



Year one

Year two

Year three

Pruning for fruit production

- ▶ Branches in the shade produce poor quality fruit, so cut back the longer new shoots – more than 20cm [8in] – to just above the second or third leaf on the branch to allow light to get to the ripening fruit.
- ▶ Cut back any vigorous growth from a side shoot to just above the first leaf.
- ▶ Horizontal or weeping branches usually produce fruit sooner and are more prolific than those that grow vertically, so remove all new vertical shoots.
- ▶ Thin the cluster of ‘water shoots’ which will grow around the pruning points by removing the most vigorous and upright-growing ones but retaining those that are growing in the right direction (e.g. growing horizontally or important for creating a balanced shape).
- ▶ Remove some spurs (short, flowerin branches) to prevent overcrowding, as this will restrict the fruit’s ability to grow.
- ▶ For tree varieties which are spur-bearing, shorten the growth of the previous year by about a third. Cut to just above an outward-facing bud to develop new branches and spurs.
- ▶ With trees that bear fruit at the tip, remove the top three or four buds, cutting above a bud facing in the desired direction to make them branch out and so produce more tip-bearing shoots.

Sometimes it will be necessary to carry out a more drastic prune to ensure that the tree regains its vigour and continues to produce fruit. Neglected or old trees can be very large. Rejuvenate them over two or three seasons to avoid them producing

unproductive growth. Aim to remove not more than 20 per cent of the tree in a single season.

When to prune fruit trees

- ▶ Apples and pears: pruning is best carried out in winter, when they are dormant.
- ▶ Cherries, plums, gages and apricots: these should be pruned in summer to avoid peach leaf curl.
- ▶ Medlar and quince: prune at any time, but only lightly.
- ▶ Hazel: coppice every seven years.
- ▶ Walnut and rowan: never.

Fruiting hedge shrubs

Hawthorn, blackthorn and wild plums often form the backbone of a fruiting hedge.

The year after they have been planted they need to be reduced to between a half and a third of the new growth to produce a bushy plant. This should be done in winter.

- ▶ Every year until the hedge has grown to the required height – i.e. fruit is growing where it can be reached for picking – side shoots will need to be cut by a third to retain the bushiness.
- ▶ Once the new plants have matured into a dense fruiting hedge of about 1.2m [4ft] high, it will be time to devise a plan for trimming it. Like pruning individual fruiting plants (and for the same reasons), hedge trimming will usually be best done during the winter but only every two or three years. This is because hedges generally produce flowers, nuts and berries on twigs that are at least a year old, so cutting them every year would mean that they would provide little food.
- ▶ If frequent cutting is required, cut just

one side or the top each year, leaving fruit trees to grow to maturity and some of the fruit-bearing bushes to reach their full height, if possible.

- ▶ Ensure that the fruit trees have suitable protection when the hedge is cut. Applying brightly coloured tags will ensure that they are noticed and do not get cut, by accident, with the rest of the hedge (see section 10, *Taking action for hedge trees*).
- ▶ Rejuvenate hedges that have become open at the base by coppicing the hawthorn and blackthorn close to the ground so that they send up new stems and begin a fresh cycle of healthy growth.

Fruit bushes and canes

The Tree Council has been encouraging Tree Wardens to plant fruiting shrubs that have not traditionally been planted in hedges.

These require a slightly different approach to the more usual hedging plants referred to above.

Blackcurrants

Blackcurrants fruit on last year's wood and need constant new growth to ensure good crops. Cut off, at ground level, old canes that have fruited, usually when they are three years old. This should be done in early summer, after they have fruited.

Each year remove about a third of the oldest canes – these will look darker and woody – so that vigorous new shoots will develop from the base.

Pruning currant bushes

Blackcurrants



Other currants and gooseberries

Other currants and gooseberries

For redcurrants, white currants and gooseberries, the aim is to create a compact bush with an open centre so that the sunlight can easily reach the fruit to ripen it and it is easier to pick.

In summer, prune all new growth to two buds or to an outside facing bud to keep the plant compact. Prune out old and diseased wood in winter.

Raspberries

After fruiting, prune out old canes that have fruited. This means pruning autumn-fruited raspberries in autumn, and early or summer-fruited raspberries in summer. Cut the canes to ground level.

Brambles and briars

Both brambles and briars can require drastic action or they may overwhelm the hedge. If they start to take over, they can be pruned to ground level in winter. It is best not to do this all in one go or there will be no crop at all.

Where to find out more

Hedgerow Harvest www.hedgerowharvest.org.uk

The Tree Council's Tree Care Campaign www.treecouncil.org.uk/community-action/tree-care-campaign

Hedgelink www.hedgelink.org.uk – Hedgelink is the partnership that brings everyone interested in hedgerows together to share knowledge and ideas and work to conserve and enhance our hedgerow heritage

The Hedge Tree Handbook, The Tree Council

How to Prune Fruiting Plants: A Practical Gardener's Guide, Richard Bird

Pruning Trees and Shrubs, Tony Kirkham

Hedge cutting: answers to 18 common questions, Natural England

Hedgerow trees: answers to 18 common questions, Natural England

The Community Orchard Handbook, Common Ground

Trees for your garden, Nick Dunn and The Tree Council

Food For Free, Richard Mabey

Slow Food UK www.slowfood.org.uk

Wild Food: Foraging for Food in The Wild, Jane Eastoe and The National Trust

This leaflet has been produced as part of The Tree Council's Hedgerow Harvest project and has been funded by:



Hedgerow Harvest, which is part of The Tree Council's Hedge Tree Campaign, encourages local people to gather and grow food for free on their doorsteps.

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15 TREEZILLA – BUILDING AN ONLINE MAP OF TREES



Treezilla is a free, open source, innovative citizen science website (<http://treezilla.org/>) and app which allows users to contribute tree records to the UK's "monster map of trees" and find out more about nearby trees and their benefits to people (ecosystem service value). Treezilla can be used for community engagement, learning, management and research purposes.

This section outlines how Treezilla can help Tree Wardens manage and promote trees, gives a step-by-step guide to using Treezilla and explains some of the science behind how its ecosystem services values are calculated.



Treezilla – mapping trees

Find trees and discover their value

The “monster map of trees” shows all the trees already recorded with a green dot on the map. These have been added by other Tree Wardens or local enthusiasts, or have been sourced from databases of organisations such as local authorities or botanical gardens. As you click on a tree, the value of the ecosystem services it provides is displayed in the Details tab. It is also possible to compare the total ecosystem service value of all the trees in a particular area, and make comparisons with different areas. In addition, by searching for a certain

species of tree it is possible to find where in the UK these are growing. Treezilla can also be used to identify potential new planting sites.

Record local trees

Tree Wardens may wish to record trees growing in their local area in Treezilla. For every tree that is logged it is possible to see its contribution to a range of ecosystem services. A good place to start is to record on Treezilla any trees that you have planted or your favourite local trees if they are not there already. You can also add or update information, such as new size or condition data, or correct identification errors, for trees that are already on the site.

The screenshot displays the Treezilla website interface. At the top, there are navigation links: "Add a Tree", "Explore Map", and "View Edits". On the right, there are links for "My Account" and "Logout". The main header features the Treezilla logo and two search bars: "Search by Species" (with a dropdown for "Common or Scientific Name") and "Search by Location" (with a dropdown for "Address"). A green "Search" button is to the right of these bars. Below the search bars, a green banner indicates "825,149 trees, 4,085 empty planting sites" with an "Add a Tree" button. The central part of the page is a map of the United Kingdom and Ireland, showing various cities and regions. A pop-up window for a "Judas Tree" is visible over London, showing its "Nearby Address: Deon Offices, London, SE15 2UJ". On the right side, a "Details" panel for the "Judas Tree" (*Cercis siliquastrum*) is displayed, showing its "Trunk Diameter" as 0.77 m and "Tree Height" as 12.00 m. Below this, a green box highlights "Total annual benefits" as £70 saved. A section titled "TREE BENEFITS" lists "Energy conserved" as £70.4 kWh/year saved (£31) and "Stormwater filtered" as 4,009.6 L/year saved (£3). At the bottom, there are links for "Tree ID", "Resources", "FAQ", "About", "Partners", and "Contact".



Tree health

Treezilla also gives you the opportunity to note the health of any recorded tree. This makes it a useful tool for documenting the spread of pests and disease as well as changes in health to trees (see section 11, *What's wrong with my tree?*). By checking back every year, it is possible to update information and see any improvement or decline.

Advocacy

Local councils, planning departments and developers might be looking to remove trees. Treezilla can demonstrate the value of the ecosystem services provided by these trees, which may help to support any campaign against tree removal. By building our appreciation for the value of trees, Treezilla can also be used to encourage the planting of more trees.

Treezilla can also support local authorities: if local authority tree records are listed on the site, time-consuming Freedom of Information requests about trees can be directed to Treezilla.

Education/engagement/outreach

We hope Tree Wardens will enjoy using Treezilla and share this platform with other enthusiastic citizen scientists. You may wish to run an event (see section 8, *Organising tree events and projects*) with a local group helping to measure trees that are not yet recorded on Treezilla and upload these to the website. You can also use Treezilla to engage others: as a way to start conversations in your community about the wider benefits of trees.

How to use Treezilla

Make a written record in the field using a “tree postcard” (see page 5) or notebook and add this to Treezilla when you have access to a computer. Or use the Treezilla app (available soon in iOS from the App Store and in Android from Google Play) while at the site. The most important data to collect are location, species and circumference.

Recording data

- Location – make a note of the road or draw yourself a sketch map so you can identify the tree's position from the satellite image. If you are using our mobile app, it will find your location automatically, but be aware that mobile phone GPS can be inaccurate!
- Identify the tree species – full scientific name is best but common names are also OK. Be as specific as you can. If you can't ID it, take some pictures to upload to Treezilla or ispotnature.org so someone can help you identify the species.
- The circumference at breast height (1.3m above the ground) helps us to calculate

the environmental benefits provided by your tree. The circumference can be measured with a normal tape measure. If the tree has several stems at breast height, record them all individually, Treezilla will then amalgamate them.

▶ If you wish you can also record additional information – see box.



Adding your records to Treezilla

To contribute a tree to Treezilla, you will need to log in or create an account. Click on **Login** or **Sign up** at the top right of the page. You will get a confirmation email to authorise your account.

- ▶ Click on the **Add a tree** button above the map, then enter the address or the city you found the tree in. You can click **use current location** if you are using our mobile app or recording a tree near you.
- ▶ Click the **Search** button and the map will update to the area.
- ▶ Drag the green tree icon to the exact location on the map.

What information can you put on Treezilla?

Location

Images

Tree information

- ▶ Species (scientific/common name)
 - ▶ Trunk circumference/diameter(s) (metres)
 - ▶ Tree height (metres)
 - ▶ Date planted
 - ▶ Tree condition
 - ▶ Canopy condition
 - ▶ Pests
- (see section 11 *What's wrong with my tree?*)

Planting site information

- ▶ Powerlines overhead?
- ▶ Pavement damage

- ▶ Click **Next**.
- ▶ Start typing the tree species and some suggestions for scientific and common names will come up. Select the correct tree species name. If you were not able to identify the species, leave this blank and upload any photos you took so someone can help you to identify it.
- ▶ Input the circumference or diameter at breast height (1.3m). You can also add the tree height if you measured it. Click **Next**.
- ▶ Select **Continue editing this tree** if you want to add any pictures or other information that you recorded.

Editing records on Treezilla

To add to other people's contributions: click on a tree on the map, then on **Edit** to update an existing record – e.g. add a species identification or canopy condition.

Recorder	Date	Location	Map code	Tree code
Species name		Powerline overhead? ☐ Pavement damage? ☐		
Circumference (m)		Tree condition Actions		
Height (m)		Excellent ☐	Watered ☐	
Date planted		Very good ☐	Pruned ☐	
Pests/Disease		Good ☐	Fruits/nuts harvested ☐	
		Fair ☐	Removed ☐	
		Poor ☐	Inspected ☐	
		Critical ☐		
		Dead ☐		
Canopy condition (see pictures on other side for reference)				
1. No gaps ☐ 2. Up to 25% missing ☐ 3. Up to 50% missing ☐ 4. Up to 75% missing ☐ 5. Up to 100% missing ☐				
Treezilla is an Open University project. For further information see www.treezilla.org or contact us at treezilla@open.ac.uk				




Record information about a tree on this card so you can later upload it to Treezilla.org. Fill out as much as you can - the most important information is location, species and circumference.

These images are helpful for selecting the appropriate canopy condition.
Source: Flower et al. (2015)







1 2 3 4 5

Notes:

Resources have been created that can help you record trees on Treezilla.

Tree data recording cards can be downloaded from the Tree Warden website – see *Where to find out more.*

Learning about trees

Anyone can look at the Treezilla website and see all the trees already entered without needing to make an account by clicking in **Explore map**. Scroll around the map and click on a tree to find out more about it and the benefits it provides. It is also possible to search the map by tree species or by area using the search bar at the top of the page. You may wish to use this facility to note and look for planting sites.

What does Treezilla give you?

Treezilla uses the information about a tree to give a monetary value in pounds for the ecosystem services it provides. It is also possible to see the value of all the trees in any area. The numbers are calculated using

i-Tree Eco, whose model is based on a large amount of scientific research and detailed measurements of trees over many years.

How does it work?

There is a relationship between the dimensions of a tree and its other properties, which are more difficult to assess, such as the provision of ecosystem services. By measuring the circumference of a tree and knowing its species, it is possible to estimate its leaf area. A greater leaf area is generally linked to a larger value of ecosystem services, e.g. a greater leaf surface area where pollutants may be deposited. The final value will also be dependent on the location of the tree. For example, cooling from the shade of a tree will be of a higher value under a warmer climate.

The screenshot displays the Treezilla website interface. At the top, there are navigation links: 'Add a Tree', 'Explore Map', and 'View Edits'. The 'treezilla' logo is on the left, and 'My Account' and 'Logout' are on the right. A search bar is located in the top right corner, with options to search by species (Common or Scientific Name) or by location (Address). Below the search bar, a green banner indicates '825,149 trees, 4,085 empty planting sites'. The main area features a map of the United Kingdom and Ireland, with numerous green dots representing tree locations. A sidebar on the right provides details about the selected tree, including 'Eco Benefits' and 'Tree Benefits'. The 'Eco Benefits' section lists: Total annual benefits (£76,116,264 saved), Energy conserved (757,842,866 kWh/year saved £45,545,508), Stormwater filtered (4,676,877,538 L/year saved £3,786,886), Air quality improved (687,674 kg/year saved £116,473,234), Carbon dioxide removed (183,673,081 kg/year saved £16,113,882), and Carbon dioxide stored to date (622,796,262 kg saved £40,476,876). The footer contains links for 'Trees', 'Resources', 'FAQ', 'About', 'Partners', and 'Contact'.

What are ecosystem services?

As well as enriching our daily lives, nature and environmental processes can be considered to provide “services” to society.

Treezilla

The services trees provide that we are currently accounting for in Treezilla are:

- ▶ ameliorating the climate in urban areas, so saving energy costs of cooling buildings in summer and heating buildings in winter
- ▶ reducing storm water flows that can overwhelm urban drainage systems
- ▶ cleaning pollutants from the air
- ▶ uptake of greenhouse gases such as CO₂ from the atmosphere.

Tree valuation

There are different views and methods on how exactly to calculate a tree’s value. The Helliwell and CAVAT systems (see *Where to find out more*) were designed to enable a financial value to be placed on a tree or group of trees, which reflects either its ‘amenity value’ or its ‘asset value’.

Treezilla uses tree values based on ones derived from iTree (see *Where to find out more*) and its important to note that with Treezilla we are valuing some of the benefits (ecosystem services) provided by the tree, rather than value the actual tree itself.

Improving science

Treezilla will use new research, ranging from scientific measurements to economic considerations, estimates will get better and broader, covering more ecosystem services, so ecosystem service values are likely to change slightly in the future. For example, trees can also contribute to our health and wellbeing – this is something that will hopefully be incorporated in future estimates of the value of trees.

The Open University is working with partners Forest Research and Treeconomics to update the valuations to more UK-relevant figures.



Image credit: Sam Galbraith

Where to find out more

Register, create an account and log a tree at: www.treezilla.org

Log in to the Tree Warden portal to download and print your own “tree postcards”:
www.treecouncil.org.uk/Take-Part/Tree-Wardens/Tree-Warden-login

Get help with identifying species: www.iSpotnature.org

For a guide on estimating canopy condition in different common species:
[www.forestry.gov.uk/pdf/FCFB012.pdf/\\$FILE/FCFB012.pdf](http://www.forestry.gov.uk/pdf/FCFB012.pdf/$FILE/FCFB012.pdf)

For identifying pests and disease: www.forestry.gov.uk/pestsanddiseases

Resources on how the i-Tree Eco model works: www.itreetools.org/resources/archives.php

For practical activities using Treezilla see the OpenScience Laboratory: www.opensciencelab.ac.uk

For information about the CAVAT and Helliwell tree valuation systems:
www.treecouncil.org.uk/Take-Part/Tree-Wardens/Technical-Update/Technical-Update-July-2017

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Front page image © Mike Dodd



The Tree Council's Tree Warden Scheme

in partnership with National Grid and supported
by the Government's Cleaner, Safer, Greener initiative

