Guidance Notes for

# RESTORING A TRADITIONAL ORCHARD

## Traditional Orchards

**T**raditional or old orchards are a distinctive feature in the local landscape. They can be recognised by the wide planting distance of large majestic trees of old and often scarce varieties on a standard rootstock which determines the size the tree will grow to. These orchards consist of apple, pear, cherry, plum and damson which are at least fifty years old. This also includes cob nuts (Hazel), which are grown in orchards known as platts. These traditional orchards support a large number of varieties and provide a valuable habitat for flora and fauna.

Commercial production of fruit has changed dramatically over the last fifty years with the mass removal of less viable traditional orchards

leaving just a few scattered throughout the countryside. Now the true value of these neglected traditional orchards as a landscape and biodiversity feature is being realised, instigating the restoration of those surviving orchards. This will help to conserve our local heritage which has been around for the last 400 years and increase the biodiversity of wildlife. Traditionally these orchards are grazed by sheep helping to develop the pasture and creating a more extensive wild flower population.

## Biodiversity

***'Biodiversity is the total variety of life on earth.***

***It includes all genes, species and ecosystems and the ecological processes of which they are part.'***

***- ICPB. 1992***

## The Orchard

**M**any traditional orchards have suffered from extensive neglect. Whilst it is too easy to prune removing all the necessary wood in the first year, the tree may suffer. A restoration project will take at least three years and is very rewarding as you gradually transform the orchard.

Before you start to prune the orchard remember a lot of orchard wildlife depends on dead and decaying wood. Therefore it is important to conserve some unproductive wood where nature conservation is of high priority.

Some trees are often covered in ivy, clear this away from the tree to make pruning easier.

A Traditional orchard was often planted on a diagonal planting therefore before any work is undertaken in the orchard; a plan of the planting system must be established.

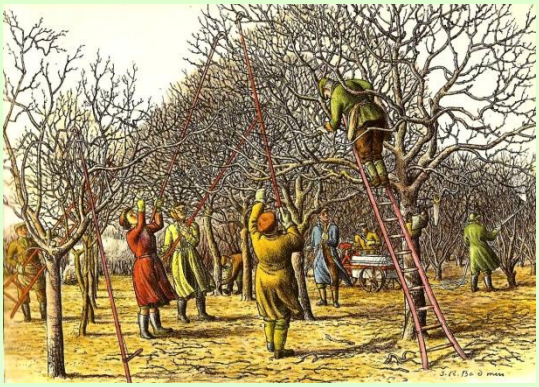
Firstly, it is important to clear the ground where the sward has become overgrown. This can be done by stocking the orchard with sheep to graze the grass; at the same time they will be trampling any dead rubbish enabling you to see the trees more easily. Mowing or pulverising the vegetation may be necessary if grazing is not an option or where growth of brambles or other scrub is present. All of the dead wood from the alleys and orchard floor should be removed to two or three sites around the orchard to form habitat piles, refuges for wildlife. Excessive wood should be disposed of in other ways such as stacking for fuel or if in reasonable condition for woodturning. If you need to burn infected dead wood on site, check

for any waste exemption licences need. Now you will then be able to assess how much pruning needs to be done in the orchard.

## PRUNING

**The initial principles of pruning are to:**

- **create tree shape**
- **preserve old trees**
- **maintain tree vigour and growth**
- **encourage fruit bud formation**
- **improve fruit quality and quantity**
- **permit light and air into the tree, this helps with pest and disease control and fruit bud formation and fruit quality**



### ASSESS WHAT MOST URGENTLY NEEDS ATTENTION

**In large, old trees pruning is essential, as neglected trees soon become a tangled mass with much dead wood and little or no new growth.**

**The aims of pruning are to:**

- remove dead wood
- remove diseased wood
- open up the tree to allow light in and good air flow through the tree
- remove any touching or rubbing branches
- remove or reduce the number of branches growing at acute angles from the trunk
- reduce the risk of wind damage in exposed locations
- make fruit picking easier

### Removal of dead wood

**L**ook at the tree and identify what wood needs to be removed. Remove the dead wood straight away since this could be harbouring infection. If the tree is completely dead do not cut it down to the ground, remove the boughs at the point where they were grafted at the top of the trunk. This will then leave a haven for birds such as the Green, Greater Spotted and Lesser Spotted Woodpecker *(Picus viridis, Dendrocopos major and the Dendrocopos minor)* to nest in the trunk, lichens to grow and invertebrates such as the Noble Chafer (*Gnorimus nobilis)* to live. Stack the dead wood away from the tree to form habitat piles. Do this in the first year.

### Removal of diseased wood

**A**ll diseased wood needs to be removed completely back to a healthy branch. Do this in the first year.

### Open up the tree to allow light in

**O**pen up the trees sufficiently to allow good light penetration. Remember to only prune out roughly a third of what needs removing in the first year. Neglected trees can sometimes have accumulated too much growth over the years often in the form of watershoots (strong, often upright growing, suckers), these need removing. In extreme cases where too many watershoots have established the whole balance of the tree has been lost and older boughs can split away from the tree. Removal of too many watershoots at once can stimulate even more vegetative growth at the expense of fruit bud. Often some trees may have stopped producing new growth and need some pruning to encourage new growth for the production of new fruit bud. Do not prune out fruiting spurs since this is where your fruit will form the next fruiting season. By thinning out the branches, letting in light and air, the condition of the tree will improve. When pruning do make sure that the branch is large enough to support further growth in the future.

### Removal of touching or rubbing branches

**R**ubbing branches create entry points for disease and should be removed. Do this gradually over the next two years.

### Removal or reduction of the number of branches growing at acute angles from the trunk

**B**ranches growing at acute angles can break if they carry a good crop of fruit. Look at the tree and slowly prune out these branches. By doing this it will prevent the incidence of the bough breaking and will also let in the light giving the fruit more even in colour. Do this over the next two to three years.

### Reducing the risk of wind damage in exposed locations

**W**hen there are strong winds and the tree has too much dense growth it can be in danger of being blown down therefore make sure there is good air flow through the tree. Thinning the tree will also encourage fruit production and lessen the instances of disease.

## How should an old traditional orchard be pruned?

### How do I prune?

**I**nitially, decide what fruit species are to be found in your orchard, if it is apple and pear, these can be pruned in the winter. *Dormancy reduces the risk of infection* from the wounds produced by the pruning. However, if it is cherry, plum or damson, pruning needs to take place in the spring/summer when the sap is rising and pruning cuts heal rapidly. At this time there will be less likelihood of the tree developing diseases such as bacterial canker and silver leaf.

The tools that are needed for pruning are pruning knife, secateurs, pruning saw, loppers and long armed pruners. In most cases it is best to only use a saw. The photograph shows how the trees were first pruned in the 1940's.

All pruning cuts to the tress should be smooth and no stumps or jagged ends left.

When cutting branches avoid any splitting, undercut the branch first with a pruning saw and then cut from above. If the branch is pruned incorrectly this will result in the tree being more susceptible to disease.

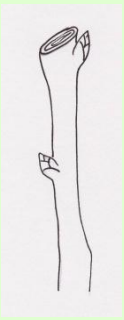
Traditional old cherries and plums often need no pruning since the shape was established in the first few years of their life, only restorative pruning may be required and this should be avoided if possible, due to the danger of Silver Leaf.

### How do I decide on what to remove?

**L**ook at your tree and decide whether to cut back a number of main branches so that fresh growth will be thrown up, with removal of further branches in subsequent years. Apple trees need to be pruned back to form the shape of a wine cup.

If a traditional orchard (particularly cherry) has been left neglected over the years invariably suckers are likely to have grown from the rootstock up through the tree and formed branches. Remove these rootstock branches since you will only encourage the tree to put all of its energy into the production of the rootstock variety rather than the rest of the tree. Beware – it can be difficult to distinguish between shoots of the variety and shoots from the rootstock. The rootstock is often similar to a non-productive wild black cherry called Gean.

Do not allow main branches to underlie each other unless they are at least 2 ft apart. Remove branches which cross each other. The tree should have a number of well-separated branches radiating out from a common centre and more or less equally spaced. Gradually remove vertical branches since they draw energy from the rest of the tree and shade other branches, inhibiting the formation of fruit buds. They have far fewer fruit buds than horizontally angled branches. Encourage lateral branches to grow, these will initiate fruit bud. If the tree is a tip bearing variety leave alone all laterals with fruit buds at their tips. Smaller branches can be pruned back by about one third of their total length. This is called heading back. Cutting back to shoot bud tends to stimulate lateral growth.



If an orchard needs to be drastically pruned this should be undertaken over a period of three years. Sometimes the leaf will look yellow and sickly; this may be due to the weakness of bud formation in the previous year. Pruning and thinning the tree can increase the cropping of the tree yet greatly reduce the size of the tree.

### Comparing fruit buds and growing buds.

**Fruit buds** are much fatter than growing buds.
**Growing buds** are slim and pointed and lie closer to the branch.
Fruit buds form on 2 year old wood in apples and pears; these will develop into spur systems. Buds on spur bearing trees tend not to be found at the ends of the shoots yet on tip bearers, as the name suggests, the end bud or terminal bud is the fruit bud. If the tips are pruned the crop will be much reduced that year. Some varieties are both tip and spur bearers. For more details see: www.naturalengland.org.uk - Farming - Environmental Land Management- - TIN017 - Traditional orchards: maintenance pruning

**Fruit bearing habit of fruit trees**

1. Fruit borne mainly on two-year-old or older wood - varieties of apple, pear and sweet cherry
2. Fruit borne mainly on one-year-old wood – Morello cherries
3. Fruit borne on one-year old wood and older – plums and damsons

There is a debate as to whether large cuts made when pruning out large limbs or boughs need to be painted with a protectant pruning paint. In some cases these paints can be beneficial, especially if they have a direct action against a specific disease, such as canker in apples. Yet, it can also hinder the healing process and seal in fungal spores and airborne diseases creating the perfect environment to multiply.

## Planting Traditional Varieties

Firstly, identify the varieties which are already growing in the orchard. There are various ways in which you can do this. The RHS at Wisley have a fruit identification service as well as Brogdale Collections (see their websites for information). It is also possible to take samples of leaves for DNA profiling but this is more expensive and is likely to become more available in the near future. Old orchard records often exist, showing plans or lists of the varieties which have been planted by previous farmers and land owners. Some of these find their way into local or county archives. It is worthwhile doing a little detective work and check back for any historical documents and plans which may be held.

Once you know the varieties planted in the orchard try and locate the same varieties to use in the gapping up of the orchard. Make sure that they are planted on a standard rootstock so that they will grow to the same size. Plant them as near to the same order in the orchard as on the original plan – they will have been planted by season of fruiting which gives a succession for picking. If you are unable to identify the varieties or the varieties are unavailable there are two choices. Firstly, chose another one of the traditional varieties which would have been grown at that period of time and if possible is common to that area and county. Secondly if there is no stock available it is possible to plant a standard rootstock that year and then the following year buds or grafts from one of the original orchard trees can be grafted onto the rootstock.

Brogdale would be able to advise you on varieties which were bred in your area and county. This information can also be found on the website of England-in-particular.

## Gapping up

Gapping up is the planting of new trees after the removal of the dead trees. Firstly, look at your initial plan of the planting system.

### First Method

1. Locate the original planting diagonal and if the orchard has already been gapped up follow the system already used.
2. Decide whether the root system has been well removed.
3. Remove the soil from the planting site and mix good fertile organic compost such as mushroom or composted green waste with it. Then plant the tree into the hole backfilling with the compost soil mixture, gently firming the soil around the root. As a rough guide 10 litre of compost will be need for each young tree. DO NOT plant into neat compost this can damage roots. It can be helpful to use the same type of compost or straw as mulch on top of the soil around the tree after planting. The compost would then give tree a kick start helping it to grow through the possible *Specific Replant Disease* which could be present in the soil.
4. Make sure the 1 metre diameter circle of ground is kept clear of weeds round the young tree to reduce competition for water and nutrients. A good mulch will help to achieve this.

**Specific replant disease**

Specific replant disease is found in the soil which has previously grown fruit trees. The disease is caused by the build up of nematodes and pathogenic fungi which remain dormant in the soil. When new fruit trees are planted in the same position they will struggle to establish. To overcome the effects of replant disease incorporate green compost into the planting hole, providing nutrients.

If the orchard has not been gapped up before, plant the tree within the diagonal but about 2 metres to the side of the original tree planting site. This grid should be followed for the gapping up of all the trees and will help eliminate replant disease.

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