Chapter 8 The next generation of Veteran Trees

8.1 Introduction

One of the biggest threats to our rich heritage of veteran trees is the absence of a next generation to replace them when eventually they die. Linked to this is the lack of suitable conditions for wood decay for the wildlife dependent on these conditions. Saplings may replace the veterans in many years' time but a crucial need is for trees of middle age, that are nearly veterans. These in particular need protecting. If there are no 'near veterans' there is a need to create suitable decay conditions on younger trees. It is also very important that the life of existing veterans is extended to enable a large overlap in life spans.

8.2 Lack of the next generation of trees

A lack of new/young trees is normally caused either by grazing pressure (including deer and rabbits) eliminating any natural regeneration or by regeneration not occurring owing to shading, eg by planted conifers, dense bracken or rhododendron.

When considering options for establishing the next generation of trees bear in mind that naturally grown trees tend to survive better than transplanted trees because of the way that the roots develop. Thus natural regeneration should be the first option if possible. The use of tree shelters often increases the chance of survival of the young trees but may suppress lateral branching, which is important for open grown trees if they are to have high wildlife value.The methods for ensuring the next generation (in order of preference) are:

1. *Natural regeneration from existing trees (very old trees may not produce as much viable seed as young ones).*
2. *Seed from the site scattered on the ground and grown on* in situ.
3. *Seedlings grown, in a nursery, from existing veteran trees and planted out.*
4. *Seedlings grown, in a nursery, from trees elsewhere on the site and planted out.*
5. *Seedlings from other local sites.*
6. *Saplings moved from elsewhere on the site.*
7. *Saplings from elsewhere, ie not from the same site.*

Ideally the next generation should be:

- of similar genetic origin to that already on site, ie of local provenance. This can only be assured if you collect the seed yourself from the trees with the characteristics you want to perpetuate or if natural regeneration occurs. (When collecting seed it is best to do so from existing veterans as these may have the genetic predisposition to live for a long time).
- of similar species composition to that of the old trees, unless there is a need identified for some faster growing trees,eg birch (or sweet chestnut) to provide,for example, saproxylic conditions sooner;
- planted/encouraged before the ancient ones are lost. (An oak tree grown from seed may take 200 years before it starts producing dead wood.) This also means that the lives of the veterans must be extended as long as possible;
- used to extend the existing site boundary if possible;
- planted/encouraged continuously so that trees develop at different stages and provide a range of age classes. A single cohort of young trees will repeat today's problems in 300 years' time. However, trees do not need to be planted every year. Gaps of 10 years or so between cohorts is fine;
- planted/encouraged in ways that take the landscape character into account;
- planted in groups, eg three (if possible), to allow for some losses.
- not planted so close to veterans that the young trees grow up to interfere with the older ones. Open grown trees at maturity may have a canopy spread of over 30 m.

Encouraging natural regeneration in grazed areas

- Alter the grazing regime to reduce the density or remove the animals either from the whole area or, from small patches that can be rotated if necessary. In this instance grazing pressure may need to be relaxed for several years in order for the seedlings to reach a height where the animals cannot reach the tops. The land inside the fence may still need to be managed. Consider fences that allow some grazers (eg sheep) through but not others (eg horses). Without any control the growth of vegetation surrounding the young trees can swamp them.
- In a large area allow rough patches to develop, which the animals are unable to get to and allows seedlings to 'get away', eg bramble patches round fallen trees. Be careful that the exclusion of grazing is not detrimental in woods that have been grazed, as this can allow dense growth of species such as holly that shade out everything else. Do not clear away rough patches when they form.

8.2.1 Solving the lack of the next generation

8.2.1.1 Planting/translocating trees

Growing seed from the site (or elsewhere) for planting is very time consuming. However, one way round this is to involve the local community, especially children, who can also help with the long-term care of the trees. Children planting seeds in pots enhances the chance that they will be looked after and this is the focus of the Trees of Time and Place project. Some trees, notably willow, grow well from cuttings and this can be a valuable way of ensuring subsequent generations. Large cuttings of up to 3 - 3.5 m cut from coppice or pollard willow usually grow well.

Translocation of trees at Ashtead Common

In common with many sites, there is a lack of suitable maidens to pollard within the relict wood-pasture areas on Ashtead Common. In the scrub grassland the regeneration of oak is much better but the younger trees often have to be removed as they are growing above a gas pipe or under high voltage cables. These young oaks are moved into the wood-pasture areas by means of a treespade (Figure 44a). The trees are lifted out of the ground together with a large root ball that is then wrapped in hessian and chicken wire and transported to the planting location. Trees are moved at an age of between 10 and 15 years of age so that they will be above the bracken and less susceptible to deer damage. Rabbit guards round the trunks protect them from deer fraying. Survival rate has been about 85%, the deaths probably being caused by very dry summers and attempts to move trees that were too large.

Figure 44a. *See colour plate page 91.*

When planting out seedlings/saplings their aftercare needs to be considered too:

- If sites are grazed the trees must be protected with guards appropriate to type of animals. The use of chemical deterrents on leading shoots to restrict browsing is another possible option.
- Big tree guards (Figure 45) allow the tree to develop a more natural shape while still giving protection.

Figure 45. *See colour plate page 91.*

- Tree shelters may help growth in the early stages but they may need to be removed/replaced and do not mean that trees can just be forgotten.
- Trees may need to be cared for, eg removing competing weeds and other saplings, watering in drought situations.
- Ideally they need to be planted in forest soil, to encourage associations with mycorrhizal fungi.

For full details on how to plant trees see British Trust for Conservation Volunteers (1980).

8.2.1.2 Where to plant/translocate young trees

In woodland, the position of the new trees is usually not especially important. However, in wooded commons or in the general countryside you should consider how the planting will affect the existing regional character with regard to species, position and landscape character. While it is beneficial to increase the area of a site this should not be done at the expense of other, valuable habitat, types eg heathland or unimproved grassland, or landscape features. Even within existing sites with veteran trees it is important to make sure that conditions such as soil type are suitable for the tree species you are about to plant, and not to plant up good habitats.

In a more formal landscape, especially one that has been designed with specific objectives in mind, it is vital that any planting is done in sympathy with the historical design. In these sites you should get advice from a historian or landscape architect. Points to bear in mind are:-

- Avenues should not have their shape broken up.
- Views that were an important part of designed landscapes, eg from the main house, from high points or features of interest on the estate, should not be interrupted by new plantings. (Remember that a few years after planting the trees will be taller!)
- Look carefully at the layout of trees on the estate. Are they in formal clumps, groves, regular blocks, belts or groups of a specific number? Try to emulate this pattern if possible. To the flora and fauna how the trees are arranged is generally of less importance than the fact that they are there.
- Try to copy the existing species composition on the site. Ideally, native species should be in the majority although non-native species may be integral to the design.

8.3 Lack of abundant wood deca y

8.3.1 Lack of imminent veterans

Encouraging natural regeneration and the planting of saplings may help to fill the generation gap on some sites, but a more immediate problem is ensuring that trees that are nearly veterans survive to become veterans. There is an urgent need to ensure that trees in their prime are retained into old age. Many of the characteristics normally associated with veteran trees (for example, dead wood in the canopy, decay holes, loose bark and sap runs) are found in younger trees and these should be cherished, not seen as detrimental.

Even when a new young generation of trees is growing on well, there may be a considerable gap before these young trees gain the characteristics of veterans. Continuity of these features is very important for the wildlife value of the trees. This situation can be remedied in several ways but most require some form of active management. Leaving dead wood on the ground will help, but for sites with a good saproxylic fauna it is not a replacement for dead wood and rot holes in standing trees.

Some practical solutions to this problem exist:

- Leave older trees out of the felling rotation cycle - this solution is only possible when plantation trees of suitable species have been grown round the old ones (see section 5.3.2 for details).
- Cutting pollards from maiden trees - this will ensure older trees in the future and may also create dead wood in the bollings of the young pollards, especially if trees are cut older than the age at which pollarding would usually have commenced, (see below for more details).
- Damaged trees or those in need of reducing should be made into pollards, or reduced in a similar way, rather than being felled.
- Plant or encourage faster growing species in addition to replacing the longer lived species. These can, to some extent, provide suitable conditions, but should not be viewed as a complete replacement. For example, birch harbours a good range of species, sweet chestnut is a good bridge of oak communities, horse chestnut has a good range of species and good sap runs and sycamore supports a reasonable range of species).
- 'Damaging' young or middle aged trees will encourage the development of decay.

8.3.2 Methods for creating veteran tree characteristics on younger trees

A number of methods can be used to encourage veteran characteristics on younger trees. This type of work should be done on young or mature trees not veterans. Methods that retain a live tree are better than those that kill the tree as live trees will continue to provide conditions for saproxylic species. Dead trees are a short-term measure. These methods include:

- cutting the tops off trees that are likely to respond to pollarding. It is best to do this when the intention is to create new pollards and then to accept that some will not survive long as a source of dead wood. Cutting large trees will help create more decay communities than young ones;
- ring barking. This kills many trees slowly thus allowing rot to develop. This is preferable only when it is desired to get rid of trees, eg undesirable species or those too densely planted, as killing trees does not produce long-term continuity of habitat. It is best done in woodland as trees in the open 'season' rather than decay;
- making holes in live standing trees to initiate rot;
- inoculating heart wood rotting fungi into healthy trees;
- putting the tree under stress;
- using explosives to produce shattered ends to branches and 'natural' looking damage. (This option should only be carried out by experienced specialists with a licence;)
- using herbicides to kill standing trees;
- constructing special saproxylic 'nest boxes' see section 7.2.3;
- deliberately damaging the bark to induce decay earlier or simulate sap runs (squirrel damage can have the same effect);
- breaking branches, rather than sawing them off flush, or creating 'coronet' ends;
- increasing the water retention in forks and crowns of trees by drilling holes.

8.3.3 Creating new pollards

Creating new pollards (Figure 46) can provide continuity of the dead wood resource and potential ancient trees for the future. It can also provide continuity of historical or landscape interest.

The relative importance of these points will vary according to the site but you should consider:

- **The species of tree to cut.** Try to perpetuate the existing range of species already on the site, although there may be good reasons for pollarding some other species, eg sweet chestnut, see sections 7.2.2 and 7.6.2.
- **Height of cut.** Try to maintain roughly the same height and shape of tree as the existing pollards, but be aware of the management implications of this decision.
- **Where to pollard.** The site may be divided into areas of different historical management, eg by wood banks, park pales. Wherever possible maintain the distribution of new pollards much the same as the old ones to keep in sympathy with the landscape.There may be a need to create new pollards in different areas if there are no suitable young trees close to the ancient pollards.

8.3.3.1 How to create new pollards

- Cut as young as possible, when the tree has attained the desired height.
- In most species of tree, the creation of a new pollard is easy. The stem of the sapling is cut at the desired height. Depending on the species (see appendix 4) branches may or may not need to be left below the point of cutting. Bear in mind that growth will come from below the cut so cut a little higher than you want.
- Even in shade-tolerant species, like beech, adequate light must reach the stem.
- Trees up to 40 cm in diameter can usually be cut without leaving a leader except for beech and oak.
- For more difficult species, eg beech, some branches must be retained, preferably two or more to provide a degree of balance; cut according to the shape of the tree.
- Prolific growth may follow (especially in the case of lime, willow, etc) which needs to be pruned back if the area is not grazed, to ensure that growth is encouraged from the top.
- Once the tree has been cut, try to ensure that it is maintained, eg by cutting in the future. A 10 - 20 year cycle is probably appropriate for most situations.
- For most species the older the tree the more reluctant it is to grow following pollarding. Prepare for this by leaving branches on (leave more branches on the greater the diameter of the tree, and more for beech relative to oak and ash).
- In the USA urban pollards are cut so that one branch is left on at the junction of the cut and the main stem. This is removed after 1 - 2 years (Coder 1996).
- If, for ash in particular, shoots do not appear in the first spring after cutting, don't panic! They may come later.
- Remember that new pollards that die are sources of dead wood. If you have scope for making plenty, don't worry if some die, keep them as wildlife habitats.
- Remember that what is successful on one site may not be on another. Variations in soil type and rainfall make a difference. Always err on the side of caution.
- For time of year to cut, see guidelines for cutting old trees.
- Cutting height should be determined, at least in part, with the grazing animals in mind. The browse line is approximately 1.3 m for fallow deer, 2.1 m for cattle, 2.7 - 3.0 m for horses. Cut at least 30 cm above the eventual browse line.
- Bigger, older trees can be cut like pollards to help close up the generation gap (eg 100 - 150 years old) but lower branches must be retained in this situation. Most often (oak and beech) the subsequent growth will be from the retained branches rather than being new ones but it has a similar effect in prolonging the life of the tree and creating suitable conditions for decay to occur.
- On sites with public access it is desirable to inform the public what you are doing and why.

Figure 46. *See colour plate page 92.*

8.3.3.2 Subsequent cuts

If an appropriate cutting regime is known for a site it would seem sensible to follow this. If it is not known, it seems likely that most cuts were made at 10 - 15 year intervals. Willow was probably cut more frequently. In street trees cuts can be made much more frequently and the timing depends on the degree of growth and the situation of the tree.

Many ‘natural’ pollards were created during the storms of 1987 and 1990 but most will not be maintained as pollards in the future. Natural pollards can also be caused by squirrel damage (eg on young beech trees).

Further reading: Alexander, Green & Key (1996),Atkinson (1996), Barwick (1996), Battel (1996), British Trust for Conservation Volunteers (1980), Coleman (1996), Edlin (1971), Forbes & Warnock (1996), Kerr (1992),Key & Ball (1993), P. Kirby (1992),Mitchell (1989), Rackham (1986), Sanderson (1991), Sisitka (1991a, 1991b), Speight (1989), Tubbs (1986), Watkins (1990).

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