

## Chapter 7 Management of Veteran Trees for other organisms

### 7.1 Introduction

One of the reasons that veteran trees are so important is because of the range of other organisms that live on them or are associated with them. Indeed, many sites with populations of veteran trees have one or more statutory nature conservation designations for the species they support. For this reason it is essential to manage with other organisms in mind, not just the trees themselves. Many of these other species are important to the survival of the trees too, so they should be viewed as an integral part of the system. A number of the species associated with veteran trees are protected in their own right, via the Wildlife & Countryside Act, and many are listed in the Red Data Books or in the UK Biodiversity Action Plan and are therefore considered vulnerable or threatened. Ideally, the site or tree should be surveyed to find out which species are present and management can then be targeted. In reality detailed surveys are rarely achieved in the short term, but try to involve various experts early on if possible.

*Indices of Ecological Continuity have been drawn up for lichens and beetles based on the species that are more or less confined to old pasture-woodland and pollards. Similar indices may be developed for some other groups of organisms, but may not be possible for others, such as mosses, as there are too few species that can be used.*

### 7.2 Managing for a range of organisms

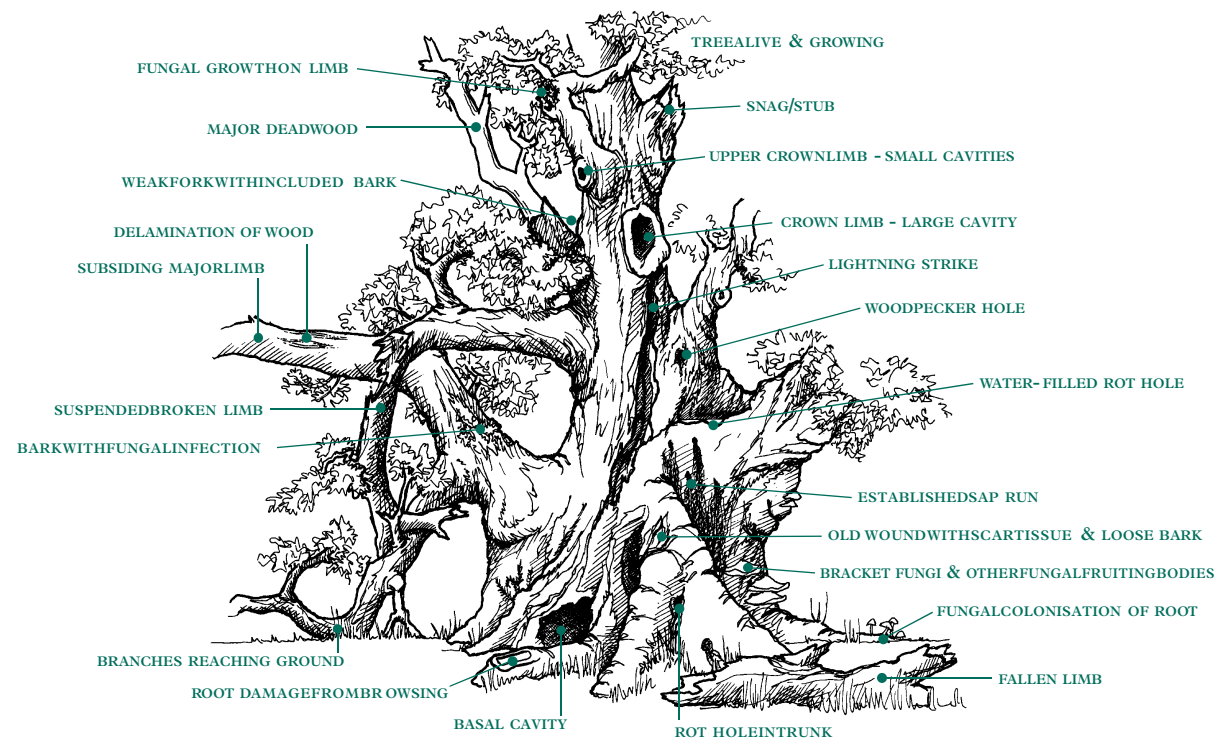
Despite the variety of groups that species associated with veteran trees belong to, many benefit from very similar management practices. These practices are beneficial to the veteran trees themselves too and should be considered together with chapters 4 (management of the veteran tree) and 5 (land surrounding the veteran tree).

#### 7.2.1 Management of the tree itself (Figure 35)

The majority of species will benefit from the following:

- Try to keep individual trees alive for as long as possible; live trees continually produce dead wood as well as leaves, and branches.
- Do the minimum amount of surgery necessary on a tree.
- Ensure that there is plenty of standing dead wood (including whole dead trees) and dead branches on old trees. Try not to remove the lower branches of trees, eg to allow vehicular access. If they are dying, due to shading from above, they might be used by some specialist insects.
- Never cut into cavities or holes, or drain them. To avoid this, test the depth of the cavity by using, eg a piece of flexible hose, inserted into the hole, and ensure that any cutting necessary does not go into it.
- Try to avoid damage to the lower parts of the tree trunk, including damage by grazing animals (rubbing or chewing etc). As well as harming the tree itself, such damage may be detrimental to other wildlife, for this is where lichens grow and there may also be cavities at ground level, which can be good for invertebrates.
- Don't tidy up (ie flush cut) rough ends to branches, the broken ends form egg-laying niches.
- Leave any dead wood in the canopy.
- Don't treat stumps or cut/damaged branches with sealant, fungicide or insecticide.
- Do not remove fungal fruiting bodies; it can be harmful for the fungus and also for any organisms living in it.
- Do not plough close to veteran trees, this damages the mycorrhizal fungi as well as the tree.

Figure 35. An 'ideal' veteran tree for wildlife.



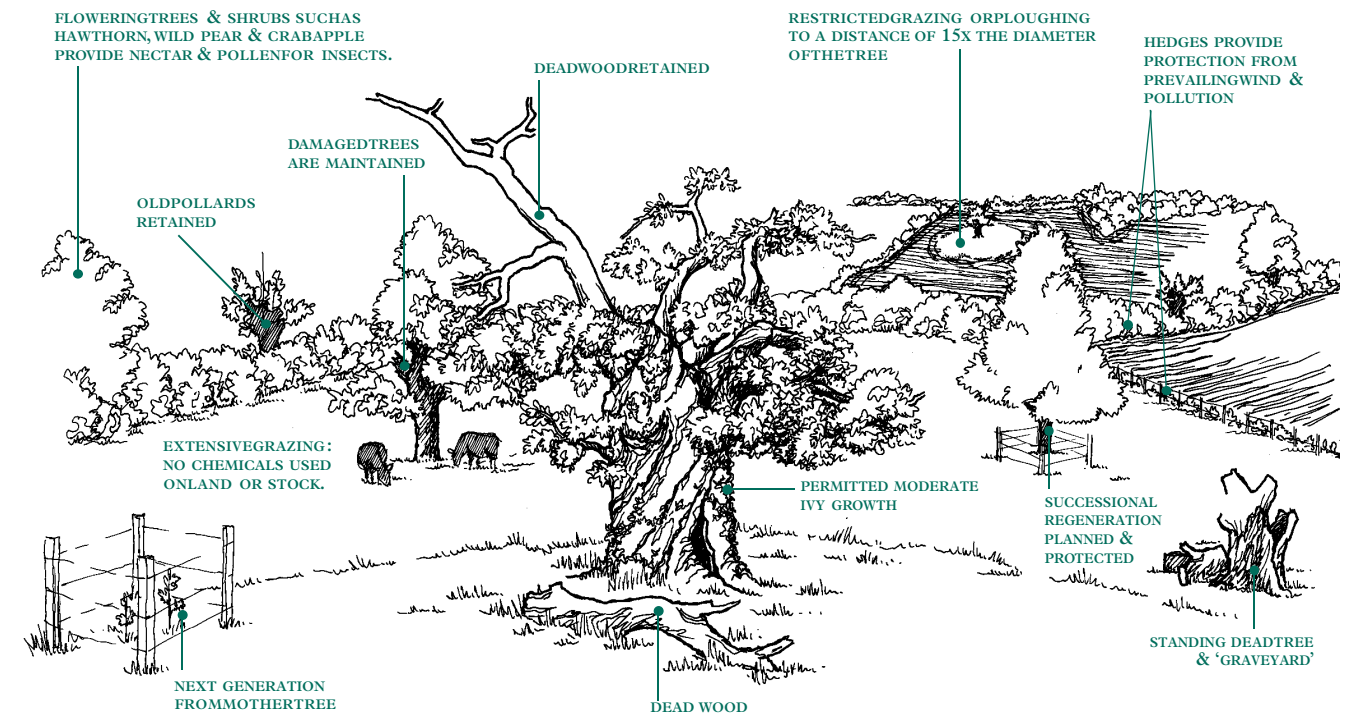
### 7.2.2 Land surrounding a veteran tree (Figure 36)

- Ensure that there are plenty of holes, cracks and crevices, in other trees in the surrounding area eg for bats, birds and invertebrates.
- Leave abundant dead wood on the ground in a variety of sizes, shapes, positions and states of decay. Leave fallen dead trees as intact as possible.
- Poor or damaged trees are often those removed by foresters. Try to retain them if possible; they are often the best wildlife trees.
- Avoid using chemicals (herbicides, insecticides or fungicides) on the surrounding land (or the tree), keep the use of veterinary chemicals, especially wormers, on livestock to a minimum.
- If fertilisers have to be used, farmyard manure or pelleted versions are best. They should be applied on still days and kept at least 15 times the diameter of the trunk at breast height away from the trees and not allowed to splash onto the trunks.
- Encourage natural regeneration to ensure long-term continuity of trees. Try to encourage native trees and shrubs with a good population and age structure. This provides continuity of trees and suitable habitats for mycorrhizal fungi that require different age classes of each species of tree. The regeneration and planting of conspecific saplings near isolated veterans is important for this reason. On parkland sites with good lichen floras some younger exotic trees are worth encouraging if veteran specimens of the same species occur.
- If dead wood is in short supply, or will be in the future, (ie there is a generation gap) consider artificially creating suitable cavities and decay in younger trees (see sections 7.2.3 and 8.3.2).
- If there is no new generation of the same species of tree consider using other, more quickly growing, species to try to help close the gap as well as planting conspecifics.

*Birch is quick growing and can provide the conditions required for some species, Sweet chestnut may provide a suitable alternative to oak. Horse chestnut may have good sap runs.*

- Create and maintain glades and rides.
- Ensure that there is continuity of linear landscape features such as lines of veteran trees and hedgerows. Bats and some invertebrates use such features as flight paths. (A gap of as little as 10 m in a line of trees can be enough to dissuade some bat species from flying along it as they travel between their roosts and their feeding areas.)
- Encourage flowers as nectar sources for invertebrates, eg hawthorn, composites, umbellifers and flowering ivy. A healthy invertebrate population will also support a healthy bat and bird population.
- Create and/or maintain associated habitats such as ponds and wetlands.

Figure 36. An 'ideal' veteran tree site for wildlife.



### 7.2.3 Creating cavities and decay in younger trees

If there is a lack of holes, crevices and decay it may be desirable to initiate some. This can be done in a variety of ways that are all best tried on younger trees, rather than veterans. Different groups of organisms have different requirements:

- Bats prefer deep narrow crevices.
- Birds mostly prefer holes rather than crevices, a variety of sizes will suit a range of species.
- Invertebrates use an almost infinite variety of decay, holes, crevices, etc. Consider drilling holes of various sizes into trees as well as making larger holes with saws or breaking off branches.

There is considerable scope for creating holes and initiating decay in trees (Figures 37 & 38). Customised 'boxes' can be made or more general cavities; experiment with what you have available.

Figure 37. Suggestions for the design of artificial cavities.

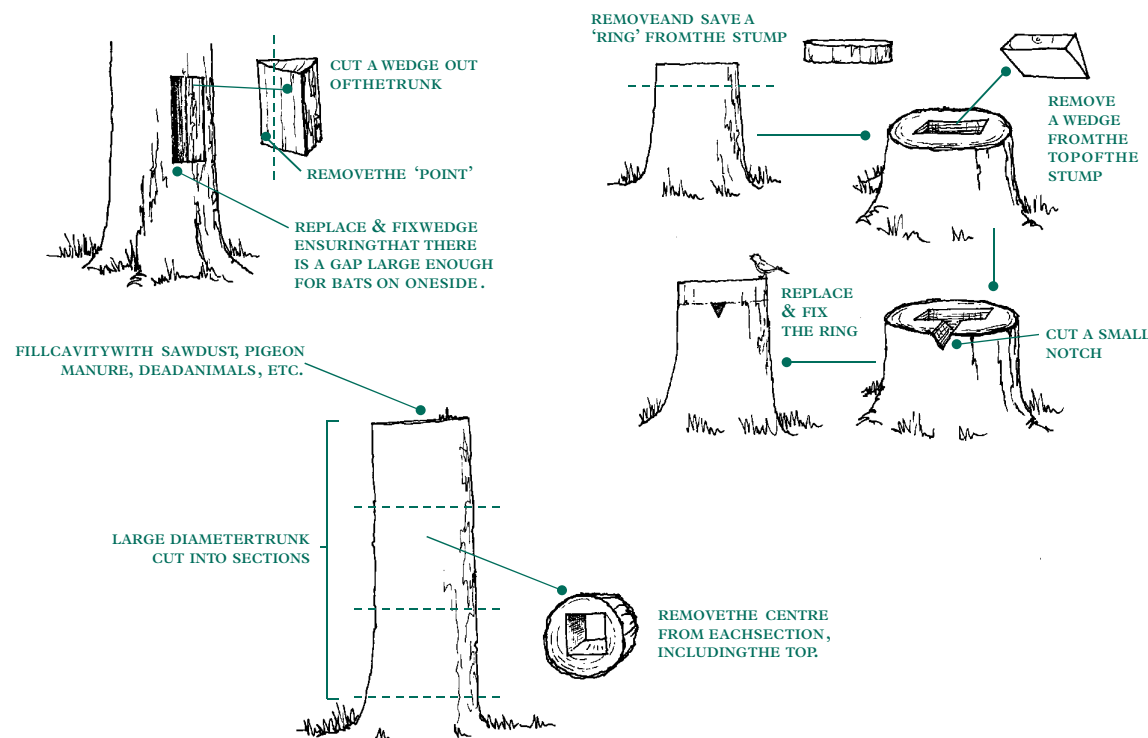


Figure 38. See colour plate page 90.

Bat and bird boxes can be made or purchased. They should only be necessary if hollow trees are exceptionally scarce or specific boxes are needed for particular species, eg spotted fly-catcher or tawny owl. Nest boxes should be viewed as a 'stop gap' until suitable, natural, places are available. Take care when putting up boxes that you do not put them on part of a tree next to that used by rare invertebrates; the bats or birds may make a meal out of the threatened species.

In addition to the general requirements listed above, most groups have some very specific needs, which are dealt with below.

## 7.3 Epiphytes

### 7.3.1 Introduction

Various species of epiphytic plants are associated with old trees. The groups of greatest interest in this habitat are the mosses, liverworts and lichens but some vascular plants, such as ferns, can be epiphytic too. Among the bryophytes there is considerable regional variation in the numbers of rare and total species found. Epiphytic mosses and lichens can mostly be found throughout the year and are relatively easy to record and monitor although they require specialist identification skills.

### 7.3.2 Characteristics of moss growth on veteran trees

- In more highly polluted areas epiphytic mosses are found more on old trees than on young trees. They occur mostly low down on the trees and in sheltered positions (where they may be more susceptible to agricultural contamination).
- Veteran trees (and pollards) provide a variety of microhabitats, eg rain tracks, crevices, bark sheltered by protruding parts of the tree and exposed roots, where different species are able to survive.

The underside of horizontal branches and leaning trees keeps the plants dry and provides shelter from acid rain. Horizontal branches also have higher nitrogen inputs (eg as bird droppings) on the top and are good for certain species. Rot holes are good too when the rainwater persists and leaves accumulate. Mosses at the lip of the hole act as a wick so that it empties very slowly creating a rain track down the trunk for several days. A cavity with a small hole lower down may allow water to run out slowly for several weeks. Trees with such features are rare and support rare bryophytes.

- Oak, ash, field maple and beech are the most important old trees for mosses, followed by hornbeam, sycamore, and hawthorn. Elm is also very good but few veteran elms survive except in the Scottish Highlands and Islands.
- Grazed wood-pasture allows light to the boles of the trees but the humidity is still relatively high. Dense woodland is often not so good for mosses despite the increased humidity that is liked by some species.
- Older trees have also had more time than younger trees for bryophyte growth to accumulate.

### 7.3.3 The characteristics of lichen growth on veteran trees

Two distinct lichen floras are associated with veteran trees. These are: old growth woodland species and those thriving in more open, drier, parkland type situations. Lichens are more sensitive to undergrazing and less to overgrazing than most groups of organisms.

#### 7.3.3.1 Lichens and pollution

Lichens are very susceptible to sulphur dioxide and nitrous oxides and the location of the tree in relation to major sources of these substances is very important. Trees close to pollution sources tend to be species poor. Those in deep valleys are often better as the air passes over the top without penetrating (except when local pollution is trapped in a temperature inversion forming 'valley smog'). The tops of hills tend to be more polluted. The reduced levels of sulphur dioxide in southern England has enabled some of the more mobile species of lichen to recolonise but others, especially those typical of veteran trees, have very poor dispersal mechanisms.

#### 7.3.3.2 The lichens of old growth woodland and veteran trees

- Rich woodland lichen floras depend on old growth woodland (ie stands older than 200 years) with veteran trees.
- Communities rich in important species take many years to colonise.
- The ideal conditions for woodland lichens are those with adequate light and shelter from drying winds.
- Ideal sites are those with a mosaic of dense and open areas; different species of lichen have different tolerances to exposure and light levels.
- Woodland lichens are adapted to low nitrogen levels so high nitrogen (ammonia) pollution from intensive farming is a serious threat.
- Slow growing species are found on virtually all types of bark, including acid bark but base rich bark is usually the richest habitat. Exotic tree species are rarely as valuable as natives, especially acid barked trees.
- Exposed heartwood areas may have special and rare floras.
- Ancient coppices are rarely good for lichens as they are more like young growth woodlands.
- In areas with a few old growth woods, local rarities can occur on occasional old trees within young growth woodland.
- Large populations of veteran trees are required for rich lichen floras to develop, as many species have very narrow and rare niches even in near-natural woods.

- A distance of as little as 2.5 km can prevent many species recolonising.
- Recovery time from clear-felling for most lichen communities is 200 - 300 years if there is nearby old growth. Communities of dry craggy oak bark take over 400 years.

### 7.3.3.3 Lichens of wayside and parkland veteran trees

- These communities are best developed on full lit trees with moderate enrichment from dung or dust. Well developed communities are absent from extensively grazed wood-pasture as the grazing levels are not high enough. Hence these communities are largely associated with human activity in Britain.
- The rarer species include slow growing ones and southern species at the edge of their range. Post mature and veteran trees are the richest.
- Unimproved grassland is the ideal habitat surrounding the veteran trees for these types of lichens.
- Base rich and mesic bark are the main habitats of interest but, unlike woodland lichen communities, acid bark is rarely of any interest. Exotic base rich barked trees such as Norway maple (a good elm substitute), walnut and tulip tree can be important. Sycamore can be rich but is not nearly as good as Norway maple. A few local specialists can occasionally be found on conifers.
- Landscape parks are now a major resource for this type of lichen flora but it was once common in agricultural areas with frequent old trees. The lichen communities have declined at least as much as those of the unimproved neutral grassland.

### 7.3.4 Management recommendations

The ideal management for lichens depends on the type of community present. Old growth woodland communities require light grazing and a mosaic of habitat structure. Parkland communities need more open conditions and can benefit from some exotic tree species being present.

#### 7.3.4.1 Mosses and liverworts

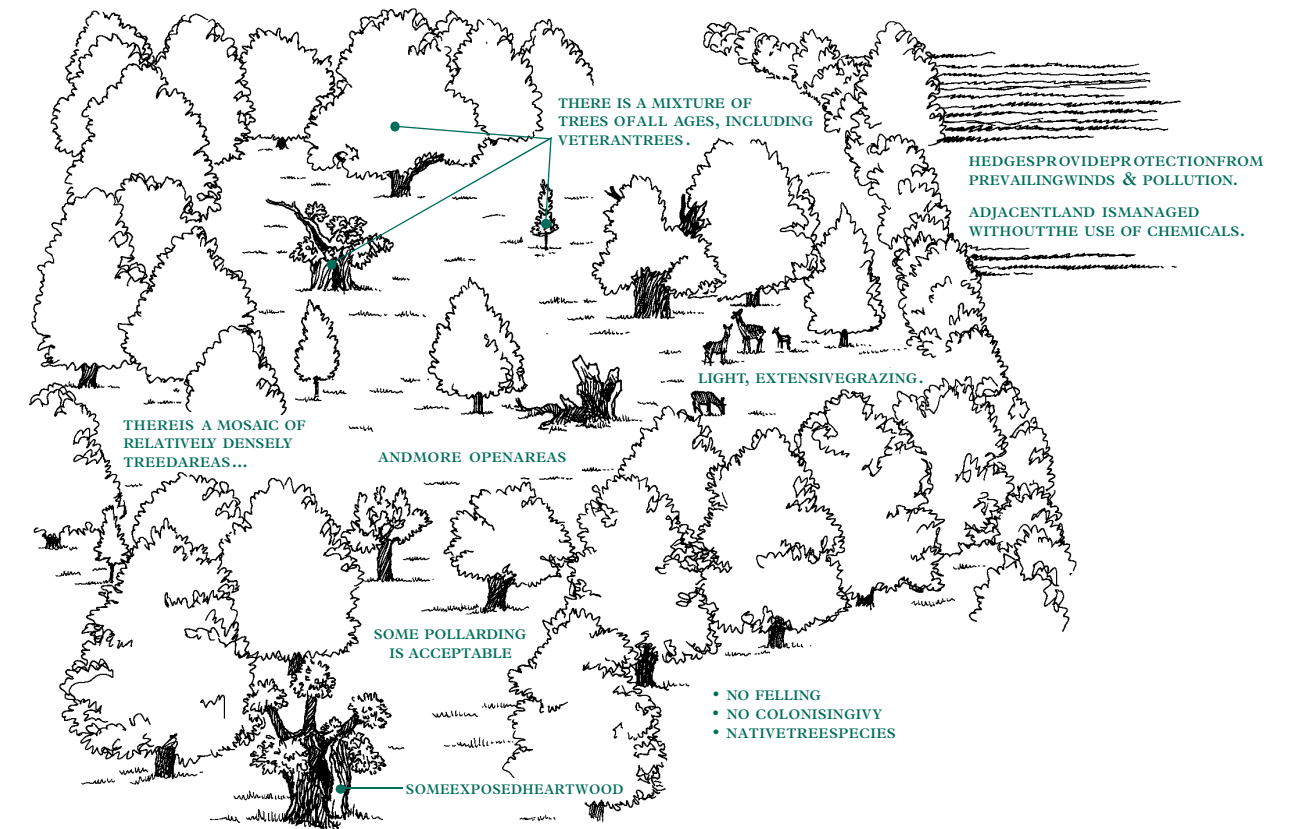
- Don't drain or divert existing streams or damp hollows away from old trees as they may contribute to the overall humidity of the area (unless failing drainage threatens the tree).
- Do not block past drainage ditches in an attempt to increase humidity; if long established water levels are raised this can kill veteran trees.

#### 7.3.4.2 Woodland lichens (Figure 39)

- Maintenance of old growth woodland containing veteran trees is crucial. Management of woodlands for commercial forestry is not very compatible with the conservation of woodland lichens. Traditional management such as grazing and pollarding can be compatible.
- Light grazing is beneficial in preventing uniformly shaded conditions. Deer alone may achieve this but the reintroduction of other grazers may be necessary. Where grazing has either ceased or declined dense shrub layers of, for example, holly or rhododendron can cause problems. Holly may be pollarded as it supports rare lichen species when not too shaded. This has been done in the New Forest as it also creates enough light to benefit lichens on old trees nearby. In addition, it perpetuates historic management on the site.
- Ivy, and other evergreens such as holly, can cause problems. Especially in ungrazed woods they can smother epiphytic growth. Ivy in the early stages of colonisation should be prevented from establishing on trees with high epiphytic value but old plants should be left. Ivy is beneficial to other forms of wildlife as it is a useful nectar source and provides cover. However, consideration might be given to its removal from trees in sites of high value for epiphytic plants, but low value for other groups of wildlife. Browsing of ivy on the lower trunks of the trees is the best and most natural method of ivy control.

- Be careful of suddenly opening up around relic lichen floras as lichens are very sensitive to light and humidity levels. Thus, clear small areas at a time and work on small groups of veteran trees at any one time to minimise local climate change. Also, the subsequent growth of the undergrowth (eg bramble) and tree seedlings in these areas may shade out lichens on trunks unless grazing levels are sufficiently high.
- Do not fell large, post mature exotic trees without checking for rare lichen species first.
- Some lichen rich communities are found on rocks (especially in upland areas) so these should be left if on site. (Other habitats can also support rich lichen communities e.g. the park pale or fence.)

Figure 39. Site characteristics and management for old growth lichens.



#### 7.3.4.3 Wayside and parkland lichens (Figure 40)

- The maintenance of low intensity farming is the most important factor in conserving these lichen floras. In relict sites that are intensively farmed, ideally low intensity farming on permanent pasture should be restored.
- The application of farmyard manure or pelleted fertiliser is acceptable as long as it is not plastered on to the trees.
- Exotic trees with a base rich bark can be important and are much more acceptable in this habitat than in native woodland. Norway maple and walnut are especially good. New tree plantings should include all existing species of value on a site.
- When planting new trees, plant close enough to the existing veteran to maximise colonisation but not so close as to shade them out. As an example, plant three or four trees of the same species, or the same potential lichen flora as the veteran, in a semi-circle round the existing old one, avoiding the south side. A good guideline distance is 15 m.
- Parkland lichen floras are often able to respond relatively quickly if individual plants, showing signs of regression due to reduced light, are opened up sympathetically by trimming the canopy of the veteran tree or cutting surrounding trees.