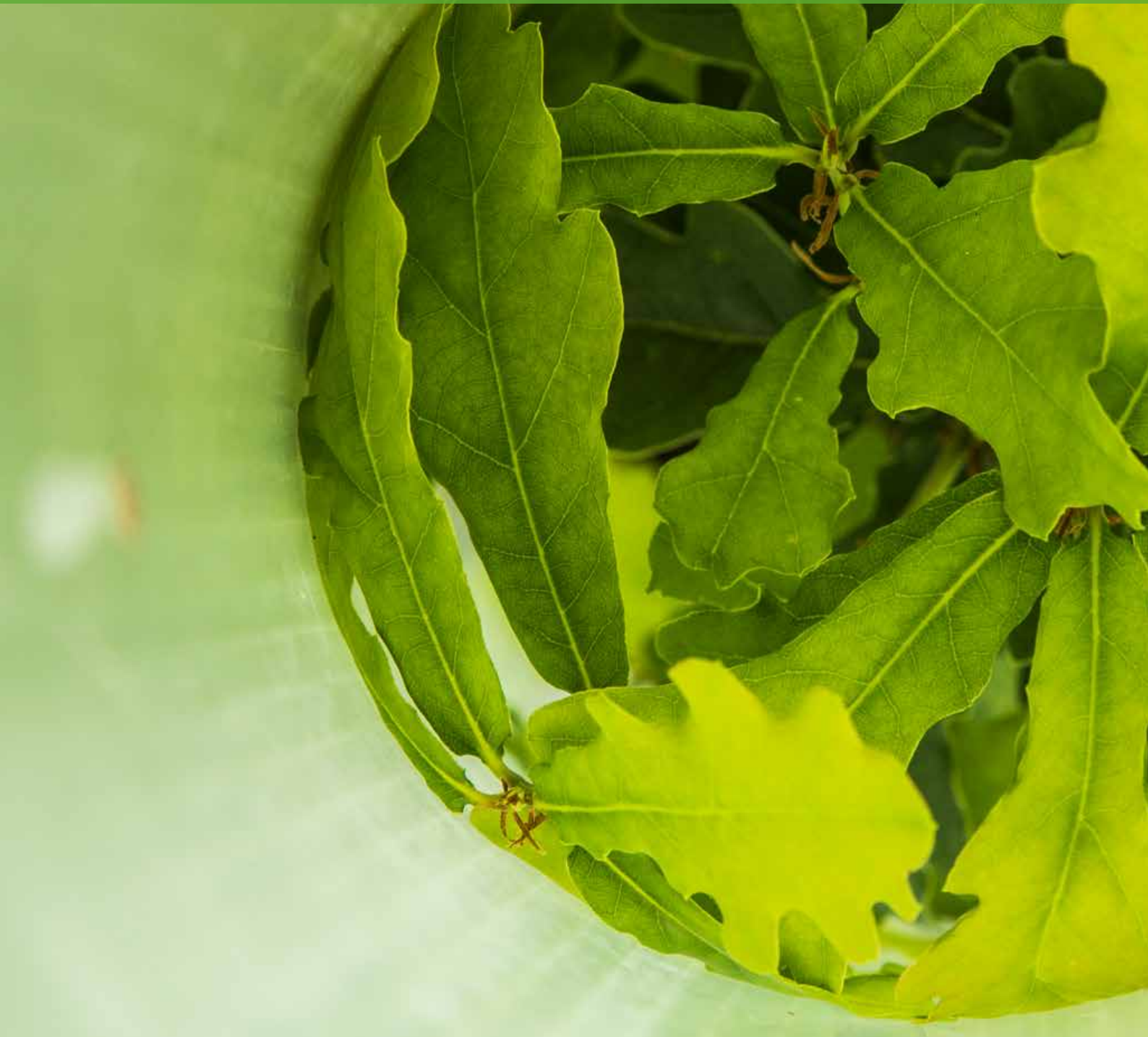


Tree protection: The use of tree shelters and guards

Guidance and sustainability best practice





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Introduction

The government has committed to increase new planting of woodland to 30,000 hectares a year in the United Kingdom. In England, a significant proportion of this will be with broadleaved trees which must have adequate protection to ensure successful establishment.

Tree shelters and guards are an effective means of establishing broadleaved trees, providing protection from browsing mammals and enhancing tree growth. There are alternative silvicultural practices, such as using fencing rather than individual protection, that can help to reduce the need for shelters and guards.

To be effective, shelters and guards need to be robust enough to cover the establishment period. This could be for only a few years, but on challenging sites this may be well beyond five years. Tree establishment is a critical period in the creation and management of woodland. Tree failure is expensive and can result in payments being reclaimed from agreement holders. Tree shelters and guards vary by type, size and material. The type used must be able to fully protect the tree throughout the establishment period.

Tree shelters and guards can be made from a wide range of materials. To date, most have been made from plastics made from petrochemicals. These are not biodegradable and must be removed after use and recycled. Others use petrochemically derived plastics, but have additional materials that result in the tree shelter or guard breaking down into small pieces. However, the small fragment size means they cannot be recovered from the environment. We do not recommend their use. More recent designs use plant-based sources, compressed paper, or cardboard. Issues have arisen over the longevity of these as they need to be designed and constructed to provide adequate protection throughout the establishment of the tree. There are alternatives to using tree shelters or guards – this includes fencing or, where predation of the trees is minimal, no individual protection.



Do you need to use a tree shelter or guard?

We recommend that people wanting to plant trees should consider what protection is needed for their successful establishment. The following questions provide a framework for doing so – also see the decision tree at the back of this document.

- ✓ Is tree protection required for successful establishment?
- ✓ What does the tree need protection from?
- ✓ Can browsing by wild mammals be reduced to a level that does not affect the establishment of the trees?
- ✓ Can fencing provide protection?
- ✓ Is further protection from voles required?
- ✓ Is further protection through a tree guard required?
- ✓ Does the silviculture of tree species to be protected benefit from a tree guard?
- ✓ Does your woodland creation plan address the life time use of plastics?



So, you've decided you need to use a tree shelter or guard

Please read [Forestry Commission Handbook 7: Tree Shelters](#)¹ as this is still an important resource when considering whether tree shelters will deliver your aspirations. Successful tree establishment requires more than the use of tree shelters – monitoring, evaluation and ongoing management is also essential, as detailed in the [The Use of Treeshelters publication: 1992 Survey publication](#).²

Considerations



Handbook 7
Page 22

Not all tree species benefit from tree shelters – some species are better suited to mesh guards.



Handbook 7
Page 26

Competition from vegetation often compromises establishment, shelters help protect trees from herbicide application.



[Read more about this here](#)³

Differing tree species have differing palatability to browsing mammals.



Handbook 7
Page 28

The height of the tree shelter or guard must match, or exceed, the browsing mammal.



Handbook 7
Page 28

A vegetation free area of 1m diameter around each tree also reduces the likely attack from voles and greatly increases tree growth.



Handbook 7
Page 15,
29 + 33

The strength of the stakes and their alignment should take account of the prevailing wind direction (stakes should be on the windward side of the guard) and likelihood of mammals rubbing on them.





Reduce, reuse, recycle

Reduce

Minimise or avoid the use of plastic:

Herbivores must be excluded from unprotected newly planted areas. If deer browsing pressure cannot be reduced to levels where this does not compromise establishment, fencing is essential. This is likely to require sustained maintenance. Stock fenced enclosure areas of around 0.1 hectares have proved an effective deterrent for deer in some situations.

Stocking density is an important consideration and is often overlooked at establishment. Species such as oak and beech being grown for timber should be established at a minimum of 3100 stems per hectare. The cost of guarding these trees may make fencing more attractive. The use of conifer nurse species may also offset the costs of guards and fencing.

Generally, the larger and more square-like in shape the planted area is and/or the higher the stocking density is, the more likely that fencing becomes cheaper per tree than the use of tree shelters or guards. But it is very site dependent e.g. large but very irregularly shaped areas of land are unlikely to be cost-effective to fence.

Reuse

It can be possible to reuse plastic tree shelters and guards. However, by the time the tree is established the tubes are often starting to degrade or cannot be removed without cutting them off. The large-scale reuse of plastic shelters and guards is currently rarely an option. However, this situation may change due to developing plastic and recycling technologies and increasing concerns over the amount of plastic that is being used. The collection and reuse of tubes is an activity that can be carried out by volunteers as an effective way of engaging with, and understanding more about, woodlands.

Recycle

Plastics removed from the trees are subject to waste legislation and regulation⁴



Planting broadleaf trees – protection decision tree

Are any one of the following mammals likely to be present: sheep, deer, rabbits, hare?
If not present are they likely to colonise the area before the trees are established?

No

Yes

Plant trees without protection. Use spiral or vole guard if voles are present (ensuring 1m weed free area around each tree will reduce vole damage)

Growing for timber?

Yes

No

Use appropriate fencing. Use spiral or vole guard if voles are present (ensuring 1m weed free area around each tree will reduce vole damage)

Larger than 3 hectares?

Yes

No

Consider plantings trees without protection, increasing stocking to allow for some losses. Use spiral or vole guard if voles are present (ensuring 1m weed free area around each tree will reduce vole damage)



Yes

Can mammals be controlled to reduce damage to an acceptable level?

No

Do the tree species you're using benefit from a tree shelter?

Use mesh guards, height depending on mammals present

No

Yes

Use tree shelters, height depending on mammals present

Recycle tree shelters at end of use

References

1. <https://www.forestresearch.gov.uk/research/archive-treeshelters/>
2. <https://www.forestresearch.gov.uk/research/archive-the-use-of-treeshelters-1992-survey/>
3. <https://forestry.gov.scot/woodland-grazing-toolbox/grazing-management/foraging/palatability-and-resilience-of-native-trees>
4. <https://www.gov.uk/topic/environmental-management/waste>

For more information about the work of the Forestry Commission visit:

<https://www.gov.uk/government/organisations/forestry-commission>

Guidance to support foresters, farmers, landowners and agents to strengthen their woodland management and help adapt their woodlands to the impacts of our changing climate is also available, please visit:

<https://www.gov.uk/government/publications/managing-englands-woodlands-in-a-climate-emergency>

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