

Grey squirrel and deer damage to trees: Visual guide



How to spot tree damage by deer and grey squirrels

Grey squirrels and deer can damage young and mature trees, by eating young shoots and stripping bark which can result in tree loss. Missing bark patches are like an open wound which makes a tree more susceptible to infections. These wounds can restrict the future use of the tree and any timber produced, or they may kill the tree. Being able to spot the early signs of grey squirrel and deer damage to your trees allows you to put effective mammal management in place before significant damage is done.

Five questions to help identify the cause of tree damage

1. What type of damage is it – browsing, gnawing or rubbing?
2. What is the height of the damage?
3. What time of year has the damage occurred?
4. Are there teeth marks present – if so, what size are they?
5. Are there other signs of mammal activity in the form of footprints and droppings?

Discover our mammal damage identifier on pages six and seven.



Grey squirrel damage to trees – what to look out for

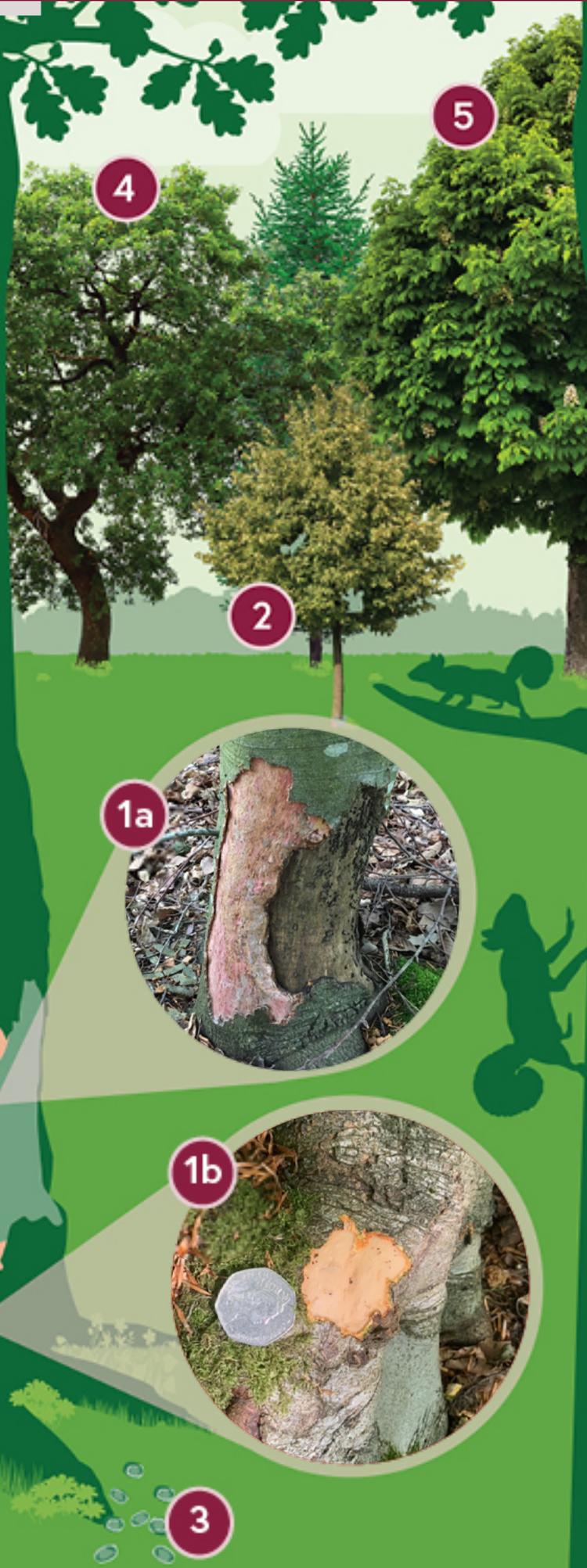
Grey squirrels are a non-native invasive species and are notorious for stripping the bark from a tree's main stem and branches. The damage they cause prevents the flow of water and food around the tree, putting significant stress on it – weakening and, if the damage is severe enough, eventually killing the tree.

It's important to regularly inspect your woodland and individual trees for signs of grey squirrel damage, which typically occurs in early spring. It's important to start inspecting in late February.

- 1 Between March and September, look out for bark that has been stripped from the base of the tree and the main stem or branches. Look out for an initial small tester patch of bark stripped from a tree. Grey squirrels can then return to strip more bark.
- 2 Grey squirrels favour young broadleaf trees that are between 10 to 40 years old in age and will repeatedly come back if unmanaged.
- 3 Look out for hazelnut shells which can be a telltale sign that grey squirrels have been feeding.
- 4 Oak, beech and sycamore are particularly vulnerable to grey squirrel damage.
- 5 Some broadleaf species such as lime, horse chestnut and wild cherry are less favoured by grey squirrels.

The cost of bark stripping caused by grey squirrels in England and Wales, is estimated to be at least £37m a year in lost timber value, reduced carbon capture, damage mitigation and replacement trees.

Image 1a © UK Squirrel Accord: Stripping – National Forest. Image 1b © UK Squirrel Accord: Grey squirrel bark stripping test patch – beech – Lancashire.



How to manage grey squirrels in your woodland

Grey squirrel management measures to protect vulnerable trees in your woodland from bark stripping damage are carried out in the spring, to help reduce grey squirrel numbers from May to September when trees are most likely to be damaged. Adopting a mix of grey squirrel management measures to protect your woodland is generally most effective.

These measures include:

Trapping grey squirrels

Placing traps specifically licenced for grey squirrels helps ensure you are complying with the law. Following the [guidance](#) on the number and location of traps can help to manage populations in your woodland more effectively.

Shooting grey squirrels

Shooting grey squirrels can be an effective way to reduce their numbers, but is most effective when combined with trapping.

Fertility control for grey squirrels

An oral immunocontraceptive is being developed to offer an alternative or complementary non-lethal and humane management method. The Forestry Commission is supporting research to find additional management methods including fertility control.

Discover more guidance on [grey squirrel management methods](#).

Key considerations when managing grey squirrels in your woodland

Carry out a grey squirrel [impact assessment](#) to understand the scale of the problem in your woodland.

- Create a [Squirrel Control Plan \(SCP\)](#).
- In areas where red squirrels or pine martens are also present, only use single-capture cage traps.
- Be aware that newly thinned woodlands or rapidly growing trees are more likely to suffer damage.
- Record any grey squirrel management activity and repeat impact assessments to monitor your efforts against your plan.
- Share grey squirrel management information with neighbours as grey squirrels can travel across neighbouring land, and by working together you can manage the population more effectively.
- Training is recommended to ensure you comply with the law, safety and animal welfare requirements, to help you effectively implement any management method. You may also need suitable insurance.

Funding: Find available funding for grey squirrel management on our [woodland management](#) GOV.UK webpage.



Deer damage to trees – what to look out for



There are six species of deer that inhabit UK woodlands – two of which are native species, the red deer and roe deer. Fallow, muntjac, sika and Chinese water deer make up the other four non-native species.

Population numbers for all six species have dramatically increased – in the 1970s it was estimated to be around 450,000 compared to today's estimates of over 2 million, and this is having a severe impact on our woodlands. Large deer populations prevent forests from naturally regenerating, as they kill or suppress natural regeneration or tree seedlings. Damage to bark can cause structural weakness and allow diseases to enter. Deer selectively browse trees and plants and reduce their resilience against climate change or diseases.

Woodland biodiversity can also be negatively impacted as deer can damage habitats for other woodland species in the process.

- 1 Look out for signs of browsing – this is where deer have been feeding on tree buds, shoots and foliage. All six deer species are known to browse woodland and some also graze grass and arable crops. Deer leave a ragged edge to broken twigs due to the lack of teeth in their upper jaw.
- 2 Stripped bark from a tree's main stem or its branches is caused by the lower incisor teeth of deer.
- 3 Bark fraying is caused by male deer rubbing the 'velvet' from their new antlers and to mark

territories. Red, sika, fallow, roe and muntjac deer can all cause fraying from one metre up to 1.8 metres high. Muntjac also fray bark with their tusks.

- 4 Muntjac deer can partially bite through thin tall stems or pull them out altogether to eat.
- 5 Damage to woodland flora is another sign of excessive grazing and browsing by deer.

TIP: Don't be confused by browsing damage caused by sheep: they can cause similar damage to trees as deer but often leave wool on surrounding branches. Hares can also bite and sever young trees.

Deer browsing damage can reduce final timber crop values by up to 30-50%. Deer damage is also causing significant crop and agricultural damage, with some individual landowners having lost more than £1 million per year*.

*Woodlands of Ireland – Deer and forestry in Ireland: A review of current status and management requirements.



How to manage deer in your woodland

You may want to adopt a mix of deer management measures to protect your woodland. Deer management measures include:

Culling deer

Culling or lethal control needs to be well planned and managed to be effective in the long-term. Keeping records and having proper training is essential, and you can use trained and qualified personnel to carry out this activity in a safe and humane manner. Venison produced as a result of this management can also help you to offset the cost of deer management.

Deer fencing

Well erected and maintained deer fencing can provide adequate tree protection especially for young trees – to help them to establish. You need to regularly check for any damage to fences and keep gates shut. Deer fencing should be used in conjunction with a form of lethal control to be most effective.

Electric deer fencing

Erecting reusable multi-strand electric fencing can be an effective way to protect smaller areas of your woodland. Deer must be able to see the electric fencing and it must be regularly checked and maintained to ensure it is in good working order.

Deer deterrents

If fencing is not an option for you, the application of lanolin-based spray-on deer deterrents can be considered to manage low deer populations. This can be used to treat the most palatable tree species along with lethal control.

Tree shelters

Protecting individual trees with plastic or more substantial timber tree guards can help to shield young trees from deer. Ensure tree shelters are appropriate to the deer species present in your woodland. Be mindful that deer can still damage sheltered trees and so it's best to use this measure alongside

some lethal control management to be more effective. Consider the whole life cost of tree shelters, including removal and recycling, when comparing their use with other management methods.



Key deer management considerations

- Create a deer management plan that clearly sets out the resources and effort needed to deliver your objectives.
- Record any deer management impact and activity to allow you to monitor your efforts.
- Share deer management information with neighbours and work together to control deer numbers more effectively over a larger area.

Further guidance is available to help you to create a deer management plan.

Funding: Find available funding for deer management on our [woodland management GOV.UK](#) webpage.

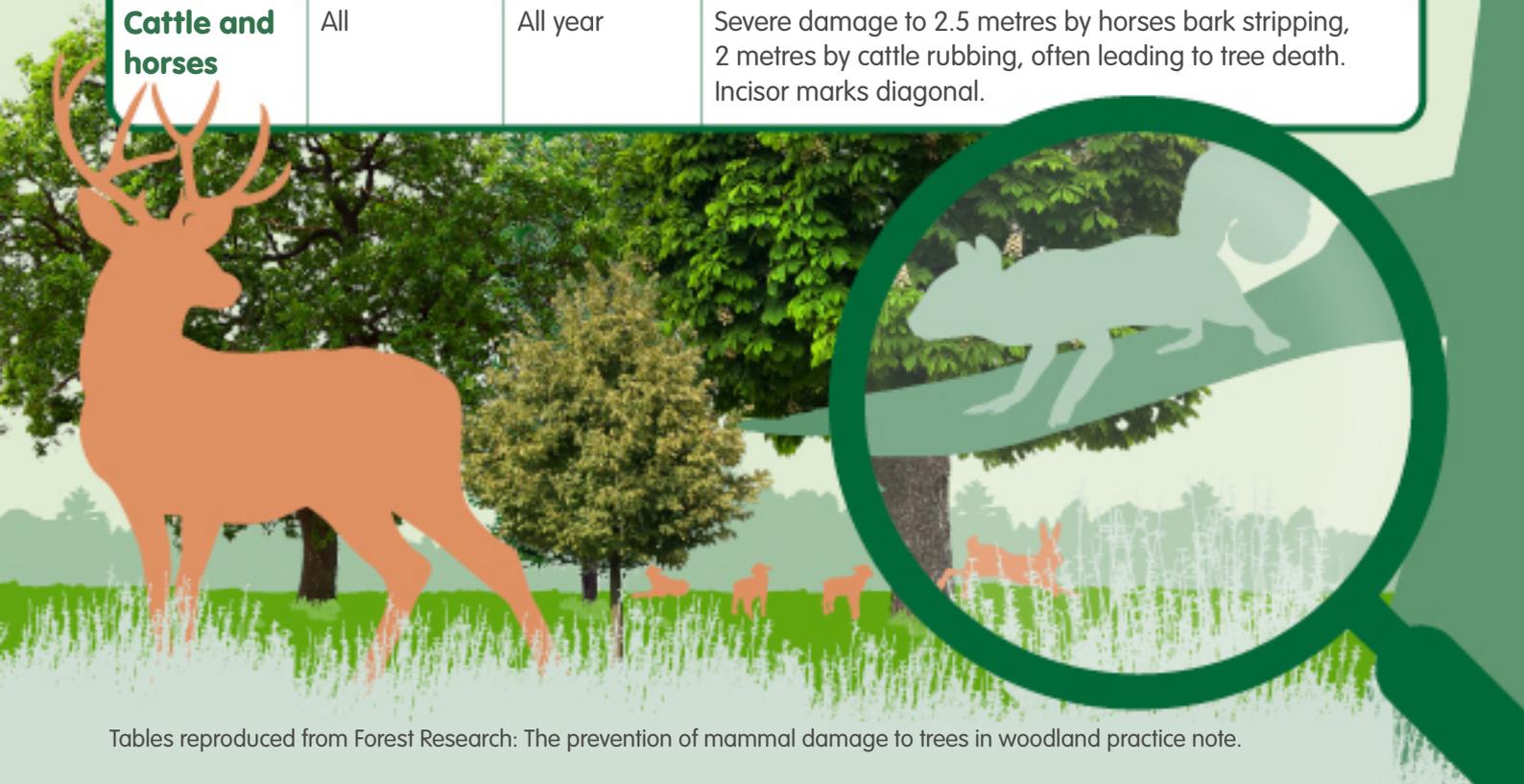
Find out more about [managing destructive mammals in your woodland](#).

Mammal damage identifier



Bark damage (stripping, rubbing, fraying)

Mammal	Tree size	Time of year	Description of damage
Field voles	Young trees to 5 cm diameter	All year but greatest risk in winter	Bark is stripped on roots or lower stem up to height of surrounding vegetation. Very small trees can be felled and girdled – when a piece of bark is removed around the entire trunk of a tree. Bark removed in short, irregular strips 5 to 10 mm wide, with incisor marks 1 mm wide in pairs in the bark around the edge of the wound.
Bank voles	To early pole stage	Winter and spring	Bark removed in short, irregular strips 5 to 10 mm wide, with incisor marks 1 mm wide in pairs. Bank voles climb, so damage can occur up to 4 metres. Less common than damage by field voles.
Rabbits	All	Winter and spring	Bark stripping can occur to a height of 540 mm (higher in snow). Incisor marks are 3 to 4 mm wide, in pairs, usually running diagonally across the stem. Beech is particularly vulnerable.
Squirrel	10–40 yrs	April–July	Incisor marks 1.5 mm wide in pairs, usually running parallel with stem or branch. Sycamore, beech, oak and pine most at risk.
Deer	Pole stage	All year March–May	Red, sika and fallow deer strip bark leaving vertical incisor marks. Fraying.
Sheep and goats	All	All year	Severe stripping of bark to 1.5 metres, often leading to tree death. Incisor marks diagonal.
Cattle and horses	All	All year	Severe damage to 2.5 metres by horses bark stripping, 2 metres by cattle rubbing, often leading to tree death. Incisor marks diagonal.



Identification of browsing damage to trees

Mammal	Tree size	Time of year	Description of damage
Bank voles	Newly planted	Winter	Will remove buds, particularly of pine, usually on restock sites; often immediately after planting.
Rabbits		Winter, spring, rarely summer	Sharp-angled, knife-like cut on ends of stems or branches, removed portion often eaten. Damage up to 540 mm (higher in snow).
Hares		Winter and spring	As rabbits but shoots often not consumed. Damage up to 0.7 metres.
Deer		All year	Lack of teeth in front upper jaw produces ragged edge on damaged stems. Roe and muntjac browse up to 1.1 metres, fallow, red and sika up to 1.8 metres. Fallow pull newly planted trees out of ground.
Sheep and goats		All year	Coarse browsing of foliage to 1.5 metres. Newly planted trees pulled out of ground. Sheep and deer browsing damage very similar.
Cattle and horses		All year	Coarse browsing of foliage to 2.5 metres with horses, 2.0 metres with cattle. Newly planted trees pulled out of ground.



Unbrowsed woodland just after removal of deer fence

Deer damage to woodland over a six-year period

The same woodland 18 months later after heavy deer browsing

18
MONTHS

The same woodland six years later after continued heavy deer browsing

6
YEARS



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