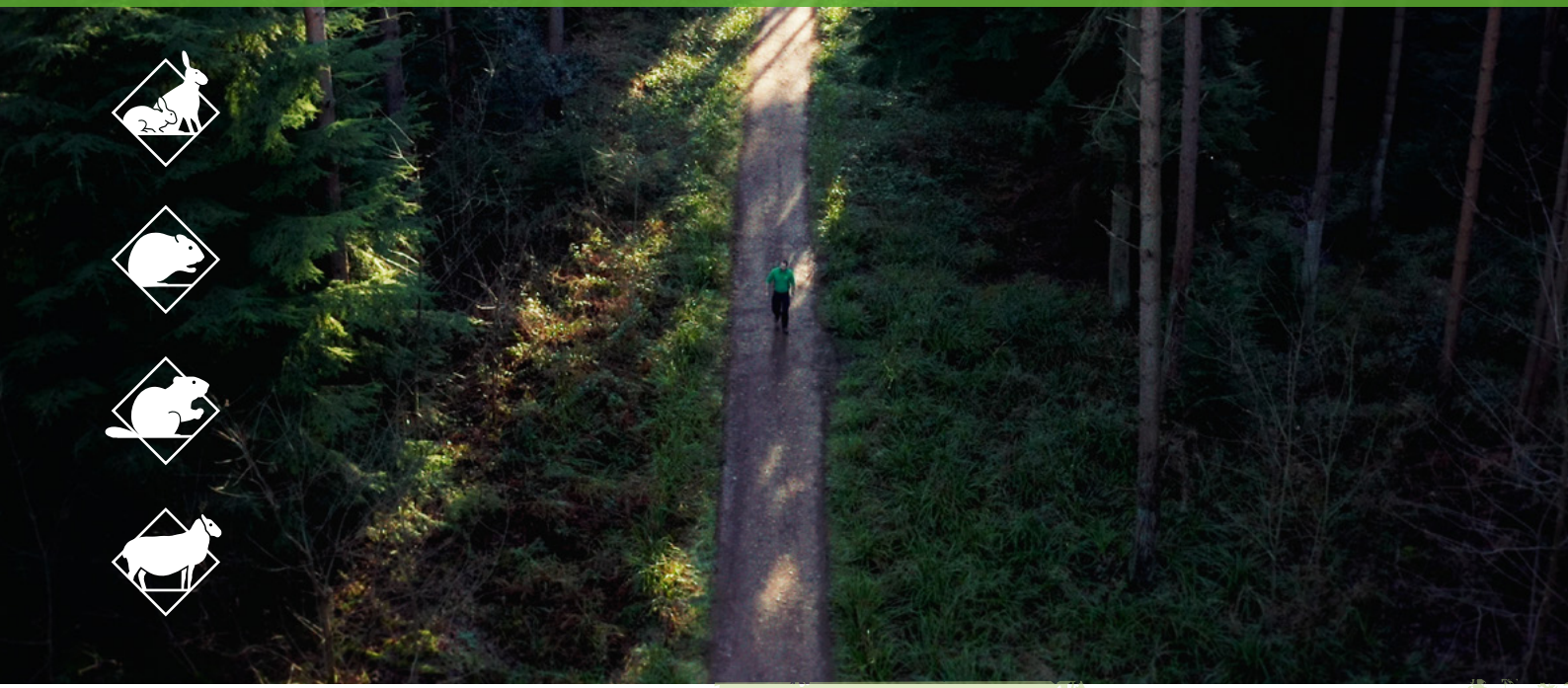
Forestry Commission

Small mammals, beavers and domestic grazing species damage to trees: Visual guide



How to spot tree damage

Trees can be damaged by mammals in several ways: gnawing or stripping bark, browsing shoots, damaging roots, and digging up seeds or seedlings. This visual guide helps you identify damage caused by small rodents, rabbits and hares, beavers and domestic grazing species.

Early identification of mammal damage is crucial. By recognising the signs and understanding which species are involved, you can put effective management in place before significant damage occurs.

For guidance on spotting damage from deer and squirrels, visit: https://www.gov.uk/government/publications/grey-squirrel-and-deer-damage-to-trees-visual-guide

Five questions to help identify the cause of tree damage

1. What type of damage is it – browsing, gnawing, rubbing or other?
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 and in what orientation?
5. Are there other signs of mammal activity in the form of footprints, hair/wool or droppings?

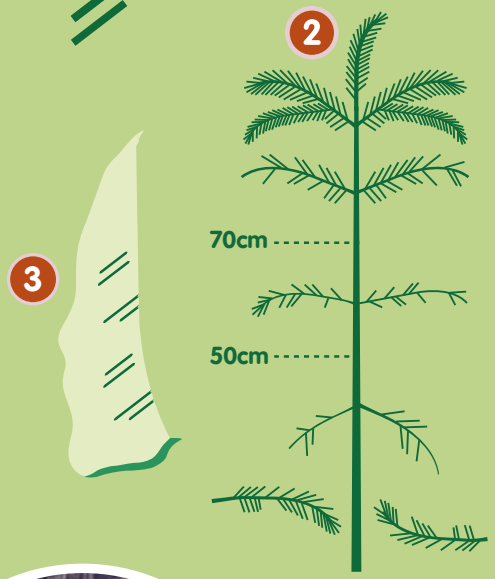
Discover our mammal damage identifier on pages 7-8.



Rabbit and hare damage: what to look out for

Three species can be found in England, but only one – the mountain hare – is native. European rabbits and brown hares have a widespread distribution across low ground, whereas in England, mountain hares are only found in the Peak District.

Rabbits usually strip bark from beech and ash, and prefer to browse on seedlings and young trees of birch. Such damage can limit regeneration or stunt growth. Both rabbits and brown hares have been observed to impede the regrowth of hazel in coppices.



1. Rabbits and hares leave clean diagonal cuts on browsed stems while deer and sheep leave ragged ends. The shoot is often left lying rather than consumed.
2. Browsing will typically occur to a height of 50cm or so for rabbit damage and 70cm for hare.
3. Bark stripping will also be low down. Incisor marks are 3 to 4mm wide, in pairs, usually running diagonally across the stem.
4. Rabbits and hares tend to browse or bark strip progressively along a row of trees.





Small rodent damage: what to look out for

Field and bank voles primarily damage trees through bark stripping and gnawing, but they may also browse buds and stems. Bark stripping by voles is most severe in winter, showing distinct population cycles with peaks and troughs. Field voles are typically found in open habitats and young woodlands, making them more likely to damage newly planted trees. In contrast, bank voles prefer woodlands with dense understorey cover, and their impact is more likely to be on natural regeneration.

Wood mice feed on tree seeds which might impact direct seeding. Edible dormice are a non-native species and in 2025 are found in the Chiltern Hills area. They primarily strip bark in early summer, with damage most commonly occurring in the crowns of trees above about 1 to 3 metres tall.

1. Vole bark damage 20cm or more from the ground is generally bank voles. While damage below 20cm is usually caused by field voles which rarely climb. Often the bark is stripped all the way around the stem (known as ring-barked or girdled).
2. Voles may nest within tree tubes and in some case gnaw the bottom to allow access, which may then make young trees vulnerable to damage from voles or other herbivorous species.
3. Where wood mice dig up direct-sown seeds, they can leave empty shells with characteristic precise holes.
4. Edible dormouse bark damage most commonly occurs in the crowns of pole-stage or mature trees and is identifiable by the characteristic rectangular shape of the stripped patches.



Domestic grazing species damage: what to look out for

Domestic grazing species can cause significant damage to trees, and it's important to be able to distinguish their damage from that of wild herbivores. Sheep damage can often be mistaken for deer damage.

Horses, ponies, sheep, goats, pigs and boar may be present as either domestic livestock or feral populations, while cattle and European bison may be used for woodland grazing. As this is a diverse group, their damage can also be varied, but there are a few key clues to look out for.

1. Sheep and goat browsing can be challenging to distinguish from deer, but sheep are likely to leave traces of wool behind.
2. Both horses and sheep leave diagonal teeth marks when they strip bark, which may help to distinguish damage by these species from the vertical marks often left by the lower incisors of deer.
3. Cattle and European bison strip bark of trees, and cattle can also cause damage by rubbing against bark. While this damage can be hard to distinguish from other species, it can reach up to 2 metres on the trunk, higher than most deer or sheep damage.
4. In high densities, livestock can cause significant soil compaction through poaching which can damage the roots of trees.



5 Pigs or boar can damage or kill tree seedlings or roots through their habit of turning over soil with their snouts for feeding (called 'rooting'). This soil disturbance is likely to be more extensive and deeper than that caused by badger foraging and 'snuffle holes'.

6 Some of these species can cause indirect damage to trees through damage to a tree protective measure itself. For example, ponies and cattle can break tree guards (particularly if the stake is too low), while wild boar can dig under fencing, allowing other herbivore access.











Beaver damage: what to look out for

Eurasian beavers primarily damage trees through browsing or felling when gathering materials to build their dams. With their large incisor marks, beaver damage is almost unmistakable. Felled trees may resemble a 'pencil end' if gnawed from all sides, or a 'whistle end' if gnawed mainly from one side, which is more common in smaller stems. Frequently, chippings are left around the gnawed stem.

In most cases, damage is limited to trees with a diameter of less than 10cm and located within 10 metres of the water's edge. Eurasian beavers generally avoid conifer species, but in areas with few broadleaved trees, they may browse conifer saplings during late winter or early spring, which can cause ring-barking.

1. Prior to tree felling, an hour glass shape will indicate beaver damage, and their distinct large teeth marks and wood chips at the base of the tree are other clues.
2. Where felling has recently occurred, you may see the stump and adjacent felled tree before it is removed to a food cache or dam/lodge.
3. Cut stumps have a characteristic 'pencil' end, or an asymmetrical 'whistle' end for stems cut from one side only. For some tree species such as willow and hazel regrowth of shoots from the stump may create a 'beaver coppice' which may disguise the cut end.
4. Beavers may also ring-bark trees to consume the bark, which looks different from felling as the central wood of the trunk (the 'heartwood') is not chipped away.

Mammal damage identifier

Bark damage (stripping, rubbing, fraying)

Mammal	Tree size	Time of year	Description of damage
Field voles	Young trees to 5cm diameter	All year but greatest risk in winter	Bark is stripped on roots or lower stem up to the 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 10mm wide, with incisor marks 1mm 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 10mm wide, with incisor marks 1mm wide in pairs. Bank voles climb, so damage can occur up to 4 metres. Less common than damage by field voles.
Edible dormice	Pole or mature stage	Early summer	Bark typically removed from the main stem in the crown of a pole or mature stage tree, and the damaged patches can have a characteristic rectangular shape. Larch, Scots pine, Norway spruce, beech and birch most at risk. Very localised to Chiltern Hills area.
Beavers	All	All year	When felling trees, they leave distinctive chippings of bark and heartwood, and the action creates an hour-glass shape before the tree falls. Ring-barking occurs by thin strips being removed vertically which may leave a ragged upper edge.
Rabbits	All	Winter and spring	Bark stripping can occur to a height of 54cm (higher in snow). Incisor marks are 3 to 4mm wide, in pairs, usually running diagonally across the stem. Beech is particularly vulnerable.
Hares	All	Winter and spring	Very similar to rabbits but can reach up to 70cm (higher in snow).
Grey squirrels	Highest risk to trees aged 10 to 40 years	April–July	Incisor marks 1.5mm wide in pairs, usually running parallel with stem or branch. Sycamore, beech, oak and pine most at risk.
Deer	Pole stage	All year with potential for fraying between March-May	Red, sika and fallow deer strip bark leaving vertical incisor marks. Male deer damage the bark by rubbing their antlers, which is known as fraying.
Sheep and goats	All	All year	Severe stripping of bark to 1.5 metres, often leading to tree death. Incisor marks diagonal.

Tables reproduced from Forest Research: The prevention of mammal damage to trees in woodland practice note.

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	Newly planted	Winter, spring, rarely summer	Sharp-angled, knife-like cut on ends of stems or branches, removed portion often eaten. Damage up to 54cm (higher in snow).
Hares	Newly planted	Winter and spring	As rabbits but shoots often not consumed. Damage up to 0.7 metres.
Deer	Newly planted	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	Newly planted	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, bison and horses	Newly planted	All year	Coarse browsing of foliage to 2.5 metres with horses, 2 metres with cattle. Newly planted trees pulled out of ground.

For detailed technical guidance on tree protection methods and management options, visit www.gov.uk/guidance/protecting-trees-from-mammal-damage-technical-guidance

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