

# Neighbourhood nature



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# Introduction

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In this free course, *Neighbourhood nature*, you will learn about the plants and animals in an English temperate woodland, how they can provide clues about the history of local woodland and how some traditional woodland management methods can benefit biodiversity. You will also learn about the importance of ancient trees as a habitat for certain rare species of insect and fungus.

This OpenLearn course provides a sample of level 1 study in [Environment & Development](#).

# Learning Outcomes

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After studying this course, you should be able to:

- understand how woodland is structured
- understand what is meant by the term 'ancient woodland' and how such woodland may be recognised
- understand how certain woodland management methods can benefit biodiversity
- understand the conservation importance of ancient trees.

# 1 Woodland

It is thought that, following the last glaciation (when most of the UK was covered in ice) and before humans began to have an influence on the vegetation of the UK, the country was covered in natural forests known as **wildwood**. Very little of this wildwood remains today, it having been cleared for fuel and to create space for agriculture. However, those woods that do remain are there because humans, through the ages, have managed and maintained them to exploit the woodland for timber, fuel and food. Every wood has a history of interaction between humans and nature that can be revealed by careful observation. Oak woodland is the most species-rich habitat in the UK, so woods are good places to see wildlife – even in well used woods within and near cities.

## Activity 1

Allow 40 minutes for this activity

Watch the following video clip and then answer the following question.

Video content is not available in this format.

Sherwood Forest

A microhabitat is a small habitat within an ecosystem, which supports the survival of certain animals or plants. How many different microhabitats did you notice in the clip?

### Answer

The trees provide nesting, roosting and feeding places for birds. Open areas (glades and clearings) without trees are important for certain plants, butterflies and other insects. Dead wood provides habitat for invertebrates and fungi. Dead vegetation on the woodland floor is important for fungi and invertebrates.

So woodland is a diverse habitat, rich in wildlife, that needs to be managed to maintain that richness.

## 1.1 Woodland structure

Most woods have a number of vegetation layers (Figure 1). There is the **canopy**, or top layer, where the tallest trees are found, such as oak (*Quercus robur*), ash (*Fraxinus excelsior*), beech (*Fagus sylvatica*) or birch (*Betula pendula*). These trees receive the maximum amount of light available.

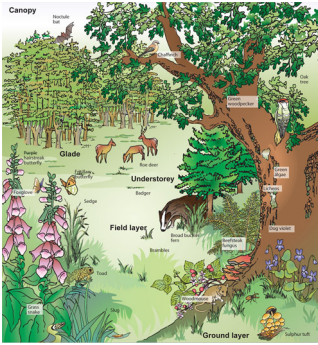


Figure 1 Broadleaved woodland showing the woodland structure and some of the main species and niches.

The **understorey** is composed of shorter trees or shrubs, such as field maple (*Acer campestre*), hawthorn (*Crataegus monogyna*) or hazel (*Corylus avellana*), which are adapted to grow successfully with less light, as well as saplings of canopy tree species.

The **herb** or **field layer** may include ferns such as the broad buckler fern (*Dryopteris dilatata*), flowering plants such as the wood anemone (*Anemone nemorosa*) and grasses.

The **ground layer** is composed of mosses, lichens, ivy (*Hedera helix*) and fungi. On the woodland floor there is usually a layer of rotting leaves and vegetation, which is home to a range of invertebrates such as springtails (*Collembola*), woodlice (*Oniscidea*) and millipedes (*Diplopoda*).

Climbing plants, such as honeysuckle (*Lonicera periclymenum*), grow up tree trunks to reach towards the light. Others, such as certain mosses, lichens and ferns, grow attached to tree trunks in order to reach light – they are **epiphytes**, plants that grow on other plants only for support and do not obtain nutrients from them.

### Question 1

If light is so important for plant growth, how do you think species such as bluebells manage to survive growing under dense shade?

#### Answer

Species such as bluebells survive under the shade of the canopy because they normally complete their life cycle in early spring, before the leaves fully open in the tree canopy above. Other species are simply tolerant of shade or grow in the parts of the woodland that receive more light, such as gaps between trees, glades or at the woodland edge. Coppicing encourages such species.

## 1.2 Woodland species

Some woodland plants and animals are **generalist species**. They are found in woodland, but are also common in other habitats such as grassland, scrub, parks and gardens. Examples might include plants such as ivy or germander speedwell (*Veronica chamaedrys*), animals such as foxes or hedgehogs (*Erinaceus europaeus*), or birds like bluetits and chaffinches (*Fringilla coelebs*).



Others might use the wood as a convenient place for just part of the time. For instance, Leisler's bat (*Nyctalus leisleri*) hibernates in woodland trees in winter and the chiffchaff (*Phylloscopus collybita*) migrates to woodland for the summer.

At the opposite end of the spectrum are the true woodland **specialist species**. These species rely on trees and woods throughout their life cycle: birds such as the nuthatch (*Sitta europaea*) and all three species of woodpecker; mammals such as the red squirrel (*Sciurus vulgaris*); and specialist lichens and mosses such as the striated feather moss (*Eurhynchium striatum*).

You will recall from the clip that species found in woodland differ widely in their requirements, from the silver washed fritillary butterfly (Figure 2) that likes sunny patches in woodland glades to the black snake millipede (*Tachypodoiulus* sp.) that thrives on rotting wood and the birch polypore fungus that is found only on birch (*Betula* sp.).



Figure 2 Silver washed fritillary (*Argynnis paphia*), a species found in sunny woodland glades.

© Mike Dodd

The abundance of a particular species may also depend on how specialist it is. Once a common sight, the white letter hairstreak butterfly (*Satyrion w-album*) has declined dramatically with the loss of its only food plant – the elm (*Ulmus* sp.) – to Dutch elm disease.

The species perhaps most associated with woodland are squirrels. The native red squirrel is now only found in scattered populations in northern and western areas of the UK and on the Isle of Wight. It has suffered from loss of habitat, the deadly squirrel poxvirus and competition from the grey squirrel (*Sciurus carolinensis*), which was introduced from North America in the nineteenth century.

All of the UK's seventeen species of bat can be found in or around woodlands, but some are woodland specialists – such as the noctule (*Nyctalus noctula*), barbastelle (*Barbastella barbastellus*), Bechstein's (*Myotis bechsteinii*) and brown long-eared bat (*Plecotus auritus*). Brown long-eared bats prefer to forage in deciduous woodland (composed mainly of trees that lose their leaves in winter), where they glean insects from leaves and bark. Noctule bats are primarily tree dwellers and live mainly in rot holes and old woodpecker holes. Barbastelle bats roost in trees all year round, preferring ancient woodland with a substantial understorey.

Leaf litter is eaten and broken up by **detritivores**. These are invertebrates such as millipedes and woodlice. The **decomposers** (species of fungi and bacteria) continue the process and undertake chemical breakdown of the litter. **Saproxylic** species are those that obtain their nourishment solely from dead or decaying wood. By their actions, these groups of organisms release nutrients and make them available to be taken up by other plants.

Most fungi associated with woodland conform to one of the following alternative nutritional strategies:

- They are in a mutually beneficial (**symbiotic**) feeding relationship with tree roots, e.g. fly agaric fungus (*Amanita muscaria*) is associated with birch trees.
- They decompose wood or leaf litter, e.g. fairy bonnet (*Coprinus disseminatus*).
- More rarely, they may adopt a **parasitic** relationship, causing damage to the trees, e.g. honey fungus (*Armillaria mellea*).

It is the fruiting body of a fungus (the stage that produces the spores) that appears above ground, normally in warm and damp conditions ([Figure 3](#)).

## 1.3 Woodland history

'Ancient woodland' is a term mentioned in the next video clip – 'Archer's Wood'. This section aims to give a quick woodland history and show how ancient woodland fits in.

### Activity 2

Watch the video below.

Video content is not available in this format.

[Archer's Wood](#)

After the last glaciation, woodland grew to cover much of the UK. This naturally established wood was known as wildwood, but since Neolithic times (between 6000 and 4000 years ago) it has been progressively influenced by the activities of humans – either through management or complete clearance for farming. By the time the Domesday Book was produced (1086), around only 15 per cent of England was wooded.

