Summary Guide to Surrey Heathland

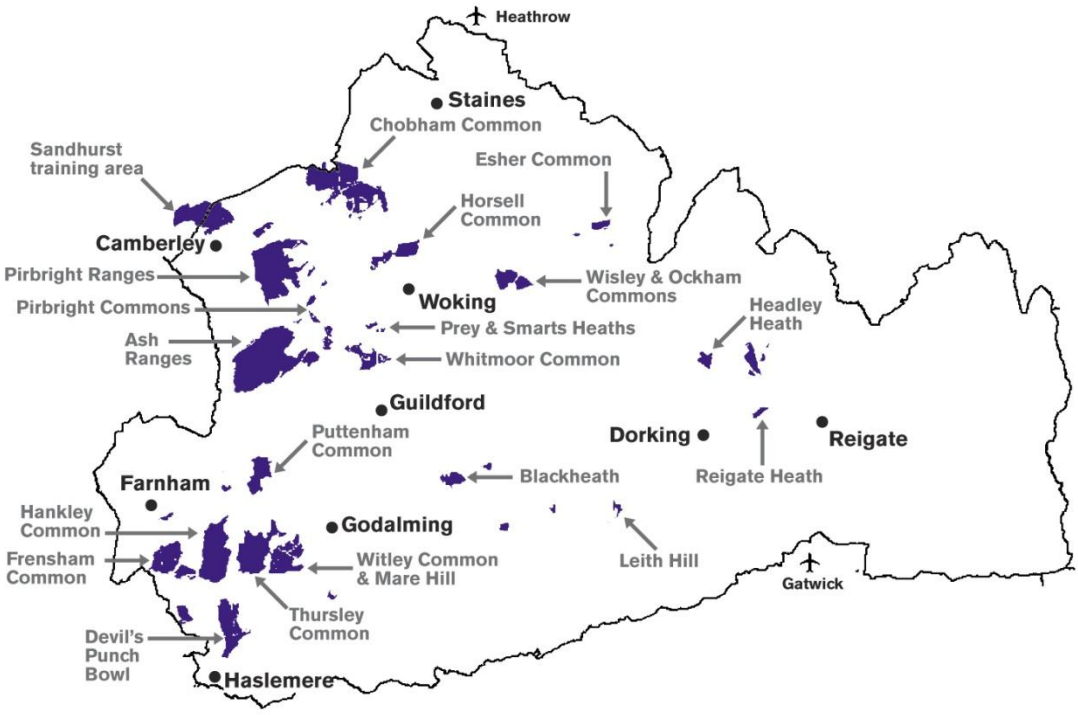
An introduction to the heathland habitat and its management

Surrey Heathland Project

Surrey Heathland Project
saving Surrey's Last Wilderness

Heathland areas in Surrey

In Surrey, heathland is largely confined to two **National Character Areas**: the Thames Basin Heaths (on Tertiary sands and gravels overlying the London Clay) in the north west of the county and the Wealden Greensand in the south west and centre. Additionally, there is some heathland (notably Headley Heath) on superficial gravels overlying the chalk in the North Downs National Character Area.



Thames Basin Heaths

Ash Ranges

Along with contiguous heathland in Hampshire and Berkshire, heathland in this part of Surrey amounts to approximately two thirds (about 2,000 hectares) of the county's surviving heathland. This forms a discontinuous band of sites from Epsom, Esher and Oxshott Commons in the east and westwards to the Hampshire border. Heathland has also developed here on the Bagshot Beds and the Windlesham and Camberley Sand formations.

The topography of these heaths is generally gentle and there are large areas of low-lying land supporting humid and wet heathland although, in places, steep hills support dry heath. Three sites, Ash Ranges, Pirbright Ranges and Chobham Common, account for three quarters of the heathland in the Thames Basin;

nevertheless other smaller sites have considerable importance in maintaining biodiversity across the range of heathland within the National Character Area.

Wealden Greensand

Thursley Common

Heathland on the Wealden Greensand makes up one third (about 1,000 hectares) of the county's heathland and forms part of a larger area extending into Hampshire and West Sussex. With the notable exception of Thursley National Nature Reserve and its environs (which supports an internationally important mire), the Wealden Greensand heaths are predominantly dry sites, lying on the Folkestone, Sandgate and Hythe Beds of the Lower Greensand. The topography of these heaths, especially in the south west of the area, is more varied than in the Thames Basin - higher ground often rising steeply and forming a deeply incised landscape as at the Devil's Punch Bowl. The bulk of the surviving heathland is centred on or close to Thursley, Hankley and Frensham Commons, with Blackheath an important outlier to the north east. Fragments of heathland at higher altitude and of different character are found further east at Leith Hill and on the Hurtwood in the characteristic 'Surrey Hills' landscape, now heavily wooded.

North Downs

In a very few places, superficial soil deposits over the chalk of the North Downs support heathland. The largest example is Headley Heath where the more 'typical' acidic heathland plant communities are accompanied by small areas of 'chalk heath' that are interesting mixtures of chalk downland and heathland species. There are probably no more than 20 hectares of heathland over the chalk.

Heathland history

How did heathland come about?

Ash Ranges

Although heathland may appear wild and natural, it is an ancient landscape that has been influenced by people over thousands of years. It is thought that many large areas of heathland were created at least 6,000 years ago in the Late Stone Age and Bronze Age. Our ancestors had recently become farmers, and as they cleared the original vegetation and trees to grow crops, nutrients were washed out of some soils by the rain, leaving them poor and acidic. Heathland plants were well suited to these poor acid conditions, and while some open areas may have been heathland already, much of the exhausted farmland gradually became heath too.

Turf cutter

Over the following centuries local people used the heaths as part of their everyday lives. They grazed their animals for meat, milk, wool and hides and used the dung and urine for fertiliser. They cut firewood, collected gorse and turf for fuel, and made besom brooms from heather and birch. The heather was also cut for thatching, and bracken for animal bedding, soap and glass making. The rights of local people to use the heaths in this way became known as commoners' rights. Regular cutting, grazing by animals and burning kept the landscapes open.

History of heathland in Surrey

This way of life continued for many centuries but by the 1800s it had begun to decline. As people stopped cutting and grazing the heaths, the heathland areas began to revert to scrub and poor woodland. In Surrey as in other parts of the country, large areas of heathland were lost to development in the late 19th and early 20th centuries. Advances in agriculture meant that even poor soils could be planted with crops or plantations of trees for timber. Heaths were viewed as wastelands, roads were built across them and towns such as Woking expanded over them. The military used the heaths extensively during this time for training troops, and today own about 60% of Surrey's remaining heathland.

In Surrey 85% of the heathland has been lost in just 200 years, leading to a severe loss of biodiversity. In recent decades heathland has been recognised for its wildlife value and its historical and cultural interest, and much is now protected from development. However it has continued to disappear, and since the last war much of the loss has been due to natural succession (growth of dense trees and scrub to form woodland). Today, apart from military training, Surrey's heaths are mostly used for recreation. Heathland is now almost entirely disconnected from the farming communities that created it, and which it helped to sustain, but it still has an important role to play. With its wild looking landscape and distinct wildlife, heathland adds great variety to Surrey. By managing heaths through clearing scrub and bringing back grazing, we can keep areas open for people to enjoy and maintain links to our past.

Cattle grazing heathland

Heathland habitat

Definition of heathland

Lowland heathland is an open landscape generally found on poor, acid, sandy soils less than 300 metres above sea level. It usually contains dwarf shrubs of the heather family, notably ling (*Calluna vulgaris*), bell heather (*Erica cinerea*), cross-leaved heath (*Erica tetralix*) and bilberry. However the term 'heathland' generally describes a type of landscape, which may include areas of gorse, bracken, acidic grassland, valley bogs, bare sandy or peaty ground, scattered trees and shrubs and sometimes water.

Where is heathland found?

In Europe, heathland is found in areas that have an oceanic climate of mild winters and wet summers. This occurs to the west of the continent, and areas of heathland are found in southern Scandinavia, Denmark, Germany, the Netherlands, Belgium, Western France and the north and west of the Iberian Peninsula.

Ash Ranges

Geology is also important. In the south and east of Britain, heathland is usually found on sands and gravels, and sometimes clays, which have led to acidic soils. In the north and west of the country, heathland can be found over igneous and metamorphic rocks.

Heathland wildlife

Heathland is a habitat of outstanding importance, supporting a range of species which are nationally or internationally rare or endangered. It should be emphasised that it is not only the heather dominated land which is important but the whole matrix including bare ground, scattered scrub, grassy areas and trees, all of which support a rich diversity of species.

Surrey's Heathland Habitat Action Plan highlights the value of heathland and identifies action required to maintain and enhance the status of heathland in Surrey and its associated species mix. For further information about Surrey's Biodiversity Action Plan please contact Surrey Wildlife Trust, School Lane, Pirbright, Surrey, 01483 488055.

Heathland birds

Dartford Warbler

Surrey heathland is outstandingly important for birds. Although the number of characteristic heathland species is small, heathland in Surrey supports internationally important numbers of three bird species listed on Annex 1 of the EU Birds Directive. These are the nightjar, woodlark (both UK Priority List) and Dartford warbler ('Amber List').

The Surrey populations of national numbers of these species are: nightjar - 4%, woodlark - 11% and Dartford warbler - 10%. Whilst Dartford warblers are virtually tied to heathland habitats, the other two species occupy afforested sites at appropriate stages of the forestry cycle. The majority of heathland sites are notified as SSSIs (sites of special scientific interest).

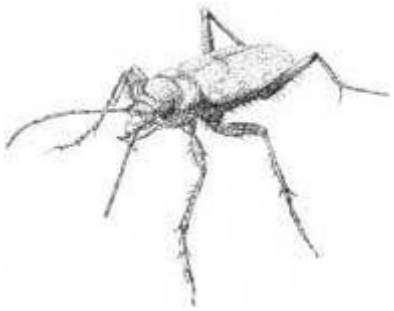
Other characteristic species include the linnet, stonechat, tree pipit and hobby. Nightingale, snipe and curlew breed very locally.

Heathland invertebrates

Damsel flies

Lowland heathland in Surrey is extremely important for invertebrates, especially insects and spiders, and many rare and characteristic species occur. Some of these, such as its diverse dragonfly fauna (including the local small red damselfly and keeled skimmer), silver-studded blue butterfly, emperor moth, bog bush-cricket and raft spider, are well known; many others, especially the wide range of Hymenoptera (ants, bees and wasps) are less known, except to specialists. Surrey is the richest county in Britain for this group, with dozens of rare species on its heaths, including the dark guest ant and red barbed ant.

Characteristic species of dry heathland include the bee-fly, the heath sand wasp and red banded sand wasp, wood tiger beetle, slave-making ant, mason wasp and many others. Dry heathland on the Lower Greensand of the Weald supports thriving populations of the hornet robberfly and has produced the only modern records of the rare broken-banded wasp-hoverfly.



Green Tiger Beetle

Heathland in Surrey holds nationally important populations of grayling butterfly, a species which has declined significantly in recent decades. Surrey contains the majority of British sites for the heathland spider Uloborus walkenaerius and all the known populations of lynx spider, found mainly in the Thames Basin.

Many invertebrates of lowland heathland are dependent upon a warm microclimate and sheltered conditions providing 'hot spots'. Bare sand and peat, including banks and gravel pits are particularly important together with a good nectar supply from flowering plants. Locally, patches of acidic grassland or 'grassy heath' may be extremely important, the blue plunderer ground beetle which has recently been rediscovered in Britain is found on one such area in Surrey.

The very rare field cricket Gryllus campestris, which once occurred on Surrey heathland is being re-introduced by Natural England under its Species Recovery Programme.

Heathland mammals and reptiles

Reptiles and amphibians

Surrey is one of only three counties in the British Isles which support all of the native heathland reptiles and amphibians, including the rare and specially protected sand lizard, smooth snake and natterjack toad. Although the natterjack toad disappeared from Surrey in the late 1960s, it has been re-introduced from a nearby population in Hampshire and successful breeding has taken place.

Native populations of the other species have survived in the county, albeit at a very restricted number of sites for the sand lizard and smooth snake, but sympathetic habitat management and re-introductions have established these species at a number of other sites. Despite recent improvements in their status, especially the sand lizard, all three rare heathland species remain vulnerable.

The Surrey heaths therefore, hold a position of paramount importance in the conservation of our indigenous reptiles and amphibians.

Mammals

The most obvious and locally abundant mammal on heathland in Surrey is the rabbit. The commonest rodents are field voles and wood mice, found in the grassier areas, but two much scarcer members of this group occur on heathland in the county. Rank grass, especially purple moor-grass, can support harvest mice and water vole have been found in small heathland streams.

Harvest mouse

Foxes, stoats and weasels prey on smaller mammals. Roe deer favour scrub invaded heath and areas developing into secondary woodland, though they have little effect on scrub control. In recent years, the introduced muntjac deer has spread into the county and may be encountered on heathland.

Heathland plants

Dry heaths that are dominated by common heather (sometimes called ling) often have a fairly small range of plants. However dry grassy heaths are often more varied, and can be home to uncommon plants such as the smooth cat's-ear which is nationally scarce, and the Deptford pink. Wetter heaths and mires in Surrey support rich assemblies of plants including cotton grass, and important communities of mosses, liverworts and lichens.

Bog cotton grass

A substantial part of Surrey's heathland and mires has been designated as a Special Area of Conservation (SAC) under the European Habitats Directive. This reflects its international importance.

Fungi

Fungi are abundant on lowland heathland, as there are different conditions to suit a range of often specialised species. In late summer and autumn, increasing numbers of people are visiting heaths to collect edible fungi. Over-collecting may threaten the long-term future of some species on heathland. As well as the larger fungi, many species of microfungi are found on heaths.

Nail fungus

Some uncommon species are found on bare peat soils, or soils which have been burned recently. A large cap fungi (*Anthracobia subatra*) that was found on a burnt area at Witley Common was new to the British Isles. Nationally rare nail fungus (*Poronia punctata*) has been found on heathland in Surrey and is associated with pony dung.

Managing heathland

Plants and animals that have specialised and adapted to the open heathland landscape over thousands of years, disappear when their habitat becomes overgrown. Trees, scrub, bracken and grass have been invading the heaths as traditional heathland management has declined.

Heathland has been recognised as a rare and important habitat, and most heathland areas in Surrey have been designated as Sites of Special Scientific Interest (SSSI). Many also fall within the international designations of Special Areas for Conservation (SAC) and Special Protection Areas (SPA). Many areas of heathland are now managed for their nature conservation and recreational value.

Management techniques

Much of the funding for heathland management work comes from agri-environment schemes such as Higher Level Stewardship. We use a number of different techniques, some of which are outlined in the paragraphs below.

Controlled burning

Burning stands of heather can be very effective at promoting their regeneration, particularly as, unlike cutting, the burning may remove some of the organic matter that builds up under the stand. Controlled burning needs skill to achieve the best results and ensure that the fire does not get out of control. Ideally, it is done in late winter to minimise damage to heathland wildlife.

Burning is an ancient practice, and a recognised form of heathland management, especially on Britain's upland moors, but also in areas such as the New Forest. However Surrey is no longer the wild uninhabited place it was at the end of the 18th century. Even our wildest areas are not far from roads, housing and businesses, and a deliberate controlled burn for managing any of these areas needs to be carefully planned. As burned heathland is an extremely good firebreak, managing heaths by controlled burns has the benefit of helping to prevent large areas being burned by summer wildfires.

Uncontrolled fires during the summer months often caused by arsonists or carelessness can cause long-term damage to heathland and its wildlife. In summer, heath fires burn much hotter - especially if there is a covering of scrub. There is a greater chance that a summer fire will kill the roots of the heather plants, and sometimes a summer fire is so severe that even heather seed will be killed. Summer burns will kill any wildlife unable to move quickly enough.

Controlling bracken

In recent years, the spread of bracken has become a major problem on heathland. It could be that the bracken, like grasses, is benefiting from nutrient enrichment through air pollution. The vigour of bracken can be reduced by mechanical treatment - regular cutting or rolling, especially with a special roller called a 'bracken bruiser'. Mowing and rolling are most effective when done when the bracken frond has just finished unfurling and food reserves in the underground root system (rhizome) are most depleted. This is also the time when it is best to treat bracken with a herbicide. Usually on heathland the selective chemical Asulox is used for this and, in normal circumstances, it does not affect the growth of plants such as heathers that may be growing with the bracken.

There are disadvantages to the mechanical methods of bracken control. Regular cutting keeps all vegetation short and rolling works best where the vegetation is short, this makes control of bracken in taller vegetation a difficult proposition. Both methods can harm ground-nesting birds.

Under dense stands of bracken, there is often a thick layer of litter. Stripping this away can help heathers and other heathland plants to re-establish.

Grazing heathland

Grazing by hardy breeds of livestock can benefit heathland in a number of ways. It can reduce the amount of scrub that develops, as animals graze off seedling trees. Grazing can promote diversity of flora and fauna by reducing the dominance of grasses such as purple moor-grass and wavy hair-grass. Grazing can promote

'structure' in the vegetation to the great benefit of heathland wildlife. It can also benefit heathland invertebrates that make use of dung. Different grazing animals - cattle, ponies, sheep and goats - will have different effects on the vegetation. The nature of the site - its size, topography and the make-up of its vegetation - and the level of stocking are also important determinants on the effects of grazing.

Managing trees and scrub

An important part of managing heathland is removing young trees, which are often called 'scrub'. This is necessary to prevent the heathland being lost and replaced with poor quality secondary woodland. Ancient woodland, by contrast has a much longer history and is much richer in wildlife.

In Surrey, the main tree species growing on heaths are Scots pine and silver birch. These are cut and sometimes turned into woodchip, which can be converted to compost or used to generate heat and power. Some cut trees send up several new shoots (or ‘coppice’) when they are cut. In these cases we sometimes use a herbicide to treat the tree stump. If an area is being grazed, this might control the regrowth without needing the herbicide.

Restoring heathland

In some cases when heathland has disappeared under invading trees, it can be restored. Heather seed can survive for as long as 80 years in the soil. When the tree cover is removed and more light reaches the ground, the dormant seeds can germinate and new plants grow.

Turf stripping

To speed up the process of heather regeneration, sometimes the ‘litter layer’ of leaves and pine needles on the surface is removed. Turf stripping can also be useful where an area has been taken over by bracken

or invasive grasses like wavy hair-grass and purple moor-grass. It initially leaves bare ground, which is very valuable for heathland invertebrates such as solitary bees and wasps.

Cutting heather

Sometimes heather is cut to regenerate it. This leads to plants of different sizes and suits a range heathland wildlife that depends on different ages of heather. Cutting heather is mostly used to create firebreaks, which help to stop fires spreading across the heath.

Keeping the soil poor

Removing scrub, leaf litter and some heather from heathland helps to stop nutrients and fertility building up in the soil. Heathland plants are adapted to poor conditions, but if the soil becomes richer it is easier for more common plants to move in, and harder for them to compete.