

‘Host of the month’ is a series of information sheets and blogs that highlight a tree host and their associated priority pests and diseases that are best seen and recorded in that month. For August we’re looking at pines (*Pinus* species), *Dothistroma* needle blight and *Cucurbitodthis*.

The main product we use from pine trees is timber, but they also give us pine-nuts, and prior to the advent of the petroleum age they and other conifers were the source of useful volatile organic compounds. Western yellow pine (*P. ponderosa*) for example is a rich source of turpentine. Unfortunately for resin distillers in mid-19th Century North America they failed to distinguish Western yellow pine from its very similar cousin, Jeffrey pine (*P. jeffreyi*) with explosive results. Rather than turpentine the Jeffrey pine contains high concentrations of unusually pure n-heptane, and it was this highly volatile compound which caused a series of explosions at resin distilleries. Jeffrey pine also goes by the name of gasoline tree and the N-heptane produced by it played a critical role in the development of the Octane rating of Petrol, acting as the zero point for the scale.



Figure 1: Scots pine growing near Puebla de San Miguel, Valencia, Spain (Matt Parratt)

Pines are the largest Genus of conifers with around 115 species and are part of the *Pinaceae* family along which also includes spruce (*Picea*), fir (*Abies*), cedar (*Cedrus*), larch (*Larix*), hemlock (*Tsuga*) and Douglas firs (*Pseudotsuga*).

Like other *Pinaceae* the foliage of pines is needle-like, but uniquely borne in bundles of 2, 3 or 5 needles (fig. 2) with the sole exception of *Pinus monophylla*, which has single needles. The base of each needle bundle is wrapped in a papery sheath and this combined structure, known as a fascicle, is unique to pines. Needles generally remain on the tree for between three and five years before falling as a complete fascicle.

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Figure 2: Left to right, fascicles of Scots pine (*P. sylvestris*), Radiata pine (*P. radiata*) and Macedonian pine (*P. peuce*).

In common with other *Pinaceae* pines bear separate male and female cones on the same tree, the male cones falling soon after releasing pollen. Following pollination the female cones ripen over either one or two years depending on species, eventually opening to release the winged seeds.

In the UK we have one native species, Scots pine (*P. sylvestris*) which has the second widest range of any conifer, stretching from the west of Scotland to Kamchatka, and from central Spain to the Arctic circle - a range exceeded only by common juniper (*Juniperus communis*). Scots pine is ubiquitous across the UK but is considered truly native only to areas of the Scottish Highlands where it forms the dominant tree species of the once extensive Caledonian pine forest.

Pines are popular as a landscape tree, species such as the statuesque Monterey pine (*P. radiata*) and elegant Bhutan pine (*P. wallichiana*) are frequent in parks and large gardens, the former particularly in coastal areas. However, it is in forestry that the pines have excelled in the UK and three species have dominated: Scots pine, Corsican pine (*P. nigra* subsp. *laricio*), and Lodgepole pine (*Pinus contorta* subsp. *latifolia*). The table below gives some of the key differences between them.

Species	Needles	Needle length	Needle colour	Other features
Scots pine	2	2-8 cm	Glaucous	Broken needles with many white fibres. Flaky orange bark in the upper parts of the trunk and branches
Lodgepole pine	2	3-8 cm	Grassy green	Cones with spine tipped scales that persist on the tree for many years.
Corsican pine	2	8-18 cm	Dark green	Common in forestry plantations, needles less stiff than closely related Austrian pine.

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Observatree Priority disease - Dothistroma needle blight (DNB)

DNB is a disease of conifers caused by the fungus *Dothistroma septosporum* with pines being particularly susceptible. Until the late 1990's the disease was rarely seen in the UK but by 2006 it was found in 70% of the Corsican pine stands that were inspected in England, Scotland, and Wales. Lodgepole pine (*P. contorta*) is also adversely affected and neither species is now planted to the same extent. Other affected species include Scots pine, Ponderosa pine (*P. ponderosa*), Radiata pine (*P. radiata*), and Bishop pine (*P. muricata*) though the latter three are relatively uncommon in the UK. The disease causes premature loss of needles older than one year and although trees can tolerate this, repeated and severe infections can gradually weaken the tree, reduce annual growth and eventually lead to death.

Identification

The first symptoms of infection with DNB are found on older needles towards the base of the crown. Soon after infection they develop a yellow-tan banding which gradually turns rusty red-orange, hence one of the former names for DNB, red-band needle blight. As the infection builds the ends of the infected needles turn brown while the bases remain green (fig. 3). This becomes increasingly apparent as summer progresses and eventually black fruit bodies appear on affected needles (fig. 4) and release spores which spread via moist, misty air or rain-splash. Infected needles are shed prematurely leaving only the most recent year of growth remaining (fig. 4), but this symptom is not unique to DNB and can be caused by a other needle pathogens. For more information on DNB lookalikes see the [Observatree DNB web page](#).



Figure 3: (L-R) Young pine tree with symptomatic needles in the lower crown, a characteristic orange-red band on a Scots pine needle, and infected Corsican pine needles – note the green needle bases.

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Figure 4: (left) DNB fruit body on an infected pine needle (UK Crown copyright, courtesy of FERA) and (right) tufted appearance of shoots on an infected tree where only current year needles remain (Rebecca Gosling, Woodland Trust).

***Cucurbitothis* species**

In late 2022, there were reports of canker and dieback symptoms on Scots pine at various locations across Scotland. A common factor observed at all sites is the presence of a previously rare fungus *Cucurbitothis* spp. (previously known as *Curreya pithyophila*) infesting shoots and branches of Scots pine in what appears to be a symbiotic association with the Pine woolly aphid (*Pineus pini*). Recent molecular work has revealed that there are two *Cucurbitothis* species in the UK, *C. pithyophila* and *C. parmeliarum*, but distinguishing them requires microscopic examination of their spores.

Identification

The fungus colonises the outer bark, appearing as a bobbly black caviar-like mass, frequently encircling young branches at shoot junctions (Fig. 5) but appears to remain superficial. Encased beneath the fungal mass are colonies of *P. pini* nymphs which feed on the phloem causing death of nearby tissues including the phloem itself. Once the phloem has been killed the woolly aphids move on and the fungal mass falls away, leaving the feeding site open to colonisation by other organisms which can lead to swollen blackened cankers.

For more information about *Cucurbitothis* see this [Observatree information note](#).

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Figure 5: Left - black fungal mass of *Cucurbitodithis* encircling a young Scots pine branch and right – an older, blackened canker at the former site of a fungal mass (David Haines, Assynt),

Affected Scots pine also sport abundant older, blackened shoot and branch cankers (Fig. 5) from which the fungal pathogen *Crumenulopsis sororia* and various endophyte species have been isolated. The primary cause of these cankers may be *P. pini* in association with *C. pithyophila*, with feeding sites subsequently colonised by canker-causing pathogens. Some Scots pines show high levels of infestation and weak or suppressed trees can exhibit severe dieback (Fig. 6), but the most common symptom is crown thinning and dieback of shoots and branches in the lower crown.



Figure 6: Weak or suppressed Scots pine infested with *Cucurbitodithis*/*P. pini* can show severe dieback symptoms where shoots and branches are killed (left, David Haines, Assynt, and right, Sarah Green, Forest Research)

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Reporting

Dothistroma needle blight is an Observatree priority disease in the UK so please report possible sightings via [TreeAlert](#).

Curcurbidopsis distributions and potential impacts on the health of Pines are still very poorly understood so please report possible sightings via [TreeAlert](#).

Matt Parratt, Forest Research, July 2026

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