Pine *(Pinus spp.)* Diseases

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Please note, for more information/ details on the described organisms, please scan the QR code to access the accompanying factsheet.

Dothistroma needle blight *(Mycosphaerella pini)*

It is a fungus that occurs across the UK affecting a range of conifers, mainly pines including the native Scots pine (*Pinus sylvestris*).

The main symptoms are:

- Blight of older needles leading to large-scale defoliation at the base of the tree crown (Fig. 1).
- Infected pine needles have a distinct red band around their width (Fig. 2).
- Small black fruiting bodies form within the red bands (Fig. 3).

Figure 1. Needle defoliation in *Pinus nigra* (A. Steven Munson,USDA Forest Service, Bugwood.org).

Figure 1. Needle reddening caused by *dothistroma* needle blight (H.C. Evans, CAB Interational, Bugwood.org)

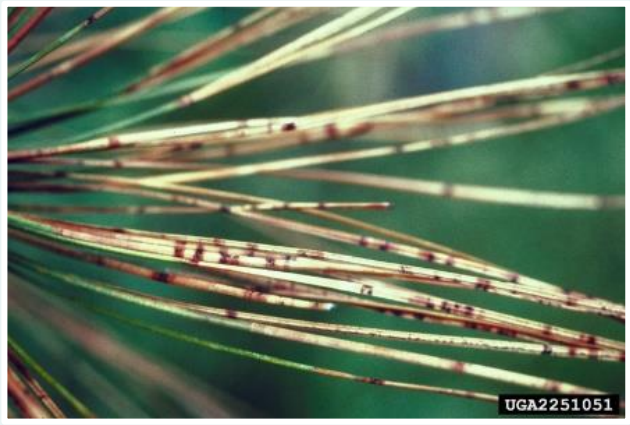

Figure 3. Small black fruiting bodies within the bands formed in the needles. (Robert L. James, USDA Forest Service, Bugwood.org)

Pitch canker of pine *(Fusarium circinatum)*

This fungal disease poses a threat to all pines. Although prevalent in Central and North America, there are limited reports around the world. It was recently introduced to Europe, where in the Iberian Peninsula it has caused considerable damage.

The main symptoms are:

- Damping-off of young seedlings causing needle discoloration, blight and root decay (Fig. 1).
- Cankers on small branches, usually in the upper that will girdle stems leading to dieback and death (Fig. 2).
- Needle discoloration, blight and dieback at the stems (Fig. 3).
- Resinuous cankers, hence the common name ‘pitch canker’ (Fig. 4).

Figure 1. Needle discoloration in young *Pinus radiata* seedlings (Elena Landeras, Forest Research)

Figure 2. Shoots dieback in *Pinus radiata.* (Ana Perez Sierra, Forest Research)

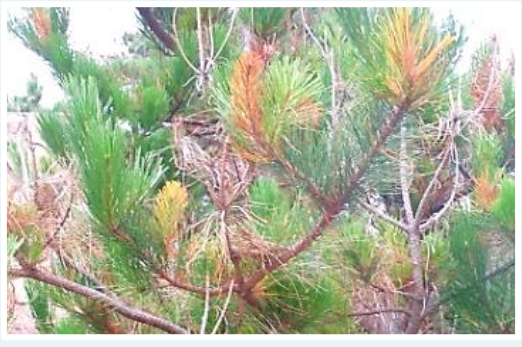

Figure 3. Needle discoloration, blight and dieback in *Ponus monticola. (Joseph OBrien, USDA Forest Service)*

Figure 4. Resinuous bleeding on *Pinus radiata*. (Ana Perez Sierra, Forest Research)

Pine rusts *(Cronartium, Endocronartium and Coleosporium species)*

Several different fungal rust genera infect pine species around the world causing damage to all aerial parts of the tree. Several species have been accidentally introduced to new regions causing significant damage as typified by white pine blister rust (*Cronartium ribicola*) and hence why so many different pine rusts are regulated organisms. Rusts have complex lifecycles with up to 5 different spore stages alternating between pine and another cultivated or wild herbaceous species.

The main symptoms are:

- On pines, the first symptom may be small red or yellow spots on the needle, but these are difficult to see (Fig 1)
- Within a year or two, perennial cankers can be seen on branches. These cankers are usually elongate, can become swollen and may have a yellow orange margin in young shoots (Fig 2).
- Cankers close to the stem may girdle the branch leading to yellowing of foliage, stunting, dead branches and dead crowns (Fig 3).

Figure 1. Needle discoloration and yellow spots on stem in *Pinus strobus* (Andrej Kunca, National Forest Centre – Slovakia, bugwood.com)

Figure 2. Blister rust sporulation in *Pinus spp* (H.J. Larsen and Chris Schnepf, University of Idaho, Bugwood.org)

Figure 3. Yellowing of foliage and dieback *in Pinus spp* (Chris Schnepf, University of Idaho and Steven Katovich, Bugwood.org)

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