

Plane wilt (canker stain disease)

Plane wilt, also known as canker stain disease, is a serious disorder of plane trees, which are important amenity trees in the parks and avenues of many European cities. The disease is caused by the fungus *Ceratocystis platani*, which is present in the USA and Europe, but considered to be indigenous only to North America. It is thought to have been introduced into Europe in the Naples area of southern Italy during World War II, possibly arriving in infected wood from the USA used to package military supplies. Since then plane wilt has gradually spread to other European countries. In 2014 the UK became a Protected Zone to provide extra safeguards against accidental introduction of this disease on imported trees or the wood of plane.



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Distribution

Apart from the eastern United States, *Ceratocystis platani* has been reported in France, Italy, Switzerland and Greece but with a restricted distribution. It has been eradicated from a single outbreak in Spain. In addition, there are unconfirmed reports of plane wilt from Belgium and Serbia, as well as Asia (Armenia, Iran, Turkey) and Africa (Algeria). The main trees affected are American sycamore (*Platanus occidentalis*), which is relatively resistant, oriental plane (*Platanus orientalis*), which is highly susceptible, and their hybrid 'London plane' (*Platanus x acerifolia*), which is of intermediate susceptibility. Apart from amenity trees in towns and cities, the disease affects countryside trees in France, Italy and Greece.

How the disease spreads

The fungus infects trees through wounds in the bark of branches or stems. Windblown sawdust containing the fungus or contaminated soil transferred on unwashed machinery can start new infections. In addition, *Ceratocystis platani* can move between neighbouring trees via root-to-root contact. Over longer distances, disease spread is via movement of infected planting stock and infected wood. Stem and branch infections commonly occur through use of

contaminated pruning and planting tools. Once established, the growth rate of the fungus through the wood may be rapid; even the heartwood is invaded. Spores are produced on the surface of dead wood.

Symptoms to look out for

Foliage

The first visible symptoms of the disease tend to be sudden wilting of the foliage on a single branch, leading to more extensive dieback of the crown. Infected trees have sparse, chlorotic (yellowed) leaves (above).

Wood/bark

The fungus disrupts the water transport system of trees as well as causing cankers. Bark cankers may appear as sunken lesions on thin-barked trees, with orange/purple streaking around the margin ❶. In thicker-barked trees the only external signs of cankering may be vertical cracks ❷. When the bark is pared away, leopard-like dots (brown to dark violet) appear in the outer wood ❸. In cross-section through infected branches bluish-black discoloration in the wood can be visible extending radially into affected branches or stems ❹. The staining in the sapwood can extend longitudinally at a rate of 2–2.5 m per year. Trees 30–40 cm in diameter can be killed quickly by the disease (2–3 years). In larger, vigorous trees it may take 4–7 years.



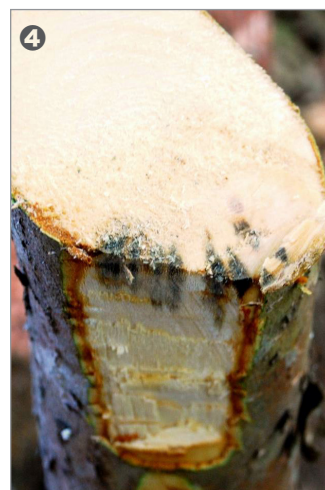
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Action to control the disease

As *Ceratocystis platani* can persist for months or years in affected wood and roots, removal and burning of all infected material is the safest form of control. No effective chemical treatment is currently available. Research is underway into the development of resistant hybrid plane trees and one variety has been released to the market in France. Other effective precautions include careful disinfection of tools to prevent disease spread (spores can remain viable for up to a month on pruning tools). All new planting stock should come from disease free areas and be checked carefully before planting.

How you can help

You can help us gather information about the health of our trees, woodlands and forests by reporting signs of tree pests and diseases. *Ceratocystis platani* is a quarantine organism so there is an obligation to report any suspect trees to the Plant Health authorities. Further information on the disease and identifying disease symptoms is available from the websites and contacts listed in the box below. There are a number of other disorders of plane trees in Britain that can cause similar symptoms to plane wilt (see opposite).

You can also find and follow the general advice on sensible biosecurity measures from: www.forestry.gov.uk/biosecurity

Disorders with similar symptoms

There are a number of other disorders that can affect plane trees in Britain although they are not as damaging as *Ceratocystis platani*:

- Massaria disease. This fungal disease causes twig shedding and more serious branch decay which can result in branch failure. The London Tree Officers Association provides advice on how to manage the disease at: www.ltoa.org.uk/resources/massaria-disease-of-plane-mdp
- Plane anthracnose caused by another fungus which results in twig and leaf blight. Powdery mildew can also cause yellowing and distortion of young plane leaves.
- Damage following winter applications of salt can also cause symptoms of dieback that can be similar to those caused by the plane wilt fungus.

Reporting the disease

Report suspect trees to the Forestry Commission via the Tree Alert page at: www.forestry.gov.uk/treealert

Please supply photos of the symptoms, full details of the location, contact details and, if possible information about the age of the tree (e.g. mature or recent planting).

For more information

To find out more about tree pests and diseases in the UK: www.forestry.gov.uk/pestsanddiseases

For help with pest and disease diagnosis and other tree health issues, contact the Forest Research Tree Health Diagnostic and Advisory Service: www.forestry.gov.uk/fr/ddas

Contacts and plant health authorities

- Forestry Commission (Plant Health) www.forestry.gov.uk/planthealth
- APHA (Animal and Plant Health Agency) www.gov.uk/government/organisations/animal-and-plant-health-agency
- Scottish Government (Plant Health) www.scotland.gov.uk/planthealth