

Problems on plane trees



The Research Agency of the
Forestry Commission

Planes (*Platanus* spp.) are commonly planted in urban situations due to their reputation for tolerance to water shortage and high levels of pollution. Their habit of shedding bark allows them to cast off particulate pollutants, whilst their huge, stiff leaves make them excellent shade trees in an urban setting. However, there is increasing awareness of several pathogens that could potentially be very damaging to *Platanus* in the UK.

Recent studies in Germany have found ascomycete fungus, *Splanchnonema platani* (anamorph: *Macrodiplodiosis desmazieresii*) causing branch dieback of London plane *Platanus x hispanica* (synonym *P. x acerifolia*). This fungus is usually considered to be a weak parasite, and only capable of causing minor damage. It is common in warmer Mediterranean climates and the southern United States. However, during the hot, dry summer of 2003 it was found attacking mature trees in Germany, causing branch death and rapid decay. As many of the affected trees have been street trees, the activity of this pathogen in causing branch dieback has resulted in a risk to public safety, and dead wood has to be removed before it becomes an unacceptable hazard. In recognition of the still popular former name of the fungus *Massaria platani*, the term 'Massaria disease of Plane' has been proposed. We have not yet seen this problem in England, although a single case was identified on London plane in Guernsey in June 2008. If you have any concerns about plane trees in your locality, please contact Forest Research Disease Diagnosis and Advisory Service (details on back page).

From recent experience within other European countries, two other non-native fungi also have potential to have a significant impact on our plane trees. The ascomycete *Ceratocystis fimbriata* f. *platani* originates from the eastern United States and causes canker stain on a range of plane species including London plane and its parents *P. orientalis* and *P. occidentalis*. The pathogen was accidentally introduced from the eastern United States to a number of southern European ports during World War II on infected crating material, and has spread rapidly through Italy and into Switzerland.

Although its progress through France was initially slower, recent reports confirm the fungus is spreading northwards at a much faster rate than in the previous decade. It was also recently reported in Greece.

Ceratocystis fimbriata f. *platani* is a wilt pathogen causing pronounced xylem staining, severe wilting and tree mortality. Staining can extend longitudinally in the sapwood at a rate of 50–100 cm per year and can reach the heartwood along the medullary rays. Infected trees exhibit sparse chlorotic foliage and sometimes sunken, elongated or lens-shaped bark cankers that can become roughened and black with age. Infection commonly occurs through fresh wounds, although transfer between trees can occur across root contacts.

For unknown reasons the disease seems to have become less significant in the United States in recent years, but in south-east France and Greece there have been serious losses of shade trees, with infected trees dying within 3–7 years. This pathogen poses a significant risk as it affects a key urban amenity tree species and can be spread easily through the movement of infected cuttings. It also produces resilient, long-lived spores which can persist in soil and unsterilised pruning tools. As the disease mainly proliferates through human activity the spread can be limited by sourcing plant material from regions free of the disease, and by disinfecting pruning tools with alcohol. Larger agricultural equipment such as terracing machinery should be jet-washed with water to remove any contaminated soil. Affected trees decline so markedly that it is unlikely that the disease could be overlooked, so it is unlikely that if it has reached the United Kingdom it would remain undetected. However, if readers are aware of any trees exhibiting such symptoms we would be grateful for further details. (Further information can be found in Walter, 1946, Griffin, 1968, Vigouroux, 1979 and Panconesi, 1981)

Another fungus, the basidiomycete *Phellinus punctatus*, is also found on London planes in France and Italy where infection results in decay.



Figure 1. Fruit body of *Phellinus punctatus* on plane tree.

P. punctatus can cause cankers on the bark, but as these are pale buff, flat sometimes with perennating rays, they are extremely difficult to see on the mottled bark of plane trees. The fruit bodies merge into the bark but the presence of a narrow to broad black zone at the top of the fruit-body is diagnostic. It initially causes a rapidly spreading canker before developing an intense white rot involving both sapwood and heartwood. Affected trees have frequently suffered from stem failure. In March 2008 the first report of *P. punctatus* on plane in Britain was identified in West Sussex.

A fourth fungus, the basidiomycete *Inonotus hispidus* also has the capacity to colonise and cause decay on planes in the UK, and can manifest itself as rusty brown fruit bodies on the main stem.



Figure 2. A two metre-long suspected *Inonotus hispidus* canker on plane tree near Toulouse in France.

For reasons as yet unclear, in central and southern France and Germany it also forms blackish, inconspicuous, long narrow cankers and has great

significance from a health and safety point of view. A canker of this type was found on a tree in Dulwich, London, in 2006 and this appears to be the first clear evidence of a major stem canker due to this fungus in the UK.

With changes in climate and increasing imports of planting stock it is possible that all four of these pathogens could become problematic to tree managers in the UK.

Apart from branch and stem failures brought about through decay, information within the arboriculture community suggests there is a clone of plane (introduced about forty years ago) with a propensity to develop weak forks. Though discontinued some years ago, some trees of this clone appear in the marketplace. Mature trees with this problem are easy to spot and the advice is to source nursery stock carefully.



Figure 3. (Right) Clone of plane tree showing development of weak fork.

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This note builds on information published within Tree Damage Alert 121 'Not all plane sailing'

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This advisory note has been produced by the
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