

Host of the month – September

Planes – *Platanus* species

The origins of London plane (*Platanus x hispanica*), a hybrid between Oriental (*P. orientalis*) and Western plane (*P. occidentalis*), are uncertain but most likely happened in the 1600's in Spain. It was first planted in England around 1680 at Ely in Cambridgeshire, and at Barnes in Surrey and both trees are still there today, the latter one going by the name of Bernie (fig. 1). By the 1920's London plane represented around 60% of the trees in London though that has now dropped to around 4%. They are still common in cities and parks across Europe, Asia, South Africa and North America, in part because they are adept at trapping particulates such as airborne pollutants on both bark and leaf hairs and are able to survive in very poor compacted ground. However, they can grow to a considerable size; 'Bernie' was last measured as part of the Tree Register of the British Isles ([TROBI](#)) in 2017 and was then 35.2m tall and had a girth of 843cm!

Planes are the only Genus in the *Platanaceae* family and the number of species recently increased from six to eleven, many from North America. Planes are not native to the UK, but Oriental plane is found across south-east Europe, Asia, and India. All but one species has simple palmately lobed (hand-shaped, fig. 2) leaves arranged alternately along the shoot (fig. 3) with an enlarged petiole (leaf stalk) base that encloses the associated bud on the shoot (fig.3). The flowers are wind-pollinated and borne in a ball-like structure, as are the seeds that follow, and these can remain on the tree for some time after leaves have fallen (fig. 3). Mature trees have distinctive bark which sheds in patches to give an attractive mottled appearance (fig. 3) though on old trees the trunk develops a more evenly coloured appearance.

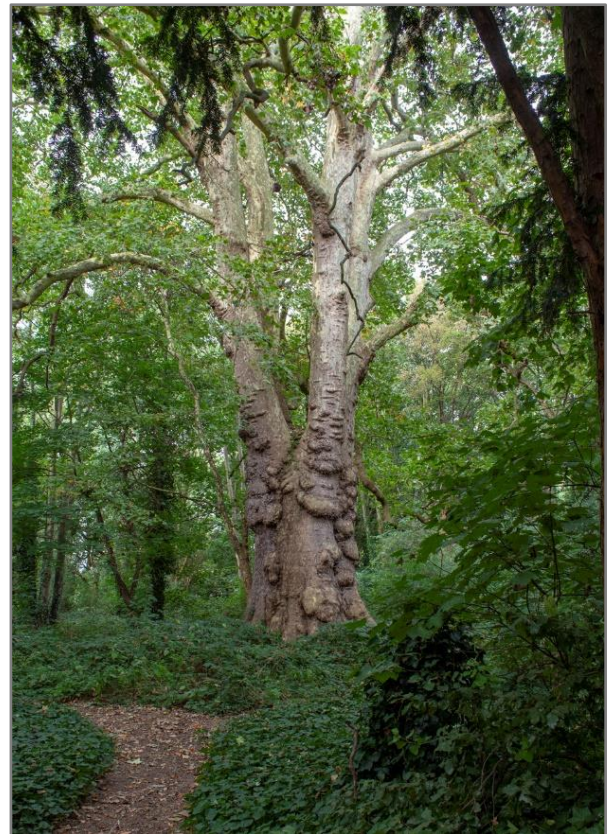


Figure 1: 'Bernie' the London plane at Smoky Wood, Barnes, London (image by Paulitzer, CC BY-SA 4.0 <<https://creativecommons.org/licenses/by-sa/4.0>>, via Wikimedia Commons

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Figure 2: Left to right - leaves of Oriental plane, London plane and Western plane (Westonbirt Arboretum)



Figure 3: Left to right - alternate leaf arrangement and swollen petiole bases, typical bark (© Crown copyright. Forestry Commission) and pom-pom fruits of London plane (Westonbirt Arboretum).

Priority pest – Plane lace bug (*Corythucha ciliata*)

Plane lace bug is native to North America and was accidentally introduced to mainland Europe. A small population was found at a plant nursery in Bedfordshire but was successfully eradicated and the pest is not currently known to be present in the UK. The lifecycle starts with eggs which are laid along the veins on the underside of plane leaves. The nymphs that hatch from the eggs are shiny black and oval shaped with a scattering of black spines and tend to stay clustered on the same leaf. After 5 moults they reach their adult form, around 4mm long, with white lace-like wing covers with some brown colouring at the base (fig. 4). Several generations

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can be produced each year and both adults and nymphs are often found together on the underside of leaves where they feed on the sap, usually with abundant fresh and dried frass (fig. 4). Besides the damage they can cause to plane trees there have also been reports of plane lace bugs biting people and causing dermatosis.



Figure 4: Left to right - foliage spotting and discoloration caused by lace bugs (© Crown copyright. Forest Research), adult lace bug (Fera Science Ltd. Davis Cossley), and adults and nymphs with spots of frass on the underside of a plane leaf (Fera Science Ltd.).

Symptoms

The first sign of lace bug presence is the appearance of small pale green or yellowish spots on the upper surface of leaves, usually clustered along the leaf veins. With increasing numbers of lace bugs the spots gradually coalesce resulting in whole leaves taking on a chlorotic pale-yellow colour with areas of bronzing. Very heavy infestations will lead to premature leaf drop and can, after several years, kill younger trees. They have been associated with the fungus *Ceratocystis platani* – the causal agent of plane wilt.

Lookalikes

Leafhoppers are common sap-feeding insects that can produce symptoms very similar to the initial spotting/mottling caused by lace bugs. They are also found on the underside of leaves, but the insects are a different shape, lack the lacy appearance of adult lace bugs and readily take flight when disturbed (fig. 5).

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Figure 5: Typical leaf hopper related damage on plane, and leaf hoppers on the underside of a sycamore leaf (Fera Science Ltd.)

Priority disease – Plane wilt/canker stain of plane (*Ceratocystis platani*)

Plane wilt is a fungal disease of Oriental, Western, and London planes. It affects the water transport systems of the tree causing wilting of leaves and shoots and is usually fatal within 5-7 years. The fungus is native to North America and was first found in Europe in Marseille, France, in 1972. It is now present in France, Italy, Switzerland, and Greece. A population in Spain is in the process of being eradicated.



Figure 6: Plane wilt symptoms (left to right) – isolated wilting/dead foliage (P. Tsopelas & N. Souliorti, FIRA, Greece), sunken canker with typical peripheral orange-purple colouring (© Crown copyright. Forest Research), and exposed lesion beneath the bark (© Crown copyright. Forest Research).

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Previously 50% funded by the EU's LIFE+ Programme (2013-2017)

The most visible symptom of infection is the sudden wilting of leaves, often initially on a single branch but soon spreading (fig. 5). As the infection progresses and spreads the crown of an infected tree becomes sparse and thin with discoloured leaves. Cankers can also form though they may not be readily visible, particularly on trees with thick bark. They typically present as sunken lesions with orange and purple staining around their edges and beneath the bark as dark brown or violet spots of dead tissue (fig. 5), sometimes accompanied by more widespread blue-black staining.

Lookalikes

Western plane is particularly susceptible to **Anthraxnose** (*Apiognomonia veneta*), Oriental plane is moderately tolerant and susceptibility in London plane varies depending upon clone. The most visible symptom is the leaf-blight which presents as brown staining along the veins of leaves. Closer inspection will usually reveal cankers on the twigs or larger branches, shoot blight follows if these girdle stems (fig. 7). Frost and salt damage can give similar symptoms but in those cases twig cankers will be absent. Unlike plane wilt this fungus is not usually fatal.



Figure 7: Plane anthracnose symptoms (left to right) – leaf blight with brown staining along veins, twig blight with wilted/dead leaves, and canker on a young twig (all images © Crown copyright. Forestry Commission).

Like other mildews **Plane powdery mildew** (*Erysiphe platani*) presents as white powdery patches on the leaves (fig. 8) and shoots. Affected shoots and leaves go on to become distorted and turn yellow, eventually falling prematurely.

London plane trees are also known to be prone to infection by **Fomitoporia** species, a Genus of decay fungi which causes difficult to see cankers on the bark of affected trees. However, the associated dieback can look very similar to that caused by plane wilt. Culturing and molecular ID is the only way to separate the different *Fomitoporia* species.

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Figure 8: (L-R) Plane powdery mildew symptoms, large on a plane tree trunk canker caused by *Fomitoporia*, and a *Fomitoporia* fruit body (all images © Crown copyright. Forest Research).

Reporting

Plane lace bug and plane wilt are both priority pests and pathogens in the UK so please report possible sightings via [TreeAlert](#).

Check the Observatree website for more information and resources on [plane lace bug](#) and [plane wilt](#). For more information about these and other pathogens affecting plane trees see [Pathology Advisory Note 7](#) from Forest Research.

Matt Parratt, Forest Research, August 2023

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