

Platanus

Robin Hull

Robin Hull is a volunteer tree warden in the London Borough of Islington. From growing up in the countryside in Cheshire, he has had a lifelong interest in trees which he now expresses in a website, treetree.co.uk, that has a particular emphasis on the London plane but includes many other native and non-native species growing in and around London.

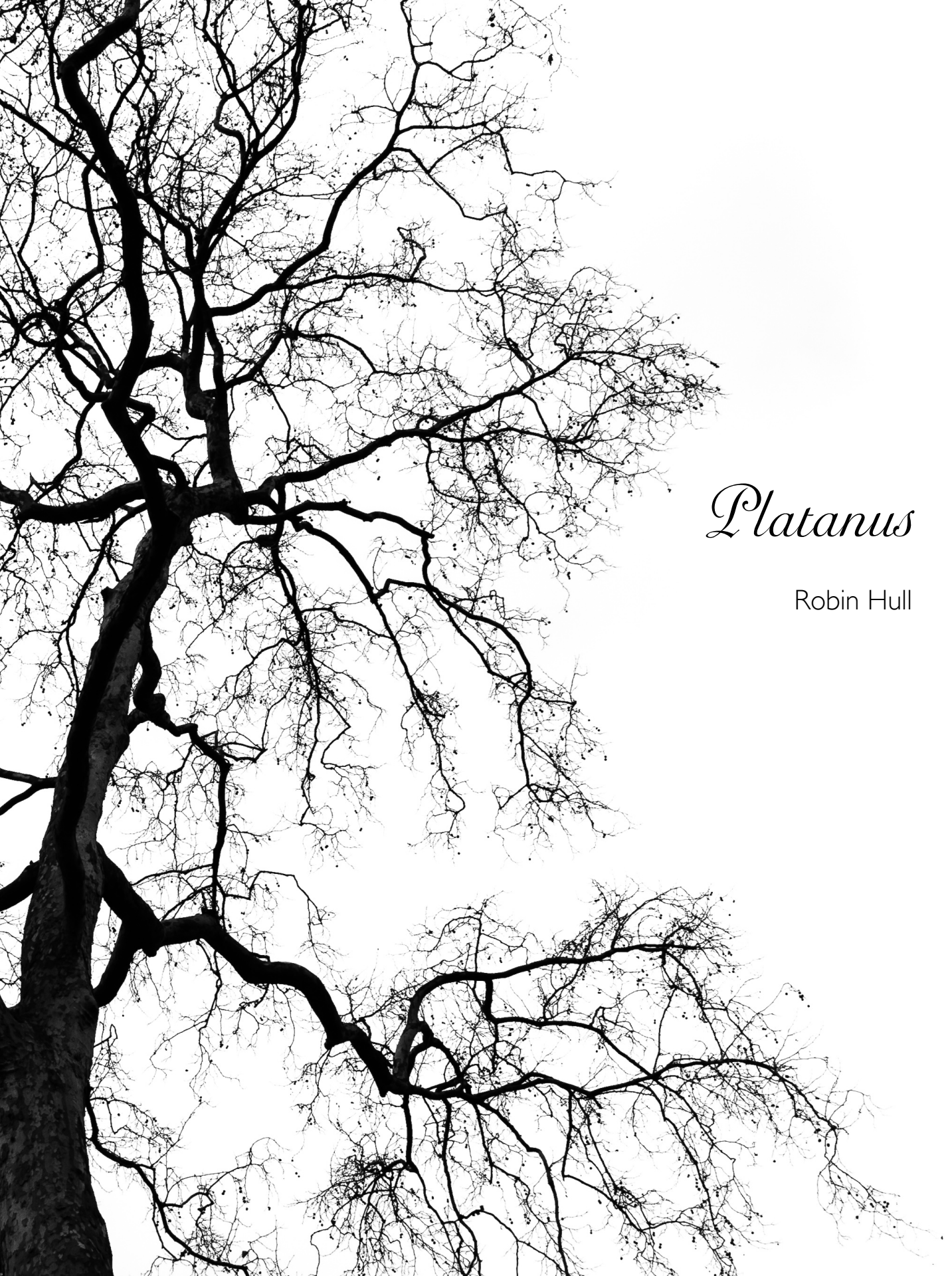
Platanus is a very brief story of the plane tree species, the Oriental and the Western planes and the hybrid London plane that is a common street and park tree around the world.

The plane is a special tree for the many reasons that have made it popular as a town tree, in particular the hybrid species, *Platanus x acerifolia*, the London plane that came into being around the year 1650.

There are some planes dating from that time still growing strongly in England and this book shows them and more recent plantings in photographs taken during the different seasons of the year.

A great threat to the species comes from pathogens that are on the increase as a result of lax controls on the globalisation of trade and from a changing climate. The book shows the development of Massaria disease of planes and looks to the threat of other diseases that make biosecurity an imperative.





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Preface

LOOKING IS IMPORTANT, at least as important as writing and reading when considering nature and its multiplicity of forms and colours; words come after the visual experience and they don't replace it. When considering the plane tree, no words can encompass or do justice to the variety of structures, shapes and colours that the species offer us. Neither can the categorisations of science. Consequently, this book uses photographs as a reminder that no two trees are alike, rather that their differences are far greater than I can see and that I can only hope to become more sensitive to difference by reminding myself to open my eyes afresh when walking on one of my regular routes near my home in north London.

I have to recognise, too, that all is not well with the plane in the early 21st century. Historically, it has been strong in resisting pollution and disease but in the last few years Massaria disease of planes has been seriously affecting trees across London, though it does not kill them. It does suggest, however, that we cannot take the plane for granted in a changing climate and with trading practices that move invasive species, pests and pathogens, around the world where they find new territories defenceless against them.

Fortunately, the plane continues to develop. A special new hybrid of the Western and Oriental planes, *Platanus* Platanor 'Vallis clausa', has been created to combat the canker stain *Ceratocystis platani*, a disease that kills plane trees. The tree was was developed following the outbreak of canker stain in Europe, a disease has now resulted in the devastation of plane trees along southern France's Canal du Midi and in many other locations in Switzerland, Spain, Greece and France. So far, it has not come to the British Isles.

Generous help has been given to me in various ways in bringing my feelings about the value of plane trees to this point. In particular, I would thank I.M.Chengappa whose emails and conversations have answered many questions that I raised, and whose website, www.aranya.co.uk, would be a first call for someone wishing to expand on the information in this book. Bettina Reiber has helped with the text, Mac Campeanu with photographic matters and Islington's tree officers have shared their knowledge of local plane trees.

Why plane trees rather than another species? It is because the most numerous of the planes, the London plane, *Platanus x acerifolia*, has two parents whose different characteristics have given rise to individual trees that show the differing nature of their parents; further, these children seem to have their own unique personalities depending . . . well, on what? Is it soil conditions, latitude, climate, closeness of planting, the multiplicity of genetic variation or unknowable accidental factors. I have chosen the plane also because it is a familiar tree in the urban setting in which I live, and simply because I enjoy its presence. If it were not for the old planes that surround me I should not be nearly as happy as I am to live in town; no other species has the potential to delight and intrigue me for its scale and variety. I hope this book will communicate something of that inspiration.





Introduction

THE PURPOSE of this book is to show how a tree that is common on our streets and in our parks has a far from standard appearance and offers us a cascade of images so different from one another that they are a constant source of surprise and delight. It is the London plane that is the main subject of the book, as the parents of this hybrid, the Oriental and the Western planes, are not commonly found here and in the case of the Western plane are quite rare in Great Britain. The outcome of the cross-breeding, however, is that individual London plane trees show a greater or lesser degree of influence of one of their parent species, making for differing branch structures, a range leaf shapes, varied colours of green, varied characteristics of bark and different numbers of 'bobbles' in the spherical clusters of fruit that hang on the branches throughout the winter. Differences in the appearance of London plane trees are formalised in their names, such as *Platanus x acerifolia* 'Pyramidalis' whcih has characteristics close to the Western plane, and has an especially the thick stem and wide-spreading branches. By contrast, *Platanus x acerifolia* 'Westminster' form is a much straigter tree, higher-growing and with more sinuous branches and deeper green leaves.



The Oriental Plane

THE ORIENTAL PLANE, *Platanus orientalis,* has lived through millennia. It is an under-planted tree of great beauty on account of its overall form, the contortions of its twisting branches and the shapes of its fine-fingered leaves.

The photographs on the following pages are of Oriental planes at Ely, Cambridgeshire, in the Dean's Meadow and in the garden of the Bishop's Palace; the final four pictures are of the Heritage tree in front of the Queen's Palace at Kew Gardens, London.



















The Western or American Plane

THE WESTERN PLANE, *Platanus occidentalis*, has lived through millennia, too. It is rare in Europe but relatively common in the USA. It's wood is weak and brittle though it is used in furniture-making. It is distinct from other plane species because of its broad leaves, wider than they are tall.







The London Plane

DESPITE the fossil record of *Platanus* going back 115 million years, (the Lower Cretaceous), the tree we know so well as the 'London' plane came into existence only around the middle of the seventeenth century. It became popular immediately among tree-planting enthusiasts. Two London plane trees were presented to Robert Sanderson, the Bishop of Lincoln, possibly before 1663, and both are still growing at Buckden Towers, Cambridgeshire; there is another London plane, sometimes cited as the oldest specimen growing in this country, that was planted at Ely Palace by Peter Gunning, Bishop of Ely from 1675-84.

All these trees are, therefore, over 330 years old, whilst the oldest examples of London planes growing in central London are generally considered to be those in Berkeley Square, thought to have been planted in 1789 by Edward Bouverie who lived in a house in the Square, making them 225 years old. One of these trees hit the headlines in 2009 for being valued by the London Tree Officers Association at £750,000, Britain's most valuable tree. The London planes planted at Highbury Fields, Islington, shortly after it became a public open space in 1885, are a little over 120 years old and form a remarkable series of interlocking avenues.



Above : This plane in Berkeley Square, London, was judged Britain's most valuable tree according to the CAVAT system for calculating the amenity value of trees in Britain. Shortly after the announcement, tree enthusiasts were devastated when the spectacularly long lateral branch of the tree was removed by Westminster council because it had developed some rot at its junction with the main stem of the tree. Unfortunately, for this branch was an arboricultural wonder, it was not considered worth propping up the branch or supporting it with a cable – both methods are in use for other especially significant trees.

Right : The section, now revealed at the point where the lateral branch was removed. At its junction with the stem, the tree had grown a deep buttress that supported the huge weight of this thrilling branch.

Far right, bottom : One of the many avenues of London planes at Highbury Fields, London.




BERKELEY SQUARE HOUSE



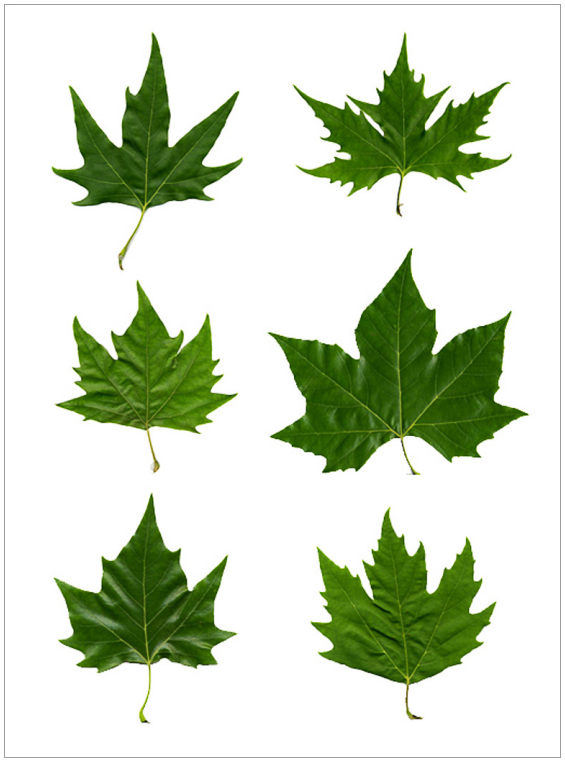


Above: Plane trees either side of a path in Hyde Park, London, their winter forms showing contrasting types of growth: in the one case a slender and compact outline, in the others a more spreading, unruly branching.

Right : The bark of plane trees seems infinitely variable, from a patchwork of peeling bark that renews the skin of the tree to stranger forms with swollen boles including large and small burls all around; this specimen, (above right), growing in Brunswick Square Gardens, Bloomsbury.

Below : A range of leaf shapes found on trees at Highbury Fields, Islington.







I. M. Chengappa sums up our knowledge of the longevity of London planes:

"The species was formed by hybridisation in the 17th century, and is therefore only about 350 years old. Thus all London planes are under this age. The oldest known trees show no signs of senescence, and no reliable figure for their old age has been established."

The London plane, *Platanus x acerifolia,* (also *Platanus x hispanica* and *Platanus x hybrida* – all three botanical names are in common use but all refer to the same tree), is a hybrid created by crossing the Oriental plane, *Platanus orientalis* with the Western plane, *Platanus occidentalis*.

The hybrid was most likely a natural result of the two parent trees being planted close to each other. There is no certainty as to whether the hybrid occurred naturally in Britain or whether it was first brought here from Spain. The name *P. x hispanica* was based on the supposition that it occurred in Spain. Seedlings are variable, distinguished particularly by their leaf shape and overall form among planes growing throughout London and across the world. Some of these have a closer similarity to the Western plane while others are more like the Oriental plane and variants can be found that cover the full spectrum between the two parent trees.

Although its common name is the London plane, a city where it has been planted in profusion, the species grows in large numbers all over Europe, in Australia and in North and South America – in the city of New York a plane leaf is used as the symbol for the Parks Department. The tree has been planted so widely because it has shown itself to be an ideal urban tree, providing moderate shade in the hottest season, its appearance – bark, leaves, fruit, branch structure and silhouette – offering visual interest throughout the year, being robust in the face of compacted soil, pollution and dry or wet weather, and tolerant of wide differences of heat and cold, although it does very much prefer hot summers.




ARUNDEL
SQUARE





It is also decidedly tolerant of urban man who has learned the species can be pollarded and pruned on a regular basis to suit a range of circumstances and needs, (far top left); on the other hand, an individual tree may come to need particular arrangements to give it some support for its development, as with a tree at Arundel Square, (top left), where Islington council re-built part of the wall to accommodate the expansion of the stem of this particularly fine tree that complements the nearby terraced houses.

At a time of concern for the effects of climate change, the London plane seems well-suited to what may come upon us in the near future and the well-established specimens we see in London streets, parks and gardens should do as well as any species in coming years. It is particularly important that they do so, as the London Assembly pointed out in its Report *Chainsaw Massacre,* because the many large, broadleaf trees in our cities are the 'green lung' upon which we rely; they make an enormous contribution to reducing the islands of heat, which build up in hot weather, by shading our streets and otherwise exposed surfaces.

The London plane varies in the height to which it can grow, depending on the particular variant of the species and the conditions in which it lives, but it is likely to reach 50 metres or more in this country. The current champion in Europe, growing on the Bryanston School Estate in Dorset, is 48.5 metres tall, (most recently re-measured in 2008), and it is living alongside several others that have reached more than 40 metres in an avenue planted in 1749 to mark the centenary of the execution of King Charles I.

More regularly, the taller London planes have grown to 30-35 metres. The tallest at Highbury Fields are up to 22-23 metres at present. Depending on which London plane one looks at, the stem of the tree may be tall and relatively slender with branches not beginning until the tree reaches a considerable height or, in the case of specimens pollarded



a few metres above the ground, the stem may be very thick. The tree at Ely has a girth of over nine metres, the largest in the British Isles, and one of the planes in St Mary Magdalene Gardens, Holloway, is notable for its girth of over seven metres, (left).

Many plane trees have been pollarded, deliberately cut down leaving just a stem that rises only a few metres above the ground. This is usually done before the tree reaches any great age. It is a way of stimulating the tree to produce branches at a lower level than it would otherwise do. This rarely happens naturally to the London plane which, before the storm of 1987, was thought so strong as never to be blown down; that night a mature tree of very considerable size in a garden in Horsell Road, Islington, snapped off at quite a high level. I watched in amazement that it could withstand such a battering as it swayed violently from side to side, but in the morning it was down. It has now regenerated its branches, demonstrating that even old trees will flourish after such a disaster, (previous spread, bottom left).

Equally surprising, is that when cut off very low to the ground, planes sprout new shoots that become mighty branches ; examples in Agar Grove, (previous spread, bottom far left), and Blackstock Road show the start and the full development of this process and there are many more such multi-stemmed plane trees across London.

Parks and gardens planted with London plane trees enhance our life in the city. Commuters, residents and visitors enjoy the green oasis away from the bustle. The great old trees are full of light and colour and let the sunlight play through their leaves providing dappled shade. These trees complement our buildings and create much of the British urban landscape. We are fortunate that their expected life-span and resilience may mean these remarkable trees may stay with us for many generations. However, globalisation of trade and a warming climate have encouraged alien pests and pathogens to establish themselves in this country.



The following pages show pictures of some of the most spectacularly grown Oriental and London planes dating from the mid-seventeenth century, among them the first hybrids that were propagated in Great Britain. These are followed by images of the London plane through the seasons.




Great planes



Photographed from opposite sides, this London plane was planted around 1663 in the grounds of the Bishop's Palace at Buckden, Cambridgeshire, making it one of the oldest in England.





After the ravages of the English Civil War, restoration projects in Cambridgeshire included those at the Bishop's Palace at Buckden and at the Bishop's Palace at Ely. The plantings of that time have given us the oldest living examples of the London plane in England.

At Buckden, it is said that Robert Sanderson, (Bishop of Lincoln from 1660-1663), was presented with two London planes ; both are still growing healthily and the one planted among other trees at the end of a lake that was constructed from existing fishponds, has reached a great size, (left). Buckden Towers has been occupied by the Claretian Missionaries since 1957. They have done much to restore the site, most recently with Queen Katherine's Tudor Knot Garden, (right).





In the garden of the Bishop's Palace at Ely, Peter Gunning, (Bishop of Ely 1675-1684), also planted gifts of trees ; two Oriental planes, (photos in the previous Oriental Plane section), and a London plane which is now a massive tree with its major limbs supported by wires, (left), and with a hollow trunk where it lost a major branch, (right). The tree is planted close to a natural spring which maintains its water supply.

The trees are currently managed by the school, King's Ely.





The London plane growing prominently in the centre of a small wood at Barn Elms, south west London, probably dates from about 1685. The tree was planted on land then belonging to the Archbishop of Canterbury. This tree is London's oldest and largest plane, now with substantial chains and an iron bar linking the large branches for mutual support against windblow. As with the previous monumental plane trees, 'Barney' is well supplied with water, growing close to the London Wetland Centre adjacent to the river Thames.

Overleaf: London's tallest London plane at Carshalton Ponds, and another view of the spectacularly wide-boled London plane beside a narrow path in Ravensbury Park, close to the river Wandle, the close-up of its base being the first image in this section. The final two pictures in this section are of the unique variant of the London plane growing in Berkeley Square, London.














Spring












Summer
















Autumn




















Winter























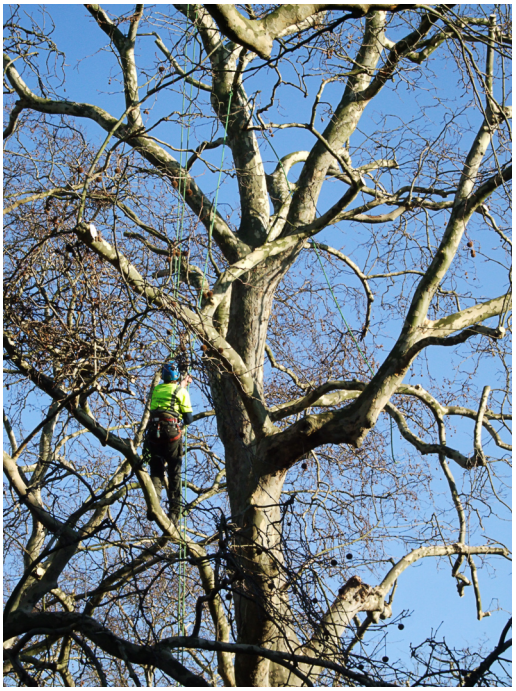
Pests & Pathogens



Pests and Pathogens

THE GLOBALISATION of trade has made easy as never before the spread between countries and continents of invasive and damaging species. The list of such problem species has lengthened alarmingly in the last few decades ; including insects such as the horse chestnut leaf miner, the oak procesionary moth, the pine weevil, and diseases such as acute oak decline, various forms of *Phytophthora*, *Chalara* dieback of ash, Dutch elm disease and a number of bleeding cankers and destructive fungi. Changes to the climate have been generally beneficial to these problem pests and diseases and the plane tree, too, has been receiving its share of problems ; Anthracnose, Massaria and especially *Ceratocystis platani*, the most virulent and incurable of microscopic fungal attacks on the plane.

Fungal attacks, such as *Phellinus punctatus*, shown in the example opposite, are an occasional problem of long-standing and affect trees that already have a weakness. Anthracnose, *Apiognomonia veneta*, is a yearly problem that the planes seem accustomed to in Britain; in spring, many leaves, buds and shoots fail and fall in numbers but the trees usually recover by making a second flush of leaves by mid-summer. If this were the only problem it would not be serious; it is a stess, however, that added to other pressures puts a lot of constraints on the development of the trees.









Top left : Climbers are needed to make visual inspections of all London planes in Islington, London, for signs of an attack of Massaria. Inspections take place around three times a year and infected branches are removed at that time and the details of work on the tree are recorded. This is a part of developing an understanding of the way Massaria has changed its attack on the trees.



Top right : Three photos of a Massaria infection of a substantial branch that was clearly visible from the ground. The death of the bark can be seen to have travelled from the junction with the stem all along the branch. The branch was removed as a safety measure; should such a branch fall unexpectedly, its weight could do severe damage to whatever or whoever might be underneath at the time.



Bottom left : Two close-ups of sections of branches about 11 cm in diameter showing the way the Massaria fungus penetrates the wood from the top surface, gradually increasing the amount of wood it kills and making the branch weak through dessicating the wood. Although Massaria does not kill a tree, the potential hazard to human beings of a falling branch makes such removal work essential.



Bottom right : Massaria has been active for at least 100 years. Normally, Massaria has served the trees each year in discarding thin, weak branches; this branch would have been at the upper end of that scale but now much thicker ones are being affected. Clearly visible are blackened spots from fungal spores and the split-away layers of bark revealing a reddish discolouring of the wood underneath.







Ceratocystis platani, thought to have arrived in Europe from the USA during World War II in infected wooden ammunition boxes made from the Western plane, is a disease fatal to *Platanus*. It is a swiftly developing destroyer of trees and spreads easily through contact, whether by human beings who have been in touch with infected trees or via the criss-crossing root systems of closely planted planes. It is such a devastating disease that it has been referred to as a plague; its most high profile outbreak is in the south of France where all 42,000 plane trees that were planted along the Canal du Midi following its completion in 1680 will have to be felled by the year 2025. It took about ten years for Massaria to reach England following its discovery in south Germany, so there is a strong likelihood that *Ceratocystis platani*, will reach Great Britain by 2020 even if, as seems unlikely, government action will be taken to prevent this from happening. The tangle of restrictions involved in foreign relations and the pressure not to compromise trade, as has been seen in the case of *Chalara fraxinea*, ash dieback, gives little hope of saving us from this disease.

We have been lucky so far in that Massaria is not such a threatening fungal invader. While there is no fungicide available to kill the Massaria, there are hopes that by increasing tree health generally the planes may become better able to resist the worst of the damage Massaria can do to them. In 2012, a series of experiments was set up in Islington between the local council and arboriculturists Treework Environmental Practice. Trials have begun, taking three separate approaches; a form of retrenchment pruning, (opposite top), foliar feeding of leaves and soil, (opposite bottom), and mulch, made from the leaves and twigs of the same species, spread under the area of the trees' crowns, (following page).

Although Massaria is not fatal to the tree it has a high cost attached





to managing it. The fungal disease attacks the branches and makes them brittle by extracting water from them, killing the cells of the wood. Branches may fall unexpectedly and, as plane trees are town trees almost exclusively, public safety is seen as paramount. Trees are now regularly inspected and diseased wood cut away.

In general terms, trees in towns are subject to a lot of stress but the plane has always been regarded as one of the better species, if not the best, for being able to withstand various forms of mistreatment. The spores of fungi are simply in the air all the time. They need a tree with a problem to become established. In the case of Massaria, drought seems to be the particular stimulus to this pathogen whereas there is little evidence of what may cause an outbreak such as that opposite, at Kew Gardens, London, where eventually the tree will have to be felled. Where it is easy to see damage done to tree trunks by dogs biting the bark, or the thoughtless distribution of de-icing salt too close to trees, the root systems of trees are out of sight but are closer to the surface than often thought and can be damaged, particularly by the soil becoming compacted by parking vehicles too close to them or simply being trodden down too much by members of the public.

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