

Trooper Hill Tree Trail

More about the trees you will see on the trail

A. MIDLAND HAWTHORN –DOUBLE FORM (*Crataegus laevigata*)

Midland Hawthorn is a native species of the Midlands, Northern England and parts of Europe.

This is the double white form which has been known since 1770. The stamens and styles have been replaced by petals. The plant does not normally produce seed, due to the absence of these parts. Occasionally the odd female part will be formed allowing for pollination, usually from a nearby Common Hawthorn (*Crataegus monogyna*) which is native to Southern England and very common. The advantage to the horticulturalist of not having stamens and styles in the flower is that the inflorescence (blossoms) will stay longer on the plant. Generally speaking, once a flower is fertilised the petals will drop off and the plant will concentrate on seed production, to propagate the species.

This tree, unusually, does produce berries.

In summer it is easy to tell the difference between midland hawthorn and common hawthorn by comparing the leaves. See photo below and K. In winter, when there are no leaves on the trees to differentiate them you can do the following:

Remove one of the ripe fruits, peel away the skin and check if one or two seeds are present. If you have two—this will be the correct number of seeds for the MIDLAND HAWTHORN.

If you have one seed this is the common hawthorn (*Crataegus monogyna*). The clue is in the specific name of this plant, mono=one. There will be only one ovule/style to be pollinated.



B. Double flowering cherry (*Prunus avium* 'Plena')

This is one of 7 cherry trees planted in Troopers Hill Field by Summerhill School in January 2011 as part of the Tree Bristol project. A video of the tree planting day involving three local schools and other volunteers can be seen on <http://www.bristolbroadcast.tv/RefFiles/Flash/TreeBristol.htm>.



These trees produce a profusion of white double flowers in May but they are sterile and produce no fruit. In autumn their leaves turn from their usual green to red and orange before falling. It is important to think about trees seeding near a Local Nature Reserve. Troopers Hill's most important feature is its acid heath and grassland; seeding trees would destroy this habitat. When trees were planted in the Field care was taken not to introduce trees whose seeds would cause a problem for Troopers Hill.

C. DOMESTIC EATING APPLE (*Malus domestica* agg.)

This tree is the result of someone eating an apple 30-50 years ago and throwing away the apple core containing the seeds. It is not our truly native wild apple, the common crab apple (*Malus sylvestris*), which is actually one of the ancient parents of our domestic eating apples, having been hybridised with other European species of apple. The Common Crab Apple can be found in our ancient woodlands and has a yellowish green to red flushed and slightly smaller fruit. A distinctive feature which enables you to separate the ripe fruits of a domestic apple from that of a truly wild common crab apple is the fact that the latter has a persistent calyx. On the domestic apple the calyx falls away and is absent. A diagram showing and explaining what a calyx is can be seen on http://www.infovisual.info/01/033_en.html



D. GUELDER ROSE (*Viburnum opulus*)

This is a native shrub of our hedgerows. It can grow into a tree form when left to grow naturally. Notice how the leaves are maple-like. They are even arranged in opposite pairs. When it flowers in June/July the flattened inflorescences (clusters of flowers on a stem) are ringed on the outside

with sterile flowers looking like those on a 'lacecap' hydrangea. The translucent fruits are red and persist into the winter. You can also come across some growing in gardens with yellow berries.

If you look behind the Guelder Rose you will note an interesting evergreen tree sometimes showing large white flowers, the bull bay magnolia (*Magnolia grandiflora*) from the Eastern side of the USA.



E. CHINESE COTONEASTER SPECIES (*Cotoneaster bullatus*)

This handsome West Chinese shrub was introduced in 1898 to British gardens. Note the large corrugated (bullate) leaves, which have a rich autumn colour and bunches of bright red fruits early in the season. The birds love these fruits and spread the seed. Friends of Troopers Hill often have to remove young seedlings from the nearby Local Nature Reserve to protect the acid heath and grassland.



F. MIRABELLE PLUM (*Prunus domestica subsp. syriaca*)

This tree with its wonderfully marked bark was revealed when a group of Community Payback workers cleared the edges of this woodland path to give better access, as part of the Stepping Forward project. www.troopers-hill.org.uk/steppingforward.

Plum, cherry and almond trees can be difficult to tell apart. When this tree had no blossoms and just one dried up fruit it was thought to be an almond. However, in summer, green under-ripe fruit became yellow plums that dendrologist Tony Titchen identified as the Mirabelle plum.



G. COMMON EUROPEAN ENGLISH OAK (*Quercus robur*)

This oak is one of our two native species. The leaves are without stalks (sessile) but if you can find an acorn, you will see that it has a stalk. These two things allow you to distinguish it from our other native species (see M), the sessile or durmast oak (*Quercus petraea*). The latter has leaves with stalks and acorns without stalks.

Each branch is terminated by a cluster of buds—not a single winter bud like so many other trees. All species of oak (the genus *Quercus*) have this characteristic feature. There are over 500 species worldwide. It does allow you in winter to identify the plant as an oak. It is also a feature of evergreen oaks – (see T).

This tree can have a chemically induced disturbance of the young growing acorn caused by the female gall wasp, *Andricus quercuscalicis*, laying eggs in the developing fertilised ovule of the oak. This can reduce the ability of the acorn to germinate. The Turkey Oak (*Quercus cerris*) is the main host plant and this is needed to complete the life cycle of the wasp. The Knopper Gall wasp arrived in Britain in the 1960s. It does not affect our other native species, the sessile oak (*Quercus*

petraea). However, if a common European English oak (*Quercus robur*) hybridises with any other oak it will still be infected with the gall. You can therefore use this feature as an aid to identifying a hybrid which includes the Common European Oak.



Oak marbles, often wrongly called oak apples, are also caused by a wasp. Great photos of the wasp, *Andricus kollari* and the "marbles" are on <http://www.naturespot.org.uk/species/oak-marble-gall-wasp>

H. SYCAMORE (*Acer pseudoplatanus*)

Sycamores are a common tree of our countryside. It is not native but comes from south-eastern Europe and Western Asia (the Caucasus area). There is a theory that the Sycamore is a native tree and that it survived our last Ice Age by being close to the Gulf Stream in Western Scotland.

The trees can be recognised in winter by their large, fat, green buds, which expand during March and April. The leaves are arranged opposite each other. In the autumn they can be affected by a black spot fungus which enables you to easily identify the tree. The seeds are winged and occur in pairs.

The black spot fungus is known as Tar Spot Fungus (*Rhytisma acerinum*). The leaf is infected with fungal spores in the spring. These spores have developed on the previous year's rotting, infected leaves. The fungus does not seriously trouble the tree and is thought to be an indicator of good air quality.



I. ELDER (*Sambucus nigra*)

This tree is particularly known because of its link to beverages such as elderflower cordial and champagne. Less well known is the fact that the flowers are an ingredient of the liqueur sambuca. The flowers can also be dipped in batter, fried and dusted in icing sugar as a dessert. The hollowed stems of the elder have been used by children as peashooters for generations.

Birds particularly like eating the berries and as a result elder saplings can be found in most places that are not regularly weeded. Some books describe the berries as poisonous and most agree over indulgence is not a good idea however a mouthful of berries squashed in the mouth can be very refreshing when walking on a hot summer's day as long as you do not mind then spitting out a seed for every berry.



J. BUDDLEJA (*Buddleja*)



This generic name has over 100 species. Normally the name is used to refer to the Chinese/Japanese species *Buddleja davidii*. It was introduced to Britain in 1890 and is very often completely naturalised. Butterflies love it. It loves open spaces and quickly colonises whole areas. It can be seen in gardens in a whole variety of colours. The escaped form is as seen here. Because

many nectar loving insects feed on the flowers there can be an argument to keep this plant under control on Conservation areas rather than to eradicate it but it may be preventing native species being pollinated.

K. Common Hawthorn (*Crataegus monogyna*)

Common hawthorn is sometimes known as "bread and cheese". Country children would regularly eat the young leaves in spring but the leaves become bitter as they grow older. The flowers are

also good to eat. The wood absorbs shocks and is good to use as a handle for a hammer. Hawthorn grows relatively slowly and lives a long time. Some trees on Clifton Downs are thought to date back to the Civil War. It is likely that some of the hawthorn trees in these woods pre-date the 1970's tipping (Malvern Rd tip) that covers the land that used to be occupied by cottages and smallholdings.

The hawthorn will usually flower in mid-May but there are many historical references to hawthorn, sometimes called "may", being used in May Day (1st May) spring festival celebrations. The change in England from using the Gregorian calendar to the Julian calendar in 1752 is the reason for this difference. You may like to choose your own favourite hawthorn and monitor it from year to year to see how blossom time varies, there are reports that blossom is coming earlier.



This particular tree has green lichen on the trunk which may be *Psilolechia lucida*. The lichen will not cause any harm to the tree.

For information on how to identify this tree see A.

L. WYCH ELM or SCOTCH ELM (*Ulmus glabra*)

This is considered to be the only elm truly native to Great Britain. The English elm (*Ulmus procera*) is not English at all. It is an early introduction from Europe about two-three thousand years ago.

The Wych elm does not produce root suckers. The English elm will sucker prolifically, even more after it has been infected with the Dutch/American Elm disease. This disease affects the Wych elm as well but fewer Wych elms seem to be attacked.

The Wych elm produces seeds early in the season. The English elm never seeds.

The leaves of the Wych elm are short-stalked, large and rough to the touch on the top surface as well as being very unequal at the base of the leaf; this latter feature applies to all elms. It is a way of recognising the genus. With the “English Elm”, the leaves are on downy shoots and occurring even earlier than the Wych elm. They are smaller, oval/rounded; also rough on the top surface like the Wych elm, sharply double toothed. The bark is rough in the Wych elm but smoother in the English elm.

It is possible to mix up in a woodland situation a young vigorous hazel with a young vigorous Wych elm. The asymmetrical and rough top of the leaf, together with the less hairy leaf will separate out the Wych elm from the young hazel.



Elm disease is due to a fungus *Ceratocystis ulmi* which is carried by an Elm-bark beetle; when it hatches from its pupa in dead elm wood it flies to shoots high in the crown of a healthy elm (now very rare) where it feeds. A mild form was common in the UK from 1920-1945 but a much more virulent form was brought here from North America on logs of *Ulmus americana* in the mid 1960s. The name Dutch elm disease is used because the Dutch scientists studied it, in order to breed resistant trees before the American form arrived. Disease resistant elms are now being bred by scientists and being planted out across the UK. These are all mainly hybrids using Asiatic species developed mainly in North America. Experiments are being carried out using cuttings from

apparently disease resistant, very large survivors.

M. SESSILE OAK OR DURMAST OAK (*Quercus petraea*)



This is our other native species of oak (see G). This replaces the common European English oak (*Quercus robur*) in wetter and more acidic areas. It is distinguished by its larger and longer stalked leaves and its acorns do not have stalks, they are sessile. When mature the trees are tall and vase shaped with strong leading branches. Compare this with the shape of a mature Common European English oak which will be shorter with a rounded dome top, without strong, leading branches.

This species is not infected with the knopper gall. However *Quercus robur* can hybridise with *Quercus petraea* to form the relatively common hybrid *Quercus x rosacea* which usually has intermediate characteristics of the parents. This hybrid will exhibit the knopper gall feature. So, you can use

this gall as an aid to correct identification of your oak tree but bear in mind the wasp which causes this gall does not occur everywhere that *Quercus robur* grows.

N. THE BALSAM POPLAR (*Populus balsamifera*)

It may be that this tree is not the true North American species introduced at the end of the 17th century. Hybridisation is easily possible with poplars. However in the spring you can easily smell the balsam which comes from large sticky, shiny buds.

Poplars are wind pollinated with both sexes on separate trees. This is called dioecious. If this is a true balsam poplar then, whether male or female it will have long, hanging pale yellow green catkins.

There are many poplars in these woods with a range of different coloured catkins including a bright scarlet.



O. THE GOLDEN WEeping WILLOW (*Salix x sepulcralis* 'Chrysocoma')

This is a hybrid between the true Chinese Babylon Willow (which is not hardy in the British Isles) and our White willow, *Salix alba*. The two parents offer the weeping habit from the Chinese willow and the vigour from the larger white willow, together with the golden twig colour. The true Chinese Weeping willow is very, very rare in Britain and does not have the golden twigs or the cascading shape of the golden weeping willow. These cascading branches can grow in time to a great length. Both male and female catkins occur together with the leaves on the same tree or more rarely catkins occur and include both sexes.

P. EUROPEAN FIELD MAPLE –OR THE HEDGE MAPLE (*Acer campestre*)



This tree is our only native maple. All leaves are opposite and the leaf stalks contain a white latex. The autumnal colours of the leaves are yellow, sometimes flushed red. When used in hedges the branches are often cut causing the development of thick corky wings called allation. The new growth unfolds pinkish or even later in the season, red. Take a walk to the Greendown boundary hedge of Troopers Hill and see if this is happening there.

The crown of our native maple is a dense dome of straight shoots curving up to their tips. The opposite buds are red/brown with a grey hirsute (hairy) ending. The characteristic bark is dark grey/brown with narrow fissures.

Q. HORSE CHESTNUT (*Aesculus hippocastanum*)

This tree is native to a mountainous area between Greece and Albania. It was introduced to Britain early in the 17th century. There is a story that the Crusaders also brought some back on their return from the Holy Land. The route could take them very close to where they occur.



The nuts are poisonous to humans but the Turks would feed them to their horses in the spring as a medicine to help them overcome colic. They can also be made into a soap. The fruit grow inside green prickly, husks and are a shiny rich "chestnut" brown. The fruit are familiarly called conkers and a children's game is to drill a hole through the conker, tie it on a piece of string and attempt to smash an opponent's conker.

In winter and early spring the tree's large buds are sticky with a clear, shiny brown sap. The red horse chestnut does not have this feature, although the larger leaved Japanese chestnut does but its conker has no spines.

Notice the brown areas of damage on the leaves in the photo. This is caused by the moth called horse chestnut leaf miner (*Cameraria ohridella*) first identified in this country in 2002. You can find out more about this moth and the damage it causes on <http://www.forestry.gov.uk/fr/infd-68jjrc>

R. GREY POPLAR (*Populus alba* x *Populus tremula*)



This tree is a native hybrid, also occurring in West and Central Europe. It is a combination of the white poplar (*Populus alba*) and the aspen (*Populus tremula*). This hybrid suckers frequently, very often into thickets. Note how varied the leaves can be, rounded or deltoid, dentate or coarsely toothed but always grey tomentose (flattened plant hairs that feel like felt) underneath. The majority of trees are male plants.

The bark is very recognisable with a dark brown diamond pattern on a lighter background.

S. GOAT WILLOW (*Salix caprea*)

Other common names for this willow are pussy willow and the great sallow willow. Pussy willows are male trees and show grey furry buds in February and March.



Good trees can be 20 metres high on a single trunk. The tree's bark is grey. It has typical willow buds which are described as having just one smooth flattened scale described as 'naked'; other genera have more scales than the one. You can use this feature at any time of the year to determine a willow.



T. HOLM OAK (*Quercus ilex*)

This tree is native to South Western Europe and the Mediterranean. The tree can be very large; mature trees have a characteristic tessellated bark like tiles. They are evergreen. They shed their leaves over 3 to 4 year periods causing a toxic litter under the tree which will kill plants, including grass, below. In certain situations they are regarded as needing to be removed and eradicated. Removing holm oaks from Troopers Hill is part of the management plan for Troopers Hill to protect the important acid grass and heathland.

The old English name for the Holly tree is Holm. The young leaves of young plants and the new leaves around the base of the tree are serrated and holly like. The mature leaves are a deeper green without serrated edges. Like all oaks they have clustered buds at the end of each shoot.

A claim to fame for the tree is that they were the preferred food for elephants at Bristol Zoo. Large birds like the jay, take the acorns for food. They very often drop a few which can germinate in the wrong places like the Avon Gorge and Troopers Hill.



U. SILVER BIRCH (*Betula pendula*)

This is a native tree which colonises bare areas. When mature the bark has a characteristic diamond pattern. It is known locally as 'THE LADY OF THE WOODS' and occurs in Europe and Northern Asia. Its shoots are warty and it has sharply cut double toothed diamond shaped leaves. Our other native birch (*Betula pubescens*) does not have the “diamond shape on the stem”. It has a pubescent (hairy) shoot rather than a warty one and the leaves are single serrate. It is quite common to come across areas off hybrids between the two; with a mix of the various characteristics. With mature trees the ends of the branches soon develop a weeping habit, the pendulous part of the Latin name.

There is a symbiotic (mutually helpful) relationship between silver birch and the fly agaric fungus. This red toadstool splotched with white spots is much loved by the illustrators of fairy tales. You will often find fly agaric in autumn on Troopers Hill near the bench at the foot of a large silver birch tree.



V. COMMON LABURNUM (*LABURNUM ANAGYROIDES*)



This tree comes from Central and Southern Europe. The Scotch Laburnum (*Laburnum alpinum*) which is not from Scotland but from the same areas but at higher altitudes is often also referred to as common laburnum. It has a longer drooping inflorescence (blossoms) and is more popular in Scottish gardens. Both are POISONOUS if any parts are eaten. The seeds are the most dangerous part.

W. THE SWEET CHESTNUT (*Castanea sativa*)



This tree was imported by the Romans. They have been grown in the UK for over two thousand years. They grow to a great age. Ashton Court has some sweet chestnut trees that are well over 500 yrs old. In July/ August they are laden with separate male and female catkins, consisting of tiny, yellowish flowers. This is followed in the autumn by the extremely spiny husks of the nuts. The natural species has 3 or 4 smallish nuts (seeds). However for millennia certain clones have been

known where the nut is extremely large and solitary within the husk. 'Marron de Lyon', 'Paragon' and 'Gros Merle' are the popular cultivars enabling you to enjoy 'Marron Glacé' and other delicacies. If you sow as a seed one of the large seeded types it will produce only the truly wild type. To propagate the Marron types you need to graft them onto the wild form as a stock.

When looking for these trees in winter you will notice that the twigs lack a terminal bud.

In managed woods and forests chestnut trees are usually coppiced (cut and allowed to regrow) for timber for fencing, palings or hurdles. In France on tours of chateaux the roof timbers are often pointed out by guides as being chestnut which they say is used because it is less liable to insect attack.

X NORWAY MAPLE (*Acer platanoides*)



The Norway maple is from Europe and the Caucasus. It is a common tree in our parks with a neat leafy dome reaching heights of up to 30 metre. The leaves are oppositely arranged and look like a smaller Plane leaf (*platanoides* means like a plane leaf) however planes have alternate leaf arrangement. Pluck a leaf and squash the stalk and you will notice an oozing milky sap. The autumn colour of the leaves is yellowish. Notice how the leaves have definite whiskers to each tooth on the leaf. Compare this with the sycamore (H) which does not have these features.

The flowers are erect, leafless and acid yellow in colour while the sycamore has a drooping greenish flowering raceme amongst the developing leaves and sycamore the leaf stalks do not have the oozing white sap.

The Norway maple occurs in our parks and gardens in many forms and colours. But they all have the features mentioned above.

Y. THE HORNBEAM (*Carpinus betulus*)

This is a tree that is native to Southern England and scarce in the west. It is native to Leigh Woods and Ebbor Gorge in the Mendips. The common name means hard wood. It was used in making wheel axles and cogs for mill wheels in the past. The leaves are birch-like hence 'betulus' in the Latin name. However the leaves are double toothed and corrugated by the 10-13 pairs of veins which are impressed. Pluck a leaf and have a look on the reverse.

The male catkins expand as curtains similar to a beech; whilst the female flowers, once pollinated quickly develop into small nuts. These fruiting inflorescences (blossoms) can be seen on the tree from June onwards.



Z COMMON ASH (*Fraxinus excelsior*)

Ash trees are native to Britain and Ireland together with many parts of Europe. The leaves are arranged in an opposite fashion. The terminal buds are also opposite and black in colour. Our ash is the only species of ash to have these black buds, all the other species (about 60) have a different colour. But they are all opposite in arrangement.

The flowers are either male or female, usually both are on the same tree but some trees may be all male and others all female. Just to complicate things some trees may decide to change sex or suppress one of them.



Any tree which has female flowers will show large bunches of seeds (keys) in the autumn large bunches of seeds. Should the tree not have the female flowers then no seed keys will be visible. This sometimes leads people to doubt that they are looking at an ash tree. If the tree in question has opposite pinnate (looks like a feather) leaves, black buds and has a smooth bark it is most likely to be the Common Ash tree.

Recently the tree trade has become aware of an ash tree disease, *Chalara fraxinea*,

affecting ash trees over Europe. They have found that this disease has been spread accidentally from Holland.

The symptoms are:

- the leaves develop black spots, before dropping off
- the bark develops canker, followed by the twigs dying

Friends of Troopers Hill were concerned about the recently (2011) planted ash trees, *Fraxinus* "Westhofs Glorie", on Troopers Hill Field but they were checked by Bristol Parks in 2012 and were not infected. More details of the disease can be found on the Forestry Commission website <http://www.forestry.gov.uk/forestry/inf-d-8w9euv>

Notes supplied by dendrologist Tony Titchen, supplemented and edited by Susan Acton-Campbell. Thank you to Gordon Campbell for the information about hawthorn hammer handles.

All photos by Susan Acton-Campbell

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