

A Winter Walk in Winters Valley Nature Reserve. Northern Loop Jan.2026

EDUCATIONAL EXTRA

1 Yew Tree (An information sheet on this is on the website under 'Tree of the Month', February 2022) & **Ice House.**

You will come across many Yew trees in the Reserve but the lowest of these three has a far more regular & rounded trunk than most. It is also comparatively tall & straight. It may have been planted surrounded by other young saplings & this has forced it to grow upwards rather than develop the usual more rounded format. In Victorian times the Ice House was filled with blocks of ice harvested from the lake in winter. These were packed in straw for insulation & to allow drainage & would keep frozen for up to a year. Today, it is one of two bat hibernation sites in the Reserve where Common & Soprano Pipistrelle, Noctule, Daubenton, Serotine, Leisler's & Whiskered bats have been recorded.

3 Weeping Willow. (An information sheet on this is on the website under 'Tree of the Month', April 2023).

Pollarding is a traditional way of pruning a tree high up the trunk to control size, but also promote the growth of vigorous new shoots. The distinctive outer bark is greyish/light brown with deep, interlocking ridges. The inner bark is much thinner & lighter & contains salicin. When eaten, our bodies convert this to salicylic acid which behaves like aspirin. There is evidence that its medicinal properties have been known since the days of the Sumerians who live from 5500BC to 1940BC ie the late Neolithic to early Bronze ages. Look also at the green/red buds that are small & very closely flattened against the twig & arranged spirally.

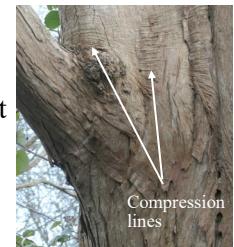


Weeping Willow bud arrangement

How many turns must you make to come to one bud directly above another ? 4?

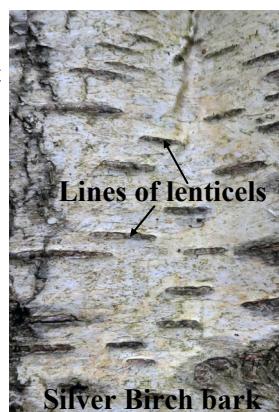
4 Swamp Cypress (An information sheet on this is on the website under 'Tree of the Month', Aug 2023)

There are about 20 species of conifers that, unlike most other conifers, are deciduous ie shed their leaves in winter & the Swamp Cypress is one of these. The bark is thin & fibrous & has an interesting pattern of vertical interwoven furrows & ridges. The heartwood is also highly resistant to rot making it valuable for the construction of doors & flooring which require durability. If you look closely at the trunk you can also see compression lines where the upward growth of the branch has compressed the pre-existing developing bark above it. This is rather unusual as compression usually occurs **below** a branch where extra wood is added to support its weight.



5 Silver Birch An information sheet on this is on the website under 'Tree of the Month', May 2023) Another good speci-

men of this tree stands at the Path junction at the S end of the lake, but you will also see them throughout the Reserve. However, they are not all the same. Those without diamond markings but having inverted horseshoe marks up their trunk are Downy Birches whose twig tips in Spring have a distinctly downy feel. The problem with Silver Birch is that being wind pollinated they hybridize easily so those growing naturally probably show a mixture of features. There are over 100 species of Birch some of which are restricted to small areas. This birch, *Betula pendula*, is our native species—one that rapidly colonises bare earth eg after a fire. Birch seedlings are a threat to heathland if it is not grazed. Many of the birch woods in the UK date back to myxomatosis—a highly contagious & lethal viral disease that first appeared in 1953 at Bough Beech in Kent. This spread rapidly & killed 99%



Silver Birch bark

of the wild rabbit population & in so doing reduced them from being a major agricultural pest to a controllable nuisance, but also allowing more saplings to grow in the wild, hence the growth of silver birch woods. Silver birch bark contains methyl salicylate which can be converted to acetylsalicylic acid, ie Aspirin

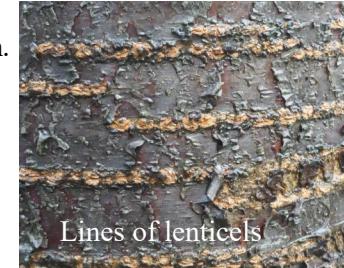
6 Wellingtonia aka Giant Sequoia. Wellingtonia & Coastal Redwoods trees share the same sub-family, the Sequoioideae which is part of the larger Cypress family, Cupressaceae. Many of these have leaves which look like scales. Whereas Coastal Redwoods are the **tallest** trees in the world, the Wellingtonia are the **most massive** by volume. Small yellow/brown male cones develop at the tips of shoots & shed pollen in Spring. Female cones develop on the same tree further down the branches but are difficult to see.



Male cone

7 Bird Feeding Station. Different feeders will contain sunflower seeds, suet flakes, fat balls, & grain/mixed seeds. They attract & help sustain a variety of birds with Blue Tits, Chaffinches, Dunnock, Great Tits, Long Tailed Tits, Robins & Nuthatches being the most common. **The Reserve website has the names & photos of these & other less common visitors.**

8 Wild Cherry The lines of lenticels in the bark are areas of loosely packed cells that allow the exchange of CO₂ & O₂ between the underlying cells of the cambium & phloem. They replace stomata that were present in the thin epidermis that covered the young growing shoot. All parts of this tree are mildly toxic except the fruit which is eaten by birds who eat the flesh & drop the seeds, & by mammals who spread the seeds in their droppings. Some rodents & birds such as the Hawfinch will crack the nuts to eat the kernel. The cultivated variety was reintroduced into Britain by the fruiterer of Henry VIII, who brought them from Flanders and planted a 105 acre (260 hectares) cherry orchard at Teynham (between Sittingbourne & Faversham). 1 hectare is 100m x 100m so the orchard, the first in the UK, was quite large.



Lines of lenticels

9 Turkey Oak (An information sheet on this is on the website under 'Tree of the Month', November 2023) Its wood is prone to crack & split so its main use is for fencing or as a coastal windbreak. It is drought tolerant & has a wide genetic variability & is thought to be at an advantage as the climate changes. Recent studies of the genetic sequences in their chloroplasts have suggested that Oaks have an Asian origin but that the Turkey Oaks diverged from the main lineage possibly as early as the Eocene some 56-34 million years ago. This was a time of global warming when there were no Ice Caps & forests grew at the Poles. CO₂ levels were much higher at around 1400 parts per million (ppm) compared to today's 420ppm. During the Eocene, Antarctic Glaciation began & during this the CO₂ level fell to 800ppm. However, the mean surface temperature was about 27°C and the Arctic Ocean was a tropical-like 23°C both resulting from the Greenhouse Effect of the atmospheric CO₂ concentration. More recently, Victorian nurseries used the tree as a root stock on which to graft other oak varieties. 'Fulham oak' is a variety produced in Osborne's nursery in Fulham.

10 Field Maple. Although these can grow into relatively large trees, the majority are found in hedges & at wood edges. In N America it is called 'Hedge Maple' but just to be confusing it was called 'Dog Oak' in Nottinghamshire. There are 17 species that are grown in the UK but *Acer campestris*, the Field Maple, is the only one that occurs naturally. The wood is tough so it is frequently planted in hedges. 60 million year old fossils of the genus *Acer* have been found in NE Asia & N America but the earliest European fossils are 34-38 million years old. Pollen analysis of archaeological records indicate that it did not appear in Britain until the Neolithic period (7000-1700BC) suggesting that it was introduced. In Saxon times the wood was highly prized & used to make harps & in the Middle Ages drinking bowls or 'mazers' were turned from it.

11 Beech (An information sheet on this is on the website under 'Tree of the Month', June 2023) Beech trees diverged from the Oaks & Chestnuts lineage about 33 million years ago & spread into Northern Europe only to become wiped out in all but a few sheltered locations in Southern France & the Balkans during the Ice Age. After the glaciers receded they spread North & reached Britain although like the Maple, some human intervention is thought to be involved. Neolithic tribes planted them for their nuts. The trees are monoecious (both male & female flowers on the same plant) although in the Reserve some trees become covered in nuts while others have few. They prefer neutral to slightly alkaline, well drained soil & are essentially a lowland species. The 150 square miles of the New Forest is regarded as a Beech Ecoregion. Before the advent of paper, people wrote on beech wood & the English word 'book' is derived from the Anglo Saxon word '*bōc*' meaning beech tree.

12 Dead-looking London Plane. London Planes do not appear to do well in the Reserve. The one by the Valley Park School entrance is swollen with a diseased trunk base & a number of dead branches. The large one close to MacGrory's Meadow has lost large areas of bark along its branches which is a bad sign, & the only other tree is this emaciated specimen. It is being monitored to see if & for how long it survives but it serves to illustrate how relatively thin the 'living' part of the trunk is. The heartwood is /was dead non-functional xylem (water conducting) tissue in which tannins & sometimes aromatic oils such as terpenes & phenols are deposited. These give the unique odours to Sandalwood & Incense Cedars.

13 Guelder Rose & 14 Spindle Tree These are just two trees in this **Conservation Grade Hedge** which means that it has been planted & is managed to provide biodiversity, a thriving ecosystem, & promote genetic diversity. Biodiversity is achieved by planting a range of species & in addition to the two mentioned, the hedge contains Hawthorn, Blackthorn, & Hazel. Their flowers provide nectar & pollen for insects as well as fruits for birds & small mammals. Genetic diversity is achieved by the close planting of the species which promotes cross pollination. As an ecosystem, the hedge also provides nesting sites & protection for birds, while at its base, fallen leaves, fruits & seeds are a source of food for decomposers such as invertebrates, fungi & bacteria.



15 Large Beech. Look at the *auxillary* wood that has grown below the branches. This is a type of 'reaction wood' - dense wood which both supports & directs the growth of the branch. The process is called *thigmomorphogenesis* ie the addition of wood to stressed areas. The general rule is that Broadleaf trees produce this wood **above** their branches whereas conifers produce it **below** them. It doesn't seem to be the case here or indeed if you look at other trees in the Reserve. A few yards back down the path is a younger beech with smooth 'text book' silvery/grey bark.



Young beech bark

16 Scots Pines A long row of these stand on the other side of the fence in the Crematorium grounds. However, you can see the scaly, slightly red tinged bark & a few male cones hanging down higher up. On the lower branches you can see that the needles are long & in pairs. They stay on the tree from 2 to 7 years.

17 Oak & 18 London Plane The path used to pass close to these trees but has been diverted on account of the lean of the Oak. A similar size Oak fell onto the path near the Valley Park School entrance to the Reserve following a period of very wet weather. Heavy branches on one side overhanging the path had simply unbalanced the tree. This leaning oak looks similarly unstable & with the prevailing SW wind coming from behind there is a high probability that it will fall in the not too distant future.

19 Stumpery. Stumperies are permanent features built to create a habitat for wildlife, especially Stag Beetles. However, you will see in the Reserve **Log Piles** which are simpler habitats designed to cater for a wider range of organisms. They teem with woodlice, centipedes, ants & worms which in turn provide food for amphibians (frogs & toads), & reptiles. They provide shelter for hedgehogs & mice. Woodpeckers & Thrushes also feed on the insects. Broadleaf wood is best because it is denser & decomposes more slowly & so provides a more permanent habitat. This is vital for creatures such as the Stag beetle which have a larval stage of several years. Once adult, the flying insects are food for the bats which are both resident in & visit the Reserve. A Common Pipistrelle bat can consume over 3000 insects in a single night & most other species will eat a third of their body weight. As well as providing food for such a wide range of organisms, insects are important pollinators. Bees carry out about 70% of the pollination of plants with the other 30% being carried out by moths, butterflies, flies, & beetles. If we are to maintain a diversity of wildlife & sustainable food production it is vital that we promote & preserve our insect populations. You will have walked past Bug Hotels in the Reserve eg at the main entrance, at MacGrory's Field gate & along this path, but if you go on-line you can find designs to build your own small wall hanging bug hutch. My one, shown here, was built from offcuts & old bamboo canes.

20 Interesting Oaks & Ash Trees. The oaks along this path are mostly self seeded from old woodland trees & may have suffered damage from the creation of the path & nearby building works. Some appear healthy & taking on the shape of a typical broadleaf tree. Others have convoluted branches & look quite unusual. The purpose of a branch is to elevate the leaves to a position where they can intercept light & this will be influenced by the surrounding trees, however, it is difficult to see how this could account for the contortions of some of these branches.

The *inosculation* pointed out in the notes might appear to be a rare phenomenon but between branches on the same tree (intra-specific) it is in fact quite common. Maples, Beeches & Ashes typically show it ie species that have thin bark. If you do the Southern Walk you will see several examples on the same Cut Leaf Beech tree. Rarer is inter-specific inosculation where different species are involved & where the fusion is usually weak. Inosculation also takes place between roots through prolonged close contact.

Ash Trees are one of the dominant trees in the Reserve but many are suffering from Ash Dieback disease caused by the fungus *Hymenoscyphus fraxineus*. It's hyphae block the water-conducting pathways in the tree leading to leaf loss & brittle branches. The fungal spores are carried by the wind so you would expect trees growing in close proximity to be equally affected but diseased & healthy trees can be seen growing alongside each other. There is no cure for the disease, but between 1% & 5% of young trees are showing resistance so breeding programs & natural selection should ultimately lead to a recovery. However, progress in this is well behind that for Dutch Elm disease where a breeding programme began in Wisconsin in the 1950s. There are now half a dozen varieties of 100% resistant 'Resista Elms' on sale from the Hillier nursery in the UK. All the plants are grown from root cuttings & are micro-chipped & are therefore traceable.

