

The Old Oak of Ross

an illustrated story of a tree's survival and decline

In a prominent position overlooked by the town of Ross on Wye the 'Old Oak of Ross' stands in the centre of a meadow surrounded on three sides by a broad horseshoe bend of the river Wye. The county of Herefordshire is well provided with ancient oaks and this tree, long a local landmark, once stood comparison with others, such as the Eardisley oak in the north of the county. However, although of similar if not greater age than that tree, the tree of Ross no longer has a comparable stature having been severely damaged by fire in the 1750s. Now only two fragments of the original tree remain, one leaning crazily to the south and a larger, more upright section to the north, the two secured to one another by two iron rods.

Despite its fragmented form it retained its vitality with both sections clothed in foliage that created a more or less full canopy, as can be seen from the photograph below, from 2012.



1)

Photo Sept 2012 [© Dave Pearson]

Sadly, in the few years since then it has shown a very marked deterioration and October 2024 it had declined so far that the more upright, northern section of the tree has lost all its leaves, giving every appearance of having died.



2)

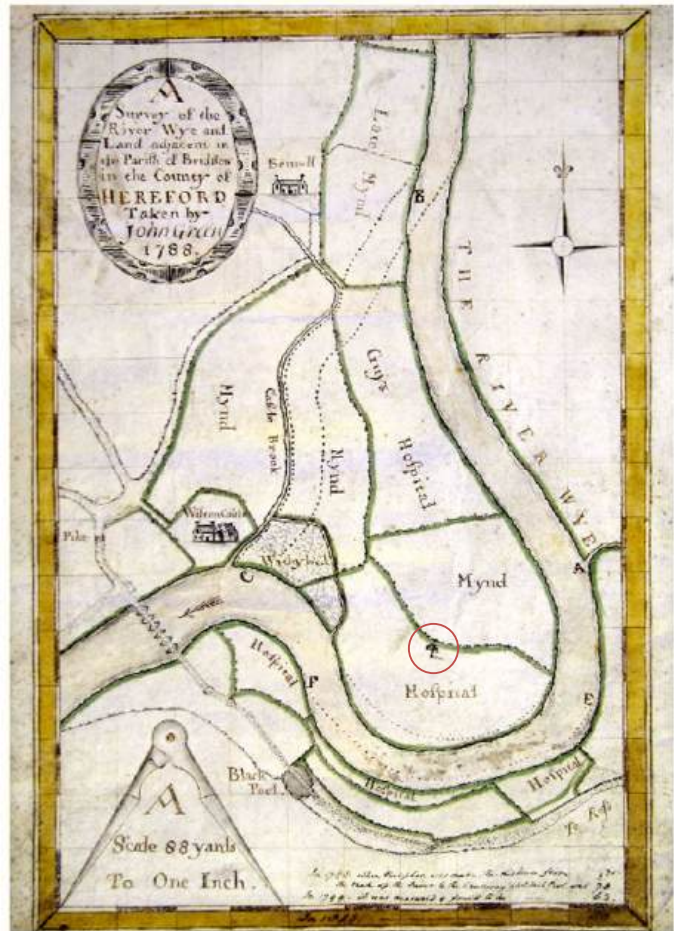
Photo: JPR 2024

Close inspection showed some live buds remaining and it is possible that these *might* give rise to some scattered new growth next spring. However, it's clear that the tree, or at least this northern part of it, is in serious trouble and that its long life may be drawing to an end.

And it *has* been a long life. Back in the 18th century it was already a significant specimen, important enough to have been recorded on two maps of the period, one by Isaac Taylor published in 1754 and another, by John Green in 1788; both clearly showing the tree in the loop of the Wye.



3) above:
Extracts from Isaac Taylor's 1786 New Map of Hereford', the lower section enlarged to show the area around Ross with the Great Oak shown circled in red.



4) right:
John Green's 1788 map of 'The River Wye in the Parish of Bridstow' (the Great Oak circled in red)

There must have been a great many other trees in the area covered by these maps but it was this one that the map-makers chose to include in their respective maps. My interpretation of the fact that this is the only tree that the cartographers chose to include is that even at that time, 275 years ago, it must have been regarded as being of a size and age as to be recognised as being truly exceptional.¹

So just how old is it? David Lovelace has written '*dating oaks is a black art, especially when the trees are in their senescent phase and after a history of pollarding*'.² This tree is well into its senescent phase and was almost certainly managed by pollarding, but what is more to the point, only two fragments of the original tree survive so no annual ring count is possible and any measurement of girth is out of the question. We must resort to other methods.

I suggest that we can draw some conclusions about its age from its presence on these 18th century maps. It is generally accepted that the typical life-expectancy of an oak is about 600 years but that they are capable of reaching 1,000 years and perhaps even more.³ To be sufficiently noteworthy to be recorded suggests to me that it must have been *at least* 600 years old 275 years ago and in all probability significantly older. That being the case, a *minimum* age at the present time would seem to be 875 years, although an age well in excess of 900 is quite possible.

¹ To be fair, Isaac Taylor's map of the whole county does include certain other trees, but only exceptional ones, such as the Eardisley Oak.

² In *Landscape Origins of the Wye Valley* (2008) – H. Hurley (ed) Logaston Press

³ <https://ati.woodlandtrust.org.uk/how-to-record/species-guides/oak/>

Whatever its exact age, it's been a long life over which the tree has undergone many changes. Its current appearance might lead the casual observer to think that it's two separate trees but there are a number of images dating back to the 19th century that clearly show that these are just the remnants of a much larger single trunk.

5)

Copy of a lantern slide, kindly provided by Archie Miles. believed to date from c. 1880.

The trunk, although quite hollow, remains more or less intact on this side but dead, with live growth on the boughs on either side.



6)

Photo dated 1914. Note the wooden prop under the leaning, northerly bough which is not visible in the 1880 photograph.. (Note also that there are some indications that this image may be earlier than the given date of 1914: compare with photo 8, taken 1907.)

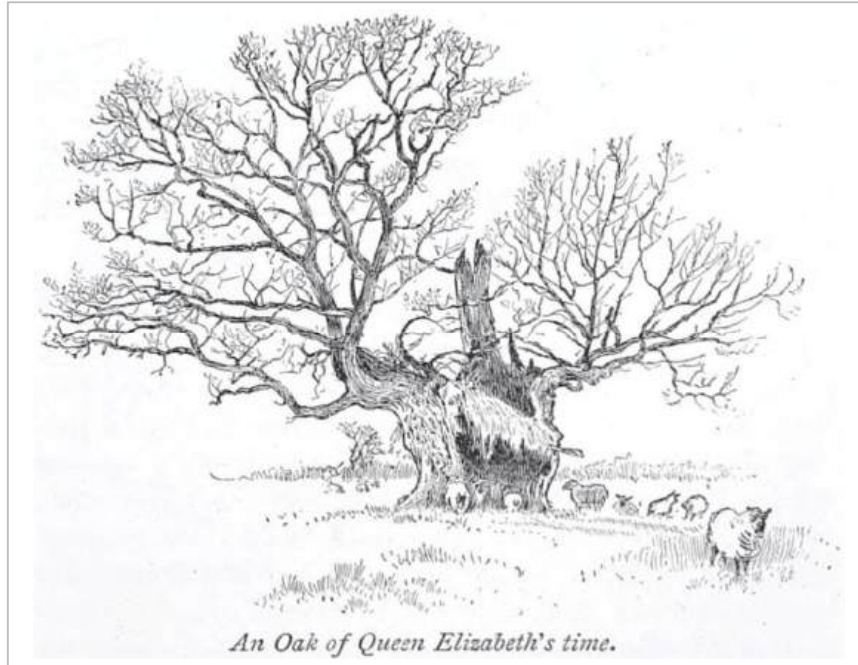


These illustrations show a tree with the squat form with branches arising from a huge but entirely hollow bole. Its form, and indeed its hollowness, is typical of a tree that was managed over many years by pollarding, a practice that was commonplace over many centuries but which tended to fall out of favour in the late 19th and early 20th centuries.

It's unclear how long the old oak of Ross continued to be managed as a productive pollard but it certainly ceased after the mid-1800s when it was recorded that *"a great portion of the remains of [the tree] was destroyed by fire in 1854"*,⁴ an event that clearly caused significant damage. When fires occur in trees they generally consume the dead, decayed material in the hollow centre and it's not uncommon for the live, outer tissues to be unaffected. However, if

⁴ From Littlebury's Directory and Gazetteer of Herefordshire, 1876-7, Transcribed by Rosemary Lockie, © 2005

the fire is intense the heat may be sufficient to kill the live wood. In this case it seems as if large areas of wood on the eastern and western sides of the trunk were killed, but sections to the north and south were spared. There are no images that show the western side intact and it appears that it was either burned or else fell away soon after the fire. A pencil sketch of 1866 shows the hollow shell open on the east side with a crude thatch over the central hollow, evidently added to provide shelter for sheep (or, perhaps, for the shepherd).



7)

Photographs from the following decades show the trunk as a hollow hulk, open to the west with the other more or less intact, but becoming more fragmented over time until, by 1929, only the two live sections on the north and west sides remain, leaving only the two live sections on the northern and southern sides.



8) 1907 Photograph from The Woolhope Club (ref (HAN 82/1) The accompanying commentary states "On the other side of the river in the middle of the horseshoe bend could be seen two parts of a single tree. This is the 'Domesday Oak'. In 1896 the circumference was 45ft and only calculated to date from the 15th century. When photographed in 1907 it was said to be considered to be 1100 years old" (Authority unknown)



9) The tree during a flood event in August 1912 Photograph by Mr. A.G.Beeston (1912)
 Note the prop supporting the leaning bough on left. From <http://www.ross-on-wye.com>

“This view shows the ‘Doomsday Oak’ in Oak Meadow along with some flooded carts and with Wilton Bridge and the King’s Head in the background”

The last remaining section of outer shell eventually fell away some time between 1912 and 1929, when the photograph below was taken. This shows traces of wood still present at ground level.



10) ‘Ross on Wye town from the meadows 1929’ Photograph by Alfred Watkins
 (From the Alfred Watkins Collection held by Herefordshire Libraries)

Although both sections were physically isolated from one another they both continued to produce leaves each year, although it is noticeable that the foliage on the more southerly section, nearer to the river and town, was rather sparse. Furthermore, as can be seen by comparing some of the early photographs, the southern section had been developing more of a lean, even before the section of linking dead wood fell away. This evidently caused some concern for its stability and some time before 1912 to prevent its collapse, a wooden prop was fitted, as can be seen in photos 6, 9 and 10.

The concern for the tree’s structural integrity clearly persisted and, providing further evidence of the continued recognition of its importance, a bespoke, blacksmith-made bracing system was designed and fitted to provide more substantial and reliable support.

This consisted of a pair of iron rods spanning the gap between the two sections that were attached to iron brackets made to fit around the rear of each part of the tree. This system continues to support the two parts, both of which have continued to grow to the point where the iron-work has been partly, or in the case of the northerly section (on the left in the images below) *completely* overgrown by new wood.



11 Iron bracing rods on the northern stem (left) and on the southern section (right) (Photos Brian Jones 2012)



12 Left: Rear of northern stem: the bracket entirely hidden by overgrown wood (ringed)
 Right: Bracket partly exposed at the rear of the leaning, southerly section. (Photos JPR 2020)

The photographic record through the 20th century is far from complete but it seems that despite the fire of 1854 and the death and collapse of more than two-thirds of the tree's circumference, the tree retained sufficient vitality to continue to grow. While the leaning, southerly section has survived, it does not seem to have grown with any great vigour: it continued to produce new foliage year by year but with a somewhat sparse crown which seems not to have grown much in size.

This contrasts with the more upright northern part which by 2012 has developed a full, dense canopy. Furthermore it has been able to achieve some fairly remarkable growth of its stem. This can be appreciated by comparing the two photographs reproduced on the following page. On the left is an extract from photo 8, dated 1907 showing the gentleman in the bowler hat leaning against the edge of the northern part of the tree. Behind him is a wide open hollow within which he could easily stand. Contrast this with the photograph on the right and showing that same the northern part of the tree in 2011. By that time, massive rolls of 'wound wood' had been laid down, to such an extent that the hollow has largely been occluded, leaving an opening hardly wide enough for a child to squeeze through, let alone a full-grown man.



13 Left: detail from photo 8, view taken from W to E. Right: the same northern stem in 2011 (viewed from S to N) showing the hollow largely occluded by wound-wood (2011 photo by Brian Jones)

Further evidence of the vitality of this part of the tree is provided by the way that it has grown so much in circumference as to have completely overgrown the two iron bracing-rods and to bury the substantial iron components of the bracing system so that the presence of the collar is only being betrayed by some distortion of the bark (photo 12).

Referring to the appearance of the tree as it was in 2012 (see photo 1) we see it with a dense and apparently healthy crown. Yet at some point soon after that photograph was taken the tree began a process of decline, with the crown becoming progressively thinner year by year.

This process is clearly visible in the series of photographs, starting in November 2011. At that time the tree had a relatively full crown which, by September the following year had, if anything, become denser and more full.



14 November 2011 Photo by Brian Jones Sept 2012 (Photo 1 [copy] © Dave Pearson)

Images from 2019 to 2014 are provided overleaf and show a marked, progressive deterioration over the period until in October of 2024 the northern (left-hand) section of the tree is entirely bare of leaves.



15) November 2019 (Geograph-6312657-Fabian-Musto)



16) Sept 2020 (Photo from TROBI – © Mr S. Young)



17) July 2021 (Photo JPR)



(Photo 2 – October 2024 (Photo JPR)

The tree had weathered any number of vicissitudes over the previous eight or nine centuries. It suffered major damage in the 19th century and yet recovered sufficiently over last hundred years or so to allow it to lay down enough new wood so that the wide open hollow seen in 1907 had been largely occluded by 2012.

What suddenly happened after that date to cause such a very marked decline over a matter five or six years?

It would seem that a relatively abrupt alteration in the tree's circumstances must have occurred, of which three possible causes spring to mind, namely

- Disease,
- Damage to the root system⁵ or other impairment of root function.
- Flooding.

Disease:

A more thorough investigation than I have been able to carry out might reveal the presence of some pathogen, but I found no positive indications of any pest or a disease likely to be responsible for the deterioration observed. Acute Oak Decline (AOD) might reasonably be suspected; it does, after all, cause a generalized decline of infected trees and has been spreading through many mature oaks for the past thirty years or so. However none of the dark streaks that are a characteristic symptom of trees affected by AOD are present here. A few very small patches of dark exudate were observed on this tree, but these discrete minor bleeds are more likely to be the result of historic physiological stress rather than the result of any presently active pathogen. Neither was

⁵ In using the phrase 'root system' in these notes, I am referring to the entire underground water and nutrient gathering system, both roots and their associated and extensive mycorrhizal network

there evidence of the presence of the oak bark-boring beetle *Agrilus biguttatus*, an insect frequently associated with AOD. One or two of the D-shaped exit holes left by the emerging adults were seen, but they were few and far between and were certainly not indicative of a significant infestation.

On balance, while the presence of AOD cannot be wholly excluded, it seems unlikely to be the primary cause of the tree's decline.

Impairment of Root Function: Root disruption

Most trees in Britain have root systems of which 90% are within the upper 60cm of soil and, as free gaseous exchange is necessary for healthy roots, the majority of the fine, feeding roots are to be found in the more aerated strata, close to the soil surface. This means that they are potentially vulnerable to damage from soil compaction, which will inhibit gaseous exchange, as well as to physical disruption caused by cultivation. I don't have any detailed records of historical land use here but it seems probable that it has predominantly been used as pasture. The pencil sketch of 1866 (photo 7) shows the tree with sheep grazing nearby, while there are several photographs that indicate livestock with free access under and around the trees, would no doubt have given rise to some ground compaction



(18)

Photo JPR – 02 Nov, 2020

In recognition that trampling by livestock could be having a deleterious effect, a recommendation was made in 2020 that an area should be fenced off to create a buffer zone around the tree, effectively a Root Protection Area (RPA), it being suggested that this should be set about 21m from the tree⁶. Based on the guidance that a veteran tree should have a root protection area of radius 15 times the diameter of its trunk, in this case using the diameter of the larger trunk which was found to be 1.43m. $[1.4 \times 15 = 21]$

In practice a fence was put in place but set about 4 metres away from the two stems, which rather less than the general crown-spread of the tree and much less than its likely root spread. (See photo 17). However, it did and continues to limit trampling by livestock in the immediate vicinity of the two stems.

Most of the photographic evidence shows the field as pasture but number of images from the last 25 years clearly show that a crop, possibly hay or silage, has been taken off it. Prior to the fence being put in place this would presumably have involved the passage of farm equipment such as tractors, bailers and trailers. This will undoubtedly have resulted in

⁶ This is based on guidance that a veteran tree should have a root protection area of radius 15 times the diameter of its trunk, in this case using the diameter of the larger trunk which was found to be 1.43m. $[1.4 \times 15 = 21]$

some compaction of the soil within the rooting areas of the trees, areas that will extend *well* beyond the trees' crown-spreads.



(19) The field evidently with a developing crop. Note the 'tramlines' 16 April, 2010 geograph-1809499-by-Pauline-E



(20) August 2004 Photo © Roger May (cc-by-sa/2.0)

The degree and extent of root disruption will depend on a number of factors; trees may acclimatise to relatively shallow cultivation carried out regularly over an extended period. However ploughing of land that had previously been largely uncultivated over many years could prove to be particularly damaging, especially to an ancient tree with reduced vigour. Photograph 1, at the beginning of this article, appears to show the land immediately around the tree had been recently cultivated. The photograph was taken in 2012, before the progressive decline set in.

Flooding

The tree is growing on a flood meadow and it's by no means unusual to see it under water and there are many photographs that show it surrounded by floodwater, including photo 9, dating from 1914. Othe images are provided overleaf.

While one might reasonably presume that flooding is likely to provide an inhospitable environment for healthy roots, any such presumption must be called into question by the very frequency of these events: this is a tree that has been growing for its entire life on a flood meadow that has been subject to frequent flooding over several hundreds of years, sometimes several times a year, and the tree evidently tolerated and indeed flourished under these conditions. There seems, therefore, to be no reason why flooding alone should have caused its decline over the past few years.

Oak Meadow in Flood:



However, while the tree may be acclimatised to being inundated by flood water from the River Wye over many years, the *quality* of that water has undergone a major change over the past ten years or so. The once common white flowers of water crowfoot have disappeared from the river, there have been increasing reports of algal blooms while the numbers of fish and other water creatures have become ever smaller. This catastrophic damage to the river's biodiversity is attributed to pollution from agricultural runoff and sewage discharges raising the levels of phosphates, nitrates and other pollutants in the water.

These same pollutants will also have been carried onto the meadow by the frequent flood events. It's well established that trees are dependent upon mycorrhizal fungi in the soil to facilitate the uptake of sufficient water and nutrients to enable them to thrive.

But it's also well-known that the addition of fertilizers containing high levels of nitrogen or phosphorus inhibit these fungal associations. An ancient tree such as this one is likely to have developed an extensive association with mycorrhizal fungi and to have become dependent on their vast network of filaments to scavenge the nutrients it required to maintain vitality. Damage that network and one is likely to damage the tree, especially an ancient tree with significantly less resilience than a younger one might possess.

Further investigation is needed to assess both the current nutrient status of the soil and its mycorrhizal population, but the coincidence of the decline of the tree and the decline in water quality of the river Wye raises the strong possibility that increased nitrogen levels have led to a decrease in the mycorrhizal associations that were instrumental in maintaining the tree's vitality over its long life.

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Some explanation is required for the observation that the crown decline over the past 5-10 years is very much more pronounced in the larger, northerly section of the tree while the condition of the smaller part, while showing some decline, is not all that much altered. Being parts of one tree they will have identical genetic makeup but are now physically quite distinct, each with its own root system. Furthermore, it would seem reasonable to presume that the larger northern part, which has developed far more vigorously than the southern section, would also have developed a comparatively much larger and wide-spreading root system. In effect, it has more to lose, proportionately, than that of its smaller neighbour.

In practice I suspect that rather than there being a single causal factor, there are likely to be a number of contributory causes, with each of those discussed playing a greater or lesser part in the tree's decline. However, its great old age and consequent lack of resilience is, no doubt, a critical factor. After all, a neighbouring tree, known to be only about 100 years old, shows no sign of decline despite having been exposed to identical conditions.

That its much older neighbour, a tree that has lived through the reigns of perhaps 38 monarchs, weathering everything that the last eight or nine centuries had to throw at it, should now succumb to the rigours of the 21st is truly something of a tragedy. Further investigations might identify the cause or causes of its decline. But it is to be hoped that agreement can be reached to allow appropriate measures to be put in place to try to ensure the continued existence of this tree as a living monument.

Jerry Ross F.Arbor.A

November 2024

Note: The tree stands on private land, part of the Duchy of Cornwall's Herefordshire Estate. Site visits to inspect the tree were carried out by kind permission of Mr & Mrs S. Brewer, tenants of Benhall Farm, Wilton, Ross on Wye.

The Old Oak of Ross (AKA The Oak in the Wye loop: The Domesday Oak)

Additional notes and measurements

The Old Oak of Ross; The Oak in the Wye loop: The Domesday Oak

- In 1876 '**Littlebury's Directory & Gazetteer of Herefordshire, 1876-7**' describes the tree as seen from The Prospect, a public open space in Ross on Wye:

"From this spot the view of the river and the surrounding country is enchanting, and the beautiful horse-shoe form in which the river flows beneath the town is very striking. In the centre of the meadow, opposite The Prospect, are still standing the remains of a gigantic oak tree, which, it is said, once stood on the edge of the stream - and from the very visible addition which has been made to this meadow within the last few years, there is no doubt that such was the case. From some records preserved in the town it would appear that this tree is upwards of 1,100 years old: a great portion of the remains of it was destroyed by fire in 1854

- **Julian Hight in Britain's Tree Story (National Trust 2008)** writes:
"Tradition holds that it was planted in the reign of Henry VIII, making it close to 500 years old, but a girth of 10.9m (35.7ft) suggests an even greater age than that."

- **Record from the Ancient Tree Inventory prepared by Brian Jones in November 2011**

Ancient Tree Search ref: 12140 Grid reference: SO 5943 2433

Location: Oak Meadow, Benhall Farm, Ross-on-Wye
(Tree is on a working farm with no public access.)

Species: **Common Oak *Quercus robur***

Overall girth: 11.15m @ height of 0.65m (*Without the damage the footprint could be anticipated to be greater.*)

Upright section girth: 4.25m @ height of 1.5m

Leaning section girth: 5.01m @ height of 1.0m

Gap between the two parts of the tree: 2.4m

- **Measurements taken in December 2020 by JPR**

'GIRTH'* recorded as 11.22m @ ~0.5m above GL and 10.97m @ ~0.3m

Stem 1 (*upright section, on left above*): HEIGHT: ~15m

GIRTH 4.53m @ 1.5m above GL; 4.4m @ 1.0m (nominal diameter: 1.43m)

CROWN SPREAD: ~8m radius

Stem 2 (*leaning section, on right*): HEIGHT: ~14m

GIRTH: 3.57m @ ~0.25m above GL; 5.14m @ ~1.0m and 5.45m @ ~1.3m above GL

(Note the latter two measurements include parts of a large flared section. A nominal diameter based on smallest section = 1.14m.

CROWN SPREAD: ~7m to SE (towards Ross town); ~1m NW and ~5m SW & NE

- * The 'girth' was measured around both stems including the 2.2m gap between them: clearly this does not represent even an approximation of the girth of the tree had it been intact. As Dr. Aljos Farjon noted in 2015: "*Girth is an impossibility now as it is merely two fragments standing wide apart, one leaning outwards*"

Furthermore, the measurements of individual stem girths must also be regarded as approximate due to the extreme irregularity of the stems' forms.

History of Ownership:

- Reginald de Grey of Wilton Castle was created **Lord Grey de Wilton** in 1295. The land remained with the Greys until in 1557 when the 13th baron was forced to sell it to raise his ransom after being captured in France.
- 1557: The land was purchased by the **John Brydges, 1st Baron Chandos** and stayed in the Brydges family until 1731/32.
- 1732: The President and Governors of **Guy's Hospital** acquired the estate from James, the *8th Baron Chandos*. Subsequently known as '**The Guys Estate**' it remained under their ownership up until 1961
- 1961: The estate was purchased by the financier and retail magnate **Sir Charles Clore**.
- 1977: Estate acquired by the **Prudential Assurance Company**, which held it until 2000.
- 2000: The state was purchase to become part of **the Duchy of Cornwall's** landholding in Herefordshire, that being the current owner.
The land on which the tree is situated is part of Benhall Farm, the tenancy for which is held by Mr & Mrs Simon Brewer.

ADDITIONAL HISTORIC PHOTOGRAPHS



1901

(Note other trees present, but *not* the neighbouring tree)



1938



1960



2011 (Photos by Brian Jones)



December 12th 2020 (JPR)



July 21st 2021 (JPR)



18th October 2024 (JPR)



2020 (JPR)



April 1921 EPW006047 - Aerial Photo _ Historic England

