

Wyre Forest Study Group

The True Service tree *Sorbus domestica* L. seed collection in Worcestershire 2016

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The True Service or Whitty Pear tree has always had a special place in the history and folklore of the Wyre Forest and the best known tree grew in the woodland called the Parks. It has been the subject of a number of articles and the site has had numerous visits over the years. It is an unusual tree and when it was first recorded by Edmund Pitt in 1678, it was thought to be the only tree of its kind in the country although it was known to grow on the Continent.

Other trees were later recorded around the country but it was still thought that the Wyre Whitty Pear was the only naturally grown one. With its pear shaped fruit, it was no surprise that early English botanists named the tree as *Pyrus domestica* and *Sorbus pyriformis*, but although it belongs to the Rosaceae family, along with apples and pears, the tree belongs to the *Sorbus* genus which includes the Rowan *Sorbus aucuparia*, Wild Service *Sorbus torminalis* and the Whitebeams. Confusion is added when it is discovered that the fruit can be apple or pear shaped. Young trees are easily mistaken for Rowan, having very similar leaves and overall morphology. Mature trees look very distinct, mainly due to the coarse bark, like that of pear trees with Rowan-shaped foliage. Because of the interest in this unique tree a number of descendants have been grown from it around the area.

Periodically the local trees are measured and when in 2016, a request for seed from this species was received it gave an opportunity to revisit all the trees that were last measured in 2010. The seeds were requested by the Millennium Seed Bank at Kew.

Collecting the seed

True Service fruit is fully formed in mid October and is easy to collect as it falls long before it is ripe. The fruit is quite hard and astringent to taste at this stage and attempts to eat them should be delayed until fermentation of the rotting fruit has sweetened the



Sorbus domestica, Pool House, Astley

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bitter juice. As regards the collection of seed, if the fruit is stored in a plastic bag for a few weeks to ripen (bletting), the seeds can be easily teased out.

What can be said about the seed collection exercise?

Seed Productivity

Twenty one trees in Worcestershire were visited for this exercise and most of these trees, 1, 2 and 7-17 (Table 1), are recorded as having been grown from seed or cuttings from the original Wyre Forest tree that died in 1862, or from its descendants. The trees at Arley A-D are likely to have been from the same source but the fruit is somewhat different to the others and is more rounded. This could of course, be merely a throwback to an earlier tree as growing from seed is not guaranteed to give the same plant as the parent. The origin of the other trees, particularly in the south



Sorbus domestica fruits, Arley tree A

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Sorbus domestica seeds

Rosemary Winnall

Site Name	Tree Girth (M's)	NGR	Sorbus domestica Seed Collection and tree measurement-2016										
			Original Planting Date	Average Ratio (Length to width)		Max Ratio (Length to width)		Min Ratio (Length to width)		Average Length (mm)	Average Width (mm)	Total Fruit Collected	Weight(gms)
1 Wyre Forest Whitty Pear	1.78	SO7494875140	1916	1.18	1.48	1.02	24.9	21.2	395	2052	5.2	11	0.03
2 Arley Arboretum Original Tree	1.73	SO76338053	1914	1.19	1.40	1.02	30.5	25.8	125	1274	12.1	56	0.4
3 Arley Arboretum A	1.94	SO7672180777		1.09	1.24	0.98	33.2	30.6	109	2330	21.4	350	3.2
4 Arley Arboretum B	0.83	SO7671980771							0			0	
5 Arley Arboretum C	1.27	SO7671880759		1.14	1.28	1.02	32.7	28.8	77	1186	15.4	120	1.6
6 Arley Arboretum D	1.08	SO7671080756		1.06	1.27	0.90	28.5	26.9	66	798	12.1	116	1.8
7 Arley Cottage	1.84	SO76858038	1917	1.16	1.28	1.09	27.9	24.2	12	142	11.8	5	0.4
8 19 Forestry Houses, Callow Hill	0.55	SO74917392	1985						0			0	
9 Loen, Long Bank, Bewdley	1.20	SO76027415	1969						0			0	
10 Withybed Wood 1	0.95	SO75767705							0			0	
11 Withybed Wood 2	0.41	SO75777705							0			0	
12 Withybed Wood 3	0.76	SO75747705							0			0	
13 Withybed Wood 4	0.56	SO75747705							0			0	
14 Withybed Wood 5	0.68	SO75747706							0			0	
15 Cadbury's Chalet-1	0.32	SO75707716							0			0	
16 Cadbury's Chalet-2	0.21	SO75177712							0			0	
17 Worcester Cathedral	1.16	SO85005446	1970	1.13	1.40	1.00	26.7	23.7	109	990	9.1	77	0.71
18 Astley Pool House	1.42	SO79576835	1951	1.24	1.43	1.06	29.9	24.2	104	1100	10.6	66	0.6
19 Croome Perry Wood	1.86	SO90014588		1.05	1.21	0.92	21.2	20.3	47	280	6.0	0	0.00
20 Birch Covert, Croome	2.14	SO86624497		0.91	1.00	0.82	26.9	29.5	80	1278	16.0	58	0.7
21 Broadway	1.80	SP10723753	1910	1.12	1.27	1.02	27.4	24.4	61	620	10.2	35	0.6
Oxford Pomifera (Europe)	2.52		1790	1.03	1.09	0.94	28.2	27.5	14	200	14.3	16	1.1
Oxford Pyriferia (Wyre)	2.28		1850	0.95	1.08	0.85	26.7	28.1	17	236	13.9	38	2.2
Coombe Park 4 (Coventry)	2.68			1.26	1.71	1.02	26.8	21.9	5	50	10.0		
Coombe Park 2 (Coventry)	3.26			1.16	1.25	1.04	27.5	23.7	12	106	8.8		
Samples from Slovenia							18-38	16-33			3-21		

Table 1.

of the county is likely to have been from seed suppliers who would have sourced their seed from Europe. By the mid 1850's it was possible to source seed like this from suppliers and this method was often used by country estates. The amount of seed acquired during the collection varied greatly from tree to tree and of the 21 trees visited in Worcestershire, only 11 had fruit and of those, the one at Croome Perry didn't produce any seed at all. The remaining ten trees were probably not mature enough to produce fruit, except for the one at Loen which was large enough to have done, but didn't. Some reports say that this species does not produce fruit until the 15th year and some of the older articles go as far as to estimate 30 years(i), although that cannot be true as these trees would

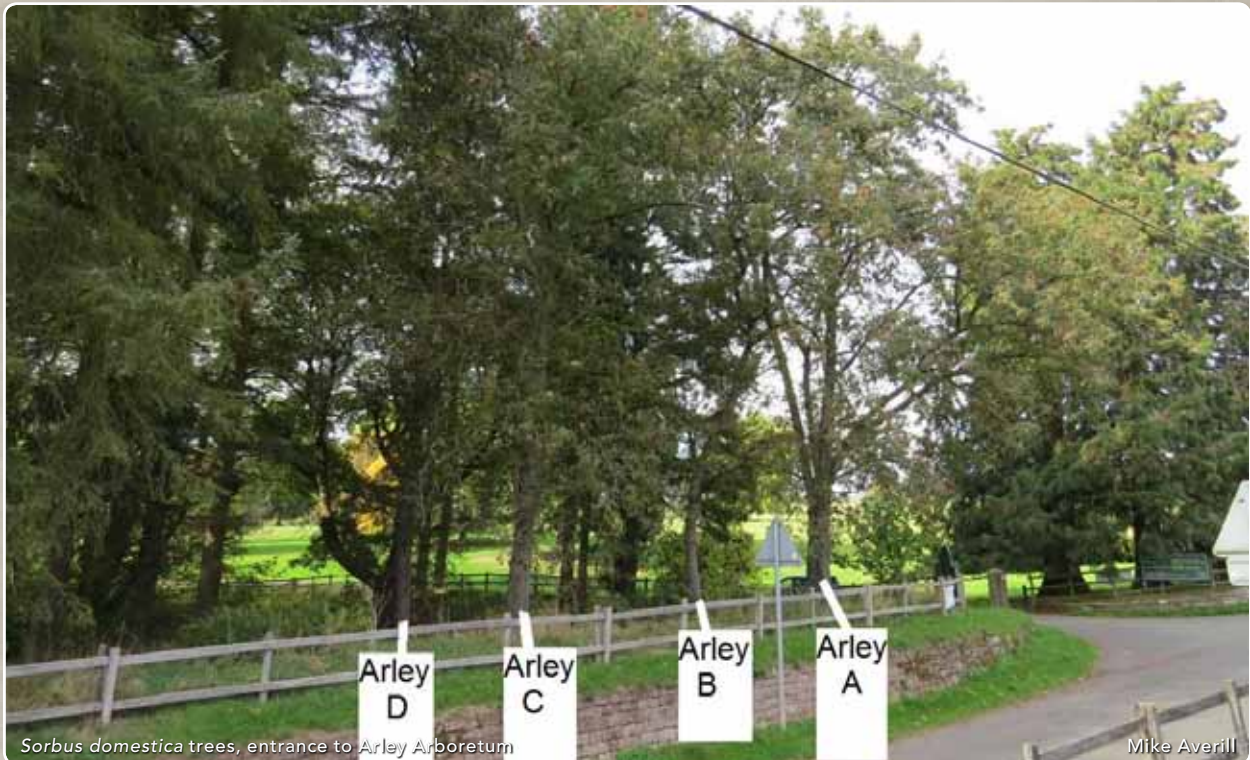
never be grown on the continent to produce a viable fruit crop as they do. The number of fruit shown in the table for each tree isn't the total fruit produced, but only the amount collected to get at least 50 seeds per tree. Kew need enough seed from each tree to be able to test the viability occasionally. Only one tree had all its fruit collected, the Wyre Forest Whitty Pear and although 395 were collected, very few were large enough to produce seed and consequently only 11 seeds were obtained. This may say something about the state of the tree at the moment. Many True Service trees do show signs of stress with die back in branches and this may be due to competition from surrounding trees forcing them to grow higher than they normally would.



Sorbus domestica fruits, Arley tree A Mike Averill



Sorbus domestica fruits, Pool House, Astley Mike Averill



The number of seeds found in the fruit varied and was generally related to the amount of fruit produced so that the most productive tree, Arley A had the most seed, usually 4 per fruit while most other trees had two or just one. One tree, Arley D, had three fruit which actually had twin seeds in the same endocarp as well as another single seed.

Because the fruit can be pear or apple shaped it was decided that the fruit would be measured in case the data could be used to help source where the trees come from. To do this the widest width was measured as well as the length and with this a pyriform ratio could be worked out. Known to be from the same source, the Arley Arboretum, Arley Cottage and Wyre Whitty Pear were very close in shape and quite pear shaped. Astley, Worcester Cathedral and Broadway were similarly pear shaped. Any fruit with a ratio of less than 1.1 (length to width) was more apple shaped and included the two Croome trees and Arley A and D, with the Birch Covert tree at Croome being particularly apple shaped.

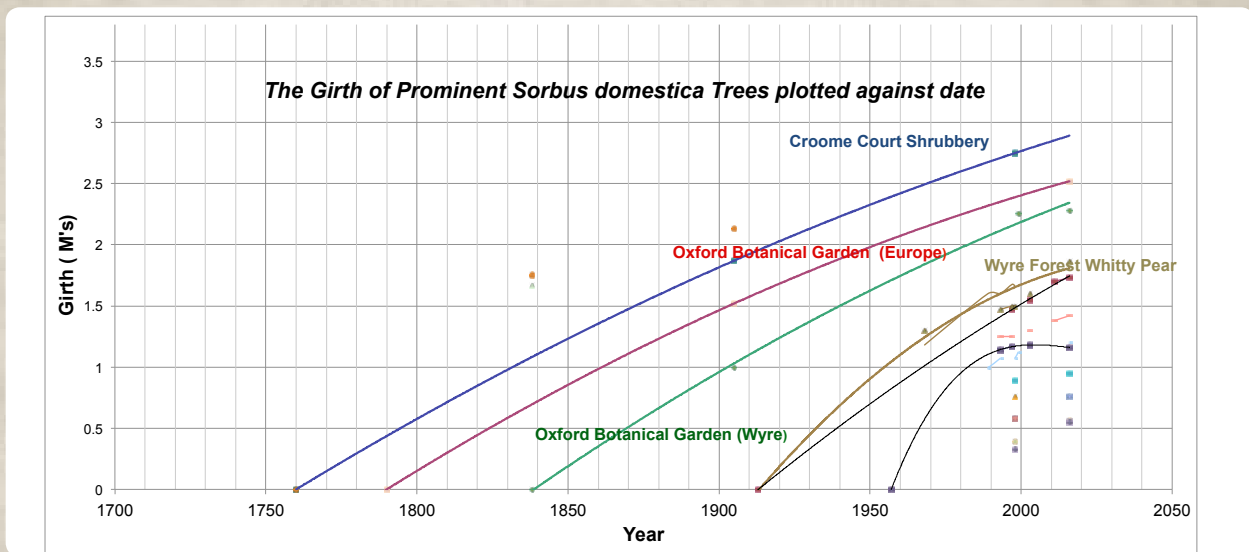
The Coventry and Oxford Trees are included in the table, despite not being part of the seed collection exercise, as they represent trees that are either datable such as the Oxford pair or just very large like at Coventry.

Referring to a study done in Slovakia in 2004 which was carried out on the fruits and seed of True Service trees (ii), the average length, width and weight of the tree

fruit from ten different locations were assessed and a summary is included at the bottom of table 1. The Worcestershire fruit fall well within the size range of their study but while Arley A was the most productive tree with large fruit, most of the Wyre Whitty Pear fruit was at the smallest end of the scale. All the Arley Trees were at the top end of the Worcs. Group in terms of average fruit weight while the Wyre Forest, Cathedral and Croome Perry trees were at the lower end.

The age of True Service Tree

The True Service is thought to be capable of living to a great age and while there is a tree in the Czech Republic which is estimated to be around 450 years old, the oldest ones known in the UK are probably much younger than this. Using the known planting date of some of the local trees and their periodic girth measurements, a growth graph can be plotted (Graph 1). Using four trees in particular, the two at Oxford Botanical Garden, the Wyre Forest Tree and one that was in the Shrubbery at Croome Court, a fairly consistent growth trend can be seen. The Oxford tree with a European origin is 226 years old and has a 2.52 metres girth, the Oxford tree tagged as having come from the Wyre Forest is 166 years old with a girth of 2.28 metres, and the present Wyre Forest Tree is 100 years old with a girth of 1.78 metres. Included on the graph is a tree from the Shrubbery by the walled garden at Croome Court. It is no longer there and died around 2000, but had it still been alive it would have been the



Graph 1.

largest True Service tree in Worcestershire at the time. It had a number of measurements throughout the 1800's and 1900's and there are bills for the purchase of *Sorbus domestica* trees to the Court dated 1760 and 1768 proving that trees were acquired as long ago as that. Another large tree that is no longer alive, was in Arley Arboretum and measured a girth of 3.7 metres in 1968. This tree was grown by Lord Mountnorris of Arley Castle, from seedlings grown from the original Wyre Forest tree(iii).

These tree ages and sizes could help us reflect on the possible age of the Original Whitty Pear in Wyre. Originally recorded as fruiting by Edmund Pitt in 1678, we can assume the tree was at least 20 years old then, and just before it was burnt down in 1862, its girth was 1.67 metres (Irvine 1855 - iv). This girth is smaller than the present 100 year old Whitty Pear now and was probably only a few hundred years old at most considering that it had to suffer pieces being regularly taken as good luck charms and may well have had a stressed existence. Jorden, the local naturalist who had a particular fondness for the tree thought it might be six centuries old (v) as it looked so venerable.

It is now known that the Wyre Forest Whitty Pear was not the only naturally grown tree in Britain and in recent years some trees have been found growing wild at a few sites in Cornwall and along the Severn Estuary and Wye Valley(vi, vii, viii), these could well be quite old, but they do not grow to a very large size in such exposed locations.

Thanks to Rosemary Winnall and Linda Averill for help in collecting and processing some of the seed.

(i) Loudon, J (1854) Arboretum et Fruticetum Britannicum Vol 2, P921, Bohn, London

- (ii) Miko, M. & Gažo, J. (2004) Morphological and Biological Characteristics of fruits and seed of the Service Tree (*Sorbus domestica*) Journal of Fruit and Ornamental Plant Research vol. 12
- (iii) Woodward, R. (1907) The Gardeners' Chronicle, a letter Vol 41. Jan-Jun P237
- (iv) Irvine, A. (1855) The Phytologist, A Botanical Journal. William Pamplin, London.P 196
- (v) Jorden, G. (1864) Flora Bellus locus and other notes. Unpublished. Copy in Kidderminster Library p187
- (vi) Hampton, M. & Kay, Q. (1995) *Sorbus domestica* new to Wales and the British Isles. *Watsonia* 20:379-384
- (vii) Bernallick, I. & Pearman, D. (2013) *Sorbus domestica* (True Service-tree) in Cornwall BSBI News 125 p37 & 38
- (viii) Hampton, M. (2015) *Sorbus domestica* in the Wye Valley. BSBI News 3 P.30



Sorbus domestica fruits, Arley tree A, 12 Oct '16 R. Winnall

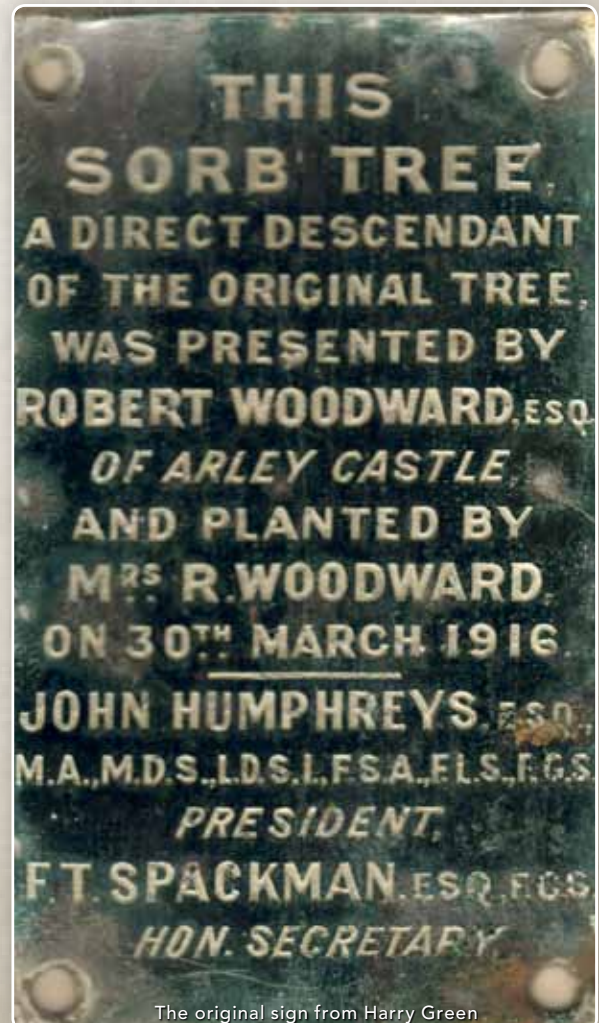


From left: Rosemary Winnall, Roy Finch, Brett Westwood, John Bingham, David Dench, Mike Smith, Chris Bradley, Jane Scott, Harry Green, Richard Boles, Sylvia Sheldon, Andrew Gerry, Stuart Leadley, Michael Harrison, Denise Bingham, Michael Pettigrew, Mike Averill, R. Winnall

100 Years old this year - The Whitty Pear

Some readers will remember that there was a visit to the old Whitty Pear and the planting of a new tree in 2013. This was a special occasion as Hermione Gerry was present to plant a new tree, near to the one her Grandmother, Mrs Robert Woodward, had planted in 1916. This was a little early for the 100 year anniversary, but sadly circumstances prevented Hermione from coming later and in one way it was appropriate as the tree was already about three years old when it was planted.

This year though, in order to stick to tradition, representatives of all interested parties once again met on the very 100th anniversary day, 30 March 2016 to celebrate the birthday of the tree that has roused so much interest. Measuring now a girth of 1.78 metres, the tree stands on the very spot where the original Whitty Pear stood and was first discovered in 1677. Many local *Sorbus domestica* have been grown from the original tree, which at the time, was once thought to be the only native tree in the UK. In recent years, however, the finding of Whitty Pear trees in South Wales and on the Severn Estuary has shown that the tree is probably indigenous but it has never been completely resolved as to where the Wyre tree came from. Maybe future DNA work will resolve this but for now the location and the tree in Wyre remains a fascinating enigma.



The original sign from Harry Green