Manor Woods Valley
Local Nature Reserve

Oak Trees in Old and New Manor Woods

2021

Prepared by Max Alwyn & Peter Loy-Hancocks

MANOR WOODS VALLEY GROUP

1. Introduction & Methodology

Manor Woods Valley Local Nature Reserve has several different and distinct areas of woodland, each with a different history and character. Two of these are Old Manor Wood and New Manor Wood (figure 1.1), The former is believed to be the Bishopsworth woodland that is mentioned in the Domesday Book of 1086. It is characterised by large standard Common (aka English) Oaks over derelict Hazel coppice.

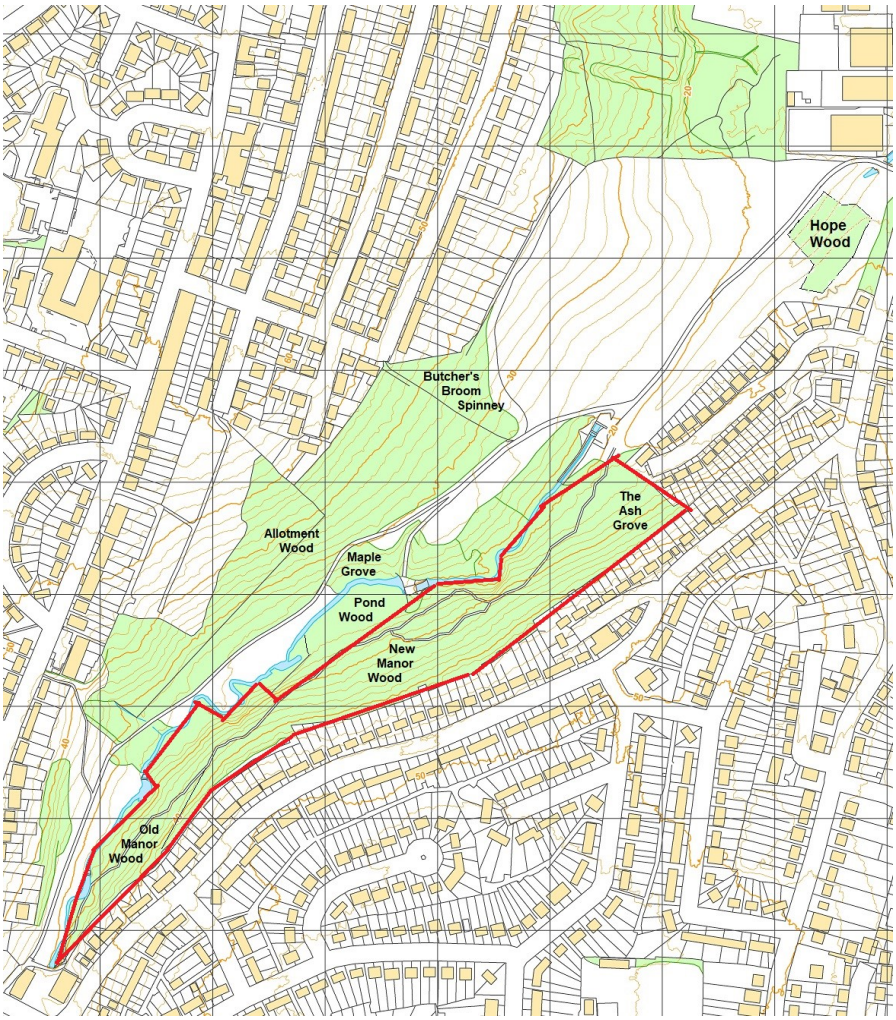

Figure 1.1 Map of Manor Woods Valley and area of survey outlined in red.

New Manor Wood is dominated by Common Ash, with a few other tree species, and has a mixed shrub layer. This latter area was productive farmland, with field separate by hedgerows, until the mid-1930's, when housing development along St Peters Rise led to its abandonment. Ordnance Survey mapping shows this area being mapped first as open farmland, then rough grassland, scrub and finally, in 1974, woodland.

During the winter of 2020/2021, two University of the West of England environmental science students, Max Alwyn and Sophie Thompson, undertook a survey in Old and

New Manor Woods in order to plot the distribution of Oaks, and determine the ages of the trees and their likely origins. Several large Oaks have evidence of fire damage, so this was quantified as well.

The data recorded was:

- Coordinates
- Radius (x2 on a right angle)
- Fire Damage

‘**Coordinates’** - each Oak was mapped using GIS (ArcPro)

‘Radius’ - measured at c1.4m in order to ascertain the diameter at breast height (DBH) and thus circumference (figure 1.2). The latter was used to estimate the tree ages, based on referenced sources. Five trees were not measured due to being inaccessible or multi-stemmed.

‘**Fire Damage**’ - default 0% unless a cavity from fire damage was noted at the base. The scale was defined with 100% as a cavity too large for the tree to support itself, therefore no 100% could be recorded on an upright and intact tree. A photo was then taken if any damage was recorded, and attached to the GIS point.

Figure 1.2 Measuring an Oak in New Manor Wood

2. Results

A total of 48 Common Oaks were recorded within Old and New Manor Woods. Measurements were taken of 43 trees. A full table of results is given in Appendix 1. Oaks were notably absent from northeast end of New Manor Wood (figure 2.1).

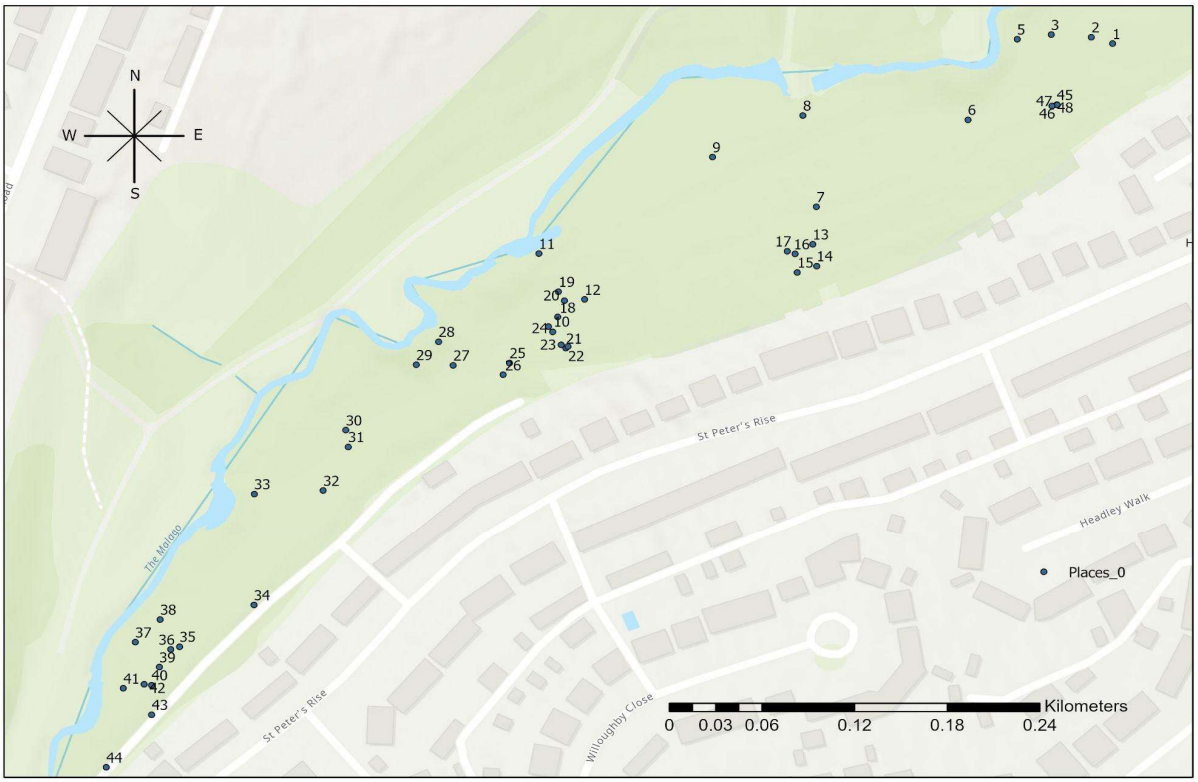

Figure 2.1. Positions of recorded Oaks

The sources used to deduce tree ages based on their circumference produced slightly different ages, but are based on whether trees are growing within a woodland or in open ground. The former may be more accurate for trees that are growing within Old Manor Wood, the latter for trees in New Manor Wood.

Tree 41 was the largest, and therefore likely oldest tree. It was located at the south-east end of Old Manor Wood. With a circumference of 440cm, this tree was estimated (in 2021) to be between 144 and 176 years old (figure 2.2).

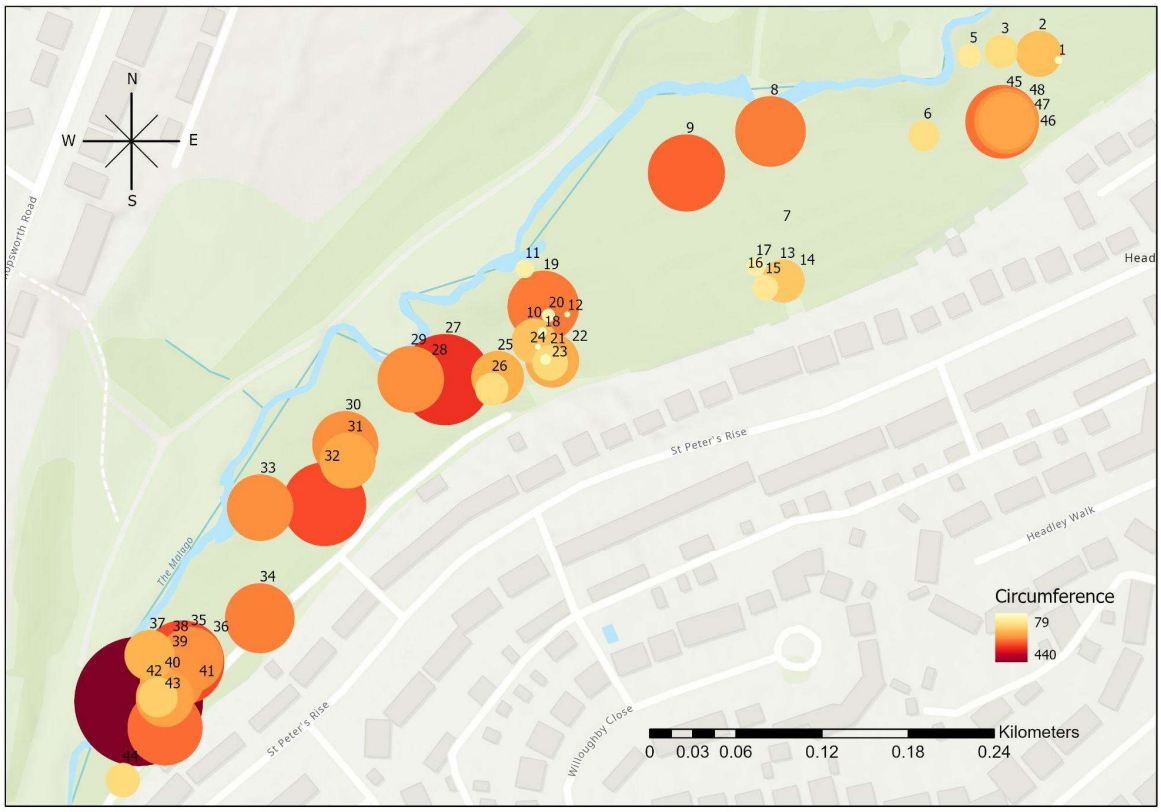

Figure 2.2. Proportional representation of Oak tree circumferences

Of the 43 Oaks, nine were damaged by fire. Three trees had more than 50% damage.

3. Discussion

As might be expected based on the known history of Old and New Manor Woods, the oldest Oaks are concentrated in the former and in a copse that were maintained on a steep bank to the northeast of the main woodland block (figure 3.1).

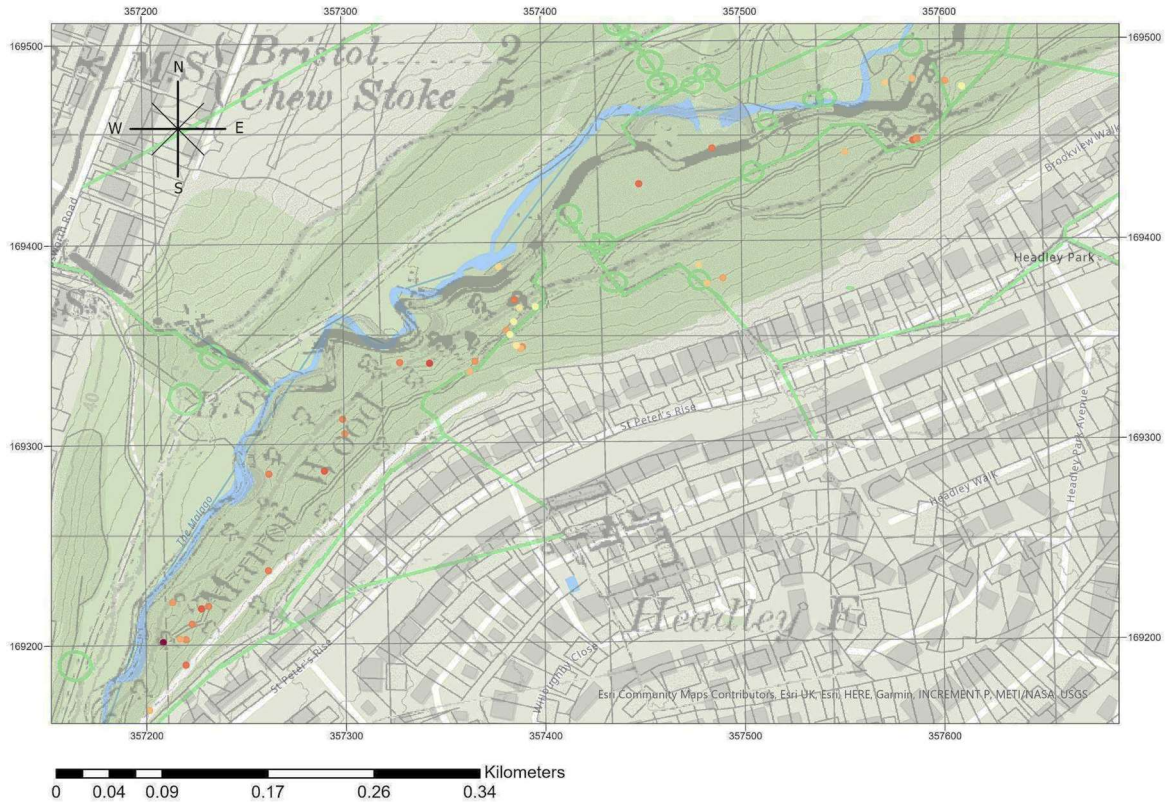

Figure 3.1. Oaks mapped over pre-1930's woodlands and field boundaries – darker colours = older trees

In Old Manor Wood (trees ID 34 - 42) the age (averaged) range is 51 - 139 years i.e., established c1970 – 1882. There does not appear to be a common age amongst the group. This could be reflective of a natural seed dispersal rate within a woodland, however it should be noted that Oaks seldom establish within woodland, instead growing from acorns buried by Jays in open ground. More likely, replacement trees were planted as mature trees were harvested from the woodland, but this does not account for some trees apparently established post 1935 when woodland management will have ceased.

Within New Manor Wood (tree ID 27 - 33) the tree age range is relatively narrow at 71, 81, 81, 81, 97 and 104 years – an average of 86 years i.e., on average becoming established in c1935. This approximate year of establishment corresponds remarkably closely with the known history of this part of the site. It therefore seems very likely that on cessation of agricultural activity in or about 1935, Oaks, growing from acorns buried by Jays established very rapidly in the abandoned farmland; probably in the first winter after abandonment. Acorn burial by Jays in this area no doubt ceased within a year of two as the area rapidly became overgrown.

The positions of some larger Oaks overlap with boundaries illustrated on 1882 and 1912 Ordnance Survey maps, namely the north-eastern most trees, and at the edge of Old Manor Wood. These are trees that will originally have been growing in hedgerows.

4. Further Work

The apparent anomalies with regards to the relatively large establishment date range for Oaks within Old Manor Wood could be worth investigation.

Further mapping of ‘ghost’ hedgerows within the site could be useful in detecting outgrown or previously tall standing hedgerow trees.

Additional surveys for Oaks in other parts of the site, and of other tree species, would be a useful addition to knowledge of trees in Manor Woods Valley.

Appendix

Appendices 1: Results table

ID	Diameter (cm)	Circumference (cm)	Fire Damage (%)	Avg. Age (crowded)	Ave. Age (low and high est.)	Potential establishment date (average of two columns age estimates)	Notes
1	27	85	0	34	28	1976	
2	63	198	0	79	65	1949	
3	51	160	0	64	52	1963	
5	42	132	0	53	43	1973	
6	49	154	0	62	50.	1965	
7			0				Multi-stem
8	86	270	0	108	88	1923	
9	92	289	0	116	94	1916	
10	62	195	0	78	64	1950	
11	38	117	0	47	38	1979	

12	25	79	0	32	26	1992	
13			0				Multi-stem
14	60	189	0	76	62	1952	
15	44	138	0	55	45	1971	
16			0				Multi-stem
17	38	119	0	48	39	1978	
18	28	88	0	35	29	1989	
19	87	273	0	109	89	1922	
20	32	101	0	40	33	1985	
21	52	167	0	67	55	1960	
22	70	220	0	88	72	1941	Split - one measured
23	30	94	0	38	31	1987	
24	25	79	0	32	26	1992	
25	69	217	0	87	71	1942	
26	51	160	0	64	52	1963	
27	105	330	5	132	108	1901	
28			0				Multi-stem

29	82	258	5	103	84	1928	
30	82	257	8	103	84	1928	
31	72	226	0	90	74	1939	
32	98	308	10	123	101	1909	
33	82	258	80	103	84	1928	
34	85	267	0	107	87	1924	
35	81	254	90	102	83	1929	
36	98	308	0	123	101	1909	
37	67	210	5	84	69	1945	
38							Fallen into Malago
39	80	251	5	100	82	1930	
40	74	232	0	93	76	1937	Suspected disease
41	140	440	10	176	144	1861	
42	57	179		72	58	1956	
43	90	283	60	113	92	1919	
44	52	163	0	65	53	1962	
45	81	254	0	102	83	1929	

46	80	251	0	100	82	1930	split at 1.5 m
47	73	229	0	92	75	1938	
48	89	279	0	112	91	1920	

Sources used for age estimation:

‘How to Determine the Age of a Tree’. Matt Bowman - Wikihow https://www.wikihow.com/Determine-the-Age-of-a-Tree

Chiltern Woodlands Project. Liz Hamilton
https://www.chilternsaonb.org/uploads/files/AboutTheChilterns/Woodlands/The_Why_and_How_of_Tree_Measurement.pdf

‘Estimating the Age of a Tree from its Girth’. Wokingham District Veteran Tree Association https://wdvta.org.uk/pdf/Estimating-the-age-of-trees.pdf