

## WYTHAM WOODS RESEARCH

### Research Group

Long-term vegetation monitoring: The Wytham Ecological Survey (WES) plot by Three Pines Ride.

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### Introduction

There were three elements to this study which was written up in Mihok et al (2009) (Mihók et al., 2009), extracts from which are presented below. The data are included as Annexes to the account and as separate Excel files (Annexes 2-9).

(a) A comparison of aerial photographs from 1961 and 1999 for a c.4 ha block at grid reference SP461086. The earlier photograph appeared on the cover of Charles Elton's *The pattern of animal communities* (1966) with a key to tree species on page 195 (figure 20).

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FORESTRY

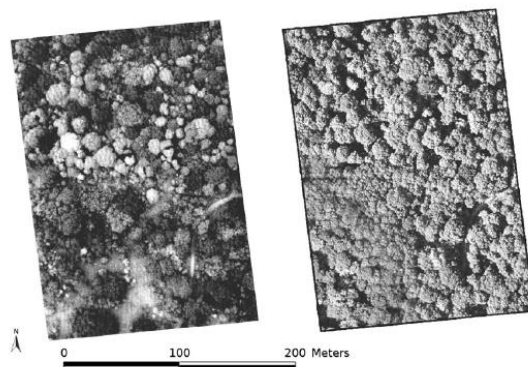
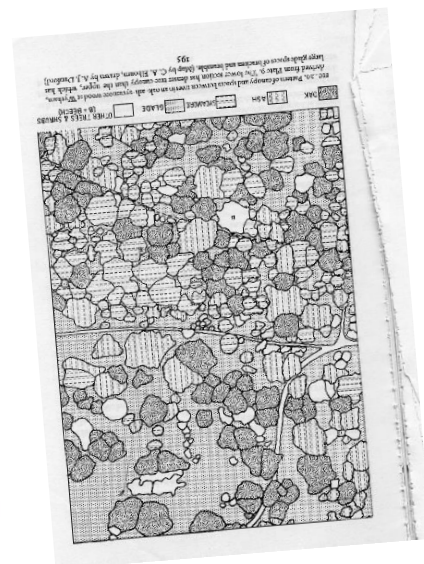


Figure 2. The aerial photograph of the sampling site (grid reference SP 461086) from 1961 (left) (Elton, 1966) and 1999 (right). The photographs have been re-orientated to run south-north compared with the version in Elton (1966). Note the increased canopy closure and abundance of small-canopied trees in the south of the area by 2007.



(b) A detailed record for trees and regeneration was made for the north-east corner of the area shown on the photograph by Dr Kitty Paviour-Smith (Kitty Southern) in 1068. The area was divided into 20x20 m squares, which were then further divided into 4 10x10 m plots (Annex 1). A rough canopy map was also produced.

FORTY-YEAR CHANGES IN THE CANOPY AND THE UNDERSTOREY IN WYTHAM WOODS 5 of 13

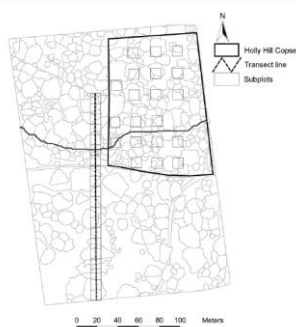


Figure 3. The location of the south-north transect established in 2007 and the subset of 21 plots from the 1968 grid, both overlain on the stand map drawn by C. A. Elton after the 1961 aerial photograph published in Elton, 1966). The former common lies to the south of the boundary bank shown by the thick black line, the former ancient woodland to the north.

Within each 10x10 m plot each canopy tree was plotted and numbered (see Annex 1) and its girth measured (numbers above 104 appear to have been shrubs). In 2007 Dr Barbara Mihok retraced the grid: the 104 mature trees were relocated (if surviving) and remeasured. Additional trees that formed part of the main canopy but had not been measured in 1968 (because they were part of the understorey) were recorded by 10x10 m plot. These data are presented in Annex 2.

In 1968 understorey – regeneration and shrubs - was assessed in each 10x10m plot, with each stem being put into one of five diameter classes: 0 = 1-2 cm diameter, 1 = 2.1-5 cm, 2 = 5.1-10 cm, 3 10.1-15 cm, 4 >15 cm. The numbers of stems of each species in each diameter class in 1968 are given in Annex 3.

In 2007 there was not the time to record the understorey across the whole area, so a subset of 20 10x10 m plots were sampled spread systematically across the area. The results are in Annex 4.

In 2007 the basal area by tree species for the surroundings of each plot was estimated from relascope sweeps at the north-west and south-east corners. The results are in Annex 5.

(c) A 10 × 200 m transect was established running south-north through the area covered by the Elton aerial photograph. This was mainly in the former common, but a quarter was in ancient woodland, with the centre point located at the National Grid Reference grid point SP461086. From this point, ten 10 × 10 m adjacent sections were recorded in a northerly direction and ten 10 × 10 m sections to the south – the plots were then renumbered 1 – 20, starting at the southern end of the transect. The plots lie to the west of the transect line.

Within each plot the location of each tree with a diameter larger than 2.5 cm was recorded and its diameter measured at breast height (dbh.) (1.3 m) (Annex 6). Basal area of trees in the vicinity was estimated by taking a relascope sweep at 10 m intervals along the transect from the south-east corner (Annex 7). Percentage vegetation cover was estimated by eye along the SW-NE diagonal in three layers (0-0.5m; 0.5-2.5 m; >2.5 m), with the uppermost layer then being split by species (Annex 8).

Species in the ground flora were listed and their cover abundance recorded on the Domin scale (Annex 9). This included seedlings and small saplings.

Domin Scores and % cover  
range equivalent

1	= <4% 1 plant
2	= <4% 2 plants
3	= <4%, several plants
4	= 4-10%
5	= 11-25%
6	= 26-33%
7	= 34-50%
8	= 51-75%
9	= 76-90%
10	= 91-100%

### **Current Research**

The research is mothballed.

### **Current Papers**

MIHÓK, B., KENDERES, K., KIRBY, K. J., PAVIOUR-SMITH, K. & ELBOURN, C. A. 2009. Forty-year changes in the canopy and the understorey in Wytham Woods. *Forestry*, 82, 515-527.

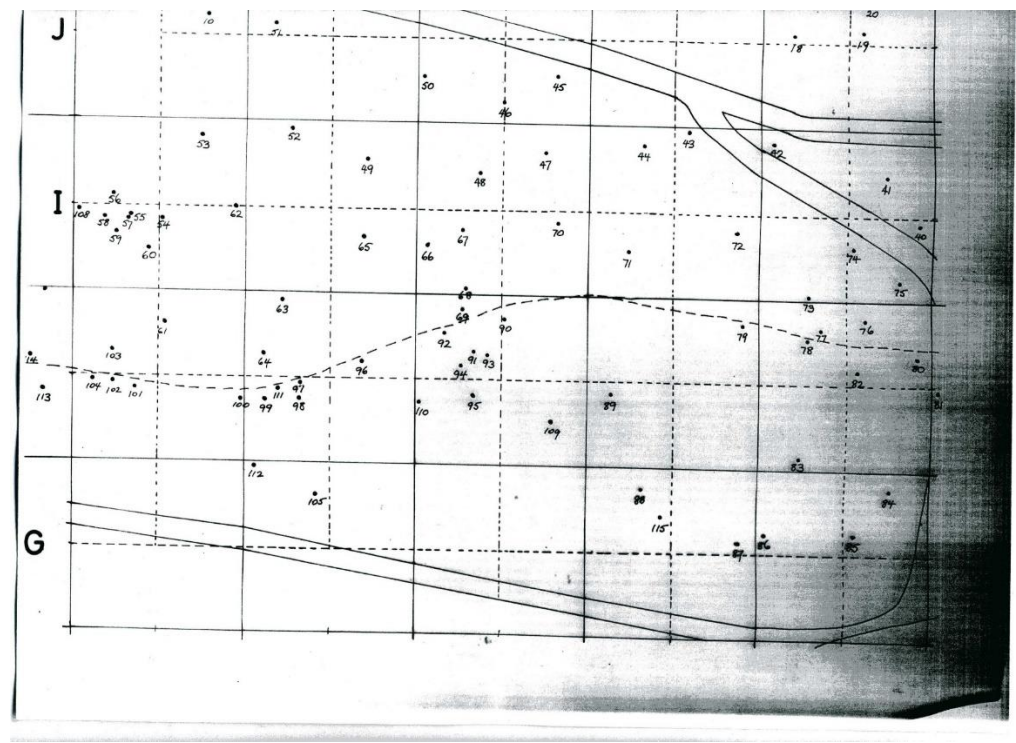
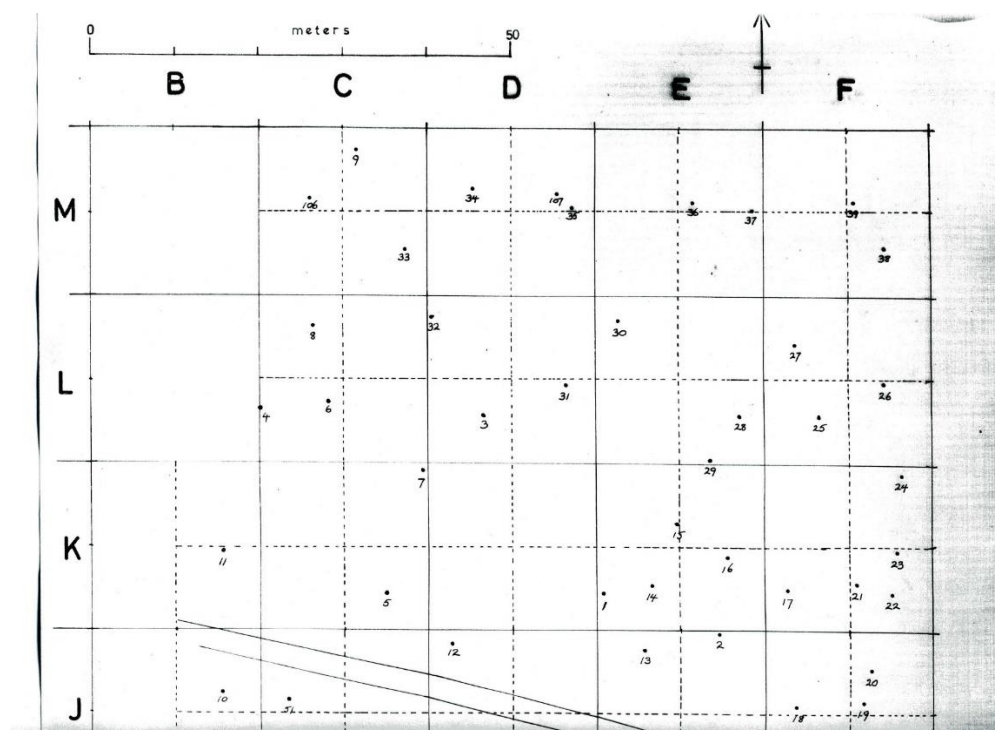
### **Links**

### **Contact Details**

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Annex 1. Map of the Paviour-Smith plot



Tree canopy map of area surveyed by Kitty Southern in 1968



**Annex 2. Girths of mature trees present in 1968 and remeasured in 2007.**

Tree no (see map)	species	girth (cm) 1968	girth (cm) 2007		Dead
1	Quercus robur	194	dead (166)		1
2	Quercus robur	268	295		0
3	Acer pseudoplatanus	224	265		0
4	Fraxinus excelsior	379	469		0
5	Fagus sylvatica	283	317		0
7	Quercus robur	312	305		0
9	Quercus robur	120	141		0
10	Fraxinus excelsior	379	391		0
11	Quercus robur	238	261		0
12	Acer pseudoplatanus	116	115		0
13	Acer pseudoplatanus	86	97	ride widening?	0
14	Acer pseudoplatanus	103	143	ride widening?	0
15	Acer pseudoplatanus	137	not found	ride widening?	1
16	Acer pseudoplatanus	114	not found	ride widening?	1
17	Quercus robur	214	234	ride widening?	0
18	Quercus robur	202	209		0
19	Acer pseudoplatanus	133	not found		1
20	Acer pseudoplatanus	158	not found	ride widening?	1
21	Acer pseudoplatanus	113	not found		1
22	Acer pseudoplatanus	102	not found		1
23	Acer pseudoplatanus	105	not found		1
24	Quercus robur	178	fallen		1
25	Quercus robur	219	238		0
26	Acer pseudoplatanus	135	not found		1
27	Quercus robur	160	176	ride widening?	0
28	field maple	200	203		0
29	Quercus robur	111	126	ride widening?	0
30	Acer pseudoplatanus	237	276		0
31	Quercus robur	176	209		0
32	Acer pseudoplatanus	103	138		0
33	Quercus robur	169	183		0
34	Quercus robur	179	195		0
35	Quercus robur	278	309		0
36	Quercus robur	315	fallen		1
37	Acer pseudoplatanus	114	159		0
37	Acer pseudoplatanus	114	158		0
38	Quercus robur	216	245		0
39	Acer pseudoplatanus	114	176		0
40	Acer pseudoplatanus	87	not found		1
41	Quercus robur	208	222		0
42	Acer pseudoplatanus	117	not found		1
43	Acer pseudoplatanus	228	260		0
44	Fraxinus excelsior	253	fallen		1

45	Acer pseudoplatanus	97	not found		1
46	Quercus robur	185	207		0
47	Acer pseudoplatanus	106	not found		1
49	Quercus robur	208	221		0
50	Acer pseudoplatanus	128	not found		1
51	Quercus robur	155	163	ride widening?	0
52	Quercus robur	167	199		0
53	Quercus robur	203	253		0
54	Fraxinus excelsior	108	141		0
55	Acer pseudoplatanus	110	145		0
56	Acer pseudoplatanus	76	71		0
57	Acer pseudoplatanus	92	123	ride widening?	0
58	Acer pseudoplatanus	87	118	ride widening?	0
59	Acer pseudoplatanus	120	148		0
60	Acer pseudoplatanus	92	127		0
61	Acer pseudoplatanus	108	144		0
62	Quercus robur	263	284	ride widening?	0
63	Quercus robur	167	181		0
64	Fraxinus excelsior	170	fallen		1
65	Acer pseudoplatanus	198	219		0
66	Acer pseudoplatanus	104	161		0
67	Acer pseudoplatanus	108	not found		1
69	Acer pseudoplatanus	88	127		0
70	Acer pseudoplatanus	102	173		0
71	Quercus robur	205	219		0
72	Acer pseudoplatanus	140	not found		1
73	Acer pseudoplatanus	83	105		0
74	Acer pseudoplatanus	93	not found		1
75	Acer pseudoplatanus	98	119		0
76	Acer pseudoplatanus	81	106		0
77	Acer pseudoplatanus	90	119		0
78	Acer pseudoplatanus	100	not found		1
79	Acer pseudoplatanus	114	not found		1
80	Fraxinus excelsior	151	not found		1
81	Acer pseudoplatanus	82	not found		1
82	Quercus robur	115	133		0
83	Fraxinus excelsior	332	372		0
84	Pinus sylvestris	173	191		0
85	Acer pseudoplatanus	110	not found		1
86	Acer pseudoplatanus	80	107		0
87	Acer pseudoplatanus	175	243		0
88	Quercus robur	223	278		0
89	Fraxinus excelsior	183	fallen		1
91	Acer pseudoplatanus	84	117		0
92	Acer pseudoplatanus	79	114		0
93	Acer pseudoplatanus	141	194		0
94	Acer pseudoplatanus	119	not found		1
95	Acer pseudoplatanus	125	184		0

96	Quercus robur	217	236	0	
97	Acer pseudoplatanus	95	143	0	
98	Acer pseudoplatanus	107	145	0	
99	Acer pseudoplatanus	118	not found	1	
100	Acer pseudoplatanus	100	134	0	
101	Acer pseudoplatanus	84	103	0	
102	Acer pseudoplatanus	133	175	0	
103	Acer pseudoplatanus	78	not found	1	
104	Acer pseudoplatanus	77	not found	dead stem	1

### Annex 3. Number of understorey stems >1 cm diameter for each 10x10 m plot, 1968

20x20 m section	10x10 m plot	Species	Number of stems in each size class				
			Class 0 1-2 cm diam.	Class1 2.1-5 cm diam	Class2 5.1-10 cm diam.	Class3 10.1-15 cm diam	Class4 >15 cm diam
		<b>1968 records</b>					
GB	NW	Acer pseudoplatanus	1	2	0	0	0
GB	NW	Fraxinus excelsior	13	17	3	2	0
GB	NW	Salix spp	1	3	0	0	1
GB	NE	Acer pseudoplatanus	8	5	1	5	0
GB	NE	Fraxinus excelsior	30	17	2	2	0
GB	NE	Euonymus europaeus	1	0	1	0	0
GC	NW	Acer pseudoplatanus	1	0	0	3	0
GC	NW	Crataegus monogyna	0	0	0	1	0
GC	NW	Fraxinus excelsior	39	18	2	0	0
GC	NW	Euonymus europaeus	0	1	0	0	0
GC	NE	Fraxinus excelsior	6	15	1	0	0
GC	NE	Salix spp sppsp?	0	0	1	0	0
GC	NE	Euonymus europaeus	1	3	3	2	0
GC	SE	Fraxinus excelsior	4	1	0	0	0
GC	SE	Salix spp	0	1	0	0	0
GC	SE	Euonymus europaeus	1	0	0	0	0
GD	NW	Acer pseudoplatanus	9	3	1	1	1
GD	NW	Crataegus monogyna	1	3	1	0	0
GD	NW	Fraxinus excelsior	5	5	0	0	0
GD	NW	Euonymus europaeus	4	1	1	0	0
GD	NE	Acer pseudoplatanus	13	1	2	3	4
GD	NE	Crataegus monogynao	2	0	0	0	0
GD	NE	Fraxinus excelsior	10	0	0	0	0
GD	NE	Sambucus nigra	0	0	1	0	0
GD	NE	Euonymus europaeus	1	1	0	0	0
GD	SW	Crataegus monogynao	1	1	0	0	0
GD	SW	Fraxinus excelsior	2	10	0	0	0
GD	SW	Salix spp	3	3	1	0	0
GD	SW	Unknown	1	1	0	0	0
GD	SE	Acer pseudoplatanus	4	0	0	4	0
GD	SE	Fraxinus excelsior	23	12	3	0	0
GD	SE	Quercus robur	1	0	0	0	0
GD	SE	Euonymus europaeus	3	2	0	0	0
GE	NW	Acer pseudoplatanus	0	2	5	3	0
GE	NW	Fraxinus excelsior	6	2	0	0	0
GE	NE	Acer pseudoplatanus	1	6	1	1	0
GE	NE	Corylus avellana	1	0	0	0	0
GE	NE	Fraxinus excelsior	40	13	0	0	0
GE	SW	Acer pseudoplatanus	3	0	4	0	0
GE	SW	Crataegus monogynao	1	1	0	0	0
GE	SW	Fraxinus excelsior	31	6	5	1	0
GE	SW	Quercus robur	0	1	0	0	0
GE	SW	Euonymus europaeus	7	2	0	0	0
GE	SE	Acer pseudoplatanus	1	6	2	0	0
GE	SE	Crataegus monogynai	0	1	0	0	0
GE	SE	Fraxinus excelsior	24	13	3	0	0
GE	SE	Quercus robur	1	0	0	0	0
GE	SE	Salix spp	0	1	0	0	0

GE	SE	Euonymus europaeus	15	5	1	0	0
GF	NW	Acer pseudoplatanus	0	5	1	0	0
GF	NW	Cornus sanguineus	7	0	0	0	0
GF	NW	Corylus avellana	1	0	0	0	0
GF	NW	Crataegus monogynao	2	3	0	0	0
GF	NW	Fraxinus excelsior	62	28	2	0	0
GF	NW	Horse chestn	0	0	1	0	0
GF	NW	Quercus robur	1	0	0	0	0
GF	NW	Sambucus nigra	1	0	0	0	0
GF	NE	Acer pseudoplatanus	1	4	10	4	0
GF	NE	Corylus avellana	1	1	0	0	0
GF	NE	Fraxinus excelsior	11	3	1	0	0
GF	SW	Acer pseudoplatanus	1	2	0	0	0
GF	SW	Corylus avellana	2	1	0	0	0
GF	SW	Fraxinus excelsior	26	8	9	3	0
GF	SW	Quercus robur	3	0	0	0	0
GF	SW	Euonymus europaeus	8	3	2	0	0
GF	SE	Acer pseudoplatanus	3	6	9	0	0
GF	SE	Cornus sanguineus	1	0	0	0	0
GF	SE	Fraxinus excelsior	9	11	0	2	0
GF	SE	Sambucus nigra	2	1	0	0	0
GF	SE	Euonymus europaeus	1	0	0	0	0
HB	NW	Fraxinus excelsior	33	11	0	0	0
HB	NE	Acer campestre	1	0	0	0	0
HB	NE	Acer pseudoplatanus	2	1	2	0	0
HB	NE	Fraxinus excelsior	12	6	0	0	0
HB	NE	Euonymus europaeus	0	0	1	0	0
HB	SW	Acer pseudoplatanus	2	0	1	0	1
HB	SW	Fraxinus excelsior	8	4	4	0	0
HB	SW	Sambucus nigra	2	0	0	0	0
HB	SE	Acer pseudoplatanus	9	4	0	4	1
HB	SE	Crataegus monogynao	0	1	0	0	0
HB	SE	Fraxinus excelsior	20	2	1	0	0
HB	SE	Euonymus europaeus	1	0	0	0	0
HC	NW	Acer campestre	2	0	0	0	0
HC	NW	Acer pseudoplatanus	0	2	1	0	0
HC	NW	Crataegus monogynao	8	0	0	0	0
HC	NW	Fraxinus excelsior	30	3	0	0	0
HC	NE	Acer pseudoplatanus	3	1	0	0	0
HC	NE	Fraxinus excelsior	83	17	0	0	0
HC	NE	Euonymus europaeus	1	0	0	0	0
HC	SW	Acer pseudoplatanus	4	0	0	0	0
HC	SW	Fraxinus excelsior	22	2	1	0	0
HC	SW	Euonymus europaeus	2	0	0	0	0
HC	SE	Acer pseudoplatanus	7	0	0	3	0
HC	SE	Fraxinus excelsior	32	4	0	0	0
HC	SE	Euonymus europaeus	3	4	0	2	0
HD	NW	Acer pseudoplatanus	6	0	0	0	0
HD	NW	Crataegus monogynao	2	0	0	0	0
HD	NW	Fraxinus excelsior	71	21	2	0	0
HD	NE	Acer pseudoplatanus	6	2	7	0	0
HD	NE	Crataegus monogynao	0	1	0	0	0
HD	NE	Fraxinus excelsior	31	13	8	0	0
HD	NE	Quercus robur	1	0	0	0	0
HD	SW	Acer pseudoplatanus	0	0	0	1	0

HD	SW	Fraxinus excelsior	23	2	0	0	0
HD	SE	Acer pseudoplatanus	8	5	2	3	0
HD	SE	Crataegus monogynao	1	0	0	0	0
HD	SE	Fraxinus excelsior	17	9	0	0	0
HD	SE	Euonymus europaeus	0	1	0	0	0
HE	NW	Acer pseudoplatanus	4	6	3	0	13
HE	NW	Fraxinus excelsior	37	7	17	3	64
HE	NW	Quercus robur	1	0	0	0	0
HE	NE	Acer pseudoplatanus	1	5	2	4	1
HE	NE	Fraxinus excelsior	12	13	12	0	0
HE	NE	Euonymus europaeus	0	0	1	0	0
HE	SW	Acer pseudoplatanus	3	6	4	1	0
HE	SW	Fraxinus excelsior	20	11	6	0	0
HE	SW	Euonymus europaeus	1	0	0	0	0
HE	SE	Acer pseudoplatanus	2	3	1	4	1
HE	SE	Fagus sylvatica	1	0	0	0	0
HE	SE	Fraxinus excelsior	79	24	0	0	0
HE	SE	Euonymus europaeus	1	0	0	0	0
HE	SE	Quercus robur	3	0	0	0	0
HF	NW	Acer pseudoplatanus	2	10	3	1	0
HF	NW	Crataegus monogynao	2	0	0	0	0
HF	NW	Fraxinus excelsior	42	9	0	0	0
HF	NE	Acer campestre	1	0	2	0	0
HF	NE	Acer pseudoplatanus	2	8	1	0	0
HF	NE	Cornus sanguineus	0	1	0	0	0
HF	NE	Crataegus monogynao	2	1	0	0	0
HF	NE	Fraxinus excelsior	73	14	0	0	0
HF	NE	Euonymus europaeus	1	0	0	0	0
HF	SW	Acer pseudoplatanus	2	6	6	1	0
HF	SW	Corylus avellana	3	1	0	0	0
HF	SW	Crataegus monogynao	1	4	0	0	0
HF	SW	Fraxinus excelsior	57	24	0	0	0
HF	SW	Euonymus europaeus	0	2	0	0	0
HF	SE	Acer campestre	1	0	0	0	0
HF	SE	Acer pseudoplatanus	1	6	12	3	0
HF	SE	Crataegus monogynao	0	1	0	0	0
HF	SE	Sambucus nigra	7	1	0	0	0
IB	NW	Acer campestre	2	0	0	0	0
IB	NW	Acer pseudoplatanus	1	0	0	0	0
IB	NW	Fraxinus excelsior	7	0	0	0	0
IB	NE	Acer campestre	1	0	0	0	0
IB	NE	Acer pseudoplatanus	1	4	0	0	0
IB	NE	Corylus avellana	2	0	0	0	0
IB	NE	Crataegus monogynao	3	0	0	0	0
IB	NE	Fagus sylvatica	1	0	0	0	0
IB	NE	Fraxinus excelsior	42	16	0	0	0
IB	SW	Acer pseudoplatanus	11	1	0	0	0
IB	SW	Fraxinus excelsior	5	2	0	0	0
IB	SE	Acer pseudoplatanus	3	5	2	0	0
IB	SE	Fraxinus excelsior	24	5	0	0	0
IC	NW	Acer campestre	1	0	0	0	0
IC	NW	Acer pseudoplatanus	4	0	0	0	0
IC	NW	Crataegus monogynao	3	0	0	0	0
IC	NW	Fraxinus excelsior	46	2	0	0	0
IC	NW	Euonymus europaeus	1	0	0	0	0

IC	NE	Acer pseudoplatanus	1	0	3	0	0
IC	NE	Fraxinus excelsior	38	2	0	0	0
IC	SW	Crataegus monogynao	1	0	0	0	0
IC	SW	Fraxinus excelsior	91	2	0	0	0
IC	SE	Fraxinus excelsior	72	19	0	0	0
ID	NW	Acer pseudoplatanus	1	6	0	0	0
ID	NW	Crataegus monogynao	1	0	0	0	0
ID	NW	Fraxinus excelsior	48	18	2	0	0
ID	NE	Acer pseudoplatanus	7	4	2	0	0
ID	NE	Crataegus monogyna	1	0	0	0	0
ID	NE	Fraxinus excelsior	74	13	1	0	0
ID	SW	Acer pseudoplatanus	7	6	2	0	0
ID	SW	Crataegus monogynao	1	0	0	0	0
ID	SW	Fagus sylvatica	0	1	0	0	0
ID	SW	Fraxinus excelsior	39	21	4	0	0
ID	SW	Euonymus europaeus	1	0	0	0	0
ID	SE	Acer pseudoplatanus	10	6	2	0	0
ID	SE	Crataegus monogynao	2	0	0	0	0
ID	SE	Fraxinus excelsior	52	39	4	0	0
IE	NW	Acer campestre	1	1	0	0	0
IE	NW	Acer pseudoplatanus	3	6	1	0	0
IE	NW	Crataegus monogynao	2	2	0	0	0
IE	NW	Fraxinus excelsior	33	6	0	0	0
IE	NE	Crataegus monogynao	1	0	0	0	0
IE	NE	Fraxinus excelsior	29	1	0	0	0
IE	NE	Euonymus europaeus	1	0	0	0	0
IE	SW	Acer campestre	1	0	0	0	0
IE	SW	Acer pseudoplatanus	0	2	1	0	0
IE	SW	Cornus sanguineus	2	0	0	0	0
IE	SW	Fraxinus excelsior	71	10	2	0	0
IE	SE	Acer pseudoplatanus	0	2	0	0	0
IE	SE	Cornus sanguineus	2	0	0	0	0
IE	SE	Crataegus monogynao	1	0	0	0	0
IE	SE	Fraxinus excelsior	30	11	6	0	0
IF	NW	Acer pseudoplatanus	5	3	0	0	0
IF	NW	Fraxinus excelsior	15	5	7	0	0
IF	NW	Sambucus nigra	1	0	0	0	0
IF	NE	Acer pseudoplatanus	0	20	6	0	0
IF	NE	Fraxinus excelsior	15	3	1	0	0
IF	SW	Acer pseudoplatanus	0	1	1	0	0
IF	SW	Fraxinus excelsior	3	16	17	0	0
IF	SE	Acer pseudoplatanus	3	2	0	0	0
IF	SE	Fagus sylvatica	1	0	0	0	0
IF	SE	Fraxinus excelsior	5	8	0	0	0
JB	NE	Acer pseudoplatanus	0	8	6	1	0
JB	SE	Acer pseudoplatanus	2	2	8	3	0
JB	SE	Fraxinus excelsior	11	2	0	0	0
JC	NW	Acer pseudoplatanus	0	7	4	1	0
JC	NW	Fraxinus excelsior	1	0	0	0	0
JC	NE	Acer pseudoplatanus	0	2	1	3	0
JC	NE	Corylus avellana	4	0	0	0	0
JC	NE	Fraxinus excelsior	8	1	0	0	0
JC	NE	Sambucus nigra	1	0	0	0	0
JC	SW	Acer pseudoplatanus	1	12	11	2	0
JC	SW	Fraxinus excelsior	2	1	0	0	0

JC	SE	Acer pseudoplatanus	1	8	3	3	0
JC	SE	Corylus avellana	3	0	0	0	0
JC	SE	Fraxinus excelsior	15	2	0	0	0
JD	NW	Acer pseudoplatanus	0	4	3	2	1
JD	NW	Fraxinus excelsior	14	3	3	0	0
JD	NE	Acer pseudoplatanus	1	6	15	2	0
JD	NE	Crataegus monogynao	1	0	0	0	0
JD	NE	Fraxinus excelsior	1	1	2	1	2
JD	NE	Salix spp	2	0	0	0	0
JD	SW	Acer pseudoplatanus	1	3	1	0	0
JD	SW	Fagus sylvatica	1	0	0	0	0
JD	SW	Fraxinus excelsior	33	6	4	0	0
JD	SE	Acer pseudoplatanus	2	4	1	0	0
JD	SE	Fraxinus excelsior	25	4	1	0	0
JE	NW	Acer pseudoplatanus	1	9	13	1	1
JE	NW	Fraxinus excelsior	3	2	4	3	0
JE	NW	Salix spp	1	0	0	0	0
JE	NE	Acer pseudoplatanus	0	12	8	0	1
JE	NE	Fraxinus excelsior	22	3	0	0	0
JE	SW	Acer pseudoplatanus	0	4	1	0	0
JE	SW	Fraxinus excelsior	11	4	1	0	0
JE	SE	Crataegus monogynao	1	0	0	0	0
JE	SE	Fraxinus excelsior	27	0	0	0	0
JF	NW	Acer pseudoplatanus	11	13	3	1	0
JF	NW	Fraxinus excelsior	14	10	1	1	0
JF	NE	Acer pseudoplatanus	9	7	3	2	0
JF	NE	Fraxinus excelsior	12	1	4	0	0
JF	SW	Acer pseudoplatanus	2	1	0	0	0
JF	SW	Fraxinus excelsior	15	12	7	0	0
JF	SE	Acer pseudoplatanus	0	8	5	2	0
JF	SE	Fraxinus excelsior	4	3	4	1	0
KB	NE	Acer campestrep	1	1	0	0	0
KB	NE	Acer pseudoplatanus	3	1	6	1	0
KB	NE	Corylus avellana	2	3	0	0	0
KB	NE	Crataegus monogyna	1	4	0	0	0
KB	NE	Fraxinus excelsior	4	2	1	0	0
KB	NE	Salix spp	0	1	0	0	0
KB	NE	Sambucus nigra	2	0	0	0	0
KB	SE	Acer campestrep	1	0	0	0	0
KB	SE	Acer pseudoplatanus	5	7	2	0	0
KB	SE	Corylus avellana	1	0	0	0	0
KB	SE	Crataegus monogyna	0	1	0	0	0
KB	SE	Sambucus nigra	3	0	0	0	0
KB	SE	Euonymus europaeus	1	0	0	0	0
KC	NW	Acer pseudoplatanus	4	5	4	2	3
KC	NW	Fagus sylvatica	0	1	0	0	0
KC	NW	Fraxinus excelsior	2	0	0	0	0
KC	NW	Salix spp	0	1	0	0	0
KC	NE	Acer pseudoplatanus	0	1	1	2	0
KC	NE	Fraxinus excelsior	3	0	0	0	0
KC	SW	Acer campestre	0	1	0	0	0
KC	SW	Acer pseudoplatanus	0	1	5	1	0
KC	SW	Corylus avellana	0	4	1	0	0
KC	SW	Fraxinus excelsior	0	1	0	0	0
KC	SW	Euonymus europaeus	2	0	0	1	0

KC	SE	Acer pseudoplatanus	0	0	0	2	0
KD	NW	Acer pseudoplatanus	7	8	5	3	0
KD	NW	Crataegus monogynao	1	0	0	0	0
KD	NW	Fraxinus excelsior	9	4	4	0	0
KD	NW	Salix spp	0	1	1	0	0
KD	NE	Acer pseudoplatanus	5	6	5	1	0
KD	NE	Fraxinus excelsior	2	1	1	0	0
KD	SW	Acer pseudoplatanus	10	11	4	3	1
KD	SW	Fraxinus excelsior	4	9	0	0	0
KD	SW	Euonymus europaeus	1	0	0	0	0
KD	SE	Acer pseudoplatanus	0	4	10	0	1
KD	SE	Fraxinus excelsior	1	11	1	0	0
KE	NW	Acer pseudoplatanus	4	8	12	1	3
KE	NE	Acer campestrep	1	0	0	0	0
KE	NE	Acer pseudoplatanus	14	5	4	2	1
KE	NE	Fraxinus excelsior	8	4	1	0	0
KE	SW	Acer campestrep	1	0	0	0	0
KE	SW	Acer pseudoplatanus	3	12	8	3	0
KE	SW	Fraxinus excelsior	6	2	0	0	0
KE	SE	Acer campestrep	1	0	0	0	0
KE	SE	Acer pseudoplatanus	3	12	8	3	0
KE	SE	Corylus avellana	2	0	0	0	0
KE	SE	Crataegus monogynao	1	0	0	0	0
KE	SE	Fraxinus excelsior	26	3	1	0	0
KE	SE	Euonymus europaeus	1	0	0	0	0
KF	NW	Acer campestrep	3	1	0	0	0
KF	NW	Acer pseudoplatanus	12	11	15	1	1
KF	NW	Fraxinus excelsior	2	1	2	0	1
KF	NE	Acer pseudoplatanus	8	17	14	4	0
KF	SW	Acer pseudoplatanus	7	15	6	1	0
KF	SW	Corylus avellana	4	1	0	0	0
KF	SW	Crataegus monogynao	0	1	0	0	0
KF	SW	Fraxinus excelsior	14	9	4	0	0
KF	SE	Acer pseudoplatanus	20	18	7	0	0
KF	SE	Crataegus monogynao	1	0	0	0	0
KF	SE	Fraxinus excelsior	3	4	2	0	0
LC	NW	Acer pseudoplatanus	1	2	1	0	0
LC	NW	Crataegus monogynao	1	0	0	0	0
LC	NE	Acer pseudoplatanus	14	15	4	2	0
LC	NE	Fraxinus excelsior	5	0	0	0	0
LC	SW	Acer pseudoplatanus	0	1	2	0	0
LC	SW	Corylus avellana	1	1	0	0	0
LC	SW	Crataegus monogynao	1	0	0	0	0
LC	SW	Fraxinus excelsior	0	0	1	0	0
LC	SW	Sambucus nigra	0	0	0	0	1
LC	SW	Euonymus europaeus	0	1	0	0	0
LC	SE	Acer campestrep	1	0	0	0	0
LC	SE	Acer pseudoplatanus	4	5	2	0	0
LC	SE	Fagus sylvatica	0	1	0	0	0
LC	SE	Fraxinus excelsior	9	4	0	0	0
LD	NW	Acer pseudoplatanus	26	17	11	0	1
LD	NW	Fraxinus excelsior	0	0	1	0	0
LD	NE	Acer pseudoplatanus	12	14	14	3	0
LD	NE	Fraxinus excelsior	4	1	0	0	0
LD	SW	Fraxinus excelsior	2	3	0	0	0

LD	SE	Acer pseudoplatanus	3	5	0	1	0
LD	SE	Fraxinus excelsior	2	4	0	0	0
LE	NW	Acer campestrep	0	0	1	0	0
LE	NW	Acer pseudoplatanus	16	19	7	0	0
LE	NW	Fraxinus excelsior	0	0	2	0	0
LE	NE	Acer pseudoplatanus	2	2	5	1	0
LE	NE	Fraxinus excelsior	2	2	2	0	0
LE	SW	Acer campestrep	0	1	0	0	0
LE	SW	Acer pseudoplatanus	8	14	8	1	0
LE	SW	Fraxinus excelsior	2	3	1	0	0
LE	SE	Acer pseudoplatanus	0	1	2	0	1
LE	SE	Fraxinus excelsior	4	2	0	0	0
LF	NW	Acer campestrep	1	4	3	0	0
LF	NW	Acer pseudoplatanus	7	7	2	0	0
LF	NW	Fraxinus excelsior	5	5	1	0	0
LF	NE	Acer campestrep	2	3	0	0	0
LF	NE	Acer pseudoplatanus	9	15	4	1	0
LF	NE	Betula pendula	1	0	0	0	0
LF	NE	Crataegus monogynao	0	1	0	0	0
LF	NE	Fraxinus excelsior	11	7	2	0	0
LF	NE	Salix spp	0	0	0	1	0
LF	SW	Acer pseudoplatanus	3	5	6	2	1
LF	SW	Fraxinus excelsior	2	4	0	0	0
LF	SE	Acer campestrep	1	0	0	0	0
LF	SE	Acer pseudoplatanus	8	16	5	2	0
LF	SE	Fraxinus excelsior	1	3	5	0	0
LF	SE	Salix spp	0	0	0	1	0
MC	NW	Acer campestrep	0	1	0	0	0
MC	NW	Acer pseudoplatanus	7	5	4	0	0
MC	NW	Fraxinus excelsior	1	1	2	1	0
MC	NE	Acer pseudoplatanus	1	4	10	1	0
MC	NE	Fraxinus excelsior	1	4	2	0	0
MC	SW	Acer pseudoplatanus	8	4	9	2	0
MC	SW	Fraxinus excelsior	4	1	2	0	0
MC	SW	Quercus robur	1	0	0	0	0
MC	SW	Euonymus europaeus	4	0	0	0	0
MC	SE	Acer pseudoplatanus	15	23	10	1	1
MC	SE	Fraxinus excelsior	1	0	0	0	1
MD	NW	Acer campestrep	0	1	0	0	0
MD	NW	Acer pseudoplatanus	0	0	0	1	0
MD	NW	Fraxinus excelsior	2	0	0	0	0
MD	NE	Acer pseudoplatanus	0	1	0	0	1
MD	NE	Fraxinus excelsior	4	0	0	0	0
MD	SW	Acer pseudoplatanus	2	11	11	2	0
MD	SW	Fraxinus excelsior	5	9	1	0	0
MD	SE	Acer pseudoplatanus	15	4	3	2	0
MD	SE	Fraxinus excelsior	9	5	2	0	0
ME	NW	Acer pseudoplatanus	15	22	17	0	0
ME	NW	Fraxinus excelsior	1	1	1	0	0
ME	NE	Acer campestrep	0	0	1	0	0
ME	NE	Acer pseudoplatanus	1	4	3	1	0
ME	NE	Fraxinus excelsior	12	15	8	1	0
ME	SW	Acer campestrep	0	1	0	0	0
ME	SW	Acer pseudoplatanus	20	31	7	2	1
ME	SW	Crataegus monogyna	0	1	0	0	0

ME	SW	Fraxinus excelsior	7	8	1	0	0
ME	SE	Acer campestrep	3	1	0	0	0
ME	SE	Acer pseudoplatanus	0	8	13	3	0
ME	SE	Fraxinus excelsior	6	7	1	1	0
MF	NW	Acer pseudoplatanus	13	6	4	1	0
MF	NW	Betula pendula	1	0	0	0	0
MF	NW	Fraxinus excelsior	2	5	8	0	0
MF	NE	Acer pseudoplatanus	0	3	1	3	1
MF	NE	Fraxinus excelsior	2	3	1	0	0
MF	NE	Euonymus europaeus	1	0	0	0	0
MF	SW	Acer campestrep	3	6	1	0	0
MF	SW	Acer pseudoplatanus	7	7	4	2	0
MF	SW	Betula pendula	0	3	2	0	0
MF	SW	Fraxinus excelsior	20	6	7	0	0
MF	SW	Salix spp	0	0	1	1	0
MF	SE	Acer pseudoplatanus	9	3	6	1	0
MF	SE	Fraxinus excelsior	8	4	0	0	0

**Annex 5. 2007 Basal Area estimates based on relascope sweeps from south-east and north-west corners of the plots**

<b>2007 records</b>			Relascope tallies for each species; factor 2 used, so combining the totals for the two corners of each plot gives the basal area.							
20x20 m section	10x10m plot	corner	Quercus robur	Acer pseudoplatanus	Fraxinus excelsior	Fagus sylvatica	Salix spp.	Acer campestre	Crataegus monogyna	Pinus sylvestris
CM	SE	nw	10	7	10					
CM	SE	se	8	5	10	1				
DM	SE	nw	9	5	5					
DM	SE	se	8	6	3	1				
EM	SE	nw	6	5	17		1	2		
EM	SE	se	9	5	7			1		
CL	SE	nw	4	9	2	3				
CL	SE	se	7	9	4	2				
DL	SE	nw	10	6	9	1		1		
DL	SE	se	5	8	7	1				
EL	SE	nw	8	6	1			1		
EL	SE	se	8	8	5	1		1		
EK	SE	nw	6	10	3			1		
EK	SE	se	7	17	11	1				
DK	SE	nw	6	9	11	1		1		
DK	SE	se	5	10	15	1				
CK	SE	nw	7	5	8	1				
CK	SE	se	11	6	3	1				
BK	NE	nw	5	12	2	2				
BK	NE	se	2	12	8	1				
	NE									
BI	NE	nw	10	11	3	2				
BI	NE	se	6	14	2	1				
CI	NE	nw	9	9	7	3				

CI	NE	se	7	4	3	1		1	
DI	NE	nw	7	5	6	1		1	
DI	NE	se	7	11	7	1			
BH	NE	nw	6	17	1	1			
BH	NE	se	5	14	4				
CH	NE	nw	8	8	7			1	
CH	NE	se	5	13	5				
DH	NE	nw	7	11	11				
DH	NE	se	4	12	8				
EH	NE	nw	5	12	8			1	
EH	NE	se	2	9	11				
EG	NE	nw	2		11			2	2
EG	NE	se	1	6	11	1			2
DG	NE	nw	1	16	12				
DG	NE	se	1	11	14				
CG	NE	nw	2	15	10			1	
CG	NE	se	2	15	10				

## Annex 6. Location and diameters of trees in the 200m transect.

Transect trees: 0,0 point is SP461085	Easting	Northing	Species	Diameter Breast Height
	0.5	8.8	Acer pseudoplatanus	13
	0.5	8.8	Acer pseudoplatanus	18
	3.2	6.5	Betula pendula	38.5
	0.4	8	Fraxinus excelsior	15.5
	7	12	Acer pseudoplatanus	19.5
	2	10.2	Acer pseudoplatanus	20
	2	10.2	Acer pseudoplatanus	17.5
	1.3	12	Betula pendula	38.5
	8.1	17.4	Crataegus monogyna	7
	7.5	17.9	Fagus sylvatica	9.5
	7	28.1	Betula pendula	36
	0.9	28.1	Fagus sylvatica	30
	9	25	Sambucus nigra	11
	1	38.3	Betula pendula	24
	0.4	38.8	Betula pendula	17
	9	39	Crataegus monogyna	20.5
	7.5	39.4	Crataegus monogyna	21
	5.8	38.4	Crataegus monogyna	16.8
	9.7	34.4	Crataegus monogyna	22
	9.3	34.6	Crataegus monogyna	12
	2.8	32	Fraxinus excelsior	44.5
	1.2	34.5	Quercus robur	23
	2.1	31.6	Quercus robur	24.5
	3.4	42.8	Crataegus monogyna	15
	3.4	42.8	Crataegus monogyna	13
	3.4	42.8	Crataegus monogyna	17.5
	3.1	47	Crataegus monogyna	17
	5.6	40.2	Cornus sanguineus	11.5
	7.6	51	Crataegus monogyna	12
	2.5	53	Prunus spinosa	13
	1.2	52.8	Prunus spinosa	11.2
	1.4	52.9	Prunus spinosa	10.5
	7.2	51.2	Prunus spinosa	7.5
	8.6	77.6	Crataegus monogyna	4.5
	7.9	76.7	Crataegus monogyna	16.8
	7	73.2	Crataegus monogyna	15
	3	76	Crataegus monogyna	18
	9	73.7	Crataegus monogyna	
	9.7	77.3	Fraxinus excelsior	7.5
	8.3	75.2	Fraxinus excelsior	8
	9.7	74.4	Fraxinus excelsior	5
	7.5	74.6	Fraxinus excelsior	32.2
	6.8	74.5	Fraxinus excelsior	21

7.5	73	Fraxinus excelsior	7
8.2	72.5	Fraxinus excelsior	7.5
8.6	72.3	Fraxinus excelsior	5.5
9.3	71	Fraxinus excelsior	9
0.4	72.8	Fraxinus excelsior	29
0.8	73.1	Fraxinus excelsior	30
0.9	78.9	Fraxinus excelsior	8
0.6	79.7	Fraxinus excelsior	5
5.4	78.9	Fraxinus excelsior	24
5.4	78.9	Fraxinus excelsior	31
8.5	80.9	Crataegus monogyna	10
8.3	87.5	Fraxinus excelsior	12.1
7.2	85	Fraxinus excelsior	34
9	83.8	Fraxinus excelsior	7.5
7.1	81	Fraxinus excelsior	7
2	83	Fraxinus excelsior	20
2.6	88	Fraxinus excelsior	12
9	93	Fraxinus excelsior	54
1.2	105.2	Acer campestre	14
9.5	101.3	Acer pseudoplatanus	16
6.6	103.9	Acer pseudoplatanus	13.5
9.2	100.5	Fraxinus excelsior	16.6
8.1	100.3	Fraxinus excelsior	21.7
8.1	101.3	Fraxinus excelsior	6.6
6.1	102.6	Fraxinus excelsior	22
8.4	103.5	Fraxinus excelsior	20
8.6	102.8	Fraxinus excelsior	10
6.3	102.7	Crataegus monogyna	14.5
7.2	103.3	Crataegus monogyna	9.5
0.4	103.5	Crataegus monogyna	2.5
1.8	103.8	Crataegus monogyna	6
9.9	118.5	Acer pseudoplatanus	7.2
7.3	118.8	Acer pseudoplatanus	16.5
6.9	118	Acer pseudoplatanus	11.7
5.2	119.5	Fraxinus excelsior	19
3	117	Fraxinus excelsior	6.5
1.4	114	Fraxinus excelsior	15.5
0.2	120.8	Acer pseudoplatanus	17.5
8.8	120.4	Fraxinus excelsior	15.3
8.2	121.1	Fraxinus excelsior	5.5
7.7	121	Fraxinus excelsior	19.7
6.4	120.2	Fraxinus excelsior	16.8
6	121.8	Fraxinus excelsior	18
4.4	122.2	Fraxinus excelsior	9
3.8	123	Fraxinus excelsior	7.5
4.6	123	Fraxinus excelsior	9
6.9	123.2	Fraxinus excelsior	12.3
5.4	124.6	Fraxinus excelsior	16.5

5.8	124.2	Fraxinus excelsior	33.2
9.3	125	Fraxinus excelsior	10.3
7.9	125.2	Fraxinus excelsior	14
7.3	124.6	Fraxinus excelsior	5
6.9	128.6	Fraxinus excelsior	7
4.8	129.6	Fraxinus excelsior	9
3.7	129.2	Fraxinus excelsior	8
9.5	126.6	Fraxinus excelsior	16
7.7	126.6	Fraxinus excelsior	21
7.7	127.2	Fraxinus excelsior	11
6	127	Fraxinus excelsior	4
4	127.3	Fraxinus excelsior	19
6.1	125.1	Fraxinus excelsior	6
9.2	124.5	Fraxinus excelsior	3
0.3	136.2	Acer pseudoplatanus	16
7.2	135	Acer pseudoplatanus	54.5
7.8	131.4	Fraxinus excelsior	24
6.2	131.4	Fraxinus excelsior	9.6
5.7	130.2	Fraxinus excelsior	23.3
4	131.4	Fraxinus excelsior	29.5
3.7	139.25	Fraxinus excelsior	32
3.7	139.25	Fraxinus excelsior	31.8
0.3	156.2	Acer pseudoplatanus	16
7.2	155	Acer pseudoplatanus	54.5
9	163.2	Fraxinus excelsior	10.4
9.5	166.1	Fraxinus excelsior	15.3
9.5	166.1	Fraxinus excelsior	12
0.2	178.4	Fraxinus excelsior	18.9
8	189	Acer pseudoplatanus	82
0.1	196.7	Corylus avellana	6.5
0.1	196.7	Corylus avellana	6.5
0.1	196.7	Corylus avellana	4.7
4.2	198.8	Crataegus monogyna	8
0.5	198.1	Fraxinus excelsior	5.7
5.1	198.8	Quercus robur	97

**Annex 7. Basal area estimated along the 200 m transect.**

**Relascope tallies - multiply by two for basal area (m<sup>2</sup>/ha); data collected 2007**

Distance (m) from southern end for  
the South-east corner

	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	
Tree species																						
<i>Fraxinus excelsion</i>	4	4	4	6	7	4	8	14	21	14	15	15	34	33	17	8	3	7	2	2	3	
<i>Acer pseudoplatanus</i>	3	2	2	1				0	4	1	1	3	4	4	7	12	12	9	11	11	9	
<i>Quercus robur</i>	5	5	5	3	4	6	6	7	4	6	3	3	3	2	2	2	1	2	3	2	3	
<i>Betula pendula</i>	1	2	2	1	3																1	
<i>Fagus sylvatica</i>			1	1																		
<i>Acer campestre</i>																					1	
Trees total	13	13	14	12	14	10	14	21	29	21	19	21	41	39	26	22	16	18	16	15	17	
Shrubs																						
<i>Crataegus monogyna</i>	1			2	8	4	3	6	6			2										
<i>Prunus spinosa</i>						1																
<i>Corylys avellana</i>																					5	
All stems	14	13	14	14	22	15	17	27	35	21	19	23	41	39	26	22	16	18	16	15	22	



### Annex 9 Domin scores for ground vegetation in each 10x10 m plot

Distance (m) from southern end for the South-east corner	0	10	20	3	4	5	6	7	8	9	10	11	120	13	14	15	160	170	180	190	
Ajuga reptans	1													3							
Arum maculatum	1	1	1	3	1		1	1	2	3	2	2	1		1		2	2			
Brachypodium sylvaticum	6	7	8	5	6	6	7	7	8	7	5	5	7	8	6	6	7	5	6	5	
Cardamine pratense													1	1							
Carex pendula							1			2						1	1				
Carex remota													1			1					
Carex sylvatica						1							1			1	1		2	2	
Circaea lutetiana	3	1	2	2		3	2			3	3	3	3	3	3	3	3	3	3	3	
Conopodium majus											1										
Deschampsia cespitosa	3	3	1				1		3	2			2	3	2	5	3	3	2	3	
Dryopteris filix-mas	2		2	2					1					3	2						
Festuca gigantea															1			2			
Galeobdolon luteum						2															
Galium aparine	4	1		1	1		2		2	2	2		1	4	3	4	4	4	4	3	4
Geum urbanum		1	2	2		3	2		1	3	3					1	2	3	3	3	
Glechoma hederacea	1					3	2							2	3	3			2		
Hyacinthoides non-scripta							1				1								3	2	2
Lysimachia nemorum														1							
Mercurialis perennis	3			5	3	3		4	5	6	4	5	4	5	4	4	5	8	7	6	
Oxalis acetosella																			1		
Poa trivialis	1	5	3	4	5	4	4	5	4	4	6	7	6	4	4	5	5	8	7	6	
Potentilla sterilis				1																	
Primula vulgaris	1	1	1		1																
Pteridium aquilinum	8	2				3	4	3	5	5	3			2	6	6		4	2	3	
Ranunculus ficaria													1								
Rubus fruticosus	2	2	1	1		2	3	2	2	3	2		2		2		2	2	1		
Rumex sanguineus							1		2				1		2					1	
Tamus communis									1												
Urtica dioica	5	4	1	2	2	4	4		2	2	3	2	1	5	4	6	5	8	5	4	
Veronica chamaedrys				1		1				1			3	2							
Vicia sepium					1									1							
Viola riviniana																	2				

**Seedlings/saplings**

Fraxinus excelsior	3	3	3		1	2		3	1		1			2	2	3	3	
Quercus robur								1			1					1		
Crataegus monogyna				3		3	2		1	1		1		2				
Prunus spinosa				1	3	1												
Acer pseudoplatanus		2									1			2	3			3
Euonymus europaeus		1																

Domin Scores and % cover range equivalent

- 1 = <4% 1 plant
- 2 = <4% 2 plants
- 3 = <4%, several plants
- 4 = 4-10%
- 5 = 11-25%
- 6 = 26-33%
- 7 = 34-50%
- 8 = 51-75%
- 9 = 76-90%
- 10 = 91-100%