
4 Botanical Remains

by Jennifer Miller and Susan Ramsay

4.1 Wood fragments

Six bags of wood were collected during excavation, representing samples from the upper peaty fill (004) and the middle fill of black peat (005). After an initial examination of all pieces, a maximum of 10 fragments of randomly selected wood from each of these bags were retained for closer examination and specific identification in order to get an accurate indication of the taxon assemblage. This number was judged sufficient, as the taxon variation was extremely low. Initial observations regarding length, diameter, and type and degree of any working observed for each fragment were recorded. Subsequently, the numbers of growth rings present were counted by low magnification microscopy at variable magnifications of between $\times 10$ and $\times 40$ using a Ceti binocular microscope and independent cold light source. Subsequent analysis of the internal wood anatomy of each fragment was undertaken on transverse, longitudinal and radial longitudinal wood sections at magnifications of $\times 100$ and $\times 400$, mounted in water

on microscope slides. Identification was undertaken with reference to the photographs and descriptions in *Anatomy of European Woods* (Schweingruber 1990).

A total of 59 fragments of wood were identified (Table 1), of which 58 were hazel (*Corylus*) and one willow (*Salix*). All fragments were small roundwood, with none exceeding 25mm diameter. Almost all were straight, unbranched pieces, and several still had bark extant. Only two fragments showed evidence of having been bent or twisted, although several had evidence of working, either as a single, oblique cut at one end or split longitudinally. The latter form of working was observed mainly on the larger diameter fragments. One of the largest diameter fragments had numerous cut marks at one end to fashion a rough point.

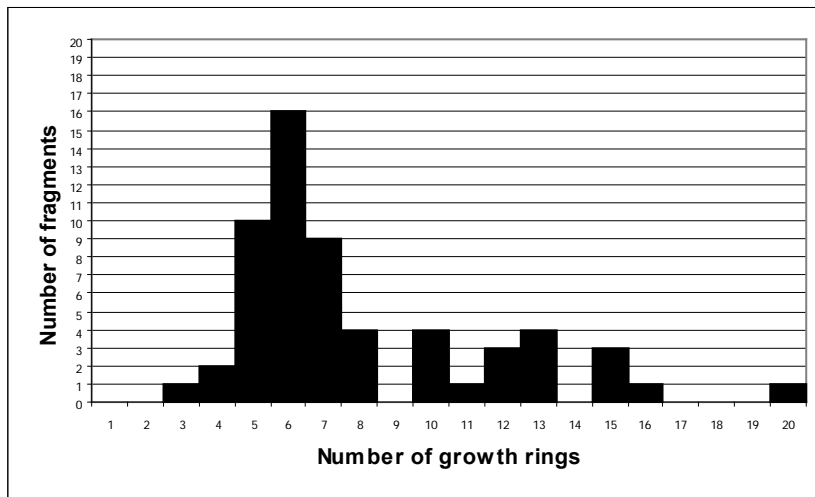
Illustration 4 shows the number of growth rings and diameter of fragments, each expressed in terms of frequency of occurrence. Illustration 5 shows a cluster of occurrences of fragments with an age range of five to seven years, with another, smaller,

Table 1 Wood identification

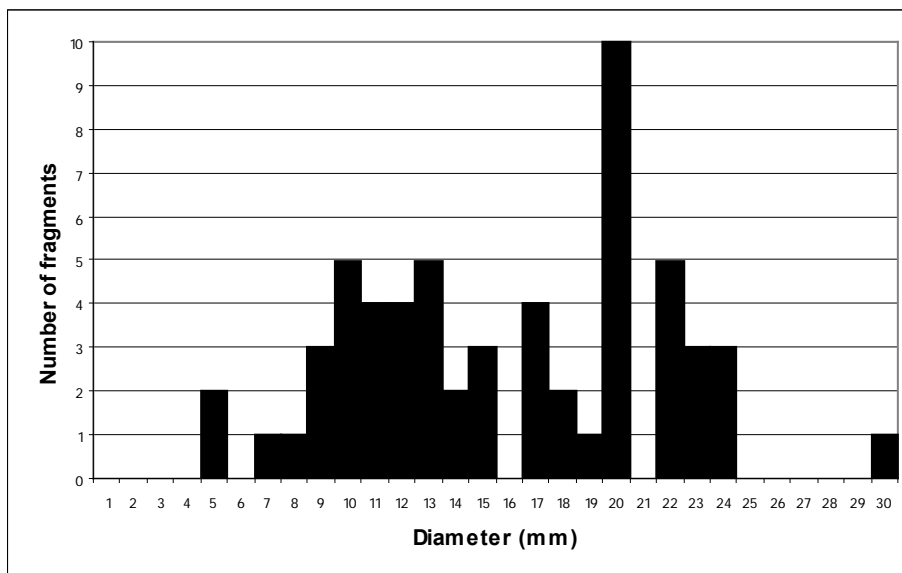
Context	Sample	Bag no	Fragment no	Length (mm)	Diameter (mm)	Growth rings	Taxon	Comments
004/005	004	-	1	85	19	5	<i>Corylus</i>	Roundwood
			2	100	20	11	<i>Corylus</i>	Roundwood
			3	90	20	6	<i>Corylus</i>	Roundwood
			4	52	10	8	<i>Corylus</i>	Roundwood
			5	75	7	8	<i>Corylus</i>	Roundwood with two small side branches
			6	55	17	5	<i>Corylus</i>	Roundwood
			7	47	14	5	<i>Salix</i>	Roundwood, split longitudinally
			8	75	5	13	<i>Corylus</i>	Roundwood
			9	50	5	5	<i>Corylus</i>	Roundwood
005	006	1	1	90	22	6	<i>Corylus</i>	Roundwood
			2	100	17	7	<i>Corylus</i>	Roundwood
			3	88	12	5	<i>Corylus</i>	Roundwood
			4	78	23	6	<i>Corylus</i>	Roundwood
			5	65	12	5	<i>Corylus</i>	Roundwood
			6	95	23	6	<i>Corylus</i>	Roundwood with bark
			7	38	24	6	<i>Corylus</i>	Roundwood
			8	47	8	4	<i>Corylus</i>	Roundwood
			9	72	10	6	<i>Corylus</i>	Roundwood with bark
			10	170	22	7	<i>Corylus</i>	Roundwood
005	006	2	1	100	22	7	<i>Corylus</i>	Roundwood with bark

Table 1 (cont.) Wood identification

Context	Sample	Bag no	Fragment no	Length (mm)	Diameter (mm)	Growth rings	Taxon	Comments
			2	110	11	7	<i>Corylus</i>	Roundwood
			3	185	20	7	<i>Corylus</i>	Roundwood with bark
			4	125	13	12	<i>Corylus</i>	Roundwood
			5	88	11	13	<i>Corylus</i>	Roundwood with bark
			6	115	11	6	<i>Corylus</i>	Roundwood with bark
			7	87	12	5	<i>Corylus</i>	Roundwood with bark
			8	92	20	7	<i>Corylus</i>	Roundwood
			9	65	17	6	<i>Corylus</i>	Roundwood
005	006	3	10	100	17	10	<i>Corylus</i>	Roundwood, forked branch
			1	145	10	13	<i>Corylus</i>	Roundwood
			2	130	10	10	<i>Corylus</i>	Roundwood with bark
			3	85	14	6	<i>Corylus</i>	Roundwood
			4	120	9	7	<i>Corylus</i>	Roundwood
			5	75	13	6	<i>Corylus</i>	Roundwood with bark
			6	90	13	6	<i>Corylus</i>	Roundwood
			7	80	20	20	<i>Corylus</i>	Roundwood, split longitudinally
			8	40	20	16	<i>Corylus</i>	Roundwood, split longitudinally
			9	100	22	15	<i>Corylus</i>	Roundwood, split longitudinally
			10	130	30	15	<i>Corylus</i>	Roundwood, many side branches removed but healed
005	006	4	1	80	12	6	<i>Corylus</i>	Roundwood
			2	152	11	5	<i>Corylus</i>	Roundwood
			3	80	20	12	<i>Corylus</i>	Roundwood, split longitudinally
			4	50	24	15	<i>Corylus</i>	Roundwood
			5	95	9	5	<i>Corylus</i>	Roundwood
			6	60	20	7	<i>Corylus</i>	Roundwood
			7	82	22	13	<i>Corylus</i>	Roundwood
			8	155	13	6	<i>Corylus</i>	Roundwood, slightly twisted
			9	50	23	10	<i>Corylus</i>	Roundwood
			10	110	10	7	<i>Corylus</i>	Roundwood, twisted into U-shape
005	006	5	1	40	18	6	<i>Corylus</i>	Roundwood
			2	45	15	6	<i>Corylus</i>	Roundwood
			3	95	18	8	<i>Corylus</i>	Roundwood
			4	145	15	4	<i>Corylus</i>	Roundwood, single oblique 'cut' at one end
			5	240	15	10	<i>Corylus</i>	Roundwood with bark
			6	260	20	5	<i>Corylus</i>	Roundwood with bark, single oblique 'cut' at one end
			7	205	13	6	<i>Corylus</i>	Roundwood, single oblique 'cut' at one end
			8	200	20	8	<i>Corylus</i>	Roundwood, possible worked point but badly eroded
			9	245	9	3	<i>Corylus</i>	Roundwood with bark
			10	245	24	12	<i>Corylus</i>	Roundwood, numerous cut marks which shape one end to a rough point



Illus 4 Number of growth rings per fragment



Illus 5 Frequency of diameter of fragments

cluster at ten to 13 years. A similar clustering of fragment diameter is seen in illustration 5, with smaller fragments being around 9–13mm wide, and larger ones about 20mm.

4.2 Organic remains

Four bulk samples of organic material from the upper peaty fill (004) and the middle fill of black peat (005) were analysed for macroscopic plant remains. One-litre and 500-ml sub-samples of this material, respectively, were wet-sieved in the laboratory using sieves of mesh diameter 1mm and 500 μ m, in order to remove fine organic detritus and facilitate identification of the waterlogged plant macrofossil remains

within the matrix. Sorting and preliminary identification were undertaken using low magnification microscopy at variable magnifications of between $\times 4$ and $\times 45$. Specific identification of plant macrofossils was facilitated by reference to *Zadenatlas der Nederlandsche Flora* (Beijerinck 1947), *Atlas of Seeds and Small Fruits of Northwest-European Plant Species with Morphological Descriptions* (Berggeren 1969), *British Mosses and Liverworts* (Watson 1981) and the extensive Glasgow University botanical reference collection. Vascular plant nomenclature follows *New Flora of the British Isles* (Stace 1997). All seeds and a representative sample of vegetative plant macrofossil remains were recovered, identified and stored in glass vials, preserved in a mixture of glycerine, ethanol and formalin.

4.3 Results

Numerous heather (*Calluna vulgaris*) and cross-leaved heath (*Erica tetralix*) leafy shoots, flowers and immature capsules were recorded from contexts 004 and 005. However, almost no root material was observed in the samples examined from those contexts. The absence of heather type roots indicates that these heathland plants had not grown in situ. Abundant remains of monocotyledonous (grass and

sedge) stem and leaf fragments were recorded from both contexts 004 and 005, as well as numerous sedge nutlets and rhizomes. Given the absence of heather type roots and the creation of a sump effect through the digging of the original pit, it is considered more likely that the soligenous vegetation types (eg sedges and pondweed) are the product of in situ growth, whereas the hummock vegetation (eg heather, cross-leaved heath and *Sphagnum papillosum*) had been deposited intentionally.