

PLANT REMAINS

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(The cross-references denoted 'CQ' in this paper relate to *Charter Quay, The Spirit of Change*, Wessex Archaeology 2003)

A series of 72 bulk samples were processed by standard flotation methods with 'flots' retained on 0.5mm mesh and residues saved on 1.0mm mesh. The flots were inspected by Sarah Wyles and after nineteen samples were selected for analysis, all significant items extracted from the residues by S. Wyles. Most samples were selected to answer specific questions about the function and nature of specific features or layers and so are reported as such below.

Methods

All but the very smallest samples of dried flots were passed through a stack of sieves of 7.0mm to 0.5mm. mesh sizes to facilitate sorting. All were sorted by stereo microscope at x7 – x40 magnification, according to mesh size, and with x160-x200 for some, eg *Carex* spp. (sedges).

The largest fractions were searched in entirety and the sometimes very large amounts of finer material sub-sampled. Unsorted parts of the samples were later more quickly scanned in order to recover less common items. Estimated results are indicated in the Table PL1. Taxa are separated into probable original habitats, but although some are characteristic others may grow in alternative conditions. All taxa are represented by 'seeds' unless otherwise indicated, the word being used loosely to include fruits, achenes, caryopses etc. Nomenclature accords with Stace (1997) with scientific names used at first mention only.

Results

The majority of the remains were preserved by charring, but several later samples include uncharred seeds in differing states of preservation, which are apparently contemporary with the deposits. It is assumed that they were preserved, or at least their decay slowed, by burial in wet conditions. Other seeds are mineralised, i.e. they are wholly or partly replaced by calcium phosphate, and some appear to fall between these two means of preservation. Almost all samples also included small numbers of mammal and fish bone fragments.

The samples are discussed in order of age, as in Table PL1.

13th century

Hearth 2631 (context 2581)

This sample contained only a few charred grains of *Triticum*, *Hordeum* and *Avena* sp. (wheat, barley, and oats) together with field weeds, fragments of *Corylus avellana* (hazel) nut shell and of *Pteridium aquilinum* (bracken) and *Erica* sp. (heathers). This suggests domestic waste, from food preparation and perhaps bedding or flooring.

Pit 674 (context 672)

The larger fractions of this large (c. 800ml.) sample were searched and results from the smaller fractions were estimated from sub-samples. Unsorted parts were later scanned to retrieve any additional items. There is a mixture of wheat, barley, oats and *Secale cereale* (rye) and possibly *Pisum sativum* (peas) (see CQ p. 22). The tentative identification of the peas was based only on the size (c. 4.4mm) and form of two cotyledons. The very few weeds and lack of chaff in a large amount of charcoal gives an impression of deposited debris from a store of cleaned grain.

Late 13th century

Hearth 2361 (context 2272)

Oat grains outnumber the other cereals and there is a great deal of very fragile oat chaff suggesting that whole panicles of oats were burned (see CQ p. 22). When oats occur in small numbers with other cereals they may be interpreted as weed contaminants, but in this context they are in sufficient numbers to represent a crop and three floret bases with the characteristic straight scar of *Avena sativa* confirm a cultivar. The wild plant seeds may derive from cereal preparation but there also plants of grassy places, heathland and woodland indicating several sources for the burned material.

Charcoal/ash spread on floor (context 2372)

The very few cereals with a larger number of seeds of field weeds and plants of other disturbed ground suggest refuse. The seed of *Lolium temulentum* (darnel) was identified by size (3.8 x 1.9 x 1.4mm), characteristic breadth and adherent lemma which enfolds the seed partially covering the palea. Experimentally charred modern seeds are c. 4.0mm in length. The shells of *Corylus avellana* (hazel) nuts, probably equivalent to five or six nuts, may represent debris from consumed nuts

Pit 2371 (context 2318)

Barley is the major constituent with very small amounts of other cereals, suggesting a single crop. Wild plants include *Spergula arvensis* (corn spurrey), *Rumex acetosella* (sheep's sorrel) and *Papaver argemone* (prickly poppy), represented only by the very small 5-rayed stigma disk which forms the 'lid' of the seed capsule. These plants of typical of light soils may well have grown with the barley.

Pit 2715 37 (context 2709)

This pit contained only very few seeds but including all four common cereals.

Late 13th/early 14th century

Hearth 2004 (context 2002)

This hearth also contained only a very amount of charred plant material, some fragments showing signs of burning at high temperature. Two fragile heather capsules could only have survived if buried in ash or at the margins of the hearth. This sample also included uncharred insect remains which must have appeared subsequent to the burning.

Hearth 2280 (context 2196)

This sample consisted of *c.* 1,900 ml. of flot which was almost entirely charcoal. The larger fractions and sub-sampled smaller fractions produced only a few wheat grains and fragments of hazel nut shell.

Pit 2008 (context 2018)

This pit contained the greatest number of cereal grains and fragments of which the majority are wheat (see *CQ* p. 28, Fig. 46). Identification of wheat grains in the absence of chaff cannot be specifically close but there is a suggestion of two forms. A proportion are small (4.0 mm in length, or less) and compact in appearance; this could mean immature or runt grains or an effect of charring. All are best described as *Triticum aestivum* s.l. i.e. a free-threshing bread wheat. There are about 15 examples of detached radicle areas (a part frequently lost on charring) on which the plumule (first sprout) is just beginning to project to *c.* 0.3mm, and there is one detached plumule of 2.5mm. These grains were burned just at the point of germinating.

Rye is present in larger numbers than in earlier samples, identified primarily by the blunt apex, ridged back and very sloping scutellum (radicle shield and embryo) and distinctive rachis fragments confirm. Some grains were indistinguishable as wheat or rye. Barley is a lesser presence with some chaff. No oats were found.

Arable weeds include *Centaurea cyanus* (cornflower) and, in larger numbers, *Anthemis cotula* (stinking mayweed) both very characteristic weeds of medieval crops. Leguminous seeds (vetches etc.) are represented by several whole seeds but more have split into separate cotyledons (seed leaves) and lost their outer seed coats. These have not been more closely identified. Of 21 seeds (estimated from whole seeds and counting two cotyledons as one) 20 have a diameter of less than 3.0mm and are therefore wild *Vicia* or *Lathyrus* species. Only one cotyledon measures about 4.0mm which might possibly make it a species cultivated for fodder (*Vicia sativa*). A possible interpretation of this mixture of wheat, rye and barley, together with weeds, is a deposit of burned incompletely cleaned cereals, some of which may have been spoilt. The flot also includes few small mammal and fish bones.

14th century

Hearth 2315 (context 2174)

This small hearth sample included the same range of cereals and, among the weed seeds three were mineralised. There was also one uncharred seed of *Sambucus nigra* (elder) and a few mammal and fish bones.

Cellar floor (context 2762)

The larger fractions of *c.* 500ml. of flot were searched and one half sub-samples of each of the smaller fractions, with an over-all scan to detect additional taxa. Peas were more definitely identified, by two whole seed and two cotyledons of 4.9–5.4mm diameter; three other cotyledons of more than 4.0mm could not be distinguished from larger vetches (*Vicia* spp.) (see *CQ* p 30, Fig 53). There is one mineralised seed of probable *Vicia faba* (field bean). Wheat is the dominant cereal. There are few charred arable weed seeds, traces of heather and one small seed of *Linum bienne* or *perenne* (pale or perennial flax). More frequent are items preserved by mineralisation which include *Malus sylvestris/domestica*

(apple) and *Vitis vinifera* (grape). There are two dioptera puparia and several unidentified pieces of possibly mineralised material similar to that described by Carruthers (1989).

14th/15th century

Hearth 2404 (context 2457)

This hearth contained only a very small amount of cereals, a few weed seeds, flower parts, leaves and a shoot tip of heather species. Contrasting with the charred seeds is one mineralised seed closely resembling *Onobrychis viciifolia* (sainfoin). This is bean-shaped, measuring 3.6 x 2.2 mm, with a depression suggesting a hilum on one slightly concave side. Part of the pod, with traces of a network of ribs, and a toothed edge, is adherent and would bring the total length to more than 4.0mm. Sainfoin was introduced as a fodder crop in the seventeenth century and this is therefore probably intrusive from another later context and it is not listed in Table PL1.

Hearth (context 656)

The flot contained only very few traces of cereal, mainly as heavily burned 'clinkered' fragments, and other indeterminate small seeds. A few small spherical items suggest slag and there are other coal-like fragments.

15th century

Room layer (context 2239)

This sample consisted almost entirely of charcoal (c.300ml.) The largest sieved fraction (wholly searched) produced only a few charred fragments of possible cereal or other starchy material, two weed seeds, one mineralised, and a number of tree buds, and only buds were found in sub-samples of halves of the smaller fractions. Extracted (by Sarah Wyles) from the residue were two mineralised seeds. Like the possible sainfoin in hearth 2404 (context 2457) these two seeds are in contrast to the rest of the deposit which is presumably fuel.

Late 15th/16th century

Oven 813 (context 924)

The oven was another sample of a large amount of charcoal (c. 500 ml.). The entire larger fraction (c. 160ml.) included only small amorphous pieces of starchy material, possibly cereal, one barley grain, an almost complete cotyledon (c. 5.8mm.) of a probable bean and many tree buds. Sub-samples of one-tenth of each of the smaller fractions (>2mm, >1mm, and >0.5mm) produced buds, a few small grass seeds and a leaf fragment of bracken. Mineralised seeds included one possibly of *Foeniculum vulgare* (fennel). Fish bones were found throughout the sub-samples.

Dump over revetment (context 3446)

The sample from this late 16th century dump of material consisted almost entirely of uncharred woody debris including twigs, bark and buds and many very fine root and/or stem fragments (see *CQ* pp. 43-44). Larger fractions were completely searched and one-tenth sub-samples of >1mm and >0.5mm fractions. Uncharred items include a large number of hazel nut shell fragments (probably equal to more than 20 nuts) *Ficus carica* (figs), *Prunus spinosa* (sloes), *Prunus domestica* (plum), *Vitis vinifera* (grape) and *Rubus fruticosus* agg. (blackberry) as well as various weed or ruderal species. Seeds of *Ranunculus* spp.

(buttercups) were particularly numerous and many could be *Ranunculus repens* (creeping buttercup). Only very few fragments of possible charred cereals were found and a few weed seeds. The weed plants and hazel, sloes and blackberry may well illustrate local surroundings but the presence of figs, grapes and a domesticated plum indicates discarded waste. The dimensions of the plum stone (14.3 x 7.0 x 10.2mm) are beyond the range of hedgerow wild plums.

Kiln 2095 (context 2068)

Thin was composed of a very large amount of charcoal. (received as c.1150ml. of >1.0mm, 650ml. of >0.5mm and 600ml. of >0.25mm). Sub-samples of one-tenth of all fractions revealed only very few fragments of other charred remains, i.e. a few probable cereal fragments and two poorly preserved wheat grains (see *CQ* p. 31). Extracted from the residue were five wheat grains, one larger (5.7mm. in length) showing the very first signs of germinating. Although from an area possibly connected with brewing this deposit only appears to represent fuel with perhaps a few grains from adjacent malting activity.

Pit 3308 (context 3306)

The larger fraction of c. 350ml. of flot was searched entirely and one-quarter sub-samples of the smaller fractions. The deposit includes charred wheat and barley, very little oat and about nine peas. Other charred seeds include typical arable and ruderal plants. Also in the sample are seeds preserved by waterlogging and by mineralisation.

Oven 813 (context 916)

About 500ml. of flot is apparently entirely charcoal with a large proportion of fine grits. All fractions were sub-sampled but only buds, one seed and very few small unidentifiable starch fragments were found

Discussion

Most of the charred remains, whether found at the site of a hearth or dumped into a pit after being burnt elsewhere, represent waste material. The smaller amounts of cereals, weeds or heathland plants possibly had domestic origin, whether food preparation, medicinal, strewing herbs, bedding or additions to fuel (see *CQ* pp. 21-2).

Although all samples contribute to the range of plants brought into or growing in the vicinity the samples with greater numbers of charred cereals and seeds are probably the most informative. The largest assemblage, of charred grain was in pit 2008 (context 2018), and included wheat, rye, barley and oats, but provided no clear evidence of the use made of the cereals. Cereals found at an urban site are likely to have been brought in as loose grain, perhaps merely requiring a final cleaning before baking, brewing or other various culinary purposes, preliminary processing having been carried out at the site of production.

For baking wheat bread clean grain would be required and, as would be expected from a free-threshing bread wheat, there is very little chaff in the sample. The most numerous weed seed is from *Anthemis cotula* (stinking mayweed), characteristic of soils suitable for wheat, and likely to have arrived with those grains and perhaps removed in a late stage of preparation.

Cereals for brewing require moisture and warmth to initiate germination, followed by heat to halt the process when the starchy endosperm has been converted to sugar. The sprouts by

then will have grown to almost the length of the grain which will have become shrivelled. The sprouts, roots and any other unwanted fragments are then disposed of and from this stage there might be charred evidence in the form of sprouts or shrunken grain. In pit 2008 there were no such grains, but a few detached wheat embryo fragments and one short sprout which might illustrate the very beginning of a malting process. It is quite common to find charred wheat grains from which this radicle area has been lost. Although wheat can make good beer barley was more frequently used and an alternative explanation for the slight evidence of germination is that the grain became damp – something which could easily occur to spilt grains in a riverside environment. Admittedly the only evidence of plants of damp conditions found in this sample is one *Eleocharis* sp (spike rush) and one *Carex* sp. (sedge), and both could equally well have come from muddy parts of the original fields

Rye and barley in pit 2008 is accompanied by chaff but cleanliness might be of less concern if the grain were intended for brewing since any chaff would be raked away with the sprouts and other debris at the completion of the malting process. Tusser in the 16th century, on winnowing, fanning or casting of threshed barley says ‘for seede goe and cast it, for malting not so, but get out the cockle and then let it go’. No seeds of *Agrostemma githago* (corn cockle) were found in this sample! There is no indication of the use of these cereals which could also include baking.

Although mixed crops may have been grown, such as maslin (wheat and rye) and dredge (oats and barley), and mixed grains used for brewing, baking or adding to pottages (Wilson 1991), it is impossible to say whether the burned cereals in pit 2008 arrived at the site in this state or as separate species. Only the barley in pit 2317 (context 2318) appears to illustrate the latter.

Another purpose for which grain might have been required was as fodder for horses. The oats with chaff in hearth 2361 (context 2272), which it was suggested were unthreshed when burned, could be an example. This sample also includes seeds of grassland plants such as grasses, buttercups, small *Vicia* spp. (vetches, tares), and one of *Thalictrum flavum* (common meadow rue), and it might be questioned whether these represented hay

Whatever the state of the cereals on arrival at the site or their subsequent usage it is obvious that they had more than one origin, as shown by their accompanying weed seeds which indicate different field conditions. Looking at the samples as a whole corn spurrey, sheep’s sorrel and *Chrysanthemum. segetum* (corn marigold) indicate acid, often sandy, soils whereas darnel (found in the same sample (charcoal/ ash spread context 2373) with the above three) is (or was) a pernicious weed of more calcareous soils. Other, less troublesome plants of calcareous conditions are *Lithospermum arvensis* (corn gromwell), and an unspecifically identified flax seed. Darnel was particularly unwelcome because of the tendency for the sclerotium of the fungus *Claviceps purpurea* (ergot) to eventually replace the seed. Ergot can provide a valuable drug but eaten in regularly in bread would have toxic effects. In the 16th century Shakespeare refers to darnel at least twice in terms which indicate its unfortunate properties (Henry VI, Act iii.sc2. and Henry V, Act.v. sc.2) but its date of introduction is unknown. There are 13th /14th century records from Sussex (Drewett 1982) and (Hubbard 1991).

There are few traces of peas and beans which might have been used for human consumption but these are usually found less frequently than cereals. There are more of the smaller vetches, some of which could have been crop weeds, but others, with the grasses, buttercups and clovers are grassland plants; their possible advent as hay has been mentioned above

The charred seeds, a result of human activity, mainly demonstrate plant produce brought to the site for human or animal consumption. The charred weed seeds in many cases may well have been originally associated with the crops when harvested. Seeds of typically ruderal rather than arable weeds such as heather, bracken and sedges may indicate plants used for other purposes such as bedding, flooring, thatch or litter, but perhaps they grew adjacent to the burning site.

The uncharred seeds preserved by waterlogging, contribute to a picture of the more immediate environment. *Urtica dioica* (nettles), *Hyoscyamus niger* (henbane), *Euphorbia helioscopia* (sun spurge) and *Solanum* spp (bittersweet and black nightshade) suggest disturbed ground, while the grasses, docks and buttercups indicate grassy patches, and hazel, elder, bramble etc. illustrate scrub. Spike rushes, sedges, *Triglochin palustris* (marsh arrow-grass) and *Lycopus europaeus* are plants of damp places. Whereas the few charred sedges probably originated in damp or muddy field margins and might be considered as weeds the probable uncharred ('waterlogged') *Carex riparia* (greater pond-sedge) in the dump layer Thames-side of the revetment (context 3346) is a plant of river or stream sides. This is reported in more detail by Clapham

Water was taken from the river for many purposes and this could be a means of introducing seeds. In AD 1345 the brewers were sent back to taking water from the Thames at low-tide by City of London authorities after a complaint that they were taking too much water from a conduit intended to supply water for food and drink. (Wilson 1991, 383-4).

Seeds preserved by mineralisation, also add to the understanding of the environment, and possibly of consumed foods. Sloes and strawberries may merely represent part of local scrub surroundings but the few remains of fruits such as apple, plum, figs and grapes and the one mineralised seed probably of *Foeniculum vulgare* (fennel) are probably food debris. They are common finds in medieval cess-pits and may have arrived here via human excreta. Mineralisation frequently occurs in such conditions or with burial in contact with waste such as bones. The presence of mammal and fish bone in more than half of the 19 samples suggests that they were probably ubiquitous on site and they add to the picture of an active river side location.

References

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PLANT REMAINS TABLE

Table PL1. Plant remains

Key: * = estimated; ^W = waterlogged; ^M = mineralised . (All unmarked items are charred)

Date	C13		Late C13				LateC13/Early C14			C14	C14/? Late C15	C14/C15		C15	Late C15/C16				Late C16/ C17
Feature	2631	674	2361	Layer	2317	2715	2004	Layer	2008	2315	Layer	2404	Layer	Layer	813	Dump	2095	3308	813
Context	2581	672	2272		2318	2709	2002		2018	2174	2762	2457	656	2239	924	3446	2068	3306	916
Sample	31	61	19	24	20	37	2	13	5	23	40	27	60	16	72	48	14	41	70
Sample vol. (litres)	10	10	10	10	10	10	10	10	?	10	15	10	10	?	10	10	10	10	5
Cereals																			
<i>Triticum aestivum</i> s.l. . grains	5	28*	14		3	2	1		131	4	48*	2						6	47
<i>Triticum</i> sp	2		2					8*	38+1 ^M	3	18*		?1				1		?1
“ - rachis fra gs. (free-threshing bread wheat)									7										
<i>Triticum/Secale</i> (wheat or rye)									33			2							
<i>Secale cereale</i> L. – grains (rye)		4*	2	1		1	2		59	2	?2								
- rachis frags.									21										
<i>Hordeum vulgare</i> L.– grains	2	34*	19	3	122	8			13	4	7		?1		1				46
- rachis frags (hulled barley)			4		10	1			16	2									
<i>Avena</i> sp. – grains (oats)	2	42*	195*	7	3	5			3	9+?3	4								2
- floret frags. - awn frags.			+++ +																
Cerealia indet. – fragments (ml)	<0.5	2.0*	2.0*	1.0*	1.5*	0.25	0.5	0.5*	10.0*	0.75*	1.0*	0.5*	?10*	?0.5*	0.25*		0.5*	0.5*	?0.5
Pulses																			
<i>Pisum sativum</i> L. (pea)		?2									4								9
<i>Vicia faba</i> L.– seed (field bean)											?1 ^M				?1				
- hilum											1								
Fruits																			
<i>Ficus carica</i> L. (fig)																			.30 ^{W*}
<i>Prunus domestica</i> s.l. (plum)																			1 ^W
<i>Malus sylvestris/domestica</i> (apple)											1+? ^M								1 ^W
<i>Vitis vinifera</i> L. (grape)											1 ^M								10 ^W
Arable/ruderal/grassland																			
<i>Ranunculus</i> acris/repens/bulbosus			2	2	1										1+1 ^M	c.50 ^{W*}			

(buttercups)																		
<i>Ranunculus sardous</i> Crantz (hairy buttercup)		1		2														
<i>cf</i> <i>Thalictrum flavu</i> (common meadow rue)			2															
<i>Papaver cf rhoeas</i> (common poppy)							1	1 ^M										
<i>Papaver argemone</i> L.– stigma (prickly poppy)					1													
<i>Urtica dioica</i> L. (common nettle)			1											3 ^W			4	
<i>Chenopodium ficifolium</i> Sm. (fig-leaved goosefoot)					1													
<i>Chenopodium album</i> L. (fat hen)		1	1	3				1						3 ^W			40* ^W	
<i>Chenopodium</i> sp. (goosefoot)			2	1						2				1 ^W				
<i>Atriplex</i> sp. (orache)			2											1 ^W				
<i>Stellaria media/neglecta</i> (stitchworts)					1									2 ^W			4 ^W	
<i>Cerastium cf fontanum</i> (field mouse-ear)								1									2 ^W	
<i>Spergula arvensis</i> L. (corn spurrey)			3	3	1													
<i>Agrostemma githago</i> L. (corn cockle)			1					3 ^M										2 ^M
Caryophyllaceae indet. (pink family)		1	2										?	1 ^M				1 ^W
<i>Persicaria lapathifolia</i> (L.) Gray (pale persicaria)			1	1				1										
<i>Fallopia convolvulus</i> (L.) Á.Löve (black bindweed)				1														1 ^W
<i>Rumex acetosella</i> L. (sheep's sorrel)			6	19														1 ^W
<i>Rumex cf crispus</i> (curled dock)			3	5				4										
<i>Rumex</i> sp. (dock)		1	1		3+1?			9										
<i>Raphanus raphanistrum</i> L.– pod segments (wild radish)				1	6													1 ^W
<i>Viola</i> sp. (violet or pansy)				1														1 ^W
<i>Potentilla</i> sp. (cinque-foil)				1				1										1 ^W
<i>Vicia hirsuta</i> (L.) Gray – seeds - pod (hairy tare)		2																2 ^W
<i>Vicia tetrasperma</i> (L.) Schreb. (smooth tare)			32	13	2													
<i>Vicia hirsuta/tetrasperma</i>	1		45	15	1	1		8		1		1+?	1 ^M					2 ^W
<i>Vicia cf sativa</i> (common vetch)					4			1										

<i>Vicia/Lathyrus</i> sp. (vetch, pea or vetchling)	2	2	4	12	2	1			45		3	2					4	
<i>Medicago lupulina</i> L. (black medick)			2															
<i>Trifolium</i> sp. (clover)			3	2					1+?1	4		1			1			1
<i>Euphorbia helioscopia</i> L. (sun spurge)																	4 ^w	
<i>Linum cf bienne</i> (pale flax)											1							
<i>cf Foeniculum vulgare</i> Mill (fennel)															1 ^M			
<i>Cirsium</i> sp. (thistle)															1 ^w		1 ^w	
<i>Centaurea cyanus</i> L. (corn flower)			3						9+?4						?1		2 ^M	
<i>Taraxacum</i> sp. (dandelion)															1 ^w			
<i>Achillea millefolium</i> L. (yarrow)				1														
<i>Anthemis cotula</i> L. (stinking mayweed)			10	3	2				99		1	1						4 ^M
<i>Chrysanthemum segetum</i> L. (corn marigold)	1		7	3					1									
Asteraceae indet. – seeds - capitulum (daisy family)			2 1						2		1				1 ^w			
<i>Hyoscyamus niger</i> L. (henbane)															1 ^w			
<i>Solanum nigrum</i> L. (black nightshade)											2 ^M				1 ^w			2 ^w
<i>Solanum dulcamara</i> L. (bittersweet)															1 ^w			2
<i>Lithospermum arvense</i> L. (field gromwell)	2																	
<i>Stachys cf sylvatica</i> (hedge woundwort)															1 ^w			8 ^w
<i>cf Lamium</i> sp. (dead-nettle)				1											2 ^w			8 ^w
<i>Lycopus europaeus</i> L. (gypsywort)															1 ^w			
<i>Plantago lanceolata</i> L. (ribwort plantain)				4											1 ^w			1 ^w
<i>Veronica cf serpyllifolia</i> (thyme-leaved speedwell)			3															
<i>Euphrasia/Odontites</i> sp. (eye-bright or bartsia)			1						2									
<i>Galium aparine</i> L. (cleavers)											1 ^M	1						
<i>cf Poa annua</i> L. (annual meadow-grass)	1		3															
<i>cf Festuca</i> sp. (fescue)	1		4									1						

<i>Lolium perenne</i> L. (perennial rye-grass)							2										
<i>Lolium temulentum</i> L. (darnel)			1										?				
<i>Bromus</i> sp. (brome)	1	4			1		2		1+1 ^M								
Poaceae indet. (grass family)	3		20	8		2		7	2 ^M	1				2+?5			
Damp places																	
Musci indet. - stem frags. (moss)	2																2 ^W
<i>Lycopus europaeus</i> L.) (gypsywort)																	1 ^W
<i>Triglochin cf palustre</i> (marsh arrowgrass)																	1 ^W
<i>Eleocharis</i> sp. (spike-rush)				3				1									
<i>Carex cf riparia</i>				2													2 ^W
<i>Carex nigra</i> (L.) Reich. (common sedge)				2													
<i>Carex</i> sp. (sedge)			1	1				1									8 ^W
Heath, moor, sandy, acid soil																	
<i>Pteridium aquilinum</i> L.- pinnule (bracken)	1		1											1			
<i>Calluna vulgaris</i> (L.) Hull - capsules - shoot tip (heather)			2			2			3	1	8 1			1			
<i>Erica cf cinerea</i> - buds - leaves (bell heather)	2								1		5						
Ericaceae indet. - buds	5		1		2												
Woodland/Scrub																	
<i>Corylus avellana</i> L.- shell frags. (hazel)	1		3	60*	1		3	2	1				?				200*
<i>Ribes sp.</i> (black or red currant)			2														
<i>Rubus fruticosus</i> agg. (bramble)																	3 ^W
<i>Fragaria vesca</i> L. (strawberry)																	2 ^W
<i>Prunus spinosa</i> L. (sloe)																	3 ^W
<i>Sambucus nigra</i> L. (elder)									2 ^W					3 ^M			2 ^W
cf tree buds			7					3		3		1	.30*	33+2 ^M		2 ^W	1
																	4 ^W
																	6*