A Romano-British rural site at Eaton Socon, Cambridgeshire

Specialist Report

Charred and Waterlogged Plant Remains

by Chris J. Stevens and Alan J. Clapham

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A total of eight charred flots, six waterlogged samples and one mineralised deposit were analysed from Romano-British features. The charred remains were taken from ditches and pit fills, while the waterlogged remains were retrieved from two ditches and two watering hole fills. The mineralised deposit came from a pit (15) initially thought to be a grave, and while containing wood, produced fairly poorly preserved seeds. The flots were scanned using a low powered microscope for identifiable charred material which was identified and recorded in Table 1. The waterlogged material was sieved and occasionally split into smaller fractions (see Table 2, for volumes). Identifiable material was extracted, identified and quantified in Table 2, where necessary estimates were given for highly numerous seeds. The nomenclature used follows that of Stace (1997).

Charred cereal and other crop remains

Cereal remains were relatively sparse, always charred and often poorly preserved in the majority of the samples. The most common cereals were hulled wheats, mainly spelt wheat, *Triticum spelta*, although occasional glumes of emmer wheat, *T. dicoccum* were recovered. A few grains of free-threshing wheat remains, *Triticum aestivum sensu lato*, including one rachis fragment, were also identified. Evidence of barley, *Hordeum* sp. was on the whole less common within the samples.

With the exception of the sample from the rubbish pit 845, glumes and grain were represented in fairly equal numbers, and both were poorly preserved. Occasional remains of culms, culm nodes and basal culm fragments from cereals, grass or other monocots were found in the samples. While several seeds of oats, *Avena* sp. were found, the lack of florets prevented a distinction as to whether they were of the wild or cultivated variety.

Other potential crop species identified included degraded remains of the pea, *Pisium sativum*, and celtic bean, *Vicia faba*. The sample from pit 15 was mineralised, and contained seeds of other possible cultigens, including basil, *Ocimum* cf. *Basilicum*, and fennel, *Foeniculum vulgare,* although this may have been growing wild. While basil is known from classical Roman sources, it is rarely recovered from archaeobotanical deposits.

Charred weed species

The weed assemblage consisted mainly of seeds of species commonly associated with arable soils, orache (*Atriplex* sp.)*,* goosefoot (*Chenopodium* sp.), mouse-eared chickweed *(Cerastium* sp.), black bindweed (*Fallopia convolvulus*), sheep's sorrel (*Rumex acetosella*), clustered/broad-leaved/wood dock (*Rumex conglomeratus*/ *obtusifolius/sanguineus*), curled-leaved/northern dock (*Rumex* cf. *crispus*/*longifolius*), buttercups (*Ranunculus acris*/*bulbosus*/*repens*), vetches, tare (*Vicia* sp.), scentless mayweed (*Tripleurospermum inodorum*), stinking mayweed (*Anthemis cotula*), cleavers (*Galium aparine*), and capsule fragments of runch (*Raphanus raphanistrum*). Seeds of black horehound (*Ballota nigra*) and hemlock (*Conium maculatum*), species more commonly found in hedges, open woodland and waste ground were also recovered. The seeds of *Brassica* sp. may have come from the cultivated variety but are more probably of the wild variety growing as an arable weed.

In addition seeds were recovered of species that were probable common arable weeds in the past, that are today more frequently associated with grasslands. These are self-heal (*Prunella vulgaris*), plantain (*Plantago lanceolata*), clover (*Trifolium* sp.), black medick (*Medicago lupulina*), field pea (*Lathyrus* sp.), tormentil/cinquefoil (*Potentilla* sp.), perennial rye grass (*Lolium perenne*), meadow grass (*Poa trivialis/pratensis* type) and cat's tail's (*Phleum* sp.).

Seeds of wetland species, that are also common finds within charred samples, were also recovered and identified. While blinks (*Monitia fontana* subsp. *chondrosperma*), and spikerush (*Eleocharis* sp.) are certainly associated with wetland soils, it is probable that the seeds of sedge (*Carex* sp.) also come from species associated with such environments.

The arable economy

Charred remains have been most commonly associated with both crop remains and their accompanying weeds (Knözer 1971). Thus they are frequently considered to be representative of processing activities associated with the cleaning of the crop in order to extract pure grain for consumption (Hillman 1981; 1984; Jones 1985). In particular charred remains have been argued to come from the specific activities whereby crops are taken from storage and processed in piecemeal fashion, as and when needed, with the waste deposited straight on to the fire (Stevens 1996; cf. Hillman 1981). It is more highly probable that those charring events, occurring on a regular basis, will preserve crop remains rather than rarer of accidental events of the type noted by Hubbard and Clapham (1992, *Class A* and B).

If crops, especially hulled wheats, are stored in the spikelet, assemblages resulting from such routine activities are more likely to be glume rich, as the crops are pounded and the separated glume waste thrown onto the fire. Given the much higher destruction rate of glumes (Boardman and Jones 1990; cf. Robinson and Straker 1991), such samples may appear less glume rich than they originally were. Certainly the samples from the rubbish pit 845 and ring gully 80 appear to come from such activities, being richer in glumes than grain.

Most of the charred samples, with the exception of those from Enclosure 3 ditch 76 and pit 15 would appear to be associated with the routine processing of crops. They were probably taken from storage on a regular basis and pounded, in order to release the wheat grains from the tightly enclosing glumes, and then the waste was burnt. The nature in which such crops were consumed is more problematic, though crushing or grinding into cracked wheat/ flour would seem possible, although malting into beer could also have been undertaken.

Many samples also contained chaff fragments, but these would have been more frequent if the crop had been stored as ears. Given the poor quantity of material, compared to other assemblages, where grain and large weed seeds predominate (cf Danebury; Jones 1984), it is likely that most of the material from Priors Gate was stored in a fairly uncleaned state. This would further imply that the inhabitants of this area of the site conducted most of the processing of their crops in a relatively small-scale piecemeal fashion, rather than storing them as semi-clean grain or spikelets.

The presence of seeds of several low growing species, including clover and plantain would suggest that the crops had been cut relatively close to the ground, probably with a sickle rather than scythe (Rees 1981). The presence of a few basal culm nodes suggests some uprooting of crops, although this would be inevitable as the

sickle gets blunter. Although it is speculative, it is probable that the crops may have been partially threshed and the bulk of the straw extracted for use by animals.

While the remains of perennial species were not common in the samples, the presence of species, such as plantain and spike rush suggest a relatively inefficient ploughing regime, as might be expected with ard cultivation. While the presence of wetland species might indicate the cultivation of wet to very wet soils, other species, such as, sheep's sorrel and plantain are more common on drier ground.

The appearance of mineralised seeds of *Thlaspi arvense*, indicative of drier sandier soils, is of some interest here. Given that mineralised deposits may contain seeds from sources other than arable cereal fields, other reasons may be forwarded for their presence. While they may have been growing close to the deposit, they are also absent from the waterlogged samples. A further possibility may be that they arrived on the site with the legumes, basil, or fennel, having grown as a weed amongst them. The other species of interest was stinking mayweed, which came from ditch 76. This species is commonly associated with the cultivation of clay soils, and tends to gain prominence only in the later Roman period onwards (Jones 1981; Stevens 1996; Jones 1986).

The extracted species point to the possible cultivation of a range of soils from open textured, acidic to circum-neutral soils, seen from the presence of blinks and sheep's sorrel, to the heavier soils represented by stinking mayweed and drier calcareous soils represented by plantain and black medick. Similarly the cultivation of wetter soils is indicated by the presence of spikerush and sedge. The extent of such soils within individual fields is difficult to determine.

The waterlogged deposits

Of the six samples examined for the extraction and identification of waterlogged remains, two came from ditches 76 and 128, and the remainder came the two waterlogged deposits in watering holes 81 and 99.

All the samples produced reasonable quantities of material that were frequently dominated by seeds of common nettle, *Urtica urens*. The other seeds in the deposits came from a variety of wetland, arable, grassland, waste, and of interest woodland habitats, possibly representative of hedge environments constructed from relict woodland.

Nettle dominated the sample from Phase 1 ditch 128, in association with high numbers of open ground, waste, and arable species, such as chickweed, *Stellaria media*. Smaller quantities of seed species commonly found in charred assemblages and hence representative of past arable fields were identified. These included sheep's sorrel and knotgrass (*Polygonum aviculare*), self-heal and clover). Of interest are two commonly recovered species, stinking mayweed, associated with the cultivation of heavier clay soils and blinks, which prefer wet, open textured, circum-neautral soils. In addition other species of open grasslands, wasteland and occasionally more shaded conditions were recovered, such as clustered dock (*Rumex conglomeratus*) cotton thistle (*Onopordum acanthium*) and white/red dead nettle (*Lamium album/purpure*). Also of interest were seeds of bur parsley (*Anthriscus caucalis*) which is common on sandy soils with open hedgebanks.

Woodland shrubs and trees were well represented by seeds of elder (*Sambucus nigra*), a few finds of an alder catkins and cones (*Alnus glutinosa)*, several fruits and possible thorns of hawthorn (*Crataegus* sp.) and a fruit valve of willow (*Salix sp.*). A

single seed of dogwood (*Cornus sanguine*) a species common on base-rich clay soils was also recovered. However, other species associated with wooded or shaded hedge conditions were present, for example, greater stitchwort (*Stellaria holostea*), Saint Johns Wort, (*Hypericum* sp.) and deadly nightshade (*Atropa belladonna*).

Wetland and fen species present included marsh woundwort (*Stachys palustris*), ragged robin (*Lychnis flos-cuculi*), marsh stitchwort (*Stellaria palustris*), marsh thistle (*Cirsium palustre*) and sedge. While these suggest generally wet conditions, the seeds of water crowfoot *(Ranunculus* subgenus *Batrachium*) are likely to have come from species growing within standing water within the ditch.

The sample from Enclose 3 ditch 76 was similar in composition, but had generally few numbers of seeds and species. Nettle and several shrub and woodland species were well represented, including bramble (*Rubus* sp.) and rodent gnawed sloe stones (*Prunus spinosa*). A similar hedge scrub component was indicated also by large quantities of elder seed present. Seeds of calcareous woodland soils, white bryony (*Bryonia dioica*), and of woodlands in general, rough chervil (*Chaerophyllum temulum*), ground ivy (*Glechoma hederacea)* and deadly nightshade, were also recovered. Open ground or arable species were relatively rare, as were wetland species. The latter is unsurprising since this ditch was located further from the stream than ditch 128.

The general impression from the ditch deposits is that of probable scrub hedges perhaps composed of relict scrub/woodland. The sample from ditch 128 has a fairly large open element with possible arable species fairly well representative, whereas that from ditch 76 suggests a slightly more closed environment. Given that the infilling of both ditches is more likely to have taken place during their abandonment it may be that both contain elements of the re-establishment of scrub, although these may have been brought into the ditch from elsewhere.

Some of this species from this material represent highly diverse habitats, which include clay (e.g. dogwood), open texture (e.g. bur parsley), and acidic to circum-neutral (e.g. dock). This may indicate local niches or a diversity of soils within the vicinity of the ditch. However, it is possible that some seeds may have been washed into the ditches from further afield.

A single sample was examined from watering hole 99. This came from the lowest fill and contained large numbers of seeds of common nettle, indicative of nitrogen rich soils probably close by. Only a few seeds of open ground species plants (e.g. tormentil) were present, as well as occasional seeds indicative of open damp woodlands (e.g. hemlock and rough chervil), which may suggest the proximity of such environments to the watering hole. Cones and catkins of alder and seeds of elder were recovered from this deposit along with large numbers of buds. Both the seeds of elder and alder produce blue/purple and black dyes respectively (Greig 1992, Grigson 1987).

Three samples were examined from watering hole 81. The primary fill (945) contained relatively little material. Only a few seeds of *Urtica dioica* were present, along with a few seeds of species associated with open conditions, such as chickweed. Seeds of hemlock were common and may imply open waste ground or woodland, although evidence of larger woodland tress and shrubs was rare. However, other seeds of lower growing woodland and hedgerow herbs such deadly nightshade, bittersweet (*Solanum dulcamara*) and bramble were recovered.

Particularly common in this sample were seeds of species associated with water, wetlands and fen conditions. Common fleabane (*Pulicaria dysenterica*) and marsh thistle are associated with ditches and wet woodlands, while marsh stitchwort (*Stellaria palustris*) is common in marshes and fens, while common/water figwort (*Scrophularia nodosa/auriculata*), and water mint (*Mentha aquatica*) often occur along pond edges or in wet woods. Duckweed (*Lemna* sp.), is characteristic of the still water environments found in ponds.

Moving up the profile of the watering hole, the sample from context 523 contained larger quantities of nettle seeds and may suggest an increase in open nitrogenous soils in the vicinity of the pit. Open ground species including orache and dock seeds were recovered. Seeds of three-nerved sandwort (*Moehringia trinervia*) suggest well-drained, wooded environments, along with elder and a single alder catkin, while fen conditions are indicated by seeds of marsh pennywort (*Hydrocotyle vulgaris*) and meadow sweet (*Filipendula ulmaria*). Other woodland and scrub species were also represented in this stratigraphically later sample, such as deadly nightshade and ground ivy. Curiously, sandwort and pennywort are commoner on acidic soils (Grime *et al* 1988), while deadly nightshade and bryony, as found in the earlier samples is commoner on well drained calcareous soils (Stace 1997). The wetland species were recovered in quantities similar to that seen before.

The latest fill examined (context 499) contained fewer seeds than the earlier deposits, a factor probably related to its higher stratigraphic position in relation to the water-table and hence having suffered from periodic drying. In spite of this the continued presence of seeds of *Lemma* sp. would still seem to indicate that still water was present at this height for periods during the deposition of this later fill and that the drying of the deposit perhaps only occurred in more recent times. Of the few seeds found they were mainly of open ground species associated with arable such as orache and fat-hen (*Chenopodium album*), while rush seeds, *Juncus* sp. were also prolific.

This watering hole would appear to have been situated close to previous woodland and/or perhaps hedges formed through the cutting of woodland, a scenario seen within the samples from the ditches. It held standing water for much of its history. It is also possible that some acidification of the soils in its vicinity occurred in later periods, as seen from the increased number of species associated with such conditions. This later point would seem to confirm the evidence that possibly a mixture of species associated with different soil types may have co-existed within the excavated region during the Roman period. While the latest sample may indicate that open conditions prevailed during the final infilling of the waterhole, it is possible that some regeneration of woodland occurred during the initial infilling of the watering hole.

Unfortunately while both watering holes 81 and 99 indicate the strong presence of woodland or hedge conditions suggesting that they were either sited in the corner of fields or within former shrub/open fen alder carr type woodland little evidence is available as to any further more specific purpose.

The location of domestic and arable activities

Although charred material is often linked to domestic activity involving the processing of cereals, their charring and the deposition of this waste either as taken from the hearth and deposited on a midden or from the hearth spread itself. The absence of charred material relating to crops from both the waterlogged and charred deposit from ditch 76 would then tend to suggest that when this feature was infilled, it was

located at some distance from such domestic activity. The relative dearth of charred remains also indicates that neither of the waterlogged pits was located in close proximity to places where domestic activities, concerned with the hearth or deposition of hearth material, were carried out. The presence of some charred material in ditch 128 and the upper fills of watering hole 81 may suggest that such domestic activities were at least being conducted in the general area.

The waterlogged samples contained many species that were also recovered from the charred assemblages. While it is possible that these species may have arrived on site with crops or other material, the general lack of evidence for other cereal waste from the waterlogged deposits suggest that many were at least growing in the local area. Consequently there is little reason to suggest that the crops themselves, from which the charred material is thought to derive, were not grown in the general vicinity of the settlement.

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Table 1: Charred plant remains

	Phase	unphased	1				2	3		5
	Feature	Pit 15	Pit 112	Pit 845	Ditch 124	Ring gully 80	Ditch 197	Ditch 76		Ditch 285
	Context	395	890	847	736	431	792	896	890	755
	Sample number	10	28	49	36	14	35	43	45	29
	Original volume (l)	10	9	10	10	10	9	10	1	9
	Flot size (ml)	25	500	40	125	15	50	40	10	20
	Flot examined	75%	80%	30%	20%	70%	80%	10%	100%	75%
Crops										
Triticum dicoccum (glume base)	emmer glumes	-	-	cf.2	cf.1	1	-	-	-	-
Triticum dicoccum (spikelet fork)	emmer spikelet fork	-	-	-	cf.1	4	-	-	-	-
Triticumcf. spelta (grain)	spelt grain	-	-	3	-	-	9	-	-	-
Triticum spelta (glume bases)	spelt glumes	-	1	12	4	-	-	5	-	-
Triticum dicoccum/spelta (grain)	emmer/spelt (hulled wheat grain)	-	6	-	5	7	1	21	-	1
Triticum dicoccum/spelta (tail-grain)	hulled wheats tail grain	-	-	-	-	-	-	3	-	-
Triticum dicoccum/spelta (glume bases)	emmer/spelt glumes	-	3	47	3	14	7	19	-	2
Triticum dicoccum/spelta (spikelet forks)	emmer/spelt spikelt forks	-	-	4	-	-	-	3	-	-
Triticum aestivum sensu lato (grain)	free-threshing wheat grain	-	-	-	cf.1	-	cf.1	cf.1	-	-
Triticum aestivum sensu lato (rachis frags)	free-threshing wheat rachis	-	-	-	-	-	-	1	-	-
Triticum sp. (grain)	wheat (grain)	-	-	7	3	-	-	11	-	-
Hordeum vulgare/distichum (grains)	cultivated barley grains	-	-	-	cf.1	-	-	-	-	-
Hordeum sp. (tail grain)	barley (tail grain)	-	-	1	-	-	-	-	-	-
Hordeum/Secale (rachis fragment)	barley/rye rachis fragment	-	-	-	-	-	-	1	-	-
Cereal (grains indet.)	unidentified cereal grains	-	-	-	8	1	1+3 frags	10	-	1
Cereal embryos	cereal embryos	-	-	-	-	-	1+cf.2	-	-	-
Cereal (culm nodes)	cereal sized straw nodes	-	-	-	1	-	1	-	-	-
Cereal basal rachis fragment	ear-culm internode	-	-	-	1	-	-	-	-	-
Cereal (culm internode)	cereal sized straw frag.	-	-	-	1	-	-	-	-	-
Cereal/Poaceae (basal culm node)	cereal grass stem	1	-	1	-	-	-	-	-	-
Poaceae/cereal caryopsis fragments	grass/cereal grain fragments	-	-	4	8	-	-	10	-	-
Pisium sativum	pea	cf.2	-	-	-	-	-	-	-	-
Vicia faba	broad-bean	-	-	-	-	-	-	-	-	1frg

	Phase	unphased	1				2	3		5
	Feature	Pit 15	Pit 112	Pit 845	Ditch 124	Ring gully 80	Ditch 197	Ditch 76		Ditch 285
	Context	395	890	847	736	431	792	896	890	755
	Sample number	10	28	49	36	14	35	43	45	29
	Original volume (l)	10	9	10	10	10	9	10	1	9
	Flot size (ml)	25	500	40	125	15	50	40	10	20
	Flot examined	75%	80%	30%	20%	70%	80%	10%	100%	75%
Weeds										
Ranunculus acris/bulbosus/repens	hairy/creeping/bulbous buttercup	-	-	-	2	-	-	-	-	-
Chenopodiaceae	goosefoots	-	-	-	-	-	2	1	-	-
Chenopodium sp.	goosefoots	-	-	-	-	1	-	-	-	-
Atriplex sp.	orache	-	-	-	3	-	1	1	-	-
Montia fontana subsp. chondrosperma	blinks	-	-	-	1	-	-	-	-	-
Cerastium sp.	mouse-eared chickweed	-	-	-	-	1	-	-	-	-
Fallopia convolvulus	black bindweed	-	-	-	2	1	-	-	-	-
Rumex sp.	docks	-	-	-	2	-	1	-	-	-
Rumex acetosella	sheeps-sorrel	-	-	1	14	1	-	-	-	-
Rumex cf. crispus/longifolius type	curled-leaved/northern dock	-	-	-	2	-	-	2	-	-
Rumex conglomeratus/obtusifolius/sanguineus type	clustered/broad-leaved/wood dock	-	-	-	4	-	-	-	-	-
Brassica sp.	mustard, cabbage, turnip	-	-	-	-	-	-	-	-	cf.1
Raphanus raphanistrum (capsule)	charlock	-	-	-	-	-	-	1	-	-
Potentilla sp.	cinquefoil, silverweed, tormentil	-	-	1	-	-	1	-	-	-
Crataegus sp. (thorn)	hawthorn thorn	-	-	-	-	-	1	-	-	-
Trifolium sp. (small)	clover	-	1	-	1	1	1	1	-	-
Vicia/Lathyrus sp.	vetch/tare/wild pea	-	-	-	2	-	-	-	-	-
Vicia/Lathyrus/Pisium	vetch/tare/wild pea/pea	1	-	-	-	-	-	-	-	-
Vicia sp. (small <2.5mm)	vetch/tare	-	-	1	-	1 tetrasperma	-	-	-	-
Lathyrus sp.	field pea	-	-	cf.1	-	-	-	-	-	-
Medicago/Trifolium sp.	meddick/clover	-	-	-	1	-	-	2	-	-
Medicago cf. lupulina	black medick	-	-	1	1	-	1	-	-	-
Conium maculatum	hemlock	-	-	-	-	-	-	-	-	cf.1
Ballota nigra	black horehound	-	-	-	cf.1	-	-	-	-	-
Prunella vulgaris	self-heal	-	-	-	3	-	-	-	-	-
Plantago lanceolata	plantain	-	-	-	cf.1	-	-	1	-	-
Galium sp.	goose grass	-	-	-	1	-	-	-	-	-

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	Flot size (ml)	25	500	40	125	15	50	40	10	20
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Galium aparine	cleavers	-	-	-	-	1	-	1	-	1
Anthemis cotula	stinking mayweed	-	-	-	-	-	-	3	-	-
Tripleurospermum inodorum	scentless mayweed	-	-	1+cf.2	1	-	-	-	-	-
Monocot (culm)	monocot stems	-	1	-	-	-	-	-	-	-
Monocot (basal culm node)	monocot roots	-	1	1	-	4	-	-	-	1
Cyperaceae (indet.)	sedges	-	-	-	1	-	-	-	-	-
Eleocharis sp.	spike-rush	-	-	1	1	-	-	-	-	-
Carex sp.	sedge	cf.1	-	-	1	-	-	-	-	-
Phleum/Poa sp.	cat's tail's/meadow grass	-	-	1	-	-	-	-	-	-
Poaceae *(large > 2.5 mm)*	large grass seeds	-	-	-	-	1	1	-	-	-
Poaceae (mid-sized caryopsis)	grass seed (2.0-3.0 mm)	2	-	1	1	-	-	-	-	-
Poaceae (small <2.5mm)	small grass seed	-	2	-	-	-	-	-	-	-
Poaceae (culm internodes)	Grass stems	1	-	-	2	-	-	-	-	-
Poaceae (culm nodes)	Grass stem nodes	-	-	-	-	-	-	1	-	-
Lolium cf. perenne	perennial rye-grass	-	-	1	1	2	1	-	-	-
Bromus sp.	brome grass	-	-	-	-	-	1	-	-	-
Poa cf. trivialis/pratensis type	meadow grass	-	-	-	4	-	-	-	-	-
Festuca type. Caryopsis	Fescue type grain	-	-	-	1	-	-	-	-	-
Poa sp.	meadow-grass	-	-	-	-	-	2	-	-	-
Phleum sp.	cat's tail's	-	-	-	-	-	-	cf.1	-	-
Avena sp.	oats	cf.2	1	-	5	-	1	6	-	-
Bromus / Avena sp.	brome grass/oats	-	-	2	-	-	-	1	-	-
Carex sp. (trigonous)	sedge	2	-	-	-	1	-	-	-	-
Seed indet.	unidentifable seeds	-	1	-	-	-	-	-	-	-
Unidentifiable small seeds	small indet. seeds (<2.5mm)	-	-	-	2	-	-	-	-	-
Seed/tuber	unidentified parenchyma	7	1	-	-	-	1	-	-	-
Dung/bread conglomerate	conglomerated charred material	-	-	-	-	-	1	-	-	-
fungal sclerotia	fungal spore bodies	-	1	-	-	-	-	-	-	-

	Phase	unphased	1				2	3		5
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	Original volume (l)	10	9	10	10	10	9	10	1	9
	Flot size (ml)	25	500	40	125	15	50	40	10	20
	Flot examined	75%	80%	30%	20%	70%	80%	10%	100%	75%
Bud (indet)	tree/small shrubs buds indet.	1	-	-	1	-	-	-	-	-
Parenchyma	soft plant-tissue	-	-	-	-	-	3 frags	-	-	1
Ignota		-	-	-	-	-	3	-	-	-
Mineralised										
Wood		+++	-	-	-	-	-	-	-	-
Insect remains		10	-	-	-	-	-	-	-	-
Eggs		4	-	-	-	-	-	-	-	-
Ocimum cf. basilicum,	basil	cf.4	-	-	-	-	-	-	-	-
Thlaspi arvense	field-penny cress	2	-	-	-	-	-	-	-	-
Fabaceae indet. (large >2mm)	large pulse	cf.1	-	-	-	-	-	-	-	-
Vicia faba/Pisium sativum	bean/pea	cf. 7 frags	-	-	-	-	-	-	-	-
Conium maculatum	hemlock	cf.1	-	-	-	-	-	-	-	-
Foeniculum vulgare	fennel	cf.1	-	-	-	-	-	-	-	-
Poaceae/Cereal inter culm fragments	grass/cereal straw/stem frags	12	-	-	-	-	-	-	-	-

Table 2: Waterlogged plant remains

Sample number	30W	45W	22W	40W	47W	42W
Context number	761	890	499	523	945	888
Feature	Ditch 128	Ditch 76	Watering hole 81	Watering hole 81	Watering hole 81	Watering hole 99
Feature segment	758	889	497	524	906	883
Original volume (l)	10	9	9	7	9	10
Volume (ml)/split (ml)	450	175/87.5	75	500/125	1000/125	750/125
Crops						
Triticum spelta (spikelet forks)	-	-	-	1 charred	-	-
Triticum spelta (glume bases)	4 charred	-	-	-	-	-
Hordeum vulgare hulled grains	-	-	1 charred	-	-	-
Cerealia indet	2f	-	1f	-	-	-
Embryos	-	-	-	-	-	-
Shoots	1	-	-	-	-	-
Weeds						
Chara sp. oogonia	-	-	1	-	-	-
Ranunculus a/r/b	3+1f	-	-	-	-	3
Ranunculus subgenus *Batrachium*	9+5f	1f	-	-	-	-
Thalictrum flavum	1	-	-	4f	-	-
Papaver argemone	2	-	-	-	-	-
Urtica dioica	1000+	100+	1	100+	12	1000+
Urtica urens	1	-	-	-	-	1
Alnus glutinosa female cone	1	-	-	-	-	9+8 bracts
Alnus glutinosa male catkin	2f	4	-	-	-	28f
Alnus glutinosa catkin rachis	-	1	-	-	-	3
Alnus glutinosa fruits	1	5	-	1	-	27
Corylus avellana	-	-	-	-	-	-
Chenopodium polyspermum	-	-	-	11	1	-
Chenopodium album	2	-	1	-	-	-
Atriplex sp.	-	-	1+5f	1f	-	-
Montia fontana ssp. *chondrosperma*	1+1f	-	-	-	-	-
Moehringia trinervia	-	-	-	2	-	-
Stellaria media	165+59f	20+11f	-	1	2f	1f

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Stellaria holostea	23	-	-	-	-	-
Stellaria palustris	3	-	-	-	1	-
Cerastium fontanum	2	-	-	-	-	-
Lychnis flos-cuculi	22	-	-	-	-	-
Persicaria maculosa	-	1+1f	-	-	-	-
Polygonum aviculare	2	-	-	-	-	1f
Rumex acetosella	7	-	-	-	-	-
Rumex conglomeratus	5	-	-	-	-	-
Rumex sp.	4+1f	2	-	7+1 charred	-	4
Rumex sp. *tubercles*	1	-	-	-	-	-
Hypericum sp.	1	-	-	2	3	-
Bryonia dioica	-	1+9f	-	-	8f	-
Salix sp. fruit valves	23	-	-	-	-	-
Anagallis arvensis	2	-	-	-	-	-
Filipendula ulmaria	2	1	-	3+10f	-	-
Rubus Sect 2 Glandulosus	2+4f	35+73f	-	2+10f	4+8f	1+2f
Rubus sp. prickles	-	46	-	-	-	-
Potentilla sp.	2+1f	-	-	-	-	1
Prunus spinosa	-	15+83f	-	-	-	-
Prunus domestica	-	-	-	-	-	-
Crataegus sp. fruits	10f	-	-	-	-	-
Crataegus/Prunus sp. thorns	4	3	-	-	-	-
Trifolium sp.	1 petal	-	-	-	-	-
Epilobium sp.	-	-	-	2	-	-
Cornus sanguinea	1f	-	-	-	-	-
Hydrocotyle vulgaris	-	-	-	1	-	-
Chaerophyllum temulentum	10+6f	1+2f	-	1+3f	1f	4+3f
Anthriscus caucalis	9+1f	-	-	-	-	-
Aethusa cynapium	-	-	-	1f	-	-

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Conium maculatum	-	-	1	25+86f	3+23f	-
Apium nodiflorum	6	17	1+1f	252+53f	22+21f	-
Apiaceae indet.	-	-	-	-	-	-
Atropa belladonna	7f	3+1f	-	1+4f	2	-
Solanum dulcamara	-	5+3f	-	-	2f	1
Stachys palustris	6+3f	-	-	2	-	-
Stachys sp.	2	-	-	-	-	-
Lamium album/purpurem	62+10f	-	-	-	-	2
Glechoma hederacea	-	4	-	1	-	2
Prunella vulgaris	1	-	-	-	-	-
Lycopus europaeus	1	-	-	-	-	-
Mentha aquatica	2	-	-	39	10	-
Callitriche sp.	-	3	-	-	2	-
Scrophularia nodosa/auriculata	-	-	-	1	6	-
Sambucus nigra	72+109f	133+136f	12+49f	14+13f	8+5f	158+128f
Carduus nutans	-	1	-	-	-	-
Cirsium palustre	16+32f	8	-	2+6f	2+4f	1
Cirsium sp.	-	1	-	-	-	-
Onopordum acanthium	1	-	-	-	-	-
Lapsana communis	6	-	-	-	-	-
Sonchus oleraceus	1	-	-	-	-	-
Sonchus asper	-	1	-	-	-	-
Pulicaria dysenterica	-	-	-	3	2	-
Anthemis cotula	2	-	-	-	-	-
Alisma sp. embryos	1	3	-	-	-	-
Lemna sp.	-	-	28	23	21	-
Juncus sp.	-	-	100+	1	-	-
Eleocharis palustris	5	-	-	-	-	-
Carex sp.	18+1f	7+1f	-	1	2+1f	1

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Small Poaceae <1mm	1	1	-	27	6	4
Buds	17	13	-	-	5	100+
Leaf abscission pads	24	-	-	-	-	-
Musci	few	few	-	-	-	few
Charcoal fragments	36	2	33	8	-	4
Earthworm cocoons	40	16	16	16	-	100+
Miscellaneous	-	-	-	-	-	1

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