

Cambourne New Settlement

Iron Age and Romano-British settlement
on the clay uplands of west Cambridgeshire

Volume 2: Specialist Appendices

Web Report 14

Waterlogged plant remains, *by Chris J. Stevens*



Cambourne New Settlement

Iron Age and Romano-British Settlement on the Clay Uplands of West Cambridgeshire

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Volume 2: Specialist Appendices
Part 1. Artefacts
Part 2. Ecofacts

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Waterlogged Plant Remains

By Chris J. Stevens

Laboratory flotation was undertaken with flots retained on a 0.25 mm mesh and residues on a 0.5 mm mesh. Both flots and residues were scanned under a x10 to x40 stereo-binocular and the plant taxa identified, following the nomenclature of Stace (1997).

Lower Cambourne

During the assessment two samples were noted to contain waterlogged plant remains. One litre from each sample was processed for their recovery and identification (**Table Waterlogged Plant Remains 1**). One came from the basal fill of Phase 2C–3A Late Iron Age–Romano-British pit group 3070 (2969), the other from large enclosure ditch 5245 (group 5401) of possible late Romano-British (3rd–4th century) to Saxon date (Phase 3B–4).

Results

The samples were broadly similar in their composition, although that from the ditch was richer in well preserved waterlogged material, and as such had a wider range of species present.

The main seeds recovered from both deposits were those of water-crowfoot (*Ranunculus* subg. *Batrachium*), a species often associated with rivers, streams or standing water in ponds and ditches. Seeds of duckweed (*Lemna* sp.) and horned-pondweed (*Zannichellia palustris*) that grow in similar environments were also present. Indicative of wet environments are sedge (*Carex* sp.), buttercup (*Ranunculus acris/repens/bulbosus*), and marsh stitchwort (*Stellaria palustris*).

Other wetland species recovered only from the ditch included numerous seeds of water-cress (*Persicaria hydropiper*), sweet-grass (*Glyceria* sp.) and also pondweed (*Potamogeton* sp.), water-celery (*Apium* sp.), water plantain (*Alisma plantago-aquatica*), and gypsywort (*Lycopus europaeus*).

Both samples also contained shells of probable freshwater ostracods, as well as of pond snail (*Lymnaea* sp.) and ramshorn (*Anisus* sp.) from the ditch. Also indicative of standing water were ephippium or egg cases of water flea (*Daphnia* sp.).

Plants of nitrogen-rich, disturbed soils were relatively abundant including many-seeded goosefoot (*Chenopodium polyspermum*), fig-leaved goosefoot (*Chenopodium ficifolium*), fat-hen (*Chenopodium album*), common nettle (*Urtica dioica*), and chickweed (*Stellaria media*). Others are more indicative of rough grassland, such as docks (*Rumex* sp.) and thistle (*Cirsium/Carduus* sp.), or arable, such as fool's parsley (*Aethusa cynapium*) and probable cornflower or knapweed (*Centaurea* sp.). Species more closely associated with manure heaps, animal dung, and trampling were all recovered from the ditch sample and comprised red goosefoot (*Chenopodium rubrum*), henbane (*Hyoscyamus niger*), and swinecress (*Coronopus cf. squamatus*).

Species of lightly wooded scrub or hedgerows were present in both samples, although far better represented within the ditch. They included thorns and fruits of hawthorn (*Crataegus monogyna*), sloe (*Prunus spinosa*), bramble (*Rubus* sp.), and probable rose (*Rosa* sp.), as well as seeds of elder (*Sambucus nigra*) and a single hazelnut (*Corylus avellana*).

Of a slightly more unusual nature was a single seed of small-flowered buttercup (*Ranunculus parviflorus*) and mallow (*Malva* sp.) which are more common on drier, calcareous soils.

Discussion

The assemblage from the ditch indicates that it contained standing water and given the range of both flora and fauna associated with aquatic environments was probably wet throughout most if not all of the year. There is a strong element of scrub, comprising hawthorn, sloe and elder that undoubtedly overshadowed the ditch in places. Whether this shrub formed a formal hedge or comprised individual plants is difficult to ascertain. The pit shows little variation suggesting that a similar environment persisted throughout the earlier occupation of the site.

Waterlogged material indicative of hedgerows often appears absent from some Roman sites, for example Thornton, Oxfordshire (Robinson 2004), but at this site there would appear to be a reasonable amount of evidence for scrub, although given the late date of the ditch the possibility that the samples relate to the abandonment of the site cannot be entirely ruled out.

The presence of several species, in particular swinecress and red goosefoot, almost certainly indicate animal and probably human trampling and the nitrification of the soils around the ditch through animal dung. Swinecress has most commonly been recovered from Roman sites, usually from wells (Conolly *et al.* 1971; Paradine 1984; Lambrick and Robinson 1979; 1981; Wilson 1968; 1971).

Table Waterlogged Plant Remains 1. Lower Cambourne

Phase		3	4
Group		1308	5267
Feature		pit	ditch
Cut		1308	5245
Context	+++ 150	2969	5264
Sample	++ 50-150	324	577
Vol. size (l)		10	10
Flot size (ml)		10	10
Species			
<i>Ranunculus</i> sp. subg. <i>Ranunculus</i> arb	buttercup	2	19
<i>Ranunculus parviflorus</i>	small-flowered buttercup	-	1
<i>Ranunculus</i> subg. <i>Batrachium</i>	water crowfoot	52	+++
<i>Corylus avellana</i>	hazelnut	-	1
<i>Urtica dioica</i>	common nettle	5	7
<i>Chenopodium</i> sp.	goosefoot	1	-
<i>Chenopodium album</i>	fat-hen	-	1
<i>Chenopodium rubrum</i>	red goosefoot	-	5

Phase		3	4
Group		1308	5267
Feature		pit	ditch
Cut		1308	5245
Context	+++ 150	2969	5264
Sample	++ 50-150	324	577
Vol. size (l)		10	10
Flot size (ml)		10	10
<i>Chenopodium polyspermum</i>	many-seeded goosefoot	12	15
<i>Chenopodium ficifolium</i>	fig-leaved goosefoot	5	9
<i>Atriplex</i> sp.	orache	-	4
<i>Coronopus</i> cf. <i>squamatus</i> (capsules)	swinecress	-	4
Brassicaceae	mustard type	-	-
<i>Stellaria media</i>	chickweed	1	2
<i>Stellaria palustris</i>	marsh stitchwort	1	-
<i>Stellaria nemoralis</i>	wood stitchwort	-	1
<i>Malva</i> sp.	mallow	-	1
<i>Polygonum aviculare</i>	knotgrass	-	8
<i>Persicaria lapathifolia/maculatum</i>	persicaria/redshank	-	23
<i>Persicaria hydropiper</i>	water-pepper	-	17
<i>Persicaria mitis</i>	tasteless water-pepper	-	23
<i>Rumex</i> f. <i>crispus</i> with bracts	curled-leaved dock	-	37
<i>Rumex</i> sp.	dock	2	27
Rosaceae (indet. thorn)	thorn rose family	2	6
<i>Rosa</i> sp. (stones)	rose	-	cf.6
<i>Crataegus monogyna</i>	hawthorn	-	9
<i>Crataegus monogyna</i> (thorns)	hawthorn	-	3
<i>Prunus spinosa</i>	sloe	-	2
<i>Rubus</i> sp.	bramble	12	31
<i>Plantago major</i>	greater plantain	-	1
<i>Plantago lanceolata</i>	ribwort plantain	-	1
<i>Aethusa cynapium</i>	fool's parsley	3	1
<i>Conium maculatum</i>	hemlock	-	3
<i>Apium</i> sp.	water celery	-	2
<i>Torilis arvensis</i>	hedge parsley	-	1
<i>Lycopus europaeus</i>	gypsywort	-	2
<i>Lamium</i> sp.	dead-nettle	1	-
<i>Sambucus niger</i>	elder	12	10
<i>Hyoscyamus niger</i>	henbane	-	3
<i>Bidens tripartita</i>	bur-marigold	-	1
<i>Cirsium/Carduus</i>	thistle	10	8
<i>Centaurea</i> sp.	cornflower/knapweed	2	-
<i>Sonchus</i> sp.	sow-thistle	2	1
<i>Alisma plantago-aquatica</i>	water-plantain	-	1
<i>Potamogeton</i> sp.	pondweed	-	1
<i>Zannichellia palustris</i>	horned pondweed	1	5
<i>Lemna</i> sp.	duckweed	2	27
<i>Carex</i> sp. (trig)	sedge (triangular)	20	-
<i>Carex</i> sp. (flat)	sedge (flat)	-	10
<i>Glyceria maximum</i>	meadowsweet	-	18
Twigs		-	++
<i>Daphnia</i> sp. (Ehippium)	water flea egg case	1	1
Ostracods		++	+++
Charred			
Plant indet.	charred stem	-	1
<i>Triticum dicoccum/spelta</i> (glume bases)	spelt/emmer	-	1

Little Common Farm

During the assessment a single sample was noted to contain waterlogged plant remains. One litre from this sample was processed for their recovery and identification (**Table Waterlogged Plant Remains 2**). The sample came from a later Iron Age (Phase 2) enclosure ditch (90006, 90429).

Results

The sample contained a mixture of seeds and other parts from species associated predominately with wasteland, scrub, and wetland conditions. Only a single cereal grain was recovered, of barley, which was partially charred. While grains seldom survive in waterlogged conditions, often being predated before they are preserved, chaff has a much better chance, but was entirely absent.

Potential species of rough pasture and/or wasteland include buttercup (*Ranunculus acris/repens/bulbosus*), knotgrass (*Polygonum aviculare*), docks (*Rumex* sp.), self-heal (*Prunella vulgaris*), and thistle (*Cirsium/Carduus* sp.).

Wetland species included celery-leaved buttercup (*Ranunculus sceleratus*), blinks (*Montia fontana* ssp. *chondrosperma*), and sedges (*Carex* sp.), all which are found on wet soils, or places with occasional stream flushes or floods. Species of water crowfoot (*Ranunculus* subg. *Batrachium*), duckweed (*Lemna* sp.), and pondweed (*Potamogeton* sp.) are found usually within standing or flowing water, while ephippium (egg cases) of water-flea (*Daphnia* sp.) are indicative of standing water.

Species of arable and wasteland comprise probable prickly poppy (*Papaver argemone*), fool's parsley (*Aethusa cynapium*), scentless mayweed (*Tripleurospermum inodorum*), and small nettle (*Urtica urens*), while other species are common on disturbed, nitrogen-rich soils as are found around manure heaps and human occupation, for example goosefoots (*Chenopodium* sp.), henbane (*Hyoscyamus niger*), orache (*Atriplex* sp.), and common nettle (*Urtica dioica*).

Seeds of plants such as hedge-parsley (*Torilis japonica/T. arvensis*), cinquefoil (*Potentilla* sp.), violet (*Viola* sp.), and chickweed/ stitchwort (*Stellaria* sp.) may relate to species that are found within similar wasteland environments to those listed above, or may relate to species found within long-grasslands, scrub and former woodland. More representative of the latter conditions were seeds of bramble (*Rubus* sp.) and thorns of hawthorn (*Crataegus monogyna*) or sloe (*Prunus spinosa*).

Discussion

The assemblage indicated that the ditch undoubtedly contained standing water and was probably fed at least on occasion by flooding events that brought in species associated more with flowing water or larger bodies of water.

The environment surrounding the ditch was likely to be one in which those species of nitrogen-rich disturbed soils flourished, with human and animal trampling and probably also either animal dung or manure heaps in close proximity. It is noted that the sample also contained the blue mineral vivianite, and while indicative of rotting

vegetation within sealed anaerobic environments it is also frequently also associated with cess. In patches the vegetation is likely to have resembled unmanaged pasture with long grassland, with buttercups, docks, nettles and thistles all thriving by virtue of escaping any grazing animals within the area.

The elements of shrub may point to hedgerows but, in the absence of large numbers of twigs, may equally indicate occasional patches of thorny scrub rather than formalised hedges. Analysis of waterlogged material at other Iron Age sites has suggested possible hedges, for example Fisherwick, Staffordshire (Williams 1979), Mingies Ditch, Oxfordshire (Allen and Robinson 1993), and St Ives (Taylor 1996) and Wardy Hill (Murphy 2003) both in Cambridgeshire. In this respect such a possibility cannot be dismissed, although such evidence was absent from a number of other sites in Cambridgeshire (Stevens 1998).

Table Waterlogged Plant Remains 2. Little Common Farm

<i>Phase</i>		2A/B
<i>Period</i>		M/LIA
<i>Feature</i>		enc. ditch
<i>Feature</i>		90006
<i>cut</i>		90429
<i>Context</i>		90430
<i>Sample</i>		93018
<i>Vol. size (l)</i>		9
<i>Flot size (ml)</i>		50
Species		
<i>Hordeum vulgare</i> sl. (grain)	barley	1
<i>Ranunculus</i> sp. subg <i>Ranunculus</i> arb	buttercup	4
<i>Ranunculus sceleratus</i>	celery-leaved crowfoot	1
<i>Ranunculus</i> subg. <i>Batrachium</i>	water crowfoot	3
<i>Papaver argemone</i>	poppy	1
<i>Urtica dioica</i>	common nettle	+
<i>Urtica urens</i>	small nettle	10
<i>Chenopodium polyspermum</i>	many-seeded goosefoot	+
<i>Chenopodium ficifolium</i>	fig-leaved goosefoot	3
<i>Chenopodium album</i>	fat-hen	1
<i>Chenopodium rubrum/urbicum</i>	red/upright goosefoot	3
<i>Atriplex</i> sp.	orache	20
<i>Montia fontana</i>	blinks	1
<i>Stellaria/Cerastium</i> sp.	chickweed/mouse-eared chickweed	1
<i>Stellaria media/nemorala</i>	chickweed/wood stitchwort	10
<i>Stellaria graminea/palustris</i>	greater/marsh stichwort	2
<i>Persicaria lapathifolia/maculatum</i>	persicaria	1
<i>Polygonum aviculare</i>	knotgrass	3
<i>Rumex</i> sp.	dock	6
<i>Viola</i> sp.	violet	1
Brassicaceae (Seed indet.)	cabbage family indet.	1
<i>Rubus</i> sp.	bramble	4
<i>Potentilla</i> sp.	cinquefoil	1
<i>Prunus/Crataegussp.</i> (thorns)	sloe/hawthorn thorn	8
<i>Aethusa cynapium</i>	fool's parsley	8
<i>Toralis japonica/arvensis</i>	hedge parsley	3
<i>Hyocyamus niger</i>	henbane	15
<i>Myosotis</i> sp.	forget-me-not	1
<i>Stachys</i> sp.	woundwort	2
<i>Prunella vulgaris</i>	self-heal	1
<i>Cirsium/Carduus</i>	thistle	5
<i>Tragopogon</i> sp.	goat's-beard/salsify	1
<i>Sonchus</i> sp.	sow-thistle	1
<i>Tripleurospermum inodorum</i>	scentless mayweed	2
<i>Potamogeton</i> sp.	pondweed	4
<i>Lemna</i> sp.	duckweed	+
<i>Carex</i> sp. (trig)	sedge triangular	4
<i>Carex</i> sp. (flat)	sedge flat seed	1
Bud indet. (some have vivianite)	tree bud indet.	+
indet.	Unidentified plant material	1
<i>Daphnia</i> sp. (Ehippium)	water flea egg case	++

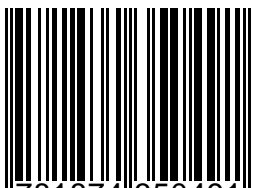
Twelve excavations were carried out by Wessex Archaeology within the Cambourne Development Area. Situated on the clay uplands west of Cambridge, which have seen little previous archaeological investigation, the results presented here are important in demonstrating the ebb and flow of occupation according to population or agricultural pressure.

Short-lived Bronze Age occupation was followed in the Middle Iron Age by small farming communities with an economy based on stock-raising and some arable cultivation. The Late Iron Age seems to have seen a recession, perhaps partly due to increased waterlogging making farming less viable.

From the mid-1st century AD new settlements began to emerge, possibly partly stimulated by the presence of Ermine Street, and within a century the area was relatively densely occupied. Several farmsteads were remodelled in the later Romano-British period, though none seems to have been very prosperous.

Dispersed occupation may have continued into the early 5th century at least, followed by a hiatus until the 12th/13th century when the entire area was taken into arable cultivation, leaving the ubiquitous traces of medieval ridge and furrow agriculture.

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