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Summary

This report presents the results of the archaeobotanical analysis of Medieval charred plant remains from the 1997 Avon Archaeological Unit excavations at Whitegate Farm, Bleadon. Three samples from ditch deposits were dominated by cereal grain and weed seeds and could have been derived from a number of possible sources of rubbish, such as kitchen waste, floor litter, or thatch. The weed assemblage recovered is typical of arable crops and includes limited evidence for cultivation of heavier soils, possibly in damp or wet conditions. The recovery of hazel nutshell fragments from one context provides limited evidence for the possibility of scrub or hedgerows in the vicinity of the site.

Keywords

Medieval
Carbonised Grain
Plant Remains
Environmental

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Introduction

Excavations undertaken at Whitegate Farm, Bleadon (NGR ST33995692) by the Avon Archaeological Unit in 1997 revealed a series of Medieval and post-Medieval features (ditches, gullies, foundation trenches, soil horizons, cobbled surface, etc…). Vanessa Straker (Bristol University) assessed soil samples collected from these deposits during the excavation. She (Straker 2001) established that three samples (9017 – context 1075, 9018 – context 1083 and 9062 – context 1138), all from Medieval ditch deposits, were suitably rich in charred plant remains to provide information on crop husbandry and the economy of the site to merit full analysis.

Method

An extensive programme of bulk soil sampling was carried out during excavations. Samples were processed using water flotation on-site and at the offices of the Avon Archaeological Unit. The flots (the material which floats) were sieved to 0.25 mm and the heavy residues (the material which does not float) were washed over a 0.5 mm mesh sieve. Both the flots and heavy residues were air-dried.

Sample volumes ranged from 24 L to 56 L. The flots were sorted under a low-power binocular microscope at a magnification of x12. The heavy residues were sorted by eye for charred plant remains. Identifications of plant remains (i.e. seeds) were made at magnifications of between x12 and x50 and in comparison with modern reference material housed at the English Heritage Centre for Archaeology.

Nomenclature for cereals follows the traditional binomial system as outlined in Zohary and Hopf (1994, Table 3 p.24 and Table 5 p.58) and nomenclature for indigenous taxa follows Stace (1997).

Results

Table 1 lists the taxa identified in each of the three contexts sampled. Figure 1 provides a breakdown of the types of plants recovered in each sample. All three samples are comprised of a fairly even mixture of cereal grain and weed seeds.

Free-threshing type wheat grain was the most common cereal grain identified. There is a certain amount of overlap in the gross morphology of free-threshing wheat and glume wheat grains which means precise identification is often not possible, and identifications can only be made to type (Jones 1998). On the basis of observed morphology of the cereal grain and the period of the site, it is most likely that free-threshing wheat was in use. One bread wheat (*Triticum aestivum*) rachis node was securely identified from sample 9017. With only one rachis fragment securely identified to species level, however, it is not possible to claim that all of the free-threshing wheat grain was bread wheat. Small quantities of wheat rachis nodes, which clearly are from an indeterminate species of free-threshing wheat, were also recovered from all samples; further supporting the interpretation that the wheat grain recovered is free-threshing type.

In addition to free-threshing type wheat grain, small quantities of barley grain and a single rye rachis node (sample 9017) were also identified. The overall dominance of cereal crops is unlikely to be due to any particular scarcity of non-cereal crops on site but, instead, reflects the pattern of charring events at Bleadon, which appear to frequently involve cereal grain. Notably, only small quantities of cereal chaff were recovered in this assemblage.

Aside from cereal crops, these samples also contain small quantities of cultivated pulses, such as broad bean (*Vicia faba*) and garden pea (*Pisum sativum*). In addition to these cultivars, non-edible vetches/ clovers (e.g. *Vicia sativa* and *Melilotus* sp./ *Medicago* sp./ *Trifolium* sp.) were also recovered. These may have been cultivated for animal fodder, possibly as part of a crop rotation system. However, the small quantity of vetches/ clovers recovered may have occurred as weeds of the cereal crop.

Hazel (*Corylus avellana*) nutshell fragments were recovered from sample 9062 (context 1138). These could be the remains of a foodstuff; however, hazel nutshells could have entered the deposits, possibly accidentally, through the use of hazel wood for fuel.

All three samples contained many taxa that typically occur as weeds of arable crops in the archaeological record (i.e. *Papaver rhoeas*/ *dubium*, *Stellaria media*, *Fallopia convolvulus*, *Melilotus* sp./ *Medicago* sp./ *Trifolium* sp., *Euphrasia* sp./ *Odontites* sp., *Carduus* sp./ *Cirsium* sp., *Centaurea* sp., *Anthemis cotula*, *Avena* sp., *Avena* sp./ *Bromus* sp. and *Bromus* sp.).

Discussion

The plant remains from Bleadon could derive from several sources. The assemblage provides information about the crops in use and their cultivation conditions. The recovery of hazel (*Corylus avellana*) nutshell fragments provides limited evidence for hedges or scrub in the area. Comparison of the results from Bleadon with several other sites in the region suggests that the dominance of free-threshing type wheat in this assemblage is typical, however, the recovery of pulses is somewhat unusual.

Potential sources of plant remains

Several sources of domestic rubbish are possible for this assemblage:

- kitchen waste, dominated by semi-clean grain and contaminants of cereal crops.
- disposal of spoiled crops, dominated by semi-clean grain and contaminants of cereal crops.
- floor litter or packing materials (comprised of straw and other collected plants).

- thatch (although larger quantities of culm nodes would be expected if this was a major source for the assemblage – e.g. results from Stone in Moffett and Smith 1996).

The samples consistently produced similar results suggesting that repeated charring events involving cereal grain occurred on site. The limited amount of cereal chaff recovered, however, may be deceptive. Boardman and Jones (1990) have suggested that cereal chaff is less likely to survive charring events than cereal grain. Therefore, these results might be biased to cereal grain and weed seeds, which are more likely to survive charring. Although debris from some form of food processing is the most likely explanation for this deposit, burning of rubbish – such as spoiled crops, domestic litter or old thatch cannot be entirely ruled out.

Evidence for cultivation conditions

The weed/wild plants recovered in the Bleadon assemblage provide some information on the range of cultivation conditions. Table 2 summarises the various conditions/ habitat types possible for those weed/wild plants identified to species level, as well as including some taxa identified to genus level, when only a limited range of habitats are possible.

Many of the taxa recovered are typical weeds of arable crops, such as common/ long-headed poppy (*Papaver rhoeas*/ *P. dubium*), common chickweed (*Stellaria media* s.l.), black bindweed (*Fallopia convolvulus*), possible scarlet/blue pimpernell (cf. *Anagallis arvensis*), shepherd's needle (*Scandix pecten-veneris* L.), stinking chamomile (*Anthemis cotula*), possible corn marigold (cf. *Chrysanthemum segetum*), wild oat (*Avena* sp.), and brome (*Bromus* spp.).

In addition, many of the weed/wild taxa (several of which are also common crop weeds) are typical of open or waste ground. These include common/ long-headed poppy (*Papaver rhoeas*/ *P. dubium*), possible small nettle (cf. *Urtica urens*), chickweed (*Stellaria media* s.l.), knotgrass (*Polygonum aviculare*), black bindweed (*Fallopia convolvulus*), black mustard (*Brassica* cf. *nigra*), possible scarlet/blue pimpernell (cf. *Anagallis arvensis*), shepherd's needle (*Scandix pecten-veneris* L.), nipplewort (*Lapsana communis*), stinking chamomile (*Anthemis cotula*), possible corn marigold (cf. *Chrysanthemum segetum*), wild oat (*Avena* sp.), and brome (*Bromus* sp.). It is likely that such taxa could occur in the margins of arable fields, and certainly many of these taxa are frequently recovered with cereal grain or chaff at archaeological sites.

There also is some indication for cultivation of heavier soils or cultivation of crops in damp, possibly wet, conditions. Stinking chamomile (*Anthemis cotula*) can occur on heavy soils. The recovery of spike-rush (*Eleocharus* sp.), wood club-rush (*Scirpus* spp.) and sedge (*Carex* sp.) all suggest damp to wet conditions. Although it is possible that these taxa arrived on site as weeds of crops, it is also possible that some of these plants were collected for floor litter, bedding, packing or rush lighting materials.

Limited evidence for hedges or scrub

Fragments of hazel (*Corylus avellana*) nutshell in sample 9062 (context 1138) and unidentified thorns in samples 9018 (context 1083) and 9062 (context 1138) may suggest the presence of hedges or scrub in the area. However, these fragments could have entered the deposit in other ways, for example, as collected wild foodstuffs or fuel waste. Hazelnuts, with their robust outer shells, are particularly well suited to transport and storage, so although hazelnuts may have been available locally, they may also have been bought in or exchanged for some other product. Thorns or hazel nuts may have entered these deposits with wood used fuel.

Comparison of the Bleadon results with other sites in southern England

Table 3 presents a comparison of the Bleadon results with ten other sites in southern England. With the exception of Lydford, where samples were collected from primary grain storage deposits, all of the material from the other sites in the region is from secondary contexts (middens, pits, cess pits and ditches). In most cases only small assemblages (typically less than 1000 identifications in total) have been studied from these sites and the majority are dominated by cereal crops.

Three other sites in the region (cess pit deposit from Middleton Stoney in Oxfordshire, unspecified deposits from Eckweek in North Somerset (formerly Avon) and midden and pit deposits from Sherborne Old Castle, Dorset) have assemblages dominated by free-threshing type wheat (*Triticum* sp.) grain (Carruthers 1995; Robinson 1984; Smith 2001).

There is no 'typical' cereal crop(s) for this period in southern England; instead, it seems likely that a wide range of cereal crops were cultivated. Certainly at Bleadon barley and rye (one rachis node recovered) were also identified. Samples of granary deposits at Lydford, Devon were dominated by rye and cultivated oat (Green 1980). Midden deposit samples from Ower Farm, Dorset (Carruthers 1991b) were also dominated by rye. The small size of assemblages at East Street, Wareham (Green 1978), Wareham 1974-5 (Monk 1980), and Howard's Lane (Carruthers 1991) in Dorset, as well as Okehampton Castle, Devon (Colledge 1982), meant that the archaeobotanists were not able to securely identify a dominant cereal crop at these sites.

Very few sites in the region have produced remains of cultivated pulses. Celtic or broad bean (*Vicia faba*) has only been recovered from one published site in the region – Lydford, Devon (Green 1980). However, broad bean has been identified by Julie Jones (pers. comm.) recently at Redcliffe Backs and 98-103 Redcliffe in Bristol. Garden pea (*Pisum sativum*) also has only been recovered from one site in the region - East Street, Wareham, Dorset (Green 1978).

Seeds of common vetch (*Vicia sativa*) were found in sample 9062 (context 1138 – see Table 1). There is a great deal of overlap in the size of various sub-species of *Vicia sativa* (Zohary and Hopf 1994: 114), and it also is not certain whether species we now consider to be weeds were cultivated in the past. Stace (1997: 412) reports the size of seed for the various sub-species of common vetch as *Vicia sativa* ssp. *nigra* (L.) Ehrh. 23-38 mm, *Vicia sativa* ssp. *segetalis* (Thuill.) Gaudin 28 – 70 mm and *Vicia sativa* ssp.

sativa 36 – 70 mm, unusually to 80mm. He also reports that both *segetalis* and *sativa* sub-species can be cultivated for fodder. The charred *Vicia sativa* seeds from sample 9062 ranged in size from 35 to 40 mm, and therefore could not be securely claimed to be a cultivated sub-species, even allowing for shrinkage due to charring. Common vetch (*Vicia sativa*) has been recovered from Sherborne Old Castle, Dorset (Smith 2001) and, more recently, at 5 Welsh Back, Bristol (pers. comm. Julie Jones). In all cases, it was not possible to ascertain whether the common vetch was cultivated or merely a weed of crop.

The trend for the limited recovery of pulses in Medieval charred plant assemblages from southern England may result from the types of deposits currently encountered, which primarily appear to be the remains of cereal crop processing debris or accidentally charred cereal crops in storage.

Conclusion

Archaeobotanical remains dominated by cereal grain is typical of most charred plant assemblages from this period in southern England (see Table 3). In addition, the dominance of free-threshing type wheat (*Triticum aestivum* and indeterminate *Triticum* sp.) grain also occurs at several sites in this region. The limited recovery of non-cereal crops most likely reflects a repeated pattern of charring events at Bleadon, which primarily involved cereal grain. To date only a few sites in the region have produced remains of edible pulses and, therefore, the recovery of small quantities of broad bean (*Vicia faba*) and garden pea (*Pisum sativum*) at Bleadon is significant. The recovery of common vetch (*Vicia sativa*), which may be cultivated as a fodder crop, also is relatively rare in the region.

The weed/wild flora identified is dominated by weeds of arable crops or open ground, and also includes some taxa which are indicative of heavier soils and damp to wet conditions. It is possible that hazel was present in hedges or scrub in the vicinity of the site, however, since it can be used as a foodstuff, it is also possible that hazelnuts were simply traded/ bought into the site.

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Table 1: Charred plant remains from Medieval deposits at Bleadon

Sample Number	**9017**		**9018**		**9062**		
Context Number	**1075**		**1083**		**1138**		
Context Type	**Ditch**		**Ditch**		**Ditch**		
Sample Volume (L)	**48 L**		**24 L**		**56 L**		
Proportion of flot/ HR analysed	**1/8**		**1/2**		**100%**		
Flot/ Heavy Residue	**Flot**	**HR**	**Flot**	**HR**	**Flot**	**HR**	
Flot (ml)/ HR Volume (L)	**300 ml**	**1.8L**	**50 ml**	**0.6 L**	**150 ml**	**1.8L**	
Seeds per Litre							
LATIN NAMES							**COMMON NAME**
Cereal Grain							
Hordeum sp.	6		8		114	6	Barley
Hordeum sp. – hulled	9		8		24	4	Hulled Barley
cf. *Hordeum* sp.	4		4		15	1	Possible Barley
Hordeum sp./ *Secale cereale* L./ *Triticum* sp.	263	1	103		262	111*	Wheat/ Barley/ Rye
Triticum sp. – free-threshing type	167		78		515	40	Free-threshing wheat
Triticum sp. – free-threshing type tail grain					5	1	Free-threshing wheat
Triticum sp. – indeterminate			1				Wheat
cf. *Triticum* sp					191		Possible wheat
Cereal/ POACEAE (large) – indeterminate caryopsis	152		1	7	102*	60*	Cereal/ Wild grass
Cereal/ POACEAE – indeterminate detached embryo					3		Cereal/ Wild grass
Cereal Chaff							
Hordeum sp. – rachis node			2				Barley
Secale cereale L.	1						Rye
Triticum aestivum L. – rachis node	1						Bread wheat
Triticum sp. – free-threshing type rachis node	13		5		14		Free-threshing Wheat
Triticum sp. – awn (fragments)	2						Wheat
cf. *Triticum* sp. – awn (fragments)			2				Possible Wheat
Cereal – indeterminate rachis node	15		1		17		Cereal
Cereal – indeterminate rachis internode			3				Cereal
Cereal – indeterminate basal rachis node			1				Cereal
Cereal/ POACEAE – indeterminate culm node	1		1		4		Cereal/ Wild grass
Cereal/ POACEAE – indeterminate culm base					1		Cereal/ Wild grass
Other cultivated plants							
Vicia faba L.	1		4			3	Broad bean
cf. *Vicia faba* L.	1		2		7		Possible Broad bean
Vicia sp./ *Pisum* sp.			14	1	13	9	Vetch/ Pea
Vicia sp./ *Lathyrus* sp./ *Pisum* sp.				2			Vetch/ Vetchling/ Pea
Pisum sativum L.			2				Garden pea
Trees/ Shrubs							
Corylus avellana L. – nutshell fragment						1	Hazel
cf. *Corylus avellana* L. – immature nutshell fragment					1		Hazel
Weed/ Wild plants							
Ranunculus acris L./ *R. repens* L./ *R. bulbosus* L. – type			2		4		Meadow/ Creeping/ Bulbous buttercup
Papaver rhoeas L./ P. *dubium* L.					1		Common/ Long-headed poppy
cf. *Urtica urens* L.	1						Small nettle
Chenopodium sp.	5		5		120		Goosefoot
Chenopodium sp./ *Atriplex* sp.	1				50		Goosefoot/ Orache
Atriplex sp.	1				3		Orache
Stellaria media s.l.	1		1		2		Common chickweed
Silene sp.			1		1		Campion
CARYOPHYLLACEAE – indeterminate	1						Pink Family
Polygonum aviculare agg.	1				3		Knotgrass
cf. *Polygonum* sp.					1		Possible Knotgrass
Polygonum sp./ *Rumex* sp./ *Carex* sp. – internal structure	4		2		9		Knotgrass/ Dock/ Sedge
Fallopia convolvulus (L.) Á. Löve			1		3		Black bindweed
Brassica cf. *nigra* (L.) W.D.J. Koch	2		1		1		Possible Black mustard
Brassica sp./ *Sinapis* sp.					1		Cabbage/ Mustard
cf. *Anagallis arvensis* L.			1				Possible Scarlet/Blue pimpernel
Vicia hirsuta (L.) Gray	2		1		1		Hairy tare
Vicia sativa L.					2	1	Common vetch
Vicia sp./ Lathyrus sp.	38	3	12		17	4	Vetch/ Vetchling
Melilotus sp./ Medicago sp./ Trifolium sp.	6		2		37		Melilot/ Medicago/ Clover
FABACEAE – indeterminate detached hilum	1						Pea Family
cf. FABACEAE						1[M]	Possible Pea Family

Table 1: Charred plant remains from Bleadon continued…

Sample Number		**9017**		**9018**		**9062**	
Flot/ Heavy Resiude	**Flot**	**HR**	**Flot**	**HR**	**Flot**	**HR**	
Weed/ Wild plants continued…							
Scandix pecten-veneris L.			1			1	Shepherd's needle
Daucus carota L.	1				9		Carrot
APIACEAE – indeterminate	1				7‡		Carrot Family
cf. *Prunella vulgaris* L.	1						Selfheal
Plantago major L.					5		Greater plantain
Plantago media L./ *Plantago lanceolata* L.	1				2		Hoary plantain/ Ribwort plantain
Euphrasia sp./ *Odontites* sp.	18		7		103		Eyebright/ Bartsia
Galium sp.	4				4		Bedstraw
Carduus sp./ *Cirsium* sp.					1		Thistle
Centaurea sp.					1		Knapweed
Lapsana communis L.	1						Nipplewort
cf. *Lapsana communis* L.					1		Possible Nipplewort
Picris sp. – type	1				3		Oxtongue type
Anthemis cotula L.	120		20		226		Stinking chamomile
cf. *Anthemis cotula* L.	4				15		Possible Stinking chamomile
cf. *Chrysanthemum segetum* L. – marginal achene					1		Possible corn marigold
ASTERACEAE- indeterminate					3		Daisy Family
Eleocharis sp.					2		Spike-rush
Scirpus sp.					1		Wood club-rush
Carex sp. – 3-sided	3				31		Sedge
Carex sp. – 2-sided	1						Sedge
Poa sp. - type	2				10		Meadow-grass type
Avena sp.	5		6		24		Oat
Avena sp. – awn (fragments)			2		6		Oat
Avena sp./ *Bromus* sp. – type	41		30		64	10	Oat/ Brome
Phleum sp. - type					10		Cat's-tail type
Bromus sp.	2				1		Brome
POACEAE – indeterminate small caryopsis	22		10		77		Small-seeded wild grass
POACEAE – indeterminate large caryopsis	240		127		529	16	Large-seeded wild grass
POACEAE – indeterminate culm node					3		Wild grass
POACEAE – indeterminate awn			1				Wild grass
Unidentified							
Calyx			7		1		Calyx
Fungal bodies	(3)						Fungal bodies[1]
Leaf (fragments)					2		Lead
Nutshell – indeterminate (fragments)			2			2	Nutshell
Sprout (Coleoptile)	1						Sprout
cf. sprout (coleoptile)						1	Possible Sprout
Stalk	2		1		1		Stalk
Thorn			2		1		Thorn
Twig			1				Twig
Unidentified			3		91		Unidentified
Indeterminate	100*	4	10†		50*	50*	Indeterminate
Total	**1271**	**8**	**499**	**10**	**2829**	**322**	
Overall Total	**1279**		**507**		**3151**		

[1] Fungal bodies are not included in the totals.
* = estimate
† = The heavy residue contained approximately 90 fragments of material that appears to be modern tarmac.
‡ = Sample 9062 indeterminate APIACEAE may be poorly preserved *Daucus carota*.
[M] = mineralised

Table 2: Habitats of wild plants recovered from Medieval samples at Bleadon

CONDITIONS	**Weeds of crops**		**Unshaded/ well-drained conditions**	**Unshaded conditions**			**Acid soils**	**Poorly drained soils**	**Moist to wet conditions (possibly seasonal)**		**Shaded conditions**			
HABITAT	**ARABLE FILEDS**	**CULTIVATED GROUND**	**DRY BANKS**	**GRASSLAND**	**ROUGH GROUND**	**WASTE/ OPEN GROUND**	**HEATHLAND**	**HEAVY SOILS**	**DAMP SOIL**	**STREAMSIDES/ MARSHES/ WET SOIL**	**HEDGEROWS**	**WOODS/ SCRUB**	**WOOD-CLEARINGS**	
Latin Name														**Common Name**
Papaver rhoeas L./ P. *dubium* L.	3					3								Common/ Long-headed poppy
cf. *Urtica urens* L.		3				3								Small nettle
Corylus avellana L.												3		Hazel
Stellaria media s.l.	3					3								Common chickweed
Polygonum aviculare agg.						3								Knotgrass
Fallopia convolvulus (L.) Á. Löve	3					3								Black bindweed
Brassica cf. *nigra* (L.) W.D.J. Koch			3		3	3								Possible Black mustard
cf. *Anagallis arvensis* L.	3					3								Possible Scarlet/Blue pimpernel
Vicia hirsuta (L.) Gray				3	3									Hairy tare
Vicia sativa L.			3	3	3									Common vetch
Scandix pecten-veneris L.	3					3								Shepherd's needle
Daucus carota L.				3	3									Carrot
cf. *Prunella vulgaris* L.				3	3								3	Selfheal
Plantago major L.		3		3	3	3								Greater plantain
Plantago media L./ *P. lanceolata* L.				3										Hoary plantain/ Ribwort plantain
Euphrasia sp./ *Odontites* sp.				3			?							Eyebright/ Bartsia
Lapsana communis L.					3	3					3	3		Nipplewort
Anthemis cotula L.	3					3		3						Stinking chamomile
cf. *Chrysanthemum segetum* L.	3					3								Possible corn marigold
Eleocharis sp.							?			3				Spike-rush
Scirpus sp.										3		3		Wood club-rush
Carex sp.							?			3				Sedge
Poa sp. - type	?			?		?								Meadow-grass type
Phleum sp. - type	?			?		?								Cat's-tail type
Avena sp.	3			3		3			?					Oat
Bromus sp.	3					3								Brome

Key: 3= present and ? = possibly present

Habitat information based on Stace (1997)

Table 3: Comparison of charred plants recovered from Bleadon with other charred plant remains from Medieval sites in the region

	Bleadon, North Somerset	East Street, Wareham, Dorset	Eckweek, North Somerset (Avon)	Howard's Lane, Wareham, Dorset	Lydford, Devon	Middleton Stoney, Oxfordshire†	Okehampton Castle, Devon	Ower Farm, Dorset	Priory Barn, Taunton, Somerset†	Sherborne Old Castle, Dorset	Wareham 1974–5, Dorset	
Number of samples studied	**3**	**5**	**16**	**7**	**75**	**1**	**1**	**17**	**5**	**23**	**n/a**	
LATIN NAME												**COMMON NAME**
Cultivars												
Hordeum vulgare L. – six-row hulled grain			✓									Six-row hulled barley
Hordeum sp. – hulled grain	✓		✓	✓								Hulled barley
Hordeum sp. – grain	✓	✓						✓	✓	✓	✓	Barley
Hordeum sp. – rachis	✓			✓								Barley rachis internode
Secale cereale L. – grain		✓		✓	✓!			✓!	✓		✓	Rye
Secale cereale L. – rachis	✓							✓	✓			Rye rachis internode
Triticum dicoccum Schübl../ *T. spelta* L. – glume base				✓								Emmer/ Spelt glume
cf. *Triticum dicoccum* Schübl../ *T. spelta* L. – grain				✓								Possible emmer / Spelt
Triticum spelta L.				✓								Spelt
Triticum cf. *turgidum* L./ *Triticum* cf. *durum* Desf.			✓									Rivet wheat/ Macaroni wheat
Triticum cf. *turgidum* L./ *T.* cf. *durum* Desf. - rachis			✓									Possible rivet wheat/ Macaroni wheat
Triticum aestivum L./ *Triticum compactum* Host.			✓									Bread wheat/ Club wheat
Triticum aestivum L./ *T. compactum* Host. - rachis			✓									Bread wheat/ Club wheat
Triticum sp. – free-threshing type grain	✓!	✓	✓!		✓	✓!		✓	✓	✓!	✓	Free-threshing wheat
Triticum sp. – free-threshing rachis internode	✓								✓	✓		Free-threshing wheat rachis internode
Triticum sp. – indeterminate grain	✓						✓					Indeterminate wheat
Avena sativa L. - grain					✓!							Oat
Cereal/ POACEAE – culm node	✓		✓							✓		Cereal/ Wild grass culm node
Cereal/ POACEAE – culm base	✓											Cereal/ Wild grass culm base
Cereal/ POACEAE – detached embryo	✓											Cereal/ Wild grass detached embryo
cf. *Lens culinaris* Medik.				✓								Possible lentil
Vicia faba L.	✓				✓							Celtic/ Broad bean
Vicia sp./ *Pisum* sp.	✓	✓	✓	✓						✓		Vetch/ Pea
Pisum sativum L.	✓											Garden pea
Vitis vinifera L.							✓					Grape
Pisum sativum L.		✓										Pea
Linum usitatissimum L. – capsule fragment		✓										Linseed/ Flax
cf. *Linum usitatissimum* L.				✓								Possible linseed/ Flax
Wild plants												
Pteridium sp.								✓				Bracken
Ranunculus acris L./ *reprens* L./ *bulbosus* L. type	✓		✓							✓		Meadow/ Creeping/ Bulbous buttercup
Ranunculus flammula L. type				✓				✓		✓		Lesser spearwort
cf. *Ranunculus* sp. – internal structure										✓		Possible internal structure of buttercup
Papaver cf. *dubium* L./ *Papaver* cf. *hybridum* L.				✓								Long-headed poppy/ Rough poppy
Papaver cf. *argemone* L.										✓		Possible prickly poppy
Chelidonium majus L.												Greater celandine
Corylus avellana L. – shell fragments	✓		✓	✓		✓		✓		✓		Hazelnut
Chenopodium album L.		✓		✓				✓				Fat hen
Chenopodium sp.	✓									✓		Goosefoot
Chenopodium sp./ *Atriplex* sp.	✓			✓						✓		Goosefoot/ Orache
Atriplex prostata Boucher ex DC./ *A. patula* L.			✓	✓								Spear-leaved orache/ Common orache
Atriplex sp.	✓											Orache
cf. *Beta vulgaris* L.										✓		Possible beet
Montia fontana L.								✓				Blink
Stellaria media (L.) Vill. s.l.	✓									✓		Common chickweed
Stellaria graminea L.				✓								Lesser stitchwort
Agrostemma githago L.		✓			✓			✓		✓		Corn cockle
Agrostemma githago L. – calyx fragment										✓		Corn cockle calyx fragment
Spergula arvensis L.				✓								Corn spurrey
Silene cf. *vulgaris* Garcke			✓	✓								Bladder campion

Table 3: Comparison of charred plants recovered from Bleadon with other charred plant remains from Medieval sites in the region continued…

	Bleadon, North Somerset	**East Street, Wareham, Dorset**	**Eckweek, North Somerset (Avon)**	**Howard's Lane, Wareham, Dorset**	**Lydford, Devon**	**Middleton Stoney, Oxfordshire†**	**Okehampton Castle, Devon**	**Ower Farm, Dorset**	**Priory Barn, Taunton, Somerset†**	**Sherborne Old Castle, Dorset**	**Wareham 1974–5, Dorset**	
Wild plants continued…												
Silene cf. *latifolia* Poir.				✓								White campion
Silene cf. *dioica* (L.) Clairv.				✓								Red campion
Silene sp.	✓			✓						✓		Campion
Polygonum aviculare L.	✓		✓					✓		✓		Knotgrass
cf. *Polygonum* sp.	✓									✓		Possible knotgrass
Polygonum sp./ *Rumex* sp./ *Carex* sp.	✓									✓		Knotgrass/ Dock/ Sedge
Fallopia convolvulus (L.) Á. Löve	✓											Black bindweed
Rumex acetosella agg.				✓				✓				Sheep's sorrel
Rumex sp.			✓	✓		✓		✓		✓		Dock
Viola sp.			✓					✓				Violet
Raphanus raphanistrum L.				✓	✓			✓				Wild radish
Brassica cf. *nigra* (L.) W.D.J. Koch	✓											Black mustard
Brassica sp./ *Sinapis* sp.	✓		✓	✓							✓	Cabbage/ Mustard
BRASSICACEAE – unidentified										✓		Cabbage family – unidentified
Calluna vulgaris (L.) Hull				✓				✓				Heather
Calluna sp.		✓										Heather
Erica tetralix L.				✓								Cross-leaved heather
Erica cf, *tetralix* L.								✓				Cross-leaved heather
Erica cf. *cinerea* L.				✓								Bell heather
Erica cf. *cinerea* L.								✓				Bell heather
Erica sp.		✓		✓				✓				Heather
Vaccinium sp.		✓										Bilberry
Anagallis arvensis L.			✓									Scarlet pimpernel/ Blue pimpernel
cf. *Anagallis arvensis* L.	✓											Possible scarlet/ Blue pimpernel
Anagallis minima (L.) E.H.L. Krause								✓				Chaffweed
Rubus fruticosus agg.			✓									Blackberry/ Bramble
Potentilla sp.			✓									Cinquefoil
cf. *Agrimonia* sp.				✓								Agrimony
Alchemilla sp.				✓								Lady's mantle
Aphanes arvensis s.l.				✓								Parsley-piert
Prunus spinosa L.			✓					✓				Sloe/ Blackthorn
Prunus sp.			✓									Cherry/ Bullace/ Sloe/ Plum
Crataegus monogyna Jacq.			✓									Hawthorn
cf. Pimpinella sp.				✓								Possible burnet-saxifrage
Bupleurum rotundiflium L.			✓	✓								Thorow-wax
Vicia hirsuta (L.) Gray	✓											Hairy tare
Vicia sativa L.	✓									✓		Common vetch
Vicia sp./ *Lathyrus* sp.			✓	✓		✓				✓	✓	Vetch/ Vetchling
cf. *Lathyrus aphaca* L.										✓		Yellow vetchling
Melilotus sp./ *Medicago* sp./ *Trifolium* sp.	✓		✓	✓						✓		Melilot/ Medick/ Clover
cf. *Melilotus* sp./ *Medicago* sp./ *Trifolium* sp.										✓		Possible melilot/ Medick/ Clover
Medicago lupulina L.			✓	✓				✓				Black medick
Trifolium sp.								✓				Clover
cf. *Trifolium* sp.			✓									Possible clover
FABACEAE – unidentified *Genista* type										✓		Pea family – gorse type
FABACEAE – unidentified										✓		Pea family – unidentified
FABACEAE – indeterminate detached hilum	✓											Pea family – indet. Detached hilum
cf. FABACEAE - unidentified	✓									✓		Possible pea family - unidentified
Scandix pecten-veneris L.	✓											Shepherd's needle
Daucus carota L.	✓											Carrot
APIACEAE - unidentified	✓											Carrot family
Solanum nigrum L.										✓		Black nightshade
Lithospermum arvense L.				✓						✓		Field gromwell
Verbena sp.				✓								Vervain
cf. *Stachys* sp.										✓		Possible woundwort

Table 3: Comparison of charred plants recovered from Bleadon with other charred plant remains from Medieval sites in the region continued…

	Bleadon, North Somerset	East Street, Wareham, Dorset	Eckweek, North Somerset (Avon)	Howard's Lane, Wareham, Dorset	Lydford, Devon	Middleton Stoney, Oxfordshire†	Okehampton Castle, Devon	Ower Farm, Dorset	Priory Barn, Taunton, Somerset†	Sherborne Old Castle, Dorset	Wareham 1974–5, Dorset	
Wild plants continued…												
cf. *Prunella vulgaris* L.	✓											Possible selfheal
LAMIACEAE – unidentified										✓		Mint family
Plantago major L.	✓											Greater plantain
Plantago media L./ *P. lanceolata* L.	✓		✓									Hoary/ Ribwort plantain
Plantago cf. *media* L./ *P. lanceolota* L.										✓		Possible hoary/Ribwort plantain
Euphrasia sp./ *Odontites* sp.	✓		✓	✓						✓		Eyebright/ Bartsia
Rhinanthus minor L.			✓									Yellow rattle
Galium palustre L.				✓								Common marsh-bedstraw
Galium aparine L.			✓	✓								Cleavers
Galium sp.	✓		✓							✓	✓	Bedstraw
Sambucus nigra L.				✓				✓		✓		Elder
Knautia arvensis (L.) Coult.			✓									Field scabious
Carduus sp./ *Cirsium* sp.	✓		✓									Thistle
Centaurea cyanus L.								✓				Cornflower
Centaurea nigra L.			✓									Common knapweed
Centaurea sp.	✓									✓		Thistle
Lapsana communis L.	✓											Nipplewort
cf. *Lapsana communis* L.	✓											Possible nipplewort
Picris sp. - type	✓											Oxtongue type
Anthemis cotula L.	✓		✓	✓				✓		✓		Stinking chamomile
cf. *Anthemis cotula* L.	✓									✓		Possible stinking chamomile
Chrysanthemum segetum L.				✓	✓			✓				Corn marigold
cf. *Chrysanthemum segetum* L.	✓									✓		Possible corn marigold
Tripleurospermum maritimum (L.) W.D.J. Koch				✓								Sea mayweed
ASTERACEAE - unidentified	✓									✓		Thistle family - unidentified
Eleocharis palustris (L.) Roem. & Schult. s.l.				✓								Spike-rush
Eleocharis sp.	✓											Spike-rush
Bolboschoenus sp./ *Schoenoplectus* sp.										✓		Sea club-rush/ Spike-rush
Scirpus spp.	✓									✓		Wood club-rush
Isolepis sp.				✓								Club-rush
Cladium mariscus (L.) Pohl			✓									Great fen-sedge
Carex cf. *flava* gp.							✓					Large yellow-sedge
Carex spp. – 2-sided	✓									✓		Sedge – 2-sided
Carex spp. – 3-sided	✓			✓				✓		✓		Sedge – 3-sided
CYPERACEAE - unidentified										✓		Sedge family - unidentified
Lolium temulentum L.			✓									Darnel
Lolium sp. - type			✓									Rye-grass
Cynosurus cristatus L.										✓		Crested dog's tail
Poa sp. - type	✓									✓		Meadow-grass type
Avena spp. – caryopsis	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	Wild or cultivated oat
Avena spp. - rachilla					✓							Wild or cultivated oat
Avena spp. - lemma					✓							Wild or cultivated oat
Avena spp. - awn	✓			✓								Wild or cultivated oat
cf. *Avena* spp. – caryopsis						✓						Possible wild/ Cultivated oat caryopsis
cf. *Avena* spp. – rachilla										✓		Possible wild/ Cultivated oat rachilla
Avena sp./ *Bromus* sp. – type caryopsis	✓									✓		Oat/ Brome
Phleum sp. – type	✓									✓		Cat's tail type
cf. *Phleum* sp. – type										✓		Possible cat's tail type
Bromus spp.	✓		✓	✓				✓	✓	✓	✓	Brome
Elytrigia repens s.l. - rhizome		✓										Common couch-grass
Danthonia decumbens (L.) DC				✓								Heath-grass

Table 3: Comparison of charred plants recovered from Bleadon with other charred plant remains from Medieval sites in the region continued…

	Bleadon, North Somerset	East Street, Wareham, Dorset	Eckweek, North Somerset (Avon)	Howard's Lane, Wareham, Dorset	Lydford, Devon	Middleton Stoney, Oxfordshire†	Okehampton Castle, Devon	Ower Farm, Dorset	Priory Barn, Taunton, Somerset†	Sherborne Old Castle, Dorset	Wareham 1974–5, Dorset	
Wild plants continued…												
POACEAE – unidentified small grass	✓									✓		Grass family – small grass
POACEAE – unidentified large grass	✓									✓		Grass family – large grass
POACEAE – indeterminate (size not specified)			✓	✓		✓		✓				Grass family
POACEAE – culm node	✓									✓		Wild grass – culm node
POACEAE – awn	✓											Wild grass – awn
POACEAE – rachis/ rachilla										✓		Wild grass – rachis/ rachilla
cf. POACEAE – caryopsis										✓		Possible grass caryopsis
Sparganium sp.										✓		Bur-reed

Key: ✓= present and ✓! = dominant cereal † = Only the charred plant remains are listed

Sources of data: context(s) (total number of seeds identified)

Bleadon – 3 ditch samples (N = 4937)
East Street, Wareham – (Green 1978): various contexts, not specified (number of seeds identified not provided)
Eckweek, North Somerset (Avon) – (Carruthers 1995): various contexts, not specified/ phases 5 & 6 (N = 2491)
Howard's Lane, Wareham – (Carruthers 1991a): 4 pits and 1 ditch (N = 610)
Lydford – (Green 1980): granary deposits (not completely quantified, N >5000).
Middleton Stoney – (Robinson 1984): cess pit (N = 155)
Okehampton Castle – (Colledge 1982): pit (N = 27)
Ower Farm – (Carruthers 1991b): midden (N = 807)
Priory Barn, Taunton – (Greig and Osborne 1984): 4 pits and 1 ditch (N = 133)
Sherborne Old Castle – (Smith 2001): 21 midden deposits and 1 pit (N = 3012)
Wareham 1974-5 – (Monk 1980): various contexts, not specified (number of seeds identified not provided)

Figure 1: Proportion of plant remains recovered in the Bleadon samples