



Assessment of Environmental Evidence from T23726 Outseats Farm, Alfreton, Derbyshire

Acknowledgements

The samples were processed by Liz Chambers, Ifigenia Klopa and Stavroula Fouriki. The flots were sorted by Nicki Mulhall and assessed by Inés López-Dóriga.

1 ENVIRONMENTAL EVIDENCE

1.1 Introduction

1.1.1 Eighteen bulk samples were taken from a range of features of medieval chronology such as pits and ditches and were processed and assessed for the presence of environmental evidence.

1.2 Aims and Methods

1.1.1 The purpose of this assessment is to determine the potential of the environmental remains preserved at the site to address project aims and to provide archaeobotanical data valuable for wider research frameworks.

1.1.2 The size of the samples varied between 10 and 40 litres, and on average was around 33 litres. The bulk samples were processed by standard flotation methods; the flot retained on a 0.25 mm mesh, residues fractionated into 5.6 mm and 1 mm fractions and dried. The coarse fractions (>5.6 mm) were sorted, weighed and discarded. The flots were scanned using a stereo incident light microscopy (Leica MS5 microscope) at magnifications of up to x40 for the identification of environmental remains. Different bioturbation indicators were considered, including the percentage of roots, the abundance of modern seeds and the presence of mycorrhizal fungi sclerotia (e.g. *Cenococcum geophilum*) and animal remains, such as earthworm eggs and insects, which would not be preserved unless anoxic conditions prevailed on site. The preservation and nature of the charred plant and wood charcoal remains, as well as the presence of other environmental remains such as molluscs, animal bone and insects (in cases of anoxic conditions for their preservation), was recorded.

1.1.3 Preliminary identifications of dominant or important taxa are noted below, following the nomenclature of Stace (1997) for wild plants, and traditional nomenclature, as provided by Zohary and Hopf (2000, Tables 3, page 28 and 5, page 65), for cereals. Abundance of remains is qualitatively quantified (A*** = exceptional, A** = 100+, A* = 30-99, A = >10, B = 9-5, C = <5) as an estimation of the minimum number of individuals and not the number of remains per taxa.

1.3 Results

1.1.4 The flots were generally heavily bioturbated with high numbers of roots and modern seeds that may be indicative of stratigraphic movement and the possibility of contamination by later intrusive elements.

1.1.5 Charred material comprised varying degrees of preservation and was present on only a few of the samples, with small to moderate assemblages of remains from taxa including naked wheat (*Triticum* cf. *aestivum/turgidum*) oats (*Avena* sp.), grass (Poaceae) seeds and false oat-grass (*Arrhenatherum elatius* subsp. *bulbosum*) tubers, black mustard (*Brassica* cf. *nigra*), plantain (*Plantago lanceolata*) and sedges (Cyperaceae). The absence of lemma bases prevents the identification of the oats to the cultivated or wild variety, but the size of



the grains suggests these were cultivated. Similarly, it is not possible to tell based on the morphology of the seed whether the black mustard seed was a crop itself or a crop weed.

1.4 Discussion and Further potential

Charred plant remains

- 1.1.6 The assemblages of charred plant remains are relatively small and poor but consistent with domestic crop-processing activities in medieval times in the vicinity of the sampled areas. Naked wheat, and possibly oats and black mustard were cultivated. The other components of the assemblages were probably contaminants discarded as by-products. Weeding may have been carried out by uprooting, judging by the presence of tubers in the samples.
- 1.1.7 The analysis of the charred plant assemblages has little potential at this stage, although this should be reviewed after more work has been carried out in the area.

2 REFERENCES

2.1 Bibliography

- Stace, C, 1997, *New flora of the British Isles* (2nd edition), Cambridge: Cambridge University Press.
- Zohary, D, and Hopf, M, 2000, *Domestication of plants in the Old World: the origin and spread of cultivated plants in West Asia, Europe, and the Nile Valley*, 3rd edition, Clarendon Press, Oxford.



3 APPENDICES

Table 1: Assessment of the charred plant remains and charcoal

Feature	Con-text	Sample	Vol (L)	Flot (ml)	Sub-sample	Bioturbation proxies	Grain	Chaff	Cereal Notes	Charred Other	Charred Other Notes	Charcoal > 4/2mm	Char-coal	Other	Comments (preservation)
2030	2029	201	35	60		80%, B, E, I, F	-	-	-	C	Poaceae	Trace	Mature	-	Poor
2049	2048	203	40	40		80%, B, E, F	-	-	-	C	Indets	4ml	Mature	-	Fair
2045	2044	204	38	30		80%, B, E, I, F	-	-	-	C	Poaceae	5ml	Mature	-	Poor
2032	2033	205	40	120		80%, B, E, I	A*	-	<i>Triticum cf. aestivum/turgidum</i> (C), <i>Avena sp.</i> (A*)	C	<i>Plantago lanceolata</i> , Cyperaceae	4ml	Mature	-	Poor
2057	2058	206	40	50		90%, B, E, F (A***), I	-	-	-	C	Poaceae	Trace	Mature	-	Fair
2038	2039	207	38	25		90%, B, E, F (A***)	-	-	-	C	<i>Arrhenatherum elatius</i> ssp. <i>bulbosum</i> tuber	3ml	Mature	-	Fair
2068	2069	202	20	200	50%	90%, A***, E	-	-	-	-	-	Trace	Mature	-	-
2091	2090	211	40	40		80%, B,E, I, F	-	-	-	C	Poaceae	Trace	Mature	-	Poor
2092	2093	212	36	60		90%, B, F	-	-	-	-	-	1ml	Mature	-	-
2062	2063	208	40	125		60%, B, E, I, F	-	-	-	-	-	5ml	Mature	-	-
2051	2050	209	38	50		80%, B, E	B	-	<i>Avena sp.</i>	-	-	4ml	Mature	-	Poor
2089	2088	210	10	40		75%, C, E, I	-	-	-	-	-	<1ml	Mature	-	-
2052	2053	213	20	30		80%, A, E, I, F	-	-	-	C	Poaceae	1ml	Mature	-	Fair
2054	2055	214	20	35		90%, B, E, F, I	-	-	-	-	-	Trace	Mature	-	-
2075	2074	215	34	20		80%, B, E, F, I	C	-	<i>Triticum sp.</i>	C	Poaceae	<1ml	Mature	-	Poor
2097	2098	216	37	125		75%, B, E, I, F	-	-	-	C	<i>Plantago lanceolata</i> , indet tuber	<1ml	Mature	-	Fair
2094	2096	217	40	250		75%, A, E, I	A	-	<i>Avena sp.</i>	A	<i>Brassica cf. nigra</i>	5ml	Mature	-	Fair
2112	2110	218	40	250		75%, B, E, I	-	-	-	-	-	10ml	Mature	-	-

Key: A*** = exceptional, A** = 100+, A* = 30-99, A = >10, B = 9-5, C = <5; Bioturbation proxies: Roots (%), Uncharred seeds (scale of abundance), F = mycorrhizal fungi sclerotia, E = earthworm eggs, I = insects.