

Palaeoecology Research
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**Evaluation of biological remains from
excavations at Broomfleet Ponds, East Riding
of Yorkshire (site code: BRW2003)**

PRS 2003/95

**Evaluation of biological remains from excavations at Broomfleet Ponds,
East Riding of Yorkshire, (site code: BRW2003)**

by

Allan Hall, Harry Kenward, John Carrott and Kathryn Johnson

Summary

Three sediment samples, recovered from deposits encountered during excavations at Broomfleet Ponds, East Riding of Yorkshire, were submitted for an evaluation of their bioarchaeological potential.

Two of the samples gave well preserved plant remains indicative of natural alder-oak woodland. One also gave a complementary assemblage or quite well preserved insect and other invertebrate remains. These assemblages are entirely consistent with expectations for this area fringing the Humber. The third sample indicated that preservation is not always to be expected in all deposits of this kind (palaeochannel fill).

There is only limited potential for further exploration of the present, apparently natural, deposits in the absence of dating and any associated evidence for occupation. The dating of Context 1004 and full recording of the insect assemblage is highly desirable to provide data on the landscape history of the area, however. Any further excavation in this area should take account of the possibility of encountering other deposits with good preservation of plant and insect remains.

KEYWORDS: BROOMFLEET PONDS; EAST RIDING OF YORKSHIRE; EVALUATION; PLANT REMAINS; INVERTEBRATE REMAINS; WOODLAND

Contact address for authors:

Prepared for:

Palaeoecology Research Services
Unit 8
Dabble Duck Industrial Estate
Shildon

Humber Field Archaeology
The Old School
Northumberland Avenue
Hull HU2 0LN

County Durham DL4 2RA

11 December 2003

Evaluation of biological remains from excavations at Broomfleet Ponds, East Riding of Yorkshire (site code: BRW2003)

Introduction

An archaeological evaluation excavation was carried out by Humber Field Archaeology at Broomfleet Ponds, East Riding of Yorkshire (NGR SE 867 289), during September 2003.

The excavation was carried out following a geophysical survey which identified possible archaeological features at the site.

Three sediment samples ('GBA'/'BS' *sensu* Dobney *et al.* 1992) were submitted to PRS for an evaluation of their bioarchaeological potential.

Methods

The sediment samples were inspected and their lithologies recorded, using a standard *pro forma*, prior to processing, following the procedures of Kenward *et al.* (1980; 1986), for the recovery of plant and invertebrate macrofossils.

The flots and washover resulting from processing were examined for plant and invertebrate macrofossils. The residues were examined for larger plant macrofossils and other biological and artefactual remains. Insect preservation was recorded using the scheme of Kenward and Large (1998).

Results

The results are presented in context number order. Archaeological information, provided by the excavator, is given in square brackets. A brief summary of the processing method and an estimate of the remaining volume of unprocessed sediment follows (in round brackets) after the sample number.

Context 1004 [buried 'peat' land surface]

Sample 1/T (1 kg sieved to 300 microns with paraffin flotation; approximately 2 litres of unprocessed sediment remain)

Moist to wet, stiff to crumbly (working soft), mix of fine and coarse herbaceous detritus and woody fragments in a matrix of light to mid brown to mid to dark grey (in shades of grey-brown), silt.

There was a very large residue of about 700 ml of woody and herbaceous detritus, the woody material was mainly twigs (including alder, *Alnus glutinosa* (L.) Gaertner, to 110 mm), but there were also some fragments of more substantial branch/trunk wood. The plant material varied somewhat in preservation, some pyritization being seen on fragments of herbaceous detritus (which appeared to be mainly monocotyledonous rhizome material). A very small range of plant taxa was identified as fruits, seeds and buds/scales: alder, oak (*Quercus*), sedge (*Carex*), and a few other remains, all consistent with natural wet woodland and with no indicators of disturbance.

The flot, which was fairly small, gave significant numbers of insect remains, as well as numerous mites. Preservation varied, as is common in natural accumulations, but was often good (E 1.5-4.0, mode 2.5 distinct; F 1.5-4.5, mode 2.0 weak). A considerable proportion of the beetles were aquatics, especially *Hydraena* and *Ochthebius* species. The terrestrial fauna was limited, and may mostly have originated at the edge of water or in marshy conditions; it included water beetles, water fleas (*Daphnia*) and caddis fly wings. A notable record was of three pronota of *Oxytelus fulvipes* Erichson, which is a very uncommon species today (see for example Kenward 1978; 1980) but has a growing archaeological record, suggesting either the impact of the Little Ice Age or the effect of destruction of the swamps which favour it. A (rather decayed scrap of) *Phyllopertha horticola* (Linnaeus) indicated grassland beyond the moist area of deposition. It would be necessary to identify the water beetles closely to test for a saline influence, and—providing a date can be obtained—it would be desirable to analyse in detail both the present assemblage and remains from a larger subsample (3-5 kg) in order to reconstruct local conditions and to gather data for future synthesis.

Context 1006 [buried meander fill]

Sample 2/T (1 kg sieved to 300 microns with paraffin flotation; approximately 2 litres of unprocessed sediment remain)

Moist, brittle to crumbly (working soft), mix of fine and coarse herbaceous detritus, with occasional woody fragments (some rather large to 150 mm by 25 mm in diameter), in a matrix of light to mid brown to mid to dark grey (in shades of grey-brown), silt.

The large residue of about 325 ml comprised woody and herbaceous detritus, including twig fragments (amongst them, again, alder). Alder fruits and female cone axes were also noted, along with buds and bud-scales and acorn cupule fragments of oak. The remaining few taxa recorded were all consistent with natural wet woodland. Preservation was a little bit variable, with some rather soft and decayed twigs and wood; the wood fragments mostly appearing the better preserved though still quite soft. There was also some pyritisation.

The small flot contained only small numbers of insect remains, a single mite and some earthworm egg capsules. The remains were of little interpretative value. It is possible that a small but informative assemblage might be recovered from a much larger subsample (of significantly more sediment than is currently available), but this is by no means certain.

Context 2006 [palaeochannel fill]

Sample 3/T (0.8 kg sieved to 300 microns with washover; no unprocessed sediment remains)

Moist, light grey to light to mid yellow-brown, stiff (working plastic), clay. Fragments of snail shell and modern rootlets were present.

There was a very small residue and washover of about 20 ml of roots with a little sand and traces of unidentified snail shell.

Discussion and statement of potential

Two of the samples (from Contexts 1004 and 1006) gave well preserved plant remains indicative of natural alder-oak woodland. One (Sample 1, Context 1004) also gave a complementary assemblage or quite well preserved insect and other invertebrate remains. These assemblages are entirely consistent with expectations for this area fringing the Humber. The third sample indicated that preservation is not always to be

expected in all deposits of this kind (palaeochannel fill), though the quantity of sediment available was rather small.

With the exception of the insect assemblage from 1004, no further analysis of the material in hand is required, though it may be remarked that ample suitable material for dating by radiocarbon assay could, if required, be extracted from further subsamples from both Contexts 1004 and 1006, and that dating of 1004 is essential if any further analysis of insects is undertaken. Whatever the date obtained, the assemblage would provide a useful data point in space and time for landscape reconstruction.

Recommendations

Further excavation in this area should take account of the possibility of encountering other deposits with good preservation of plant and insect remains.

There is only limited potential for further exploration of the present, apparently natural, deposits in the absence of dating and any associated evidence for occupation. The dating of Context 1004 and full recording of the insect assemblage is highly desirable to provide data on the landscape history of the area, however.

Retention and disposal

The remaining sediment from Context 1004, together with the remains recovered from the processed subsample, should be retained. Any other sediment samples may be discarded unless required for investigation of non-biological remains.

Archive

All material is currently stored by Palaeoecology Research Services (Unit 8, Dabble Duck Industrial Estate, Shildon, County Durham), along with paper and electronic records pertaining to the work described here.

Acknowledgements

The authors are grateful to Sophie Tibbles of Humber Field Archaeology for providing the material and the archaeological information.

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