

**Seamer Carr landfill extension: evaluation of the
archaeological potential of insect remains**

by

John Carrott, Harry Kenward and Michael Issitt

Summary

The archaeological potential of insect remains from six samples from excavations of Mesolithic deposits at Seamer Carr, near Scarborough, N. Yorkshire, in an area under threat from burial by landfill, has been determined.

One of the deposits studied, Context 147 from Trench 83, is considered to be of very great potential importance in reconstructing local aquatic, aquatic-marginal and terrestrial habitats, and for climatic reconstruction and studies of faunal history. If contemporaneous with the Mesolithic activity at the site it will be of the highest archaeological priority, but it is important whatever its associations. Some of the remaining deposits had limited potential, others none. Doubtless further excavation would reveal more deposits containing useful assemblages of insect remains.

If the deposits are threatened by development (and compression and dewatering consequent upon deposition of overburden would be a serious threat), then provision should be made for a large-scale investigation of the invertebrate remains.

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Authors' address:

Environmental Archaeology Unit
University of York
Heslington
York
YO1 5DD

Telephone: (01904) 433843/51
Fax: (01904) 433850

Prepared for:

Northern Archaeological Associates
15 Redwell Court
Harmire Road
Barnard Castle
Co. Durham DL12 8BN

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Introduction and methods

During October 1996 excavations were carried out by Northern Archaeological Associates at Seamer Carr, near Scarborough, N. Yorkshire, as part of an evaluation of the archaeological potential of an area proposed for development as a landfill site. Members of the Environmental Archaeology Unit were engaged in an advisory capacity, and on 17.10.96 visited the site and collected samples from a series of trenches exposing deposits abutting and overlying an 'island' of gravel believed to represent an area of dry land formerly surrounded by fen. The primary interest of the deposits lay in their association with Mesolithic flint scatters, paralleling material recorded elsewhere in the Vale of Pickering, notably at Starr Carr.

The samples, 'GBAs' *sensu* Dobney *et al.* (1992), were collected from Trenches 83, 80, 82 and 48, representing a series from south to north from the former swamp or lake upslope onto the gravel island. Single samples were collected from thin peats in Trenches 48 (Sample 419) and 82 (815), three from the rather thicker sequence in Trench 80 (1094-6), and five from a much better developed sequence of muds and peats in Trench 83 (866-9). In Trenches 80 and 83, the samples were numbered down the sequence.

The samples were examined in the laboratory, where they were described using a *pro forma* and six were chosen for processing to extract insect and other macroinvertebrate remains. Subsamples of 1 kg were used in each case, and methods followed Kenward *et al.* (1980), as modified by Kenward *et al.* (1986).

Extracted fossils were examined in the 'flot' recovered by paraffin flotation, the material being stored in industrial methylated spirits. A record was made of the preservational condition of the remains, of the range and abundance of fossils representing various ecological groups, and of the principal taxa.

Insect remains from the earlier excavations at Seamer were described by Osborne (1980), whose report was unfortunately not obtainable within the time scale of this evaluation.

Results and discussion

The results are considered by trench from downslope to upslope, and within trenches from below to above.

Trench 83

An irregularity in the floor of this trench appeared perhaps to represent a wave-cut shoreline. The lowest sample (869) was taken from beneath muds suspected to have formed in the lake shallows (Sample 868). Sample 867 represented a thin horizon overlying the putative lake muds together with the lowest peats; the remaining samples were taken from higher levels within the peat.

Sample 869, Context 183

Moist mid to dark grey (brownier internally) fibrous sandy, silty, amorphous organic sediment. Appreciable quantities of stones in the 2-60 mm range. 1 kg processed.

A large volume of plant debris was recovered in the flot. There were only a few beetle remains, forming no clear ecological community, and a small number of other invertebrates. The rarity of remains did not appear to have resulted from in-ground decay, as none of the remains showed extreme chemical degradation. It was estimated that a subsample of about 20 kg might provide sufficient remains for ecological reconstruction.

Sample 868, Context 147

Moist dark grey (often browner internally) soft, fibrous amorphous organic sediment with traces of stones in the 6-20 mm range. Appeared 'jumbled' (?disturbance at the lake edge) and contained abundant herbaceous detritus and some sandy patches. 1 kg processed.

The flot was of rather modest size and was rich in insect remains. Preservation ranged from rather poor to quite good, but in all cases the remains were in sufficiently good condition for identification. Aquatic, waterside/swamp and terrestrial beetles and bugs were abundant and rather diverse. The concentration of water beetles and bugs was sufficiently high in terms of both individuals and species for a very precise reconstruction of conditions to be made using a larger subsample, and similarly the range of waterside insects promised a clear view of the local aquatic marginal vegetation.

Terrestrial insects included some (such as click beetles and chafers) which suggested that the local dry-land vegetation may have been grassy, and there were some hints of disturbance. There were no indications of woodland (though scrub may have been present), and dung beetles were rare. None of the species were regarded as strongly

favoured by artificial accumulations of decaying matter. Several of the fossils appeared to be of unusual taxa whose identification would be a priority.

It appears likely that formation this deposit was contemporaneous with Mesolithic exploitation of the adjacent land surface, so that its fauna will be of the greatest importance in reconstructing the environment created by human activity. Local ecology could be reconstructed in great detail using subsamples of perhaps 5 kg. Processing much larger subsamples (perhaps 20 kg) for recovery of a wide range of additional taxa would provide valuable data for climatic reconstruction and faunal history.

Sample 867, Contexts 101/148

This sample represented the base of the peat and the somewhat greenish layer beneath it. Moist, dark grey-brown, fibrous but brittle, greasy (working crumbly then plastic) amorphous organic sediment with herbaceous detritus locally throughout. 1 kg processed.

A rather large flot resulted from paraffin flotation. It contained a small number of insect remains of variable preservation (although all were in an identifiable state). There were some aquatic, waterside and probable terrestrial taxa. A very large subsample (say 20 kg) would be needed to recover an interpretable assemblage, although even then it is not certain that sufficient terrestrial species would be recovered for ecological reconstruction beyond the point of deposition to be accurate.

Sample 866, Context 101

Dark brown compressed and layered amorphous organic sediment with abundant woody and herbaceous detritus. Not processed.

Trench 80

Sample 1096, Context 130

Mid to dark greyish brown (locally strong brown and pale grey), soft and plastic to crumbly (working plastic) amorphous organic sediment, with some humic silty sand and grades between these extremes. Trace of flint. 1 kg processed.

The flot was large, consisting of what appeared to be fragments of fine plant roots, but only a single insect fragment was noted. Low input seems unlikely to be the cause of this extreme rarity invertebrates. There were no partly decayed remains, but it is possible that the deposit had undergone extreme humification at some stage, destroying the content of fossils, and then (or at the same time) had been invaded by plant roots.

Sample 1095, Context 129

Amorphous organic sediment with a little herbaceous detritus; just moist but subjectively appeared to have dried out completely at some time. Not processed.

Sample 1094, Context 106

Amorphous organic sediment with some wood; although moist it appeared to have dried out in the past. Not processed.

Trench 82

Sample 815, Context 141

Moist; variable in colour from dark slightly grey yellowish brown to dark brown, crumbly (working soft and plastic), silty amorphous organic sediment with traces of sand locally; in places pure amorphous organic matter. Some wood was noted. 1 kg processed.

The flot was large and contained abundant coarse fragments of plant root and stem. There were traces of invertebrate remains. It was considered doubtful whether even a 20 kg subsample would produce an interpretable assemblage of insects, although some information would be obtained.

Trench 48

Sample 419, Context 101

The sample was just moist and the sediment appeared to have undergone decay locally. It was a dark strong brown in colour, brittle, apparently indurated, amorphous organic sediment. There was some bark and wood. 1 kg processed.

The flot was large and notable for its content of fine charcoal, which from the excellently-preserved cellular structure appeared to be burned monocotyledon stems, perhaps grass. There were also some modern grass seeds still containing white endosperm, and it appears likely that these two components had been carried down from the surface, probably in cracks or by the actions of burrowing animals. The small number of invertebrate remains noted must thus be discounted for archeological purposes, quite probably being of modern origin too.

Potential of the insect remains

One of the deposits studied, Context 147 from Trench 83, is considered to be of very great potential importance in reconstructing local aquatic, aquatic-marginal and terrestrial habitats. It would also provide material for climatic reconstruction and studies of faunal history. If shown to be contemporaneous with the Mesolithic activity at the site (probable in view of the indications of grassy vegetation) it will be of the highest archaeological priority and of national or international significance, but it is important whatever its associations.

Deposits of this kind and date with a large content of insect remains are very rare and conservation as well as study is desirable, and indeed urgent. If the deposits are threatened by development (and compression and dewatering consequent upon deposition of overburden would be a serious threat), then provision should be made for a large-scale investigation of the invertebrate remains.

Recommendations

The deposits should be conserved if possible, in which case it is strongly recommended that the samples already collected should be fully investigated, preferably augmented by further material from a trench adjacent to TT83. If development is to proceed, then a large-scale programme of excavation, sampling and post-excavation analysis is essential, with invertebrates, particularly insects, representing a major component in view of their potential for reconstruction of the human environment. The cost implications of such a study would be considerable, but justified by the likely results.

It was clear from field observations that the upper deposits had suffered damage from dehydration and, unless action can be taken to maintain (and preferably raise) the local water table, a detailed programme of research should be undertaken in the short term, before this important archaeological resource degrades further.

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