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**Palaeoecological potential of biological remains from Flandrian deposits by West Beck, Brigham, N. Humberside**

by

John Carrott, Keith Dobney, Allan Hall, Michael Issitt,  
Deborah Jaques, Harry Kenward and Frances Large

**Summary**

*The value for paleoecological interpretation of a series of sediment samples and a little bone from Flandrian deposits close to the West Beck in the valley of the River Hull, near Brigham, N. Humberside, has been assessed. The deposits consisted primarily of peats and humic silts which were rich in plant and invertebrate remains consistent with deposition in water and representing a range of regimes from fairly deep, flowing water to still, shallow water. In the earliest deposits examined there were insects indicative of late-glacial or very early post-glacial environments together with plant remains suggesting a perhaps somewhat later date.*

*The very small body of bones, some of them unstratified, are thought to be of little further value .*

*It is recommended that further biological analyses—principally of plant and invertebrate remains—are undertaken when dating evidence (by means of radiocarbon assay) has been obtained.*

**Keywords:** WEST BECK; BRIGHAM; NORTH HUMBERSIDE; PEATS; FLANDRIAN DEPOSITS; PLANT REMAINS; INSECT REMAINS; MOLLUSCS; BONES

Authors' address:

Environmental Archaeology Unit  
University of York  
Heslington  
York YO1 5DD

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

Prepared for:

Humberside Archaeology Unit  
The Old School  
Northumberland Avenue  
Hull HU2 0LN

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## Palaeoecological potential of biological remains from Flandrian deposits by West Beck, Brigham, N. Humberside

### Introduction

A series of 'GBA' samples (*sensu* Dobney *et al.* 1992) and a very small assemblage of bone from Flandrian deposits excavated by Humberside Archaeology by the West Beck, in the valley of the River Hull, near Brigham, North Humberside, has been assessed for its bioarchaeological potential. In addition a small number of identifications of timbers from the site has been made. The deposits consisted of a sequence of detritus peats and humic silts and clays overlying sandy clay and appeared to be essentially of natural origin.

### Methods

All the sediment samples were examined in the laboratory and a description prepared using a standard *pro forma*; ten were selected at this stage for further analysis. The 'test' subsamples (of 1 kg) were processed using techniques described by Kenward *et al.* (1980; 1986). Plant macrofossils were examined from the residues left after disaggregation, and insect and other invertebrate macrofossils from the 'flots' from paraffin flotation.

### Results

The results of the analyses of GBA subsample (including descriptions of all the samples and the results of timber identifications) are presented in stratigraphic order within the three trenches.

#### Trench 1

##### Context 18

Sample 12 (GBA), -0.890 m, clay/sand 1.5 m from 2D

Mid grey, plastic, soft silty clay with amorphous organic sediment and wood and twig fragments.

The very small residue was mostly of woody and herbaceous detritus with a little sand.

There were moderate amounts of small root/rootlet fragments and some twig and wood fragments. The identifiable plant remains included moderate numbers of *Chara* (stonewort) oospores, indicative of fresh water usually with a high lime content, together with a variety of other plants of aquatic habitats (especially *Potamogeton*, pondweed, species) and waterside vegetation. There were fruits of *Alnus* (alder) and *Betula* (birch), but no other incontrovertibly terrestrial taxa. The flot consisted of abundant plant detritus and included a small assemblage of adult beetles as well as numerous fly and beetle larvae and a variety of other remains. The invertebrates confirmed the aquatic deposition of this layer but were too few in number to provide a closer definition of water quality or terrestrial ecology. A much larger subsample (of the order of 10 kg) should provide an interpretatively useful group, especially when the data are combined with those for related samples.

Sample 8 (GBA), -0.315 m, clay/sand 3.4 m from 2D

Mid grey, slightly brittle (working soft and slightly sticky) clay silt with some very rotten wood and patches of very dark brown to black silty amorphous organic sediment with fine herbaceous detritus.

Sample 42 (GBA), 0.115 m, sandy 2.0 m from West pin

Light-mid grey, crumbly, soft (working slightly sticky), sandy clay silt with plant fibres and monocot stem/rhizome fragments.

The very small residue consisted of herbaceous detritus, much of it root/rootlet fragments, with some twigs and a trace of sand and gravel. Identifiable plant remains were moderately abundant and well preserved, and clearly indicated deposition in an aquatic environment, being dominated by *Potamogeton* (pondweed) species (at least four types were noted), *Ranunculus* Subgenus

*Batrachium* (water crowfoot) and *Chara*, with *Myriophyllum* (water-milfoil). There were also moderate numbers of *Alnus* (alder) fruits and some remains of *Betula* (birch) and *Salix* (willow). There was a trace of charcoal to 2 mm. The flot included abundant fine pale plant detritus and numerous insect larvae, small numbers of other invertebrates, and perhaps 20 adult beetles and bugs. These last were notable for including what appears to be a low-temperature assemblage, with at least two specimens of the boreo-montane staphylinid *Arpedium brachypterum*, and some elytra of another staphylinid which may be *Boreaphilus henningianus*. *B. henningianus* is typical of Quaternary cold-stage faunas and has a present-day distribution in the mountains of Scandinavia and the far north of Eurasia. It appears extremely likely that this deposit is of early Holocene date, the presence of alder perhaps suggesting a date no earlier than 'Zone IV' (the Pre-Boreal), although cold-stage fauna might not be expected so late.

### Context 11

Sample 7 (GBA), -0.015 m, peat 3.4 m from 2D

Very dark brown, soft, fibrous (working crumbly), silty woody and herbaceous detritus and amorphous organic sediment with wood, twigs, monocot stem/rhizome and fly puparia.

Sample 11 (GBA), 0.110 m, peat 1.5 m from 2D

Dark brown, fibrous, fine and coarse herbaceous detritus peat with wood and twigs.

The large residue was entirely composed of organic debris, mainly roots/rootlets with some wood and twig fragments. There were abundant fruits and moderate numbers of female catkin scales of *Betula* (birch), together with several taxa indicative of waterside or wet grassland communities. This was the richest of the three samples seen from Context 11 in terms both of concentration of remains and numbers of taxa. The flot included abundant pale plant detritus; there was an assemblage of invertebrates of moderate size, including a small group of beetles. The

assemblage was primarily aquatic but a larger subsample would be required in order to make a meaningful interpretation of local ecology or to reconstruct the thermal regime.

Sample 9 (GBA), 0.510 m, peat 1.5 m from 2D

Very dark brown, soft, slightly fibrous (working crumbly), silty woody and herbaceous detritus and amorphous organic sediment with wood, twigs, and monocot stem/rhizome fragments.

The rather large residue was of woody and herbaceous detritus, notably abundant root/rootlets with some wood and twigs. There were moderate numbers of seeds of *Menyanthes trifoliata* L. (bog bean) seeds and *Betula* (birch) fruit; although preservation was good the 'seeds' were heavily diluted by woody and herbaceous debris. The flot consisted of fine to coarse plant detritus and included some earthworm egg capsules. There was a very small group of beetles of no clear interpretative significance; it is possible that a much larger subsample (approaching 10 kg) would permit reconstruction of local ecology.

Sample 6 (GBA), 0.585 m, peat 3.4 m from 2D

Very dark brown, soft (?slightly layered; working crumbly), silty woody and herbaceous detritus and amorphous organic sediment with twigs and monocot stem/rhizome, and modern rootlets.

Sample 41 (GBA), 0.610 m, peat 2.2 m from West pin

Very dark brown-black, soft (working crumbly), silty woody and herbaceous detritus and amorphous organic sediment with twigs, and monocot stem/rhizome.

Sample 3 (GBA), 0.705 m, peat 3.5 m from 2D

Very dark brown, soft to crumbly, silty woody and herbaceous detritus and amorphous organic sediment with wood, twigs and monocot stem/rhizome.

Sample 5 (GBA), 0.775 m, peat 5.1 m from 2D

Dark brown, crumbly (working slightly sticky), slightly clayey, silty, woody and herbaceous detritus with amorphous organic sediment, wood, twigs, molluscs and monocot stem/rhizome fragments.

Sample 4 (GBA), 0.795, peat 4.3 m from 2D

Very dark brown, crumbly to stick (working slightly soft), very humic silt with fine and coarse woody and herbaceous detritus, wood and twigs.

Sample 2 (GBA), 0.935 m, peat 2.5 m from 2D

Dark greyish-brown, soft, fibrous woody and herbaceous detritus and amorphous organic sediment with twigs.

Sample 1 (GBA), 1.035, peat 1.2 m from 2D

Dark grey-brown, soft, fibrous woody and herbaceous detritus with twigs, tree leaf fragments, monocot stem/rhizome. and beetles.

The rather large residue was entirely organic, consisting mainly of roots/rootlets with some twigs and tree leaf fragments. There was a very low concentration of identifiable remains, amongst them an *Alnus* (alder) bud and an achene of *Ranunculus* Section *Ranunculus* (buttercup). The flot was quite large, consisting mostly of plant detritus; the small group of invertebrates suggested aquatic deposition (with one taxon indicating flowing water), and terrestrial beetles were very rare. A much larger subsample would be required to provide an assemblage of useful size.

Sample 10 (WOOD), wood id from peat

*Alnus* (alder) and *Salix* (willow).

### Context 10

Sample 13 (GBA), 1.500 m, clay 0.9 m from 2D

Mid grey-brown, stiff, sticky (working plastic), clay with twigs, modern rootlets and a germinating seedling.

The very small residue consisted mostly of plant fragments including a little wood and moderate amounts of roots/rootlets and other herbaceous detritus; there were no 'seeds'. There was much fine pale plant material in the flot, together with some twig fragments, but the only invertebrate remains were some earthworm egg capsules and a single beetle fragment.

[Also from Trench 1, Sample 51, pollen sequence from S section face, not examined in this assessment]

### Trench 2

### Context 17

Sample 36 (GBA), -0.240 m, sand 5.5 m from Pin D

Light-mid grey, grading to light brown, soft sand with some small patches of humic matter.

Sample 33 (GBA), -0.100 m, sand 10.2 m from Pin C

Light-mid grey to light-mid orangeish-brown, unconsolidated (working soft, sticky) clay sand with traces of wood.

The small residue consisted of about 80% by volume of sand; the organic component included moderate amounts of coal (no doubt from the till in the vicinity) and large numbers of *Chara* (stonewort) oospores. There was in addition a small assemblage of higher plant taxa, a mixture of terrestrial, waterside and aquatic types. Woodland or carr was

represented by a variety of remains of *Quercus* (oak), *Alnus* (alder), *Betula* (birch) and *Salix* (willow). The flot consisted mostly of fine, pale plant detritus, but there was also a little charcoal (less than 5 mm). The invertebrate assemblage included a small number of beetles, a specimen of ?*Arpedium brachypterum* perhaps indicating low temperatures at the time this deposit formed. A substantially larger subsample might provide an interpretatively useful assemblage, especially when combined with evidence from the several other samples from this context.

Sample 49 (GBA), 0.550 m, sand 2.8 m from Pin C

Light brownish-grey, crumbly silty sand with plant fibres and well-rotted molluscs.

Sample 47 (GBA), 0.650 m, sand 6.2 m from Pin C

Light-mid grey, sticky clay silt with traces of stones 2-6 mm and of twigs. Some modern rootlets present.

#### Context 16

Sample 48 (GBA), 0.775 m, peat lens 1.4 m from Pin C

Dark grey-brown, soft, fibrous, silty herbaceous detritus to amorphous organic sediment with wood fragments.

#### Context 15

Sample 50 (GBA), 1.105 m, peat lens 2.7 m from Pin C

Dark brown, crumbly, layered (working soft and sticky), clayey, silty woody and herbaceous detritus and amorphous organic sediment, with wood and monocot stem/rhizome fragments.

#### Context 7

Sample 43 (GBA), 1.385 m, clay 2.4 m from Pin C

Mid grey-brown, stiff, sticky (working slightly plastic), slightly silty clay with fine and coarse herbaceous detritus, twigs and monocot stem/rhizome fragments and modern rootlets.

#### Context 6

Sample 35 (GBA), 0.050 m, peat 5.5 m from Pin D

Dark brown, crumbly, layered (working soft), very humic silt with fine and coarse woody and herbaceous detritus, including obvious wood and twig fragments and patches of light-mid grey and mid reddish-brown sand.

Sample 32 (GBA), 0.380 m, peat 10.2 m from Pin C

Dark greyish-brown, soft (working crumbly), fine herbaceous detritus and amorphous organic sediment with twigs and beetles visible.

The rather small residue consisted almost entirely of woody and herbaceous detritus, the remainder being sand. Few identifiable plant remains were present amongst the wood and twig fragments, only *Menyanthes trifoliata* (bogbean) seeds, *Populus* (aspen/poplar) bud-scales and *Ranunculus* Section *Ranunculus* (buttercup) achenes being noted. There were moderate numbers of *Cenococcum* (soil fungus) sclerotia, perhaps indicating inwash of soil from the surrounding land. The flot, consisting mostly of fine pale plant matter, included earthworm egg capsules and a small assemblage of adult beetles, mostly terrestrial. There were three specimens of a weevil which may be *Notaris aethiops*, characteristic of cold-stage faunas. A larger subsample would provide sufficient remains for ecological reconstruction.

Sample 34 (GBA), 0.445 m, peat 5.5 m from Pin D

Mid grey-brown (with light reddish-brown patches), crumbly (working soft), sandy silt to silty sand, with twigs and monocot stem/rhizome, together with areas of black silty amorphous organic material and of fine and coarse herbaceous detritus.

Sample 37 (GBA), 0.670 m, peat + *Corylus* sp. 1.5 m from Pin D

Mid brown, unconsolidated, sandy amorphous organic sediment to coarse woody and herbaceous detritus with twigs, nutshell and fruitstones.

Sample 30 (GBA), 0.735 m, organic sand 10.2 m from Pin C

Approximately equal amounts of pale grey sand and mid-dark grey-brown unconsolidated, slightly fibrous humic silt with some wood and bark and traces of twigs.

Sample 46 (GBA), 0.773 m, Peat 6.2 m from Pin C

Dark brown, sticky, silty woody and herbaceous detritus and amorphous organic sediment with twigs and large lumps of sticky grey clay.

Sample 31 (GBA), 0.835 m, organic sand 5.5 m from Pin D

Mid grey, crumbly, slightly silty sand with traces of fine herbaceous detritus and locally slightly humic; wood and twigs present.

The rather large residue consisted of about 50% by volume of sand and woody detritus. Amongst the latter were abundant *Alnus* (alder) fruits and moderate numbers of two taxa likely to be found in wet woodland: *Urtica dioica* L. (stinging nettle) and bugle (*Ajuga reptans* L.). Most of the wetland taxa present are consistent with wet woodland or at most marginal aquatic habitats; there were no

true aquatics. There were several terrestrial herbaceous taxa other than those already mentioned, including one possible indicator of disturbance (fat-hen, *Chenopodium album* L.). It may be significant that a little charcoal to 15 mm was recorded from this subsample. The flot included fine, pale detritus and some larger plant fragments. There was a small group of beetles, mostly aquatics, but with a variety of terrestrial forms. A much larger subsample should permit reconstruction of aquatic and terrestrial conditions.

Sample 27 (GBA), 0.910 m, peat 1.5 m from Pin D

Dark grey-brown, crumbly (working soft), very humic, slightly sandy silt with much wood and traces of monocot stem/rhizome; small patches of light grey/brown sticky clay and larger patches of light grey sticky clay.

Sample 29 (GBA), 1.050 m, peat 10.2 m from Pin C

Dark grey-brown, fibrous to crumbly, silty woody and herbaceous detritus with moderate amounts of fibrous plant material and traces of wood and monocot stem/rhizome.

Sample 28 (GBA), 1.105 m, peat 5.5 m from Pin D

Light grey to dark grey, crumbly (working soft), very humic silt with fine and coarse herbaceous detritus and amorphous organic sediment; twigs and monocot stem/rhizome present.

Sample 44 (GBA), 1.155 m, Peat 6.2 m from Pin C

Very dark brown, soft, fibrous to crumbly silty woody and herbaceous detritus peat with wood, twigs and monocot stem/rhizome fragments.

Sample 45 (GBA), 1.155 m, Peat 6.2 m from Pin C

Mid-dark grey, slightly crumbly, soft (working plastic), humic silt (locally amorphous organic sediment) with twigs and monocot stem/rhizome.

Sample 26 (WOOD), wood id 6 m from Pin C

*Alnus* (alder).

Sample 38 (WOOD), 0.690 m, wood id 10.2 m from Pin C

*Alnus* (alder).

Sample 39 (WOOD), 0.850 m, wood 5.5 m from Pin D

*Alnus* (alder).

Sample 40 (WOOD), 0.930 m, wood 5.5 m from OD

*Fraxinus* (ash).

Sample 53 (WOOD), wood 1.55 m from Pin D

*Alnus* (alder).

Sample 54 (WOOD), wood 1.5 m from Pin D

*Alnus* (alder).

*Trench 3*

### **Context 13**

Sample 19 (GBA), 0.510 m, sandy silt 0.8 m from Pin B

Light-mid brownish-grey (with browner and greyer patches), slightly clay, slightly sandy silt, with stones 2-6 mm, very rotten mollusc shell fragments and modern rootlets.

Sample 24 (GBA), 0.670 m, coarse sand 10.0 m from Pin B

Mid grey, unconsolidated, sticky, silty sand with wood, bark, and twigs and flecked throughout with snails (land and freshwater) and snail fragments.

Sample 23 (GBA), 0.740 m, coarse sand 7.7 m from Pin B

Light grey, unconsolidated, very stony silty sand with abundant stones 2-6 mm and moderate numbers of stones 6-20 mm, and some wood fragments.

Sample 21 (GBA), 0.750 m, coarse sand 7.8 m from Pin A

Light grey sand with marl, wood and moderate numbers of freshwater molluscs.

Sample 18 (GBA), 0.760 m, sandy silt 0.8 m from Pin B

Light-mid grey-brown (with lighter and darker patches), crumbly (working soft), sandy silt with plant fibres (and modern rootlets), twigs and molluscs.

Sample 25 (GBA), 0.830 m, sand 1.2 m from Pin A

Light-mid grey-brown, unconsolidated, silty sand with some fine herbaceous detritus, plant fibres, monocot stem/rhizome fragments, molluscs and beetles.

Sample 17 (GBA), 0.890 m, coarse sand gravel 2.6 m from Pin B

Light-mid grey, unconsolidated, very stony, slightly clayey sandy silt with abundant stones 2-6 mm and some 6-20 mm, wood, and freshwater molluscs.

Sample 20 (GBA), 0.930 m, coarse sand 4.8 m from Pin B

Light grey, unconsolidated sand with ?marl or rotted chalk, abundant freshwater molluscs, and some wood and twigs.

The moderately large residue was mostly of mineral material in the form of amorphous white calcareous detritus, perhaps marl or tufa. There was also much sand and a large component of freshwater snails (including *Valvata ?cristata* Müller, much the most abundant) and some freshwater bivalves (*Pisidium* sp.), together with a few land snails. Many of the snails were very fragile and showed evidence of pitted shells. A subsample of 2-3 kg should provide sufficient molluscs for interpretation.

The small number of plant remains recorded represented fen and open water habitats and amongst them were *Urtica dioica* (stinging nettle) and *Chenopodium album* (fat-hen), the former possibly and the latter probably indicating some disturbance.

The flot was small and included appreciable numbers of molluscs. There were aquatic and terrestrial beetles, the former including one taxon indicative of running water. A substantially larger subsample would provide sufficient remains for reconstruction of local conditions.

Sample 16 (GBA), 1.010 m, sand with shell 3.3 m from Pin A

Light grey (locally light brown), sand with flint and chalk gravel 2-6 mm and plant fibres.

Sample 15 (GBA), 1.065 m, organic sand 1.4 m from Pin B

Mid brownish-grey, just brittle and slightly fibrous, slightly humic, slightly sandy clay silt with plant fibres, twigs, monocot stem/rhizome fragments, and very decayed molluscs.

Sample 14 (GBA), 1.360 m, organic sand 1.8 m from Pin A

Light-mid grey-brown, crumbly (working soft), sandy clay silt with plant fibres, molluscs and modern rootlets.

Sample 22 (WOOD), wood id 0.8 m from Pin A

*Alnus* (alder)

Sample 52 (WOOD), wood from large log at E end of trench

*Alnus* (alder)

#### *'Spot' samples from Watching Brief*

#### **Context 105**

Sample 106

Mid-dark brown, brittle, slightly layered (working crumbly), slightly sandy, slightly silty amorphous organic sediment.

Sample 107

Dark chocolate brown stiff, layered, compressed fine herbaceous detritus and amorphous organic sediment.

#### **Context 120**

Sample 119

Very dark brown-black, brittle, compressed, fine and coarse woody and herbaceous detritus and amorphous organic sediment with some light-mid grey sticky clay silt.

Sample 118 (WOOD)

Sample contained fragments of *Alnus* (alder) and *Salix* (willow), but an exhaustive examination of the numerous fragments was not made.

Sample 121 (WOOD)

*Alnus* (alder).

## Bone

A small amount of bone, some of it unstratified, was submitted. Preservation was very good. The unstratified material included a large red deer (*Cervus elaphus* L.) antler (in two pieces) and tibiae of horse and cow. Material from Context 13 comprised two horse vertebrae, and that from Context 120 (from the watching brief) consisted of a cow femur, a horse distal humerus and a dog mandible.

Clearly there is little value in further analysis of this small corpus of material, though any future excavation in the area should include a programme of sieving since it is clear that well preserved bone is present in some of these deposits.

## Discussion

The deposits encountered at this site are essentially natural peats and humic silts, and some primarily mineral layers, mostly forming in still or slow-flowing water (with sands and gravelly sands representing higher energy environments). There were also some semi-terrestrial fen carr peats. Most of the layers examined during assessment contained sufficient plant and insect remains to allow a useful reconstruction of depositional regime, local ecology, and climate. It would be necessary to process large subsamples (generally the whole of the remaining material for each sample) in order to recover enough insect remains, however. It will thus be possible to trace ecological and climatic development through these sequences of deposits and it is recommended that the biota of all the samples except those from the uppermost parts of the succession should be investigated in detail. It is imperative, though, that an independent dating framework is obtained by means of radiocarbon assay of plant remains from carefully targeted samples.

Some of the samples provided small numbers of insects indicative of much lower average temperatures than those of the present day, including tentatively identified remains of a species found in the mountains of Scandinavia and in the European tundra. These records suggest a late-glacial date. The same samples included remains of alder, however, a tree

whose Holocene record starts in Godwin's pollen Zone IV, but which is rare until Zone VII. This juxtaposition of species is surprising. It might be the product of reworking of earlier deposits or of contamination during sampling (inspection of the sediments suggests that the latter is not the case), or that the species concerned is not *Alnus glutinosa* (though a tacit assumption is made that no other species of alder has been present in Britain during the Quaternary. This anomaly, alone, justifies further investigation of the material. Careful work using museum collections will be required in order to confirm the identification of many of the insect species in order to be sure of their thermal implications. Accelerator mass spectroscopy dating of alder fruits should be carried out; it may transpire that the tree had colonised NE England much earlier than generally accepted. Alternatively, the peculiar topography of eastern Yorkshire may have provided cold refugia during early post-glacial climatic amelioration.

Evidence for human activity at this site was absent, unless the traces of small charcoal fragments from Contexts 6 and 18, and rare possible weeds from Contexts 6 and 13, are accepted as the result of interference by people rather than coming from natural fires or from disturbance by large herbivores in an environmentally sensitive habitat. Further examination of the deposit may help to elucidate this question if more weedy taxa, and in particular, taxa indicative of cultivated soils, can be identified.

## Recommendations

### Dating

Dating should be carried out using radiocarbon assay. It is suggested that there are two stages: (i) a limited number of dates chosen to provide a broad chronology for the sequence at West Beck, and (ii) (providing the initial dates do not produce any anomalies) a fuller series of dates to give a more precise chronology throughout the sequence. The first stage will require three to four dates, the second perhaps requiring a larger number, to a maximum of perhaps 10.

### Biological analyses

Providing the dating is satisfactory, all those GBA samples collected from contexts which were (a) free from large-scale penetration by modern roots and (b) suitable for preservation of delicate remains should be examined in detail for their macrofossil plant and invertebrate remains in order to reconstruct climatic and ecological history in this poorly-known period of East Yorkshire's history. Apart from a small 'voucher' sample, the entire sediment from each sample should be processed in order to obtain sufficiently large assemblages of invertebrates (and also of plant macrofossils where their concentration is low). The insect assemblages should be identified fully with reference to museum collections which include north European taxa and attention should be paid to the identification of the remains of *Alnus* to check for the presence of a non-British species.

In addition, the sequence of samples from Trench 1 taken for pollen analysis should be examined, using standard techniques, in order to provide a more regional picture of the palaeoecology of this site and to put it into the context of conventional pollen biostratigraphy (zonation). Initially samples should be examined using a wide interval (15-20 cm), with some intermediate levels investigated if necessary to refine the record obtained.

It is further recommended that the results of detailed analysis are presented in a reputable scientific journal.

### Retention and disposal

All the sediment samples should be retained for further analysis, and subsequently for at least three years after publication to allow for further investigation. Flots and residues should be retained in the longer term.

The bone should be retained if required for archive purposes but there are no other reasons for long-term retention.

### Archive

All extracted fossils and flots are currently stored in the Environmental Archaeology Unit, University of York, along with paper and electronic records pertaining to the work described here.

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