

*Reports from the Environmental Archaeology Unit, York 95/15, 22 pp.*

**Assessment of biological remains from excavations at Carr Naze, Filey, N. Yorkshire (site code: FCN 1994.1)**

by

John Carrott, Keith Dobney, Allan Hall, Michael Issitt, Deborah Jaques, Cluny Johnstone, Harry Kenward, Frances Large, Annie Milles and Tom Shaw

**Summary**

*The potential for further analysis of biological remains from sediment samples and of bone from excavations of late Roman deposits associated with a signal station at Carr Naze, Filey, is considered on the basis of an assessment of the material submitted by the excavator.*

*Plant remains, molluscs and vertebrate remains all have interpretative potential at this site; a limited amount of information will probably be obtained from insect remains from a few contexts.*

*Recommendations, and estimates of resources required, for this further work are presented.*

**Keywords:** Carr Naze, Filey; North Yorkshire; Roman; signal station; charred plant remains; insect remains; molluscs; vertebrates

Authors' address:

Environmental Archaeology Unit  
University of York  
Heslington  
York YO1 5DD

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

Prepared for:

York Archaeological Trust  
Piccadilly House  
55 Piccadilly  
York YO1 1PL

24 February 1995

## Assessment of biological remains from excavations at Carr Naze, Filey, N. Yorkshire (site code: FCN 1994.1)

### Introduction

A total of 23 samples of sediment (9 GBAs and 14 BSs, *sensu* Dobney *et al.* 1992), one box of hand-collected molluscs, and seven boxes of hand-collected animal bone, all from deposits of late Roman and post-Roman (mostly late C4th/early C5th) date from the second (1994) stage of excavation on the coastal cliff-top at Carr Naze, Filey, were submitted for assessment of their bioarchaeological potential.

### Methods

#### *Sediment samples*

All of the GBA samples were inspected in the laboratory and a description of their lithology recorded using a standard *pro forma*. Subsamples of 1 kg were taken from the GBAs for extraction of macrofossil remains, following procedures of Kenward *et al.* (1980; 1986). Excess material from three of the samples was bulk-sieved to 500  $\mu$ m, and the residues sorted for finds.

Plant and invertebrate macrofossils were examined from the flots and washovers resulting from processing. A record of the range of taxa, together with approximate abundance, was made, and a priority assigned to each assemblage.

The BS samples were sieved to 500  $\mu$ m and the residues recorded and, after dry-sieving to 1 mm, sorted for small bones and artefacts, the latter being returned to the excavator. A proportion of each residue was also sorted (before dry-sieving) for charred plant remains and this material and snails from the washovers were also examined (where present).

Parasite eggs were investigated by means of 'squashes' following the method of Dainton (1992). Hand-collected marine shell was also reviewed.

#### *Bone*

Seven boxes (31 x 31 x 22 cm) of hand-collected animal bone and thirty-nine BS samples were submitted for assessment. Most of the vertebrate remains were recovered from deposits representing five contexts (12022, 12024, 12025, 12027 and 12028) which were described by the excavator as occupation layers within the signal station courtyard. These deposits were identified as important during the first assessment (Carrott *et al.* 1994), since they appeared to contain moderate quantities of well-preserved animal bone contemporary with possible late Roman or early Anglian occupation. This deposit was systematically and extensively sampled during the second assessment.

Of a total of thirty-nine BS samples constituting between 27 and 31 kg of sediment, 14 (from nine contexts) were selected by the excavator for processing on the basis that they were representative of the range of deposits excavated. Subsamples of one kilogramme from nine of the fourteen residues were subsequently sorted and recorded in detail. The remaining six residues and the unsorted fractions were scanned for additional relevant information and further species identifications.

Hand-collected material from the aforementioned five contexts was also recorded, whilst hand-collected bones from a further 48 contexts (which together yielded less than 50% of the entire hand-collected assemblage) were scanned.

## Results and discussion

The context groups represented by the available samples are listed in Table 1. A summary of the observations made on the plant and invertebrate remains from the samples processed for this assessment is given in Table 2.

### *The sediment samples*

Fifteen of the samples were taken from deposits recorded by the excavator as occupation material. These were described in the laboratory variously as silty clay, clay silt, or clay, and were mostly varying hues of red- or orange-brown or brown. A further six samples from different deposits (including buried soils from below the turf rampart and make-up from the rampart) were lithologically very similar except for two samples, one from the fill of a ?post-Roman pit, and another from a burnt deposit; these were silty sand with a very small clay component.

For the most part, the GBA subsamples yielded no more than traces of biological remains other than charcoal and charred herbaceous detritus and some modern plant material (rootlets and a few seeds). Indeed, for many of the subsamples, neither flint nor washover was considered worthwhile. In a few cases, insects and land snails were noted in small numbers; the latter added little to the information obtained from the BS samples.

Charred plant remains, mainly charcoal, were noted in all of the residues and/or washovers from the BS samples. In some cases, there was a moderate amount of charcoal, and for two samples, modest numbers of charred cereal grains. The charcoal sometimes included small (to 10 mm long by about 3-5 mm diameter) twig fragments which might be heather or ling (*Calluna vulgaris* (L.) Hull), presumably from heather used as fuel

or constructional material which had been burnt during demolition.

The charred cereal grains were generally rather well preserved and appeared to be a mixture of hulled barley and hexaploid wheat.

Two of the subsamples yielded small numbers of identifiable insect remains and a third a few fragments. Of the former, one (from Context 11008) gave a subjective impression of a decomposer assemblage of species normally found in natural and semi-natural conditions. This material deserves further investigation in terms both of site reconstruction and of wider investigations of the development of insect faunas of artificial habitats. The second context yielding identifiable remains (1220) may, very subjectively, have been a soil horizon, and again deserves further work, this time to explore aspects of the vegetation colonising what may well have been a dry ditch.

None of the squashes gave any eggs of parasitic nematodes.

Two of the BS samples gave quite large assemblages of landsnails, of considerable interpretative value. Snails were present in modest numbers in two further samples, and recorded in traces in several others. A wide range of taxa was noted, with *Cochlicopa*, *Vertigo* and *Vallonia* species often present in large numbers. The snails indicated a range of habitats, from damp grassland to dry, calcareous places; the latter may have been provided by plants growing over masonry.

There were abundant marine mollusca from a few contexts, while small numbers were present in some others. There were more than a dozen taxa, with *Patella* sp., *Littorina* spp. and *Mytilus edulis* (L.) the most numerous.

Fragments of shell of crabs (Crustacea: Brachyura) were recorded from a few contexts.

## Bone

Details of the results of the examination of the bone are given in Tables 3-5. Preservation was mostly good, with broken surfaces appearing sharp and angular and little evidence of physical or chemical erosion. Although bones from some contexts showed a range of colour, this variability was more obvious between taxa than within any one taxon. Overall, most of the assemblage (with the possible exception of the small mammal material) was consistent in character, suggesting most elements were contemporaneous. Although present, dog gnawing and butchery were infrequent (0-10% from each context). Evidence of burning and fresh breakage was also scant.

### Hand-collected bone

In most respects this assemblage is similar in character to the material already assessed (Carrott *et al.* 1994). All the common domestic mammals are present, with the remains of caprine and pig being particularly well represented. Mandibles with teeth are uncommon, although measurable bones (especially those of sheep) are more numerous. Horse and dog remains are also present (but only single fragments of each).

As recorded in the first assessment, red deer is represented only by poorly preserved antler fragments, of which one worked fragment from the present assemblage may be part of a knife handle. In addition there was a single roe deer fragment (*Capreolus capreolus* L.) from context 12027.

Numerous bird species were identified from the hand-collected assemblage. Remains of domestic fowl were, not surprisingly, most common, whilst only two goose bones were identified. Other species included cormorant (*Phalacrocorax carbo* (L.)), razorbill (*Alca torda* L.), guillemot (*Uria aalge*

Pontoppidon), oystercatcher (*Haematopus ostralegus* L.) and thrush (*Turdus philomelus* Brehm). Of interest is the clear evidence of butchery noted from an immature cormorant tibiotarsus (context 12024) and from a razorbill humerus (BS sample 40, context 12027), an unequivocal indication of the consumption of these birds by the inhabitants of the signal station.

No identifiable fish remains were present in the recorded contexts, although a halibut (*Hippoglossus hippoglossus* (L.)) preoperculum and a ling (*Molva molva* (L.)) articular were recorded from the scanned material.

Additional mammal and bird species, also identified from the scanned contexts, included hare (*Lepus* cf. *europaeus* L.), badger (*Meles meles* (L.)), water vole (*Arvicola terrestris* (L.)), duck (*Anas* spp.), jackdaw (*Corvus monedula* L.), ?blackbird (cf. *Turdus merula* L.) and starling (*Sturnus vulgaris* L.). The remains of frog (*Rana temporaria* L.) and toad (*Bufo bufo* L.) were also recorded.

### Bone from BS samples.

All of the samples (with the exception of 69, context 13019, a burnt deposit in the base of the tower wall trench) were from the widespread occupation deposit. Two (12, context 12022 and 20, context 12024) contained high concentrations of small mammal bones. These represented the remains of shrews, voles and mice. All were well preserved but lighter in colour than the rest of the assemblage, implying the possibility of an intrusive origin.

Additional species identified from the BS residues included puffin (*Fratercula arctica* (L.)), represented by a complete femur, ?thornback ray (cf. *Raja clavata* L.), a member of the herring family (Clupeidae), flatfish (Pleuronectidae) and ?smelts (Osmeridae).

The remaining scanned material showed similar characteristics to that which was fully recorded, although no further concentrations of small mammals were noted from other samples.

The moderate quantity of animal bone from this site represents the only systematically recovered assemblage from a Roman signal station. Although the material is of late Roman date, the high proportions of pig are consistent with those for material from other, earlier military establishments (King 1984).

The presence of pigs and deer may imply that the vicinity of Carr Naze was wooded, if it can be assumed that supplies were obtained from nearby. This part of Yorkshire may have been heavily wooded during Anglo-Saxon times, since a retreat was built in the village of Flixton, near Filey, during the reign of Athelstan as a refuge for travellers against attacks by wolves (Harting 1880, 124).

The bones of seabirds are interesting in that several show signs of butchery. Razorbill and guillemot remains have been identified from Anglo-Scandinavian deposits at Coppergate (O'Connor 1989) and Tanner Row (O'Connor 1988), both in York. These birds were interpreted as an occasional food source exploited during the nesting season. There are today large breeding colonies of auks on the cliffs further south at Flamborough Head. Their presence in the Filey assemblage perhaps suggests they were a commonly available local resource during the late Roman period, but did not find their way into towns until the Anglo-Scandinavian period.

Although cormorant and razorbill were obviously consumed, it would not be safe to assume that the other wild birds (excluding the ducks and geese) formed part of the diet.

On the basis of differences of colour and preservation, it is possible that some bone elements may be of later date than the bulk of the assemblage. This is supported by the small mammal bones which are present in concentrations inconsistent with accidental deaths of a resident population. These, together with the amphibian remains from the same contexts, are more likely to represent pellets from owls or other predatory birds, presumably deposited once the station was abandoned.

The lack of fish remains at the site is intriguing considering its proximity to the sea. However, marine fish do not figure very highly in Roman bone assemblages in general. Although the larger fish recorded from Filey were certainly consumed, the smaller Clupeids, smelts and flatfish could have been brought on to the site by piscivorous birds, post occupation.

This moderate-sized assemblage is important in that it represents one of the few bodies of material from the late 4th Century; few if any of them being from exclusively military sites and none, certainly, from signalling stations. Material from Filey is therefore unique. Its good preservation, wide range of species, and proportionally high numbers of measurable bones render this assemblage of significant interpretative value. The study of this period has been highlighted as one of a number of important academic objectives by English Heritage (1991, 36) under the heading *Processes of Change, the early medieval period (c. 350-700 AD)*.

Research questions which can be addressed using this material include:

1. Does the assemblage represent systematic provisioning of a late Roman military establishment or does it date to immediately post-Roman squatter occupation?
2. Is the specialised nature of the occupation reflected in the food debris?

3. Can elements representing abandonment of the station be recognised?

4. Are there any significant characteristics which may help to place the deposits within a chronological framework?

## Recommendations

### *Sediment samples*

In view of the recovery of two coins from the bulk-sieved residues, and of the need for dating evidence via artefacts, it is recommended that the remaining GBA and BS samples from the occupation deposits in Trenches 11 and 12 are sieved to 500 µm and sorted for finds (after any further investigations of the biological remains have been carried out). In total, 25 unprocessed BS samples (each represented by 3 10 litre tubs of sediment) and 8 GBA samples (each represented by 1 tub) are available for this group.

### *Plant remains*

Plant remains in the deposits at Carr Naze are, as observed during work on the earlier campaign (cf. Carrott *et al.* 1994), sparse. However, at least two contexts from the present excavation (12025 and 12027) yielded small assemblages of rather well preserved charred cereal grains and perhaps also some legume seed fragments and should be the subject of further work to establish more precisely the nature of this component of the food consumption of the inhabitants of the site.

It is also recommended that a limited survey of the charcoal from the occupation deposits is made, including an attempt to make a secure determination of the small twig fragments which may be heather

(*Calluna*). Heather is not part of the flora of the immediate environs of the site today and was perhaps brought some distance, from areas of acidic soils at the eastern end of the North York Moors to the north of the headland.

### *Insect remains*

The remaining sediment from the two samples mentioned above should be investigated further for insect remains. A limited survey of any other samples considered likely to have even small concentrations of insect remains should be carried out, and fuller investigation should follow where remains are present.

### *Molluscs*

The larger landsnail assemblages should be studied in detail in order to reconstruct aspects of site use and ecology. Selected groups of marine shells should be recorded and an attempt made to distinguish whether they accumulated naturally or as a result of human activity.

### *Bones*

It is recommended that all BS samples are processed and at least 50% of the residues from occupation deposits be sorted. Residues should be sieved to 3 mm, with at least 1 kg sub-samples of each being sorted to 1 mm. Larger sub-samples should, however, be taken from the deposits rich in small mammals.

Material from both the BS and hand-collected groups should be recorded in detail using standard zooarchaeological techniques.

To address the problem of dating individual bones in order to investigate possible intrusive material, provision for a number of AMS C14 dates should be made; a minimum of ten is suggested,

but twice this number may be required.

Table 6 summarises the personnel resources required for the recommended programme of work, and consumables are listed in Table 7.

## Retention and disposal

All material should be retained until further work can be carried out.

## Archive

All extracted fossils from the test subsamples, and the residues 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.

## Acknowledgements

The authors are grateful to Patrick Ottaway for information concerning these excavations and the samples taken, and for detailed discussions in the field. This work has been funded by English Heritage.

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*Table 1. Context groups and contexts represented by samples taken during the second excavation campaign at Carr Naze, Filey. Context groups are designated thus: 4.5.6 = group 5.6 from Trench 4.*

Context group	Context	Context type
1W.3.2	1220	Lowest spit of ditch fill in 1222
4.1.1	4024	?Natural below Roman level
4.1.2	4022	?Natural/buried soil under rampart
4.2.1	4029	=4004 in 93 excns; construction/demolition?
4.2.2	4021	Roman deposit below rampart
4.3.1	4028	Rampart make-up
4.3.2	4018	Rampart make-up
4.3.3	4019	Rampart make-up
4.3.3	4020	Rampart make-up
4.4.1	4027	Rampart make-up; decayed turf
4.4.2	4016	Decayed turf in rampart
4.5.1	4026	Rampart make-up
11.1.1	11060	Natural (?) [With charcoal]
11.3.1	11049	Occupation deposit in courtyard
11.3.1	11050	Occupation deposit in courtyard
11.3.1	11052	Occupation deposit in courtyard
11.3.2	11038	Occupation deposit in courtyard
11.4.5	11034	Burnt deposit, late/post-roman
11.4.9	11008	Fill of 11014, ?Post-roman pit
12.4.1	12028	Occupation deposit in courtyard: spit 5
12.4.3	12024	Occupation deposit in courtyard: spit 4
12.4.3	12025	Occupation deposit in courtyard: spit 3
12.4.3	12027	Occupation deposit in courtyard: spit 2
12.4.4	12022	Occupation deposit in courtyard:
12.5.1	12015	Small patch of build-up 12016
13.4.2	13019	Fill of robbing trench 13020 one side

Table 2. Priorities for further work on samples from the second stage of excavation at Carr Naze, Filey. All samples recovered from this campaign are listed, in order to indicate the availability of further material from a given context. For the samples for each trench, the list follows context groups as listed in Table 1.

Context	Sample	Sample type	Test subsample weight (kg)	Weight of 'excess' subsample (kg)	Weight of BS sample (kg)	Comments	Priority?
1220	70	GBA	1			traces of insect cuticle; a very large subsample would be needed for a potentially interpretable assemblage	insects P1 if sufficient sediment remains
4024	9	GBA					
4022	8	GBA					
4029	66	GBA	1			barren	
4021	7	GBA					
4028	62	GBA					
	65	SPOT					
4018	4	GBA	1			traces of fine charcoal; modern plant remains	
4019	5	SPOT					
4020	6	GBA	1			barren	
4027	61	GBA					
	64	SPOT					
4016	1	GBA					
	2	SPOT					

Context	Sample	Sample type	Test subsample weight (kg)	Weight of 'excess' subsample (kg)	Weight of BS sample (kg)	Comments	Priority?
	3	SPOT					
4026	60	GBA	1			barren	
	63	SPOT					
11060	67	SPOT/C14					
11049	57	BS			28	traces of charcoal; abundant marine shells; modest numbers of landsnails	marine shell P1 landsnails P2
	58	BS					
	59	BS			not rec.	a few landsnails	landsnails P3
11050	53	BS					
	54	BS			28	a little charcoal, including ? <i>Calluna</i> twigs; a few landsnails and small number of marine shells	plants P2: check identification of 'twigs'; marine and terrestrial molluscs P3
	55	GBA					
11052	56	GBA					
11038	51	BS			27	a little charcoal, including small twig fragments; a few marine molluscs and traces of landsnails	plants P2: check identification of 'twigs' marine and terrestrial molluscs: P3
	52	GBA					
11034	46	GBA					

Context	Sample	Sample type	Test subsample weight (kg)	Weight of 'excess' subsample (kg)	Weight of BS sample (kg)	Comments	Priority?
11008	19	GBA	1	6.5		a few insect remains, perhaps semi-natural decomposer group; a very large subsample would be needed for a potentially interpretable assemblage	P1 insects if sufficient sediment remains
12028	47	BS			31	a little charcoal and a few small twig fragments. Abundant marine shells, traces of landsnails	marine shells P2; landsnails P3
	48	BS			28	traces of charred ?herbaceous material	
	49	BS					
	50	BS					
12024	20	BS			30	a little charcoal and small charred twig fragments; traces of charred cereals and one charred hazel nutshell fragment. Traces of marine shell; modest numbers of landsnails	plants P2: check identification of 'twigs'; marine shell P1; landsnails P2
	21	BS			27	a little charcoal; several charred cereal grains. Quite large numbers of landsnails	plants P1: record cereals; landsnails P1
	22	BS					
	23	BS					
	24	BS					
	25	BS					
	26	BS					
	27	BS					

Context	Sample	Sample type	Test subsample weight (kg)	Weight of 'excess' subsample (kg)	Weight of BS sample (kg)	Comments	Priority?
	28	GBA					
	29	GBA					
12025	30	BS			30	some charcoal, moderate numbers of charred cereal grains, ?charred legume seed fragments. Modest numbers of marine shells and landsnails	plants P1: record cereals; marine shell and landsnails P2;
	31	BS			not rec.	a little charcoal; and small twig fragments small amounts of charred cereal grain. Small numbers of landsnails	plants P2: record cereals and check identification of twigs; landsnails P3
	32	BS					
	33	BS					
	34	BS					
	35	BS					
	36	BS					
	37	BS					
	38	GBA					
	39	GBA					
12027	40	BS			not rec.	moderate amounts of charcoal and some small twig fragments; a few charred seeds, including 1 charred cereal grain; marine shells abundant, some landsnails	plants P3; marine shell P1; landsnails P2

Context	Sample	Sample type	Test subsample weight (kg)	Weight of 'excess' subsample (kg)	Weight of BS sample (kg)	Comments	Priority?
	41	BS			not rec.	a little charcoal and small charred twig fragments; traces of charred cereals and other charred seeds. A few landsnails	plants P2: check identification of twigs; landsnails P3
	42	BS					
	43	BS					
	44	BS					
	45	BS					
12022	11	BS			26	a little charcoal and small charred twig fragments; ?herbaceous charcoal; large group of landsnails	plants P2: check identification of twigs; landsnails P1
	12	BS			30	a little charcoal and small charred twig fragments; ?herbaceous charcoal; many landsnails; traces of marine shell	plants P2: check identification of twigs; marine shell P3; landsnails P1
	13	BS					
	14	BS					
	15	GBA	1	7		modern plant and invertebrate remains; a few landsnails	landsnails P3
	16	GBA					
	17	BS					
	18	BS					

Context	Sample	Sample type	Test subsample weight (kg)	Weight of 'excess' subsample (kg)	Weight of BS sample (kg)	Comments	Priority?
12015	10	GBA	1.22			several very poorly preserved charred cereal grains and a little charred herbaceous material (?straw)	P2: check identification of charred herbaceous material
13019	68	GBA	1	9		trace of charcoal and charred herbaceous detritus; traces of arthropod remains; a very large subsample would be needed for a potentially interpretable assemblage	P2 insects if sufficient sediment remains
	69	BS			31	traces of marine shell and landsnails	marine shell and landsnails P3

Table 3: Hand-collected bone from the occupation deposits in the courtyard.

Species		Total no fragments	Total weight (g)	No measurable	No mandibles
<i>Bos f. domestic</i>	cattle	66	4,267	17	1
Caprine	sheep/goat	160	2,419	63	4
<i>Sus f. domestic</i>	pig	139	2,445	21	6
<i>Equus f. domestic</i>	horse	1	291	1	-
<i>Canis f. domestic</i>	dog	1	1	-	-
<i>Cervus elaphus L.</i>	red deer	3	75	-	-
<i>Capreolus capreolus L.</i>	roe deer	1	6	-	-
<i>Phalacrocorax carbo (L.)</i>	cormorant	1	68	-	-
<i>Phalacrocorax aristotelis (L.)</i>	shag	1		-	-
<i>Anser spp.</i>	goose	2		-	-
<i>Gallus f. domestic</i>	chicken	25		9	-
<i>Haematopus ostralegus L.</i>	oystercatcher	1		-	-
<i>Alca turda L.</i>	razorbill	2		-	-
<i>Uria aalge (Pontoppidan)</i>	guillemot	2		-	-
<i>Turdus philomelus Brehm</i>	thrush	1		-	-
Unidentified bird		4		-	-
Unidentifiable fish		1	1	-	-
Identified total		411	9,573	111	11
Unidentified total		1,492	10,773	-	-
<b>Total</b>		<b>1,903</b>	<b>20,346</b>	<b>111</b>	<b>11</b>

Table 4: Bone from bulk sieved samples. P = present (<10% of total assemblage), C = common (10-50%), A = abundant (>50%). Letters in parentheses: For large mammals (LM), (F) = few measurable (<10%); for medium (MM) and small mammals (SM), birds, fish and amphibian (Amp), (L) = low diversity (1 species present), (M) = moderate (2-4 species) and (H) = high (>4 species).

Context	Sample	LM	MM	SM	Bird	Fish	Amp	Crab	Unid
11038	51/BS	C	-	P	-	P	-	-	A
11049	57/BS	C	-	-	P(L)	-	-	-	A
11050	54/BS	P	P(L)	-	P(L)	-	-	P	A
12022	12/BS	P	-	A(H)	P(M)	P(M)	P(M)	-	C
12024	20/BS	C	-	C(H)	P(H)	P(L)	P(M)	P	C
12025	30/BS	C	-	P(M)	P	-	P(L)	-	A
12027	40/BS	C(F)	-	-	P(M)	-	-	-	A
12028	47/BS	P	-	C(M)	P(M)	P(M)	P	P	A
13019	69/BS	C(F)	-	P(L)	-	-	-	-	A

Table 5: List of species identified from animal bones from hand-collected contexts, scanned contexts and bulk sieve samples.

Species	Common Name
<i>Bos</i> f. domestic	cattle
<i>Sus</i> f. domestic	pig
Caprinae sp.	sheep / goat
<i>Ovis</i> f. domestic	sheep
<i>Equus</i> f. domestic	horse
<i>Canis</i> f. domestic	dog
<i>Sorex</i> sp.	shrew
<i>Sorex araneus</i> L.	common shrew
cf. <i>Sorex araneus</i> L.	?common shrew
<i>Sorex minutus</i> L.	pygmy shrew
cf. <i>Sorex minutus</i> L.	?pygmy shrew
<i>Lepus</i> sp.	hare
Microtinae sp.	voles
<i>Clethrionomys glareolus</i> (Schreber)	bank vole
cf. <i>Clethrionomys glareolus</i> (Schreber)	?bank vole
<i>Microtus agrestis</i> (L.)	field vole
cf. <i>Microtus agrestis</i> (L.)	?field vole
<i>Arvicola terrestris</i> (L.)	water vole
Murinae sp.	mice
<i>Vulpes vulpes</i> L.	fox
Mustelidae sp.	weasel, stoat etc.
<i>Meles meles</i> (L.)	badger
<i>Cervus elaphus</i> L.	red deer
<i>Capreolus capreolus</i> L.	roe deer
<i>Phalacrocorax carbo</i> (L.)	cormorant
<i>Phalacrocorax aristotelis</i> (L.)	shag
<i>Anser</i> spp.	goose
<i>Anas</i> spp.	duck
<i>Gallus</i> f. domestic	chicken
?Rallidae sp.	coot or moorhen
<i>Haematopus ostralegus</i> L.	oystercatcher
Alcidae sp.	auks

<i>Alca torda</i> L.	razorbill
<i>Uria aalge</i> (Pontoppidan)	guillemot
<i>Fratercula arctica</i> (L.)	puffin
<i>Troglodytes troglodytes</i> (L.)	wren
Turdidae sp.	thrushes etc.
cf. <i>Turdus merula</i> L.	?blackbird
<i>Turdus philomelus</i> Brehm	song thrush
cf. <i>Turdus philomelus</i> Brehm	?song thrush
cf. <i>Erithacus rubecula</i>	?robin
Ploceidae sp.	sparrows
<i>Sturnus vulgaris</i> L.	starling
Corvidae sp.	crows etc.
<i>Corvus monedula</i> L.	jackdaw
cf. <i>Raja clavata</i> L.	?thornback ray
Clupeidae sp.	herring family
Osmeridae sp.	smelt
Gadidae sp.	cod family
<i>Molva molva</i> (L.)	ling
<i>Hippoglossus hippoglossus</i> (L.)	halibut
Pleuronectidae sp.	flatfish
<i>Bufo bufo</i> L.	common toad
cf. <i>Bufo bufo</i> L.	?common toad
<i>Rana temporaria</i> L.	common frog
cf. <i>Rana temporaria</i> L.	?common frog

Table 6. Resources required for further work on sediment samples, and biological remains from Carr Naze, Filey. The times include an allowance for work on bone from the 1993 excavations; no further work was recommended on sediment samples from that phase of excavation (Carrott et al. 1994).

Task	Staff	Time required (days)	Cost	Notes
(1) Support tasks	Tech. RA RF (x 4)	7 3 4 x 0.5		Includes obtaining stores, sample movement, administration, etc.
(2) Maintain databases	RA	2		
(3) Bulk-sieve remaining sediment from occupation deposits in Trenches 11 and 12 (24 x 3 tubs of BS and 8 x 1 tub of GBA) and a small selection of samples from other context types	Tech.	12		Assumes processing will be carried out by hand to minimise damage to delicate material, especially landsnails
(4) Sort residues from (3) for artefacts and biological remains	Tech.	10		Allows for sorting fractions under binocular microscope
(5) Identify charcoal and other charred plant remains from 5 existing BS residues and washovers and from up to 5 selected samples processed under (3)	RF (plants)	3		
(6) Process remaining sediment for two selected GBA samples	Tech.	1		
(7) Record insect remains from two selected samples processed under (6) above	RA (insects) RF (insects)	2 0.5		
(8) Process test subsamples for 20 selected GBA and/or BS samples not examined during assessment	Tech.	6		
(9) Review plant and invertebrate remains from test subsamples	RF (plants) RF (insects) RF (snails)	0.25 0.25 0.25		

Task	Staff	Time required (days)	Cost	Notes
(10) Process further material from 5 samples	Tech.	2		
(11) Record plant and invertebrate remains	RF (plants) RA (insects) RF (insects) RF (snails)	2 4 1 1		
(12) Record snails from BS samples	RF (snails)	3		
(13) Record bones from BS samples	RA (bones) RF (bones)	20 10		
(14) Record hand-collected bone	RA (bones) RF (bones)	10 1		
(15) Report on charred plant remains	RF (plants)	2		
(16) Report on insect remains	RA (insects) RF (insects)	2 2		
(17) Report on snails	RF (snails)	1		
(18) Report on bones	RA (bones) RF (bones)	20 20		
(19) Contingency	Tech. RA (2) RF (4) RF (sediments)	6 2 x 1 4 x 1 5		RF (sediments) contingency included to allow for unforeseen questions generated during analysis

Task	Staff	Time required (days)	Cost	Notes
<b>Totals</b>	Tech. RF (plants) RA (insects) RF (insects) RF (snails) RA (bones) RF (bones) RF (sediment s)	44 8.75 11.5 6.25 6.75 53.5 32.5 5		

Table 7. Consumables required for further work on biological remains from Carr Naze, Filey.

<b>Item</b>	<b>Cost (£)</b>
Reagents	
Glass specimen tubes	
Microscope slides and cover slips	
Computer consumables	
Beatson jars	
Stationery	
Postage	
Telephones/faxes	
Polyethylene bags	
Labels and markers	
Miscellaneous	
Photographic materials and processing costs	
C14 dates (10-20)	
<b>Total</b>	