2468

Ancient Monuments Laboratory
Report 36/94

FENLAND MANAGEMENT PROJECT REPORT NO 2. MOLLUSCA FROM TWO FEN-EDGE LITHIC SCATTER SITES IN NORFOLK: FELTWELL 107 AND METHWOLD 69.

Peter Murphy BSc MPhil

Ancient Monuments Laboratory Report 36/94

FENLAND MANAGEMENT PROJECT REPORT NO 2. MOLLUSCA FROM TWO FEN-EDGE LITHIC SCATTER SITES IN NORFOLK: FELTWELL 107 AND METHWOLD 69.

Peter Murphy BSc MPhil

Summary

Although both of these sites were badly damaged by ploughing, samples for mollusc analysis were obtained from subsoil hollows and a palaeosol under peat at Feltwell, and from similar subsoil hollows at Methwold. The palaeosol had formed on calcareous marl, which produced a sparse mollusc assemblage indicating deposition in an open marshy local environment. The A horizon of the soil included mollusca indicative of wooded conditions, principally *Carychium* spp, *Discus rotundatus* and *Zonitidae*. Subsoil hollows at both sites produced similar assemblages dominated by woodland snails with some freshwater and marsh taxa. They are thought to have been tree-throw holes. *Vallonia costata* was consistently present, and at Methwold comprised up to 22% of total shells. Some localised disturbance of woodland is thought to be represented, but not wholesale clearance.

Author's address :-

Peter Murphy BSc MPhil

Centre of East Anglian Studies
University of East Anglia
Norwich
Norfolk
NR4 7TL

Introduction

Field-walking as part of the Fenland Survey has revealed a dense belt of lithic scatter sites, mainly of Neolithic-Early Bronze Age date, along the eastern fen-edge in Norfolk. (Hall and Coles 1994, Fig. 24). Several of these sites have been further investigated by Mark Leah (Norfolk Archaeological Unit) by trial trenching, during the Fenland Management Project. In this report results from molluscan analysis at two of the sites are presented and discussed.

Feltwell (FWL 107)

Over most of the site the original peat cover had been reduced by drainage and ploughing to a black humified peaty A_{op}, 30-40cm thick. Some very degraded wood survived in places, towards the base of the ploughsoil. In some trial pits the A_{op} directly overlay an off-white calcareous marl including shells of *Planorbis planorbis* and *Cepaea* spp. In other pits, however, there was an intervening calcareous greyish-brown calcareous sandy loam, apparently representing a thin buried soil. The section in trial pit 400E/100N was typical.

0-30cm	A_{op}. Black peaty loam with abundant heat-shattered flint fragments; very sharp boundary.
30-45cm	Greyish-brown sandy loam, merging down into pale greyish-brown; abundant chalk fragments; rare heat-shattered flints up to 15mm; mollusc shells; brown mottles; peat-filled root channels; top surface with peat-filled plough grooves; merging boundary.
45+cm	Off-white slightly sandy calcareous marl; chalk fragments very common; yellowish-brown mottles; peat-filled root channels and decayed woody roots.

Elsewhere the subsoil was more complex, comprising not only marl but also patches of coarse sand and shallow subsoil hollows, no more than 10-15cm deep, filled with a greyish-brown sandy loam with chalk fragments.

The following samples were collected.

LS1.	Short column for mollusc analysis: sub-samples at 30-35; 35-40; 40-45, 45-50cm in pit 400E/100N.
LS2.	Spot sample for mollusc analysis from subsoil hollow in pit 300E/200N.
LS3.	50cm soil monolith for pollen analysis from pit 400E/100N.
LS4.	Monolith for soil micromorphology. Test pit 400E/100N.

Results from assessment of the pollen and micromorphological samples by P.E.J. Wiltshire and C.A.I. French have been presented in FMP Assessment Report 28 (unpublished). The basal marl included only fungal hyphae.The palaeosol had been very bioactive with the result that most palynomorphs were decomposed. The sparse material surviving suggested that both woodland and open grassy areas were present in the vicinity of the site: a few pollen grains including *Tilia* (lime), cereal-type and Poaceae (grasses) with fungal rust and algal spores were noted. The assemblage of palynomorphs from the peaty ploughsoil suggested a locally wooded environment with open areas nearby, and some standing water was suggested by the presence of *Lemna* and *Lythrum* pollen. French considered that the palaeosol was truncated.

Methwold (MTW 69).

At this site, ploughing of the low sand ridge on which the lithic scatter had been found had resulted in severe disruption both of the peat cover and the underlying palaeosol. The surface peat was desiccated and extensively disturbed by ploughing, and there were plough marks scored into the subjacent palaeosol. Earthworm burrows penetrated both the surface peat and the palaeosol, and there were chalk

pebbles in both. This indicated a base-rich matrix. In these circumstances sampling for pollen was not thought appropriate. Modern cereal straw was visible in the plough grooves scored into the palaeosol, clearly indicating that it was contaminated by recent material. Macrofossil samples were therefore not collected.

However, at the base of the modern ploughsoil, some residues of largely undisturbed though highly humified sediment (21) survived in places at the margins of the ridge and two small subsoil hollows (fills 25 and 27) also seemed to have largely undisturbed fills. 21 proved, on closer inspection, to be a desiccated remnant of wood peat. Bulk samples were collected from these deposits to characterise them. They included the following macrofossils.

BS 1. 21. Desiccated wood peat.
Charcoal fragments up to 10mm common; uncharred plant material, including woody roots, *Corylus* nutshell, seeds of *Sambucus nigra* and *Moehringia trinervia* : rare small mollusc shell fragments; small mammal bones.

BS 2. 27. Fill of subsoil hollow.
Rare charcoal fragments up to 10mm; hard humified peaty aggregates; shreds of decayed wood; mollusc shells common; small mammal bones.

BS 3. 25. Fill of subsoil hollow.
Charcoal fragments up to 10mm moderately common; hard humified peaty aggregates; shreds of decayed wood; mollusc shells common; small mammal bones.

Initially it was thought that contamination would invalidate any quantitative analysis, but a reconsideration of the assessment results suggests that, though there may be small proportion of modern contaminant shells present, the assemblages from 25 and 27 are essentially reliable. Mollusc shells from the flots have therefore been analysed quantitatively.

Methods

2kg samples from FWL 107 were wet-sieved over a 0.5mm mesh. The bulk samples from Methwold, each 7 litres, were processed by water flotation, using 0.5mm collecting meshes. Material retained was dried, then sorted under a binocular microscope at low power, prior to identification by comparison with modern reference material.

Results

Identifications of mollusc shells are listed in Table 1 and the results are summarised in Figure 1. Preservation of shells was in general moderate to good, though all samples included some specimens too abraded or fragmented to be identified fully or at all. *Carychium* spp dominated most assemblages. *C. tridentatum* appeared, on external characteristics, to be the main species, though inspection of the internal parietal and columellar folds showed that *C. minimum* was also present. The Zonitidae included *Vitrea crystallina, V. contracta, Nesovitrea hammonis, Aegopinella pura, A. nitidula* and *Oxychilus* spp, though for present purposes full specific identification was not done. Since the two samples from Methwold were bulk samples processed by flotation, dense elements (eg limacid plates) were not retrieved. Arionid granules were present, but were not recorded.

Conclusions

The two sites were both lithic scatters at fen-edge locations on calcareous parent materials (so that mollusca were the main source of palaeoecological information). Subsoil hollows were present at both sites. At Methwold the palaeosol was too disrupted by modern ploughing to be sampled, but at Feltwell

the palaeosol was somewhat better preserved, beneath a slightly thicker peat cover . Heat-shattered flint fragments and rare charcoal fragments from the buried soil at Feltwell demonstrated its contemporaneity with the lithic scatter. From field observations, C.A.I. French had suggested that the palaeosol was badly truncated by modern ploughing, but mollusc analysis does not support this view: the concentration of shells in the upper levels of the palaeosol was high - certainly much higher than would be expected in a B horizon. It is therefore suggested that it is a thin A/C rendzina-type soil, essentially intact.

This soil was formed on sandy calcareous marl including abundant chalk fragments. Molluscs were not common in the marl, but in the small assemblage retrieved *Vertigo angustior* and *Succinea* spp made up 28% and *Lymnaea truncatula* and *Anisus leucostoma* together comprised 36%. Deposition in a relatively open marshy local environment is indicated.

In the soil developed on this marl, however, taxa requiring shaded conditions increased markedly, comprising 69% of total shells at the top of the palaeosol. *Carychium* spp, *Discus rotundatus* and Zonitidae predominated, with other shade-requiring species at lower frequencies. Wooded conditions evidently pertained locally.

There was little evidence for burning (charcoal fragments were exceedingly sparse) or other forms of woodland clearance, though *Pomatias elegans* and *Vallonia costata* increased slightly in frequency towards the top of the palaeosol. *P. elegans*, though a woodland species, favours disturbed soils (Evans 1972, 134). *V. costata* occurs at low levels in closed woodland, and was therefore the first 'open-country' species to attain large populations in newly-cleared land (ibid, 157). Here, it attained a maximum of 12% at the top of the buried soil.

The persistence of marsh and freshwater species in the upper levels of the soil points to continued damp conditions and perhaps intermittent flooding. Sample LS 2, from a sub-soil hollow, produced a very similar assemblage to the top of the soil and is probably best interpreted as a tree-throw hole.

In summary, at this site woodland developed on marl originally formed in open marshy conditions. Changes in assemblage composition at the top of the palaeosol indicate some disturbance of the woodland, though certainly not wholesale clearance.

The two samples from sub-soil hollows at Methwold again produced assemblages dominated by woodland taxa and again are thought to be tree-throw holes. Their composition was essentially similar to the samples from Methwold, but differed in including markedly higher percentages of *Vallonia* spp, mainly *V. costata* - around 22%. Charcoal was more common than in the Feltwell samples. Although there was again no evidence for complete woodland clearance, the intensity of disturbance seems to have been greater at this site. Marsh and freshwater snails were present, but at lower frequencies, suggesting locally drier conditions.

It would be imprudent to generalise from results relating to just two sites: two of the dense belt of fen-edge lithic scatters known in this area (Hall and Coles 1994, Fig 24). However, these results certainly indicate activity within woodland rather than any extensive clearance for settlement and agriculture.

References

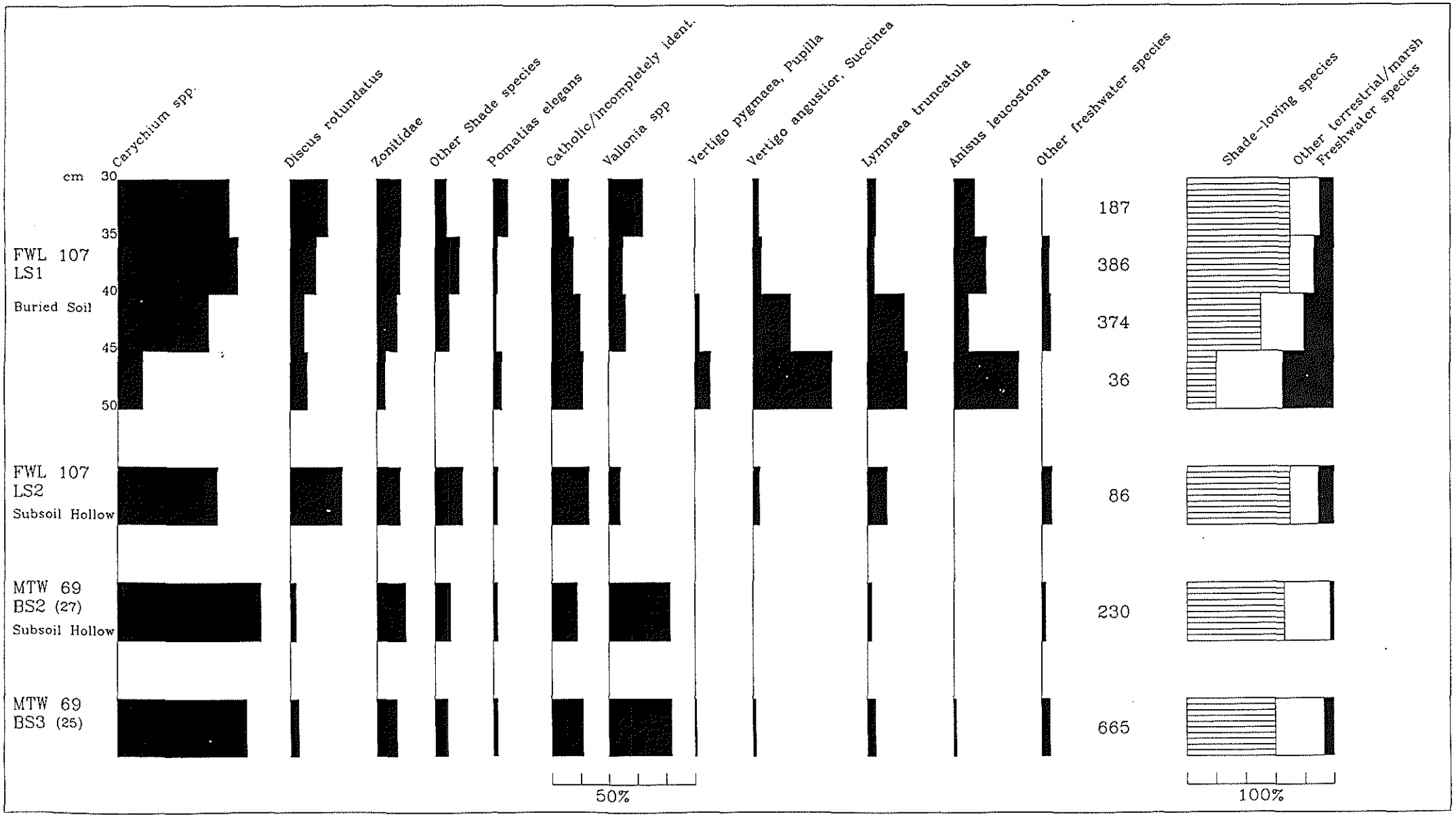
Evans, J.G. 1972
Land snails in archaeology. Seminar Press: London.

Hall, D. and Coles, J. 1994
Fenland Survey. An essay in landscape and persistence. English Heritage Archaeological Reports 1. London.

Table 1: Mollusca from FWL 107 and MTW 69.

Site	FWL 107					MTW 69		
Sample no. (LS/BS)	1	1	1	1	2	1	2	3
Depth (cm)	30-35	35-40	40-45	45-50				
Terrestrial/marsh taxa								
Pomatias elegans (Muller)	8	6	1	(x)	1		3	5
Carychium sp(p)	73	162	121	3	30	1	112	298
Succinea sp(p)	3	8	44	10	1	1		4
Cochlicopa sp(p)	3	3	2		3		3	20
Vertigo pusilla Muller	1	6			3		1	1
Vertigo substriata (Jeffreys)		5					1	6
Vertigo pygmaea (Draparnaud)				1				2
Vertigo angustior Jeffreys	1	1	4		1			
Vertigo sp(p)	1	16	24	3	3			3
Pupilla muscorum (Linne)			5	1				
Lauria cylindracea (da Costa)			1					
Vallonia costata (Muller)	21	18	4		1		28	102
Vallonia excentrica Sterki								15
Vallonia pulchella (Muller)			5					3
Vallonia sp(p)	2	1	11		2		22	28
Acanthinula aculeata (Muller)	4	2			2		3	15
Spermodea lamellata (Jeffreys)	1	3	5					
Ena montana (Draparnaud)								*
Ena obscura (Muller)	1	2	2					
Punctum pygmaeum (Draparnaud)		5	5		2		2	5
Discus rotundatus (Muller	25	34	18	2	15		6	23
Vitrea spp	4	7	6	1	1		7	16
Nesovitrea hammonis (Strom)		3	5		2			5
Aegopinella spp	3	9	9				3	13
Oxychilus spp	9	8	2				6	8
Zonitidae indet		4	5		4		5	13
Limacidae		1	4		1			
Euconulus fulvus (Muller)								1
Cochlodina laminata (Montagu)	*	*						
Clausilia bidentata (Strom)		6	4					
Clausiliidae indet		4			1		5	3
Trichia hispida group		1	1		1		2	8
Trichia sp(p)	6	3	2				7	19
Helicigona lapicida (Linne)	1		(x)					
Cepaea sp(p)	1	4	1	1	3			1
Indeterminate		2	4				9	6
Freshwater taxa								
Valvata cristata Muller		2			2		1	6
Aplexa hypnorum (Linne)			1					1
Lymnaea truncatula (Muller)	6	11	48	5	6		3	19
Lymnaea palustris (Muller)								1
Lymnaea sp			2				1	7
Planorbis planorbis (Linne)	*	*					*	
Anisus leucostoma (Millet)	13	42	20	8				5
Bathyomphalus contortus (Linne)			*					
Planorbidae indet								2
Pisidium sp(p)		13	14		1			2
Sample wt: kg. (LS)	1.8	2	2	2	2			
Sample volume: litres (BS)						7	7	7
% sorted	12.5	12.5	25	50	50	50	25	25

(x) - non-apical frags; * - noted during assessment but not in sub-sample analysed.


Carychium spp.
Discus rotundatus
Zonitidae
Other Shade species
Pomatias elegans
Catholic/incompletely ident.
Vallonia spp
Vertigo pygmaea, Pupilla
Vertigo angustior, Succinea
Lymnaea truncatula
Anisus leucostoma
Other freshwater species
Shade-loving species
Other terrestrial/marsh
Freshwater species
cm
30
35
40
45
50
FWL 107
LS1
Buried Soil
FWL 107
LS2
Subsoil Hollow
MTW 69
BS2 (27)
Subsoil Hollow
MTW 69
BS3 (25)
187
386
374
36
86
230
665
50%
100%