ENVIRONMENT AND HUMAN ACTIVITY ON THE OLDBURY LEVELS *c.* 5000 – 1000 BC: RECENT WORK AT HILLS FLAT, SOUTH GLOUCESTERSHIRE

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This paper presents the results of pollen, charcoal, macrobotanical and sedimentological analysis at the intertidal site of Hills Flats, south Gloucestershire. Here a sequence of interbedded peats and estuarine silts of mid-Holocene date are exposed along a c. 1.5 km stretch of the intertidal zone, from the surface of which a small collection of unstratified lithics of Neolithic and early Bronze Age date have previously been reported. Analysis suggests an environment of saltmarsh, punctuated by periods of peat formation characterised by reedswamp, fringed by carr-woodland, with Quercus-Ulmus-Tilia-Corylus *woodland on the adjacent dry ground. Significant quantities of charcoal were recorded from the base of the upper peat, representing probable anthropogenic burning of reedswamp and sedge-fen of late Mesolithic and early Neolithic date. The archaeological and palaeoenvironmental evidence may indicate a special activity site, peripheral to, and perhaps associated with evidence for extensive settlement activity recorded from the intertidal zone 3 km to the south at Oldbury Flats. The results of analysis from Hills Flats are set within the context of previous palaeoenvironmental and archaeological work on the Oldbury Levels, suggesting sustained occupation and exploitation of the intertidal marshes during prehistory.*

INTRODUCTION

Hills Flats is one of three major exposures of Holocene sediment within the middle Severn Estuary investigated as part of a wider project on Mesolithic to Neolithic Coastal Environmental Change (NER/A/S/2000/00490). Aspects of survey and analytical work undertaken at Woolaston, located on the west bank of the middle estuary, have already been published as an interim report (Brown *et al* 2005). Here, substantial evidence for probable anthropogenic vegetation impact is suggested, but with only slight artefactual evidence for human activity. This contrasts with evidence from the eastern shores of the middle estuary, where numerous archaeological finds of prehistoric date have been reported from the intertidal zone at Oldbury and Hills Flats (Allen 1990, 1997, 1998; Allen and Fulford 1992, 1996; Hume 1992), but that have not, as of yet, been placed within a detailed environmental context.

The purpose of this article is two-fold: first, to outline the results of palaeoenvironmental work at Hills Flats and to place the archaeological evidence for human activity at this site within its environmental context, and, second, to set the evidence from Hills Flats within the wider context of prehistoric vegetation change and human activity on the Oldbury Levels. Geographically, this comprises those areas of coastal, embanked and intertidal wetland extending north from Aust along the eastern shores of the middle Severn Estuary to Sharpness (Figure 1).

In general, palaeoenvironmental studies from this area are few, of low resolution and poorly dated, whilst peat units are thinner and lack the associated evidence for widespread human activity present on the Gwent, Wentlooge and Central Somerset Levels. Here the archaeology and palaeoecology is now well know through key investigations and recent syntheses (e.g., Coles and Coles 1986; Caseldine 1988; Bell *et al* 2000, Bell forthcoming). Archaeological evidence for human activity is also increasingly apparent on the Avon Levels (reviewed recently by Gardiner *et al*

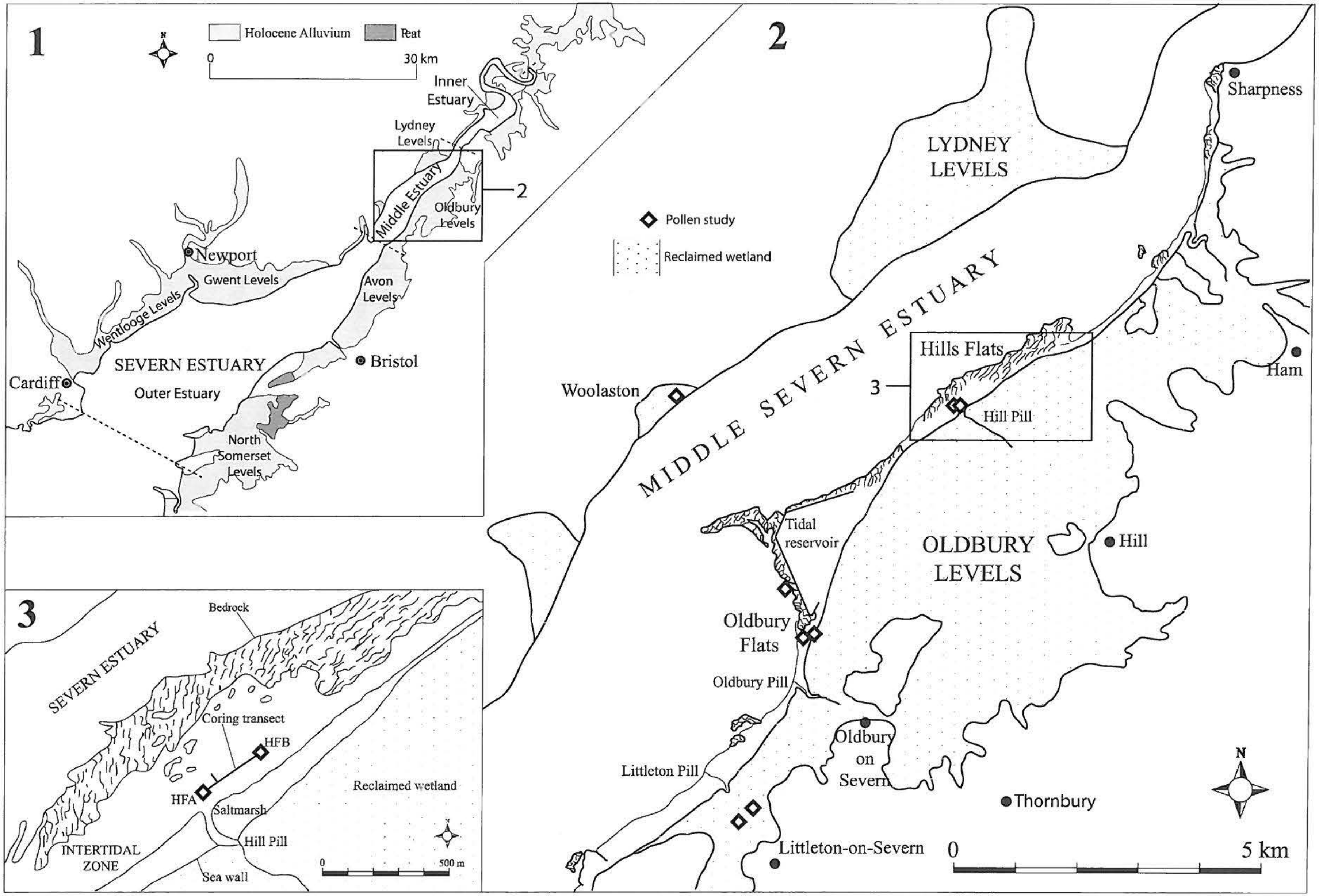
1
Holocene Alluvium
Peat
0
30 km
Inner Estuary
Lydney Levels
Middle Estuary
Oldbury Levels
2
Newport
Gwent Levels
Wentlooge Levels
Avon Levels
SEVERN ESTUARY
Outer Estuary
Bristol
Cardiff
North Somerset Levels
2
Pollen study
Reclaimed wetland
LYDNEY LEVELS
Sharpness
MIDDLE SEVERN ESTUARY
Hills Flats
3
Hill Pill
Ham
Woolaston
Tidal reservoir
OLDBURY LEVELS
Hill
Oldbury Flats
Oldbury Pill
Oldbury on Severn
Littleton Pill
Thornbury
Littleton-on-Severn
0
5 km
N
3
Bedrock
SEVERN ESTUARY
Coring transect
HFB
HFA
Saltmarsh
Reclaimed wetland
Hill Pill
INTERTIDAL ZONE
Sea wall
0
500 m

Figure 1 (left). Location and context of Hills Flats, south Gloucestershire.

2002) due to increasing development pressure on the wetlands. By comparison, few prehistoric sites are know to exist within the Oldbury Levels. Development pressure here is negligible compared to the Gwent and Avon Levels, so new sites tend not to be found. There is also a lack of amateur enthusiasts discovering and reporting finds from the wetland in the way that the late Derek Upton so importantly did on the Gwent Levels. Finally, where sites do exist, they have not yet provided the settlement or structural evidence seen elsewhere in the estuary, and so attract less attention. However, those sites that do exist suggest sustained occupation and exploitation of the intertidal marshes. This paper therefore represents an attempt to balance our understanding of prehistoric occupation on the Oldbury Levels with other parts of the Severn Estuary Levels.

SITE DESCRIPTION

Hills Flats is located on the intertidally exposed eastern shores of the middle Severn Estuary, approximately 6 km downstream from Sharpness (Figure 1). The site is 3 km long by 0.5 km wide comprising an outer bedrock platform and an inner zone of Holocene sediments.

Geology and Holocene sediments

Exposed along the outer edge of the intertidal zone is an undulating bedrock platform composed of Triassic mudstones and sandstones (Welch and Trotter 1961), locally obscured by mobile sheet gravels, and in places cut by late Pleistocene sand-filled ice-wedge casts, argued to have formed during the late Devensian (Allen 1987). The bedrock has been observed to grade upwards into a grey sandy-pebbly soil, locally merging into the basal peat (Allen and Fulford 1996, fig. 1). Exposed sediments of the Wentlooge Formation are confined to the interior of the intertidal zone, infilling three shallow depressions, characterised along their outer eroded edge by a sediment cliff that achieves a maximum height of *c.* 1 m. Landward is a sequence of stepped salt marshes of the Rumney, Awre and Northwick Formations (Allen and Rae 1987).

Archaeology

Previous work by Allen (1997) has produced a small yet diverse collection of unstratified lithics of late Neolithic and early Bronze Age date, largely retrieved from small gravelly pocket beaches to be found at the base of the saltmarsh around Hill Pill. The assemblage contains 101 struck lithic artefacts, and includes a disproportionately high number of retouched items. Ten scrapers, two knives, six arrowheads and eleven other retouched pieces make up the tool component of the assemblage. There is also a high proportion of core elements (29), including a tortoise core, and a large number of pieces retaining cortex (45). An additional two pieces were recovered by this author from the same beaches. The two pieces comprise a scraper of light to dark grey flint, and an edge retouched flake of a dark grey-black flint. A possible hammerstone was recorded from the surface of the peat at ST 62447 97357.

Allen (1997) argued that much of this material was eroded and mixed as a result of coastal erosion caused by progressively rising sea-levels, and is likely to have originated from either, i) land surfaces on areas of bedrock which still remained accessible at the time artefacts were deposited, ii) areas of saltmarsh deposited during sea-level rise, and/or iii) areas of peat deposited during stable or falling sea-levels (Allen 1997, 270). Flint was the main raw material exploited, varying in colour from predominantly dark grey-black, translucent brown, mottled light and dark grey to mottled yellow flint, with lesser quantities of pale grey flint and probable Carboniferous chert. The same colour variation is apparent in the lithic assemblage to the south at Oldbury Flats, within which Allen (1998) noted important spatial and temporal patterning. Grey flint and chert occur only in stratified contexts of late Mesolithic and Neolithic date, with unstratified material concentrating within the southern portion of the flats. Conversely, brown flint occurs only in stratified contexts of Bronze Age date, with unstratified material concentrating within the northern portion of the flats towards the early Bronze Age settlement at the Oldbury nuclear power station. The same temporal pattern is apparent at Hills Flats, with diagnostic Bronze Age tools derived from brown flint, and diagnostic Neolithic tools from grey flint and chert. The varied lithologies were probably exploited from local deposits of water-worn pebbles and cobbles, although the chert may have been procured from the south Wales coast and/or from the Carboniferous Limestone uplands of the Mendips.

METHODS

Coring and sampling

Limited coring, using an Eijkelkamp manual gouge auger, was undertaken along a transect running 200 m north from Hill Pill, with a second smaller transect running at right angles to this (Figure 2). Samples for palaeoenvironmental analyses were taken, using monolith tins, from cut back and cleaned sections along peat shelves and from within pits.

Magnetic susceptibility

Magnetic susceptibility was measured on samples taken at 1-2 cm intervals from sequence HFA (Figure 2) to provide information on fire history due to the magnetic enhancement of sediment following fires. Magnetic susceptibility was measured at low frequency using a Bartington model MS2 magnetic susceptibility meter.

Loss-on-Ignition

Samples of sediment $\geq$ 5 grams were taken at intervals of 1-2 cm from sequence HFA for quantification of mineral and organic content by loss-on-ignition (LOI), following the method of Bengtsson and Ennell (1986).

Pollen and microscopic charcoal particle analysis

Sub-samples of sediment 1 cm thick and *c*. 1 cm^3 in volume were taken for pollen and charcoal particle analysis from sequences HFA and HFB (Figure 2). Samples were processed chemically using standard laboratory preparation techniques as outlined in Moore *et al* (1991). Samples were analysed under a Leica DME trinocular microscope at x400 magnification, with critical determinations at x1000 magnification. A minimum of 300 pollen grains and spores were identified per sample, excluding aquatics and *Sphagnum*. Pollen and spores were identified using the key and photographic plates in Moore *et al* (1991), cross-referenced, where required, with the pollen reference collection in the Department of Archaeology, University of Reading. All taxa follow current nomenclature established in Bennett *et al* (1994). Indeterminable grains were recorded according to categories established by Cushing (1967). Microcharcoal was quantified using the point count method (Clark 1982).

Macrobotanical analysis

Sub-samples of sediment 1 cm thick and with a minimum volume of 50 ml displacement by water were taken for macrobotanical analysis from sequence HFA. Sediment was washed through a nest of sieves of 1 mm, 500 μm and 250 μm mesh size. All samples were analysed under a Meiji EMT binocular microscope at x10-20 magnification. Plant macrofossils were identified using photographic plates in Anderberg (1994) and Berggren (1969, 1981), cross referenced, where required, with the macrobotanical reference collection in the Department of Plant Sciences, University of Reading. Vascular plant nomenclature follows Stace (1991). The macrocharcoal content of all macrobotanical samples is expressed as the total number of fragments within four size classes (250-500 μm; 500 μm-1 mm; 1-5 mm and 5-10 mm).

RESULTS AND INTERPRETATION

Stratigraphic sequence

Between four and five individual peat layers are represented at Hills Flats, separated by blue-green estuarine clayey silts and coarsely laminated sandy silts of the middle Wentlooge Formation. These represent an alternating sequence of freshwater/brackish peats accumulating during periods of falling or stable sea-level, followed by phases of minerogenic deposition, representing high intertidal mudflats and saltmarsh laid down under periods of sea-level rise. Previous stratigraphic work by Allen and Fulford (1996) suggested that the main peat, dated at its base to 5300±31 BP (OxA-13700, 4240-4040 Cal BC) and 5300±60 BP (Beta-61769, 4320-3980 Cal BC, Allen and Fulford 1996) is underlain by only a

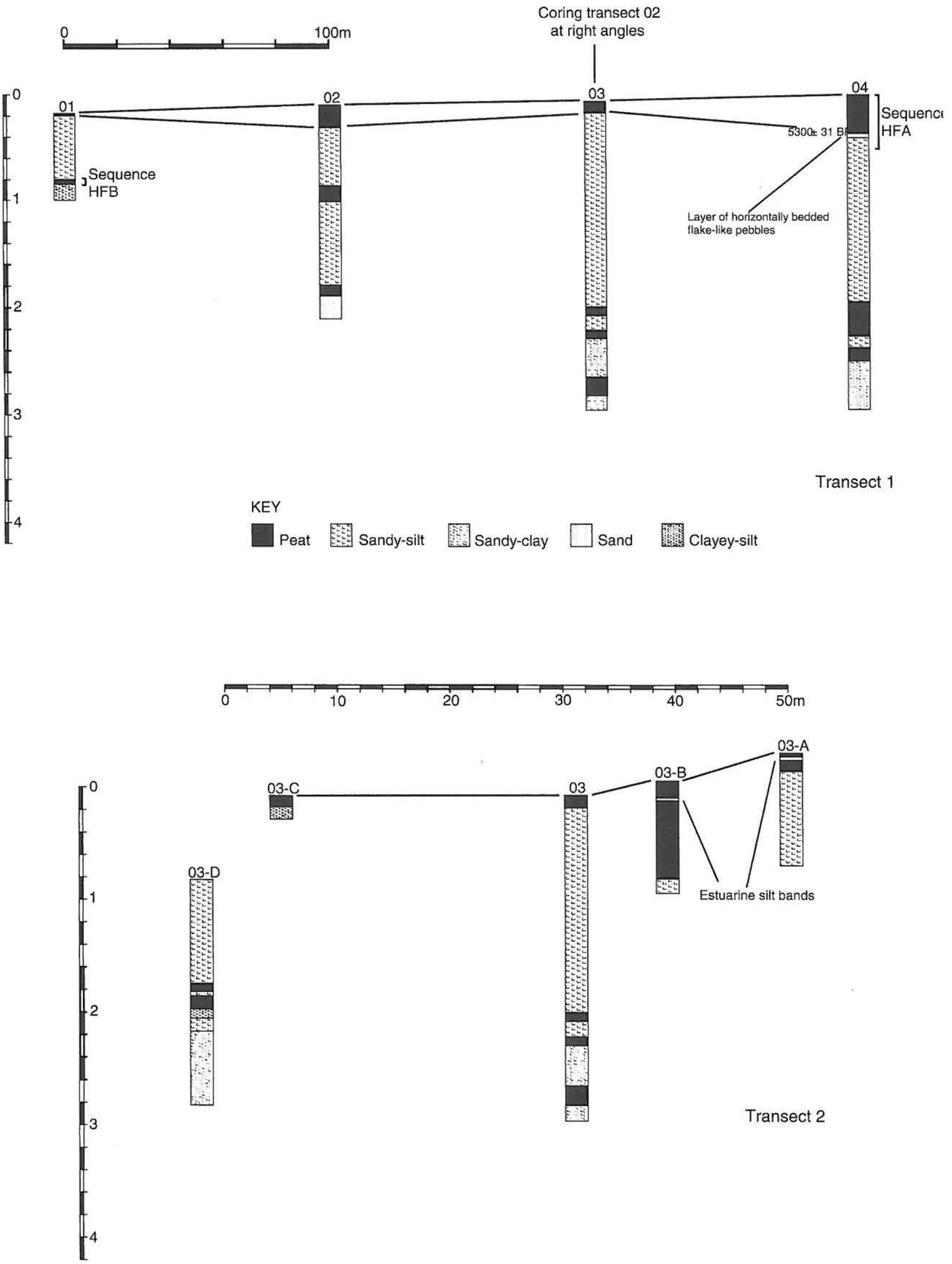

Figure 2. Hills Flats coring transects, showing location of sequences HFA and HFB.

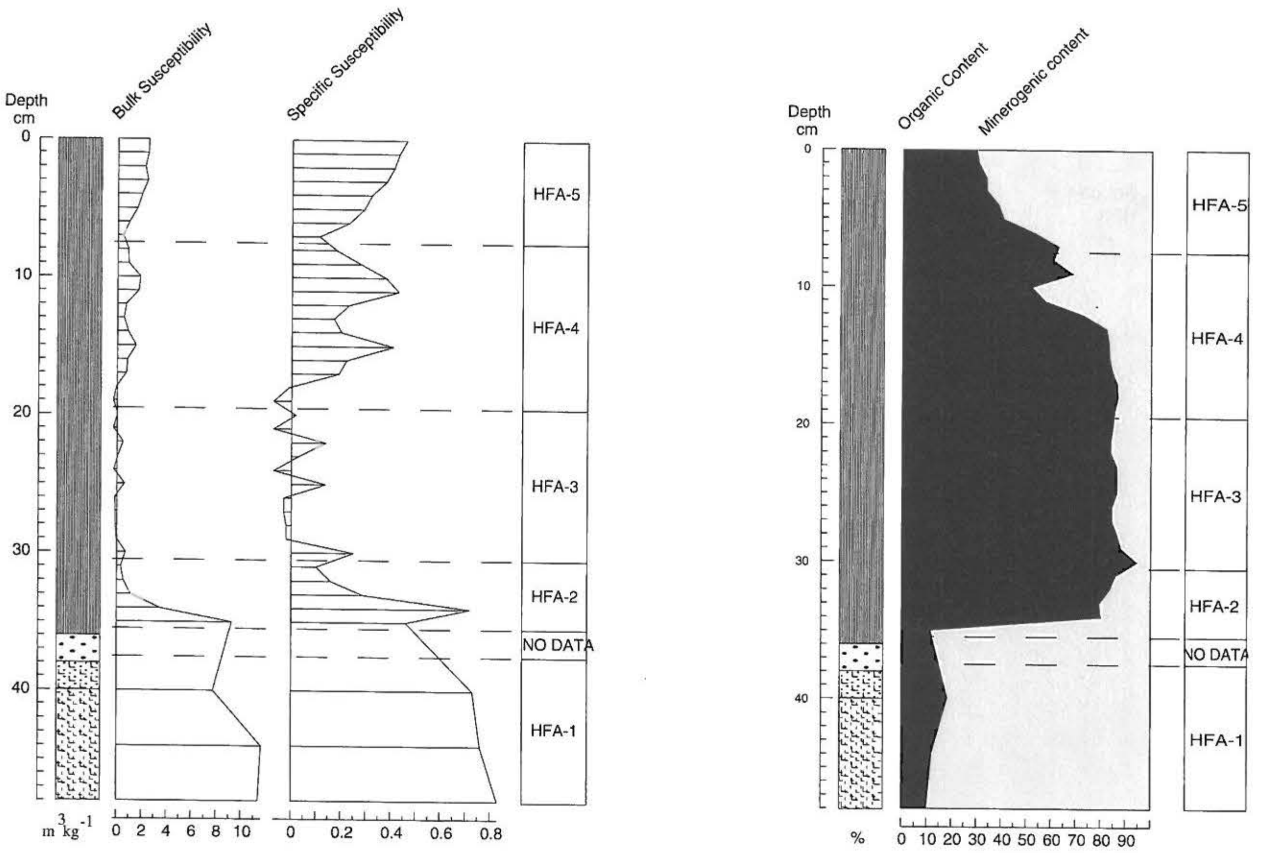

Figure 3. Sequence HFA, magnetic susceptibility and loss-on-ignition.

single peat layer. However, the coring transect suggests the presence of two and as many as three separate peat layers underlying the main peat. This would be analogous to the sediment sequence on the intertidal zone 3 km to the south at Oldbury Flats. Here a comparably dated upper peat is underlain by two-three peats (Brown 2005). These lower peats are undated at Hills Flats, but given the proximity of the two sites and similar topographic relief, are most-probably of a similar date as those studied at Oldbury. They are all herbaceous peats dominated by *Phragmites* (common reed) rhizomes, suggesting tall herb swamp environments (eg reedswamp, sedge-fen) similar to that reported for sequence HFA below. The main peat is underlain by 0.75-1.75 m of coarsely laminated clayey silts and sandy silts. These are similar to banded estuarine sediments widely occurring throughout the estuary, recently reported on by Dark and Allen (2005) and Allen and Haslett (2006), reflecting rapid sedimentation under seasonal variations in tidal turbidity.

A thin layer of reddish-brown horizontally bedded flake-like pebbles of Triassic mudstone occur across large areas of the intertidal zone, draping a layer of estuarine clayey silts. Within sequence HFA (Figures 2 and 5) these flake-like pebbles directly underlie the main peat, sealing the estuarine sediments. A few metres to the north, this same layer outcrops on the surface. The thin pebbly layer most likely represent the redeposition of material produced during the course of a significant erosion event prior to the formation of the main peat. This may have occurred as a result of an exceptional storm or coastal surge. This pebbly layer occurs widely *c.* 500 m north of Hill Pill where the overlying Holocene peats appear to have been eroded away. Depositional breaks in the mid-Holocene sequence are apparent on the Gwent Levels, recently reported on by Allen and Haslett (2006), but also from the inner Bristol Channel at Porlock (Allen 2005). The thin pebble layer at Hills Flats may represent a significant hiatus in the local sedimentary sequence that has not presently been identified at other sites in the middle estuary.

The main peat is sealed by estuarine deposits, but, in places is followed by the formation of a thin reed peat of 1-2 cm thickness, in turn sealed by estuarine silts of the upper Wentlooge Formation. The upper Wentlooge sediments appear to have been severely truncated and are overlain by much later saltmarsh of the Rumney Formation (Allen 1987), similar to that reported at Woolaston on the opposite shores of the middle Severn Estuary (Brown *et al* 2005).

Magnetic susceptibility and loss-on-ignition (Figure 3)

Magnetic susceptibility value within the silty-clay are high (zone HFA-1), reflecting the abundance of strongly ferromagnetic iron minerals and ferrimagnetic iron oxides and sulphides. Organic content is correspondingly low within the estuarine silty-clay, but increases significantly within the peat until *c*. 12 cm. Magnetic susceptibility values are initially high within the reed peat *c*. 34 cm, but decline thereafter. The peak at 34 cm occurs concurrent with high charcoal frequencies, and may result from the enhancement of weakly magnetic paramagnetic minerals in the peat through burning. The peak and subsequent decline in magnetic susceptibility values may relate to the availability of minerals in the peat for enhancement, reflected in the mineral-organic content of the peat. Values are uniformly low through zone HFA-3, but increase in zone HFA-4. There are 3 peaks in specific susceptibility values, 16-14 cm and 12-9 cm, and a gradual increase from 7-0 cm. The latter two peaks may reflect the increasing minerogenic content of the sediment from *c*. 12 cm.

Pollen, charcoal and macrobotanical analysis

Samples for palaeoenvironmental analysis were obtained from two locations on the intertidal zone using monolith tins inserted into the section face of hand-excavated pits (Figure 2). Pollen, charcoal and macrobotanical data are described together within the context of local pollen zones.

Sequence HFB (Figure 4)

Zone HFB-1 (38-35 cm): The dominance of Cyperaceae (sedges) and relatively low values for arboreal taxa reflect the localised presence of a sedge fen-swamp environment. Stands of *Alnus* (alder) carr-woodland are indicated, with a *Quercus-Ulmus-Tilia-Corylus avellana*-type (oak-elm-lime-hazel) woodland on areas of dryland. The presence of high values for Chenopodiaceae (fat hen) and *Aster*-type (michaelmas-daises) pollen also suggests the presence of saltmarsh in the vicinity.

Zone HFB-2 (35-32 cm): Arboreal pollen values increase, whilst those for Cyperaceae and Chenopodiaceae decrease, suggesting a decrease in sedge-fen as a component of the local vegetation. The increase in arboreal pollen values is largely in *Pinus sylvestris* (scot's pine), *Corylus avellana*-type and *Quercus*, but also *Alnus glutinosa*. The principal increase occurs at the top of the zone (33-32 cm) following the cessation of peat formation, and may reflect more open conditions suitable for the increased influx of extra-local and regional arboreal pollen. This is suggested by the increase in *Pinus sylvestris*, which probably included an increased long-distance component.

Sequence HFA (Figure 5)

Zone HFA-1 (50-47.5 cm): Silts comprising this zone represent sediments deposited during a marine transgression. High values for pollen of Chenopodiaceae and lesser quantities of Poaceae (grasses) and Cyperaceae reflect saltmarsh vegetation with areas of fringing reedswamp. The relatively low levels of *Alnus glutinosa* and *Salix* (willow) pollen suggest limited stands of carr-woodland within the vicinity. Arboreal pollen values are dominated by *Pinus sylvestris*, though this taxon is frequently over-represented in the pollen rain as a result of the profuse production and wide dispersal of pollen (Bennett 1984). *Pinus sylvestris* is also recognised as being over-represented in estuarine sediments because of the buoyancy of its pollen, and may not have formed a component of the local vegetation. Pollen of *Quercus*, *Ulmus*, *Tilia* and *Corylus avellana*-type suggest a fringing deciduous woodland on the adjacent dry ground dominated by these taxa. Seeds and charcoal were absent from this zone.

Zone HFA-2 (35-30.5 cm): This zone is

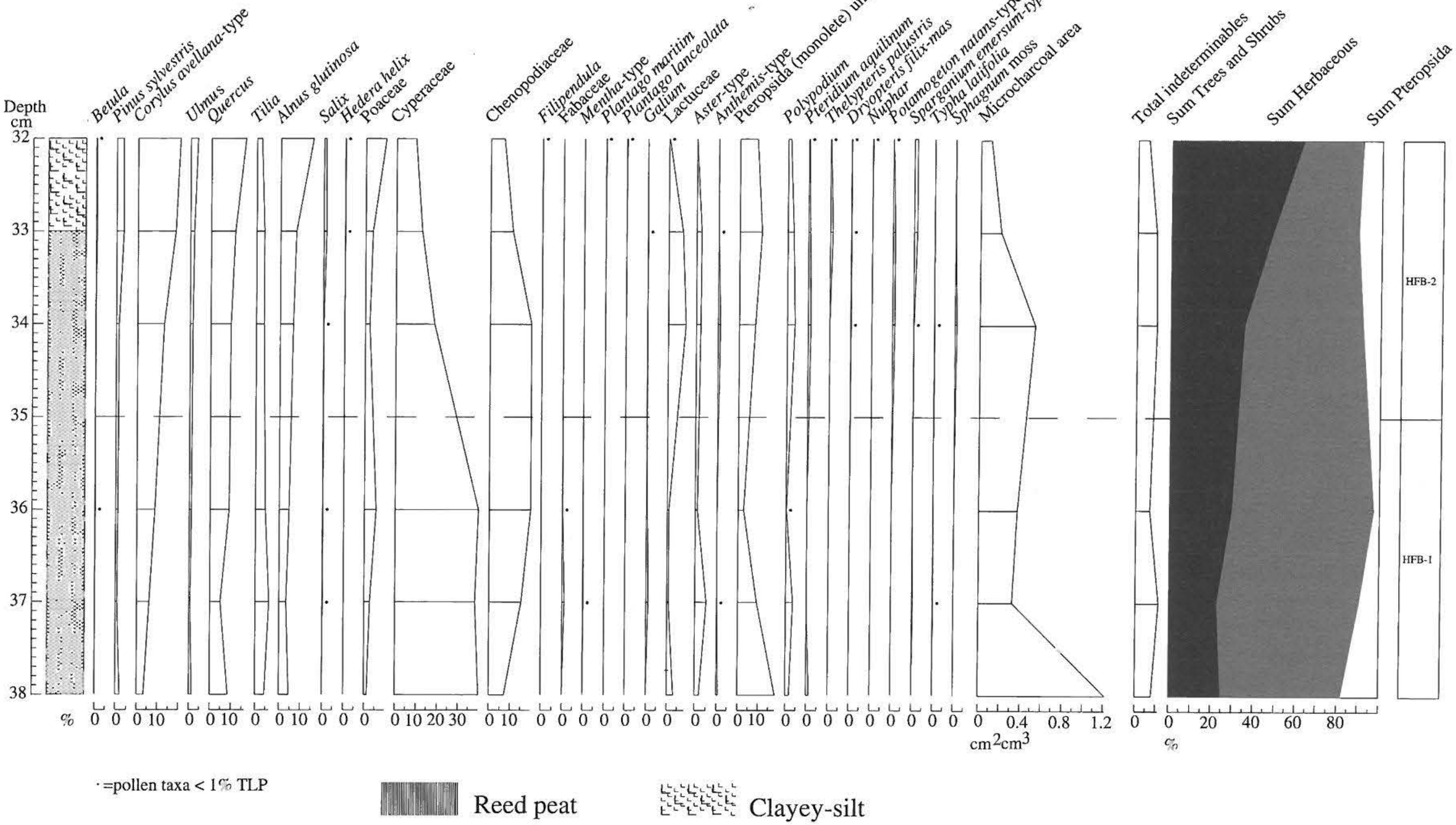
Depth cm
Betula
Pinus sylvestris
Corylus avellana-type
Ulmus
Quercus
Tilia
Alnus glutinosa
Salix
Hedera helix
Poaceae
Cyperaceae
Chenopodiaceae
Filipendula
Fabaceae
Mentha-type
Plantago maritim
Plantago lanceolata
Galium
Lactuceae
Aster-type
Anthemis-type
Pteropsida (monolete) undiff.
Polypodium
Pteridium aquilinum
Thelypteris palustris
Dryopteris filix-mas
Nuphar
Potamogeton natans-type
Sparganium emersum-type
Typha latifolia
Sphagnum moss
Microcharcoal area
Total indeterminables
Sum Trees and Shrubs
Sum Herbaceous
Sum Pteropsida
HFB-2
HFB-1
32
33
34
35
36
37
38
%
cm²cm³
· =pollen taxa < 1% TLP
Reed peat
Clayey-silt

Figure 4 (left). Sequence HFB, percentage pollen and microcharcoal area diagram.

characterised by marine regression and the development of a herbaceous peat, dated to 5300±31 BP (OxA-13700, 4240-4040 Cal BC). The high percentages of Poaceae pollen (30-50%) in this zone most probably represent stands of *Phragmites australis* (common reed), reflecting the localised development of reedswamp. This is supported by the presence of numerous fragments of microcharcoal preserving cellular structure, identified as members of the Poaceae family (Figure 6), and also by numerous fragments of charred reed stem (Figure 7). The significant quantities of micro and macroscopic charcoal, associated with the high Poaceae pollen values, strongly imply localised burning of reedswamp. Increasing values for pollen of *Quercus, Ulmus*, *Tilia* and *Corylus avellana*-type reflect an increasing influx and preservation of pollen from the associated dry ground, dominated by deciduous woodland of these taxa, fringed by stands of *Alnus glutinosa-Salix* carr-woodland. There is a decline in *Ulmus* pollen (*c.* 31 cm) towards the end of the zone that may reflect the characteristic *Ulmus* decline identified from numerous pollen profiles across the British Isles (most recently reviewed in Parker *et al* 2002). The decline is exacerbated by the sharp increase in Pteropsida (fern spores) through zone HFA-3. No direct link is considered between the decline in *Ulmus* and the high frequencies of charcoal that reflect burning of reedswamp rather than woodland edge.

Zone HFA-3 (30-5-19.5 cm): The sharp increase in spores of Pteropsida is argued to reflect poor preservation conditions, perhaps as a result of the drying-out of the peat. Increasing pollen concentrations suggest lower peat accumulation rates. The high corrosion resistance of Pteropsida and very low concentrations of all other plant taxa suggest that these taxa have been severely affected by decay processes. However, the presence of seeds of *Cladium mariscus* (great-fen sedge) from 25 cm indicates a transition from reedswamp to sedge-fen as water levels lowered. The presence of a charred *Cladium mariscus* seed and an increase in macrocharcoal fragments at 23-34 cm suggests localised burning of sedge-fen.

Zone HFA-4 (19.5-7.5 cm): This zone is characterised by a sharp decline in values for spores of Pteropsida, and subsequent rise in values for the majority of other plant taxa, dominated by increasing values for Chenopodiaceae, Cyperaceae, Poaceae, and arboreal pollen of *Corylus avellana*-type, *Quercus*, *Tilia* and *Alnus glutinosa*. There is also a marked increase in the frequency of seeds of *Cladium mariscus* and *Schoenoplectus lacustris* (common club-rush) from 17 cm, dominated by *Schoenoplectus lacustris* from 14 cm onwards. The dominance of these two taxa suggest the localised development of sedge-fen. However, the high values for pollen of Chenopodiaceae and presence of *Aster*-type and *Artemisia*-type (mugworts) suggest the nearby presence of saltmarsh. A proportion of the Poaceae pollen may also reflect a combination of wild grasses growing on saltmarsh, and stands of *Phragmites* growing within a fen-swamp.

The total number of seeds of *Cladium mariscus* and *Schoenoplectus lacustris* drops markedly from *c.* 13-10 cm, accompanied by a decline in pollen of Cyperaceae and an increase in pollen of *Corylus avellana*-type. This may reflect one or more of a number of possibilities: i) small-scale clearance of woodland along the wetland edge, reflected in the decline in *Quercus* pollen, with secondary expansion of *Corylus avellana*-type and subsequent *Quercus* regeneration; ii) expansion of *Corylus avellana*-type and *Quercus* into areas of drier sedge-fen; iii) greater influx of arboreal pollen from the dryland due to decreasing filtration of pollen by tall herbaceous plant species within sedge-fen; iv) deeper standing water levels favouring the local expansion of *Phragmites* over *Cladium mariscus*, *Schoenoplectus lacustris* and Cyperaceae, with increased input of *Corylus avellana*-type pollen from the dry ground.

The final two scenarios are considered the most likely options. *Cladium mariscus* is indicated as being generally absent from sites where the frequent inundation of nutrient-rich mineral sediments allows *Phragmites* to thrive (Rodwell 1995, 132). From 13-10 cm, the mineral component of the peat increases from 18-48%. The increasing mineral component could be derived from periodic inundation and over-wash of saltmarsh against a background of progressively rising sea-levels. This is further

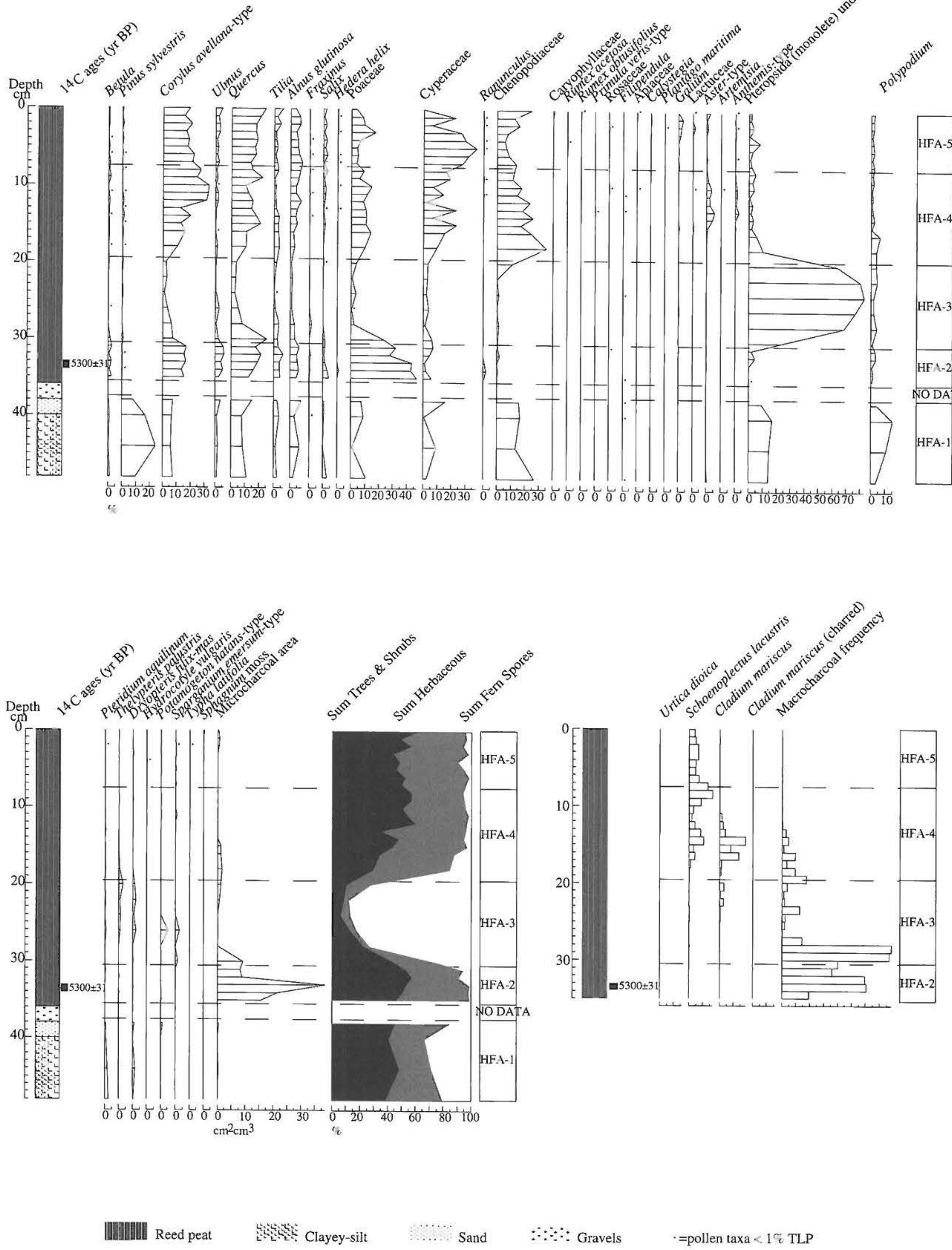

Figure 5. Sequence HFA percentage pollen, microcharcoal area and plant macrofossil diagrams.

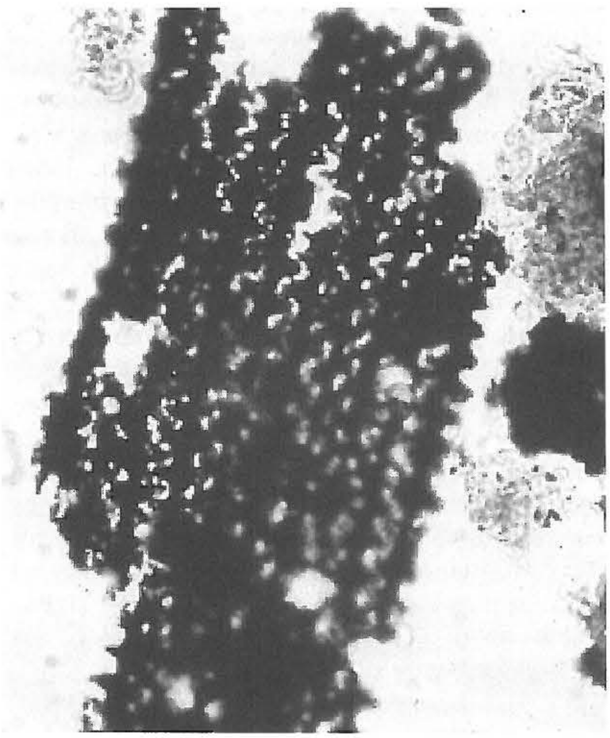

Figure 6. Poaceae *microcharcoal retaining cellular structure (Sequence HFA, 34 cm), scale x400 magnification*

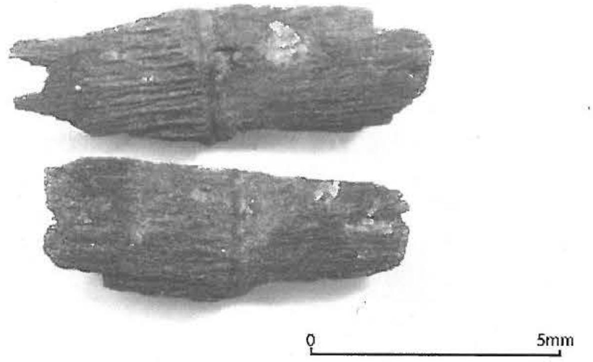

Figure 7. Charred Phragmites *stem (Sequence HFA, 29-30 cm).*

suggested by the increased incorporation of Chenopodiaceae and *Aster*-type pollen into the reed peat. The scale and duration of the inundation was insufficient to halt peat growth, but sufficient to raise standing water levels, favouring the expansion of reedswamp over sedge fen. The pollen and plant macrofossil evidence indicates that this was quickly succeeded by the development of a *Schoenoplectus lacustris* dominated fen-swamp, implying a return to shallower standing water levels. Despite the evidence for possible over-wash of saltmarsh, it effectively acts as a coastal barrier, protecting the reedswamp, sedge-fen and carr-woodlands from inundation.

Zone HFA-5 (7.5-0 cm): A trend towards increasing water-levels are suggested in this zone by the increase in pollen of Poaceae and Chenopodiaceae and the decline in pollen and seeds of Cyperaceae and *Schoenoplectus lacustris*. The increasing mineral content of the peat would suggest periodic but increasing frequencies of marine inundation of the fringing saltmarsh, again, insufficient to halt peat growth. An increase in saltmarsh as a component of the local vegetation is suggested by the increase in pollen of Chenopodiaceae, *Aster*-type and *Plantago maritima* (sea plantain). This occurs subsequent to renewed marine inundation.

VEGETATION CHANGE AND HUMAN ACTIVITY ON THE OLDBURY LEVELS

The detailed analyses presented here for Hills Flats can be set within the wider context of prehistoric vegetation-change and human activity on the Oldbury Levels. As previously highlighted, the Oldbury Levels does not contain the deep peat and alluvial sequences, and widespread evidence for human activity that characterise the Gwent, Wentlooge and Central Somerset Levels, and has tended, for these reasons, to be overshadowed in regional reviews of prehistoric archaeology on the wetlands.

Palaeogeography

The Oldbury Levels is one of a series of embanked former coastal wetlands distributed along the shores of the Severn Estuary and inner Bristol Channel (Figure 1). The buried palaeotopography of the Oldbury Levels is not known in detail, but conforms with findings from the wider Severn Estuary and Bristol Channel that reveal the broad valley of the current estuary, incised by an intricate system of palaeovalleys and minor streams, variously infilled by sediments of late Pleistocene (Ipswichian) and Holocene date (Allen 2001). Recent work along the route of the Wessex Water Oldbury-on-Severn to Aust discharge pipeline (Jordan, this volume), does, however, provide an important contribution to our understanding of the buried palaeotopography of the Oldbury Levels.

The Holocene sedimentary sequence of the Severn Estuary Levels is now well know and dated (Allen 1987, 2001, 2005; Allen and Rae 1987). Despite considerable spatial variation, four discrete lithostratigraphic units are distinguishable, summarised in Table 1, that have accumulated over the last 8000 years as a result of the upward, but fluctuating trend in sea-levels following the end of the last glaciation. Where sediment sequences are exposed along the intertidal zone of the Oldbury Levels, they are dominated chiefly by estuarine silts, but include several thin interbedded peats of mid-Holocene date. Unlike the outer estuary, lower Wentlooge silts appear largely absent from the middle Severn Estuary because of the northeast incline in the ordnance datum height of the bedrock platform. The basal peat typically forms directly onto a pre-inundation old land surface or periglacially dissected bedrock. Lower Wentlooge silts may, however, be present within some of the deeper basins/palaeovalleys reported on by Jordan (this volume) where the Holocene sequence is substantially thicker.

The few available dates from the middle Severn Estuary suggest peat inception first occurred around *c.* 5800-5600 Cal BC. This is broadly comparable to basal peat dates from the outer estuary, but up to several hundred years prior to peat formation within the inner estuary, based upon a date of 6130±80 BP (Beta-80693, 5300-4840 Cal BC, Hewlett and Birnie 1996) from Longney. Peat continued to form within the inner and outer estuaries into the Iron Age, as late as *c.* 200 Cal BC, characterised in the inner estuary by a single peat bed of up to 4.5 m thickness (Hewlett and Birnie 1996), and on the Gwent Levels by the last of five peat facies (Bell 2000) that combine to form a single peat bed close to the wetland edge in the order of *c.* 5 m thickness (Brown 2002; Walker *et al* 1998). In contrast, there is as yet no evidence from the intertidal zone of the middle Severn Estuary for peats of a date beyond the mid-3rd millennium cal BC, with an early date of 4910±40 BP (OxA-13879, 3770-3640 Cal BC) from the top of the uppermost peat at Woolaston (Brown *et al* 2005), and a later date of 4230±110 BP (Wk-7331, 3100-2450 Cal BC) from Oldbury Flats (Druce 2005). However, radiocarbon dates from middle Wentlooge peats close to Littleton-upon-Severn clearly indicate that peat beds were forming within the interior of the Levels from the early Neolithic (*c.* 3970-3790 Cal BC) into the early Bronze Age *c.* 2300-1900 Cal BC (Jordan, this volume), comparable to dated peat horizons from the Avon Levels to the south (Gilbertson *et al* 1990; Gardiner *et al* 2002).

The absence of similar, later peats, to the

Table 1. Simplified sedimentary sequence in the Severn Estuary.

Formation		**Composition**	**Date**
Northwick		Grey estuarine clayey silts.	Started forming late 20th century.
Awre		Grey estuarine clayey silts.	Started forming during 19th century.
Rumney		Pale brown estuarine clayey silts.	Started forming late 17th century.
Wentlooge	upper	Pale-greenish to blue grey estuarine clayey silts.	Iron-Age – Romano-British.
	middle	Intercalated estuarine clayey silts and peats.	late Mesolithic – Iron Age: *c.* 6000 to as late as 200 BC dependant on location.
	lower	Pale-greenish to blue grey estuarine clayey silts.	Pre-6000 BC.

north at Hills Flats, Oldbury Flats and Woolaston could relate to the differential effects of coastal instability on this part of the intertidal zone. Erosive breaks are widely identified throughout the Holocene of the Severn Estuary Levels, recording phases of coastal change characterised by a shift from an accretional to an erosive regime, followed by a return to accretional conditions (Allen and Haslett 2006). The most recent expression of this process is observable in the series of stepped saltmarshes of the Rumney, Awre and Northwick Formations, that record successive phases of saltmarsh erosional retreat followed by renewed formation, dating back to the 17th century. However, the Rumney Formation itself directly overlies sediments of the upper Wentlooge Formation (Iron Age / Romano-British), recording an earlier erosive episode widely identified throughout the Severn Estuary (Allen and Rae 1987). The degree of truncation varies spatially, and it is not improbable that erosive forces within the middle estuary at Hills Flats and Oldbury Flats removed both upper and middle Wentlooge sediments down to Neolithic levels that were elsewhere protected by sea-defences of Romano-British and later date, or that were less substantially truncated by pre-Rumney erosion.

Vegetation history

The environmental sequences of Druce (2005) at Oldbury Flats, Scaife (Jordan, this volume) from Littleton-upon-Severn, and Hills Flats, presented here, are the only environmental sequences from the Oldbury Levels. The sediments from all three sites are characterised by estuarine silt-dominated sequences with thin interbedded peats.

Palaeoenvironmental reconstructions have, in general, tended to focus on the peats at the exclusion of the intervening estuarine silts. The peats, however, are comparatively thin and short-lived, so provide a rather fragmented picture of prehistoric vegetation change.

The available evidence suggests a pattern of vegetation change strongly influenced within the wetland, as elsewhere within the estuary, by patterns of coastal change brought on by sea-level rise. Estuarine silts accumulating as high intertidal mudflats and saltmarsh during transgressive episodes, are punctuated by phases of peat formation during periods of stable or even falling sea-levels. On the Oldbury Levels, these peats are characterised by reedswamp and sedge-fen habitats without the evidence for a succession to the long-lived alder carr-woodlands recorded from the west bank of the middle Severn Estuary at Woolaston (Brown *et al* 2005) or from the Gwent Levels at Goldcliff (Smith and Morgan 1989), Llandevenny (Brown 2005), Barland's Farm and Vurlong Reen (Walker *et al* 1998). Stands of carr-woodland comprising alder, willow and birch are suggested in the pollen record, most likely along the interior margins of the wetland, or close the edges of bedrock islands. Areas of dry ground, forming 'islands' within the wetland, are suggested in the vicinity of both Hills Flats and Oldbury Flats, where portions of the bedrock platform are elevated above the uppermost peat, although sealed beneath later estuarine sediments.

The pollen evidence suggests that the dry ground during the later Mesolithic and Neolithic carried a heavy cover of mixed deciduous woodland dominated by oak, lime, elm and hazel. There is little evidence for clearance of woodland at this time, although there is significant evidence for burning of reedswamp during the later Mesolithic. Burning occurs to a lesser extent during the early Neolithic, at Hills Flats and Woolaston (Brown *et al* 2005) both immediately before and at the time of the elm decline. However, widespread clearance of woodland is suggested by the early Bronze Age from the uppermost peat at Littleton-upon-Severn, dated to 3640±31 BP (Wk-18361, 2140-1910 Cal BC), associated with cereal-type pollen grains (Jordan, this volume). This is comparable in date to clearances detected on the Gwent Levels (Figure 8), suggesting a broadly contemporaneous phase of clearance and mixed pastoral-arable activity occurring on the adjacent dry ground during the late 3rd and early-mid 2nd millennia Cal BC.

Human activity

Distribution maps of Mesolithic archaeological sites from the Oldbury Levels do not suggest an active exploitation of the intertidal marshes by hunter-gatherer communities, a picture mirrored by the absence of Mesolithic finds from the adjacent dry ground (Figure 9). Although this, in

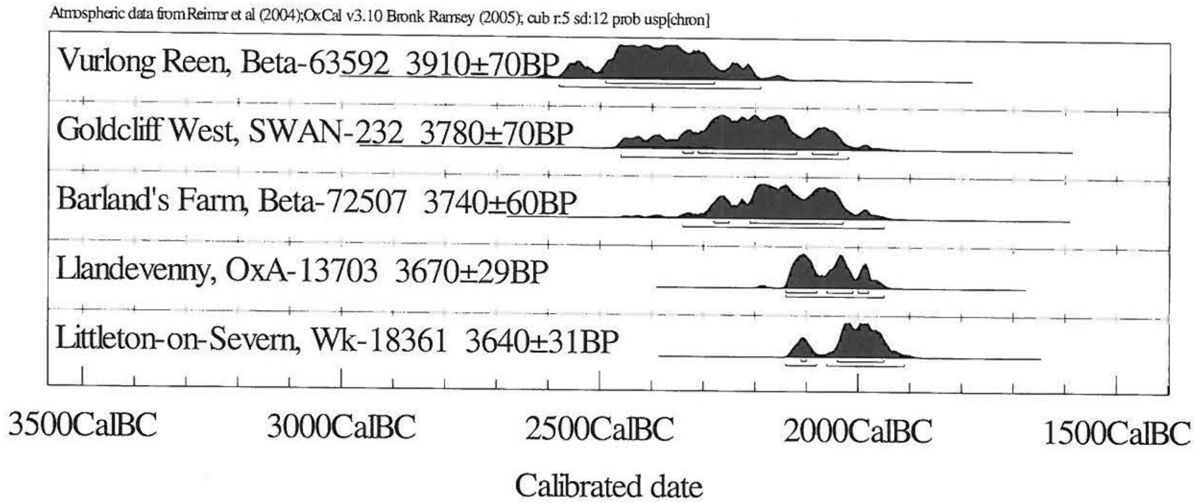

Figure 8. Plot of radiocarbon dated woodland clearances. Vurlong Reen and Barland's Farm (Walker et al *1998), Goldcliff West (Bell* et al *2000), Llandevenny (Brown 2005), Littleton-on-Severn (Jordan, this volume).*

part, reflects lower levels of development pressure on the wetland, there is a similar absence of Mesolithic finds from the Avon Levels where survey and excavation has been more extensive. The majority of Mesolithic sites from the Severn Estuary Levels have been recorded eroding from buried soil horizons along the intertidal zone (eg Bell in press, Bell *et al* 2000), and in rare cases, through excavation of stratified occupation contexts sealed below later sediments (eg Brown in press). In reality, much of the evidence for Mesolithic activity is likely to be sealed beneath later Holocene peat and alluvium, masking the true extent of hunter-gatherer activity within the wetland.

The only findspot of Mesolithic date from the Oldbury Levels comes from the intertidal zone at Oldbury Flats. Here, a large multi-period lithic assemblage containing 1978 pieces, the vast majority unstratified (*c.* 98%), has previously been retrieved through line walking and small-scale excavation of the intertidal zone by Allen (1998). Included amongst the unstratified assemblage are five microliths of diagnostic Mesolithic date, although it is probable that a proportion of the débitage and undiagnostic tools may also represent late Mesolithic activity. Allen (1998) also records a small assemblage of lithics stratified within the old land surface, associated with a radiocarbon date of 5310±70 BP (Beta-84850, 4230-4000 Cal BC), suggesting late Mesolithic or transitional late Mesolithic/early Neolithic activity. In addition, the present author (Brown 2005) recorded a small number of lithics stratified in the buried soil and base of peat at site F, dated nearby to 5320±100 BP (Wk-7332, 4350-3950 Cal BC), and three flakes stratified at the base of a reed peat from site G, dated nearby at site A to 6330±90 BP (Wk-7326, 5480-5060 Cal BC, Druce 2005).

The base of the peat at site A is rich in charcoal and charred reed stems, suggesting *in situ*-burning of reedswamp, perhaps anthropogenic in origin in light of the artefactual evidence for a contemporary human presence. Burning is also apparent from the base of the peat at site F, broadly contemporary with burning identified from the base of the upper peat at Hills Flats, dated to 5300±31 BP (OxA-13700, 4240-4040 Cal BC).

Burning of reed beds is widely recorded from intertidal peats of Mesolithic date throughout the Severn Estuary, recently synthesised by Bell (in press), in a number of cases associated with abundant artefactual evidence for human activity. The increasing evidence for burning of coastal landscapes may, it is hypothesised, represent a pattern of deliberate management of the landscape by hunter-gatherer communities, although the evidence for anthropogenic burning of reed beds at Hills Flats is weakened by the lack of

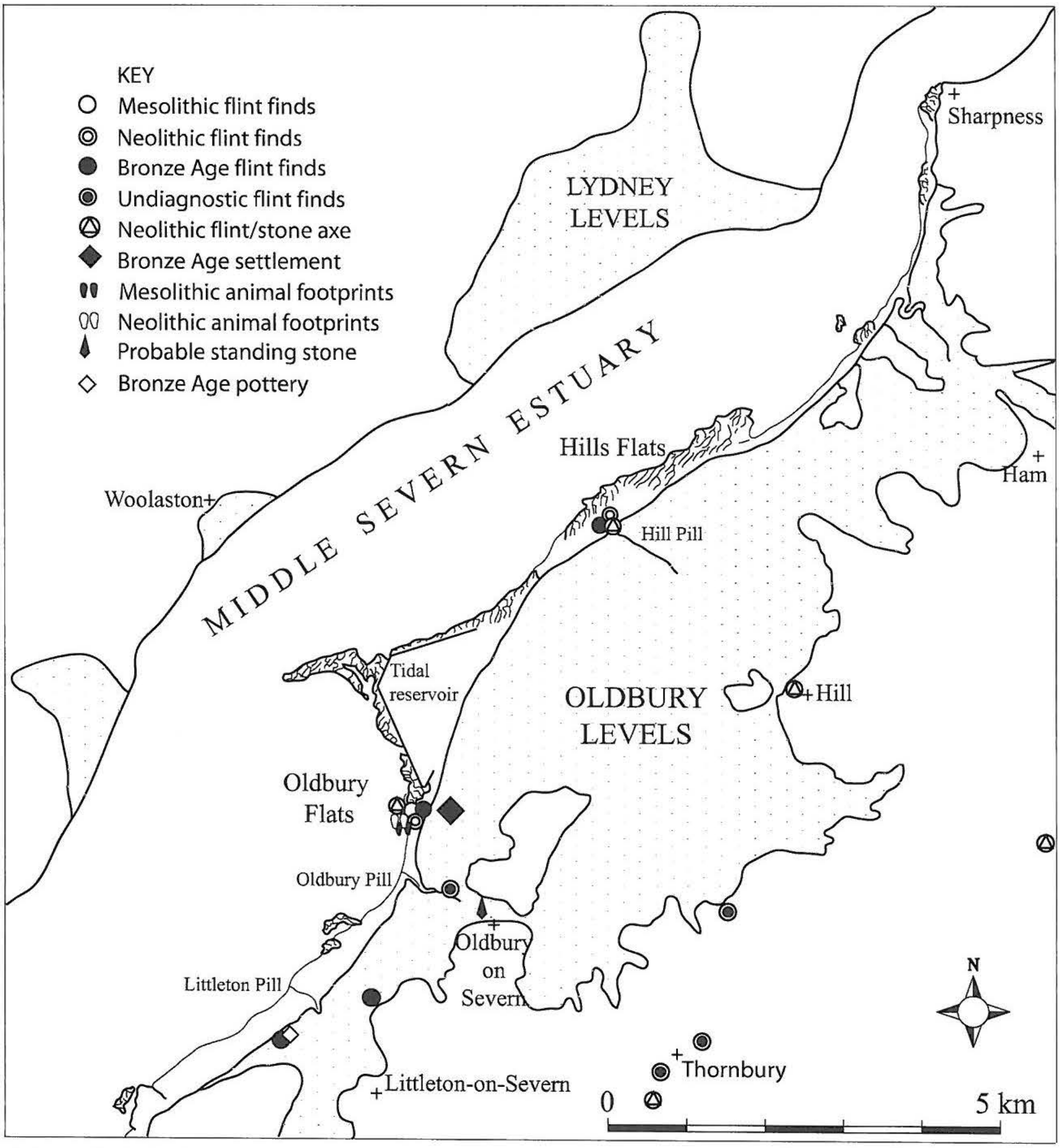

Figure 9. Distribution of Mesolithic, Neolithic and Bronze Age sites on the Oldbury Levels and associated dryland.

associated stratified artefacts. However, it is interesting to see burning occurring in both on and off-site contexts. Burning may have played an important role in increasing hunting and gathering success by improving the geographical predictability and productivity of seasonal resources. Burning can improve the biomass productivity of intertidal marshes and fringing woodlands, encouraging increased gaze by herbivores, at other times creating cleared areas attractive to migratory wildfowl that humans could hunt. Burning can also promote the growth of edible wild plant foods along the woodland edge, an important seasonal resource that could be gathered and eaten fresh or stored for consumption during winter when resources may have been sparse. Whilst not all fires are going to be anthropogenic in origin, it is tempting to see the widespread presence of charcoal in late Mesolithic contexts as reflecting a greater extent in hunter-gatherer activity within the wetland than is currently apparent in the artefactual record.

Patterns of seasonal mobility have been suggested for the Mesolithic of South Wales that envisage movement between coastal lowlands in winter and inland uplands in summer (Bell, in press). This is possible where a distinct topographical difference exists between upland and lowland. The same may have been the case for activity on the Oldbury Levels, involving seasonal movement between the coast and lowlands of the Vale of Berkeley and the Cotswold uplands. The difficulty in supporting this pattern is the complete absence of archaeological evidence for late Mesolithic human activity within either the Vale of Berkeley or the adjacent Cotswolds. Mobility is implied, however, in that there is an insufficient number and range of tools from Oldbury Flats to suggest that communities were engaging in year-round settlement of the coastal zone. The stratified assemblages represent small, discrete scatters rather than large concentrations of lithics, instead reflecting the persistent and repeated exploitation of the estuary margins by small mobile task groups.

Burning is less widely recorded in Neolithic contexts. On the Welsh side of the estuary, this mirrors the decline in artefactual evidence for activity within the wetland. Substantial evidence for wetland exploitation during the Neolithic has been recorded from the English side, within the Central Somerset Levels (Coles and Coles 1998) and, more recently, from Walpole, close to Bridgwater Bay (Hollinrake and Hollinrake, this volume), although there is currently no artefactual evidence for Neolithic activity on the Avon Levels. In very few cases is it possible to demonstrate continuity in site use from late Mesolithic to early Neolithic, with the notable exception of Llandevenny and Oldbury (Brown 2005, in press). Whilst this suggests some wetland sites remained foci for activity, the general pattern suggests a shift from the coastal zone in the late Mesolithic towards the freshwater-dominated peats within the interior margins of the Levels and along the adjacent wetland edge and dry ground during the Neolithic.

The lithic assemblages from Oldbury Flats and Hill Flats (Allen 1997, 1998) represent a significant concentration of Neolithic activity within the Severn Estuary Levels. Both sites would have been located close to bedrock islands that no doubt formed a focus for activity, and from which early Neolithic communities would have exploited the fringing marshes. Stratified occupation deposits of Neolithic date are rare. By 4000 Cal BC, areas of old land surface at Oldbury Flats with late Mesolithic activity were largely sealed by peat. There are occasional lithics eroding from the base of the peat associated with charcoal, suggesting continued activity within the fringing wetlands, although essentially short-term in nature. The variety of tool forms at Oldbury suggest a range of potential activities (eg hunting, fowling, fishing, working of animal skins, piercing, scraping, working of animal bone and wood), none of which are manifest in the archaeological record. However, lithics and charcoal are associated with a scatter of animal bone and footprint tracks and trails of domesticated cattle and humans in sediments dating to between 3096-2138 Cal BC (Brown, in press), that probably represent seasonal grazing activity on the coastal marshes, perhaps similar to that identified from Redwick (Bell 2001). The implication is that a settlement may have been located nearby, most-probably on a raised part of the bedrock platform, and from which cattle were driven onto the salt marsh to graze.

The Hills Flats lithic assemblage ranges in date from the early Neolithic to Bronze Age, though mostly of late Neolithic and early Bronze Age date (Allen 1997), largely post-dating the evidence for reed burning identified from the base of the peat. Burning continues through the peat, though of a lesser intensity. Charcoal occurs at the same level as the decline in elm pollen frequencies, although there is no direct link between the two, the charcoal reflecting burning within reedswamp rather than woodland edge. Human agency should not be excluded as a contributing factor in the elm decline, although this is certainly weakened by the lack of associated artefactual evidence for human activity. A single charred seed of *Cladium mariscus* at 22-23 cm, associated with a small increase in charcoal, suggests late summer burning of sedge-fen.

The high percentage of tools and cores and comparatively small amounts of débitage from Hills Flats might suggest a special activity site. One could envisage small hunting and/or foraging parties visiting the site already equipped with tools, but with cores available should they need to fashion additional implements. The evidence would suggest intermittent, rather than regular visits. The proximity of Hills Flats to Oldbury Flats, located *c.* 3 km to the south, could suggest that the site may have been visited by group(s) based to the south at Oldbury Flats, perhaps functioning as one of a number of special activity areas located along the margins of the estuary.

The availability of nearby dry ground may have been a key determining factor in continued wetland exploitation at Oldbury and Hills Flats during the Neolithic. A similar picture can be seen with Neolithic activity at Brean Down (Bell 1990), and early Neolithic activity recorded from Walpole (Hollinrake and Hollinrake, this volume). Both sites are within close proximity to the coast, in comparison to the majority of Neolithic wetland sites within the estuary, but, importantly, located in proximity to bedrock islands. At Oldbury, the dry ground might have taken the form of a substantial bedrock island within the wetland, or a promontory, linked to dry ground to the south at Oldbury-on-Severn. One could envisage communities living on the dry ground making forays out into the wetland to hunt, gather, perhaps also to fish, and to seasonally graze cattle on saltmarsh during late spring and summer. However, other than those finds eroding along the foreshore, there is no evidence for Neolithic settlement activity on the associated bedrock platform at Oldbury. There are isolated finds of stone and flint axes and lithics from the associated dry ground (Figure 9) that hint at activity within the wider landscape, including a report in the South Gloucestershire sites and monuments record of a formerly erect standing stone within Oldbury-on-Severn (SMR South Gloucestershire SG2335). Two pits uncovered in a quarry at Cam, Gloucestershire, *c.* 10 km east of Hills Flats, containing 70 sherds of late Neolithic Fengate ware from 20 pots, 122 animal bones, 6 flints and 48 fragments of daub (Smith 1968), point to late Neolithic settlement within the Vale of Berkeley. Interestingly, the site was close to a tributary of the Severn, and would have allowed access to the estuary.

There is a significant increase in wetland activity recorded widely throughout the Severn Estuary Levels from the middle Bronze Age (eg Bell 1990; Bell *et al* 2000; Locock 1999, 2001; Gardiner *et al* 2002). Occupation sites, often including remains of buildings (including houses), with associated occupation debris (animal bones, pottery, thermally fractured stone), appear to reflect widespread seasonal occupation of the Levels. The palaeoenvironmental record indicates large-scale clearance of the dry ground woodland from the late 3rd millennium Cal BC, resulting in a predominantly cleared landscape by the early 2nd millennium Cal BC. The limited archaeological and palaeoenvironmental evidence from the Oldbury Levels supports a similar pattern of Bronze Age activity to that observed throughout the Severn Estuary Levels.

Prior to construction of a new silt pond for the Oldbury nuclear power station, rescue excavation revealed structural evidence for settlement activity of early Bronze Age date. The results of this excavation have never been published, but information is contained within a client report (Hume 1992) synthesised by Allen and Rippon (1997a). Fifty-three features were identified from three main areas of prehistoric activity located along a low southwest-northeast ridge of Triass bedrock at between 5.2 and 5.4 m OD. Machine excavation down to a maximum depth of *c.* 1.8 m is acknowledged to have resulted in the total removal of many shallow features, and the truncation of more substantial features (Hume 1992). Many of the prehistoric features, however, appear to be securely stratified beneath the lower of two layers of alluvium, cut into a layer of weathered sandy marl which overlies the Trias bedrock. The features, variously interpreted as hearths, stakeholes/postholes, pits and structural elements, contained substantial amounts of charcoal and carbonised wood. Burnt timbers from a posthole produced a radiocarbon date of 3400±45 BP (SRR-4777, 1750-1620 Cal BC, Hume 1992). A total of 96 lithics were recorded, all derived from brown flint, 37 of which were retrieved stratified within the fills of nine features. Very occasional fragments of burnt bone were recorded. No fragments of prehistoric pottery were found.

The scarcity of material culture makes suggesting a function for the site difficult. The general absence of material culture, in particular, pottery, animal bone, or evidence for craft activities, does not suggest permanent, year-round settlement. Further Bronze Age activity is recorded *c.* 3 km to the south of Oldbury along the line of the Aust-Oldbury pipeline (Young, this volume). This includes 26 pottery sherds of early-middle Bronze Age date, and 46 pieces of flint, including diagnostic forms characteristic of a late Neolithic/early Bronze Age date. All the material was recorded residual within later features, but it does at least point towards more widespread activity across the Oldbury Levels than has previously been appreciated. Pollen analysis from Littleton-upon-Severn (Jordan, this volume) also records evidence for clearance of woodland associated with possible cereal cultivation, dating to 3640±31 BP (Wk-18361, 2140-1910 Cal BC). This is consistent with dates for woodland clearance and agricultural activity from the wider Severn Estuary Levels.

The evidence from other Bronze Age sites in the Severn Estuary suggest that a range of resources are being exploited on a seasonal basis, including seasonal grazing of cattle on saltmarsh, short-term hunting/fowling and fishing, and craft-related activities such as salt-making. It is interesting that at Oldbury Flats, this type of temporary, perhaps seasonal activity, should have begun earlier, as at Brean Down (Bell 1990). These two sites are both situated on the dryland just off the wetland, whilst the rectangular and circular wooden huts of the Gwent Levels are invariably situated up to 5 km from dry ground, either on peat or at the beginnings of marine transgressive phases.

Many Bronze Age settlement within the intertidal zone are located close to palaeochannels. Palaeochannels occur widely across the levels (Allen and Bell 1999), playing an important role in human exploitation of the levels, particularly during the Iron Age and later periods (Allen and Rippon 1997b). The palaeochannel at Oldbury Flats, although active in the Iron Age (Allen and Fulford 1992), may also have been present during the Bronze Age. Later Neolithic and Bronze Age activity at Peterstone Great Wharf occurs along the edges and within the fills of a series of palaeochannels (Bell and Brown 2005), whilst settlement structures from Redwick, Chapeltump, Collister Pill (Bell *et al* 2000) and Caldicot (Nayling and Caseldine 1997) similarly occur close to palaeochannels. Networks of tidal creeks may have served as an important axis of movement between wetland and dryland during the Bronze Age, further suggested by the remains of sewn plank boats at Caldicot (McGrail 1997) and Goldcliff West (Bell *et al* 2000). The find of a Romano-Celtic boat within a palaeochannel at Barland's Farm (Nayling and McGrail 2004), located close the northern margins of the Gwent Levels, demonstrates that substantial navigable channels traversed the Levels from coast to dry ground.

Ritual activities within the wetland are also suggested at Hills Flats. Allen (1997) points out that the barbed and tanged arrowheads, some finely made, are all missing their projecting parts, suggesting the possibility that the final use of these items may have been ritual or votive. Such a possibility is not inconsistent with the widespread evidence for votive deposition across Bronze Age Europe (eg Bradley 1990), and the evidence for possible ritual deposition of antlers and a wooden axe head within palaeochannels at Peterstone Great Wharf (Bell and Brown 2005).

The accumulated evidence for Bronze activity on the Levels appears to largely reflect short-term to seasonal exploitation of the wetland. An important aspect of activity appears to have centred around stock grazing, although Coles (1978) proposed that this formed only one element in the integrated and seasonal use of the landscape. This included exploitation of woodland on the dry ground for timber, cereal production and grazing on the lower slopes, seasonal grazing on the marsh edge, and fishing and fowling within the marsh. All are attested collectively in the archaeological and palaeoenvironmental record, though particular activities may have assumed more or less significance at some sites than others. Coles (1978), and more recently, Locock (2001), envisage a largely sedentary settlement pattern on the dry ground from which short-term/seasonal forays were made in wetland. This is hard to prove archaeologically, not only because of general problems of settlement visibility on the dry ground compared to the wetland, but also because of the artificial separation made between settlement in these contrasting topographic settings, that highlights the need for a more seamless approach towards the archaeology of the wetland and dry ground.

CONCLUSION

The evidence presented here from Hills Flats, set within the wider context of human activity on the Oldbury Levels, suggests sustained, though not necessarily continuous, occupation of the intertidal marshes and fringing dry ground. The evidence for burning of reed beds at Hills Flats during the late Mesolithic contributes to the growing evidence for burning of wetland edge environments identified widely throughout the estuary. The absence of stratified archaeology associated with burning weakens the argument for an anthropogenic origin, though it can be no coincidence that evidence for burning is apparent in almost all late Mesolithic contexts recently examined, both in on- and off-site contexts. During the Neolithic, Hills Flats may have functioned as a special activity site, perhaps peripheral to settlement to the south at Oldbury Flats. There is evidence for continued burning of sedge fen and reedswamp that may have played a role in hunting or gathering activities suggested in the artefactual record. Activity continued into the early Bronze Age, when there are indications also of potential ritual/votive activities.

The Oldbury Levels differ in some respects from other parts of the Severn Estuary Levels. Whilst the evidence from the Gwent, Wentlooge and Somerset Levels would seems to indicate a move from the coastal zone in the late Mesolithic to the interior parts of the Levels in the Neolithic, there is continued activity apparent along the Oldbury Levels estuary margins throughout this period. Furthermore, the widely documented evidence for an expansion in wetland settlement from the middle Bronze Age on the Avon Levels and Welsh foreshore (Gardiner *et al* 2002; Bell *et al* 2000) contrasts with the evidence for early Bronze Age settlement on the Oldbury Levels, preceded by late Neolithic activity not widely recorded elsewhere on the foreshore of the Severn Estuary Levels.

Gardiner *et al* (2002, 32) make the point that the Avon Levels experienced a rather different history from other parts of the estuary, and the same appears to be true of the Oldbury Levels. The pollen and sedimentary evidence reveal a vegetation history without the evidence for widespread development of alder fenwood or raised bog that characterise the Welsh foreshore. Instead, marine influence was a more predominant factor, punctuated by thin, comparatively short-lived phases of reedswamp. This may have provided opportunities for human exploitation of the Levels. Widespread development of alder fenwood across the Welsh foreshore from the late Mesolithic appears to have acted as a barrier to activity within the wetland. On the Oldbury Levels, Neolithic and early Bronze Age communities grazed cattle on the saltmarsh and, on the basis of the lithic evidence, probably engaged in hunting and gathering activities. The evidence from Hills Flats would suggest 'satellite' special activity sites. However, it would be dangerous to make too many generalisations about human activity on the Oldbury Levels, since so much of our evidence comes from one site. The bedrock platform at Oldbury Flats clearly acted as an important focus for human activity over millennia, but it need not necessarily be representative of activity across the Oldbury Levels as a whole.

So much of the evidence is unstratified or fragmentary, and there is currently insufficient artefactual and environmental data as a whole to make any firm statements about the likely range or potential seasonality of activities occurring across the Oldbury Levels. The present assumption is that settlement may have followed a similar pattern of seasonal/short term activity to that seen on the Avon Levels and Welsh foreshore, but this requires critically testing through further investigation of stratified occupation contexts.

ACKNOWLEDGEMENTS

Work at Hills Flats formed part of the NERC funded Mesolithic to Neolithic Coastal Environmental Change Project (NER/A/S/2000/00490). Research by the author was funded by a University of Reading postgraduate studentship, held in the Department of Archaeology. It is my pleasure to thank Professor Martin Bell and Dr. Petra Dark for their supervision, encouragement and advice during the course of research. I am particularly grateful to Professor John Allen for his advice on varied aspects of archaeology, geoarchaeology and sedimentology at both Hills Flats, Oldbury Flats and beyond. Radiocarbon dates at Hills Flats were funded by the NERC Oxford Radiocarbon Dating Service (ORADS). The following are thanked for help with fieldwork at Hills Flats: Martin Bell, Shaun Buckley, Helena Burg, Carol Mansfield, Nigel Nayling, Rachel Scales and Scott Timpany.

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