

2. INTRODUCTION

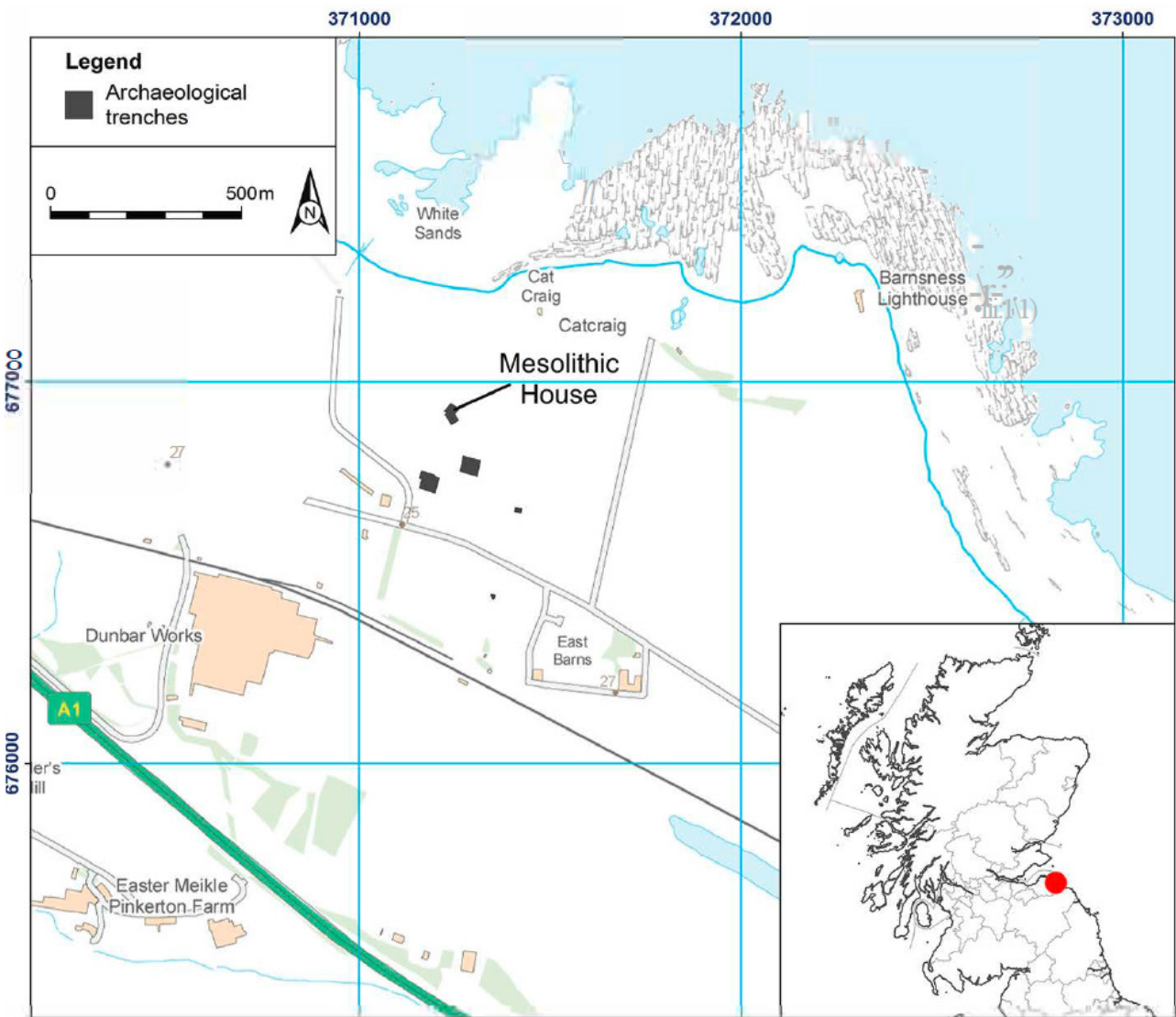
The robust Mesolithic house was discovered and excavated in 2001 during an early phase of ongoing archaeological mitigation works carried out by AOC Archaeology Group in advance of limestone quarrying at East Barns, Dunbar, East Lothian (NGR NT 7121 7686, Illus 1). The works consisted of an extensive programme of geophysical survey, trial trenching, field-walking and test pitting over an area of 50 ha (Gooder 2001).

The site itself was located within a natural hollow and was revealed by a combination of geophysical survey and trial trenching (the evaluation trench cuts through the house – see Illus 2). A zone of archaeological material measuring 12m by 9m in extent was exposed revealing a suite of occupation

horizons and cut features. The survival of this material appears to have been largely determined by its position within the hollow. Over time this had become gradually infilled with relatively homogeneous deposits of colluvium that acted as an effective buffer between the underlying anthropic deposits and the active plough-soil.

Substantial quantities of lithic material, including microliths and narrow-blade debitage, were retrieved alongside carbonised hazelnut shell. The immediate identification of the site as being of Mesolithic date enabled an effective methodology to be employed in its subsequent excavation (see Section 3, Excavation).

An interim paper on the site was published soon after the fieldwork was completed (Gooder 2007).



Illus 1 Location map. Excavation areas are shown as black squares

The current paper represents the full publication of the site following the implementation of a comprehensive post-excavation programme and concerns itself solely with the excavation of the robust Mesolithic house. The mitigation works also identified evidence for Neolithic and Bronze Age activity and Iron Age occupation (found in the other excavation areas shown on Illus 1), which will be dealt with in a forthcoming paper.

Specialist reports were commissioned on the lithic and coarse stone assemblages, the macroplant, charcoal and phytolith assemblages, and soil micromorphology. The major reports are reported in full here, but the minor reports on the macroplant, charcoal and phytolith assemblages are only alluded to where relevant and can be found in full within the site archive. Catalogue descriptions have been included for illustrated artefacts only, but full catalogues are also available in the archive.

Fortuitously, the East Barns Mesolithic house was excavated almost in tandem with the similarly robust structure discovered at Howick, Northumberland (Waddington 2007, Waddington & Pedersen 2007). This allowed for an ongoing discussion between

the excavators and led to a relatively standardised approach in relation to the excavated materials.

2.1 Location

The Mesolithic house was situated within the East Lothian coastal plain on undulating arable land formerly belonging to East Barns Farm (Illus 2). It was located to the immediate north of the old A1 (Skateraw Road) some 3 miles along the coast east of Dunbar. The site lay within the current land-take of Dunbar Quarry and cement works (Illus 1) and has been subject to intensive cereal/root crop rotation throughout the recent past.

2.2 Archaeological background

Despite the East Lothian coastal plain having a rich archaeological record of later prehistoric settlement (Cowley 2009), including the well-known and large-scale excavations undertaken at Broxmouth Hill Fort (Armit & McKenzie 2013) and Dryburn Bridge (Dunwell 2007), there is a dearth of evidence for Mesolithic activity. Disturbed lithic material of Mesolithic date was recorded at both Dryburn Bridge



Illus 2 The site prior to excavation, looking S. The hollow is just visible as a change in soil colour and texture and the grid has been laid out over it

(Dunwell 2007) and Torness (Mercer 1976). Similarly, narrow-blade material was identified approximately 600m to the east of the site during field-walking associated with the current project (Gooder 2001). The presence of such material suggests that Mesolithic settlement evidence is perhaps richer on this part of the coastal plain than is currently suggested by the existing archaeological record.

2.3 The environmental setting

The Mesolithic house structure at East Barns was inhabited during the late 9th millennium BC, a period of rapid climatic amelioration following the end of the Loch Lomond Stadial. By 8000 BC this event had led to a mean temperature rise one to two degrees above those of the present day (Atkinson et al 1987; Walker & Lowe 1997). This transition was remarkably rapid (Tipping 1994: 46) and is characterised by the spread of tree and shrub taxa including birch (*Betula* sp.), hazel (*Corylus avellana*), pine (*Pinus* sp.) and willow (*Salix* sp.). This colonisation appears to have occurred in southern and central Scotland by 8000 BC (Lowe 1994).

Despite a wealth of archaeological investigation, there is a general lack of palaeoenvironmental studies within East Lothian, and there are no published pollen-based regional vegetation reconstructions available for the county, probably because of the lack of suitable sedimentary deposits (Clarke 2002: 15).

Pollen records obtained from sites north of the Forth at Pickletilliem, Fife (Whittington et al 1991a) and Black Loch, Fife (Whittington et al 1991b) show a hazel-dominant woodland cover established in eastern Scotland by the early 9th millennium BC. A palaeoenvironmental study undertaken in association with the excavation of the early 8th millennium BC robust Mesolithic house at Howick, Northumberland produced a pollen sequence which showed that mixed tree cover, including species such as hazel, pine and willow, had developed prior to the occupation of the house (Waddington et al 2007a: 202). The dominance of hazel is also seen at East Barns, where it forms 65% of the wood charcoal, oak forming a further 22.5% of the assemblage (Duffy 2002). Hazelnut shell was also recovered in significant quantities; indeed it was the only component of the macroplant assemblage from the Mesolithic deposits (Hall 2002: 17).

In its modern setting, the Mesolithic house at East Barns lies 20m above modern sea level and is located approximately 350m from the shoreline where the Firth of Forth meets the North Sea. In the late 9th millennium BC, the occupation of the site would have occurred during a period of falling relative sea level (Robinson 1993; Smith et al 2002). At Fife Ness, which occupies a comparable situation along the northern coast of the Forth, extrapolation has produced a range of +2m to -3.5m relative to modern sea level (Wickham-Jones & Dalland 1998). A similar sub-sea gradient would place the contemporary coastline somewhere between 350m and 550m to the north.

The Mesolithic house at East Barns then and now occupies a favourable position on the Lothian coastal plain. The site is close to the contemporary coastline, the uplands of the Lammermuir Hills and numerous out-flowing sources of fresh water. The house therefore seems to have occupied an optimum location for the exploitation of a diverse range of marine, riverine, estuarine and terrestrial resources.

2.4 Definitions

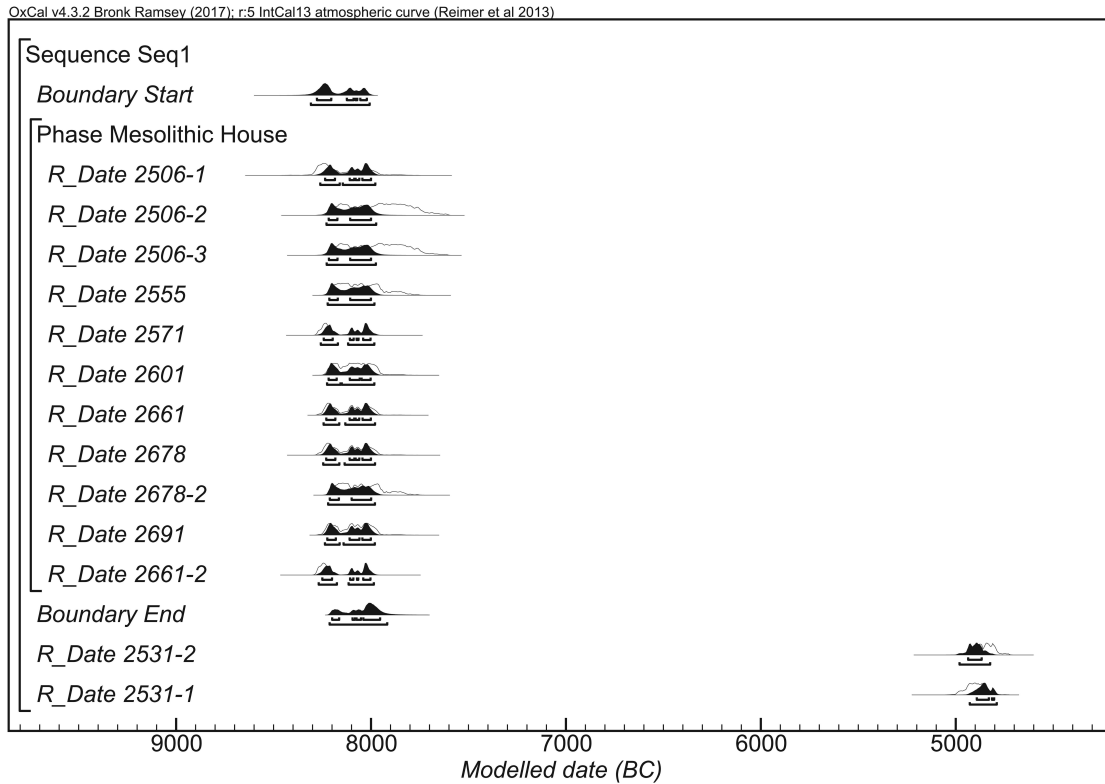
The term 'robust house' is used in this paper to describe the Mesolithic structure excavated at East Barns and is intended to denote a substantial construction associated with either long-term continuous occupation or perhaps recurrent but discontinuous use by a family-sized social unit. This is used to differentiate the dwelling from 'hut structure', which is used in reference to stationary but more provisional structures, built with more modest time investment (Fretheim 2017). The term 'house pit' is used to denote the below-ground archaeological feature that is part of the robust house rather than as a term for the house structure itself.

2.5 The dating of the robust house (Table 1)

A total of 11 AMS dates were obtained from structural features associated with the robust house (Illus 3). The dates were all derived from samples of charred hazelnut shell. Two of the dates were recovered from Hearth Feature 2677, seven from structural post holes (2505, 2593, 2660 and 2690), and two from

Table 1 The Mesolithic radiocarbon dates

Lab no.	Structure/feature	Context	Material	Species	uncal BP	Cal 1-sigma	Cal 2-sigma	$\delta^{13}\text{C}$ (‰)
SUERC-12060	2531	2531	charcoal	<i>Quercus</i> sp.	5970 ± 35	4903–4797	4949–4743	-25.2
SUERC-11041	2531	2531	charcoal	<i>Quercus</i> sp.	6005 ± 35	4939–4845	4991–4800	-26.5
AA-54961	2505	2506	nutshell	<i>Corylus avellana</i>	8830 ± 70	8185–7788	8229–7686	-24
AA-54962	2505	2506	nutshell	<i>Corylus avellana</i>	8835 ± 65	8186–7796	8226–7734	-24.3
SUERC-11054	2677	2678	nutshell	<i>Corylus avellana</i>	8865 ± 35	8198–9756	8218–7836	-24
SUERC-11042	2560	2555	nutshell	<i>Corylus avellana</i>	8870 ± 40	8201–7959	8224–7833	-25.3
SUERC-11050	2593	2601	nutshell	<i>Corylus avellana</i>	8895 ± 35	8207–7983	8229–7956	-21.5
SUERC-11055	2690	2691	nutshell	<i>Corylus avellana</i>	8920 ± 35	8228–7992	8241–7966	-25
SUERC-11051	2660	2661	nutshell	<i>Corylus avellana</i>	8935 ± 40	8241–7992	8252–7966	-21.5
SUERC-11053	2677	2678	nutshell	<i>Corylus avellana</i>	8940 ± 45	8245–7991	8261–7965	-23.5
SUERC-11043	2583	2571	nutshell	<i>Corylus avellana</i>	8970 ± 40	8274–8011	8281–7976	-25.1
AA-54960	2505	2506	nutshell	<i>Corylus avellana</i>	8985 ± 70	8286–7996	8307–7949	-23
SUERC-11052	2660	2661	nutshell	<i>Corylus avellana</i>	8990 ± 40	8279–8213	8290–7986	-22.6



Illus 3 Mesolithic and early Neolithic radiocarbon dates from East Barns

pits outside the house (2560 and 2583). A further two dates were obtained from occupation horizon deposits at the northern end of the hollow; these were derived from samples of oak charcoal.

The principal aim of the dating programme was to provide an absolute date for the house and to test the contemporaneity of the peripheral features. The lack of accumulated floor deposits occurring within the robust house at East Barns precluded the need for a more extensive dating regime.

The samples directly associated with the robust house produced a tight cluster of dates restricted to the late 9th millennium BC, while the two samples obtained from the deposits at the north of the hollow were Late Mesolithic/Early Neolithic in date. Bayesian analysis of the dates from the house suggests that it was in use between 8278–8022 cal BC and 8200–7954 cal BC, and probably for a relatively short length of time of between 75 and 150 years (Donna Hawthorne pers comm).