EXCAVATIONS AT REYDON FARM: EARLY NEOLITHIC PIT DIGGING IN EAST SUFFOLK

by PHIL HARDING

with contributions by Alistair J. Barclay, Catherine Barnett, Gareth Chaffey, Matt Leivers *and* Sarah F. Wyles

INTRODUCTION

ARCHAEOLOGICAL INVESTIGATIONS IN advance of the construction of a solar farm at Reydon Farm, Reydon, Suffolk, revealed groups of Early Neolithic pits containing variable quantities of Decorated Bowl pottery, worked flint and burnt flint, as well as charred plant remains and charcoal. Two radiocarbon dates obtained from one of the pits indicate that the activity on the site slightly predated the construction and use of causewayed enclosures in the region.

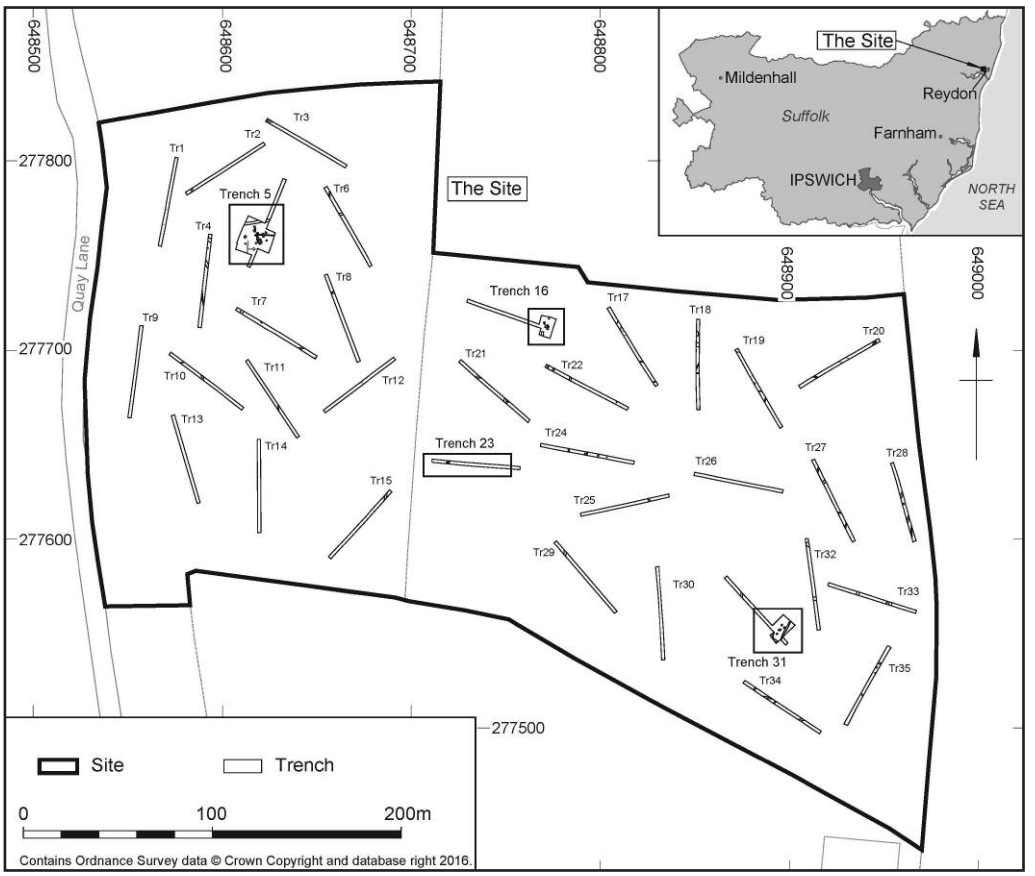

FIG. 1 – Site location plan.

The 10.7ha development site (centred on NGR 648760 277660) lies immediately east of Quay Lane, Reydon (Fig. 1). It occupies a slight south-facing spur within a gently undulating landscape, the summit of which reaches approximately 14m OD, from where the land falls away to 8m OD in the west and 12m OD in the east, and into shallow tributary coombes of the River Blyth to the south. The underlying geology comprises undifferentiated sand and gravel to the south and chalky, pebbly, sandy clay (till) to the north, all deposits of the Lowestoft Till Formation.[1] These deposits are overlain by deep, well-drained, brown sandy and coarse loam.[2] At the time of the fieldwork the site consisted of two arable fields.

A desk-based assessment of the site had identified a possible undated ring-ditch from aerial photographs to the south, and a number of artefacts findspots in the wider area, including a prehistoric quartzite axe head; flint tools; Romano-British and Saxon metalwork found by metal detecting; medieval and post-medieval pottery; and possible metalworking debris.[3] A geophysical survey had noted a number of pit-like anomalies on the site, as well as a possible rectilinear field boundary or enclosure ditch close to its northern edge, and other weak linear anomalies; it had found no trace of the ring-ditch.[4]

The Neolithic pits were revealed during the trench evaluation of the site.[5] This comprised 35 machine-dug trial trenches (50m x 1.8m) representing a 3.5 per cent sample of the site, with some of the trenches targeted on the geophysical anomalies. The pits were recorded in

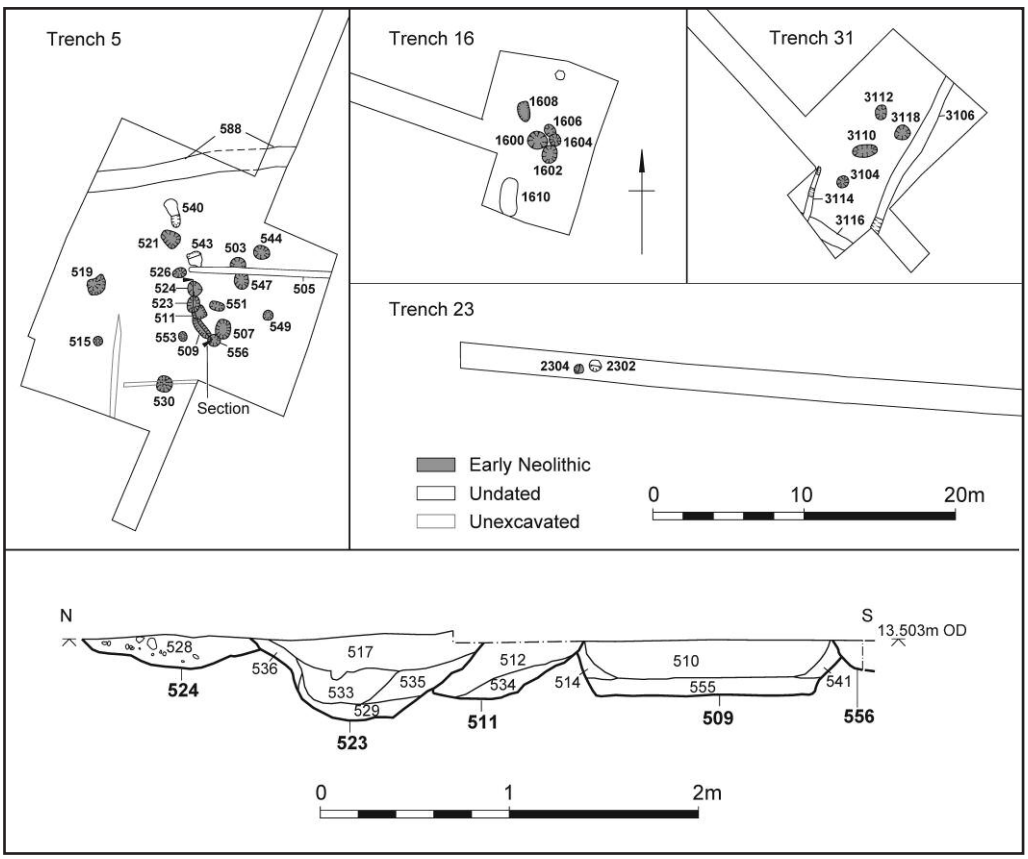

FIG. 2 – Detailed plans of pit clusters and schematic section through pits in Trench 5.

four of the trenches (Trenches 5, 16, 23 and 31), following which Trenches 5, 16 and 31 were extended by small-scale excavations totalling 393m²; the trenches were extended to leave a 2–3m wide sterile area around the pits (Fig. 2). In addition, a watching brief was maintained during the excavation of a cable duct trench in the south-western corner. The work was undertaken between October 2013 and February 2014 (under the HER number REY072).

RESULTS

The archaeological features were cut into light to mid-yellow-brown Pleistocene sand interspersed with patches of clay and gravel (Lowestoft Till Formation), and overlain by a mid-brown sandy silt subsoil, 0.25m thick, and a dark brown ploughsoil, 0.35m thick, of similar composition.

A total of 28 pits were recorded (Table 1). They were of variable shape (circular, sub-circular or elongated) with regular sloping sides and slightly concave or flat bases. They had probably been truncated by ploughing, leaving only their lower parts undisturbed. Most had been backfilled and contained single homogenous fills of dark to mid-brown or yellow-brown silty sand, although some on the pits in Trench 5 had multiple fills. The fills were frequently lighter and more leached towards the surface.

Most contained finds in varying quantities, including Early Neolithic pottery, worked flint and burnt flint, as well as charred plant remains and wood charcoal. The absence of animal bone may be due to the acidity of the soil. A possible dump of hearth rake-out material was recorded in pit 509. The finds were present throughout the fills, although often concentrated towards the base, possibly due to bioturbation causing their vertical migration through the sand. Several pits in Trench 5 were characterised by clearly defined basal deposits, rich in occupation debris. A concentration of sherds, including a number of rims, at the base of pit 523 (context 522, not visible in section) may represent a deliberately placed deposit. In some cases, the finds were densest in the centres of the pits, while in others they were found around the edges.

Fragments of Early Neolithic pottery were also recovered residually from three undated ditches (804, 1703 and 3204), which lay outside of the main areas of pit-digging. This material, together with low densities of worked flint from other trenches, suggests that Neolithic activity covered all of the site.

Trench 5

Seventeen pits, averaging 0.96m wide and 0.26m deep, were clustered together in an area approximately 13m across; 14 of them were closely spaced, including a linear arrangement of five intercutting pits, of which pit 509 was possibly the earliest (Fig. 2 section), and three pits were outliers to the south-west. Pottery was recovered from all but four of the pits. Retouched flints included naturally backed knives in pits 503 and 511, a knife from pit 507 and a leaf arrowhead from pit 511. Large quantities of hazelnut shell and charcoal were recovered from pits 503, 519, 523, 553 and 544.

Samples of charred hazelnut shell or oak sapwood from pit 509 (context 555) provided near identical radiocarbon dates, both calibrated (at 95 per cent confidence) to 3710–3630 cal BC (SUERC-54207, 4872±30 BP; SUERC-54208, 4869±30 BP, respectively).

Other features in the trench included a tree-throw hole (543) which had evidence of burning and contained two pieces of worked flint, a geological feature (540) containing a sherd of Early Neolithic pottery, and an undated shallow gully (505) which cut pits 503 and 547.

Trench 16

Five pits, averaging 0.81m wide and 0.23m deep, were closely spaced in an area under 5m wide; two pits (1604 and 1606) intercut. All had single fills. Four of them contained Early Neolithic pottery and other finds, but pit 1606 was sterile; pit 1600 also produced a large quantity of charred hazelnut shell fragments. Approximately 2m south of the pits was a tree-throw hole (1610) which showed signs of heavy burning.

Pit	Width (m)	Depth (m)	Fills	Pottery (no./g)		Flint (no.)	Burnt flint (g)
Trench 5							
503	1.0	0.25	504	45	316	6	82
507	1.0	0.36	508	23	436	7	-
509	0.7 x 2.7	0.45	510	13	119	4	108
			514	-	-	2	-
			541	-	-	-	-
			513/555	1	6	8	49
511	1.0	0.30	512	11	93	8	-
			534	-	-	-	-
515	0.6	0.15	516	2	17	1	-
519	1.2 x 1.4	0.45	518	25	390	5	-
521	1.5 x 1.8	0.15	538	2	32	-	-
			520	7	85	17	12
523	1.3	0.44	517	12	118	14	4
			533	1	1	-	-
			535	4	112	-	-
			536	-	-	-	-
			529	3	13	-	-
			522	7	166		-
524	0.9	0.17	528	-	-	-	-
526	0.6 x 1.0	0.15	525	11	103	-	-
530	1.0	0.40	537	5	85	-	-
			532	28	229	9	-
			531	-	-	-	-
544	1.0 x 1.2	0.50	546	8	64	17	-
			545	5	22	6	40
547	0.9 x 1.3	0.30	548	1	5	1	-
549	0.6	0.15	550	-	-	3	-
551	1.00	0.20	552	-	-	7	-
553	0.60	0.16	554	5	71	4	-
556	0.8	0.28	557	-	-	-	-
Trench 16							
1600	0.9 x 1.1	0.30	1601	42	161	28	28
1602	0.5 x 1.0	0.20	1603	1	18	2	-
1604	0.8	0.25	1605	5	66	10	-
1606	0.7	0.30	1607	-	-	-	-
1608	0.8 x 1.2	0.10	1609	8	90	1	-
Trench 23							
2302	0.7 x 0.8	0.18	2301	-	-	-	63
2304	0.6	0.18	2303	23	95	-	-
Trench 31							
3104	0.7 x 0.8	0.07	3103	2	11	45	76
3110	0.9 x 1.7	0.35	3109	20	124	77	84
3112	1.00	0.30	3111	3	49	4	1
3118	1.00	0.25	3117	3	63	2	-

TABLE 1 – Summary of Early Neolithic pits, with finds by context (in stratigraphical order).

Trench 23
A single pit (2304) containing Early Neolithic pottery was recorded in this trench, although a similar feature (2302), containing only burnt flint, lay to its immediate east.
Trench 31
Four pits, averaging 1.12m wide and 0.24m deep, and all with single fills, were recorded in an area 6m wide, three of them in a line. All contained Early Neolithic pottery and worked flints, but no charred plant remains were recovered. Three undated ditches (3106, 3114 and 3116) were located close to the pits.

Other features
A number of ditches were sampled across the site, some of which (such as 558 in Trench 5) correlated with anomalies identified by the geophysical survey. The ditches, which averaged 0.87m wide and 0.23m deep, were predominantly aligned parallel to, or perpendicular to, Quay Lane, suggesting a post-medieval–modern date; finds from them include tile, clay pipe stem and modern glass. A sherd of Romano-British pottery and two sherds of post-medieval pottery were also recovered from the site.

PREHISTORIC POTTERY

by Matt Leivers

The prehistoric pottery assemblage, which comprises 333 sherds weighing 3250g, with a moderately high average sherd weight (ASW) of 9.76g (Table 2), consists exclusively of sherds from Early Neolithic Decorated Bowls.[6] A minimum of 83 vessels are represented.

Fabric	No. sherds	Weight (g)	ASW (g)
FL1	121	1166	9.63
FL2	56	862	15.39
FL3	34	497	14.62
FL4	90	623	6.92
FL5	2	23	11.50
O1	2	16	8.00
QU1	28	63	2.25
Total	**333**	**3250**	**9.76**

TABLE 2 – Quantification of pottery fabrics (ASW – average sherd weight).

The material was analysed in accordance with the nationally recommended guidelines of the Prehistoric Ceramics Research Group.[7] Sherds were examined using a x20 binocular microscope to identify clay matrices and tempers, and fabrics were defined on those bases. No petrological analyses have been undertaken. All data have been entered onto the project's pottery database.

The condition of sherds was assessed on the basis of the degree to which edges and surfaces were abraded. The assemblage was dominated by sherds in moderate to poor condition. Even when taking post-depositional factors into account, breaks tend to be rather worn, and surfaces have some degree of abrasion. Some sherds have spalled, and others have been burnt. Refitting indicates that at least some of the burning took place after the vessel had been broken, suggesting that those deposits contained sherds from vessels which were already fragmentary at the time of deposition.

Seven fabrics were identified: five flint-tempered (FL1–5), one vesicular (O1) and one sandy (QU1) (Table 2); fabric descriptions are given in Appendix 1. There is nothing to suggest

anything other than relatively local manufacture for the assemblage; the fabrics all conform to the types commonly encountered on similar sites in the region.[8] The vesicular fabric is more probably a relic of burnt-out vegetable matter (as at Spong Hill) rather than dissolved shell (as at Kilverstone).[9] The subdivisions within the fabrics containing flint are more likely to represent points along a spectrum rather than individual fabrics in the true sense, as these fabrics could vary considerably within a single vessel. Virtually all (25 of 28) of the sherds tempered with sand alone came from a single vessel in pit 1601, apparently a small thin-walled cup.

As with the fabrics, forms are comparable to other assemblages in the locality. Most are open or neutral S-profiled bowls (Fig. 3) with more or less shoulder emphasis (none are carinated); some are straight-sided, undifferentiated small bowls or cups. Rims are simple, expanded (Fig. 3.1, 3.2), out-turned (Fig. 3.3), externally-thickened (Fig. 3.4, 3.5) or rounded.

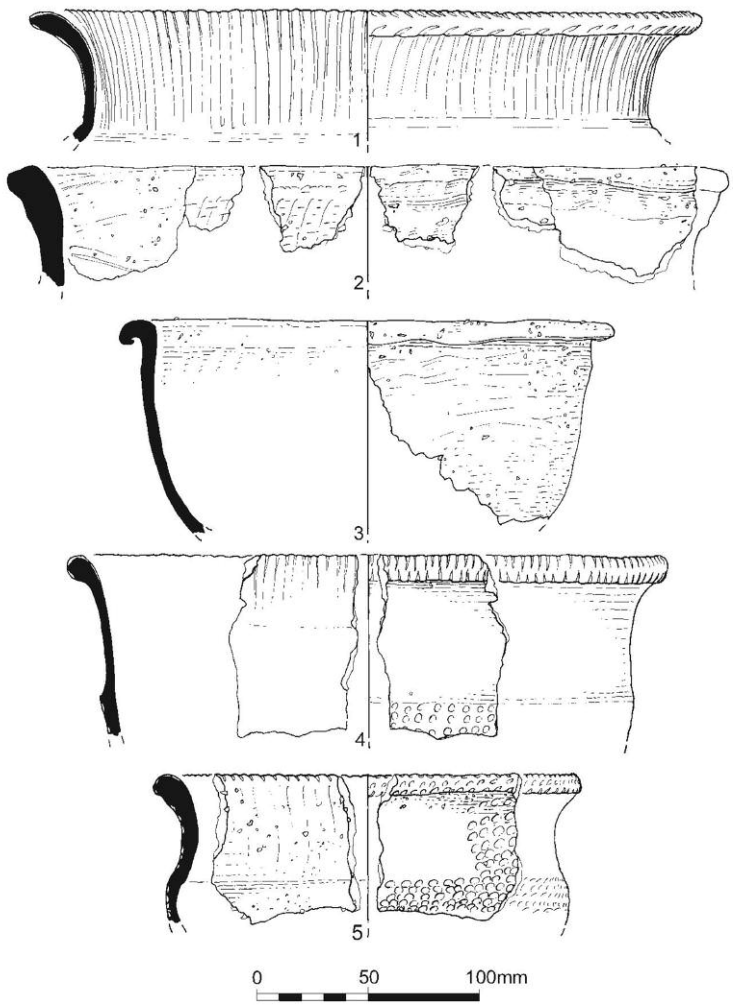

FIG. 3 – Pottery illustrations.

There are no identifiable base sherds. No complete profiles were reconstructable, and in most instances rims were represented only as short irregular fragments, on which basis diameters could not be determined. As a result, it has not been possible to place the vessels in any classificatory scheme such as Cleal's.[10] Vessel sizes cluster around 170mm diameter (two examples), 220mm diameter (five examples), 280mm diameter (three examples) and 320mm diameter (two examples), comparable with the assemblages from Spong Hill and Kilverstone.[11] As at both of these other sites, smaller cup-sized vessels were present, but were too fragmentary to enable accurate measurement. Similarly, larger vessels are likely to be under-represented due to many of the surviving fragments of rim being too small to allow estimates of diameter.

Decoration predominates on S-profiled bowls with marked shoulders and out-turned or externally-thickened rims. It often occurs alongside a good surface finish (including burnish) and thin (sometimes very thin) walls. It consists mostly of tooled (more commonly: Fig. 3.1, 3.5) or incised lines (Fig. 3.4) and impressed dots (Fig. 3.4, 3.5). It occurs on rim tops, necks (both internally and externally, sometimes in panels) and below shoulder angles; one vessel has finger fluting (Table 3). Again, the motifs, techniques and locations fit comfortably within the local sequence, although more complex motifs (herringbone or chevrons, lattice, other geometric motifs) and fingernail impressions are absent. As at Spong Hill, impressed dots seem to have been made with solid, round-ended implements, rather than bird or other bones. Two instances of post-firing perforation were noted, on sherds from pits 1600 and 3112; these are more likely to have been made in the course of repair than as decoration.

Location	Impressed dots	Tooled lines	Stabs	Incised lines	Finger fluting
On the rim	x	x		x	
Neck (exterior)	x	x		x	
Neck (interior)		x		x	
Below the shoulder	x		x		x

TABLE 3 – Locations of pottery decoration techniques and motifs.

The pottery was recovered primarily from a number of pits (Table 1), with very much smaller quantities from two ditches, a possible geological feature (540) and topsoil (both in Trench 5). The sherd groups from individual features suggest secondary deposition. Most vessels are represented by small numbers of sherds, the majority of which do not refit, and some of which can be in varying conditions. The overall impression is that the pits contained material which had already spent some time in other locations, perhaps middens.

That the material is not freshly deposited is indicated most forcefully by the varying conditions of sherds from single vessels retrieved from different features. Five instances of vessels spread between features were observed, although there is the potential for more to exist among the flint-tempered body sherds which cannot be assigned to individual vessels with any confidence. In summary, the identified sharing of vessels between features is as follows:

- Vessel 1 (Fig. 3.1): joining rim sherds from pits 519 and 523; a neck sherd from pit 511, a body sherd from pit 503; all these sherds in a comparable condition.
- Vessel 2 (Fig 3.2): joining rim sherds from pits 508 and 525; a third (non-joining) sherd from pit 525 is probably from the same vessel.
- Vessel 3 (Fig. 3.3): 24 sherds (some joining) from pit 530; although somewhat worn, they retain surface slips and burnish; a much more abraded rim sherd came from pit 509.

- Vessel 4 (Fig. 3.4): joining sherds from the rim and upper body of a hemispherical bowl from pit 523, and a non-joining rim sherd from pit 511, all in the same fresh condition; a re-fired and much more abraded rim sherd from probably the same vessel from pit 544. Interestingly, single rim and body sherds, indistinguishable from the above, came from pit 1604 (160m to the east-south-east), the only instance of a vessel possibly shared between pit groups.
- Vessel 5: single non-joining rim sherds from pits 519 and 544.

The Early Neolithic vessels from the site are for the most part not unusual, falling comfortably within the range of fabrics, sizes and forms found in contemporary assemblages. Most of these assemblages have at one time or another been claimed as typical of (or variants of) the Decorated regional style, or what used to be (and is sometimes still) called Mildenhall Ware.[12] These tend to date to the three centuries after 3700 BC. The only aspect of the Reydon Farm assemblage which is particularly notable in this respect is the absence of lugs: most other assemblages of Decorated Bowls contain a small number of lugged vessels. Their absence could be due to the small size of the assemblage, or the generally small size of the surviving sherds, although the survival of other relatively rare features, such as post-firing perforations, suggests that some indications of lugs might have been expected to survive had they been present.

List of illustrated vessels (Fig. 3)

1 PRN 45/46/69. Decorated Bowl in the fills of four pits (503, 511, 519, and 523). Expanded rim; diameter 290mm; tooled linear decoration on the top, in the neck and in the interior. Smoothed and burnished surface.
2 PRN 63/64. Bowl in the fills of two pits (507 and 526). Heavy expanded rim; 320mm diameter; varies markedly in profile around the diameter.
3 PRN 28/33/39/77/98. Hemispherical bowl with a rolled-over rim; 190mm diameter; from the fills of three pits (511, 523, 544 and 1604).
4 PRN 70. Shouldered bowl with an externally-thickened rim; 270mm diameter. In two pits (509 and 530). Shallow incised lines on rim and inside neck; neck burnished; three lines of neat dots below the shoulder.
5 PRN 10. Shouldered bowl with an externally-thickened rim 190mm diameter. In pit 503. Tooled lines on rim; alternating blank panels and lines of dots in the neck; lines of neat dots below the shoulder.

WORKED AND BURNT FLINT

by Phil Harding

Small assemblages of unpatinated worked flints, in mint condition, were recovered from 22 of the Early Neolithic pits; only pits 524, 526, 556, 1606, 2302 and 2304 contained no flints (Table 1). Small quantities of unworked burnt flint were recovered from ten pits. Pit 3104 contained seven pieces of burnt worked flint, and a further piece came from pit 523. Isolated flint flakes were also recovered from ditches in Trenches 4, 20, 27, 31 and 33; from tree-throw holes in Trenches 5 (543) and 12; and from the topsoil in Trenches 3, 5, 16, 27 and 31. These small groups are also likely to be of Early Neolithic date, especially the artefacts from Trench 5, which were probably associated with the pit cluster.

Artefact density varied across the site; the largest totals were recovered from pits in Trench 31, which collectively accounted for 50 per cent of the site assemblage. Elsewhere worked flint totals were generally low – 14 pits contained less than the mean from the total assemblage. Blades, retouched tools and artefacts with edge damage were more prevalent in the pits in Trench 5, whereas the assemblages from Trenches 16 and 31 contained more material related

to blank production. This small sample of worked flint therefore probably reflects the nature of activities in the immediate areas surrounding each pit cluster.

The flint was obtained from the local gravel. Nodules, despite being heavily battered and crushed on the outside, were black to very dark grey, mottled light grey internally and structurally sound. Raw material was also obtained from recycled objects where this was practical – pit 3104 contained the butt of a broken polished flint axe (Fig. 4.1) that had flexed and snapped in the haft and been adapted as a blade core, 77mm long. This pit also contained a blade, 88mm long, almost certainly from the same axe, which refitted to a blade of similar length from adjacent pit 3110. These two pieces, which were too long to have been removed from the core in pit 3104, indicate not only that the two pits were open at the same time but also that both parts of the broken axe had been used for blade production. Broken blades and flakes from other reused polished flint axes were included in both of these pits.

No other refitting material was recovered. Primary flakes and microdebitage were also scarce; only pits 3104 and 3110, with limited amounts also from Trench 16, produced flaking waste and cores consistent with blank production. Core preparation and blank production may therefore have taken place elsewhere, possibly at the gravel source.

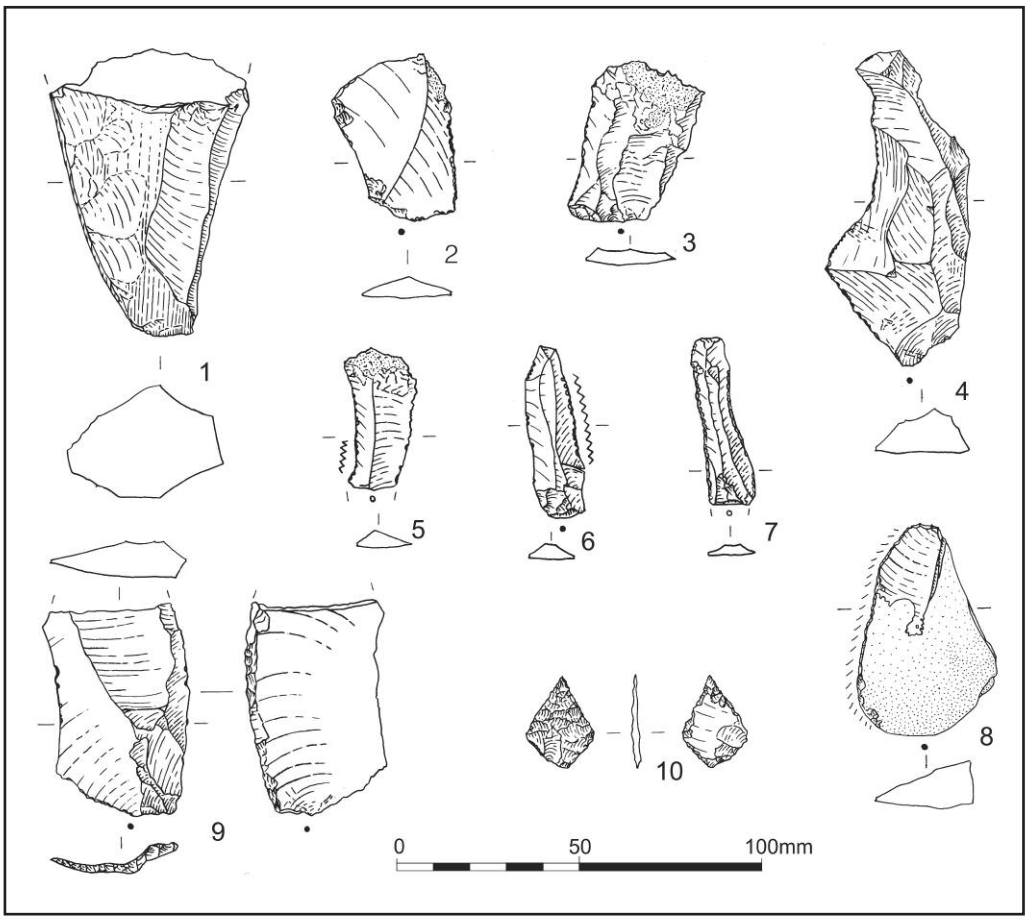

FIG. 4 – Flint illustrations.

The flaking waste suggests that some preliminary flaking may have been undertaken using hard hammers, although blades, the principal component of the industry, were consistently removed using soft hammers. Blade production included extensive use of platform abrasion, while rejuvenation tablets were removed as a means of core renovation. Blades account for 30 per cent of the assemblage within each pit cluster, a total that increase to 38 per cent of the total assemblage with the addition of retouched and utilised blades. This probably reflects deliberate selection towards usable blanks with regular straight edges, and reinforces the argument that much of the assemblage is indicative of tool use rather than tool manufacture.

Retouched tool component comprises 12 per cent of the assemblage, if microdebitage and debitage fragments are excluded from the total. It is dominated by 24 flakes and blades with 'systematic' marginal, direct retouch/edge damage (Fig. 4.2–4) such as might result from use, principally cutting. This type of retouch is noticeably different from 'unsystematic' chipping that is common on material from surface deposits and which results from post-depositional edge damage.

The prevalence of cutting activities is enhanced by additional classifiable implements; microdenticulates (Fig. 4.5 and 6) from pits 3110 and 3114, a backed blade (Fig. 4.7) from pit 3110, a flake knife with a heavily worn edge (Fig. 4.8) from pit 503, other flake knives (Fig. 4.9) from pits 507 and 553, and a naturally backed blade knife, 95mm long, from pit 511. Collectively these categories of material, which accounted for 86 per cent of the retouched total, emphasise the importance of blade production on the site, and are indicators of likely site activities involving cutting. The composition of the retouched component may be supplemented by an unspecified number of pieces that show no outward signs of use. Similar trends were recorded both at Kilverstone Areas A, C and E, where flakes and blades with edge retouch accounted for 86 per cent, 96 per cent and 77 per cent respectively, and at Hurst Fen, where utilised and serrated flakes formed the largest components (67 per cent) of the retouched tool assemblage from excavations in 1954.[13]

The retouched tool assemblage was completed by an unbroken leaf arrowhead (Fig. 4.10) from pit 511. Scrapers, which often form the most common category of retouched material within stone tool assemblages, were absent.

List of illustrated flints (Fig. 4)
1 Butt end of snapped polished flint axe reused as a core from pit 3104.
2 Flake with marginal, direct retouch/edge damage from pit 3104.
3 Flake with marginal, direct retouch/edge damage from pit 3110.
4 Flake with marginal, direct retouch/edge damage from pit 3110.
5 Microdenticulate from pit 3110.
6 Microdenticulate from pit 3114.
7 Backed knife from pit 3110.
8 Flake knife with heavily worn edge from pit 503.
9 Flake knife from pit 553.
10 Leaf arrowhead from pit 511.

ENVIRONMENTAL EVIDENCE

Charred plant remains (Sarah F. Wyles)

Twelve samples were taken, predominantly from Early Neolithic pits, and processed using standard flotation methods. The flot was collected on a 0.5mm mesh for the recovery and assessment of charred plant remains. Following assessment, five of the samples (from pits 503, 509, 519, 544 and 1600) were selected for analysis (Table 4). All identifiable charred plant macrofossils were extracted from the flots from the selected samples, together with the 2mm

Pit		503	509	519	544	1600
Context		504	555	518	545	1601
Sample		1	11	10	12	6
Volume (l)		18	10	7	5	20
Flot size (ml)		120	110	40	50	75
Per cent roots		60	20	40	25	10
Cereals						
Triticum cf. *dicoccum* (Schübl) (glume base)	emmer wheat	-	-	2	-	-
Triticum dicoccum/spelta (grain)	emmer/spelt wheat	2	2	-	-	2
T. dicoccum/spelta (spikelet fork)	emmer/spelt wheat	-	-	1	-	-
Triticum sp. (grain)	wheat	2	1	-	1	-
Cereal indet. (grains)	cereal	3	3	1	7	2
Cereal frag. (est. whole grains)	cereal	1	2	-	1	1
Other species						
Corylus avellana L. (fragments)	hazel	88 (4 ml)	119 (6 ml)	25 (1 ml)	17 (1 ml)	741 (25 ml)
Polygonum aviculare L.	knotgrass	-	2	-	1	-
Fallopia convolvulus (L.) À. Löve	black-bindweed	-	-	-	1	-
Rumex sp. L.	docks	-	-	1	-	-
Poaceae culm node	grass	-	-	-	-	2

TABLE 4 – Charred plant remains from Early Neolithic pits.

and 1mm residues. Identification was undertaken using stereo incident light microscope at magnifications of up to x40 using a Leica MS5 microscope, following the nomenclature of Stace for wild species, and the traditional nomenclature as provided by Zohary and Hopf for cereals.[14] Two radiocarbon dates were obtained on hazelnut (*Corylus avellana*) shell and oak (*Quercus* sp.) sapwood from pit 509.

Hazelnut shell fragments were predominant within the assemblages, most notably from pits 1600, 509 and 503, indicating the exploitation for food of these and probably other wild plant resources.[15] Small quantities of cereal remains were recorded in all five assemblages, with the majority being indeterminate grain fragments. Hulled wheat grain of emmer or spelt (*Triticum dicoccum/spelta*) were noted in the assemblages from pits 503, 509 and 1600, together with a spikelet fork and probable emmer wheat (*Triticum dicoccum*) glume base in pit 519. Weed seeds of knotgrass (*Polygonum aviculare*), black-bindweed (*Fallopia convolvulus*) and docks (*Rumex* sp.) were recovered from three of the pits.

This pattern has been observed on a number of other Early Neolithic sites in the wider area. Hazelnut shells were recovered from Early Neolithic pits at Kilverstone, while hazelnut fragments and cereal impressions were observed on pottery from the Early Neolithic site at Hurst Fen.[16] Impressions of cereal remains, including those of emmer wheat, were also noted on sherds of Early Neolithic pottery from the nearby site on Broome Heath, Ditchingham.[17]

Wood charcoal (Catherine Barnett)

Three samples, from Early Neolithic pits 503, 509 and 521, were analysed for wood charcoal. All proved to have fragmentary, but reasonably well preserved, assemblages. Fifty to one hundred randomly selected fragments >2mm were taken from each sample and prepared for identification according to the standard methodology of Leney and Casteel.[18] Each was fractured with a razor blade so that three planes could be seen: transverse section (TS), radial longitudinal section (RL) and tangential longitudinal section (TL). The pieces were mounted using modelling clay on a glass microscope slide, blown to remove charcoal dust, and examined under bi-focal epi-illuminated microscopy at magnifications of x50, x100 and x400

Pit		503	509	521
Context		504	555	520
Sample		1	11	9
Alnus glutinosa	alder		-	1
Pomoideae cf. *Crataegus monogyna*	Pomaceous fruit wood, cf. hawthorn	4	-	1
Quercus sp	oak	45	50	98
cf. *Quercus* sp		1	-	-

TABLE 5 – Wood charcoal identifications.

using a Kyowa ME-LUX2 microscope. Identification was undertaken according to the anatomical characteristics described by Schweingruber and Butterfield and Meylan.[19] Identification was to the highest taxonomic level possible, usually that of genus, and nomenclature is according to Stace.[20]

The three pits contained similar assemblages, all heavily dominated by oak (Table 5). Pit 521 also contained single fragments of alder (*Alnus glutinosa*) and Pomaceous fruit wood (Pomoideae), while pit 503 contained four pieces of juvenile Pomaceous fruit wood which compares favourably with hawthorn (*Crataegus monogyna*). Such a restricted set of taxa is unusual for this period (when compared, for instance, with assemblages from causewayed enclosures, e.g. Hambledon Hill). In the absence of other data, the purpose of this fuel is hard to gauge, but the concentration on oak suggests that the material derives from an activity that required the long steady hot burn that oak can provide, with the alder and hawthorn possibly used as kindling.

Lab. code	Context and sample	$\delta^{13}C$ ‰	Radiocarbon age BP	Calibrated date range (95% confidence)	*Posterior density estimate (95%) probability*
SUERC-54207	Pit 509 (555) sample 11, charred hazelnut shell	-26.8‰	4872±30	3710–3630	*3710–3630 cal BC*
SUERC-54208	Pit 509 (555) sample 11, charred oak sapwood	-24.7‰	4869±30	3710–3630	*3710–3630 BC (94.9%)* *3550–3540 BC (0.5%)*

TABLE 6 – Radiocarbon measurements on samples from pit 509.

Radiocarbon dating (Alistair J. Barclay and Sarah F. Wyles)

Two radiocarbon dates were obtained on samples submitted to the Scottish Universities Environmental Research Centre (SUERC) (Table 6). They have been calculated using the calibration curve of Reimer *et al.* and the computer program OxCal (v4.2.3).[21] They are cited in the text at 95 per cent confidence, and quoted in the form recommended by Mook, with the end points rounded outwards to 10 years.[22] The ranges in plain type in Table 6 have been calculated according to the maximum intercept method.[23] All other ranges are derived from the probability method.[24] Results (probability estimates) obtained through Bayesian modelling are shown in italics. The aim of the radiocarbon dating programme was to determine the date when pit 509 was dug through the precise dating of deposits of charred short-lived remains of either hazelnut shell or sapwood.

The two radiocarbon results, SUERC-54207 (3710–3630 cal BC at 95 per cent confidence) and SUERC-54208 (3710–3630 cal BC at 95 per cent confidence), are nearly identical, indicating that the sample material is of a similar age. Given the presence of freshly broken pottery it is likely that the pit was dug to receive a deposit of cultural material. The date on the short-lived charred material is therefore assumed to be close to that of the pit. This can be

modelled as '*First Dig Pit*' with *a posterior density estimate of 3710–3640 cal BC at 95 per cent probability*. If this result is typical for the whole pit site, then it would suggest that activity here slightly predated the construction and use of causewayed enclosures found in adjacent regions to the south.[25] This result is also a precise date for the use of a Decorated (Mildenhall Ware) pottery assemblage.

DISCUSSION

by Phil Harding and Matt Leivers

In recent years the study of pits and their associated artefact assemblages, enhanced by improved radiocarbon dating, has increased knowledge of Early Neolithic settlement distribution, economy and lifestyle. Developer-funded fieldwork of the type at Reydon Farm has been responsible for much of this improved knowledge both nationally and locally.[26] A provisional search of 'Neolithic pits' confirmed that they were a nationwide phenomenon but were especially prevalent in south-east England, especially in Suffolk.[27] Many of the most recent discoveries have, as at Reydon Farm, been fortuitous discoveries, sometimes of isolated features, that often remain described primarily within 'grey-literature'.

Much of the most detailed study relating to Early Neolithic pit clusters in East Anglia resulted from pioneering work at Hurst Fen, Mildenhall, Suffolk, a settlement located above a water course, the Eriswell Lode, and more recently at Kilverstone, Norfolk, where the site overlooked the Little Ouse River.[28] At Hurst Fen an area excavation revealed 200 pits in varying levels of density, while at Kilverstone 236 pits were found in two discrete clusters. These features were accompanied by large artefact assemblages, which were used to reconstruct the function of pits in the Early Neolithic period.

The sites at Reydon Farm and Kilverstone were both discovered as a result of trial trench evaluation. The subsequent excavations at Kilverstone demonstrated that the features were distributed over approximately 500m, but comprised two principal concentrations of closely spaced pit clusters approximately 175m apart. Although the evaluation trenches placed between these concentrations were apparently barren, it was considered highly likely that other features or clusters were present in the intervening areas.[29]

The individual pits within clusters at Reydon Farm were similarly closely spaced, with some of those in Trench 5 intercutting and in a linear arrangement. However, there was insufficient evidence to show whether their array might have been determined by the ground plan of a structure, of which no trace exists, as was considered might be the case at Kilverstone. The clusters at Reydon Farm were interspersed by apparently blank areas, although additional individual features or clusters are also likely to remain undetected between the trenches, and their true distribution could only be resolved through more extensive area excavation; the pits within clusters at Kilverstone were frequently separated by only short distances.[30]

Such pits are at the low size and volume range of archaeological features detectable using standard gradiometer survey,[31] and it is often difficult to distinguish them from the 'pit-like responses' and geological anomalies that characterize this and many other surveys carried out in areas with complex geological backgrounds.

Reydon Farm, Hurst Fen and Kilverstone were all closely related to water, and this pattern is repeated not only locally in Suffolk and Essex, where occupation was centred on low gravel terraces that overlooked water, but is also a feature of occupation on both sides of the Fens.[32] Nevertheless within these apparently favoured locations settlement density varied from area to area, as extensive fieldwork along the gravel terraces of the River Blackwater in Essex has demonstrated.[33] Site selection at many of these locations, including Reydon Farm, may also

have been subjected to coastal influences – not merely resources but also access. At Botany Farm, Farnham, Suffolk, a small pit cluster of Late Mesolithic or Early Neolithic date was found on slightly rising ground overlooking the Alde floodplain, approximately 2km from the head of the Alde Estuary.[34] Topographically the pit clusters at Reydon Farm were, like those at Kilverstone, located on a spur; such locations also feature a number of certain and probable causewayed enclosures in Suffolk and Essex.[35]

Activity at Reydon Farm existed within an environment that included the exploitation of both wild and cultivated resources, as seen at similar sites in the area. Unfortunately, preservation of environmental data is often inhibited by acidic soils, with the record restricted to carbonised hazelnut shells, as well as cereals remains and weed seeds indicating some use of cultivated ground. The character of the surrounding natural vegetation is less clear, but is envisaged to involve localised woodland clearance interspersed with areas of small-scale agriculture.[36] The importance of oak as a fuel has been demonstrated, although whether this reflects the dominant local species or the selected fuel of choice is less certain.

The artefact assemblages from Reydon Farm are also regionally comparable. The pottery assemblage is similar to those from Kilverstone, Norfolk; Spong Hill, Norfolk; Hurst Fen, Suffolk and Eaton Heath, Norfolk, and while all these assemblages vary in their details of form and decoration, they are typified by a prevalence of shouldered vessels with heavier rims, which distinguishes them from other Early Neolithic ceramic traditions. It has been suggested that these variations may represent localised groups, each with their distinctive characteristics, but using the same basic style of pottery.[37]

The presence of single vessels throughout fill sequences, and in some instances between pits, indicates that these deposits were either made over a short interval or drew from pre-existing refuse deposits. The lack of substantial parts of single vessels seems to favour the latter, especially given the varying condition of different sherds from the same vessel. This secondary refuse material was placed into the pits an unknown time after the breaking of the vessels and once the sherds had spent time in other locations. What those other locations were remains conjectural, but could have included surface middens, other pits, fires, or other less formal contexts.[38] Given this, the material represents only a subsample, yet is typical of Early Neolithic pit fills elsewhere in Britain.

The deposition of secondary refuse is mirrored by the worked flint assemblage, which lacked microdebitage, flaking waste and comprehensive refitting sequences. In composition it contained a distinctly domestic emphasis with a high level of retouched and edge-damaged material, especially blades, a trend mirrored at Kilverstone and Hurst Fen.[39] The edges of most artefacts were sufficiently undamaged to suggest that, although they may have been exposed on an old ground surface or in middens, they had not been subjected to long-term post-depositional reworking or trampling. Old land surfaces have been recorded in the Blackwater estuary buried beneath estuarine sediments.[40] These rare snapshots of Early Neolithic settlement have confirmed that, in places, considerable quantities of pottery and associated refuse cluttered a site when it was abandoned. Material of this type, some possibly from middens, may have provided source material for the pit fills. Healy noted that such levels of preservation are rare and, in normal circumstances, unlikely to have survived decades of ploughing in an open field.[41]

The discovery of pit clusters at Reydon Farm has provided an important addition to the corpus of excavated pit groups in Suffolk and East Anglia. The excavation may have examined only a sample of the features that might be present on the site, but the results are clearly comparable to others in the region. The results have been supplemented by two radiocarbon dates from hazelnut shell. These identical determinations, modelled at *3710–3640 cal BC at 95 per cent probability*, provide a date at which a pit that was

stratigraphically early in a small localised sequence of intercutting pits was dug. Although it is possible that Early Neolithic use of the site was prolonged, but perhaps no more than a generation,[42] the results provide a reliable date for the use of Decorated (Mildenhall Ware) pottery at the site.

The radiocarbon dates also provide welcome new results relating to the Early Neolithic chronology of Suffolk, the use of Decorated (Mildenhall Ware) elsewhere in East Anglia, and the development of causewayed enclosures.[43] A suite of seven dates for pits at Kilverstone, also calculated from hazelnut shells associated with Mildenhall Ware, were clustered at 3650–3400 cal BC.[44] Similarly, the Reydon Farm dates are apparently earlier than dates currently available for the initial construction of causewayed enclosures in this part of southern England: Lodge Farm, St Osyth, Essex 3670–3630 cal BC (61 per cent probability).[45] These monuments remain imprecisely dated locally but were well established in other parts of southern and eastern England by this time.[46]

Irrespective of the inconsistencies of these data and the limited number of determinations obtained from Reydon Farm, the combined results provide an invaluable addition to the database of Early Neolithic pits and Decorated (Mildenhall Ware) pottery, substantiated by radiocarbon dates. It places the activity at Reydon Farm firmly at the start of this phase of Early Neolithic activity in this part of Suffolk.

APPENDIX 1: POTTERY FABRIC DESCRIPTIONS

FL1 soft silty fabric; moderate, poorly-sorted, fine to very large, angular, crushed calcined flint
FL2 soft, silty fabric; common, poorly-sorted, fine to very large, angular, crushed calcined flint
FL3 soft, silty fabric; sparse, well-sorted, fine and medium, angular, crushed calcined flint
FL4 sandy matrix; moderate, well-sorted, fine and medium, angular, crushed calcined flint
FL5 micaceous sandy fabric; burnt-out organics probably vegetable matter; sparse to moderate, poorly-sorted, fine to very coarse, angular crushed calcined flint
O1 silty fabric with a little micaceous sand; burnt-out organics probably vegetable matter
Q1 micaceous sandy fabric; minimal detrital flint and minerals

ACKNOWLEDGEMENTS

The artefacts and complete archive have been deposited with Colchester and Ipswich Museum Service under HER No. REY072. The work was commissioned by AEE Renewables UK 29 Limited to whom thanks are extended. The fieldwork was managed for Wessex Archaeology by Caroline Budd, and the post-excavation work by Gareth Chaffey. The illustrations are by S.E. James (site plans and pottery) and Nancy Dixon (flints), and the report was edited by Andrew Powell and Philippa Bradley.

NOTES

1 British Geological Survey 2012.
2 Soil Survey of England and Wales 1983.
3 AC Archaeology 2012.
4 Archaeological Services 2012.
5 Wessex Archaeology 2013.
6 Whittle 1977, 85–94.
7 Prehistoric Ceramics Research Group 2010.
8 Clark *et al.* 1960; Healey 1988; Knight 2006; Wainwright 1973; Sibbesson 2012.
9 Healy 1988, 64; Knight 2006, 29.
10 Cleal 1992.
11 Healy 1988, 63–72; Knight 2006, 29–53.

12 Whittle 1977, 85–94.
13 Beadsmoore 2006, table 2.14; Clark *et al.* 1960, fig. 7.
14 Stace 1997; Zohary and Hopf 2000, tables 3 and 5.
15 Moffett *et al.* 1989; Stevens 2007; Robinson 2000.
16 Garrow *et al.* 2005, 153; Clark *et al.* 1960, 213, pl. xxv.
17 Evans and Davies 1972.
18 Leney and Casteel 1975; Gale and Cutler 2000.
19 Schweingruber 1990; Butterfield and Meylan 1980.
20 Stace 1997.
21 Reimer *et al.* 2013, 1870–71; Bronk Ramsey and Lee 2013, 720.
22 Mook 1986.
23 Stuiver and Reimer 1986.
24 Stuiver and Reimer 1993.
25 Healy 2012, 10.
26 Anderson-Whymark and Thomas 2012; Garrow 2012; Garrow *et al.* 2005; 2006.
27 Garrow 2012, table 15.1.
28 Clark *et al.* 1960; Garrow *et al.* 2005; 2006.
29 Garrow *et al.* 2006.
30 Garrow *et al.* 2006, fig. 2.6.
31 B. Urmston, pers. comm.
32 Mills 2006.
33 Healy 2012.
34 Krawiec 2011.
35 Healy 2012, table 2.
36 Jones 2000; Rowley-Conwy 2000; Thomas 1999.
37 Whittle *et al.* 2011, 877–78.
38 Garrow *et al.* 2006, 52–53.
39 Beadsmore 2006; Clark *et al.* 1960.
40 Wilkinson *et al.* 2012, 9.
41 Healy 2012, 12.
42 Whittle *et al.* 2011, 876–77.
43 Whittle *et al.* 2011, 345.
44 Garrow *et al.* 2006.
45 Hamilton *et al.* 2007.
46 Whittle *et al.* 2011, 338–47.

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