CPAT Report No 1248

Hindwell Trapezoidal Enclosure: Excavation 2013

THE CLWYD-POWYS ARCHAEOLOGICAL TRUST

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1 INTRODUCTION

1.1 Recent Cadw-funded project work in the Walton Basin under the aegis of the Prehistoric Funerary and Ritual Sites and the Roman Military Vici initiatives, combined with the results of earlier assessment work by the Trust under the direction of Dr Alex Gibson which was also funded by Cadw, continues to highlight the importance and complexity of this area of eastern Radnorshire. The area encapsulates the archaeology of the Welsh borderland as a whole and is known to contain evidence for multiperiod activity from the early post-glacial period onwards. Recent studies have focused on the complex of prehistoric monuments around Hindwell and Walton, most of which date from the Neolithic, and include some of the largest sites of their kind in Britain such as the Hindwell cursus and the Hindwell palisaded enclosure. The importance of the area as a base for Roman military campaigns is also becoming more apparent and the strategic significance of the routeway which passes through the basin into mid Wales remained influential well into the medieval period.

1.2 The gradual realisation that the archaeology of the Walton Basin is under varying degrees of threat from continued ploughing in this highly productive agricultural area, as well as from piecemeal development, led to the initiation of a new project which was initially approved for funding in 2012-13 and was design to address a number of pressing management issues relating to agricultural usage and development affecting the important multi-period archaeological resource within the Walton Basin. The project developed a methodology for assessing the vulnerability and level of threat from agriculture to both upstanding and buried archaeology, based upon COSMIC 2, which has become known as *Archaeological Conservation in Rural Environments,* or ACRE (Jones 2014). This is the first practical agri-environment related archaeological assessment methodology to be developed in Wales and has the potential to be of significant value across the country as a whole as a means of predicting the level of agricultural threat.

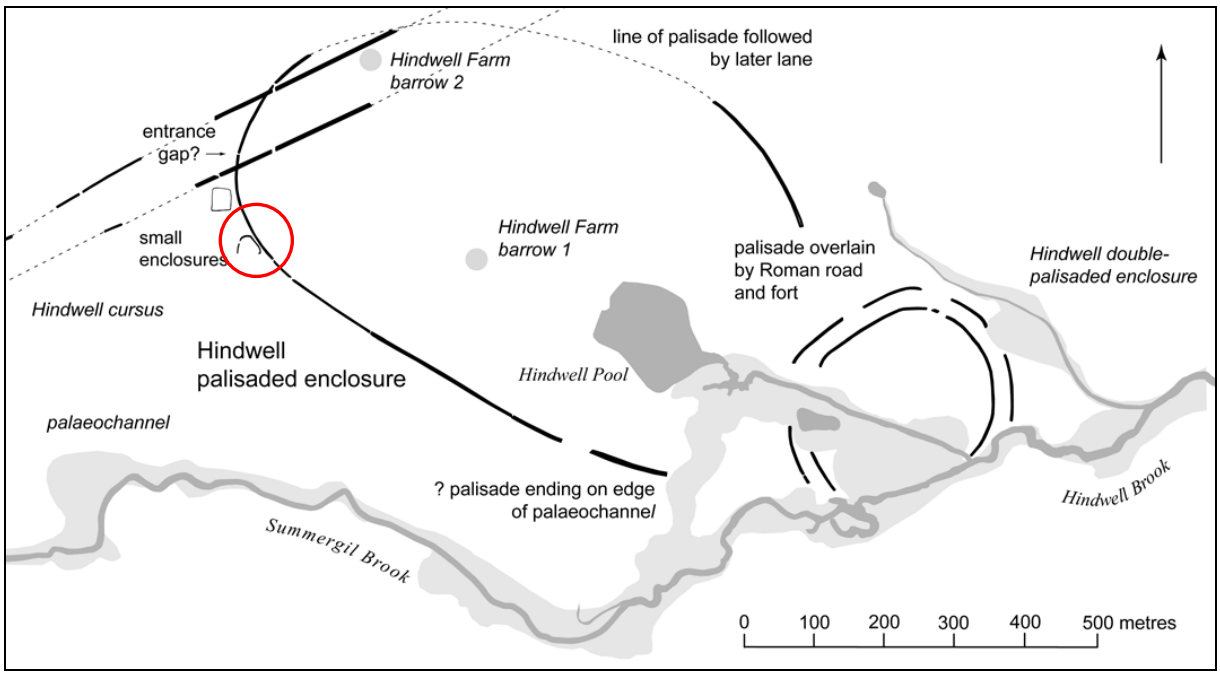

Fig. 1 Neolithic palisaded enclosures around Hindwell, showing the location of the Hindwell Trapezoidal Enclosure (circled in red)

1.3 The project continued in 2013-14, involving a number of small-scale excavations with local volunteers to collect a set of data based on the ACRE project methodology and test its

application under field conditions. One of the sites chosen as part of this assessment was a trapezoidal enclosure (PRN 114412; SO 2505 6065), lying immediately to the west of the large Neolithic Hindwell Palisaded Enclosure (PRN 19376; Fig. 1), which the ACRE assessment had determined as being at high risk through of intensive cultivation. The site had been initially recognised from cropmark evidence in 1994 (Fig. 3), which was later augmented by detailed geophysical survey in 1998 (Fig. 4; Gibson 1999a).

1.4 One of the excavation trenches was positioned within the scheduled area of the Hindwell Palisaded Enclosure (SAM Rd 247) and consequently the work was subject to an application to Cadw for Scheduled Monument Consent.

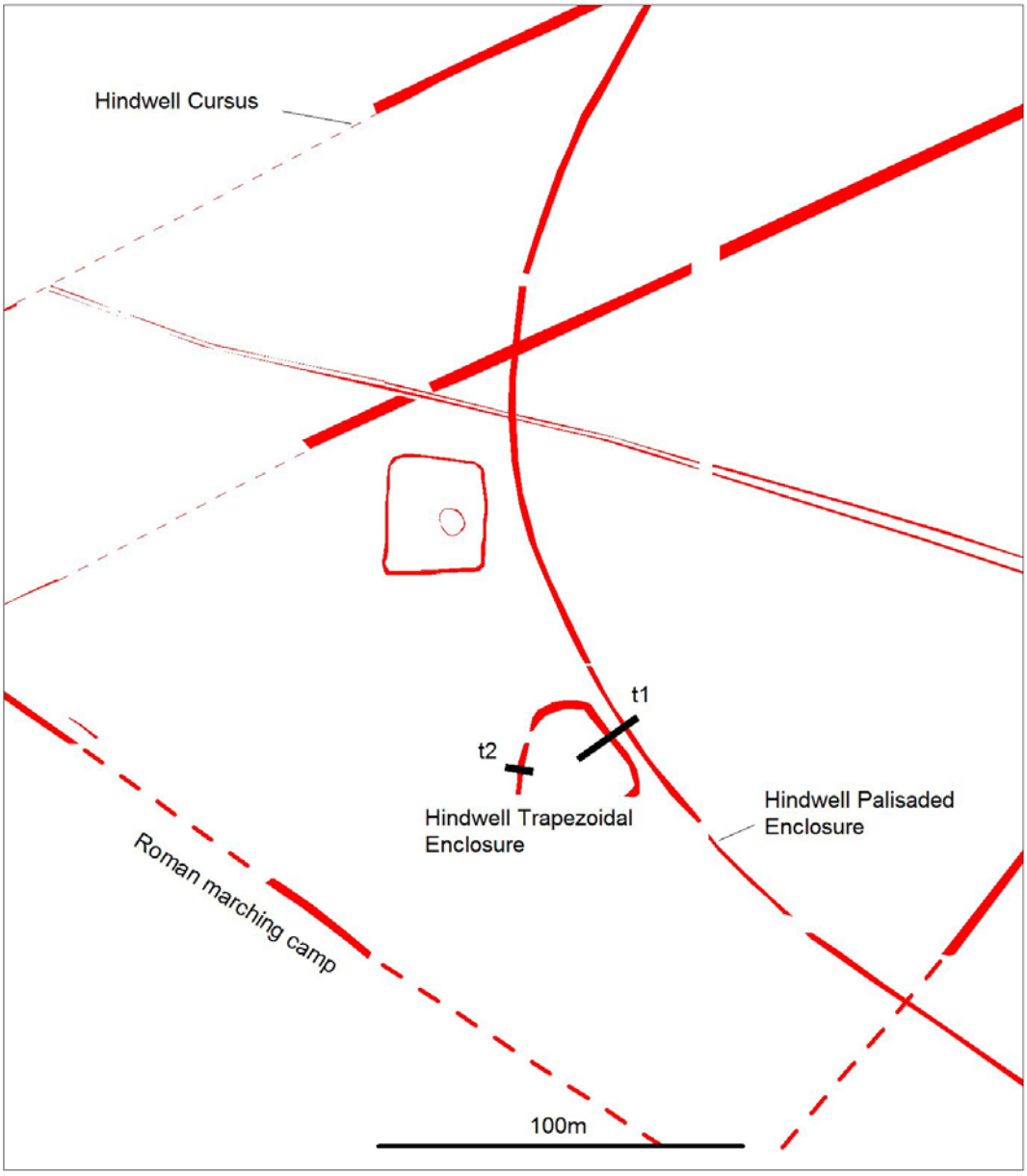

Fig. 2 The location of trenches 1 and 2

Fig. 3 Cropmarks showing in 1994 with prominent arc of the Hindwell Palisaded Enclosure and the trapezoidal enclosure just visible (arrowed). Photo CPAT 94-10-0022

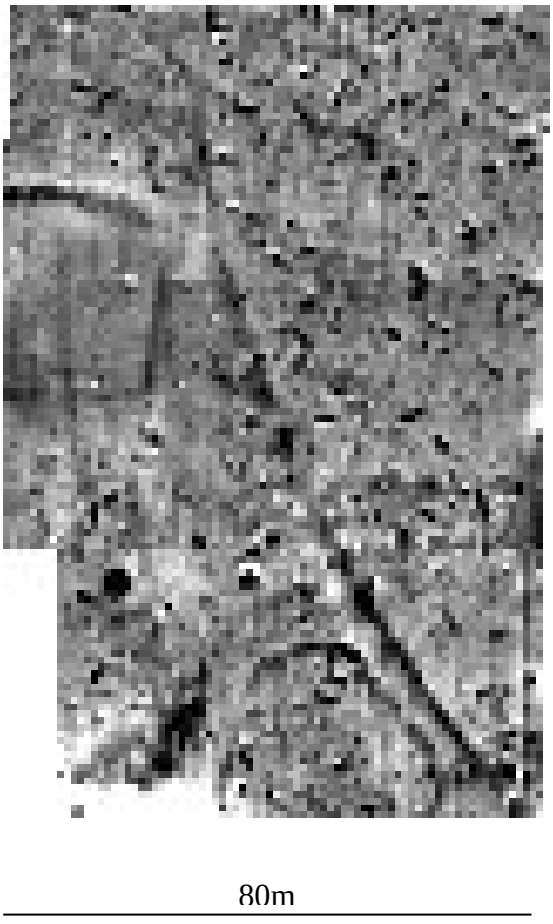

Fig. 4 Geophysical survey results from 1998, with the trapezoidal enclosure clearly visible immediately outside the palisade (after Gibson 1999a, fig. 19)

2 EXCAVATION

2.1 The enclosure was investigated by two machine-cut trenches (Fig. 4), one positioned across its north-eastern side, including part of the adjacent palisaded enclosure, while the other crossed the western side of the enclosure. In both trenches the modern ploughsoil, which varied between 0.25m and 0.3m in thickness, was removed onto the surface of the natural glacial gravels. Ploughscarring was evident at this level, having cut below the base of the ploughsoil and into the gravels by up to 0.1m. The scarring did not appear to have resulted from normal ploughing, with the parallel scars being 0.2m to 0.4m in width, and around 1.7m apart, but were perhaps caused by a subsoiler or a potato-ridge former.

Fig. 5 Initial view of trench 1 from the south-west, showing ploughscars cut into the natural gravel. Photo CPAT 3682-0003.

2.2 The construction trench (202) for the palisaded enclosure was visible towards the north-eastern end of trench 1, measuring around 3.6m across. Excavations elsewhere have demonstrated that it consists of a series of large, intercutting post-pits, with long, sloping ramps on their outer edges (Gibson 1999b, 14-19). The upper fill of the post-pits consisted of yellow-brown, firm, clay silt (203), within which the positions of two posts were visible;

weathering cones (204 and 205) had developed following the decay of the posts, which were subsequently infilled by a pale brown clay silt (206). The posts appear to have been around 1.6m apart, centre to centre, and perhaps 1.0m in diameter.

2.3 On the basis of both the cropmark evidence and geophysical survey the ditch defining the north-east side of the trapezoidal enclosure appeared to run roughly parallel with and outside the Hindwell palisaded enclosure. The excavation demonstrated that the outer edge of the ditch was around 5m from the posts of the palisaded enclosure (1.8m beyond the edge of the post-pits), with no strategraphical link between the two monuments. The ditch (209) had a V-shaped profile with a rounded base, measuring around 1.5m in width and up to 0.65m deep. The silting profile gave no clear indication of the position of an accompanying bank. The initial weathering of the ditch sides had formed a primary silt (226) which was sealed by a grey-brown clay silt (225) deposited against the outer edge of the ditch. Subsequent infilling consisted of two more stony deposits (223 and 224) against the inner ditch edge, both sealed by a gravelly deposit (222) occupying the centre of the ditch. The uppermost fills (210 and 211) consisted of clay silt containing varying quantities of gravel.

Fig. 6 The excavated ditch section in trench 1, with the oval pit (212) to the north-east. Photo CPAT 3682-0018.

2.4 Palaeoenvironmental evidence was generally restricted to the upper fill of the ditch (211), which produced evidence for the cultivation of spelt wheat, while a wide range of woodland species was present in the charcoal record, included alder, birch, hazel, gorse/broom, oak, willow/poplar, Maloideae, cherries and ash.

2.5 The outer edge of the ditch appeared to have been cut through an oval pit (212), although the two were only just coincident and the relationship was far from certain. The pit was aligned north-west to south-east and measured 1.75m long by 1.0m wide and was up to 0.64m deep, with steep sides and a rounded base. Apart from an initial weathering deposit of gravelly

material (221) around its sides, the pit was filled by an orange-brown clay silt (213) containing some gravel and incorporated occasional charcoal flecks. Several patches of gleyed material containing iron panning were noted within the fill, although with no obvious pattern to their distribution, these being interpreted as redeposited turves. The fill contained a single glume base of spelt wheat and a similar range of woodland charcoal to the enclosure ditch.

2.6 The size of the ditch (215) excavated in trench two was slightly smaller, measuring 1.2 to 1.36m in width and up to 0.48m deep. The pattern of silting here indicated that after initial weathering (219) material had been deposited from the outer edge, consisting of a brown clay silt (217) with occasional charcoal and minute fragments of burnt bone and gravelly deposits within an orange-brown clay silt matrix (218). The upper fill, consisting of orange-brown clay silt (216), was confined to the inner side of the ditch, and shows clearly in Fig. 7.

Fig. 7 South-facing section of the enclosure ditch in trench 2. Photo CPAT 3682-0011.

2.7 The only dating evidence from these excavated sections was provided by a number of small sherds of pottery (Find 1005) from immediately above the basal fill of the ditch in trench 2 (see Fig. 8). The pottery appears to be in the Malvernian tradition of handmade, burnished vessels, dating from the pre-Roman Iron Age to the 2nd century AD (as described by Peacock 1965-67).

2.8 Three radiocarbon dates were forthcoming from the fill of the enclosure ditch, confirming a date in the pre-Roman Iron Age. The upper fill (211) produced a date of 193-46 cal. BC (SUERC 52858), while the basal fill (226) produced a date of 192-42 cal. BC (SUERC 52863), although an intermediate fill (223) evidently contained residual charcoal, which was dated to 7960-7718 cal. BC. Charcoal from the fill of the adjacent pit (212) was dated to 728-398 cal. BC (SUERC 52864), suggesting that this was an earlier feature.

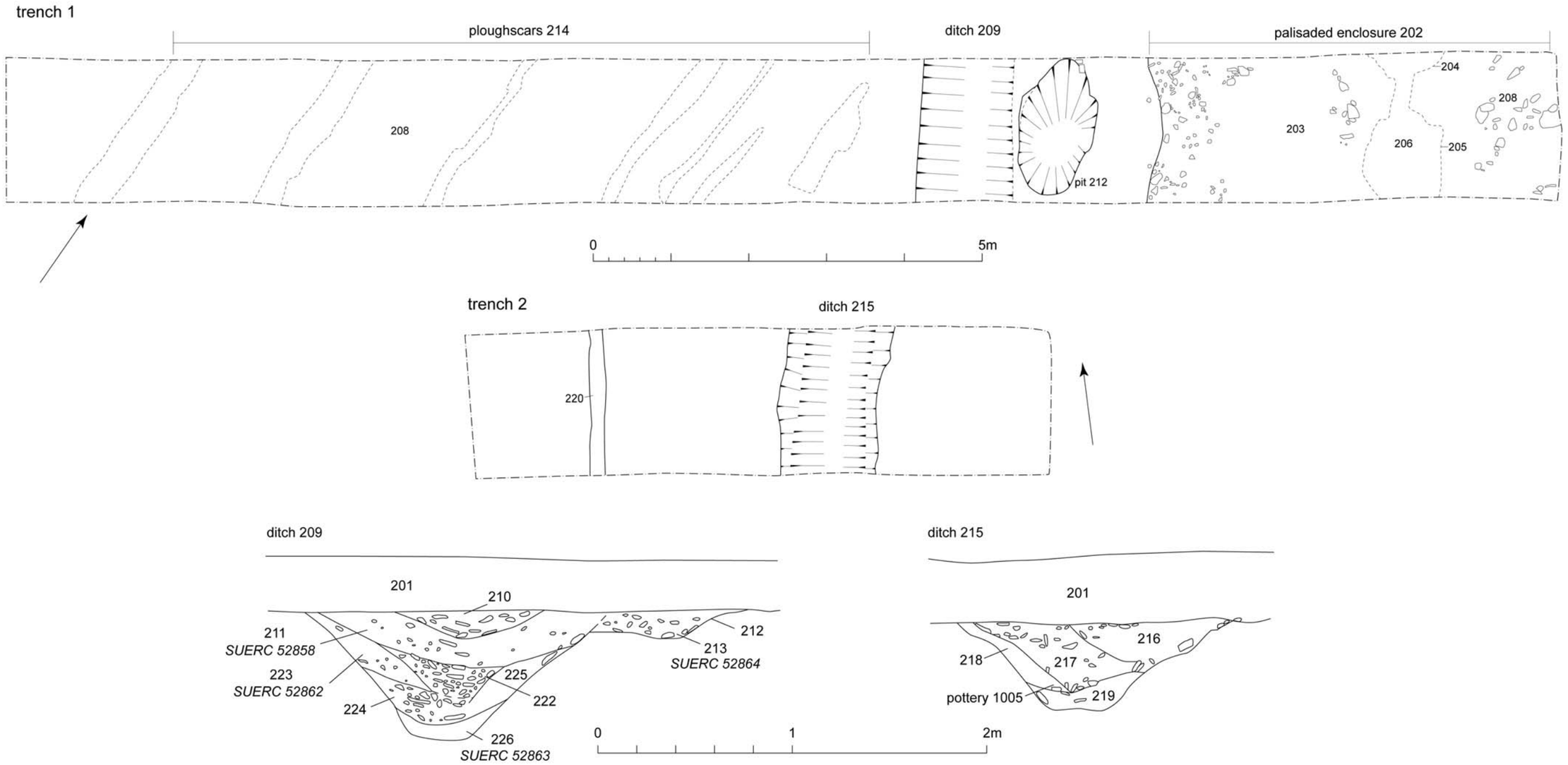

Fig. 8 Excavation plans and sections of the enclosure ditch

2.9 It is worth noting here the discovery of a Roman coin outside the scheduled area (SO 25000 60667) during a rapid metal detector survey by one of the site volunteers. The coin was in poor condition but is likely to be a Flavian As. No other finds of significance were recovered.

3 PALAEOENVIRONMENTAL ANALYSIS by Lorne Elliott

3.1 Bulk soils samples from both excavated sections of the enclosure ditch and the adjacent pit (212) were submitted to Archaeological Services, University of Durham, for processing and the analysis of charred plant remains and charcoal, as well as the selection and identification of material suitable for radiocarbon dating. A full report is available in the site archive (Elliott 2014).

Plant macrofossil analysis

Methods

3.2 The bulk samples were manually floated and sieved through a 500μm mesh. The residues were examined for floral and faunal remains and industrial residues, and were scanned using a magnet for ferrous fragments. The flots were examined at up to x60 magnification for charred and waterlogged botanical remains using a Leica MZ7.5 stereomicroscope. Identification of these was undertaken by comparison with modern reference material held in the Environmental Laboratory at Archaeological Services Durham University. Plant nomenclature follows Stace (1997), while habitat classifications follow Preston *et al.* (2002).

Results

3.3 Charred plant macrofossils were sparse and included the diagnostic remains of spelt wheat (in contexts 211, 223, 213) and small hazel nutshell fragments (in contexts 211 and 213). Several samples comprised uncharred weed seeds of black-bindweed, fool's parsley, fat-hen and fumitories, although the well-drained nature of the site and the presence of roots and earthworm cases suggests that these are modern intrusions. The results are presented in Table 1.

Table 1 Charred plant remains

Feature		**ditch 209**					**ditch 215**	**pit 212**	
Find No.		**1000**	**1001**	**1002**	**1003**	**1004**	**1006**	**1007**	**1018**
Context		**211**	**211**	**223**	**225**	**226**	**216**	**213**	**213**
(c) *Triticum* cf. *spelta* (cf. Spelt Wheat)	grain	1	-	-	-	-	-	-	-
(c) *Triticum spelta* (Spelt Wheat)	glume base	1	-	1	-	-	-	1	-
(c) *Triticum spelta* (Spelt Wheat)	spikelet fork	3	-	-	-	-	-	-	-
(h) *Danthonia decumbens* (Heath-grass)	caryopsis	-	-	-	-	-	-	-	-
(t) *Corylus avellana* (Hazel)	nutshell frag.	1	1	-	-	-	-	-	1
(w) Cyperaceae undifferentiated (Sedge family)	nutlet	-	-	-	-	-	-	-	-
(x) Poaceae undifferentiated (Grass family)	<2mm caryopsis	-	-	-	-	-	-	-	-

[c-cultivated; h-heathland; t-tree/shrub; w-wet/damp ground; x-wide niche]

3.4 The results have provided limited evidence for the use of spelt wheat. The remains of this cereal crop regularly occur at domestic sites of Iron Age or Roman origin in Britain (Greig 1991). Charred fragments of hazel nutshell from three contexts suggest wild-gathered foods were also utilised at the site, although their presence in low numbers possibly reflects a minor use of this food source.

Charcoal analysis

Methods

3.5 Charcoal identifications were made on fragments >4mm following Boardman (1995). The samples were 100% analysed and the <4mm fraction was scanned for the presence of any additional taxa. The transverse, radial, and tangential sections were examined at up to x600 magnifications using a Leica DM/LM microscope. Analysis was undertaken following Marguerie and Hunot (2007) and included examination of the number of tree rings, tree ring curvature, and where possible the diameter of roundwood was measured. The presence of pith, bark, tyloses, insect degradation, reaction wood, work marks and alteration by fusion or radial cracks were also recorded. Identifications were assisted by the descriptions of Schweingruber (1990), Hather (2000) and modern reference material held in the Environmental Laboratory at Archaeological services Durham University. The different species were weighed and bagged separately, and material available for radiocarbon dating was cleaned of adhering material and wrapped in foil.

3.6 The analysis was undertaken in accordance with the palaeoenvironmental research aims and objectives outlined in the regional archaeological research framework and resource agendas (Caseldine 2004; Huntley 2010).

Results

3.7 The samples comprised varying quantities of charcoal, with totals ranging from 0.2g for pit fill (213) to 24g for oven fill (10). The soft and brittle nature of much of the charcoal resulted in a large proportion of fragments within the <4mm fraction (see Table 2). Identifications were restricted in many instances due to precipitates and mineral inclusions. Complete roundwood containing pith and bark was absent, although fragments from context 226 comprised bark. Charred buds and twigs were either absent or uncommon. Due to the similarity of the wood structure of willow and poplar (particularly in juvenile wood) these fragments were grouped as Salicaceae (willow family). Similarly broom and gorse were grouped as Fabaceae (pea family) and hawthorn, apple and whitebeams (which includes rowan) are represented by the subfamily Maloideae. Poor condition and fragment size often prevented further identification of the genus *Prunus* (Blackthorn, wild and bird cherry).

3.8 Fragments of Maloideae charcoal comprised indistinct ring boundaries, preventing examination of the ring curvature and ring count. Radial cracks and vitrification were recorded in fragments from contexts 211 and 216, occasionally preventing identification. Insect degradation was confined to fragments of hazel branchwood noted in contexts 213 and 226. Fragments of gorse/broom identified in eight of the samples could be contemporary with the features, although it is possible that this is intrusive due to bioturbation and water percolation, aided by agricultural activities. The results of the charcoal analysis are presented in Table 2.

3.9 Identified species included alder, birch, hazel, gorse/broom, oak, willow/poplar, Maloideae, cherries and ash. A fragment of charcoal with a wood structure resembling alder buckthorn (semi-ring porous with solitary, short radial files and small clusters, narrow biseriate rays and fine spiral thickenings) was also noted. All of the above species occurred in uppermost ditch fill (211). Hazel was the most frequently recorded taxon from these deposits. Ring curvature and anatomical properties indicated much of the charcoal was branchwood and small calibre stemwood, although fragments of oak from context 211 provided evidence for using large branchwood/stemwood. Analysed charcoal from the fill (213) of pit 212 was similar in size and diversity to the enclosure ditch fills. Hazel was again the most frequently recorded

species, with ash, birch, gorse/broom, cherries, willow/poplar and Maloideae. Vessel arrangement and ring curvature indicated this material was predominantly branchwood.

3.10 The diversity of the charcoal assemblages from the enclosure ditch and pit fills is surprising considering the relatively small quantities of charcoal present. Identified charcoal from these deposits is very similar in composition to samples previously examined from the nearby Hindwell I enclosure (PRN 4222; Johnson 1999). These deposits also comprised small quantities of mostly hazel, with gorse, blackthorn, Maloideae (Pomoideae), alder, willow/poplar and birch all noted. The diversity of the charcoal recorded from the enclosure deposits, coupled with the presence of spelt wheat remains are indicative of domestic hearth waste.

3.11 Much of the charcoal and charred plant macrofossil remains recovered from the samples are from species typical of open scrub and often damp heathy grassland. Obvious signs of woodland management were absent from the samples.

Table 2: Results from charcoal analysis

Feature	**ditch 209**						**pit 212**	
Find No.	**1000**	**1001**	**1002**	**1003**	**1004**	**1006**	**1007**	**1018**
Context	**211**	**211**	**223**	**225**	**226**	**216**	**213**	**213**
Charcoal (g/number of fragments)								
Alnus glutinosa (Alder)	-	0.045 (2F)	-	-	0.386 (7F)	-	-	-
Betula sp (Birches)	0.051 (2F)	-	-	-	0.474 (5F)	-	0.009 (1F)	0.061 (2F)
Corylus avellana (Hazel)	0.301 (13F)	0.098 (7F)	0.098 (2F)	0.039 (4F)	0.520 (14F)	0.009 (1F)	0.073 (5F)	0.099 (8F)
Fabaceae (Gorse, broom, greenweeds)	-	0.019 (1F)	0.008 (1F)	-	0.186 (4F)	0.102 (4F)	0.231 (3F)	0.029 (2F)
Frangula alnus (Alder buckthorn)	0.011 (1F)	-	-	-	-	-	-	-
Fraxinus excelsior (Ash)	-	-	-	-	-	-	0.031 (1F)	-
Maloideae (Hawthorn, apple, whitebeams)	0.227 (9F)	0.027 (1F)	0.028 (2F)	-	0.011 (1F)	0.009 (1F)	0.010 (1F)	0.045 (2F)
Prunus spinosa (Blackthorn)	-	-	-	-	-	-	-	-
Prunus sp (Cherries)	0.031 (2F)	0.041 (2F)	-	-	-	-	0.021 (2F)	-
Quercus sp (Oaks)	0.104 (3F)	-	0.011 (1F)	0.000 (3F)	-	0.008 (1F)	-	-
Salicaceae (Willow/poplar)	0.209 (2F)	0.021 (1F)	-	-	0.122 (6F)	-	0.019 (2F)	0.029 (3F)
Indeterminate >4mm	0.080 (3F)	-	-	-	-	-	-	-
% of fragments > 4mm analysed	100	100	100	100	100	100	100	100
Charcoal analysed >4mm (g)	1.014	0.251	0.090	0.039	1.699	0.128	0.394	0.263
Number of analysed fragments >4mm	35	14	6	4	37	7	15	17
Charcoal <4mm (g)	3.168	2.301	1.927	0.701	4.175	2.949	0.239	1.781

[F = number of charcoal fragments]

4 RADIOCARBON DATING

4.1 Four charcoal samples were submitted for AMS dating to the SUERC laboratory in East Kilbride following their identification by Lorne Elliot, Archaeological Services, University of Durham. The calibration ranges have been determined from the University of Oxford Radiocarbon Accelerator Unit calibration programme (OxCal4).

SUERC-52858
Context 211, upper fill of ditch 209
Material: charred hazel nutshell
Conventional radiocarbon age: 2095±29
Calibrated results at 68.2% probability: 166-60 BC
Calibrated results at 95.4% probability: 193-46 BC

SUERC-52862
Context 223, fill of ditch 209
Material: maloideae charcoal
Conventional radiocarbon age: 8776±29
Calibrated results at 68.2% probability: 7938-7752 BC
Calibrated results at 95.4% probability: 7960-7718 BC

SUERC-52863
Context 226, basal fill of ditch 209
Material: birch charcoal
Conventional radiocarbon age: 2088±29
Calibrated results at 68.2% probability: 162–87 BC
Calibrated results at 95.4% probability: 192–42 BC

SUERC-52864
Context 213, fill of pit 212
Material: birch charcoal
Conventional radiocarbon age: 2393±29
Calibrated results at 68.2% probability: 507–404 BC
Calibrated results at 95.4% probability: 728–398 BC

5 CONCLUSIONS

5.1 The results from the excavation have provided further field evidence for the potential impacts of agriculture on buried archaeological sites as part of an evaluation of the methodology developed during the 2012-13 ACRE study (Jones 2014). Two trenches were positioned to investigate a trapezoidal enclosure known only from cropmark evidence and geophysical survey which lay within a field which the ACRE methodology had identified as being under regular cultivation in a rotation that includes pasture or fallow, thus presenting a high potential risk to buried archaeology. The magnitude of impact from cultivation was assessed as being in category B (where A is the highest category and E has no impact) and is likely to result in changes to many key elements of a monument, such that the resource is clearly modified.

5.2 In both trenches the surface of the natural subsoil was scarred by broad ploughmarks which had cut into the subsoil, and therefore into any buried archaeological deposits, by 0.1m. The nature of the scars indicated that this was not a result of normal ploughing but was more likely to have been caused by a subsoiler or potato-ridge former. It is worth noting, however, that the current agricultural regime uses non-inversion tillage, which has a significantly lower potential impact on buried archaeology, so long as this is not accompanied by the periodic use of a subsoiler.

5.3 As well as testing the ACRE methodology the excavation has also provided new information regarding the trapezoidal enclosure. Evidence from remote sensing had already determined that the enclosure measured around 35m across and was defined by a single ditch, with a possible entrance on the western side. The excavation has demonstrated that the ditch is fairly small, measuring between 1.2m and 1.5m in width and 0.48m to 0.65m deep, although it has clearly been truncated by ploughing.

5.4 It had been postulated that the enclosure might be contemporary with the adjacent Neolithic palisaded enclosure owing to the way in which the north-eastern side of the enclosure appeared to respect the line of the palisade. Although there was no strategraphic link between the two monuments, evidence from pottery and radiocarbon dating suggests that the enclosure is considerably later, dating to the pre-Roman Iron Age between around 190-42 cal. BC. The respective positions of the monuments, however, suggest that the line of the palisade may well have remained visible at the time the trapezoidal enclosure was constructed and that there was a deliberate intention to place the enclosure just outside the line. The dating evidence is also significant when considering the potential relationship between the enclosure and the large Roman marching camp. The enclosure lies within the camp, towards its southern corner, and it is not unreasonable to assume that the surrounding bank and ditch might have been deliberately slighted at the time the camp was constructed, presumably during the early campaigns into Wales between AD 48 and AD 60/61.

6 ACKNOWLEDGEMENTS

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