

ARCHAEOLOGICAL  
SERVICES  
DURHAM UNIVERSITY

on behalf of  
Swaledale and Arkengarthdale  
Archaeology Group

Hagg Farm  
Swaledale  
North Yorkshire

palaeoenvironmental assessment

report 4647  
December 2017

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## **1. Summary**

### **The project**

- 1.1 This report presents the results of palaeoenvironmental assessment of five bulk samples taken during archaeological excavations of a Romano-British settlement at Hagg Farm, Swaledale, North Yorkshire.
- 1.2 The works were commissioned by Swaledale and Arkengarthdale Archaeology Group (SWAAG), and conducted by Archaeological Services Durham University.

### **Results**

- 1.3 The samples contain traces of fuel waste associated with domestic activity. Charred plant debris recovered from the south enclosure wall [11 and 26] contains limited evidence for using spelt wheat and 6-row barley, which were the main cereal crops cultivated during the late prehistoric and Roman periods in northern England. The similarity of the material with samples previously recovered from the site probably indicates a Roman origin rather than signs of earlier activity. The presence of this burnt material below the stone flags is probably the result of taphonomic processes such as bioturbation and water percolation.

### **Recommendations**

- 1.4 Material suitable for radiocarbon dating is available for contexts [10] and [11], although due to fragment size and the amount of mineral inclusions it is uncertain whether there is sufficient weight of carbon. Considering the fuel debris is similar in composition to remains previously recovered from the site, it is highly likely that these deposits are also of Roman origin and may be worth bearing in mind before undertaking radiocarbon dating evidence.
- 1.5 The flots should be retained as part of the physical archive of the site. The residues were discarded following examination.

## 2. Project background

### Location and background

- 2.1 Archaeological excavations were conducted by SWAAG at Hagg Farm, Swaledale, North Yorkshire. This report presents the results of palaeoenvironmental assessment of four bulk samples taken from deposits beneath the flag floors of a Romano-British settlement and one sample from within a boundary wall trench.

### Objective

- 2.2 The objective of the scheme of works was to assess the palaeoenvironmental potential of the samples, establish the presence of suitable radiocarbon dating material, and provide the client with appropriate recommendations.

### Dates

- 2.3 Samples were received by Archaeological Services on 27th November 2017. Assessment and report preparation was conducted between 27th November and 7th December 2017.

### Personnel

- 2.4 Assessment and report preparation was conducted by Lorne Elliott. Sample processing was by Adam Mead, Daniel Adamson and Lauren Kancle.

### Archive

- 2.5 The site code is **HFS17**, for **Hagg Farm, Swaledale 2017**. The flots and charred plant remains are currently held in the Palaeoenvironmental Laboratory at Archaeological Services Durham University awaiting collection.

## 3. Methods

- 3.1 The bulk samples were manually floated and sieved through a 500µm mesh. The residues were examined for shells, fruitstones, nutshells, charcoal, small bones, pottery, flint, glass 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 Palaeoenvironmental Laboratory at Archaeological Services Durham University. Plant nomenclature follows Stace (2010). Habitat classifications follow Preston *et al.* (2002).
- 3.2 Selected charcoal fragments were identified, in order to provide material suitable for radiocarbon dating. The transverse, radial and tangential sections were examined at up to x600 magnification using a Leica DMLM microscope. Identifications were assisted by the descriptions of Schweingruber (1990) and Hather (2000), and modern reference material held in the Palaeoenvironmental Laboratory at Archaeological Services Durham University.
- 3.3 The works were undertaken in accordance with the palaeoenvironmental research aims and objectives outlined in the regional archaeological research framework and resource agendas (Roskams & Whyman 2007; Hall & Huntley 2007; Huntley 2010).

## 4. Results

- 4.1 The deposit [23] taken from beneath a limestone feature produced a small flot comprising tiny traces of oak charcoal, modern roots and an uncharred sedge nutlet. The presence of modern roots suggests the sedge nutlet is a recent introduction.
- 4.2 The deposit [25] from beneath the external porch floor produced a small flot containing traces of charcoal, cinder and modern roots. In spite of the small fragment size, the charcoal can be identified as hazel and cherries (which represents blackthorn, wild or bird cherry). Plant macrofossils are absent from [25].
- 4.3 The deposit [10] taken from beneath the main yard contains modern roots and traces of fragmented (<4mm) charcoal, coal and indeterminate calcined bone. The charcoal can be identified as Maloideae and ash. Maloideae is a subfamily that includes hawthorn, apple, whitebeam and rowan. Based on vessel arrangement, spiral thickening (abundant, localised or absent), and ray composition the fragments of Maloideae are recorded as cf. hawthorn and cf. rowan. Again plant macrofossils are absent.
- 4.4 The sample [11] taken from a trench cut into the south enclosure wall, again produced a small flot comprising modern roots and small quantities of fragmented (mainly <4mm) coal, charcoal, cinder and charred heather twigs. The charcoal can be identified as hazel. A few charred plant macrofossils include cereal chaff remains of wheat and barley, and a single barley grain. The twisted form of the barley grain is characteristic of 6-row barley (*Hordeum vulgare*), although the poor condition of the barley rachis fragment prevents certain identification. The diagnostic wheat chaff is a glume base of spelt wheat (*Triticum spelta*).
- 4.5 The deposit [26] from below the south enclosure wall line produced a small flot comprising modern roots, traces of cinder and a charred spelt wheat glume base.
- 4.6 Palaeoenvironmental results are presented in Appendix 1. A list of material available for radiocarbon dating is presented in Appendix 2.

## 5. Discussion

- 5.1 The samples contain traces of fuel waste associated with domestic activity. Charred plant debris recovered from the south enclosure wall [11 and 26] contains limited evidence for using spelt wheat and 6-row barley. These were the main cereal crops cultivated during the late prehistoric and Roman periods in northern England (Hall & Huntley 2007; Greig 1991), which is consistent with palaeoenvironmental data previously recorded for Hagg Farm and consistent with the Roman date suggested by the artefactual evidence from the site (Archaeological Services 2014). Although the charcoal evidence is limited, identified fragments from beneath the stone flags are consistent with material previously recovered (Archaeological Services 2014), with ash, hazel and Maloideae the most frequently recorded species. The similarity of evidence including traces of coal and cinder (also previously noted at the site) probably indicates a Roman origin for these deposits rather than signs of earlier activity. The presence of this burnt material below the stone flags is probably the result of taphonomic processes such as bioturbation and water percolation.

## 6. Recommendations

- 6.1 Material suitable for radiocarbon dating is available for contexts [10] and [11], although due to fragment size and the amount of mineral inclusions it is uncertain whether there is sufficient weight of carbon. Considering the fuel debris is similar in composition to remains previously recovered from the site, it is highly likely that these deposits are also of Roman origin and may be worth bearing in mind before undertaking radiocarbon dating evidence.
- 6.2 The flots should be retained as part of the physical archive of the site. The residues were discarded following examination.

## 7. Sources

- Archaeological Services 2014 *West Hagg Site 103 Swaledale, North Yorkshire: archaeological excavation*. Unpublished report **3360**, Archaeological Services Durham University
- Greig, J R A, 1991 The British Isles, in W Van Zeist, K Wasylkova & K-E Behre (eds) *Progress in Old World Palaeoethnobotany*. Rotterdam
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- Hather, J G, 2000 *The identification of the Northern European Woods: a guide for archaeologists and conservators*. London
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- Preston, C D, Pearman, D A, & Dines, T D, 2002 *New Atlas of the British and Irish Flora*. Oxford
- Roskams, S & Whyman, M, 2007 *Yorkshire Archaeological Research Framework: research agenda*. York
- Schweingruber, F H, 1990 *Microscopic wood anatomy*. Birmensdorf
- Stace, C, 2010 *New Flora of the British Isles*. Cambridge

## Appendix 1: Data from palaeoenvironmental assessment

Sample		2	4	5	7	8
Context		23	25	10	26	11
Feature number		11	1	8	2	10
Feature		deposit	deposit	deposit	deposit	deposit
Material available for radiocarbon dating		-	-	(✓)	-	(✓)
Volume processed (l)		14	5	7	7	5
Volume of flot (ml)		20	10	20	10	20
<b>Residue contents</b>						
Bone (calcined)	indet. frags	-	-	+	-	-
Charcoal		-	-	(+)	-	-
Coal		-	-	(+)	-	-
<b>Flot matrix</b>						
Charcoal		(+)	(+)	+	-	+
Cinder	vesicular	-	(+)	-	(+)	+
Coal		-	-	(+)	-	++
Heather twigs (charred)		-	-	-	-	+
Roots (modern)		++	+	++	++	++
Uncharred seeds		(+)	-	-	-	-
<b>Charred remains (total count)</b>						
(c) <i>Hordeum</i> sp (Barley species)	grain	-	-	-	-	1
(c) <i>Hordeum</i> sp (Barley species)	rachis fragment	-	-	-	-	1
(c) <i>Triticum spelta</i> (Spelt Wheat)	glume base	-	-	-	1	1
<b>Identified charcoal (✓ presence)</b>						
<i>Corylus avellana</i> (Hazel)		-	✓	-	-	✓
<i>Fraxinus excelsior</i> (Ash)		-	-	✓	-	-
Maloideae (Hawthorn, apple, whitebeams)	cf. hawthorn	-	-	✓	-	-
Maloideae (Hawthorn, apple, whitebeams)	cf. rowan	-	-	✓	-	-
<i>Prunus</i> sp (Cherries-blackthorn, wild and bird cherry)		-	✓	-	-	-
<i>Quercus</i> sp (Oaks)		✓	-	-	-	-

[c-cultivated (+): trace; +: rare; ++: occasional; +++: common; ++++: abundant  
(✓) may be unsuitable for dating due to size]

## Appendix 2: Material available for radiocarbon dating

Context	Sample	Single Entity recommended 1st choice	Weight	Notes	Single Entity recommended 2nd choice	Weight	Notes
10	5	Ash charcoal	31mg	(2 growth rings) contains mineral inclusions	Maloideae charcoal	25mg	(2 growth rings) contains mineral inclusions
11	8	charred barley grain	15mg	contains mineral inclusions	charred heather twig	32mg	contains mineral inclusions <b>3rd choice hazel charcoal (15mg)</b>