

ARCHAEOLOGICAL  
SERVICES  
DURHAM UNIVERSITY

on behalf of  
Swaledale and Arkengarthdale  
Archaeology Group

Hagg Farm  
Swaledale  
North Yorkshire

palaeoenvironmental assessment

report 4951  
January 2019

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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 waste associated with domestic activity. The charred plant remains include evidence for the use of barley and cf. wheat at the site, which were the main cereal crops cultivated during the late prehistoric and Roman periods in northern England, and the utilisation of some wild food resources.

### **Recommendations**

- 1.4 No further analysis is required for the samples due to the low number and poor preservation of palaeoenvironmental remains. If additional work is undertaken at the site, the results of this assessment should be added to any further palaeoenvironmental data produced. Material suitable for radiocarbon dating is available for contexts [67] and [88].
- 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 works were conducted by SWAAG at Hagg Farm, Swaledale, North Yorkshire. This report presents the results of palaeoenvironmental assessment of five bulk samples taken from deposits including a possible dump area underneath a collapsed wall [67], three deposits taken from beneath flagged floors [88, 89 and 90] and the fill of a possible posthole [75]. These deposits are largely associated with the Romano-British settlement on the site, although the sample from context [90] may potentially derive from an earlier phase of occupation.

### 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 31st October 2018. Assessment and report preparation was conducted between 13th December 2018 and 24th January 2019.

### Personnel

- 2.4 Assessment and report preparation was conducted by Dr Carrie Armstrong. Sample processing was by Daniel Adamson, Ben Matus and Meghan McCarthy.

### Archive

- 2.5 The site code is **HFS18**, for **Hagg Farm Swaledale 2018**. The flots and finds are currently held in the Palaeoenvironmental Laboratory at Archaeological Services Durham University awaiting collection. The charred plant remains will be retained at Archaeological Services Durham University.

## 3. Methods

- 3.1 The bulk samples were manually floated and sieved through a 500 $\mu$ m 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 MZ6 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 x500 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 samples contain small fragments of burnt and unburnt animal bone and fragments of charcoal, coal, coal shale and fired clay. A single flint fragment and a pot sherd are noted in deposit [88]. Deposit [67] also includes fragments of a metal object, a single pot sherd and tiny pieces of animal tooth enamel. Small numbers of uncharred seeds are present in three of the deposits [67, 75 and 88], however the presence of modern roots suggests that these are recent introductions.
- 4.2 The samples produced only very small flots with three of the contexts [75, 89 and 90] containing no charred plant remains and only tiny traces of charcoal too small for identification.
- 4.3 Deposit [67] from a potential dump area under a collapsed wall contains the most charred plant remains, comprising four indeterminate cereal grains in poor condition and a charred soil fungus sclerotia (resting body) of *Cenococcum geophilum*, an ectomycorrhizal soil fungus frequently associated with woodland soils. Charcoal from this deposit could be identified as ash charcoal, with wide growth rings and moderate ring curvature noted.
- 4.4 The sample from deposit [88] from underneath a flagged area comprises of a single charred barley grain and a charred hazel nutshell fragment as well as a charred soil fungus sclerotia. A small fragment of alder charcoal was also observed in this deposit.
- 4.5 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 contained traces of waste associated with domestic activity. The cereal grains from deposit [67] were in poor condition, exhibiting degradation due to pitting and puffing. This may either be a result of intense heat (Boardman & Jones 1990), exposure to heat on more than one occasion or rapid burning. For two of the cereal grains the morphologies were suggestive of the assemblage including both barley and wheat grains, and a barley grain was also observed in [88]. Barley and wheat were the main cereal crops cultivated during the late prehistoric and Roman periods in northern England (Hall & Huntley 2007; Greig 1991), and such evidence for cultivated crops is also 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; Archaeological Services 2017).
- 5.2 While the charcoal assemblages are limited and comprise mainly of small fragments, identified species from the deposits are consistent with material previously recovered (Archaeological Services 2014; Archaeological Services 2017), with ash and alder as well as a member of the cherry family (blackthorn, wild or bird cherry)

observed in these samples. The ash charcoal contained wide growth rings suggesting growth within an open environment. The presence of burnt material below the stone flags may be the result of taphonomic processes such as bioturbation and water percolation.

- 5.3 The charred fragment of hazel nutshell from [88] may suggest wild-gathered foods were utilised at the site, although the presence of only a single fragment possibly reflects a minor use of this particular food source.

## 6. Recommendations

- 6.1 No further analysis is required for the samples due to the low number and poor preservation of palaeoenvironmental remains. If additional work is undertaken at the site, the results of this assessment should be added to any further palaeoenvironmental data produced. Material suitable for radiocarbon dating is available for contexts [67] and [88].
- 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
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- 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		11	13	14	15	16
Context		67	88	75	89	90
Feature number		24	13	24	15	22
Feature		deposit	deposit	posthole	deposit	deposit
Material available for radiocarbon dating		(✓)	✓	-	-	-
Volume processed (l)		10	9	6	8	7
Volume of flot (ml)		50	30	5	5	5
<b>Residue contents</b>						
Bone (burnt)	indet. frags	-	(+)	-	-	-
Bone (calcined)	indet. frags	+	(+)	-	-	(+)
Bone (unburnt)	indet. frags	++	-	-	-	-
Coal shale		-	-	-	(+)	(+)
Fired clay		-	(+)	(+)	-	-
Flint (number of fragments)		-	1	-	-	-
Metal-based remains	Fe	(+)	-	-	-	-
Metal object (number of fragments)		2	-	-	-	-
Pot (number of fragments)		1	1	-	-	-
Tooth (number of fragments)	animal enamel	2	-	-	-	-
<b>Flot matrix</b>						
Bone (unburnt)	indet. frags	(+)	(+)	-	-	-
Charcoal		++	++	(+)	-	(+)
Clinker / cinder		-	(+)	(+)	-	-
Coal / coal shale		-	(+)	(+)	-	(+)
Earthworm egg case		(+)	-	-	-	-
Heather twigs (charred)		+	-	-	-	-
Insect / beetle		+	+	(+)	++	+
Pre-Quaternary trilete megasporangium		-	-	-	-	(+)
Roots (modern)		+++	+++	++	+	++
Uncharred seeds		+	+	+	-	-
<b>Charred remains (total count)</b>						
(c) Cerealia indeterminate	grain	4	-	-	-	-
(c) <i>Hordeum</i> sp (Barley species)	grain	-	1	-	-	-
(t) <i>Corylus avellana</i> (Hazel)	nutshell frag	-	1	-	-	-
(x) <i>Cenococcum geophilum</i> (Soil fungus)	sclerotia	1	1	-	-	-
<b>Identified charcoal (✓ presence)</b>						
<i>Alnus glutinosa</i> (Alder)		-	✓	-	-	-
<i>Fraxinus excelsior</i> (Ash)		✓	-	-	-	-
<i>Prunus</i> sp (Cherries-blackthorn, wild and bird cherry)		-	-	✓	-	-

[c-cultivated; t-tree/shrub; x-wide niche.

(+): trace; +: rare; ++: occasional; +++: common; ++++: abundant.

(✓) may be unsuitable for dating due to size or species]