Data Structure Report of Small-Scale Sampling of the Mesolithic Site at Bàgh an Teampaill, Toe Head Peninsula, Northton, Harris, 2011

Project Summary

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View of the Mesolithic site underlying over 8m of machair at Bàgh an Teampaill, looking north-east.

Contents

Summary

The wider research project investigating the Mesolithic of the Western Isles of Scotland (the 'Outer Hebrides') undertaken by Durham University has identified the third Mesolithic site in this region, at Bàgh an Teampaill, Toe Head Peninsula, Northton, Harris. Due to the international research significance of the site and its imminent destruction by coastal erosion, a full coastal erosion assessment of the site was undertaken in September 2011 by a team from Durham University led by Dr. Mike Church. No archaeological structural features were identified, but initial results have shown that the deposits contain abundant archaeological remains. Radiocarbon dating of a small number of carbonised hazel nutshell fragments has produced calibrated dates, as yet unpublished, of 5715 to 5386 cal BC. The site is currently interpreted as a series of buried old ground surfaces overlain by shell and/or ash-rich midden deposits, which forms part of the same early to mid-Holocene buried landscape that contains the Mesolithic site at Northton (Bishop et al. 2010; 2011; Gregory et al. 2005). Future work to be undertaken will involve further sampling of the eroding deposits and a detailed radiocarbon dating programme

1.0 Introduction

Archaeological evidence for a Mesolithic human presence in the Western Isles of Scotland has long been elusive (cf. Edwards 1996; Edwards & Sugden 2003), until recent years. The first Mesolithic site identified in this region was discovered at Northton, Toe Head Peninsula, Harris (NGR: NF 975 912) in 2001 (Gregory et al. 2005; Simpson et al. 2006). It was further excavated in 2010 by Durham University within a wider research project investigating the Mesolithic of this region undertaken by Durham University (Bishop et al. 2010; 2011). Radiocarbon dating of carbonised hazel nutshells has produced calibrated dates for Mesolithic human activity at Northton ranging from 7060 to 6090 cal BC (Gregory et al. 2005: 945), or the earlier centuries of the Late Mesolithic of Scotland (cf. Ashmore 2004: 92). The site is currently interpreted as a buried land surface that incorporates a palimpsest of disturbed and bioturbated hearth deposits containing fuel remnants and food waste (Bishop et al. 2010; 2011).

The second Mesolithic site identified in the Western Isles was discovered at Tràigh na Beirigh, Cnip, Lewis (NGR: NB 1002 3628) in 2010/2011. In 2010, Dr. Mike Church

(Durham University) took a small sample from the eroding section of the main body of a previously identified open air, aceramic shell midden on the beach of Tràigh na Beirigh (Armit 1994: 67, 90; Burgess & Church 1997: 117). Radiocarbon dating of carbonised hazel nutshells recovered from this sample produced calibrated radiocarbon dates for the development of the shell midden, as yet unpublished, spanning from *c* 4400 to *c* 4000 cal BC (Church et al. 2012a), or the Terminal Mesolithic of Scotland (cf. Ashmore 2004: 92). This fact, together with the site's excellent faunal and floral preservation, makes it of considerable international research significance (Blake, 2011; Blake et al. 2012; Church et al. 2012a). Since the shell midden is rapidly being destroyed by coastal erosion, a full coastal erosion assessment of the shell midden was undertaken by Durham University in September 2011 before it is completely eroded away (Blake et al. 2012; Church et al. 2012a). Based upon the results of this preliminary investigation, the Mesolithic shell midden at Tràigh na Beirigh is currently interpreted as comprising primarily the food waste and fuel remnants leftover from a few short-term, perhaps seasonal, visits of hunter-gatherers to this locale, and rests upon an in situ old ground surface (Blake et al. 2012; Church et al. 2012a). The subsequent objective of this research project was the discovery and targeted excavation and sampling of further Mesolithic sites in this region (Blake et al. 2012).

During the 2011 season of excavation in the Western Isles, the third Mesolithic site in this region was discovered at Bàgh an Teampaill, Toe Head Peninsula, Northton, Harris (Figures 1, 2 & 3; NGR: NF 9734 9132; Church et al. 2012b). A small-scale coastal erosion survey of the coastline immediately adjacent to the Mesolithic site of Northton in Harris was conducted with the intention of identifying sites of probable Mesolithic date based upon their geomorphic/pedogenic position and the ecofactual and artefactual composition of the eroding deposits. The site at Bàgh an Teampaill was immediately identified as of interest, for three primary reasons. Firstly, the eroding section at Bàgh an Teampaill is overlain by over 8m of machair. The incursion of the machair sands into this area is thought to have primarily developed *after* the Mesolithic (Simpson et al. 2006), suggesting the probable Mesolithic date of the deposits of the eroding section. Secondly, these deposits had a similar character to the Mesolithic deposits at Northton, comprising an eroding coastal erosion section of archaeological material situated at the interface between the early Holocene soil and overlying machair. Also, charcoal, carbonised hazel nutshells, fish and hare bone, and flint and quartz worked lithics were present in significant numbers in the deposits (Bishop et al. 2011; Church et al. 2012b). This observation indicated the possible contemporaneity of the

two sites. Thirdly and finally, the apparent absence of evidence of any domestic animal or plant species, or pottery, in the eroding deposits at Bàgh an Teampaill was also indicative of a Mesolithic date for the deposits (Church et al. 2012b).

Strong evidence therefore indicated that the eroding section at Bàgh an Teampaill may represent the third Mesolithic site so far identified in the Western Isles (Church et al. 2012b). This possibility, together with the excellent faunal and floral preservation of its deposits, highlighted the considerable international research significance of this site. Unfortunately, it is rapidly being destroyed by active coastal erosion as a consequence of its highly exposed location (Figure 4). Therefore, a full coastal erosion assessment of the eroding section and subsequent radiocarbon dating of datable excavated material was considered essential before it is completely lost.

1.1 Research aims

The coastal erosion assessment had four research aims. These were:

1. To assess the extent of coastal erosion of the site.
2. To establish the nature and extent of the potential Mesolithic deposits.
3. To undertake detailed sampling and analysis of the archaeobotanical, zooarchaeological and non-environmental remains recovered from the eroding deposits.
4. To retrieve dating material to test whether the site is of Mesolithic date.

2.0 Methods

2.1 Coastal Erosion Assessment

The site and its immediate environment were surveyed using a geo-referenced Topcon Positioning System. The state of the eroding section prior to coastal erosion assessment was recorded using digital photography (Figure 5). The eroding section was cleaned back by *c* 2cm. The section was not cleaned back further than *c* 2 cm due to the health and safety implications of doing so given that the eroding deposits are overlain by over 8m of machair. However, this limited cleaning was sufficient for the extent of the eroding section and its

stratigraphy to be revealed, and for a reasonably sized sample (>40 litres) to be obtained from the identified stratigraphic units. The contexts and stratigraphy of these sections were then described, drawn and photographed. All excavation was undertaken by hand, using standard archaeological excavation methods and a single context recording system. The location of finds was recorded in three dimensions relative to the relevant section. All quartz, worked and unworked, was retained for specialist analysis, following Ballin (2009: 90). The section was drawn at 1:10. Only digital photographs were taken. When cleaning back the eroding edge of the shell midden, a 100% sampling strategy of all archaeological deposits was employed (Jones 1991). This was deemed the most appropriate sampling strategy given the international research significance of the eroding section and its inevitable loss to coastal erosion.

2.2 Sample Processing

All samples were wet-sieved in the Environmental Processing Laboratory in the Department of Archaeology at Durham University, with the residue captured by a 1mm sieve and the flot by a 1.0mm and 0.3mm sieve. The residues were then oven-dried. The >4mm sieved fraction of the residues will be sorted by eye, while the >2mm and >1mm sieved fractions will be sorted under a low-powered binocular microscope, with all bone fragments collected, to ensure comprehensive recovery (Wheeler & Jones 1989: 50, 59). Comprehensive recovery of the faunal and floral remains was considered vital considering the scarcity of sizeable Mesolithic faunal (McCormick & Buckland 1997; Kitchener et al. 2004) and floral (Bishop et al. 2011) assemblages in Scotland, and indeed, Britain as a whole. The material recovered from the residues and floating fractions will be incorporated into the relevant sieved fraction, ready for specialist analysis.

Dr. Mike Church is responsible for supervising the specialist analysis of this material. Supervised students (MSc in Archaeological Science) from the Department of Archaeology at Durham University will analyse the archaeobotanical remains and charcoal as part of their summative coursework. Emily Blake will analyse the fish, marine mollusc and crustacean remains as part of her supervised DDS (Durham Doctoral Studentship) funded PhD research. Stephanie Piper will analyse the artefactual material as part of her planned future PhD research. Prof. Peter Rowley-Conwy and Angela Perri will analyse the zooarchaeological remains. Two BSc students are conducting a biomolecular analysis of some of these zooarchaeological remains as part of their supervised summative coursework. Dr. Mike

Church will undertake routine soil tests of the samples. Matthew Law (University of Cardiff) will analyse the land snails as part of his supervised PhD research.

2.3 Radiocarbon Dating

Four carbonised hazel nutshells were submitted to SUERC for AMS radiocarbon dating. Two of the hazel nutshells were recovered from an old ground surface termed context 003 (samples 005A and 005B). The other two were recovered from a small, discrete patch of shell midden overlying this old ground surface, termed context 007 (samples 003A and 003B).

3.0 Results

3.1 Erosion

Upon arrival at the site, it was immediately apparent that the face of the archaeological deposits was severely eroded based upon recognition of the sheer quantity of earth which must have eroded away over many years for these deposits to be revealed, and their weather-beaten appearance (Figure 5). Such active coastal erosion is the consequence of the highly exposed location of the site to the prevailing winds of the North Atlantic (Figure 4). On this basis, it is expected that the site will be completely destroyed by coastal erosion within the next few years.

3.2 Stratigraphy

Drawings and photographs of the eroding section post-cleaning are provided in Figures 6-9. Details of all contexts, digital photographs, drawings, small-finds and samples, are provided in Tables 1, 2, 3, 4 and 5 respectively. The Harris Matrix is provided in Figure 10.

The eroding section was *c* 3.5m wide and *c* 1.2m deep. The archaeological deposits of this section were directly overlain by over 8m of machair overburden: turf overlay the machair. Directly beneath the machair overburden were contexts 009, 007 and 008. These contexts were identified in the west, middle and east part of the section respectively. C009 was a brown sandy silty soil which graded into a brown silty sandy soil in its upper reaches, with no inclusions. This context is interpreted as a natural interface soil which graded into the machair overburden. Directly beneath C009 lay context 005, a dark greyey brown, sandy clayey silty soil with occasional inclusions of angular/sub-rounded stones (<10cm long) and anthropogenic material such as animal bone and carbonised material. Two small finds (SF1

and SF2) were discovered in this context: a red deer antler tine and worked flint lithic respectively. C005 is interpreted as an old ground surface with some evidence of anthropogenic discard in the form of both food waste and fuel remnants.

C007 was a light brown, shell-supported, sandy silty soil. It is interpreted as a shell-rich dump which resulted from small-scale midden episode/s. Radiocarbon dating of two carbonised hazel nut-shells from this context has produced calibrated radiocarbon dates for the development of this context, as yet unpublished, of 5714 to 5467 cal BC. C007 formed alongside C008, a dark brown sandy clayey silty soil with occasional inclusions of angular/sub-rounded stone (<15 cm long) and anthropogenic material such as animal bone and charcoal. C008 is interpreted as an old ground surface with some evidence of anthropogenic discard, in the form of both food waste and fuel remnants. C008 extends into the top of the eroding section that was not cleaned back as it was stabilised with vegetation. It is presumed that an interface zone with the machair overburden equivalent to C009 will occur above this context.

Context 006 lay underneath both C007 and C008, in the middle part of the eroding section. It was a discrete, light grey, clayey, wood ash deposit with calcined bone and shell inclusions throughout its vertical and horizontal extent. No evidence of in situ burning was identified beneath this context. Consequently, it is interpreted as an ash dump which resulted from small-scale midden episode/s. Context 004 was a dark greyey brown, sandy clayey silty soil with occasional inclusions of angular/sub-rounded stones (<10cm long) and anthropogenic material such as animal bone and carbonised material. It was equivalent to C005 in the west end of the eroding section. C004 and C005 are therefore interpreted as comprising of the same old ground surface which contained evidence for anthropogenic discard in the form of fuel remnants and food waste.

Context 003 was identified beneath this old ground surface (C004 and C005). C003 was a black sandy clayey silty, early to mid-Holocene soil with occasional inclusions of angular/sub-rounded stones (<10cm long) and anthropogenic material such as fish and hare bone, carbonised hazel nutshells and charcoal. This context was strikingly similar in both composition and character to context 9 from the 2010 excavations at Northton (Bishop et al. 2010; 2011). Similar to C004 and C005, it is interpreted as an old ground surface with some evidence of anthropogenic discard in the form of both food waste and fuel remnants. Radiocarbon dating of two carbonised hazel nut-shells from C003 has produced calibrated

radiocarbon dates for the development of this context, as yet unpublished, of 5715 to 5555 cal BC.

Context 2 lay beneath C003. C002 was a light greyey brown clayey silty, early Holocene soil, with occasional inclusions of small angular/sub-angular stones, small gravel and charcoal flecks. This context graded into the overlying black sandy clayey silty soil of C003 and the underlying glacial till. The glacial till sat directly upon bedrock.

None of the deposits identified and cleaned in the eroding section contained positive or negative features.

3.3 Preliminary Interpretation

The eroding section identified, cleaned and sampled at Bàgh an Teampaill in September 2011 has produced radiocarbon dates spanning from 5715 to 5386 cal BC, or the earlier centuries of the Late Mesolithic of Scotland (cf. Ashmore 2004: 92). The site is currently interpreted as a series of buried old ground surfaces overlain by shell and/or ash-rich midden deposits. As such, it would appear to represent a similar type of site to that identified and excavated at Northton (Bishop et al. 2010; 2011; Gregory et al. 2005). In fact, given the close geographical (Figure 2) and temporal proximity of the Mesolithic sites of Bàgh an Teampaill and Northton (See Sections 1.0 and 3.2), it is likely that they form part of the same buried early to mid-Holocene landscape (Church et al. 2012b). This site is very important for the archaeology of Atlantic Scotland as it represents only the third Mesolithic site discovered in the Western Isles (Bishop et al. 2010; 2011; Blake et al. 2012; Church et al. 2012a; 2012b; Gregory et al. 2005).

4.0 Future Work

Future work will involve:

1. Larger scale sampling of the Mesolithic-dated old ground surfaces and associated midden deposits in September 2012.
2. A detailed radiocarbon dating programme of the successive contexts identified during this coastal erosion assessment to produce a more detailed understanding of the temporality of Mesolithic hunter-gatherer activity at this locale.

5.0 Acknowledgments

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6.0 References

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Wheeler, A & Jones, A 1989 *Fishes*, Cambridge: Cambridge University Press.

7.0 Figures

Figure 1: Site location (Top right and bottom: after Gregory et al. (2005: 945)

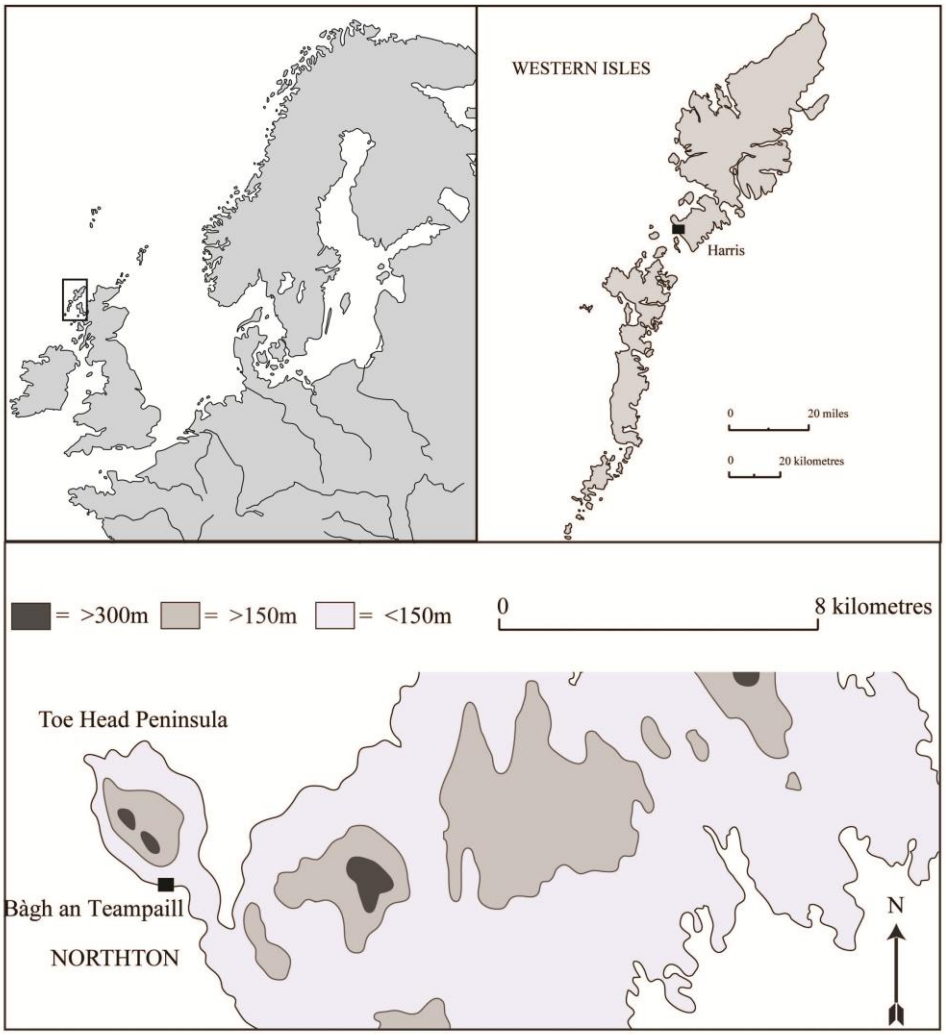


Figure 2: Aerial view of the Northton coastline with approximate location of the Mesolithic sites of Bàgh an Teampaill (1) and Northton (2), looking north-west

Figure 3: Aerial view of Bàgh an Teampaill with approximate location of the eroding section, looking north-east

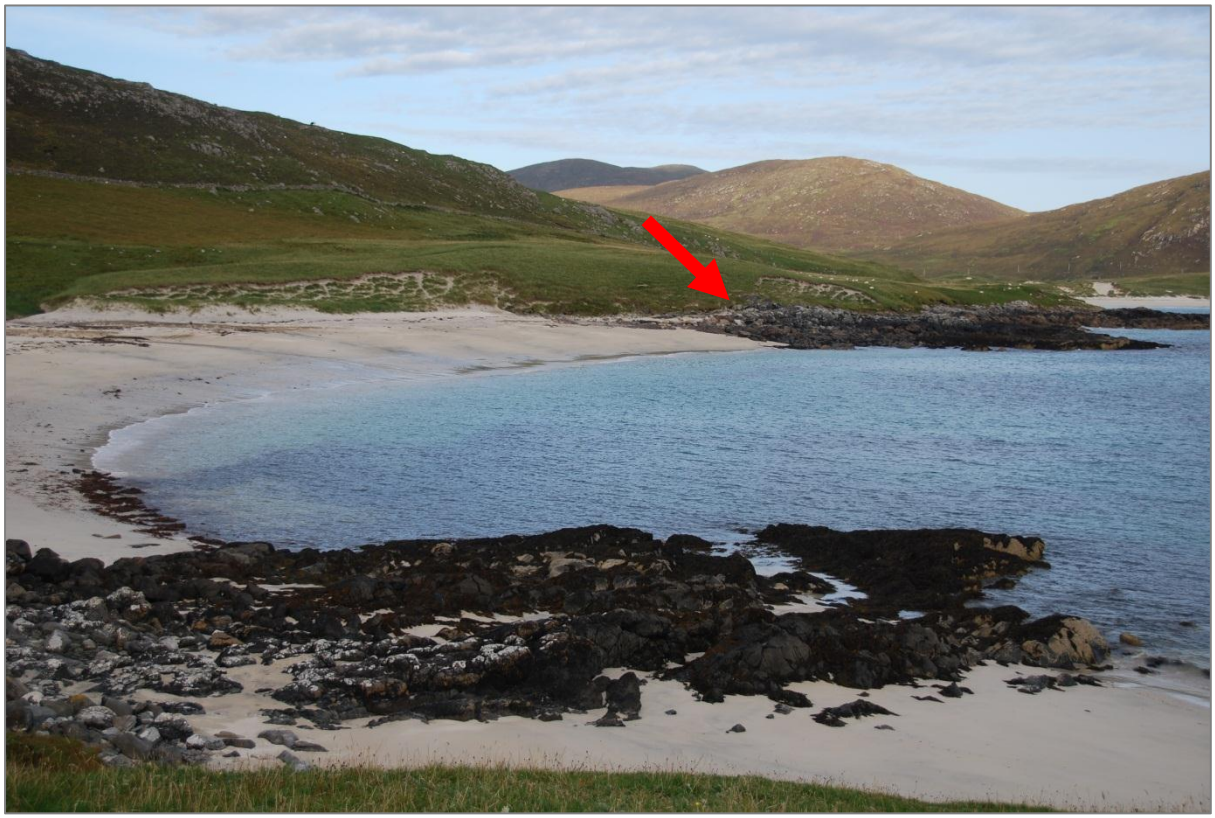


Figure 4: Site location in relation to the sea, looking east

Figure 5: Eroding section pre-cleaning, looking north-east

Figure 6: East-end of eroding section after cleaning, looking north

Figure 7: Middle section of eroding section after cleaning, looking north

Figure 8: West end of eroding section after cleaning, looking north

Figure 9: Section (Key: Grey figure = stone/rock)

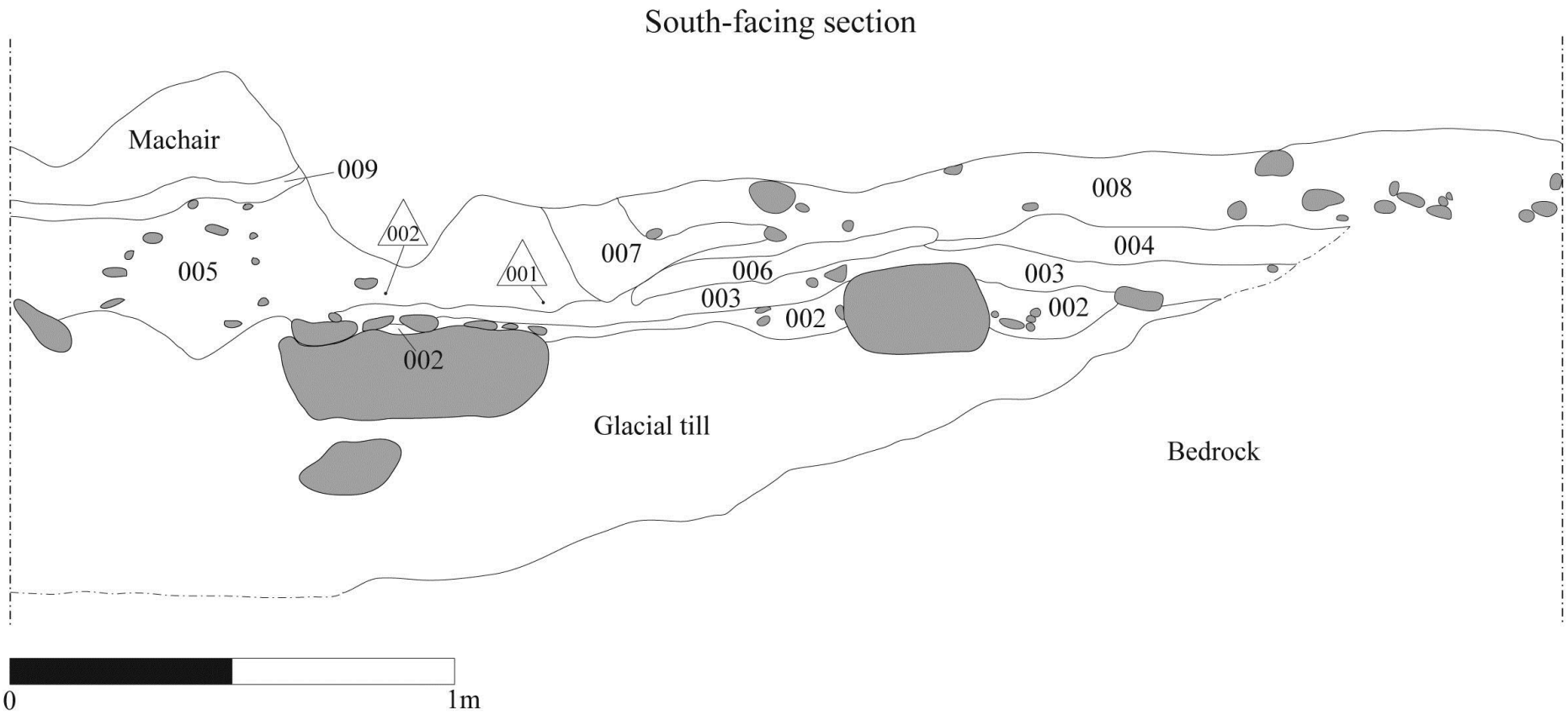
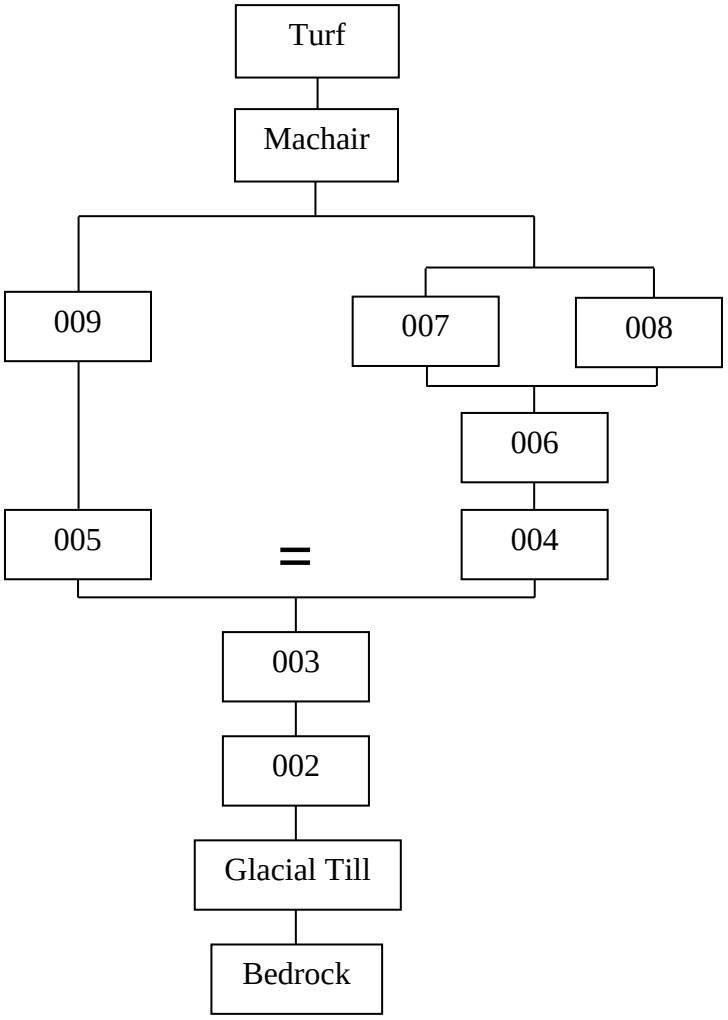


Figure 10: Harris Matrix for Bàgh an Teampaill 2011



8.0 Tables

Table 1: Bàgh an Teampaill 2011 context list

Context number	Description
001	Cleaning context for all contexts identified in the eroding section.
002	Light greyey brown clayey silty soil with occasional inclusions of small angular/sub-angular stones, small gravel and charcoal flecks, which graded into the overlying black sandy clayey silty soil of C003 and the underlying glacial till.
003	Organic early- to mid-Holocene old ground surface comprised of a black sandy clayey silty soil with occasional inclusions of angular/sub-rounded stones (<10cm long) and anthropogenic material such as fish and hare bone, carbonised hazel nutshells and charcoal. Radiocarbon dating of two carbonised hazel nut-shells has produced calibrated radiocarbon dates, as yet unpublished, of 5715 to 5555 cal BC. Underlying C004 and C005, and overlying C002.
004	Dark greyey brown sandy clayey silty soil with occasional inclusions of angular/sub-rounded stones (<10cm long) and anthropogenic material such as animal bone and carbonised material, at east end of section. Old ground surface with evidence of anthropogenic discard. Underlying C006 and overlying C003. Same as C005.
005	Dark greyey brown sandy clayey silty soil with occasional inclusions of angular/sub-rounded stone (<10cm long) and anthropogenic material such as animal bone and carbonised material, at west end of section. Old ground surface with evidence of anthropogenic discard. Underlying C009 and overlying C003. Same as C004.
006	Discrete, light grey, clayey, wood ash deposit with calcined bone and shell inclusions throughout its vertical and horizontal extent. Underneath C007 and C008, and overlying C004.
007	Light brown, shell-supported, sandy silty soil, interpreted as a shell-rich dump which resulted from small-scale midden episode/s. Radiocarbon dating of two carbonised hazel nut-shells from this context has produced calibrated radiocarbon dates for the development of this context, as yet unpublished, of 5714 to 5467 cal BC. C007 formed alongside C008, overlying C006.
008	Dark brown sandy clayey silty soil with occasional inclusions of angular/sub-rounded stone (<15 cm long) and anthropogenic material such as animal bone and charcoal. Interpreted as an old ground surface with some evidence of anthropogenic discard, in the form of both food waste and fuel remnants. C007 formed alongside C007, overlying C006.
009	Brown sandy silty soil which graded into a brown silty sandy soil in its upper reaches, with no inclusions, interpreted as a natural interface soil which graded into the machair overburden. Directly underneath machair overburden, overlying C005.

Table 2: Bàgh an Teampaill 2011 digital photo list

Digital shot number	Description
TB11 DP1-6	Pre-cleaning photo of eroding section: south facing section, looking NE.
TB11 DP7-8	Working shots.
TB11 DP9-11	Site location shots, looking NE.
TB11 DP12-14	Detail of E end of cleaned eroding section: south facing section, looking north.
TB11 DP15-17	Detail of middle part of cleaned eroding section: south facing section, looking north.
TB11 DP18-20	Detail of W end of cleaned eroding section from S: south facing section, looking north.

Table 3: Bàgh an Teampaill 2011 drawing list

Drawing number	Section/plan	Scale	Description
1	Section	1:10	South-facing eroding section prior to sampling.

Table 4: Bàgh an Teampaill 2011 small finds list

Small find number	Context number	Description
1	005	Red deer antler tine
2	005	Worked flint lithic

Table 5: Bàgh an Teampaill 2011 sample list

Sample number	Context number	Sample type	Volume (litres)
1	001	Bulk sample	4.0
2	005	Bulk sample	10.5
3	007	Bulk sample	5.0
4	006	Bulk sample	1.5
5	003	Bulk sample	5.0
6	002	Bulk sample	1.0
7	004	Bulk sample	7.0
8	008	Bulk sample	7.0