

Local community groups and Aeolian archaeology: shorewatch and the experience of the Shetland Community Archaeology Project

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1 ABSTRACT

There are hundreds of archaeological sites exposed in areas of windblown sand around Scotland. Once revealed, they are vulnerable to erosion and at risk of total destruction. Many lie in remote areas and members of local communities can play an important role in monitoring and recording such

sites. This paper shows how the Shorewatch Project has involved groups across the country to work on aeolian sites. It gives details of one recent project, demonstrating how archaeologists and local group members can collaborate successfully to save information before it is lost forever.

2 THE THREAT TO SITES BURIED IN AEOLIAN LANDSCAPES

Drifting sand has covered many archaeological sites, leaving them hidden from view until exposed by the action of wind, animals, the sea or humans. Some of the sites become uncovered in plan when the overlying sand is blown away. However, this can cause problems in interpretation as it is common for the wind to remove sediment from both above and beneath structures or artefacts, causing evidence representing hundreds or even thousands of years of occupation to settle together at the bottom of the resulting deflation hollow.

The result is a confusing mix of archaeological evidence and a consequent loss of information and stratigraphic integrity.

Even more damaging to archaeological remains is the erosion of the coastal edge by the sea, which can lead to the rapid destruction of a site once the soft sediment surrounding it has washed away. A combination of high tides and strong winds can cause the coast edge to retreat by tens of metres in a storm, revealing or even destroying entire sites during a single event.

3 SURVEYS OF COASTAL SITES

Archaeological sites within dune systems are therefore highly vulnerable to disturbance or destruction by natural processes. As a first step to managing this threatened resource, it is necessary to map the position and condition of the remains, and Historic Scotland has sponsored a series of Coastal Zone Assessment Surveys (Dawson 2003). The surveys have built upon data gathered by the Ordnance Survey, RCAHMS, local Historic Environment Records and information collected by antiquarians such as Erskine Beveridge (Beveridge 1903 and 1911). The Coastal Zone Assessment Surveys have mapped the distribution of archaeological sites; noted the surrounding geology and geomorphology; and made an assessment of the erosional status of the coast edge. The survey reports can be downloaded from the SCAPE Trust website (www.scapetrust.org).

The surveys have been successful at locating numerous previously unrecorded sites, in some cases quadrupling the number (Brady 1998, 78; Long 1996, 89). Due to the intensive nature of the surveys and the enormous length of Scotland's coast (estimated to be 12,000 km, but see Ashmore 2003, 216), *Archaeological Procedure Paper 4: Coastal Zone Assessment Survey* (Historic Scotland 1996) specified that surveys should only investigate a strip extending between 50 and 100m from the coast edge. This meant that in areas of dune, only the seaward fringes were investigated.

As dunes often cover many acres of undulating land, systematic walk-over surveys are difficult and time-consuming, and large areas still await investigation. Even in areas where survey information has been gathered, it can become out of date quickly. Dune systems are highly mobile and can change with



Illus 1 Cille Pheadair, South Uist, a Norse structure collapsed on the beach in Feb 2005



Illus 2 Cille Pheadair, South Uist, the same structure in May 2005, covered by blown sand

astounding rapidity. Exposed sites can be hidden under sand, while previously unrecorded remains can be revealed in new exposures, sometimes for very short periods (*illus 1 & 2*). Repeat surveys of the coast and aeolian landscapes, perhaps undertaken every five or ten years, are desirable, but

overstretched budgets mean they are unlikely at the present. Remote sensing and other methods of rapidly investigating large expanses of dune, such as described by Winterbottom et al (discussed at the conference), can help in locating sites, but this needs to be followed by detailed survey and recording.

4 SHOREWATCH AND THE ROLE OF LOCAL GROUPS IN MONITORING SITES IN AEOLIAN LANDSCAPES

Many people with an active interest in archaeology live and work near areas of dune, visiting them on a regular basis. With training and guidance they can be a valuable asset, helping heritage managers by discovering, recording and monitoring sites. Recognition of the value of members of local communities in coastal projects led to the formation of the Shorewatch Project, originally started as a partnership between Historic Scotland and the Council for Scottish Archaeology in 1997 (Fraser et al 2003).

Pilot Shorewatch groups were established around Scotland and members were encouraged to search for new sites, recording information which was passed on to local and national records. The groups were supplied with a Resource Pack which provided information on how to participate, including basic details on how to record sites (Gilmour 2001). The original pilot project had a part-time co-ordinator who acted as a focus and arranged classroom-based workshops.

In order to make the individual groups successful, there was a heavy reliance on a local leader, preferably a trained archaeologist, to head the group. As the Shorewatch project developed, it became evident that it wasn't always possible to find such a co-ordinator, and that the Resource Pack alone was not enough to equip group members with the skills necessary to undertake recording projects. It was decided that intensive, practical training sessions were needed to teach group members the skills necessary to record and monitor sites.

Since 2001, Shorewatch has been co-ordinated by The SCAPE Trust. Support from the Heritage Lottery Fund, Historic Scotland, The Crown Estate and the University of St Andrews has provided a full-time and part-time project officer who have been able to dedicate more time to working with the groups. Groups have been established all around the Scottish coast, and these are working in a variety of environments. However, they are not confined to the 50–100m coastal strip investigated during the CZA surveys, and many groups are undertaking projects within areas of dune.

Pro forma recording sheets have been developed and modified after discussions with the curators of the National Monuments Record for Scotland. The forms adhere to standards laid out in the MIDAS Manual (RCHME 1998) and to the ASPIRE protocol (ASPIRE 2005). Equipment has been provided to groups, including hand-held GPS receivers and digital cameras. Group members are asked to take pictures from the same position and facing the same direction during each monitoring visit so that changes to sites and landscapes can be evaluated. Participants send photographs of features and

artefacts to the Shorewatch project officers, allowing an initial evaluation and interpretation to be given, together with advice on further action, without the group having to disturb the site itself.

The project officers have arranged locally based training sessions where groups are taken to a site and taught survey and recording techniques. Repeat training sessions have been arranged to build skills and confidence. The project officers have helped groups plan further action at individual sites, helping them to set up more detailed recording projects. Resources have also been made available on a website dedicated to the project (www.shorewatch.co.uk).

Additional training sessions have been delivered by teams of professional archaeologists working with group members at local sites. These have either been in conjunction with Coastal Zone Assessment Surveys or as part of stand-alone projects. Between 2000 and 2004, five Coastal Zone Assessment Surveys were managed by The SCAPE Trust. The project brief for each of these included a necessity to work with Shorewatch groups. The surveys by EASE Archaeology of three Inner Hebridean islands led to the formation of groups on Coll and Islay (Moore & Wilson 2002; 2003), and both of these groups have been active in areas of dune. Groups were also established by GUARD (Sneddon 2003) and CFA Archaeology Ltd (Cressey & Johnson 2004, Cressey & Badger 2005) during their surveys of the Clyde Estuary.

After time spent locating and monitoring sites, many members of community groups have developed a desire to take their projects further by initiating more detailed recording projects. This is especially true in cases where the group has been monitoring an actively eroding site over a number of years and wishes to retrieve information before its total destruction. As such sites are under immediate threat, the use of local community members to record the eroding remains may be the only option for retrieving any data from it.

In 2004/05, the SCAPE Trust helped develop three pilot projects at eroding sites within aeolian environments (Baile Sear, Brora and Unst), all undertaken by local group members. In each case, the groups have recorded information that would otherwise have been lost.

4.1 BAILE SEAR, NORTH UIST

The island of Baile Sear, North Uist, Western Isles, was severely affected by the storm of January 2005. In places, up to 50 metres of the sandy coast edge



Illus 3 Members of Access Archaeology drawing a plan of eroding structures at Baile Sear, North Uist.

were washed away in a single night. Several new archaeological sites, previously hidden within the dunes, were exposed by the storm. A local group, Access Archaeology, has started to monitor these exposures (illus 3). At one site, they have drawn a series of plans and taken photographs over a period of months. They have noted structures, hearths and artefacts exposed on the beach and in the dune behind. Their work has been co-ordinated by Katinka Stentoft of The SCAPE Trust, and she has published records of their work on the Shorewatch website (www.shorewatch.co.uk/html/accessarch). The drawings reveal that between August and December 2005, up to four metres of archaeological remains were lost, and the site is continuing to erode at an alarming rate. As the sea takes away the deposits Katinka is helping the group develop plans for further action at the site.

4.2 BRORA, SUTHERLAND

At Brora, Sutherland, members of the Clyde Heritage Society (CHS) have been monitoring structures eroding from the dunes on the Back Beach,

south of the harbour. A wall constructed of mortared ashlar blocks lies on the beach immediately in front of the dune. To the north, a second building with well-constructed masonry walls and a flagstone floor protrudes from the dune. The floor is above the present beach level and the structure has been cut in half by erosion. Between the two areas of masonry are deep deposits of burnt material, clinker and other residues.

CHS members have examined documentary evidence and have found a map, dated 1812, which depicts 'Old Salt Pans' marked at the position of the eroding structures. These salt pans were connected with evaporating sea water using coal from neighbouring pits. Records show that the 'Old Salt Pans' were constructed in 1598 but had gone out of use within a few years.

The group also found photographs and drawings of the structures made by members of the local community in the past, which they have compared with the visible remains. Today, much of the wall on the beach has collapsed and its foundations are covered by sand, but the photographs and a sketch plan show over 30 metres of the wall were standing in the 1970s. The documents demonstrate the speed



Illus 4 Members of the Clyne Heritage Society working at the eroding salt pans on the Back Beach, Brora.

with which the structures are collapsing and the urgent need to record the remains before they are lost.

The group (including members of the North of Scotland Archaeological Society) worked with staff from Highland Council's archaeology and survey departments and the Shorewatch project officers to record the extent and condition of the wall situated on the beach. This structure was chosen as it had already been disturbed by the sea and because it presented a safer working environment than the other structures revealed higher up within the dunes. Group members were able to develop simple excavation techniques within a safe environment and with minimum danger of archaeological layers being disturbed.

The aim of the project was to determine whether other parts of the building survived buried within the dune or whether it had been lost to the sea. The group members removed beach sand to reveal the

top of the wall, demonstrating that much of it still survived, albeit mainly at foundation level (*illus 4*). They were at pains not to disturb archaeological layers, and in the doorway, after noting that some deposits remained in situ above the threshold, they immediately stopped working within that area. They made a plan of the wall, drawing it using planning frames and plotting it with a Total Station theodolite. They also surveyed the area around the structure, tying their survey into the Ordnance Survey grid and marking on the position of the coast edge and some of the adjacent bell pits from the abandoned coal mine. After the wall was fully recorded and photographed, it was re-covered.

In 2005, the group continued their investigation at the site in collaboration with CFA Archaeology. They examined the dunes using geophysical survey techniques and augers, and are currently formulating plans for further investigation and partial excavation of the most threatened structures.

5 COMMUNITY ARCHAEOLOGY AT SANDWICK, UNST, SHETLAND

At Sandwick on the island of Unst, the Shetland Community Archaeology Project was instigated by SCAPE in collaboration with the Shetland Amenity Trust and their Shetland's Past project. The archaeological site consisted of a sub-circular mound at the edge of the beach, with an eroding section that revealed walling and occupation deposits (illus 5). It had first been noted by the Unst Amateur Archaeology Group and brought to the attention of Val Turner of the Shetland Amenity Trust. Glasgow University Archaeological Research Division (GUARD) were commissioned to assess the site's archaeological potential in 2004, and excavation proceeded with funding from the Heritage Lottery Fund and Historic Scotland in 2005. The project was designed both to train volunteers in how to investigate eroding coastal sites and to rescue information from the site before it was claimed by the sea.

With excavation set to proceed, at the time of writing, to a second season in 2006, the project has already produced valuable lessons about the most effective ways to assess and excavate eroding sites and to involve volunteers in their investigation.

5.1 THE ASSESSMENT AND EXCAVATION: LESSONS LEARNED

The assessment involved a number of different survey methods: desk-based study, walk-over survey, topographic survey, auger survey, geophysical survey, cleaning and recording of the eroding face and limited tapestry excavation (Lelong & Shearer 2004). The volunteers assisted with and received training in each of the fieldwork elements. The desk-based assessment and walk-over survey helped to establish the character and extent of known archaeology around the eroding mound and the recent history of deflation and accretion. The research highlighted the presence of significant remains of late Norse, Pictish and possibly Viking Age date along the margins of the bay (Bigelow 1978; 1979; 1980; 1984; Hansen 1995). The examination of aerial photographs illuminated the highly dynamic nature of the local Aeolian landscape. The photographs showed that, 60 years before, the area around the eroding mound was largely deflated, with only the mound itself and another circular area to the SSW preserving turf cover. Over the succeeding decades, the turf cover had crept back to its present extent.

Augering over and around the eroding mound established the thickness of the windblown sand deposits and the depth at which anthropogenic soils lay. Geophysical survey, using both gradiometer and resistivity, recorded an anomaly that was interpreted

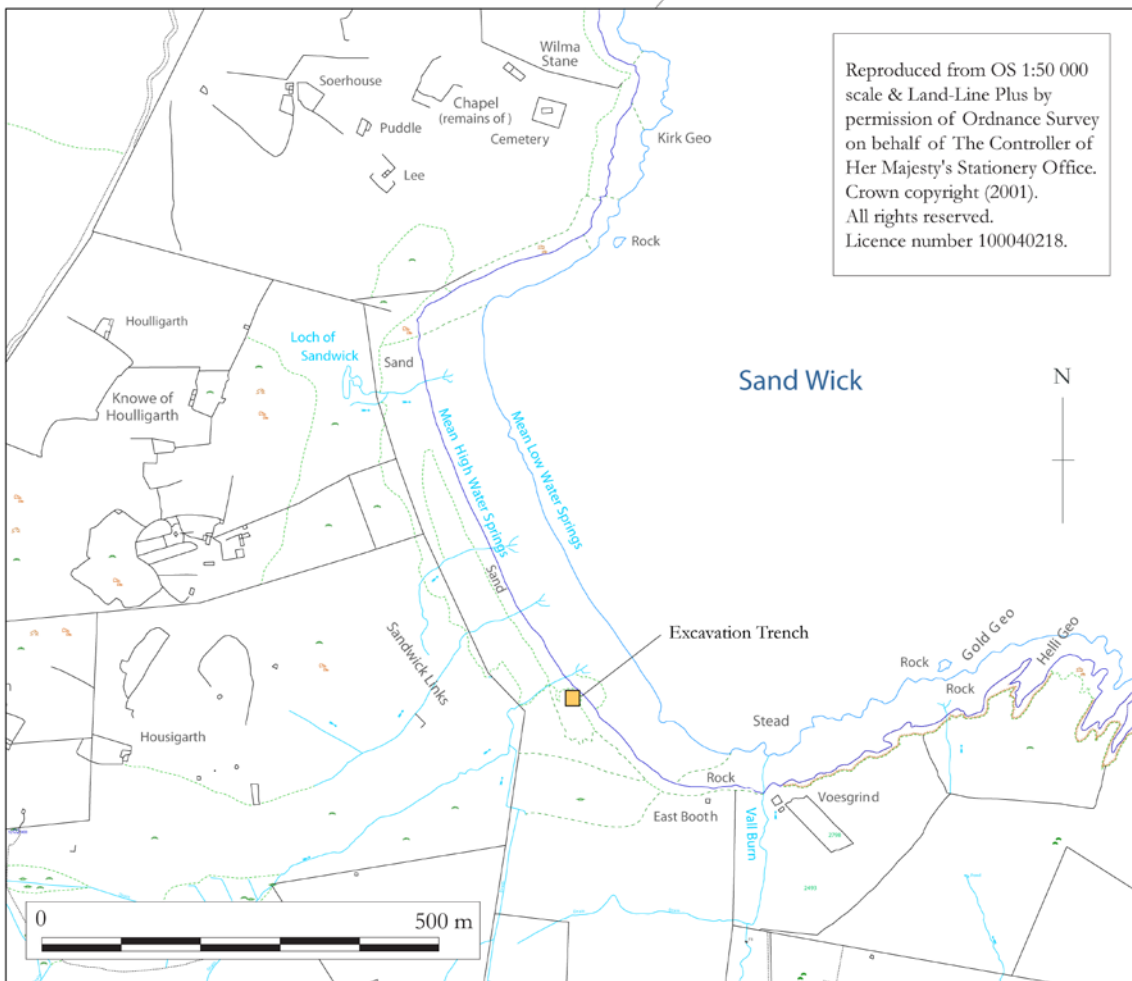
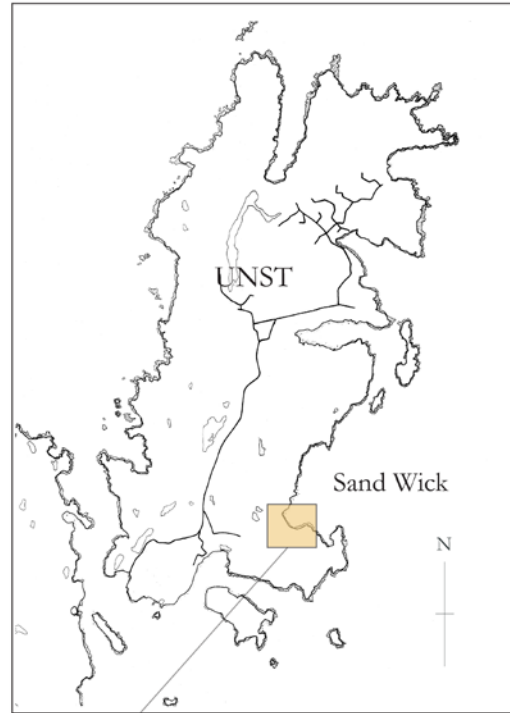
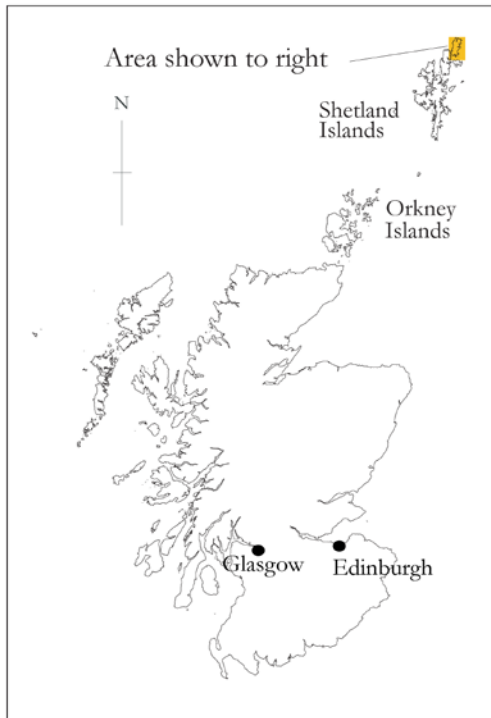
as a large, sub-circular structure sealed beneath the eroding mound, with its seaward edge corresponding to the stonework revealed in section.

Investigation of the eroding face as part of the 2004 assessment involved cleaning of the section face, recording it using scaled photographs and measured drawing, and limited tapestry excavation (the vertical excavation of the site starting from the eroding face, as opposed to horizontal excavation starting from the top). Various portions of coursed and orthostatic walling were revealed, along with over a metre of stratified occupation deposits and about 70 sherds of coarse pottery.

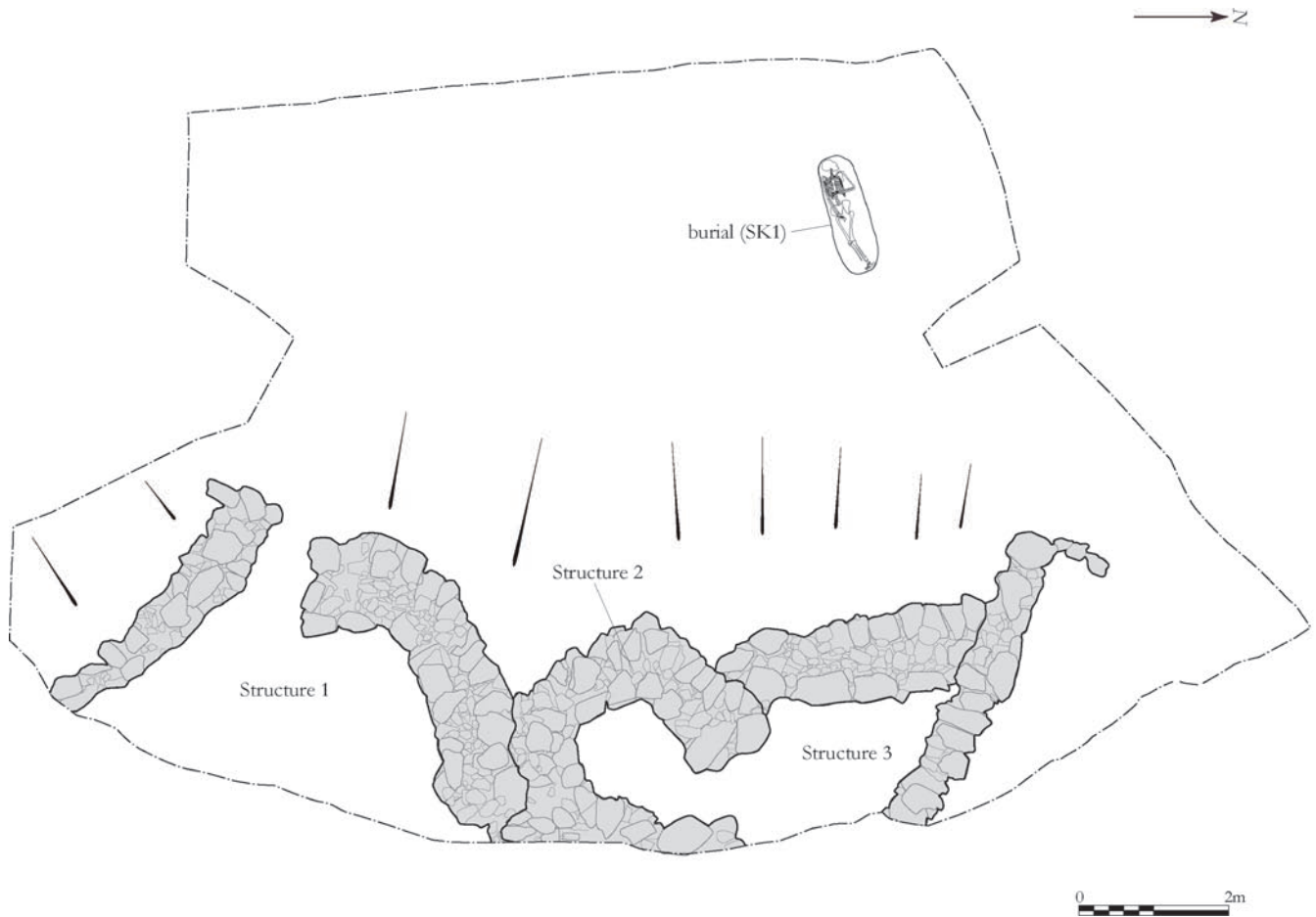
Armed with the understanding of the site gained through the assessment, the team returned in 2005 to open a trench over the mound and excavate it from the top down. The results both proved the value of the 2004 assessment and also revealed its limitations.

The eroding mound proved to seal not a sub-circular structure, but one made up of three partly truncated cells, which together formed a building that followed the arc of the shoreline (illus 6). Re-examination of the geophysical plots in combination with the trench outline (illus 7) showed that the anomaly actually corresponded to these cells. The site's interpretation as a sub-circular structure had resulted from extrapolation of the arcing anomaly, combined with surface interpretation of the mound's shape – which was itself, excavation showed, an artefact of windblown sand. The resistivity plot also showed a high-resistance anomaly at the mound's western edge, and this proved to correspond to some large stones that lay approximately above an extended inhumation burial. The burial had been cut through the thick deposit of windblown sand that built up over the structure after its abandonment. In retrospect, the coring intervals for the auger survey (on a 10m grid) were too coarse to allow informed interpretation of what lay beneath the windblown sand. A much denser grid of cores over the mound would have permitted more accurate prediction of the site's character and extent (although it would also have damaged archaeological deposits to a greater degree).

The structure itself consisted of three cells (illus 8) (Lelong & Shearer 2005). Based on the results so far, the walls – which stand up to 1.5m high in places – partly collapsed in later prehistory; subsequently, the cells saw another phase of use among the ruins. This post-collapse phase left behind a series of hearth and midden deposits in structure 1 and heaps of bog iron or iron-working slag and peat ash in structure 2. Hundreds of sherds of coarse pottery and pieces of animal bone were scattered in



Illus 5: Location map of Sandwick



Illus 6 Plan of trench, structure and burial



Illus 7 Trench outline plus resistivity plot

and around the building during this phase. Later, the local environment seems to have become much windier, as a sandier midden deposit built up inside the cells and partly over the walls. Later still the wind must have increased dramatically or changed direction, and a thick layer of clean windblown sand sealed the whole building and its environs. The burial, which was accompanied by a polished stone disc of probable late Iron Age date, was cut into this layer.

Comparing the excavation results with the assessment results reveals both the value and the drawbacks of section cleaning and tapestry excavation. These aspects of the assessment did provide some idea of the stonework's character and the depth and complexity of the stratigraphic sequence. If the site had been investigated wholly through tapestry excavation, digging 0.5m back from the section face, this method would have revealed the following: the eroded eastern ends of the walls defining structures 1, 2 and 3; a small portion of the trampled occupation and post-abandonment midden deposits in all three cells, including the hearth deposits in structure 1, and perhaps also the relationship between structures 1 and 2. It would, however, have provided no evidence of the shape and size of the cells, of the



Illus 8 Plan of the structure at earlier phase

phasing evident in their walling, of the metalworking debris in structure 2, or of the traces of contemporary and post-abandonment activity outside them to the west, including the burial. This shows the value of the open-area excavation as opposed to tapestry excavation, at least in this case, and the skewed and erroneous interpretations to which tapestry excavation can lead.

In the case of the Sandwick mound, where the eroding face stood up to 1.8m above the beach, health and safety considerations would also have made further tapestry excavation unfeasible. The stonework in the eroding section included large boulders in a loose, sandy matrix, and in some places no matrix at all. During the assessment, some of the boulders in a wave-damaged portion of walling slipped out of place, highlighting the section's unstable character. Open-area excavation through deep windblown sand carried its own health and safety challenges. To prevent the trench sides collapsing, they were excavated (by machine) with a batter of 30 degrees and covered with debris netting weighed down with sandbags to discourage downward movement of the sand. Some of the excavated sand was dumped onto the beach against the eroding face to stabilise it, reduce its height and provide a safe working platform for the excavation staff.

5.2 TRAINING VOLUNTEERS IN COMMUNITY ARCHAEOLOGY AT SANDWICK

Of the 17 volunteers who participated in the 2005 excavation, seven had been involved in the 2004

assessment and three others also had some experience of working on an excavation. They included members of the Unst Amateur Archaeology Group and other Shetland's Past groups, and members of Shorewatch groups from Orkney and the Western Isles.

From the outset, we recognised that our ability to accommodate varying degrees of both experience and availability on the part of the volunteers would be key to the success of the training aspect of the project. The 2005 training programme was therefore designed to be flexible and to build on volunteers' existing skills and knowledge. Some of the skills taught during the assessment were directly transferable to an excavation context – for example, an understanding of basic stratigraphic principles, recording methods and experience in section drawing all proved beneficial. The excavation training applied the same 'building block' formula as that employed during the assessment. Volunteers began by learning basic trowelling and identification skills, before being introduced to recording processes – both written and drawn.

In advance of the excavation, a field manual was produced which included an overview of the site and an outline of the work carried out in 2004. The rest of the manual detailed the basic methods and principles involved in excavation and recording, and included a glossary of common terms. The handbook allowed volunteers who had not participated in the 2004 season to familiarise themselves with the site and refreshed the memories of those who had. It was also designed to allow volunteers to digest what they learned on site at their leisure, and to understand their daily tasks within



Illus 9 Members of the local groups trowelling at Sandwick, Unst

the wider context of fieldwork principles and best practice.

The on-site training consisted of

- trowelling skills and the identification of archaeological features, artefacts and ecofacts (illus 9)
- artefact recording, processing and basic conservation
- environmental sampling and processing
- the written record
- the drawn record
- site tours and visitor liaison skills

When volunteers arrived on site, they received a health and safety induction and a tour of the site. They were each given a copy of the manual and were asked about their previous experience in archaeology, their particular interests and what they hoped to gain from their involvement in the project. This allowed the training programme to be tailored, where possible, to meet individual needs, which was particularly important when someone had a limited amount of time available. As well as having a dedicated training director, the volunteers received close guidance from the professional excavators and supervisors on site. Two dedicated specialist supervisors oversaw the finds recording and processing and the environmental sampling

and processing. Volunteers were assigned to each specialist supervisor on a rotating basis, usually for a day each (depending on how much time he or she could commit to the project), and would assist in all aspects of the recording and processing work.

Public outreach was an important aspect of the project, consisting of a site open day, an evening lecture, visits by local schools and an open doors policy to members of the public. Volunteers were on the whole very keen to assist with site tours, both on the open day and when casual visitors arrived. Giving tours helped to consolidate their knowledge of the excavation and also provided staff with an idea of the level of understanding each person was gaining. From the visitors' point of view, it provided a different, non-professional perspective on the site, and the possibility of encouraging other members of the community to join as volunteers in the second season.

The 2005 season also saw the creation and launch of the project website, <http://www.shorewatch.co.uk/unst>. To operate effectively as a means of dissemination and presentation, a website must be usable, accessible and above all sensitive to its audience. Defining our key audience was therefore a major consideration. In this instance it was felt that the communities within Shetland, Unst and the Shorewatch groups around Scotland should be our primary target audiences.

In terms of site content, all efforts were made to ensure that information was conveyed in an informal but informative manner. Technical terms were explained with consideration for the audience, and it is intended to provide a full hyperlinked glossary section in the near future. The pages contain a background to the project and a synopsis of the work conducted during the 2004 and 2005 seasons, including the 2004 Data Structure Report, available to download as a pdf. There is also a volunteers page, where the volunteers are given the opportunity to voice their thoughts on the project, contact details, an extensive image gallery, links to other local websites and a page of 'Kids' Stuff' with a gallery section including drawings from local school-children and the activity sheet, which is available to download as a pdf.

The website will be revised and extended regularly, with updates on the findings from this year's season and other news. It is hoped that more resources and activities for school-age children will also be made available through the Kids' Stuff pages, providing groundwork for next year's education and outreach work.

The experiences of the 2005 season also revealed some pitfalls to avoid and lessons to be applied in

the second season. The training director has to be entirely dedicated to training, having only peripheral involvement in the site's excavation, in order to properly attend to the volunteers' needs. An even more flexible approach would also enrich the volunteers' experience. Although every effort is made to give each volunteer a chance to learn and practice each aspect of field work, there are times when work on the site has to proceed without training – for example, during phases of intensive recording. At these times, volunteers can receive training in other aspects of fieldwork, such as detailed survey and interpretation of neighbouring monuments.

On the whole, both the excavation and training aspects of the Sandwich project have proved extremely interesting and rewarding, both for the professionals and the volunteers, and the presence of each has enriched the experience of the others. It has also shown that, with professional guidance and support, volunteers can play an extremely important part in the investigation and recording of eroding coastal sites. Indeed, involving volunteers in this way in future projects can both provide much-needed training and rescue valuable information that would otherwise be lost.

6 CONCLUSION

People visit dunes regularly and it would be naive to think that they don't pick up or disturb interesting-looking objects exposed at the coast edge or within deflation hollows. Many people have been noting sites or actively collecting objects for years, and joining a Shorewatch or similar project allows them to harness their enthusiasm for the past. By encouraging inclusivity and actively involving members of the local community in practical projects, skills are transferred and, more importantly, the value of archaeological fieldwork and recording is demonstrated.

It is acknowledged that filling in recording sheets

can be viewed as a tiresome chore, but if the reasons behind it are demonstrated in a practical way, the value is soon appreciated. In many cases, it is only after undertaking tasks over several days that group members learn why archaeologists insist on recording in meticulous detail. Not only can the local group members actively help archaeologists by locating and monitoring sites, they are also able to transfer their skills and knowledge throughout the community, explaining to others the value of archaeology and helping to safeguard threatened and vulnerable remains.

7 REFERENCES

- ASPIRE 2005 *Archaeological Standard Protocol for the Integrated Reporting of Events*. Aspire Project Team, Glasgow.
- Beveridge, E 1903 *Coll and Tiree: Their Prehistoric Forts and Ecclesiastical Antiquities, With Notices of Ancient Remains in the Treshnish Isles*. T & A Constable, Edinburgh.
- Beveridge, E 1911 *North Uist: its archaeology and topography; with notes upon the early history of the Outer Hebrides*. William Brown, Edinburgh
- Bigelow, G F 1978 'Unst, Norse-Medieval settlement', *Discovery and Excavation Scotland*, 18.
- Bigelow, G F 1979 'Unst, late Norse settlement', *Discovery and Excavation Scotland*, 27.
- Bigelow, G F 1980 'Sandwick, late-Norse settlement, pre-Norse burials', *Discovery and Excavation Scotland*, 26–7.
- Bigelow, G F 1984 'Two kerbed cairns from Sandwick, Unst, Shetland', in J G P Friell & W G Watson (eds), *Pictish Studies: Settlement, Burial and Art in Dark Age Northern Britain*. Oxford: BAR British Series 125, 115–30.
- Brady, K J & Morris, C D 1998 *North Sutherland Survey: Coastal Zone Assessment* (2 vols). Glasgow University Archaeological Research Division report 516/516.2, Glasgow.
- Cressey, M & Badger S 2005 *Coastal Zone Assessment Survey Kintyre and the Isle of Arran*. CFA Archaeology report 997, Edinburgh.
- Cressey, M & Johnson, M 2004 *Coastal Zone Assessment Survey Firth of Clyde and Isle of Bute*. CFA Archaeology report 876, Edinburgh.
- Dawson, T (ed) 2003 *Coastal Archaeology and Erosion in Scotland*. Historic Scotland, Edinburgh (available at www.historic-scotland.gov.uk/coastalconferenceproceedings).
- Fraser, S, Gilmour, S & Dawson, T 2003 'Shorewatch, Monitoring Scotland's Coastal Archaeology' in T Dawson (ed) *Coastal Archaeology and Erosion in Scotland*. Historic Scotland, Edinburgh.
- Gilmour, S 2001 *Shorewatch: Monitoring Scotland's Coastal Archaeology Pilot Phase 3 Final Report*. Council for Scottish Archaeology archive report, Edinburgh.
- Hansen, S S 1995 'Sandwick North (Unst parish), Norse farmstead' *Discovery and Excavation Scotland*, 105–6.
- Historic Scotland 1996 *Coastal Zone Assessment Survey: Archaeological Procedure Paper 4*. Historic Scotland, Edinburgh.
- Lelong, O & Shearer, I 2004 *Sandwick, Unst, Shetland: An Archaeological Assessment*. GUARD Report 1833.
- Lelong, O with a contribution by I. Shearer 2005 *Sandwick, Unst, Shetland: Data Structure Report*. GUARD Report 1969.
- Long, A 1996 *Coastal Assessment Survey, Ullapool to Lochinver* (2 vols). Unpublished report to Historic Scotland.
- Moore, H and Wilson, G 2002 *Report on a Coastal Zone Assessment Survey on the Islands of Coll and Tiree*. EASE Archaeology archive report, Edinburgh.
- Moore, H and Wilson, G 2003 *Report on a Coastal Zone Assessment Survey of Islay*. EASE Archaeology archive report, Edinburgh.
- RCHME 1998 *MIDAS: A Manual and Data Standard for Monument Inventories*. National Monuments Record Centre, Swindon.
- Sneddon, D 2003 *Coastal Zone Assessment Survey Firth of Clyde*. GUARD report 1309, Glasgow.