The St Kilda Archaeologists' Annual Report, 2011



The 'altar' on Soay

Ian McHardy and Carol Knott, December 2011

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1.0 Executive Summary

This report summarises the work undertaken by the National Trust for Scotland's St Kilda Archaeologist (SKA) from April to December 2011. This year a new system of job sharing was trialled, with two professional archaeologists, Ian McHardy and Carol Knott undertaking a 3:2 split of the on- and off-island work.

The on-island work comprised the supervision of three Work Parties in May and June. which included a small trial excavation in Blackhouse F, the coastal erosion survey, monitoring the 313 cleits in the Cleit Preservation Programme (CPP), a rapid assessment of the extent of bracken spread, excavation in advance of repair of Blackhouse B south wall, completion of the written recording of the blackhouses and houses for the Trust's SMR database, photographic recording of the Ruaival enclosures (E50–53), a survey of cleit turf roofs within Village Bay, and a day on Soay with Jill Harden to note the 'altar', bothies, cleits, and other features there.

The off-island work included writing this summary of the season's activities, a report for Discovery and Excavation in Scotland, Data Structure Reports for Blackhouse B and F, and reports on coastal erosion and the cleit turf roofs within the head dyke in Village Bay. Further work is currently underway to complete the filing of all of the digital and print images associated with work undertaken on Hirta over the last decade, to update the Trust's SMR database, and to prepare reports on the history of the Gun, the Church and the Factor's House in advance of conservation works over the coming years.

2.0 Introduction

The archaeological resource of St Kilda has had a full-time or seasonally dedicated staff member since 1996 and a report on their work has been produced annually. This year the post was shared between Ian McHardy and Carol Knott, a previously untested arrangement which has worked out well for all concerned.

The post of St Kilda Archaeologist is recognised in the current Management Agreement between the Trust and Historic Scotland (HS) as 'pivotal to the management of the prehistoric and historic structures of St Kilda' (2007, 11). The SKA is involved in a number of tasks including monitoring, guidance, conservation work, fieldwork and interpretation, and associated administrative tasks. The position is managed from Inverness by Susan Bain, Western Isles Manager for the Trust, with archaeological advice and guidance from Jill Harden. The work is funded by the Trust with support from HS.

3.0 On-island work: April–September 2011

3.1 Work Parties' works

The on-island work commenced with the supervision of Work Parties. Many varied tasks were undertaken, but the bulk of the archaeologically sensitive work this year was drain clearance, dyke repairs and cleit roof repairs. Conservation repairs were completed on the walls and lintels of cleitean 26, 28, 346, 805, 832 and 1000, with major input from a professional dyker Innes Watson, and the turf roofs of cleitean 30, 33, 38, 40, 61, 66, 67, 106, 107 and 109 were patched. Short stretches of various drystane dykes were repaired and all of the open drains and water courses – a few over 100m in length – were cleared out.



Clearing out the street drain above the Store



and the soak-away at the rear of House 5

The list of archaeologically sensitive works completed can be found in Appendix 1; there is a report on the lessons learnt regarding cleit roof repairs in Appendix 2.

3.2 House and Blackhouse recording

The written recording of the blackhouses and houses for the Trust's SMR database was begun by the SKA George Geddes in 2008 with the recording of Houses 1 to 7 and 16 and Blackhouses A to L, together with some details of the Manse, Church and Schoolroom. This year's work to record the remaining Houses 8 to 15, Blackhouses M to Z and the Bull's House largely completed this stage of the recording. The information was gathered in a systematic form comprising, where available, evidence for windows and window openings, doorways, roofs, chimneys, gables, construction, interior arrangements, exterior finishes, annexes and attached enclosures and rear and side drains, in addition to basic dimensions. All details of this work are being entered on the Trust's database, along with the data relating to works undertaken on each of the buildings since the Trust acquired the property. The records will be updated as future monitoring and repairs are carried out.

An important outcome of the 2011 blackhouse recording was to demonstrate the extent to which the blackhouses had been remodelled since their original construction in the 1830s or before. It appears, for example, that all of the surviving northern annexes were of secondary build. Blackhouses U and V also formerly had annexes which were subsequently demolished. Blackhouse T appears never to have had a separate annex but, instead, had been extended northwards with a new section containing the second window. The southern walls of many of the blackhouses also appear to have undergone alteration and rebuilding and, finally, gables were added to many of the blackhouses. These modifications to the St Kilda blackhouses suggests that there is still much that can be understood about their development and changing role over a century and more up to 1930.

Recording of the unrestored houses revealed the extent to which rendering survived on the interior and exterior of the walls. All of the exteriors of the houses were at one time rendered, and 'struck-out' on the front elevations to resemble ashlar blocks, as currently displayed on the Factor's House. The sides and rear were also struck-out, but here with more variation, the gable walls sometimes showing narrowly-spaced, uneven horizontal banding, clearly executed free-hand. Where more than one coat of render could be discerned, the striking-out was observed only on the earlier layer, as in the case of House 11. External render tends to survive best on the upper gables, perhaps a consequence of removal of the render on more accessible areas by early Work Parties (S Bain, pers comm).

Interior plaster was occasionally also irregularly struck-out ashlar-style, such as in Houses 9 and 12, and in House 9 the press had been plastered and carefully decorated with a free-hand lattice pattern (quite distinct from scoring which it superficially resembles). Although the interior plasters survive in a fragmentary and decayed condition, much affected by recent re-pointing, they still preserve much information about the dimensions, layout and decoration of the interiors of many of the houses.



Press in east wall of House 9, preserving lattice pattern incised into plaster between shelves

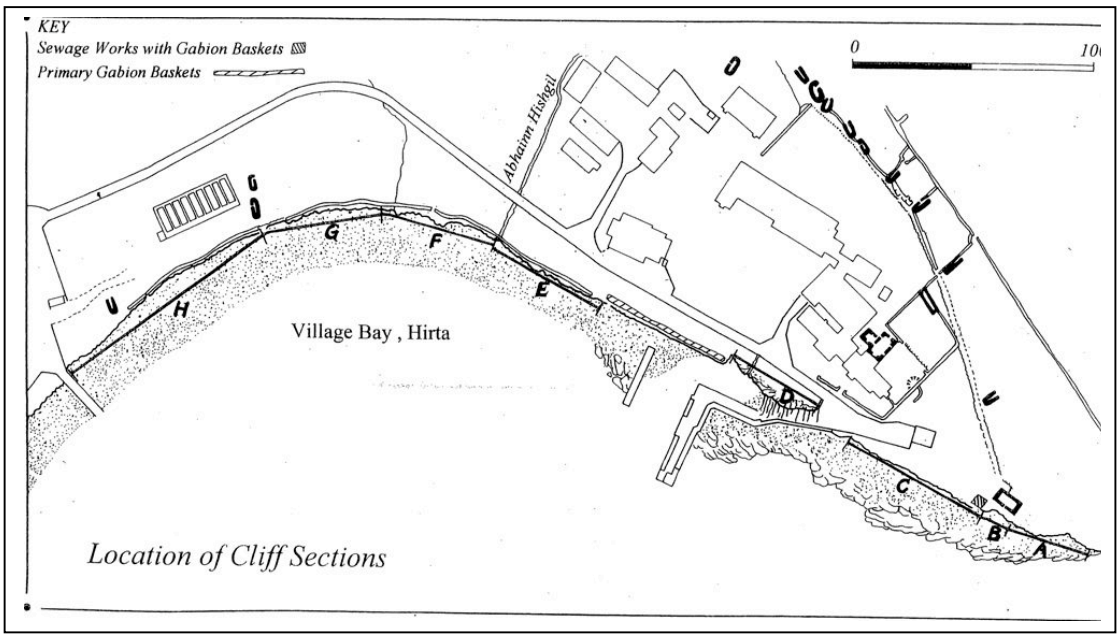


Fragmentary remains of irregularly struck-out render on east gable of House13

The exterior renders, equally, preserve information about the intended appearance of the houses. Recording of Houses 1 to 16 has reinforced the inference that they were built on similar lines to the Factor's House with the same exterior finish and appearance, but on a rather humbler scale and lacking porch and attic rooms.

3.3 Coastal erosion monitoring

Coastal erosion monitoring is an annual documentation of the rate of erosion around Village Bay. It developed out of a specific concern about cliff erosion of exposed soil profiles and related built structures and deposits around the eastern part of Village Bay. The survey has been carried out every year since 1996 (Johnstone 1996a, 6–7), although a specific methodology for the monitoring work was only established in 1999 (Johnstone, 1999b). This divided the coastline into sections A –H (see below) and required regular photography (see Bain 2002b, Dennis 2006b, Geddes 2008). A 'full' set of photographs, taken facing straight on to the eroding cliff from the beach, was produced in 1996, 1999, 2002, 2006 and 2008, and is supplemented in the years between by additional images taken only if change is noted. In 2011 a new 'full' set was taken and a full report has been written. A summary of results is presented here.



In 2010 it was agreed that an additional assessment method should be trialled. A series of pegs was set out around the top of the coastal edge so that accurate measurements of erosion could be taken. It was hoped that regular measurements would give an indication of the more subtle extent of erosion. Dependent on the decisions made regarding the recommendations below, the measurements may be recorded in 2012.

The coastline continues to actively erode, with the photographic survey picking up most obvious changes in sections C, E and F. Unglazed potsherds were recovered from sections E and F and clay tile fragments from section A, confirming that a gradual type of erosion not generally picked up by the photographic methodology is also taking place.



Area of erosion in front of Store exposing shards of clay tile and a burnt deposit

Discussion with recommendations

Major issues
Two significant upstanding structures are directly threatened by erosion: the 19th century dyke running around the coastal edge, especially at the outfall of the Abhainn Illisgill, and the Store. As identified on repeated occasions since the storm of winter 2001/2, approaches to the long-term management of these structures requires urgent attention. This issue is noted in both the over-arching St Kilda Management Plan and the Management Agreement with HS both of which are to be ratified in 2012.

In the case of the Store, a short-term compromise could be to protect the vulnerable corner with more temporary gabion baskets, even though this would displace the problem further east. The bedrock section of the cliff is higher to the east so this displacement may not be overly problematic. A decision is required on this proposal.

In the case of the outflow of the Abhainn Illishgill, a conservation repair is possible if action is taken quickly, creating a strengthened wall-base capable of withstanding the expected erosion. This should be undertaken in 2012 by skilled drystane dykers.

Subtle changes
As in 2010, the discovery of new finds from three sections of coastline indicates that erosion is happening in a constant but subtle way that is difficult to pick up from photography alone. It seems that the current methodology works well for discerning larger scale, 'catastrophic' movements, but not so well for smaller incremental changes. It seems likely that this subtle erosion is happening throughout sections A–G, as all have areas of open soil and subsoil above the bedrock cliff.

Unrecorded changes
A further methodological concern is that the length of coast monitored omits other important eroding areas, as discussed by Dennis in 2006 and Geddes in 2008. Most pressing is an area of eroding coastline towards Ruaival. A landslip down the cliff edge in 2011 demonstrates the on-going concern we should have for erosion in this and the other areas. Handmade pottery was found in an erosion scar near here in 2010 and consent was immediately sought from HS for the setting out of a series of pegs around the top of the coastal edge here too, so that accurate measurements of erosion could be taken. This has yet to be progressed.

Other areas worth considering for monitoring are the coastal edge of Gleann Mor and the west side of Village Bay, although they are perhaps less threatened.

Broader issues
Coastal erosion has been recognised as a major issue for property management since 2002, and various issues associated with it have been noted for action in the St Kilda Management Plan. Therefore, could the archaeological reasons for the monitoring work be met in other, less time-consuming, ways?

If the main archaeological aim is to identify instances of threat to upstanding structures or buried archaeological features so that actions can be planned and carried out to salvage or pro-actively excavate deposits before there are catastrophic events, then this might be better achieved by other means. The SKA could prepare proposals for a much more focussed archaeological approach to this issue, covering options for assessment, procedures for deciding appropriate actions, and the means of organising and carrying out the agreed interventions.

An associated aim of the current monitoring work is to salvage artefacts from what are generally the manured soils that are eroding around the cliff edge. Proposals for a methodology for this retrieval could also be developed.

If such approaches were to be adopted to address archaeological issues, then property management could adopt other methodologies for monitoring details of coastal edge change. A paper given by Mario Hernandez of UNESCO to the 'Remote access to World Heritage sites' conference in 2011 referenced the use of high resolution satellite imagery to map the coastline to an accuracy of 10mm. Undertaken remotely, potentially free of charge, this could be a much more cost-effective way forward. Alternatively, a commissioned 3-D topographical Digital Terrain Model (DTM) showing the cliff edge and the cliff profiles at various points, updated every year, would be another accurate method of monitoring the problem, although potentially more costly.

Whatever approaches are taken forward there is a clear need to regularly review the data to ensure appropriate measures can be planned and actioned on the property.

3.4 Cleit monitoring

Cleit monitoring takes place every year. A total of 313 cleitean are included, about which notes and photographs are taken should any change be apparent. Within the head dyke one cleit, 104, suffered from collapse this summer. Outwith the head dyke, collapse was observed on two cleitean (686 and 908), and slight collapse at a further

six (154, 288, 421, 482, 900, 906). Cleit 346 exhibits a bulge on side C. A further 27 cleits were suffering a missing stone or two, and erosion of the turf roof only was observed on 50. There were 116 cleits that were exactly as in the previous survey. A complete list of the changes to the monitored cleitean with notes can be found in Appendix 3.



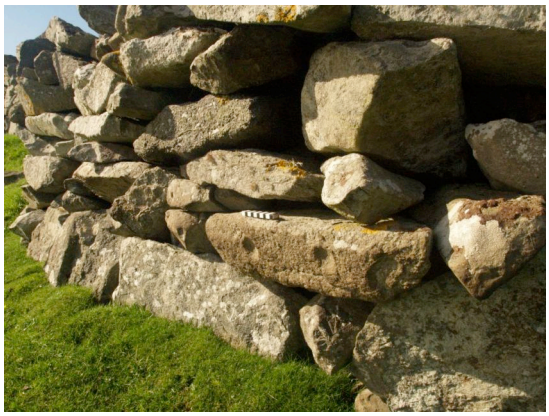
Collapse at Cleit 104, within the head dyke in Village Bay.

There was no distinct pattern to the changes from area to area, although it was reasonably clear that the degradation of the turf roofs happens both in the areas within the head dyke where the sheep are more concentrated, and in areas most exposed to the weather.

3.5 Enclosure monitoring

The four enclosures towards Ruaival (E50–53) were recorded by digital photography. Images were taken along the interior and exterior of each drystone wall, with a photo every two metres, plus overlaps, to ensure that every stone was included. Only the enclosures between the head dyke and Ruaival have now to be fully recorded in this way.

An intriguing discovery made during this work was that of a stone around 0.7m in length built into the wall of Enclosure 53, which appeared to have at least two shallow circular depressions (approximately 50mm in diameter) in the outer face. The origin of these features has not yet been established – further assessment will be carried out next year.

Stone in Enclosure 53 with circular depressions

3.6 Blackhouse excavations

3.6.1 Blackhouse F excavation

A trial trench was excavated within Blackhouse F as part of the Work Party conservation works. This blackhouse has been used for many years as a dumping ground for excess building materials, which the Trust is gradually removing. In order to complete this without risk to any *in situ* archaeological deposits the excavation aimed to reveal their depth below the current ground surface and the nature of their upper surface.

A trench was opened at the south end of the interior of the blackhouse. Measuring 3.3m east–west and 0.8m north–south, six post-1930s contexts were recorded. No pre-1830s finds were encountered and the excavation was curtailed as soon as *in situ* archaeological deposits were recognised.



A small camp-style fire had been set in the south-west corner of the blackhouse after the building had been abandoned and the roof had fallen in. After this an amount of 'rubbish', or 19th century occupational debris, had been dumped in the ruins of the building. Subsequently, sandy gravel and stones had been dumped in the blackhouse by NTS Work Parties, mainly in its northern half but extending to a lesser extent over the whole internal area.

Blackhouse F trial trench, from east

3.6.2 Blackhouse B excavation

During 2010 it was noted that the southern wall of Blackhouse B adjoining the village street was bulging, and that a collapse would be a H&S risk. A project design was therefore agreed with Historic Scotland, whereby the vulnerable section of the exterior face was to be recorded and carefully dismantled, all archaeological deposits encountered recorded and the wall re-instated in as close to its original form as possible.

There have been few previous opportunities to examine and characterise the construction of St Kildan blackhouse walls, earlier excavations (Emery 1996, Quine 1983 p25-43, Bain 2003 p8) being limited in scope. The objectives of the excavation were therefore to gather as much information about the blackhouse wall building methods and materials as possible.

The whole of the southern end of the structure displayed a number of construction breaks, on both internal and external faces, suggesting that the wall had undergone a number of alterations since its original construction. A photograph taken in 1987 showed that the latest rebuilt section, which was now failing, had been inserted some time after the photo had been taken and differed noticeably from the pre-1987 work. No attempt was therefore made to number and replace the stones exactly. Investigation showed that this repaired face had not been tied into the earth core behind, but had been built as a drystone skin with uncompacted stones and soil packing behind (this collapsed shortly after work began). The post-1987 repair was overlain by a layer containing modern items, including a plimsole, just underneath the wall-head turf.

To the west and east, the repair had abutted earlier, well-built sections of exterior wall face, with residues of earth bedding and through stones tying into the solid earth wall core behind at regular intervals. Even these may not represent the original face of the southern and eastern walls, as there are construction breaks at the south-western corner of the blackhouse and just north of the doorway. Both of these sections, however, are likely to be the handiwork of St Kildan builders.

Behind the failed repair and its packing was a stable solid earth wall core of several layers, becoming more compact towards the base. It was not possible to demonstrate whether or not this was primary. Below the wall repair was a thin layer of gravelly clay, 20-30mm thick, overlying the natural subsoil. Bulk soil samples were taken of this and of the wall core strata. Finds of 19th and 20th century date were recovered from the upper soils but most were returned to the wall upon re-build, as per Trust policy.

The excavation demonstrated the complexity of alterations and repairs to the blackhouse wall, both pre- and post-1930. This seems to relate especially (although by no means exclusively) to the south walls of the blackhouses along the Street, perhaps reflecting the greater stress on the lower end of the building and, in the case of Blackhouse B and others, perhaps a slight truncation of the southern ends of the buildings against the Street, with reconstruction to a more rectangular plan.



Blackhouse B: full extent of excavation



Blackhouse B: rebuilt wall-face after excavation, before replacement of wall-head turf

3.7 Bracken survey

Bracken spread is an issue for the management of archaeological sites, as the rhizome systems mix and therefore destroy any layers below ground, while the fronds can obscure upstanding features. The extent of bracken across the crofts in the Village Bay area was surveyed in 1963. This survey was repeated in 1997, 2004 and again this year.

Huntley (1997) and Bain (2004) worked with volunteers and split the bay into sections which were then walked over. Pin flags were placed at the extent of each bracken patch and this information was transcribed onto a map. Density of bracken cover was noted as either 'presence' or 'dominance', where dominance was defined as no less than 75% of vegetation cover.

In 2011 transects of the area within the head dyke were walked over and the edges of the bracken patches noted but, due to lack of man-power, there was no attempt to record areas of dominance. Maps of the extent of bracken in 2004 and in 2011 are provided in Appendix 4.

The extent of bracken across the ground in Village Bay has clearly increased. While its growth is not vigorous, only reaching around 300mm in height, the effect of the rhizomes is not known. It is recommended that a small trench, say 2m by 2m, should be excavated in one of the densest areas to reveal the rhizome depth and extent in the underlying soils. This information could then be used in the decision making process as to whether to control the bracken or not.

3.8 Cleit turf roofs assessment

All 72 cleit turf roofs within the Village Bay area which are known to have been repaired since 1996 were surveyed in August and a report was produced, summarising the work carried out to each and its degree of success, together with a consideration of issues affecting the success of these repairs.



Cleit 30: turf roof condition before and after repair in 2011. This vulnerable roof is prone to sheep damage but replacement of eroding sides with new turf may prove successful.

About 60% of the repaired roofs were frequented by sheep, and it was abundantly clear that these were less successful than those which were not grazed. Grazing often down to the roots can be seen to prevent new turf from establishing and to render turf more prone to drying out, dying back, and eroding. Selective grazing of more palatable species such as Red Fescue also results in the loss of species more likely to thrive in the cleit roof environment. Trampling, scraping and scratching by sheep was also found to abrade and break up the roof surface. Priority could be given to maintaining roofs which are not accessible to sheep, and methods of protecting selected cleits from sheep should be considered.

A second if lesser factor affecting the success of turf repairs is exposure to drought, causing shrinkage of individual turfs, gaps opening between, and dying back of vegetation. Although repair methods have been developed in recent seasons this may be improved further by experimenting with work at different times of year, and by sourcing turf with a minimum of the less viable species, especially ryegrass. Even successful roofs which have reached a state of equilibrium may be subject to wind erosion, particularly along the wall heads, and this is likely to require minor but continuing intervention to prevent bare, eroding wall heads.



Cleit 23 viewed from the west in 1976

Cleit 27 to the west



Cleit 23 viewed from the east. This is an example of the loss of a reasonably healthy roof since 1976. It is accessible to sheep, as well as being prone to wind erosion

3.9 Features and finds

As usual a few archaeological discoveries were made over the summer. In addition, record photographs and notes were made relating to features which had not been fully recorded during the RCAHMS/NTS mapping project, although they had been noted by others, including Mary Harman, Susan Bain, *et al*. This included the substantial revetment that runs along a contour below the summit of Bioda Mor on Dun.

A new length of turf dyke was discovered east of Claigeann Mor, running SW-wards from the known dyke around the head of Gleann Mor. Two up-ended stones were recorded on Conachair, though what either relate to is unknown. A line of 20th-century post settings leading towards Mullach Geal was also recorded, presumably relating to the wooden stakes reported in the 2010 annual report. In addition, it was noted that one of the small paving slabs between House 9 and Blackhouse K appears to have a small, man-made, circular depression in it.



Length of turf dyke E of Claigeann Mor and one of the up-ended stones above Glacan Conachair

During the turf roofing work small fragments of whale bone were retrieved from cleitean 66 and 67, but they were insufficiently preserved to determine whether they had been worked. Findings of whale bone are not unprecedented on St Kilda (Emery 1996, 103), and in 1897 part of the mandible of whale was observed being used as a door prop in Cleit 122, probably derived from a 28 foot whale found floating off Hirta the previous year (Harman 1997, 226). As is so often the case, the broken ends of two hoe blades were found amongst the roofing materials of Cleit 67 and examples of suspected fire-cracked stones were also observed. These last finds resulted in Ian McHardy carrying out an experimental burning of stones of both granophyre and dolerite type for a comparative study. The heat-shattered results will be kept on St Kilda as reference material.

In keeping with agreed Trust policy, practically all of the finds were returned to the structures where they were found. The finds that will be notified for allocation by the Treasure Trove Panel include sherds of handmade pottery from various locations across Village Bay and the retained artefacts of 19th and 20th century date from the Blackhouse B excavation.

3.10 Mapping on Soay

In July Jill Harden and Ian McHardy, accompanied by ornithologists Stuart Murray and Gina Prior, undertook a day's recording work on Soay as part of the RCAHMS/NTS mapping project of the whole archipelago. The day was amazing: one of blue skies and sunshine with a perfectly calm sea for the landing. Having noted and photographed the 'altar' and the features around it close to the break of slope at the top of the cliffs, the structures amongst the boulder field opposite the Cambir were

recorded. Not only are there around two dozen cleits and three bothies, there are also a number of rock shelters and a few shieling huts. Each has been GPS located to an accuracy of less than 1m, although those closest to the cliffs will have to be returned to as the satellite reception failed there.

3.11 Researchers, media and other visitors

A team from the Scottish Ten Project, led by Historic Scotland in partnership with the Glasgow School of Art, spent two weeks over June/July on St Kilda gathering data for their 3D survey, using Terrestial Laser Scanners, GNSS devices and 360° photography. Structures within the head dyke were recorded, along with some of the field system at An Lag, and the Amazon's House in Gleann Mor. Detailed imaging of the three slabs with incised crosses was produced, wide-scale scanning of the Village and the surrounding terrain was undertaken, and finally a LiDAR survey of the entire archipelago is to be progressed.

Geological fieldwork was carried out on Hirta, the main island of St Kilda, from 10 May to 13 May 2011, by a team from the School of Geography and Geosciences, University of St Andrews, led by Colin Ballantyne. The aim was to establish whether the archipelago had been over-ridden by the last ice sheet, and if so to what altitude and at what period. Scheduled Monument Consent was granted for this work which involved the taking of samples from glacial erratics, in co-operation with the SKA. Regrettably, one sample was taken from a prominent part of the Milking Stone. This has now been returned to St Kilda, and will be replaced following consultation with Historic Scotland.

A small team from RCAHMS and the Trust were on Hirta for 10 days in May, waiting for a weather window to access Soay. In the end they abandoned the attempt, which was eventually completed in late July, as noted above. However, while they waited, other work was undertaken. Sites between Carn Mor and the Cambir were recorded in areas not accessed during the main RCAHMS mapping exercise, and condition photographs were taken of specific structures across Hirta. In addition, Strat Halliday recorded numerous hoe blades incorporated into the walls of structures in Village Bay, a project initiated by Professor Andrew Fleming.

Guided tours of the archaeology of Village Bay were given to Work Parties and researchers from the Soay Sheep Project. The latter team were on the island for the annual catch from August 5th to 19th. No fallen stones were reported or observed, but since 2008 there has been noticeable change in the head dyke where the sheep are made to jump over into Enclosure 2. Other areas of possible concern are the insertion of stakes between the drain capping stones at House 10, the fact that sheep are being driven over the cross-marked slab into the trap in House 10, and that nets are being secured by pegging between the stones of the head dyke adjoining Cleit 155. It has been agreed that this last concern will not be repeated in future. However consideration should be given as to how to mitigate the other two matters before the 2012 catch takes place.

Media coverage was not particularly intense this summer: an interview was given to reporter Jen Dempsie for publication in the Sunday Express which appeared on September 11th and an interview was recorded for future use in the proposed St Kilda Centre in Uig.

3.12 Staffing

This was the first year of a job-sharing trial which saw the sharing of tasks on- and off-island between two archaeologists, Ian McHardy and Carol Knott. Work was divided 60:40 between Ian and Carol respectively. This arrangement proved to be beneficial to the quality of work produced, as we both have different areas of knowledge and experience. This was especially true towards the end of the summer when we were both on-island for the Blackhouse B excavations and subsequently helped each other carry out surveys of the blackhouses and houses, and undertake the photographic recording of the enclosures towards Ruaival.

4.0 Off-island work

The off-island winter work has consisted of drafting a report for Discovery and Excavation in Scotland, Data Structure Reports for Blackhouse B and F, a report on coastal erosion monitoring, the cleit turf roof assessment and an article for the Kilda Mail, as well as this annual report. As part of the preparation for 2012, a report on the history of the Gun is being compiled in advance of its conservation. Work is also continuing on the labelling and filing of digital and print images from work undertaken on Hirta over the last decade, as well as the updating of the Trust's SMR database.

2011 saw the publication of various books and articles. *Winds of Change: the Living Landscapes of Hirta, St Kilda,* by Jill Harden and Olivia Lelong, was published for the Trust in June. George Geddes, the St Kilda Archaeologist in 2008, produced Conservation Statements for Calum Mor's House and the Amazon's House, which will enable the Trust to prepare proposals for conservation repairs to both structures in 2012. An article on 'Surveying St Kilda, life on the edge', by Angela Gannon and Ian Parker of RCAHMS appeared in the February 2012 edition of Current Archaeology, detailing the success of this joint NTS/RCAHMS project.

5.0 Proposals for on-island work 2012

On-island work this year will include the annual cycles of cleit monitoring, advising the Work Parties during any archaeologically sensitive works they undertake, and providing watching brief cover as required by scheduled monument consents for various works in Village Bay. In addition, the quinquennial survey of the shieling structures in Gleann Mor will be carried out, and further monitoring photos will be produced as necessary for the enclosures and planticrues around Village Bay. Methodologies for future monitoring of coastal erosion will be prepared and there will be facilitation of the production of proposals to consolidate and conserve the Amazon's House.

Specific interventions this year will include a major repair to the drystane walling at the coastal edge outflow of the Dry Burn, repairs to cleits 104, 686, and 908, and minor repairs at a further five (154, 288, 421, 900, 906) but not cleit 482 as this is a 'monitor-only' example. Conservation repairs will also be undertaken on the turf cover at Calum Mor's House and the revetted sides and base of the Abhainn Illishgil.

6.0 Acknowledgements

The work of the SKA would not be possible without the financial support of Historic Scotland. The enthusiasm and hard work of all the volunteers was much appreciated and will ensure that Hirta's buildings will be there for future generations. Thanks are due to Jill Harden for archaeological advice, support and editing of this report and, of course, Susan Bain for her good natured management. As always, invaluable support of countless forms was provided by QinetiQ, Amey, ESS and Movecon staff, as well as friendship and camaraderie so essential for spending a summer on St Kilda. This also applies to the Mouse project, Fulmar project and Sheep project staff. Huge thanks and respect are also due to Angus Campbell and Seamus Morrison for all their able help, often achieving tasks well beyond the call of duty, and especially for safely undertaking expeditions to the smaller islands. St Kilda would be a lot more remote without their knowledge and expertise.

7.0 Distribution List

This report is sent to the following:
Trust offices at Balnain House, Inverness and Hermiston Quay, Edinburgh
Historic Scotland
Scottish Natural Heritage
Western Isles Archaeologist, Stornoway
Leabharlann nan Eilean, Stornoway
RCAHMS
St Kilda offices

Further copies can be requested from the Western Isles Area Manager, Balnain House, 40 Huntly Street, Inverness, IV3 5HR

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Bain, S **2006** Construction and Maintenance of Turf Roofs in the North Atlantic, Report to Winston Churchill Memorial Trust
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Appendix 1: Work Party works requiring archaeological supervision

Munition Store
Cleared narrow drainage channel in path to/from Munitions Store

House 1
Established exit point of waste water pipe from front wall of House No 1, its route round the wind break, and cleaned out located rodding point
House 2
Cleaned out soakaway to rear and check functionality of side drain(s)
House 4
Cleaned out part of soakaway to rear and check functionality of side drain(s)
House 5
Cleaned out soakaway to rear and check functionality of side drain(s)

Blackhouses
Continued to remove soil, turf and dumped stone from interior of Blackhouse F

Cleit roof repairs
Small repairs to Nos 1, 13, 17, 24, 25, 31, 34, 35, 56, 58, 67, 72, 75, 77, 80, 81, 83, 85, 86, 88, 89, 90, 91 & 93
Repairs to south end of Cleit 109, to north end of Cleit 107, to south end of Cleit 107, to southeast south and south west sides of Cleit 106, to south side of Cleit 61 to south end of Cleit 66**,** to south end and southwest side of Cliet 67 to south end and south east side of Cliet 40, to south end of Cleit 38 to east side of Cleit 33, to east side Cleit 30

Checked all cleit roof repairs undertaken in 2010 and filled gaps between turfs with soil: 1, 13, 17, 24, 25, 31, 34, 35, 53/54, 56, 58, 67, 72, 75, 77, 80, 81, 83, 85, 86, 88, 89, 90, 91 & 93, 96

Open water courses
Removed vegetation from all open watercourses that were cleared out last year.
Re-cut open water course from water tanks to Dry Burn, that south of cleits 6-8 and that behind Blackhouse Z & Cleit 8

Drystone dyke repairs
Collapse to west wall of enclosure south of Cleit 131
Small collapse to planticrue west of Cleit 58
Small collapse to revetment wall immediately west of Factor's House
Small collapse in Head dyke immediately west of Cleit 9, in Campsite
Small collapse to wind break at front of House No 4
Small Collapse on east side of eastern enclosure at An Lag
Collapse in Cleit 346 Side B
Collapse in Cleit 805 Side A
Small collapse to Cleit 832
Major collapse to Cleit 1000 Side C
Major collapse Cleit 26
Major roof and wall collapse Cleit 28

Appendix 2: Cleit roof repair advice

Cleit roof repairs

Cleit roof repairs were carried out as per HS approved methodology (Management Agreement 2007–2012) but a few extra refinements were developed during the course of the works and in response to the checking of repairs done in 2010. These are outlined below.

Edges: Special attention is required when fitting the turfs to the top of the cleit wall. It is clear from the 2010 repairs, and indeed from the bulk of the repairs that have been undertaken, that this is the area which erodes first. This type of erosion is near universal and in otherwise healthy roofs. It was also noticed that when small sections of turf were used in a repair – often to fill awkward shapes in the wall head – these often do not take. The larger the turf, the more likely it is to take. For this reason in 2011 we followed the method statement rigorously and cut turfs as large as practicable and then offer them up into position, cutting them with a trowel to fit the shape of the wall head *in situ*.

Fitting: We cut turfs which were wedge shaped in cross section, as suggested in the method statement. We laid the turfs exclusively horizontally over each other to take full advantage of this shape – except for one turf on Cleit 30 where the shape of the repair seemed to call for a vertical turf. Sometimes we cut the turfs to be trapezoidal in plan shape, creating diagonal joins between turfs. This seemed to be a good way to fit the new turfs to the existing roofs. Cleitean with diagonal turf joins were 30, 33, 38, 106, as well as the WHS plinth in one place. Although this method results in a larger surface area of join, the thin wedge of turf at the pointed end may be too small to survive; this should be monitored. The rest of the repairs were cut with squared ends, rectangular in plan, and laid like a brick wall with no running joins between courses.

Squeezing: In response to shrinkage noted in the 2010 repairs, we tried as much as possible to cut turfs excessively big and then squeeze them in; we found that walloping them into position with a clenched fist worked well. This aided the filling of little gaps between turfs, as well as between turfs and the wall-head, minimising the likelihood of the wind killing off exposed areas.

Filling in: As discussed in advance, we used soils gained from ditch cleaning in 2010 to fill any roof space left behind the turf repairs. These were heavy with silts and clays and had a good organic content, so will hopefully provide a good subsoil for the repairs.

Holes created by the cutting of turfs from near the cleitean were filled with a mixture of old cleit roof soils and sheep shit from inside cleitean.

The old roof soil: The bare soil on cleit roofs was remarkably similar across the village area, being composed of extremely dry, fine silts, with occasional grit. These soils may have had all other constituents washed out, and it is quite striking how dry they all are to excavate even when the weather has been wet. Presumably the similarity of these deposits is a function of their peculiar situation, elevated into the wind and rain with a large void beneath.

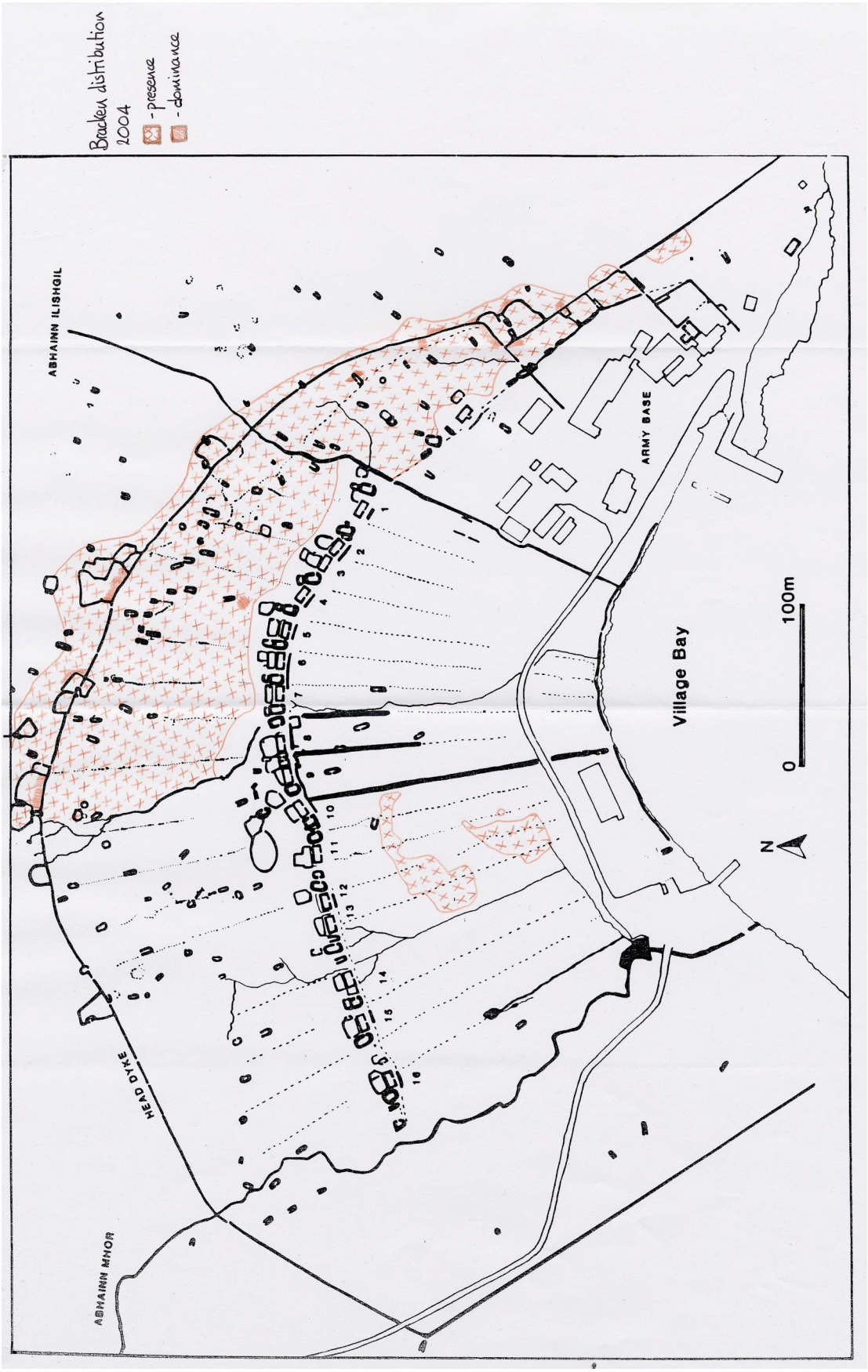
Appendix 3: Cleit monitoring beyond the head dyke

Those cleits not listed have not changed in any way

Cleit number	State of preservation	Photographs
120	Minor turf erosion	120D
122	Interior non-structural slab slipped onto floor	122 interior
124	Minor turf erosion	124A, C
125	Minor turf erosion D; one stone missing C/D roofline	125 C/D
126	Minor turf erosion	No
127	1 stone fall, 1 missing from A/D collapse; minor turf erosion	127A
129	Stones at B/C roofline slightly shifted since 2002	129B
131	2 stones missing B/C roofline; 1 moved slightly D/A	131A, C
132	Turf erosion leading to 1 stone fall, 1 shifted B roofline; 1 stone fall C roofline	132B,C
133	Minor turf erosion – 1 stone shifted within roof	133C
135	Minor turf erosion – 1 stone shifted on roof	135D
136	Minor turf erosion – 1 stone shifted on roof D/A	136A
137	Minor turf erosion, pre-2006?	137D
138	1 stone fall C roofline, 1 shifted; turf erosion leading to 1 stone missing,	138A,C
144	1 stone shifted from loose collapse from 144 to 145 roof	144A
146	Minor turf erosion	No
147	Minor turf erosion – 2 stones slipped	147C/D
148	Slight movement in upper part of side B?	148B
149	Minor turf erosion. Ground-set boulder dislodged	149A (x3)
152	Minor turf erosion	No
154	Fallen lintel over opening in side B (fulmar nest)	154B,C
156	Minor turf erosion	No
157	I stone fall from turf at A – noted 2006? Slight movement above opening on B roofline	157A,B
158	2 stones fallen upper corner D/A	158A/D
159	Turf erosion, I stone missing C roofline	159A,C
161	Minor turf erosion – minor stone movement on roof	161A
162	Minor turf erosion – 1 stone slipped or missing on roof on D roofline – noted 2006?	162D
163	I stone fall from B – noted 2006?	No
164	Much of remaining turf lost. I stone fall D base	164D
165	Minor turf erosion – 1 stone fall C roofline	165C
166	Minor turf erosion A– 1 stone missing from turf at D.	166A,C,D
167	Minor turf erosion – possibly 1 stone fall from turf	No
169	2 stones missing C roofline. Slight movement of stones over A/B caused by turf erosion and/or guy ropes for sheep nets	169A/B
170	Minor turf erosion – 1 stone missing from turf	170 A (x2), C
173	Minor turf erosion	173B
260/261	1 stone slumped from side D near side A	261 D (x2)
280	Turf erosion on sides A and B	280 A (x2), B
281	Turf erosion on side B	281 B
288	Side A rebuilt , Turf erosion A and B, collapse at base of Side C, stone replaced side D	288 A, B, C, D
307	Stones missing and turf erosion A, B, C, D	307 A,B,C,D
344	1 stone shifted B/C roofline	No
346	Small bulge developing at top of side C	346B,C,D
348	Minor turf erosion	No
354	Minor turf erosion. 1 stone slip within roof at B	No

402	1 stone fall B, slight collapse of 1 or 2 stones at C	402B,C
409	1 stone fallen from B/C	409C
421	1 stone fallen from B/C, some collapse in side C	421B/C, D(x2)
422	Slight movement in loose stones on B/C roofline	422C
429	1 stone fall from B/C; 1 slip, 1 fall from C base	429A,B,C
432	Minor turf erosion	No
442	Turf roof denuded	442A, B(x2)
443	2 stones fallen D, slight movement D roofline; minor turf erosion	443B,D
445	1 stone missing C roofline; minor turf erosion,	445D
446	Very minor turf erosion	No
476	One small stone missing, not structural	476A
479	One stone missing from B roofline	479B
482	2 stones shifted within collapse at D. Slight further slips in loose stones to side of B	482D
484	1 stone shifted	484D
485	1 stone fall from A/B roofline. 1 stone slipped over lintel	485A,B,D
488	Movement within turf roof, and on porch wall	488A
492	2 stones shifted within collapse at D and to side of B	492A,B,interior
493	Minor turf erosion	493D
513	1 stone missing above lintel on side A, side B has been rebuilt since monitoring photo	513 A, B
543	Turf erosion, all sides	543 A,B,C,D
555	1 stone missing, RHS of lintel, side A. Turf erosion.	555 A,B,C,D
566	Turf roof eroded all sides	566 A,B,C,D
568	Turf roof eroded all sides	568 A,B,C,D
686	Blocking stone fallen over, side A; complete collapse of downhill end, side B,C & D.	686 A,B,C,D
736	Turf roof eroded side A	736 A
807	Stones missing	807 A
815	1 small stone slip or fall from B roofline	815B(x2),C,D
900	Slight collapse at A/B lower corner. 1 stone fall B/C	900B
901	Minor turf erosion	No
905	Lintel fallen into interior at C. 2 stones fallen A/B roofline. 1 lower stone fall A/B	905A, interior
906	Slight collapse at A/B roofline	906A
907	Slight movement at corner of A/D	907A, D, interior
908	Collapse at corner of A/B. 1 stone fall A/B roofline	908A,B,D
911	1 stone fall A/B roofline. 1 stone fallen, 1 slipped D roof	911A,B,C
913	1 stone fall from C roofline	913C
933	1 stone replaced side A and 2 missing side D - compared to '04; Turf roof eroded	933 A,B,C,D
1000	Rebuilt side C in 2011	1000 B, C
1043	Turf roof eroded side B only	1043 B
1044	Turf roof eroded all sides	1044 A,B,C,D
1047	Turf roof eroded all sides	1047 A,B,C,D
1048	Turf roof eroded all sides	1048 A,B,C,D
1049	Turf roof eroded all sides	1049 A,B,C,D
1154	Stones missing from roof	1154 A,B,C,D
1215	Stones missing, turf roof eroded	1215 A,B,C,D

Appendix 4: Bracken survey 2004



Bracken survey 2011

