Revised Nomination of
St Kilda
for inclusion in the World Heritage Site List
From the Office of the First Minister

Few who have been to St Kilda and stood in the Village surrounded by the cries of a million seabirds can fail to have been moved by the place and its story. This tiny Hebridean archipelago is a place of drama, a place apart. Its inaccessibility amplifies its remoteness creating a perception of being ‘at the edge of the world’.

While the steep cliffs and pounding seas around the archipelago give a sense of the overwhelming power of nature, the very visible remains of human habitation can only fill the visitor with a sense of awe and respect for past generations of inhabitants.

St Kilda stands for isolated societies the world over. The extraordinary spirit of the place comes from the imprint left after the ultimate failure, largely through external pressures, of a way of life. The twin aspects – a people’s resilience in a hostile environment, and the contrasting fragility of traditional ways of life in the face of overwhelming social and economic change – give the place its emotional power and universal applicability.

It is because of these reasons that I commend this revised nomination for the inscription of St Kilda on the World Heritage List to ensure it is cared for and preserved for future generations.

Chan eil mòran a tha air cuairt a ghabhail a Hiort, agus air seasamh ’s a bhaile a-measg glaodh miilean eun-mara, nach robh air an gluaisad leis an âité agus a sgeul. Tha am buidheann beag eileanan seo an Innse Gall mar âité gu turr eadar-dheallaichte, mar âité air leth. Tha iomhaigh aig mòran mu na h-eileanan gu bheil iad ’aig oir an t-saoghail’ bhon a tha iad cho iomallach agus cho duilich faighinn thuca.

Fhads a tha na creagan cas agus a’ mhuir hfiadhach mu na h-eileanan a toirt beachd air cumhachd nàdair, chan úrrainn do luchd tadhail ach urram agus meas fhaireadhain airson gach ginealach de mhuintir Hiort a dh’fhailb, nuair a chith iad na tha air fhagail de an cuid togalaichean.

Tha Hiort na eisimpleir do chomainn iomallach air feaghl an t-saoghail. Tha spiorad miobhaileach an âité a tugadh bhon chomharradh a chaidh fhagail nuair a thàinig doigh beatha na Hiortaich gu crioche mu dheireadh, ’s a mhòr chuid air saol leibh cuideaman bhon taobh a-muigh. Cóimhla tha an dà phuing – miseachd nan daoine ann an tir gun truas, agus dòigh beatha traidiseanta, lag an aghaidh at Harraichean soilealta agus eaconomaeach – a toirt cumhachd sònraichte agus beachd shaoghalta dhan âité.

Airson na reusainn seo tha mi a’ moladh an t-airmeachadh seo, le ath-sgrúdadh, airson Hiort a chuir ri Liosta Dualchas an t-SAoghal, airson dèanamh cinnteach gu teid a chùram a ghabhail agus gum bidh e air a dhion airson na bliadhnaichean a tha romhainn.

Jack McConnell MSP
Whatever he studies, the future observer of St Kilda will be haunted the rest of his life by the place and tantalised by the impossibility of describing it, to those who have not seen it.

James Fisher 1947
a. **Country**

United Kingdom

b. **State, Province or Region**

Western Isles, Scotland

c. **Name of Property**

St Kilda (Hirta)

d. **Exact location on map and location of geographical co-ordinates to the nearest second**

The nominated property is the St Kilda archipelago and the surrounding sea, lying 64 km west of North Uist in the Outer Hebrides, the central point is located at 57° 50' N, 08°34' W (NGR – NA095995). The area proposed for inscription is contained within the square with co-ordinates: 57°54'36"N, 08°42'00"W; 57°46'00"N, 08°42'00"W; 57°46'00"N, 08°25'42"W; 57°54'36"N, 08°25'42"W.

e. **Maps and/or plans showing boundary of area proposed for inscription and of any buffer zone**

The physical cultural heritage features of the nominated site are restricted to the terrestrial areas and therefore the marine areas of the site constitute, in effect, a buffer zone for these areas. Through the appropriate existing measures of protection any risks are minimised by the measures outlined in the Management Plan, and by the statutory protection offered by the area’s designation as a National Nature Reserve and Special Protection Area and prospective designations of Special Area of Conservation and (marine) Special Protection Area. The natural heritage and landscape properties of the site are also afforded strong protection through the UK's statutory planning system that directs statutory policies in relation to Scotland's coasts. This is further complemented by the powers and duties vested in Scottish Natural Heritage, the Government’s statutory advisor on nature conservation and the UK Government’s commitment to carry out a Strategic Environmental Assessment in advance of any developments (soon to be enshrined in statute).

The whole nominated site also lies completely within sites separately identified for protection under European Law (the ‘Birds Directive’ and ‘Habitats Directive’) for their natural heritage value which affords protection against any action, within and outwith the site, that may have an adverse effect on the features of the site. This range of conservation designations ensures statutory protection any risks are minimised by the statutory protection offered by the area’s designation as a National Nature Reserve and Special Protection Area and prospective designations of Special Area of Conservation and (marine) Special Protection Area.

The nominated area also lies within the jurisdiction of the UK’s statutory planning system that directs statutory policies in relation to Scotland’s coasts. This is further complemented by the powers and duties vested in Scottish Natural Heritage, the Government’s statutory advisor on nature conservation and the UK Government’s commitment to carry out a Strategic Environmental Assessment in advance of any developments (soon to be enshrined in statute). The whole nominated site also lies completely within sites separately identified for protection under European Law (the ‘Birds Directive’ and ‘Habitats Directive’) for their natural heritage value which affords protection against any action, within and outwith the site, that may have an adverse effect on the features of the site. This range of conservation designations ensures statutory protection any risks are minimised by the statutory protection offered by the area’s designation as a National Nature Reserve and Special Protection Area and prospective designations of Special Area of Conservation and (marine) Special Protection Area.

Paragraph 17 of the Operational Guidelines for the Implementation of the World Heritage Convention makes provision for the identification of a buffer zone to protect World Heritage Sites from threats beyond their boundaries. An independent assessment of potential risks to the nominated site identified a number of possible threats from outside the site boundary. Careful consideration was given by the UK authorities to whether the identification of a buffer zone would be an effective tool in managing such risks.

The total area of the proposed site measures 24,201.4ha, comprising a land area of the St Kilda archipelago above Mean High Water Spring mark of 854.6ha, and a sea area measured from Mean High Water Spring mark out to the boundary of the site of 23,346.8ha.

f. **Area of site proposed for inscription (ha) and proposed buffer zone (ha) if any**

The total area of the proposed site measures 24,201.4ha, comprising a land area of the St Kilda archipelago above Mean High Water Spring mark of 854.6ha, and a sea area measured from Mean High Water Spring mark out to the boundary of the site of 23,346.8ha.
a. Statement of Significance

St Kilda is an amazing place. Each of the three main components – terrestrial and marine natural heritage and cultural landscape – is of outstanding universal value in its own right, and the sequence of the following text does not reflect a hierarchy of significance. Although they are considered separately in various parts of this document, the natural and cultural heritage of St Kilda are inextricably linked.

For many, St Kilda is the epitome of an idyllic community, living in harmony with nature for hundreds, if not thousands, of years, but ultimately seduced by the comforts of modern life.
Natural Heritage

Geological and Geomorphological

The St Kilda archipelago illustrates ongoing geomorphic processes in the coastal and submarine environments. The igneous rocks of the archipelago, exposed by marine and glacial erosion processes, have produced a spectacular assemblage of rock coast landforms unique within the Palaearctic Realm and of global significance. Sea cliffs in excess of 400m high are found on the island of St Kilda itself.

The rocks of the St Kilda archipelago form a tiny but highly significant portion of the North Atlantic Igneous Superprovince recording Paleocene-Eocene events associated with the opening of the North Atlantic some 65-52 million years ago. The rocks exposed in the St Kilda archipelago represent the remnants of a large ring volcano with the islands themselves rising from a seabed plateau lying approximately 40m below sea level.

During the Ice Age of the Quaternary Period (approx. 2.5 million years ago to present) the St Kilda landscape was modified by local mountain glaciers and during at least the last glacial maximum, parts of Hirta remained ice-free. Sediments and pollen within the peat deposits provide a regionally important palaeoenvironmental and palaeoclimatic post-glacial record for the NW European margin.

During glaciation, sea level dropped by as much as 120m around St Kilda. Lying at the periphery of the Scottish ice sheet, corresponding glacio-isostatic depression and consequent uplift of the archipelago have been limited. This has resulted in the formation of a series of former coastlines that have been ‘drowned’ following the ‘postglacial’ rise in sea level. These extend from the present coastline down to 120m below present sea level and are represented by two major submerged shore platforms and cliff lines.

The coastline of the archipelago currently experiences some of the most extreme storm levels on the western European coast and these conditions have facilitated the development of superb sheer-faced and composite cliff forms, geos, sea caves, tunnels, arches and stacks at all stages of development.

The combination of marine and glacial erosion imposed upon a hard rock geology, along with sea-level change, has resulted in a complex and spectacular terrestrial landscape that extends uninterrupted into the submarine zone. This combined terrestrial/marine landscape in an island setting is unique within the Palaearctic Realm. The archipelago is globally significant in terms of the physiographic features of the archipelago and significant ongoing geological and geomorphological processes that have created, and continue to influence, the terrestrial and marine landscape.

Terrestrial

The terrestrial biology of the St Kilda archipelago provides an outstanding example of remote island ecological colonisation and subsequent genetic divergence under isolation, it is unique within the Palaearctic Realm and is significant at the global level. Isolation and genetic divergence are notable within small mammal (fieldmouse, non-seabird (wren) and large mammal (sheep) populations. The unique feral Soay sheep are descendants of the most primitive domestic form in Europe, resembling the original wild species and the domesticated Neolithic sheep.

The terrestrial fauna and flora show low species diversity but the islands have large breeding populations of certain species (seabirds). The isolated mammal and bird populations provide the basis for ongoing research into island ecosystems. As the most remote archipelago in Great Britain and Ireland, St Kilda presents the most extreme example of restricted island flora and fauna. Only nine species of land birds breed there annually for example, compared with 17 seabirds. The same can be said for other animal groups, such as Lepidoptera and Hymenoptera.

Overall, the flora of St Kilda is extremely impoverished due to its small size, its isolation and restricted habitats (no trees or shrubs for instance, and little freshwater). Only 184 species of ferns, flowers and grasses have been recorded on St Kilda, and only 170 species of fungi. Several plants appear to occupy a wider range of ecological niches on St Kilda than they do on the mainland, a phenomenon not uncommon in isolated archipelagos and known as ‘niche expansion’. St Kilda is, however, surprisingly rich in some lower plants, with 194 species of lichen and 160 species of bryophyte. One of the most striking features of the bryophyte flora is the abundance of the extreme oceanic and somewhat salt-tolerant liverwort Frullania tenerifae all over the island.

The feral Soay sheep of St Kilda are descendants of the most primitive domestic form in Europe, resembling the original wild species and the domesticated Neolithic sheep that were first brought to Britain about 7,000 years ago. Another flock of primitive blackface sheep survives on the island of Boreray, unmanaged since the islands were evacuated by the human inhabitants in 1930.

The most notable land bird resident is St Kilda’s own distinctive subspecies of wren which shows characteristics that may be adaptations to island conditions. The St Kilda fieldmouse, possibly introduced to the islands by the Vikings, also displays evolutionary changes (compared with its mainland counterpart) that meet the unusual and rigorous conditions presented by the archipelago.

Seabirds

The terrestrial elements of the St Kilda archipelago are recognised as globally significant for their seabird colonies. The revised nomination of the St Kilda site seeks to extend the World Heritage Site boundaries into the surrounding sea areas in recognition of their importance to these colonies, and with the intention of adding significantly to the outstanding universal value of the site as a whole.

St Kilda is for the most part, deserted in the winter months, but 17 species of seabird come ashore in spring and summer to breed on St Kilda, rendering the archipelago the largest seabird colony in Great Britain and Ireland. Including non-breeding individuals, about one million seabirds populate the sea, land and air at this time. The archipelago is set in a pristine marine environment and is a seabird sanctuary without parallel in the north-east Atlantic.

The internationally accepted criterion for a breeding bird aggregation to merit importance, whether it be in a regional, national, biogeographical or international context is that at least 1% of the relevant population be recognised as globally significant for their seabird breeding on the archipelago qualify as seabird colonies. The internationally accepted criterion for a breeding bird aggregation to merit importance, whether it be in a regional, national, biogeographical or international context is that at least 1% of the relevant population be represented in the aggregation. More than half of the seabird species breeding on St Kilda occur in nationally (in a UK context) important numbers. In the wider global context, however, the St Kilda seabirds assume exceptional biological significance. Populations of seven species of seabird breeding on the archipelago qualify as biogeographically important, in the context of the north-east Atlantic Ocean and the associated coastal fringe. Of these, three are important on a world-wide scale.
Northern fulmar
(Fulmarus glacialis)

St Kilda hosts the oldest known colony in the eastern Atlantic, and is now the largest northern fulmar colony in Great Britain and Ireland, comprising 66,942 apparently occupied nest sites in 1999 – 3.89% of the north-east Atlantic population. Of the world population.

Great skua
(Catharacta skua)

The great skua breeds only in Iceland, the Faroe Islands, Norway and Great Britain. The breeding population of 169 apparently occupied territories (AOTs) on St Kilda is of biogeographical and global importance, representing 1.38% of the north-east Atlantic population and more than 1% of the world population.

Manx shearwater
(Puffinus puffinus)

The mostly nocturnal Manx shearwater breeds on the slopes of St Kilda in important numbers; the population comprising 4,983 apparently occupied burrows (AOBs) – 1.26% of the north-east Atlantic population.

Leach’s storm-petrel
(Oceanodroma leucorhoa)

St Kilda is especially important as the major breeding station of Leach’s storm-petrel in the north-east Atlantic. One of only nine colonies in this region, the islands host 45,433 AOBs – 89.29% of the biogeographical breeding population.

Atlantic puffin
(Fratercula arctica)

The Atlantic puffin, widely distributed across the north Atlantic, is the most numerous species of seabird on St Kilda. The 136,792 AOBs on St Kilda represent 4.41% of all Atlantic puffins breeding in the north-east Atlantic. This also represents more than 2% of the world population.

Common guillemot
(Uria aalge)

The common guillemot also breeds in biogeographically important numbers on the cliffs of St Kilda comprising 23,378 individuals – 1.17% of the north-east Atlantic population.

Northern gannet
(Morus bassanus)

Perhaps the most conspicuous of St Kilda’s seabirds, there are 60,428 breeding pairs representing 23.64% of the north-east Atlantic population. In addition, this represents almost 20% of the total world population. Only 44 gannet colonies occur in the world and St Kilda is by far the largest, about half as large again as the second largest colony on Bass Rock, off the east coast of Scotland.

Razorbill
(Ala torda)

The razorbill breeds in nationally important numbers on St Kilda; recent surveys indicate that about 1% of the north-east Atlantic population breeds here.

Marine

The combination of oceanic influences (extreme wave exposure, deep oceanic swell, high water clarity) and local geology around the St Kilda archipelago has created a remarkable marine environment. The seabed communities in the area surrounding the islands are outstanding in terms of biodiversity and composition, including ‘northern’ and ‘southern’ species at the extremes of their range. The site offers important research opportunities for monitoring the impact of climate change in the marine environment.

The St Kilda archipelago and adjacent sea bed supports a variety of remarkable marine communities that reflect the geomorphological history of the area over the last 50-60 million years and the highly unusual conditions that prevail. The intertidal and shallow subtidal areas are subject to extreme wave exposure dictating the composition of the seabed communities, whilst the influence of the oceanic swell is still felt at exceptional depths of 60-70m and is reflected in the composition of the animal communities present. Despite the relatively small spring tide range (3.0m), the extent of the upper intertidal communities is greatly extended as a result of wave splash with some species extending up to 100m above sea level. The remarkable clarity of these oceanic waters also has a significant bearing on the extent and distribution of the various sublittoral communities of animals and plants. The sublittoral photic zone is greatly extended with large kelp plants occurring down to depths of 45m and coraline red algae to in excess of 60m. The waters around St Kilda represent some of the most exciting and challenging scuba diving in the world attracting a small but increasing number of dive parties each year.

The towering sea cliffs and stacks evoke powerful emotions. The rugged rocky underwater topography is as spectacular as that above the waves and is a further legacy of St Kilda’s Tertiary Period volcanic origins and more recently the sea level and climate changes that have occurred during the Quaternary Period. It is unusual for such extensive areas of relatively shallow bedrock to occur in such oceanic conditions. The clarity of the water enables the true splendour of this underwater landscape to be better appreciated than it might be in more coastal waters where underwater visibility is much reduced. The plunging vertical underwater rock faces are festooned with marine life – a kaleidoscope of colour and form kept in constant motion by the Atlantic swell.

St Kilda is affected by the warmer water of the North-east Atlantic Drift, and particularly in winter, water temperatures remain much warmer than those in the enclosed North Sea. This has resulted in a number of northern species reaching the southern extreme of their range and vice versa. This not only enhances the overall marine biodiversity of the archipelago but also represents an opportunity for future monitoring of the status of these species as indicators of the impact of climate change on the marine environment.
Cultural Heritage

The World Heritage Site inscription of St Kilda for its cultural heritage qualities was included in the original Nomination Document, submitted in 1985. ICOMOS recommended the inscription under cultural criterion v of the Guidelines. However, the World Heritage Committee in December 1986 approved only the natural heritage qualities for inscription, and deferred the case for inscription for cultural heritage qualities. It was to be another six years before the Committee adopted the ‘cultural landscape’ criteria.

A unique combination of special qualities work together to give St Kilda its universal cultural value. Most important of these qualities are:

- the completeness of fossilised 19th-century settlement and agricultural remains
- the spectacular landscape setting adapted by people through the millennia
- the perceived remoteness of the islands
- the vivid story of human endeavour – evidence of millennia of sustainable use, largely based on external influences – on small islands in an extreme climate
- and the wealth of documentary evidence from the 16th century to the time of abandonment, which provides the means to appreciate and understand the other main qualities.

To have one or two of these qualities is special, but to have all is truly unique, resulting in the iconic status of St Kilda in the international consciousness.

The almost tangible spirit of the place comes from the imprint left after the eventual demise, largely due to external influences – on small islands in an extreme climate.

The heart of the cultural landscape of St Kilda sits within the stunning natural amphitheatre of Village Bay, Hirta. This relic cultural landscape of 1830s blackhouses and their field systems, and 1880s’ improved whitehouses marks the last main phase of settlement. Dwarfed within the enveloping crescent of near-vertical cliffs, the sting of houses along the Street and the segmented field divisions are a uniquely intact and readily legible example of a mid-19th-century planned crofting settlement.

St Kilda is at once stunningly dramatic and acutely isolated. Its remoteness is accentuated because it is and always has been difficult to access. There is a romantic perception of its position as the islands ‘at the edge of the world’, where the people lived in harmony with nature. The steep cliffs and pounding seas around the archipelago give a sense of the overwhelming power of nature, against which the very visible remains of human activity fills visitors with awe and respect for past inhabitants. But perceptions of St Kilda remain clouded by those of 19th-century travellers who were seeking experiences of the sublime, and whose writing tended to ignore those things that contradicted their expectations.

In their April 1986 report, ICOMOS set out the following justification for inclusion under cultural criterion v:

‘The tiny St Kilda archipelago in the Hebrides Island is not only one of the biggest sanctuaries of wildlife and marine life in the North Atlantic, but also bears testimony to a coherent ecosystem which has remained virtually unchanged over 2,000 years of human occupation.

From the Bronze Age to the evacuation of the archipelago’s last inhabitants in 1930, the islands of Soay, Hirta, and Boreray, and the islets bordering their coasts have undergone several periods of human occupation. At several sites there is evidence of a Christian influence prior to the Viking invasion, as illustrated by numerous artefacts from the 10th century. Difficult to date, the conserved structures – cairns, circular stone formations, groups of monastic cells and even post-medieval villages – illustrate a remarkable persistence of forms of primitive architecture in a country whose traditional modes of construction have survived to the contemporary period.

In the opinion of ICOMOS, the St Kilda archipelago corresponds perfectly to the definition of a cultural and natural property whose value should be taken into consideration in an evaluation complementary to that of IUCN.’

Cultural Landscape

The cultural landscape of St Kilda has been shaped by the response of a remote island community to the challenge of survival with access to a very limited range of resources, particularly the reliance on birds.

Draped over the dramatic natural landscape is the relict cultural landscape: layered remains of human occupation by a population of less than 200 souls. The density of the visible structures in the landscape is remarkable, as is the time-depth, from the remains of the Gleann Mor settlement dating back perhaps two or three thousand years, up to the late 19th-century cottages of the Village Bay settlement. Largely using the natural materials available, primarily stone, turf and driftwood, the St Kildans built their dwellings, cleitean (stone storage huts) and field systems. Some structures, such as the ancient scree structures or the later cleitean, may be unique to St Kilda, probably answering a particular island need; others are of more recognisable vernacular building types. Taken together the structures constitute an extremely well-preserved group, and archaeological survey and excavation over the past 20 years continues to demonstrate the significance and potential of the pre-19th-century archaeology.

There are very few places in the world where there is such a density and time-depth of remains of what was a simple rural agricultural system, and St Kilda is exceptional in boasting this level of survival in combination with an astonishing wealth of literature about the lives of the inhabitants, their stories and their folklore.

The heart of the cultural landscape of St Kilda sits within the stunning natural amphitheatre of Village Bay, Hirta. This relic cultural landscape of 1830s blackhouses and their field systems, and 1880s’ improved whitehouses marks the last main phase of settlement. Dwarfed within the enveloping crescent of near-vertical cliffs, the string of houses along the Street and the segmented field divisions are a uniquely intact and readily legible example of a mid-19th-century planned crofting settlement.

In 1697 the archipelago was visited by Martin Martin, and his detailed account of the lifeways of the inhabitants, then numbering some 180-200, may well represent the most complete “anthropological” account of any 17th-century European rural community.


The village is an outstanding example of a type of building ensemble or landscape that illustrates a significant stage in the human history of Scotland: the establishment of crofting townships and land allotment, and the restructuring of communities directly and indirectly to the mass emigration of Scots and the creation of the Highland Diaspora that remains so strong throughout the world.

Similarly, the village remains are the heart of an almost complete system of a traditional human settlement and land-use that is representative of 19th-century rural Highland Scottish culture. In 1930 this way of life became the victim of irreversible change.

For many who visit, it is a life-changing experience – the start of a lifelong fascination for the place and its people. The physical remains become even more moving to those who know something of the evocative and often poignant stories that so enhance the spirit of the place, and which have important lessons for everyone about the sustainable use of our resources. The constant international interest in St Kilda shows that it strikes a chord in the lives of people from all over the world.

### Natural Heritage

Comparative analysis of rare or possibly unique sites is inherently difficult, particularly when comparing sites from different biogeographical realms. St Kilda possesses outstanding natural heritage values by virtue of its physical nature (landforms, geomorphological processes) and its biology (seabird colonies, species isolation, submarine communities). The physical and biological character of St Kilda is founded upon its island character where terrestrial, coastal and marine processes work together to produce a unique environment. The relative remoteness of this and other similar island groups serves to isolate biological populations, limit human interference in natural systems and help to maintain a high level of authenticity and integrity.

Comparative analysis with other global sites relies upon the identification of individual features on St Kilda and their comparison with similar features found at other sites. The nature of St Kilda, and the other island World Heritage Sites referred to here, results from an assemblage of biological and physical features that together make each site a special place. For the purposes of this document, the starting point for comparative analysis of St Kilda is the 1997 global overview of wetland and marine protected areas on the world heritage list (Thorsell et al., 1997) recognise the special significance of island World Heritage Sites. Table 2.1 in this document lists and briefly describes 16 island World Heritage Sites. Of these, six (highlighted in the table) are directly relevant to understanding the significance of St Kilda at the global level.

These sites are of similar character with comparable physical or biological interest to St Kilda. Table 2.2 below compares the distribution of natural heritage values across the six sites and St Kilda itself. This comparative analysis shows that St Kilda displays a wide range of natural heritage values of global significance when compared to existing similar sites on the World Heritage List. The only comparative sites are exclusively in the southern hemisphere, making St Kilda not only unique within the Palaearctic Realm but also in the northern hemisphere.

In terms of seabirds alone St Kilda compares favourably with other, similar, World Heritage Sites. The largest concentration of tropical seabirds in the western Atlantic occurs on the Brazilian Atlantic Islands WHS. This assemblage comprises 150,000 breeding birds; St Kilda hosts about 700,000 breeding seabirds in an area less than half that of the Brazilian Atlantic Islands WHS. The New Zealand Sub-Antarctic Islands in the Southern Ocean hosts 40 species of breeding seabirds while St Kilda has 17 species in an area less than one-third of the size.

### Comparative Analysis

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>SITE NAME AND INSCRIPTION CRITERIA</th>
<th>AREA</th>
<th>NATURAL VALUES</th>
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<tbody>
<tr>
<td><strong>PALEARCTIC REALM</strong></td>
<td></td>
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<tr>
<td>FRANCE</td>
<td>Cape Guarita, Cape Porto, Sandwich</td>
<td>12,000ha</td>
<td>The site has a typical marine fauna for the Mediterranean and contains a diverse pelagic, sedentary and migrant fauna.</td>
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<tr>
<td>UK</td>
<td>St Kilda 1986 iii, iv</td>
<td>852ha (24,201ha if extended)</td>
<td>Seabird colonies, ongoing marine and coastal processes, seabird communities.</td>
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<tr>
<td><strong>AFROTROPICAL REALM</strong></td>
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<tr>
<td>SEYCHELLES</td>
<td>Aldabra Atoll 1982 ii, iii, iv</td>
<td>35,000ha</td>
<td>The atoll constitutes a refuge for the giant tortoise and flightless bird populations as well as a substantial marine turtle-breeding population and large seabird colonies.</td>
</tr>
<tr>
<td><strong>INDONESIA</strong></td>
<td>Lujang Kulon National Park 1991 iii, iv</td>
<td>123,051ha</td>
<td>Coastal coral reef environment and important bird species.</td>
</tr>
<tr>
<td><strong>PHILIPPINES</strong></td>
<td>Tubbataha Reef Marine Park 1993 i, ii, iv</td>
<td>33,200ha</td>
<td>Diverse coral reef system with diverse bird species.</td>
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<tr>
<td><strong>OCEANIAN REALM</strong></td>
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<tr>
<td>UK</td>
<td>Hendersen Island 1988 ii, iv</td>
<td>3,700ha</td>
<td>Coral reef with important bird populations.</td>
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<tr>
<td>SOLOMON ISLANDS</td>
<td>East Rennell 1988 ii</td>
<td>37,000ha</td>
<td>The world’s largest raised coral stoll; High level of endemism for animal and bird species.</td>
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<td><strong>AUSTRALIAN REALM</strong></td>
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<tr>
<td>AUSTRALIA</td>
<td>Fraser Island 1992 ii, iii</td>
<td>166,28ha</td>
<td>Fraser Island is the largest sand island in the world.</td>
</tr>
<tr>
<td>AUSTRALIA</td>
<td>Lord Howe Island Group 1982 ii, iv</td>
<td>136,300ha</td>
<td>Large populations of breeding seabirds with surrounding marine area showing unusual mixture of temperate and tropical organisms.</td>
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<td><strong>ANTARCTIC REALM</strong></td>
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<tr>
<td>UK</td>
<td>Gough Island Wildlife Reserve 1995 i, ii</td>
<td>6,000ha</td>
<td>The least disturbed major cool-temperate island ecosystem in the South Atlantic Ocean, and has one of the most important seabird colonies in the world.</td>
</tr>
<tr>
<td>AUSTRALIA</td>
<td>Heard and McDonald Islands 1997 i, ii</td>
<td>38,800ha + sea area</td>
<td>Volcanically active, illustrates ongoing geomorphic processes and glacial dynamics in coastal and submarine environment, with sub-Antarctic fauna and flora.</td>
</tr>
<tr>
<td>AUSTRALIA</td>
<td>Macquarie Island 1997 i, ii</td>
<td>12,785ha</td>
<td>Unique geological exposure of oceanic crust.</td>
</tr>
<tr>
<td>NEW ZEALAND</td>
<td>New Zealand Sub-Antarctic Islands ii, iv</td>
<td>76,458ha + sea area</td>
<td>High level of biodiversity and endemism among bird, plant and invertebrate populations.</td>
</tr>
<tr>
<td><strong>INDOMALAYAN</strong></td>
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<td></td>
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</tr>
<tr>
<td>VIETNAM</td>
<td>Ho Long Bay 1994 i, ii</td>
<td>150,000ha</td>
<td>Karst islands with high scenic and landscape values; geological interest; biological diversity, especially in marine species.</td>
</tr>
<tr>
<td><strong>NEOTROPICAL REALM</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>BRAZIL</td>
<td>Fernando de Noronha &amp; Atolillas 2001 i, ii, iv</td>
<td>53,540ha</td>
<td>Largest concentration of seabirds in Western Atlantic, important for marine communities and marine landscapes.</td>
</tr>
<tr>
<td>COSTA RICA</td>
<td>Cocos Island National Park 1997, 2002 ii, iv</td>
<td>99,700ha</td>
<td>Tropical rain forests on land, biodiverse marine areas.</td>
</tr>
</tbody>
</table>

Table 2.1: Island World Heritage Sites – some (Galapagos, Hawaii, Great Barrier Reef) are omitted as not relevant for comparison with St Kilda.
Isolated island systems provide an opportunity to conserve and study ecosystems that remain free from human interference. The state of conservation of the Island World Heritage properties listed here for comparison with St Kilda is uniformly high. St Kilda itself displays pristine marine and cliff environments with a high level of integrity. The proposed extension of the World Heritage Site boundary to include marine areas around the islands will further increase protection of the site and help to maintain a favourable conservation status. The importance of the marine areas around island World Heritage properties has been recognised by the IUCN and UNESCO in the context of World Heritage Sites. As an example, the recent (2002) extension of the boundary of the Cocos Island National Park (Costa Rica) was proposed to ensure adequate protection for the interlinked island and marine ecosystems. Such extensions can be expected to be implemented elsewhere.

Cultural Heritage

The most important cultural qualities of St Kilda are: the comprehensive and integral nature of its 19th-century settlement remains, the last period of an occupation extending back thousands of years; the spectacular landscape setting; the perceived remoteness of the islands which helps create a vivid story of human endeavour; and the wealth of documentary evidence from the 16th century to the time of abandonment.

Dr J Morton Boyd (Director, Scotland, The Nature Conservancy Council, 1971-1985) has observed how ‘the Hebrides do not occupy a grand plinth in scientific history as do the Galapagos, but, like all other archipelagos, they have their own endowment of nature and well-kept secrets to be discovered and enjoyed. The Galapagos are celebrated for their biology, but their geology is far less illustrious than that of the Hebrides’. His colleague Professor, R J Berry, eloquently concluded: ‘The physical tides that have caressed and pounded the Western Isles have determined their geographical limits. And the waves of rock, ice and water have determined their geographical limits. And just as the physical waves have laws which must be obeyed, so the interactions of drift, migration, and selection have forged the genetic constitution of the island races; and as the incoming tide cleans the sands and rocks over which it passes, but leaves unexplained features in sequestered eddies, so the biological tides have left us with many genetic puzzles, the scientist believes as an article of faith that these eddies can be explained as knowledge accumulates, though some will remain as statistical anomalies of history.’ St Kilda, an outlier of the Hebrides, is the extreme expression of these geological and biological processes.

19th-century Landscape

The 19th-century cultural landscape was created in the 1830s and 1860s at a time when the reorganisation of rural settlements was prevalent in Scotland, and especially in the Western Highlands and the Hebridean islands. This was a key time in the Highland Clearances, notorious in Scottish history for the forced removal of families from their homelands and the destruction of their houses – events that helped create the Highland Diaspora around the world. But the story on St Kilda was not part of this often violent tradition. The village was re-ordered in the early 1830s in a paternalistic attempt to modernise the housing and agricultural practices of the St Kildans, and was carried out with the islanders’ approval and support. The subsequent rationalisation in the early 1860s, stimulated after damage during a severe storm, led to the provision of some of the most modern housing to be found in rural Highland Scotland at the time. Beyond the village are the remains of the wider parts of the subsistence system, with an abundance of cleitean on virtually every island of the archipelago, coupled with many structures and dykes associated with the seasonal grazing tradition.

 internationally, there are countless examples of settlements that failed in the 19th or early 20th-century, but few, if any, survive as well as that on St Kilda, particularly in association with their entire landscape of resource exploitation. Those that do survive may now be entirely ruined and neglected, or are more likely to have been heavily altered since their original abandonment.
Landscape Setting

The amazing landscape setting, the subject of hundreds of published photographs, is one of the principal assets of the cultural landscape of Village Bay. The sheer scale of the hills within which the settlement seems to fit perfectly is awe-inspiring. The lack of the bustle of modern life when standing in the village street, and the sense of being enveloped by the hills, is something that is usually only found in the remotest corners of mountain ranges. On St Kilda you are standing in the middle of an almost intact settlement from nearly two centuries ago, busy with structures from earlier human activity. No relic historic landscape of this period can rival St Kilda in this respect.

An awesome landscape

Such is the beautiful description of Dover Cliff, by Shakespeare; but what would he have said, could he have looked down from this precipice in St Kilda, which is nearly three times higher, and so tremendous, that one who was accustomed to regard such sights with indifference, dared not venture to the edge of it alone?

Edward Stanley, 1838, A familiar history of birds; their nature, habits and instincts (John W. Parker, London)

‘Their greatest treasure on earth…’

The village of Mastad on the Lofoten Islands of Norway shares remarkable parallels with St Kilda. For the inhabitants of this remote community the seabirds that nested on the cliffs surrounding their village were their greatest treasure. They harvested the eggs and adult birds and salted the meat to last them through the winter. Puffin was the favourite meat, which they hunted with their unique six toed puffin dog, but razorbills and guillemots were also caught in nets. As on St Kilda the feathers provided a source of income from which they could buy imported goods.

Like St Kilda, arable land was at a premium, and the landscape forced a radial pattern of field systems with strong similarities to the village on Hirta. The landscape forced a radial pattern of field systems with strong similarities to the village on Hirta. The lack of a proper harbour, and better opportunities elsewhere, resulted in the population declining from about 150 people until it was finally abandoned by its last inhabitant in 1974.

At the Edge of the World

Part of the iconic status of St Kilda relates to its profound feeling of remoteness. In European terms it is certainly unusually far from the nearest landfall with a significant population, to the extent that the medieval writer John of Fordun (c.1380) thought it was ‘… on the margin of the world …’. King James IV (1473-1513) thought St Kilda too remote to include within his kingdom. However, in world terms there are many more remote places, including Easter Island (Rapa Nui) – which is not only arguably the most remote inhabited place in the world, but had its own story of unsustainability. The remoteness of St Kilda is therefore relative, but no less real in terms of difficulty of access, even today. Before the 1860s, St Kilda was certainly remote in terms of keeping abreast of fashions and of changes in agricultural practices and ways of life. To outsiders it was much more egalitarian than elsewhere, where decisions were made at community level rather than individually, or by being imposed by a landlord. The truth is much more complicated than that, especially towards the end of the islanders’ story. The St Kildans were happy to perpetuate the impression of simple people living simple lives far from the rest of civilisation. They knew that this fascinated the tourists who, from as early as the 1840s, brought welcome new income to the islanders.

History of Sustainability

For many, St Kilda is the epitome of an idyllic community, living in harmony with nature for hundreds, if not thousands, of years, but ultimately seduced by the comforts of modern life. It is a story of long-term sustainability, relying on remarkably few natural resources, and leading to the unusual reliance on birds for food and comfort (oil for lamps, feathers for bedding, and even puffins for snacks). The islands are littered with evidence of this way of life, including several prehistoric and early historic remains of exceptional preservation in a Western European context. This perception of simple sustainability was a picture of St Kilda that was painted by visitors from early times, but is so vividly captured in the photographs of the island way of life, caught for posterity from the early days of photography to the evacuation in 1930. Few other rural agricultural communities of this period can have had more written about them, and we are particularly fortunate that many traditions and superstitions of the St Kildans have been handed down to us in writing, poetry and song.

Easter Island’s diminishing resources

The story we currently understand about Easter Island has some parallels with St Kilda. Easter Islanders had a similarly meagre existence to the St Kildans. They too relied for food on a very restricted diet – mainly on sweet potatoes and chicken. However, the much more extreme remoteness of Easter Island led to such a divergence of cultural traditions from the rest of humanity, that the sustainability of natural resources became secondary to the pursuit of increasingly unsustainable religious practices – ultimately leading to the demise of the community.

Tristan da Cunha

There are several similarities between St Kilda and this remote island group far out in the south Atlantic. Populations on both relied heavily on the seabird harvest, and used adjacent islands for some of their grazing animals. Both island groups suffered from a lack of communications, and have similar histories of emigration and boating disasters. Both lack safe anchorage and their economies suffered in the 20th century through a reduced demand for produce. But Tristan da Cunha lacks the cultural time-depth of St Kilda, and the preservation of the cultural landscape of St Kilda is in no way mirrored on its south Atlantic counterpart.

Soay sheep

Soay sheep are arguably the oldest and best preserved cultural artefact in Scotland. They are believed to be more or less unchanged since the earliest sheep were domesticated by Neolithic farmers – perhaps some 7,000 years ago. The wild ancestors of sheep (an entirely natural creation) were taken into captivity and subjected to selective breeding by the early farmers to form domestic breeds of sheep. In the same way as any other object fashioned by the human hand – a rock carving, a building, an item of clothing, a cultural landscape – they can be regarded as a cultural artefact. Any other artefact found in pristine condition, apparently exactly as used by Neolithic farmers, would be accorded the highest significance and subject to rigorous conservation measures. Soay sheep deserve this degree of recognition.
The story of successful use followed by decline and abandonment is not unusual in island communities on the western seaboard of Europe. Mingulay is another example of a Hebridean economy with a heavy reliance on birds, which ultimately failed in the 19th century. While the very remote island of North Rona was abandoned as early as 1844. Islands along Ireland’s west coast have had similar fates, and are also considered to be remote. The monastic community on the World Heritage Site of Skellig Michael went out of use in medieval times. Although perhaps not comparable to St Kilda in terms of economy or social organisation, it is, however, similarly rare in being a truly fossil landscape.

**Mingulay – ‘The near St Kilda’**

The island of Mingulay, towards the southern tip of the Western Isles, is sometimes referred to as ‘the near St Kilda’, and in several ways this comparison is justified. Like St Kilda, Mingulay was evacuated in the first part of the 20th century (1911) when the few remaining islanders were resettled. The island remains deserted apart from occasional visitors – including members of the British Royal family, for whom this is a favourite stopping-off point during their holidays. The comparison with St Kilda is in part due to the relative remoteness of Mingulay – not in terms of distances from other places, but because of the unreliability of the landing place; even today, like St Kilda, no matter what transport is being used, travellers will only be sure of getting there when their feet touch dry land.

The village on Mingulay survives extremely well, in part because many of the huddle of blackhouse shells have been inundated with sand – often to wall-head height. While being buried in sand is generally excellent in terms of the long-term conservation of the remains, it does make it more difficult for visitors to imagine themselves standing in the middle of the village when it was in use – one of the most moving experiences of St Kilda.

Recent archaeological survey has revealed a number of significant remains of prehistoric and later date. Also owned by The National Trust for Scotland, Mingulay and the adjacent islands are currently the subject of more detailed archaeological investigation.

Like St Kilda, fowling was a significant activity in the lives and economy of the Mingulay islanders, and the cliffs continue to be home to large populations of seabirds. However, fishing formed a larger part of the Mingulay economy, as, although still dangerous, the waters around Mingulay are less treacherous than those further into the Atlantic Ocean.

Mingulay Village is nucleated, and was never restructured like Village Bay on Hirta. Nor does the island benefit from anything approaching the wealth of documentary information that has been written about St Kilda. Nevertheless, Mingulay is a place where it is possible to step into the past, and to enjoy the idyllic peace and tranquillity of the Hebrides.

Similar in area to Hirta, Mingulay’s (840ha) cliffs are only about half the height of St Kilda’s. They hold large colonies of seabirds – more than 8,000 pairs of northern fulmar, 3,000 black-legged kittiwakes, thousands of guillemots and razorbills, about 400 shags and two-dozen great skua. Mingulay has 13 species of breeding seabirds (compared with 17 species on St Kilda), lacking small petrels, shearwaters, Arctic skua but having about a dozen pairs of Arctic terns. There are some 3,500 pairs of northern fulmars and the same number of black-legged kittiwakes, several thousand common guillemots and Atlantic penguins, fewer razorbills, gulls and storm-petrels (both European and Leach’s), and about 150 pairs of European shags. No more than 20 pairs of great skua breed, hemmed in by a colony of almost 1,000 pairs of great black-backed gulls. With more space the great skuas of St Kilda have increased in the same time period to about 170 pairs. Despite its tiny size, North Rona has the same number of breeding landbirds as St Kilda. It has no small mammals but, with a third of its area being a low-lying peninsula, some 1,100 grey seal pups are born every autumn – very many more than on the cliff-bound coast of St Kilda.

Due to its small size North Rona has been well surveyed for plants and it is not surprising perhaps that it is scant in species compared with St Kilda. Amongst lowland plants for instance, 87 species of lichens have been recorded (compared with 194 for St Kilda); only eight liverworts and 14 mosses (compared with 56 and 104 respectively for St Kilda).

**North Rona – ‘the Distant Isle’**

Although much smaller in scale (only 120ha in extent and 107m at the highest point), with much less spectacular topography, the island of North Rona bears some similarities to St Kilda. It is owned by Barvas Estate but managed since 1956 by Scottish Natural Heritage as a National Nature Reserve. Extremely remote, and with a heavy reliance on fowling, the small community on North Rona lived in a cluster of houses of medieval origin, adjacent to a chapel dating from the 7th or 8th century. The village was not affected by the early 19th-century fashion for restructuring, largely because the island has been deserted since 1844. This makes the remains of particular interest in terms of Scottish medieval or later rural settlement studies.

North Rona has 14 species of seabirds, against St Kilda’s 17, lacking northern gannet and Manx shearwater and Arctic skua but having about a dozen pairs of Arctic terns. There are some 3,500 pairs of northern fulmars and the same number of black-legged kittiwakes, several thousand common guillemots and Atlantic penguins, fewer razorbills, gulls and storm-petrels (both European and Leach’s), and about 150 pairs of European shags. No more than 20 pairs of great skua breed, hemmed in by a colony of almost 1,000
Irish Seaboard Islands

Skellig Michael

The best surviving example of an isolated early medieval monastic island settlement on the Celtic fringe of Europe, Skellig Michael gives us clues about what parts of St Kilda might have looked like in these early times – from around the 6th to 8th centuries AD. A spartan and very remote existence, the monks lived on birds, eggs and fish, along with produce from a sheltered monastic garden.

The monks lived in cellular beehive structures made from local materials. Although much later in date, Calum Mor’s house in Village Bay, Hirta, could represent an evolutionary development of this type of structure. There is, however, only circumstantial evidence for the presence of an Early Christian monastic community on St Kilda.

Skellig Michael was inscribed on the World Heritage List in 1996.

Innishmurray

Also with very well preserved monastic remains, but of more typical form, Innishmurray has a long history of occupation which ended in 1948 with the evacuation of the last 46 inhabitants. Only four miles offshore, the island was nevertheless cut off for weeks at a time during winter, and for several days each summer.

Like St Kilda, natural resources were relatively poor and restricted, but on Innishmurray the food supply was based on fish rather than birds. In the 19th century and up to the evacuation, however, the economy was mainly based on the sale of illicit whiskey.

Great Blasket

With a population of up to 200 in the past, Great Blasket was abandoned on 17 November 1953 after a steady decline. In the early 20th century, scholars visited and encouraged the islanders to document their folklore and traditions, and a strong Irish Gaelic culture was recorded for posterity – in music, poetry and prose.

Up to the early 19th century rod fishing was practised, but a new type of boat opened out the possibilities of fishing on open waters. Other than in times of food shortages, birds and their eggs were taken more as a delicacy than as part of the staple diet.

Although the arrangement of the villages differs, the house type has similarities with those of St Kilda’s Village Bay. Originally thatched with reeds, felt was later used for roofing.

Innishmaan

One of the Aran Islands, the geology of Innishmaan was suitable for creating dykes around the small fields to protect the meagre soils from erosion. The resultant landscape has created an impressive pattern of conjointing fields, part of a continuing cultural landscape.

Tory Island

The distinctive arc of Village Bay on St Kilda is a response to the form of the available landscape and the resources within it. A similar layout survives, on Tory Island on the west coast of Ireland, where the arc of the village fits within a small area of land suitable for agriculture, and a fan of strip fields emanates from the house plots.

While many of the places cited above have fascinating stories to tell, St Kilda retains by far the most evocative physical legacy of a tiny, remote island community, dwarfed by nature yet able to live in harmony with its environment until the values and influences of the wider world made the islanders’ way of life untenable. Today, visitors can still stand in the village street and easily imagine the community in its heyday, and it is this experience that touches the heart of everyone who has made the pilgrimage to the island ‘at the edge of the world’.
c. Authenticity/integrity

Natural

The proposed boundary of the extended St Kilda World Heritage Site encompasses the entire terrestrial components of the archipelago (854.6ha) and a significant adjacent sea area (23,346.8ha) for a total of 24,201.4ha. The terrestrial area of St Kilda (to High Water Mark) is already inscribed on the World Heritage List on the basis of natural criteria ii and iv. In addition to seeking inclusion for St Kilda on the World Heritage List for additional natural criteria ii and iv, this re-nomination proposes to extend the site boundary into the marine area.

Research in the St Kilda area has demonstrated the importance of these sea areas to the globally important breeding seabirds for such activities as feeding, preening, loafing and moulting (see maps on page 27). Research on other Scottish islands has also demonstrated the value of such sea areas to island breeding seabirds.

Under its obligations in respect of the European Union, the United Kingdom is seeking Special Area of Conservation (SAC), Special Protection Area (SPA) status for the St Kilda archipelago. SAC status will protect the vegetated sea cliffs and the marine communities of the islands. SPA status will further protect the seabirds on the island itself and in the surrounding sea areas.

The proposal to extend the World Heritage Site boundary into the sea area around the islands, and to make the boundaries of the SAC, SPA and WHS identical, will significantly strengthen protection of the natural heritage of the area. The protected area will include the sea areas that are important to the seabirds and also contains important seabed communities. The proposed inclusion of the sea areas in the World Heritage Site will therefore significantly add to the outstanding universal value of the property as a whole.

The proposed boundary of the site encompasses the entire terrestrial and underwater topographic features that are the result of the preferential erosion of an ancient volcano and include the full range of rock types found in the area. The site also comprises the full range of glacial, periglacial and coastal landforms of the archipelago, including much of the remarkable assemblage of submerged coastal features. The 35km long coastline of St Kilda is entirely natural and undeveloped, except for short lengths of coastal defences and two landing facilities adjacent to the historic settlement and MoD Base in Village Bay. The landing facilities comprise a narrow concrete ramp cutting across the boulder beach in the north-west corner of the Bay, and a concrete pier in its north-east corner. Between these, a 60-m length of stacked gabion baskets protects some of the military property from coastal erosion. Further east, two 10-m lengths of baskets also protect a more recent septic tank. Though visually prominent, none of these structures impacts upon the landforms or rocks for which the site is so noteworthy.

Despite its long history of human occupation, the islands and stacks comprising the St Kilda archipelago have retained their natural integrity. Sheep have grazed much of the archipelago since people first arrived. Other human impacts have been largely confined to the walled area around the shores of Village Bay where some plant communities have been modified by previous traditional agricultural activities, such as cultivation and stock grazing. Some minor changes, probably part of a reversion back to its previous status, are being detected since the evacuation of the islanders in 1930. All domestic blackface sheep were removed from Hirta at the time of the evacuation but this loss of grazing pressure was soon negated by the introduction from the nearby island of Soay of 107 Soay sheep. Not being actively managed, the numbers of this feral flock fluctuate cyclically, apparently in synchrony with the parent wild population left on Soay, and with the primitive blackfaces abandoned on Boreray. It is thought likely to be from a density independent cause, such as climate, rather than the consequence of overgrazing. The sheep have contributed to the diversity of plant communities on the islands that they inhabit notably the interesting lichen swards on Hirta. Dun, on the other hand, where there is no grazing, has less floristic diversity.

Remarkably, with such a long history of human occupation, there have been few introductions, mostly a few plants (and probably some small invertebrates) which are confined to the Village area and cultivations. The house and fieldmice might be considered such introductions but of such antiquity that they have evolved into unique natural interests in their own right. The former is now extinct, surviving only for a few years after the evacuation. Rats, mink and other land mammals are absent; these are important predators on many other seabird colonies and their absence is an important factor in the success of the seabird populations.

Human impact outwith the Village area and Gleann Mor has been largely limited to the construction of cleitlean and other structures and the cutting of turf for fuel (long since ceased), together with the exploitation of the seabirds for food. Undoubtedly this would have impacted on numbers but it is apparent that this harvesting was undertaken in a highly sustainable manner so that only one species became extinct – the great auk around 1840 – at exactly the same time as it was wiped out in the rest of its range. The housemouse became extinct a few years after the evacuation of the human residents. A few feral cats were left behind for a year or two, before they were shot out. They no doubt hastened the demise of the housemouse, but the fieldmouse thrived and have expanded their range to include the village and the modern MoD Base. There are few if any instances of housemice and fieldmice surviving alongside one another on the same small island, without the presence of humans. Biologists have always regretted not transferring housemice to Boreray where they might have had a chance of survival in the absence of any fieldmice. Certainly the prospects for the housemice would have improved had they persisted until the MoD Base was established two decades later.

The shores and sea bed around St Kilda are more or less devoid of any human impact. The area adjacent to the historic settlement in Village Bay and current MoD Base has been altered to a small degree with the construction of a pier and of some localised shore defences. The remainder of the intertidal area is essentially unaffected by human intervention and the populations of animals and plants present there can be regarded as entirely natural. There is currently only very limited, sporadic fishing activity within the general area during the summer months, restricted largely to the setting of creels that have little direct impact on the seabed sediments and the associated benthos other than the target species.

The site also includes the main sea area used by the breeding seabirds for critical activities such as preening, loafing and moulting.

Seabirds breeding on St Kilda forage over a wide area of the North Atlantic. Species such as the auklets might fly more than 30km daily towards the west coast of the Outer Hebrides to forage while the storm-petrels and Manx shearwaters roam over much larger distances off the continental shelf to search for food. The larger gull species probably fly only short distances to forage and possibly also scavenger, and species such as the European shag and the black guillemot have an inshore distribution at all times and exploit small fish only short distances from the St Kilda coast. However, for the most part, the foraging areas of...
St Kilda seabirds are extremely large and disjunct, defying accurate identification. Most species do feed immediately around St Kilda but the waters here are used, perhaps on a daily basis, primarily for purposes other than feeding. These inshore areas are used mainly for display, courtship, bathing and preening. They are also used by non-breeding birds for maintenance activities such as washing and preening. Such areas are more discrete and more readily identifiable than more distant feeding locations.

There are few data that indicate exactly where seabirds occur in those parts of the sea immediately adjacent to St Kilda. Analyses of the available at-sea survey data do suggest core areas of use for various species (see Figures 2.1 a-c). Similar, more detailed analyses of the first ever small-scale surveys at sea very close to seabird colonies around Britain confirm a widespread pattern of use of the waters next to colonies by seabirds. In contrast to the distribution of feeding activities such as feather maintenance and courtship are not so site-specific: the pattern of use of these waters for these purposes is remarkably consistent among important British seabird colonies. Highest densities and numbers of the three auk species (Atlantic puffin, common guillemot and razorbill) engaged in non site-specific behaviour were observed within 1 km of the colony shore and highest densities of northern gannets were recorded within 2 km of the shore. In addition, greatest use of the sea around colonies by the northern fulmar, the black-legged kittiwake and the European shag also occurred within 1 km of the colonies. Figure 2.2 shows the typical pattern of occurrence of common guillemots in relation to distance from the colony shore at the Isle of May, off the east coast of Scotland.

Thus, in contrast to feeding, seabird use of the sea around colonies for body maintenance and courtship probably pertains to all species and all breeding individuals (as well as many non-breeders), rendering these waters of global ecological importance. Consequently, such areas, including those around St Kilda, are currently being proposed as marine Special Protection Areas under the EU Birds Directive.

**Figure 2.2.** Mean interpolated common guillemot density (birds.km⁻²) in 200 m distance bands off a typical colony (in this case the Isle of May, east Scotland from four at-sea surveys in June 2001).
Factor’s House – Interior plan retained, now used to accommodate the St Kilda Warden and natural heritage researchers;

Church and Schoolroom – Re-roofed, repaired, and restored internally. Services held occasionally in the church; schoolroom interior restored and schoolroom furniture used for exhibition purposes;

Store – Ruin reconstructed to appearance before destruction in 1918 by German U-boat. Used to house researchers, and as a store;

Manse – The only historic building to have been substantially altered internally without regard to its historical layout. Provides accommodation for Base staff, contractors and visitors.

Many other structures along the Street and in the Village Bay area of Hirta have been carefully maintained for over 40 years, and retain their appearance from the time they came into the care of the NTS. Work Parties regularly undertake like-for-like repair of unroofed houses, cleitean (mainly within the Village Bay area) and drystane dykes (walls). Work Parties also undertake conservation painting of the gun beside the Store – installed in 1918 following a U-boat attack.

Ministry of Defence Constructions

Even as early as 1957, the NTS was careful to restrict modern developments to areas least likely to affect underlying archaeological deposits or to compromise historic structures. The present Base, built in 1969, lies in glebe land (associated with the church) which is shown on 19th-century maps as being under cultivation, and no significant structures are thought to have been removed in order to accommodate the new buildings. Trial excavations in 1987–88 showed that some areas had been badly disturbed during the construction, but also showed little evidence that earlier deposits had been present in this arable area.

Apart from the main Base, several infrastructure features have had an impact on the landscape, but all are removable – albeit at considerable effort in some cases:

Road – Single-track concrete road leading from the Base in Village Bay to the radar facilities on top of Mullach Sgar and Mullach Mor, likely to remain as a scar for several decades if removed;

Helicopter/landing craft landing place – Large concreted area near the beach;

Fuel tanks – Near the beach, part-concealed;

Water tank – The main freshwater reservoir for the island, painted green to blend in; due to be removed and relocated underground;

Radar masts and associated equipment buildings – Largely removable, but on barren hilltops where vegetation would be very slow to recolonise bare areas;

Gabion baskets – Coastal defences which themselves promote erosion at the edges and may lead to major collapse if removed; subject to current coastal erosion management study;

Ablutions block – Beside Factor’s House, used for shower, washing and toilet facilities for Work Parties and campers. One of the last remaining structures from the early phase of the Base, it is easily removable;

Quarry – Beside the road, half-way up the hill, it has potential for land fill but would be very difficult to fully reinstate.

Measures are being put in place, where deemed appropriate, to allow for the removal of all or part of the installation at the end of the MoD lease. Prior to removal all such features will be carefully recorded at an appropriate level of detail. In the meantime, the MoD and NTS are working to remove redundant structures and minimise the visual impact of those still required.
d. Criteria under which inscription is proposed (and justification for inscription under those criteria)

Natural Heritage

The natural heritage of the St Kilda archipelago is multifaceted and complies with all aspects of the interpretation of 'natural heritage' as presented in the UNESCO World Heritage Operational Guidelines 1999, Para. 43:

- 'natural features consisting of physical and biological formations or groups of such formations, which are of outstanding universal value from the aesthetic or scientific point of view;
- geological and physiographical formations and precisely delineated areas which constitute the habitat of threatened species of animals and plants of outstanding universal value from the point of view of science or conservation;
- natural sites or precisely delineated natural areas of outstanding universal value from the point of view of science, conservation or natural beauty.'

This nomination satisfies criteria 44 (a) (i) - (iv) of the UNESCO Operational Guidelines of 1999 in that World Heritage properties must meet one or more of the following criteria:

44 (a) (i) 'be outstanding examples representing major stages of earth’s history, including the record of life, significant on-going geological processes or the development of landforms, or significant geomorphic or physiographic features';

The St Kilda archipelago illustrates ongoing geomorphic processes in the coastal and submarine environments. The combined terrestrial/marine landscape is unique within the Palaearctic Realm. St Kilda is globally significant in terms of its size and diversity. The sea areas around the islands are important and significant for the conservation of species (land birds, small mammals) that have adapted to the conditions on the islands, and for the remnant populations of Neolithic sheep. The seabed communities surrounding the islands are outstanding in terms of biodiversity and composition. St Kilda is currently inscribed on the World heritage List on the basis of criteria (iv).

44 (a) (ii) ‘be outstanding examples representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals’;

The terrestrial biology of the St Kilda archipelago provides an outstanding example of remote island ecological colonisation and subsequent genetic divergence under isolation. It is unique within the Palaearctic Realm and is significant at the global level. The seabed communities surrounding the islands are outstanding in terms of biodiversity and composition and the marine area plays an essential role in the ecological support of the seabird colonies.

44 (a) (iii) ‘contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance’;

The sea cliffs of the archipelago, set in a remote offshore location, with the sights and sounds of one million seabirds at the height of their breeding season, make St Kilda a very special place in terms of natural phenomena, natural beauty and aesthetic quality.

St Kilda is currently inscribed on the World Heritage List on the basis of criterion (ii).

44 (a) (iv) ‘contain the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation;

St Kilda’s seabird communities are unique within the Palaearctic Realm and are also globally significant in terms of their size and diversity. The sea areas around the islands are important and significant for the conservation of species (land birds, small mammals) that have adapted to the conditions on the islands, and for the remnant populations of Neolithic sheep. The seabed communities surrounding the islands are outstanding in terms of biodiversity and composition. St Kilda is currently inscribed on the World heritage List on the basis of criterion (iv).

Cultural Criteria

St Kilda also fits with three of the cultural criteria defined by UNESCO (UNESCO World Heritage Operational Guidelines 1999, Para. 24):

24 (a) (iii) the islands bear an exceptional testimony to a cultural tradition which has now disappeared, namely the reliance on bird products as the main source of sustenance and livelihood and of the crofting way of life in Highland Scotland. St Kilda also represents subsistence economies everywhere – living in harmony with nature until external pressures led to inevitable decline;

24 (a) (iv) the village is an outstanding example of a type of building ensemble or landscape, which illustrates a significant stage in the human history of Scotland; the establishment of crofting townships and land allotment, and the restructuring of communities by remote higher authorities which often led to the mass emigration of Scots and establishment of Scottish enclaves around the world;

24 (a) (v) similarly, the village and associated remains are the most complete example of a traditional human settlement and land-use which is representative of 19th-century rural Highland Scottish culture which, in 1930, became the victim of irreversible change.

Cultural Landscape

‘Cultural landscapes often reflect specific techniques of sustainable land-use, considering the characteristics and limits of the natural environment they are established in, and a specific spiritual relation to nature. Protection of cultural landscapes can contribute to modern techniques of sustainable land-use and can maintain or enhance natural values in the landscape.’ (UNESCO World Heritage Operational Guidelines 1999, Para. 38).

There are two strands to the cultural landscape of St Kilda. The first falls under UNESCO Cultural Landscapes Category i: the planned settlement which now surrounds Village Bay is a clearly defined landscape designed and created intentionally by man. Rather than consciously being designed for aesthetic reasons, however, the village was created in the early 1830s as a deliberate attempt to ‘improve’ the social and economic use of the island’s agricultural resources, in line with similar initiatives elsewhere in the Scottish Highlands.

However, the mid-19th-century pattern of the village is the endpoint (and counterpoint) what was until then an organically evolved landscape (Cultural Landscapes Category ii). This landscape developed both physically and spiritually, inextricably in response to its natural environment over 5,000 or more years. The St Kilda archipelago is particularly well described by sub-category ‘a’ of Cultural Landscapes Category ii: a fossil landscape in which an evolutionary process abruptly came to an end at some time in the past: the actions of the 1830s fossilized the earlier settlement and boundary patterns; whilst the evacuation of the 1930s and subsequent history have resulted in the fossilization of most of those of the mid-19th century. Many of its significant evolutionary features are, however, still visible in material form, and the village and other features have been preserved since coming into the ownership of the NTS.
The description of St Kilda that does not contain superlatives has not been written …

It is a place of high cliffs, moody weather and teeming bird life. All of those add to the qualities of St Kilda, but so much of what is special about the islands is rooted in its human history.

Description

a. Description of Property

Natural Heritage

The rocks of the St Kilda archipelago comprise the St Kilda Central Complex. This complex was intruded into Lewisian gneiss, which represents some of the oldest rocks in the world. The contact between the Lewisian basement and the St Kilda Central Complex lies offshore and is not exposed anywhere on the archipelago. The Lewisian ‘country rocks’ date back some 3,000 million years and crop out over a structural horst block known as the Outer Hebrides Platform. They form the metamorphic basement in much of the Foreland Province to the Caledonian mountain belt or orogen, which includes much younger, metamorphic rocks designated as Dalradian and Moine. By contrast with the ancient Lewisian rocks, the St Kilda Central Complex was formed only around 55 million years ago during an intense, but relatively short-lived, phase of igneous activity. This igneous episode occurred when the northern remains of the continent of Pangaea were breaking apart, with the formation of the North Atlantic Ocean.
The North Atlantic Ocean formed as the continental crust between the western British Isles (and the rest of the European landmass) and Greenland (together with North America) was stretched and thinned. When an upwelling of hot mantle, known as a plume, impinged upon the thinned continental crust, vast outpourings of lava erupted through fissures that opened in the crust. As continental rifting continued, the fissure-style eruption ceased and volcanism became centred upon several discrete volcanic foci. The present-day East African Rift Valley, with its huge volcanic peaks, represents modern continental splitting (or rifting), which is analogous to the earliest stages of the rift between the western British Isles and Greenland in latest Cretaceous and Paleogene times, around 65 million years ago.

The most intense volcanic activity in the northwestern British Isles occurred during the Paleocene and early Eocene (c. 63-52 million years ago). Volcanism was most vigorous in western Scotland (the Hebridean Province) but also extended to north-east Ireland, north-east England, North Wales and the Bristol Channel. The region encompassing this activity has been commonly referred to as the British Tertiary Volcanic (or Igneous) Province (BTVP).

A few kilometres below the central volcano that probably once existed above the St Kilda Central Complex, large bodies of magma accumulated in chambers. The magma ultimately rose and fed the volcano at the surface, with explosive eruptions of lava and ash. More often than not, the rising magma was forcibly emplaced, or intruded into fissures and voids within the crust below the volcano and did not reach the Earth’s surface. Within the magma chambers, the composition of the liquid magma was altered as the first-formed mineral crystals settled from the melt. This gave rise to magmas of varying composition from basic (silica-poor rocks such as gabbro and dolerite) to acid (silica-rich rocks such as granite, microgranite and felsite). It is the eroded remains of these intrusions and magma chambers that are magnificently exposed today on the cliffs of this archipelago.
Of all the islands of the St Kilda archipelago, Hirta and Dun have the most varied geology. The other islands of Soay, Boreray and surrounding stacks, and Levenish appear to be made up of breccias (fragmented and reconsolidated masses) of gabbro and dolerite cut by a few composite felsite-dolerite sheets (thin sheet-like intrusions).

The earliest (or oldest) intrusion in the archipelago, is the Western Gabbro, which is a coarse-grained layered intrusion, forming the western edges of Hirta and Dun. The layering, which is a reflection of varying modal proportions of ferromagnesian minerals (principally olivine and diopside augite) and plagioclase, dips towards a focus c. 2 km ENE of Hirta, which probably represents the centre point of the original mass of molten magma. The gabbro also contains minor orthopyroxene, amphibole, spinel and iron-titanium oxides. This gabbro became crushed and sheared and then veined by numerous sheets of basalt and dolerite on the west cliffs of the Cambir. Similar breccias of fine-to-coarse grained basic rocks, form the outlying islands and north Hirta.

The Glen Bay Gabbro intrudes and is chilled against the basic breccias. The chilled contact on the east of Glen Bay is most unusual among the gabbroic intrusions of the Hebridean Province in possessing a complete textural gradation from a 10 mm border zone of splintery, glassy basalt (evidence of very rapid cooling) to coarse-grained gabbro, exposed on the east side of the bay. Normally, these gabbros are not conspicuously chilled against other basic bodies and presumably the molten intrusion was emplaced into cold solidified rock. Fine, vertical banding occurs in the marginal zone parallel to the contact and the effects of chilling are estimated to extend for 100-120 m into the gabbro. Gabbro on the west of the Bay is much sheared and granulated and is separated from the eastern outcrops by the oldest granite on Hirta, the Glen Bay Granite. This granite is chilled against the earlier gabbro, showing that it was intruded after it.

The pervasive shattering of many of the St Kilda gabbros and dolerites to form breccias, is a striking feature of the St Kilda Central Complex and suggests that explosive release of water may have occurred towards the end of their solidification, followed by rapid injection of quickly cooled basaltic magma. It is also possible that the highly unusual glassy, quenched contact of the Glen Bay Gabbro may owe its origin to high-temperature, hydrothermal quenching.

The next intrusion phase involved four pulses of mixed basic and acid magmas that formed the Mullach Sgar ‘complex’ that crops out between Glen Bay and Village Bay. This group of rocks includes dolerite, microdiorite, microgranite and rocks of hybrid (mixed dolerite and granite) aspect. Angular and lobate masses of marginally chilled basic rocks occur in more acid matrices and are veined by felsic (acid) material. A large amount of shattering of the dolerite and basalt has occurred, giving areas of complex net-veining. It has been suggested that initial intrusions of basaltic magma were followed successively by granitic magma and further basalt. The Mullach Sgar ‘complex’ provides a superb example of the coexistence of acid and basic magmas and their near simultaneous intrusion.

The final major intrusion is the Conachair Granite that forms the high ground north-east of Village Bay. This granite intrudes the Mullach Sgar ‘complex’ without notable chilling along the contact. The granite typically contains the minerals quartz, feldspar and plagioclase, with minor amounts of biotite and amphibole. Other accessory minerals include zircon, sphene, rutile, andradite, titanomagnete, fluorite and needle-like, deep-brown crystals of the rare-earth-bearing silicate chevkinite. The Conachair Granite characteristically has a microgranitic texture, commonly with a considerable content of intergrown quartz and feldspar. Some of the larger quartz crystals are interpreted as corroded, inverted high-temperature quartz. Radiometric age determinations on this granite give a date of c. 55 million years ago, indicating a Paleocene age.

Several generations of small (or minor) intrusions with compositions ranging from basalt to rhyolite have been recognised. Commonly these occur as dykes and also as inclined sheets whose disposition suggests that they once formed a classic set of cone-sheets. Many of the inclined sheets cut the Conachair Granite and are therefore the latest intrusions on St Kilda.

Later during the Paleogene and Neogene, over a period of some 50 million years, the St Kilda volcano was reduced and fragmented through processes of subaerial weathering and erosion, glaciation and marine erosion. Today we see only the drowned remnants of the former landscape.

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The testimony of the rocks of St Kilda to the posteriority of the granophyre to the gabbros and basalts is thus clear and emphatic. It entirely confirms my previous observations regarding the order of sequence of these rocks in Mull, Rum and Skye. But the St Kilda sections display, even more strikingly than can be usually seen in these islands, the intricate network of veins which proceed from the granophyre, the shattered condition of the basic rocks which these veins penetrate, the remarkable liquidity of the acid magma at the time of its intrusion, and the solvent action of this magma on the basic fragments which it enveloped. The testimony of the rocks of St Kilda to the posteriority of the granophyre to the gabbros and basalts is thus clear and emphatic. It entirely confirms my previous observations regarding the order of sequence of these rocks in Mull, Rum and Skye. But the St Kilda sections display, even more strikingly than can be usually seen in these islands, the intricate network of veins which proceed from the granophyre, the shattered condition of the basic rocks which these veins penetrate, the remarkable liquidity of the acid magma at the time of its intrusion, and the solvent action of this magma on the basic fragments which it enveloped. The testimony of the rocks of St Kilda to the posteriority of the granophyre to the gabbros and basalts is thus clear and emphatic. It entirely confirms my previous observations regarding the order of sequence of these rocks in Mull, Rum and Skye. But the St Kilda sections display, even more strikingly than can be usually seen in these islands, the intricate network of veins which proceed from the granophyre, the shattered condition of the basic rocks which these veins penetrate, the remarkable liquidity of the acid magma at the time of its intrusion, and the solvent action of this magma on the basic fragments which it enveloped.

Quotation from Geikie 1897. (Vol. 2, p. 416)
It is likely that the majority of the Hebrides Shelf was covered by ice during Anglian (Elsterian) times (approximately 480,000 to 380,000 years ago), during which time sediment was supplied to the slope and basin. Although there is no Wolstonian (Saalian) age (approximately 300,000 to 130,000 years ago) sediment proven on the Hebridean margin, this does not preclude shelf glaciation during this period. Consequently, the presence of reworked red sandstone on St Kilda might be attributed to transport from the east during either or both of these glacial phases.

During Devensian (Weichselian) times (approximately 110,000 to 11,500 years ago), the balance of evidence suggests that St Kilda was not covered by glacial ice derived from the Outer Hebrides or Scottish mainland, though the limits of this ice sheet appear to have been close. However, there is evidence for local glaciation on St Kilda in both the early and late Devensian. It is probable that to the north and south of St Kilda, ice reached the shelf break in the early Devensian and possibly also in the late Devensian.

During shelf glaciation large volumes of sediment were transported across the shelf and on to the slope, where they were deposited as fans (the Sula Sgeir and Barra fans) comprising glacial debris flows. Major ice streams sourced from the Scottish mainland supplied both of these fans and their equivalents north of the Wyville-Thomson Ridge. By contrast, the area west of the Outer Hebrides does not appear to have been crossed by major ice streams, although it is probable that smaller, slow-moving glaciers did transport sediments across this part of the shelf. The upper Pleistocene on the outer shelf and slope west of the Outer Hebrides comprises ice-distal mud that was deposited in a low energy, contour current regime.

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The weathered debris, where it accumulated on the slopes, was moved downhill by solifluction, producing solifluction sheets and lobes, for example on Mullach Sgar. On the east side of Village Bay on the path out to Ruaival, there are good exposures of these slope deposits. Similar deposits can be seen in the cliffs at the head of Glen Bay. On the evidence of these deposits it appears that Gleann Mor was not occupied by ice during the last main glaciation although it may have supported a smaller glacier during an earlier phase of the Ice Age.

A further set of landforms relates to a short, intensely-cold episode at the end of the last glaciation, between about 12,500-11,500 years ago, and known as the Loch Lomond Stadial. At this time, permanent snow or ice patches formed in the glen behind Village Bay. Rockfall debris from the cliffs above accumulated at the foot of these snow/ice patches forming clear ridges, known as protalus ramparts. Two striking examples occur at the base of the slopes below Mullach Sgar and Conachair.

The associated climate change also affected the wider environment and vegetation. The sediments which infill a small topographic basin in Gleann Mor on Hirta contain a valuable pollen record of the vegetation changes that occurred during the interval since the end of the last glaciation (the last 11,500 years). During the Loch Lomond Stadial, an open tundra landscape existed and was characterised by the presence of willow, purple saxifrage, mountain sorrel and wormwood.

Following the climatic amelioration at the end of the stadial and during the middle part of the postglacial period, around 6,000 years ago, the vegetation comprised a mix of floristically diverse grassland (plantains, cinquefoils, docks, Compositae and Polypodium) and heathland (crowberry, ling) communities. However, there is no evidence for the development of a cover of wood scrub or colonisation by trees. The climatic shift associated with the establishment of this floristically diverse vegetation is a reflection of a change to more oceanic conditions in north west Europe, following the post-glacial rise in sea levels. Later, there was a marked decline in the presence of the heathland and an expansion of plantain grassland, possibly indicating wetter and stormier conditions with salt spray being blown across the island. These records probably reflect the marked deterioration in climate, which occurred throughout north west Europe around 2,500 ago.

Figure 3.6: Geomorphology map of Hirta (Reproduced from ‘Late Quaternary glaciation and environmental change on St Kilda, Scotland, and their palaeoclimatic significance’ by Sutherland, Ballantyne and Walter from Boreas, www.tandf.no/boreas, 1984, 13, 261-272, by permission of Taylor & Francis AS.)

Hydrographic Office charts of St Kilda:

- a) 1831
- b) 1900
- c) Chart 2524 (1985)
A change to drier and less stormy conditions is then indicated by a decline in maritime grasses and an expansion of heathland, at the expense of the formerly extensive maritime communities on Hirta around 2,000 ago when a period of more stabilised climate persisted in the North Atlantic. The last 400 years or so saw a return to the dominance of maritime plantain grasslands at the expense of heathlands reflecting wetter and stormier conditions. This may coincide with the climatic deterioration associated with the Little Ice Age, in the north west of Europe during the 16th to 18th centuries. The anthropogenic effects on the vegetation succession on Hirta have been negligible until very recently. The clearest evidence of human activity occurs in the uppermost 0.2m of the pollen profile where higher frequencies of cereal type pollen are encountered. Therefore, the pollen profile at Gleann Mor provides an excellent and extremely rare proxy of climatic change over the last 6,000 years, in an environment largely free of anthropogenic impacts.

Coastal Geomorphology

The St Kilda archipelago lies 64km west of the Outer Hebrides. The largest islands and stacks within the archipelago are Hirta, Dun, Soay, Levenish, Boreray, Stac Lee and Stac an Armin. The entire archipelago comprises a coastline of over 35km in length that is notable for its dramatic assemblage of rock coast landforms. The coastline is almost entirely cliffed, with Conachair (430m) on the north coast of Hirta forming the highest cliff in Great Britain and Ireland, and Stac an Armin (191m) off Boreray, the highest sea stack. Major variations in the hardness and structure of the different types of igneous rocks that compose the islands within the Hirta group have been differentially exploited by wave erosion to produce an exceptionally varied cliffline. Superb examples of sea caves, arches, tunnels, stacks and stumps are also present along this geomorphologically spectacular coastline. However, shore platforms are largely absent.

Over time, the igneous rocks of Hirta have been affected by numerous processes: glaciation and associated sea-level change; marine erosion and subaerial erosion, all of which have played a part in the evolution of the coastal landform assemblage. The effect of these processes in this high energy environment has produced the distinctive and spectacular assemblage of coastal rock landforms, at both present sea level and lower sea levels, comprising a geomorphological interest that is unparalleled internationally.

Coastal Processes

Winds

The predominant wind directions are from the southwest and south. High wind speeds (in excess of 70 mph) occur on a regular basis within the more exposed St Kilda archipelago and wind erosion of the vegetated cliff slopes is prevalent, especially where this occurs in association with salt spray erosion/weathering.

Waves

The isolation of St Kilda along the north-western edge of the continental shelf also means that the islands are constantly subject to severe high energy swell waves which are generated across the open expanse of the North Atlantic Ocean. Significant wave heights exceed 5m for over 10% of the year, and 2m for over 75% of the year. The predicted 50-year wave height immediately to the west of the Outer Hebrides is 35m, which is significantly greater than for other parts of the UK coast and the 50-year wave height further to the west, around Hirta will almost certainly be above that value.

The dominant southerly and south-westerly wind directions mean that the most frequent high energy storm waves are also generated from these directions. However, even Village Bay on Hirta which is considered one of the safest anchorages on the islands (the only other is Glen Bay), is notoriously treacherous during high-energy storms. Open fetch conditions occur in all directions, and the coastline is prone to attack by storm waves generated from every sector.

Bathymetry

The cliffed coastline of the islands and stacks that comprise the archipelago plunges to depths of ~40m. Water depths shallow abruptly in two steps from ~120m to ~40m and then to ~40m at the foot of the cliffs. Marine erosion is in the process of dissecting the island into a series of sea stacks. The stack of Levenish on the south-east of Dun was probably formerly attached to the island.

The coastline of Hirta is characterised by deep-set embayments and spectacularly high cliffs. Cliffs are more exposed to the north-west and south-east. Some particular examples are highlighted rather than an exhaustive survey presented.

Coastal Landforms

The archipelago provides representative examples of vertical, composite and reversed cliff profiles, geos, sea caves, arches, tunnels, stacks and blowholes. Some particular examples are highlighted rather than an exhaustive survey presented. The south-west coast of Dun is characterised by vertical lower cliff faces which plunge directly into deep water, and a complex of stacks, caves, arches, blowholes and narrow inlets at all stages of formation. It is extremely irregular in plan with several deep geos passing into caves that penetrate through this narrow (in places less than 100m wide) island. These are partially controlled by north-east – south-west fault lines. A spectacular natural arch occurs near Gob an Duin, which is almost 50m long and 24m high. The caves and geos have generally been eroded along the line of dykes or thin, inclined sheet intrusions, where they crop out within wave reach. Hence, marine erosion is in the process of dissecting the island into a series of sea stacks. The stack of Levenish to the south-east of Dun was probably formerly attached to the island.

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Relative Sea-level Change and Submerged Coastal Landforms

During the coldest stages of the Ice Age, sea levels around St Kilda were up to 120m lower than they are today. Two distinct erosion surfaces (platforms) have been formed during the period of lower sea level, each backed by a line of cliffs. A superb assemblage of rock coast landforms including submerged caves, stacks and arches is associated with these cliffs, and platforms, in particular with the surface at –40m. These features have been subsequently drowned by rising sea level following the melting of the last ice sheet so that the platforms now lie submerged at 120m and 40m below present sea level. The lower surface covers at least 40km² and is believed to have been cut at the time of the maximum extent of the last Scottish ice sheet, around 22,000 years ago when sea level was around –120m. The upper surface is more complex, with two sub-surfaces occurring at around –80m and –40m. The higher stepped platform is thought to have been cut during the last cold spell of the Ice Age, around 12,600-11,500 years ago when local sea levels were 40m below present levels. Possibly both features partly represent inherited surfaces which were cut during earlier periods of relatively lower sea levels and re-occupied and extended during the Last Glacial Maximum and during the Loch Lomond Stadial, respectively.

Thus the large-scale form of the cliff line that characterises the present coastline of the St Kilda archipelago is essentially a relic feature. Although active today, as indicated by cliff-foot caves, geos, notches and overhangs, it has only been slightly modified by marine processes since the end of the last glaciation.

The spectacular plunging cliffed coastline around Boreray reaches altitudes of 384m on its eastern side, and is cut in dolerite and gabbro breccias. The coastline is characterised by lower overhanging cliff profiles, and is honeycombed with caves and geos. Two of the most impressive features associated with Boreray are Stac an Armin and Stac Lee both of which plunge into deep water. A north-west – south-east fault line cuts across the eastern side of Stac an Armin to produce its steep triangular cliff form.

The dramatic underwater scenery of St Kilda would have been one large island at the time of the Last Glacial Maximum, linked by the shore platform surfaces. The rise in relative sea level from 120m to 40m below present would have led to the separation of Hirta, Soay and Boreray. To the west, a pronounced 40m high cliffline separates this lower platform from the higher one which slopes gently between –80m and –40m. The present coastal edge of the St Kilda islands and sea stacks formed contemporaneously with the cutting of this upper platform so that the present cliffs and stacks continue 40m underwater. Hence, around 11,000 years ago, the cliffs at Conachar would have risen 470m above sea level and Stac an Armin would have towered 231m above the platform surface!

The present cliffline around the islands is exposed to extremely high energy swell and storm wave action so that coastal erosion might be expected to be highly effective today. However, the cliffline extends uninterrupted to –40m with no evidence of a clear platform or notch at or close to present sea level. This contrast with the submerged cliffs and platforms may reflect the involvement of cold-climate processes (particularly intense frost shattering and sea-ice processes in the intertidal zone) in the formation of the latter, as on high-latitude shores today. Thus, the absence of a modern shore platform does not signify the absence of erosion, but rather that present conditions are not optimal for shore platform formation. In effect the large-scale form of the St Kilda coastline is essentially a relic feature which was formed earlier in the Ice Age by a combination of frost shattering, sea ice and wave action. The submerged platforms, cliffs, caves, stacks, arches and tunnels and boulder beaches that form the dramatic underwater scenery of St Kilda therefore reflect a particular combination of conditions that is not exactly replicated today.
Seabed Sediments

A revised map of the seabed sediments within the area around St Kilda has been prepared especially for this report by the British Geological Survey (BGS). This new interpretation is based on the BGS 1:250 000 scale seabed sediment map and new marine survey data provided by Scottish Natural Heritage, including swath bathymetry, over 100 seabed sample descriptions, Acoustic Ground Discrimination System data and interpreted marine habitats. In common with the published seabed sediments map series, this new interpretation uses a sediment size classification based on the system proposed by Folk. However, it should be noted that in this instance the sediment divisions illustrated on the revised map are not based on a rigorous grain size analysis of each sample, but on the general descriptions provided by Scottish Natural Heritage. Consequently, the revised map should be viewed as a preliminary reinterpretation. It is also notable that in areas very close to the coast of St Kilda, seabed sediments commonly are not defined because of a lack of data.

Within the area of interest encompassing the St Kilda archipelago, large areas of bedrock crop out at the sea bed and comprise the St Kilda Central Complex. This complex makes up the bathymetric platform, known as the St Kilda Platform, from which the islands arise. Water depths range up to about 80 m on the St Kilda Platform to over 140m beyond the platform’s cliff like edge. The relatively few BGS sample sites suggest that only a thin veneer of sediments (commonly 0.1m in thickness) is developed on the submarine platform around St Kilda. Within these deposits, gravel is the most widespread grade of sediment. Numerous gravel patches exist on the bedrock ‘ring’ encompassing the archipelago, with an extensive gravel deposit located in the centre of the platform between the islands of Hirta and Boreray. Samples located within this deposit indicate the presence of boulders and cobbles with small amounts of mobile sand. Within this gravel accumulation areas of exposed bedrock are present and are associated with bathymetric highs located near the centre of the platform. Gravel deposits associated with exposed bedrock occur off the coasts of Soay and Hirta and to the east of Dun and extensive deposits of sandy gravel and gravelly sand transect the St Kilda Platform.

The finest grade of sediment encountered in the area of interest is sand, which is found in Village Bay, on the eastern flank of the platform and to the south-west of the platform. These deposits commonly display ripple bedforms indicating active sediment transport. The extensive sand body located on the eastern flank of the platform is thought to have formed due to the deflection of a northward flowing current around the topographic high of the St Kilda archipelago. The sand body in Village Bay, Hirta may have accumulated under the relative shelter provided by Dun and the Oiseval promontory. Glen Bay also hosts sandy sediment (gravelly sand and sandy gravel), but this area is more exposed than Village Bay and a larger proportion of the finer sediments have been transported offshore.

The sea floor surrounding the St Kilda Platform is relatively flat and the seabed sediments in this area have been sparsely sampled and are relatively poorly known.

Climate

St Kilda has an oceanic (Atlantic) climate, modified by the physical effect of the island itself rising sharply from the sea. This often makes it cloudier than the surrounding sea area and increases rainfall and the local gustiness of the winds.

The strong oceanic influences and presence of the North Atlantic Drift result in higher winter temperatures than would be expected for the latitude. Conversely the summers are cool. The mean daily temperature in January is approximately 5.6º C, while the July mean is approximately 11.8º C.

The islands lie in the path of depressions approaching from the Atlantic and as a result have a high annual rainfall of approximately 1,400mm. This rainfall is well distributed throughout the year with a maximum in December-January, and the driest period, associated with anti-cyclones approaching from the Atlantic, falling between mid-April and mid-June.

The prevailing winds on St Kilda are from the south-west, although approximately 20% of the winds come from the south-east, to which the village is fully exposed. Data are intermittent, but the wind speed recorded on St Kilda is normally Force 3 or above (13km per hour, 7 knots) for approximately 85% of the time and Force 5 or above (over 24km per hour, 17 knots) for more than 30% of the time. Gale force winds (63km per hour, at least 34 knots) are present for under 2% of the total time in any one year. However, within these gales, very strong gusts of over 188km per hour (100 knots) are common on the high tops.

The configuration of St Kilda, the nature of its physical landscape and its exposure to the full force of the North Atlantic amplify the effects of the weather. Sea spray has a dramatic effect on the vegetation and the weather often prevents access to the islands.
Soils

The cool, wet climate reduces biological activity and increases leaching of nutrients, which in turn favours the development of acid, peaty soils and peat. The steepness of the slopes has limited the actual amount of peat deposited. True peat is found under cotton-grass bog such as on top of Mullach Mor. It is evident that good burning peats might have been obtained from here, but the Islanders preferred to remove the moorland turf nearer at hand; the dried slabs a few inches deep served as fuel, but to the detriment of their pastures. Where this has been done, the soil has washed away, leaving a stony area inhabited, between the rocks, by stragglers from the moorland flora.

Soil formation is also, of course, influenced by the rock chemistry of the island – from the acid granite of Conachair and Oiseval to the basic rocks of the central part of Hirta and the ultra-basic rock of the Mullach Bì ridge. Basic and ultra-basic rocks have much higher calcium and magnesium content that the granite but the availability of such nutrients would be reduced as thicker soil cover developed. Exceptions to this are found in very small patches on unstable slopes of basic rock scree, where downslope movement continually renews the surface horizon to offset leaching by rainwater.

To some extent such effects are countered by the manuring of seabirds and sheep. On Hirta the bird colonies tend to be confined to the cliffs and such enrichment is less pervasive than on the smaller islands of the archipelago. Guano and sheep dung adds nitrogen, phosphate and calcium to the soils while considerable quantities of magnesium, sodium and potassium are continually being added from sea spray. Salt content in the soils is unusually high, from 30 to 320mg/100g compared with only 2mg/100g from an Edinburgh garden. Cultivation by humans (which decreased after 1900 and ceased altogether in 1933) with the addition of organic fertiliser (in the form of human and animal waste, offal and bird carcasses and old thatch) has reduced acidity and improved the structure of the soils around Village Bay, enhancing nutrient content and encouraging earthworms. Nine species have been recorded from Hirta, two of them also occurring on Boreray.

Professor Andy Meharg and a team from Aberdeen University have an on-going programme studying samples of soil from different parts of Hirta, the main island of the St Kilda archipelago. Samples were collected from grazing lands, from fields, and from midden pits where, in the past, waste was collected for manuring. Analysis showed that levels of toxic chemicals from some of the fields and from the pits even now remain at high levels – which may have affected the fertility of the land. The pollutants – including lead, zinc, cadmium and arsenic – can be attributed mainly to the use of seabird carcasses in the manure that was spread across the village fields. Tens of thousands of birds were captured each year, so a considerable amount of waste was generated. Seabirds tend to have elevated levels of a range of potentially toxic metals in their organs. When traveller Martin Martin visited in 1697 he commented on the island’s fertility. A deterioration in the crops is recorded by the mid-18th century. The suggestion is made in this study that this pollution may have caused the reduction in crop quality although there was a general deterioration in climate (often referred to as The Little Ice Age) throughout Britain at this time, with many poor harvests recorded in the Hebrides during the 18th century. This recent work has also provided more information on soil management. Soil was deliberately moved from impoverished areas to the main cultivation places, where instead of a few centimetres the soil has been built up over 1m in parts of the village fields. Landscape-scale movement of soil was not uncommon in the Scottish Highlands and Islands.

Landscape

All the islands of the St Kilda group rise abruptly from the ocean floor at a depth of about 70m. The two major rock formations, the granite and the gabbro have eroded to give quite different topography. The granite hills, Conachair and Oiseval, are smooth paps; the gabbro hills, Dun, Mullach Bì, the Cambir, Soay, Boreray and the major stacks, are castellated, bastion-like masses. On Hirta, the flowing contours of Mullach Sgar, Mullach Mor, Conachair and Oiseval, together with the horsehoe of Village Bay, combine to form a steep amphitheatre open to the sea on the south-east. Gleann Mor possesses the same smooth outline and wide, U-shaped form, but opens to the north. The highest point on Hirta is the beautiful cone of Conachair. Mullach Sgar is connected to the hogback ridge of Mullach Geal and Mullach Mor by Am Blad, a broad col over 320m high between these north and south bays. The views in either direction, but particularly over Village Bay, are stunning and emphasise the vertical scale of the islands. Mullach Bì on the rugged west coast is the second highest summit; it is joined by a narrow neck to the Cambir, the most northerly point of Hirta. The Amhuinn Mhor and the Amhuinn a’Ghlinne Mhoir are the only streams of any size. Freshwater springs occur at several localities on Hirta, with other springs on Soay and Boreray, but not on Dun. A cruise below their towering walls amongst the screaming seabirds, is an unforgettable, humbling and awe-inspiring experience even without ever landing on these satellite islands.

The official description of the St Kilda National Scenic Area is disappointingly brief, highlighting that one must visit the place to fully appreciate its sheer scale and stark beauty. The description of St Kilda that does not contain superlatives has not been written … the islands are of volcanic origin and have been weathered by the ocean into profiles that never fail to impress all who set eyes upon them. The three larger islands … exhibit precipices that plunge into the sea. Stark, black, precipitous cliffs contrast with steep grassy green slopes and every element seems vertical. Caves and stacks are a feature of every coast except the smooth amphitheatre of Village Bay on Hirta, and the cliffs are thronged with sea-birds, gannet and fulmar being more prolific here than anywhere else in Britain.’ Sir Julian Huxley called Stac Lee ‘… the most majestic sea rock in existence’ and

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Revised Nomination of St Kilda for inclusion in the World Heritage Site List

3 Vegetation

Maritime Communities

The major stands of salt-influenced vegetation occur on Ruaival, and some parts of the Cambir, with smaller areas elsewhere along St Kilda’s shores. These swards tend to be poor in species, sea plantains forming dense mats, with short sea pink and the salt-tolerant Fescue grass. A non-tussocky sea pink community extends 50m inland from the Dun Gap, and in places reaches almost to the summit of Ruaival because of the salt spray from prevailing storms. On the more sheltered east face of Ruaival the vegetation is more varied with some bog pimpernel, eyebrights (Euphrasia spp.), moss campion and tormentil. In gullies where sea foam can become particularly concentrated common bent grass thrives. The Cambir communities suffer less exposure to salt spray and have better plant cover. These areas accessible to sheep are heavily grazed in summer but the exposure prevents much dung enrichment. Nonetheless biotic species such as white clover and meadow buttercup establish. Where Atlantic puffins and northern fulmars are present fescue assumes a more tussocky growth. Glen Bay is an area much favoured by roosting gulls, and the short fescue sward has less plantain but more meadow grass and common bent grass.

The sea cliffs have a characteristic but species-poor vegetation where typical seaside plants like sea campion and sea pink grow together with luxuriant versions of familiar land plants such as common sorrel, spear thistle, devil’s bit scabious and the grass, Yorkshire fog. Ferns are a conspicuous feature in some places, e.g. Polypodium, Athyrium, buckler fern and spleenwort; along with umbellifers such as lovage, angelica. Absence of sheep grazing ensures an open, close-cropped sward that may contain up to 12 lichen species per square metre; with Solenopsora vultuensis at its northernmost limit in Britain. Many of these species favour calcareous soils so must over their presence on St Kilda to the salt spray imparting a soil pH from 5.8 to 6.2.

Common bent grass/fescue grasslands cover much of the interior of Hirta with the poorest assortment of species in the centre of the island where mat-grass or fescue becomes important. Another association has more moor-grass and there are a few patches that are more species-rich. A final type where woodrush thrives is to be found on and near the summits of Conachair, Mullach Bi and Oiseval. Sphagnum mosses occur widely in the wetter grasslands.

The most extreme form of this grassland has been called ‘lair flora’, behind walls and around the entrance of cleitean, wherever sheep persistently seek shelter and leave copious dung and urine. A dense and vigorous growth of Yorkshire fog and meadow grass results, with the herbs mouse-ear, celandine and clover. Where northern fulmar guano is added, such as on Oiseval, on the north-west face of the Cambir and the north-west face of Ard Uchtarsach, sorrel becomes particularly abundant.

A rich ground lichen assemblage occurs all over this heavily grazed maritime grassland, especially between the 30 and 40m contours. The mass of dead vegetation decaying slowly in the salty conditions together with a long history of sheep grazing ensuring an open, close-cropped sward that may contain up to 12 lichen species per square metre, with Solenopsora vultuensis at its northernmost limit in Britain. Many of these species favour calcareous soils so must over their presence on St Kilda to the salt spray imparting a soil pH from 5.8 to 6.2.

The sward is tussocky with the taller tussocks made up by common bent grass and Yorkshire fog, while the close-cropped gaps are dominated by clover, creeping common bent grass, meadow grass, fescue, sweet vernal grass and bryophytes. Trampling and grazing favours some species such as Yorkshire fog, meadow grass, mouse-ear, blinks, meadow buttercup, sorrel and clover but in the most intensively grazed situations only common bent grass and fescue tend to persist. A similar but less tussocky vegetation occurs around the enclosures in An Lag and on the sheltered eastern slopes of the Cambir.

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Flatter ground tends to be marshy and characterised by Sphagnum and moor grass with pondweeds (Potamogeton spp.) and cotton grass, deer grass and rushes (Juncus spp.). The principal flowers are bog asphodel, bog pimpernel and the insectivoruous sundew, with a variety of mosses. One such area between the summits of Mullach Mor and Conachair is a mix of peat hags and cotton grass where great skuas nest.
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Heathlands

The lower, drier slopes of the hills are dominated by short, tussocky heathland of ling heather and occasional patches of crowberry, but bell heather tends to be sparser. The grasses are low, clump-forming species such as sheep’s fescue and tufted hair-grass or low, unpalatable grasses such as mat-grass, with a variety of typical flowers and mosses. Mat-grass becomes even more dominant over the cliff tops and south-facing slopes of Hirta. The barren, wind-swept summits of the island have a low sward containing several interesting species including St Kilda’s only ‘tree’ – the dwarf willow, only centimetres high. The vegetation is distinctly patchy with clumps of stiff sedge, woodrush and mosses, and with extensive areas of bare, stony ground holding some interesting lichens.

In recent decades there has been a notable spread of ling heather and the decrease of mat-grass on moorland areas of St Kilda. The islanders’ blackface sheep would not have been allowed within the Village area in summer but the unmanaged Soay sheep have freedom to roam throughout the year. This will have reduced the pressure on the hill ground to favour ling heather, which being kept short and woody by the wind will not be particularly palatable anyway. Reduced grazing may be encouraging common bent grass and fescue to recover at the expense of mat-grass, which being kept short and woody by the wind pressure on the hill ground to favour ling heather, and fescue to recover at the expense of mat-grass, which being kept short and woody by the wind.

The major plant community on Boreray is similar to the Yorkshire fog/common bent grass grasslands of the Village area on Hirta. Its vegetation is a lot more uniform than that of Hirta perhaps due to its simpler topography and geology, while the remarkable high densities of both sheep and seabirds seem to have affected the whole island; its two opposite faces are surprisingly similar. Although Soay is also grazed it is more varied with more grasses but less ling heather and crowberry than equivalent communities on Hirta. Its south-eastern slope in particular is much influenced by burrowing Atlantic puffins, having a fringe of plantain sward near the sea.

Invertebrates

For all its isolation, St Kilda has had a fairly balanced scientific programme investigating its various invertebrate groups, making it one of the best known fauna of the Western Isles. The range of taxa that have been studied in detail is impressive, for example 37 parasitic ichneumons have been recorded in the entire Western Isles, of which 10 are known only from St Kilda.

Nearly 200 Diptera have been recorded on St Kilda, so flies are probably important pollinators of flowers on the islands. One of St Kilda’s dance flies, Rhamphomyia morio, is normally found at high altitudes on the mainland and the Western Isles. While the persistent strong winds might have been a crucial factors in the colonisation of the archipelago, the most successful insect colonists tend to be those that keep close to the ground. There are, for example nearly 150 species of beetles on the island list, including a Red Data Book weevil Ceutorhynchus insularis: found nowhere else in Britain (and otherwise only at a few localities in Iceland). The paucity of available habitat types restricts the variety of those potential colonists that might have the capability of reaching such an isolated island group as St Kilda.

Although at least 367 Lepidoptera species are to be found in the Western Isles, representing about 14% of those on the British list, fewer than 25% of these have ever reached St Kilda. They include about 40 species of larger moths, the antler moth and dark arches moth being amongst the commonest. The least carpet moth is of note since it is otherwise known only from the south of England. There are a similar number of micro moths listed but this group is probably under-recorded. Only seven butterfly species have been recorded to date, all of them migrants, but only red admirals and painted ladies could be said to be almost annual in their occurrence.

Birds

Seabirds would have been the first avifauna to reach the new archipelago. Nowadays St Kilda is famous – and rightly so – for its huge seabird colonies but it also has an important function as a vital stop-over for many migrant and non-resident species.

Migrants

Small in size though it is, St Kilda is not as inaccessible as one might expect. Each year, in spring and in autumn, the islands are visited by an ever-growing list of migrants and vagrants. Some are on their regular route to and from more northerly breeding grounds, while others are blown off course; all find the archipelago a welcome stop-over in adverse weather. Over a hundred species may turn up in any year and since the first complete checklist of birds was compiled in 1978, 49 new species have been added to the list, about two a year on average.

Breeding land birds

Thirty-three species of land birds (including waders and ducks) have bred at one time or another on St Kilda over the last 50 years. A few, such as the white-tailed eagle, peregrine falcon, corn crake, dunlin, rock dove, and perhaps twite, were probably regular breeders in the past, others – such as red-breasted merganser, dunlin, sky lark, song thrush, Eurasian tree sparrow and corn bunting may only have bred only sporadically. Some of these probably gave up altogether when the people left and cultivation ceased.
The many interesting birds seen and collected by George Stout and Eagle Clarke in autumn 1910 and 1911 gave St Kilda a reputation as a good place to see rare birds. However, regular observations, starting with the restoration of a resident human population on the island in 1957, showed that these pioneering ornithologists had been very lucky and those months must be regarded as exceptional. A total of 228 migratory species (including some like the northern wheatear and meadow pipit, which also breed) have been recorded, but of these 54 only two to five times and 45 only once. Even in the best year for variety (2000), only 140 species, including breeding birds, were recorded. Owing to the isolated position of the islands, the only regular migrants are the relatively few species that nest in Iceland and Greenland. In spring northern wheatear, meadow pipit, white wagtail and redwing are common, and there are usually a few ducks, geese, swans, merlin, dunlin, common redshank and mew gulls. In autumn, the same four passerines are common, and there are usually a few ringed plover, red knot, dunlin, sanderling and ruff. Most other species can be regarded as lost individuals, either overshooting mainland Britain during their spring migration (e.g. hirundines, warblers, chats, spotted flycatcher) or by being drifted westwards towards the open Atlantic by easterly winds with overcast skies in the autumn (e.g. willow warbler, pied flycatcher and the less common warblers). The 21 American species were obviously completely lost, but it is remarkable that so many have found their way to the island, and there are now five or more records for Baird’s sandpiper, pectoral sandpiper and American golden plover. Other species will presumably be added to the list in the future . . . but there are unlikely to be any other regular land birds. More information is needed on seabird migration. Although shearwater passage has been noted in some springs, the offshore movements of species such as skuas and terns is unknown and they could be regular visitors, particularly in autumn.’ (Stuart Murray (2002): Birds of St Kilda. Scottish Birds supplement to Vol 23)

Table 3.1: Breeding waders/ducks and land birds based on the last 50 years’ records.

<table>
<thead>
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<th>Species</th>
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</tr>
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<tr>
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<td>Numbers have increased from the low in the 1930s although they still fluctuate annually. Up to 100 pairs may breed with the main concentrations in Village Bay, Glen Mor and on Dun.</td>
</tr>
<tr>
<td>Common eider</td>
<td>About 50 pairs breed each year on Hirta, Dun and Boreray.</td>
</tr>
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<td>Up to 300 pairs breed each year, mostly on Hirta and Dun but flocks are also seen on Boreray and Soay.</td>
</tr>
<tr>
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<td>Most recent estimates are 70 pairs on Hirta (1993) and 17 pairs on Boreray (1980). Also a pair has been recorded on Stac an Armin in recent years.</td>
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<tr>
<td>Meadow pipit</td>
<td>Up to 20 pairs breed on Hirta, also known to breed on Soay and Boreray.</td>
</tr>
<tr>
<td>Northern wheatear</td>
<td>Between 30 and 60 pairs have been counted on Hirta mainly around Village Bay. Also a couple of pairs on Boreray.</td>
</tr>
<tr>
<td>Hooded crow</td>
<td>Several pairs likely to breed on Hirta, Boreray and Soay but nests seldom found.</td>
</tr>
<tr>
<td>Common raven</td>
<td>Several pairs likely to breed on Hirta, Boreray and Soay but nests seldom found.</td>
</tr>
<tr>
<td>St Kilda wren</td>
<td>Numbers vary but probably total around 230 pairs, with 100 on Hirta, about 50 each on Boreray and Soay, 25 on Dun and 2-3 pairs on Stac an Armin.</td>
</tr>
</tbody>
</table>

Table 3.2: Only 10 species now breed annually, the lowest total since records began.

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The St Kilda Wren

Perhaps the most notable land bird resident is St Kilda’s own distinctive subspecies of wren. Martin Martin mentioned them in 1698 and, in 1758, the Rev. Kenneth Macaulay speculated ‘how these little birds . . . could have flown thither or whether they went accidentally in boats’. Almost certainly they flew and distinctive subspecies of Troglodytes troglodytes have arisen on offshore islands elsewhere in the North Atlantic. In 1884 Seebohm first described the St Kilda wren as a new species but only a couple of years later it was reduced to the subspecific status it still enjoys to this day. Troglodytes troglodytes hirtensis is 2 or 3g heavier than mainland wrens, longer winged with long, thicker bill and legs. It is paler and more barred in appearance, has a slightly different song and lays larger, heavier eggs. Such adaptations may enable it to withstand the harsh, exposed conditions it has experienced on St Kilda, or else they might be the result of a limited gene pool amongst the original colonisers. All this has been achieved within 10,000 years, since the end of the last glaciation allowed plants and animals to return and recolonise St Kilda.

Initially the St Kilda wren attracted such attention from naturalists, museums and collectors that the islanders used to supplement their meagre income by selling skins and eggs. Fears were expressed that the subspecies might become extinct so in 1904, a special Act of Parliament was passed to protect both the St Kilda wren and another rare seabird nesting there, the Leach’s storm-petrel. Numbers may indeed have declined around the Village but the wren was never really in any danger of extinction since it was more abundant on the steep, dangerous cliffs around St Kilda’s coast. Numbers may vary slightly from year to year but probably total around 230 pairs, with over 100 on Hirta, about 50 each on Boreraig and Soay, another 25 or so on Dun and even two or three pairs near the summit of Stac an Armin.

The wren’s distribution is closely linked to that of the Atlantic puffin and the highest densities are to be found on Dun and at Carn Mor on Hirta. A few have even been found on Stac an Armin. Sandeels dropped by Atlantic puffins, carcasses from adults predated by gulls and dead chicks at the mouth of nest burrows all support an abundance of carrion-eating insects upon which the wrens feed. The birds that manage to live around the Village probably benefited from the middens and food stores around the houses (and nowadays the MoD Base) and from rotting sheep carcasses in the cleitean.

Rock crevices, scree slopes, dry-stone walls, buildings and cleitean all provide shelter and ideal nesting sites for the wrens. On St Kilda the wrens have no real predators and, although their numbers may fluctuate from year to year due, presumably, to vagaries in the weather and food supply, the population of St Kilda wren seems secure.

Breeding Seabirds

The four main islands and associated sea stacks provide a variety of breeding habitat for the seabird community. The oceanic vegetation communities offer ideal nesting opportunities for burrow-nesting species such as Atlantic puffins and Manx shearwaters while the rocky cliffs contain extensive ledges for breeding common guillemots and razorbills. Rock crevices, including those on human-made structures such as houses and cleitean also provide nesting habitat for storm-petrels.

St Kilda’s exposed cliffs have long hosted seabird communities of historical fascination as well as exceptional biological importance. The northern fulmar population has existed here from time uncertain and was the only known British breeding site of the species until 1878; the first British (as recently as 1818), and only the third ever, specimen of Leach’s storm-petrel was collected on St Kilda; and, of course, St Kilda is famous as one of the best-known haunts of the now extinct great auk, being one of only three sites in the eastern Atlantic where this species is known certainly to have bred. That the ornithological history of the islands has been so well-documented testifies to their importance in a global context.

Ever since St Kilda was settled the seabirds have played a key role in the life of the human residents. In most places where humans and birds co-exist the relationship between the two tends to be one of exploitation, whether this be hunting, husbandry, or harvesting, and St Kilda is no different. Rarely, however, have humans depended on birds to the degree that the St Kildans depended on seabirds. During the long period of human habitation several species were captured for food, oil and feathers; their eggs were also eaten as well as being supplied to collectors. Although such exploitation was heavy it was also sustainable because the bird populations were so large.
Table 3.3: Population sizes of each species of seabird breeding on St Kilda in 1999-2000 and the relative importance of these in the Great Britain & Ireland and north-east Atlantic contexts.

<table>
<thead>
<tr>
<th>Species</th>
<th>Population size</th>
<th>Proportion of Great Britain and Ireland population (%)</th>
<th>Proportion of north-east Atlantic population (%)</th>
<th>Population trend on St Kilda</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern fulmar</td>
<td>66,942</td>
<td>13.26</td>
<td>3.69</td>
<td>Stable after prolonged period of growth in the 20th century</td>
</tr>
<tr>
<td>Manx shearwater</td>
<td>4,803</td>
<td>1.35</td>
<td>1.26</td>
<td>Unknown</td>
</tr>
<tr>
<td>European storm-petrel</td>
<td>1,121</td>
<td>0.95</td>
<td>0.30</td>
<td>Unknown</td>
</tr>
<tr>
<td>Leach’s storm-petrel</td>
<td>45,433</td>
<td>92.10</td>
<td>89.29</td>
<td>Unknown</td>
</tr>
<tr>
<td>Northern gannet</td>
<td>60,428</td>
<td>24.14</td>
<td>23.64</td>
<td>Stable after prolonged period of growth in the 20th century</td>
</tr>
<tr>
<td>European shag</td>
<td>19</td>
<td>0.07</td>
<td>0.04</td>
<td>Probably little change since 1970s</td>
</tr>
<tr>
<td>Arctic skua</td>
<td>1</td>
<td>0.07</td>
<td>0.00</td>
<td>First bred 1999?</td>
</tr>
<tr>
<td>Great skua</td>
<td>169</td>
<td>1.47</td>
<td>1.38</td>
<td>Steady increase since colonisation</td>
</tr>
<tr>
<td>Mew gull</td>
<td>1</td>
<td>0.00</td>
<td>0.00</td>
<td>Very small numbers only since first records</td>
</tr>
<tr>
<td>Lesser black-backed gull</td>
<td>30</td>
<td>0.02</td>
<td>0.01</td>
<td>Decline from small numbers over latter part of 20th century</td>
</tr>
<tr>
<td>Herring gull</td>
<td>34</td>
<td>0.01</td>
<td>0.01</td>
<td>Decline from small numbers over latter part of 20th century</td>
</tr>
<tr>
<td>Great black-backed gull</td>
<td>32</td>
<td>0.12</td>
<td>0.04</td>
<td>Decline from small numbers over latter part of 20th century</td>
</tr>
<tr>
<td>Black-legged kittiwake</td>
<td>3,886</td>
<td>0.97</td>
<td>0.24</td>
<td>Decline over last three decades</td>
</tr>
<tr>
<td>Common guillemot</td>
<td>23,378</td>
<td>1.55</td>
<td>1.17</td>
<td>Stable over last three decades</td>
</tr>
<tr>
<td>Razorbill</td>
<td>2,521</td>
<td>1.28</td>
<td>0.89</td>
<td>30% decline over last 25 years</td>
</tr>
<tr>
<td>Black guillemot</td>
<td>c. 25</td>
<td>0.10</td>
<td>0.02</td>
<td>Little change over last 25 years</td>
</tr>
<tr>
<td>Atlantic puffin</td>
<td>135,752</td>
<td>30.29</td>
<td>4.41</td>
<td>Some evidence of decline over last 25 years but insufficient data</td>
</tr>
</tbody>
</table>

1 The survey sampling unit for each of these species varies: for northern fulmar, Manx shearwater, European storm-petrel, Leach’s storm-petrel, northern gannet and Atlantic puffin the count unit is number of Apparently Occupied Sites/Burrows; for European shag, the gulls, including black-legged kittiwake, the count unit is number of Apparently Occupied Nest; for the skua the count unit is number of Apparently Occupied Territories; and for common guillemot and razorbill the count unit is number of individual birds counted on breeding ledges.
2 Great Britain and Ireland includes United Kingdom, Republic of Ireland, Isle of Man and Channel Islands.
3 North-east Atlantic region includes Faroe Islands and Svalbard but excludes Iceland and Greenland.

The spectacle and clamour of one million birds at the height of their breeding season in north-west Europe’s largest seabird colony is startling evidence of the significance of St Kilda as a key component of the north Atlantic ecosystem. Here in the most numerous colony in the world, tens of thousands of northern gannets nest in high-rise communities on Roreray, Stac Lee and Stac an Armin; here, in the biggest colony in western Europe, nest more than 100,000 northern fulmars. More than 250,000 Atlantic puffins breed on the archipelago’s grassy slopes – the largest colony in Great Britain and Ireland. Not only during the day is seabird activity testament to the islands’ pre-eminence; St Kilda holds noteworthy populations of all three species of nocturnal petrels that breed in the north-east Atlantic, including the largest colony of Leach’s storm-petrel.

Leach’s storm-petrels are now surveyed using recently developed tape playback techniques. This entails playing recordings of the male’s chatter call in suitable habitat during their incubation period in order to elicit a response from incubating adults. Birds respond only to calls of the same sex; consequently not all individuals respond. It is therefore necessary to determine the proportion of incubating birds that respond to taped calls in order to obtain an accurate estimate of total breeding numbers. This is achieved by repeatedly visiting a section of a colony (calibration plot) on successive days and noting each new response. Visits are repeated until no new responses are elicited; the results are then analysed to determine response rate and as a result an estimate of the number of Apparently Occupied Sites (AOSs). Applying this technique on St Kilda in 1999 yielded a population estimate for Leach’s storm-petrel of 45,433 AOSs (95% CL = 34,310-61,998).

Of the species comprising this outstanding seabird assemblage, the northern fulmar is perhaps the best known historically. An extremely long-lived species the northern fulmar is a member of the petrel family, the Procellariidae. Although well-known as scavengers at fishing vessels, St Kilda northern fulmars are actually less dependent on this method of foraging than birds from populations in other parts of the north-east Atlantic. They are present for the whole summer on the archipelago, raising one chick. An inhabitant of St Kilda for at least 1,200 years this is a species whose population has long been the focus of interest on the islands, having seen spectacular growth over the course of the 20th century. That the population remains in such good health is testimony to the productivity of the northern fulmar’s natural feeding areas in the waters around St Kilda.

A gregarious seabird, the Manx shearwater feeds from the surface of the sea by plunge-diving to modest depths to take a variety of small fish, cephalopods (e.g. squid) and crustaceans. Each pair raises one chick per year, visiting by night their nesting burrows in the grassy slopes of the islands.
St Kilda is especially important as the major breeding station of Leach’s storm-petrel in the north-east Atlantic. A nocturnal seabird that comes ashore only to nest in burrows, this petrel is accorded special protection by inclusion on Annex I of the EU Directive on the Conservation of Wild Birds; it is one of the species for which St Kilda has been classified as a Special Protection Area. Such is the difficulty of censusing this species that upper and lower estimates of its population size in Britain even in the last two decades have differed by an order of magnitude. Recently more precise estimates of the population numbers have been possible and as many as 45,000 Apparently Occupied Breeding Sites were identified in 1999.

Albeit nesting in lower numbers (i.e. 1,121 Apparently Occupied Breeding Sites), the closely related European storm-petrel also breeds in important numbers on St Kilda. This dainty, nocturnal petrel breeds in burrows and rock crevices (including those of the ruined houses and cliean of St Kilda). Both storm-petrels feed mainly on zooplankton in the open ocean and are able to locate feeding grounds using olfaction.

The northern gannet is a large, brilliantly white bird that plunges from great heights to catch large fish such as herring and mackerel. On entry to the sea the birds might attain speeds of 100km/hr, reaching depths of up to c.15m. The northern gannet nests on Boreray and its satellite stacks Stac an Armin and Stac Lee. On these cliffs they raise one chick per year. In common with the northern fulmar, the breeding northern gannet population also increased markedly in the 20th century; the St Kilda colony is the largest in the world.

The great skua population is also of importance. Predation by great skuas on the storm-petrel population of the islands appears to have increased in recent years, perhaps as a consequence of changing fisheries practices at sea, but this fearless predator remains a key species in the seabird assemblage of St Kilda. St Kilda has become inextricably identified with the Atlantic puffin; unsurprisingly as it is host to the largest breeding concentration in Great Britain and Ireland, mainly on Soay and Boreray. Atlantic puffins are members of the auk family; they dive from the surface of the sea to relatively shallow depths to catch their prey, which consists primarily of a variety of small fish. Both sexes assume a brightly-coloured bill during the breeding season that indicates their age and breeding status. They nest in burrows, rearing one chick per year. Population size has remained mostly stable on St Kilda over the last three decades.
Fledgling Atlantic puffins on St Kilda

The Atlantic puffin colony on Dun is one of the largest breeding concentrations in Britain. Access to the island is difficult at the best of times but, following on from detailed studies there in the 1970s, a measure of annual breeding success can be gained from a rather unfortunate happenstance across Village Bay. Although all unnecessary lights are extinguished, young puffins fledging from their burrows at the end of the breeding season are attracted into the MoD Base each night. The warden and any volunteer helpers patrol the area nightly for several weeks at this time (around 1758) the bird was a rare visitor to St Kilda. One was caught by the islanders in 1801. Another was apparently caught on Stac an Armin around 1840 and, sadly, was one of the very last birds in existence. The great auk officially became extinct when a lone survivor was killed in Iceland in 1844.

A third auk that breeds in significant numbers on St Kilda is the razorbill. With a diet and foraging ecology that are very similar to the common guillemot, the two species are often seen in the company of each other at sea and are important indicators of the health of both the sea surface and the water column over the north-west European continental shelf. Razorbills breed in close proximity to common guillemots on the high cliffs of the archipelago, again rearing one chick per year.

Great auk

St Kilda is without doubt the most famous site in Britain for the now extinct great auk. Its steep cliffs may not have offered many nesting opportunities for this flightless seabird – the original ‘penguin’ – but several interesting eye-witness accounts survive. Perhaps the most informative is that of Martin Martin after his visit to St Kilda in 1697: ‘it stands stately, its whole body erected, its wings short, flies not at all, lays its egg upon the bare rock which, if taken away, she lays no more for that year … it comes without regard to any wind, appears the first of May and goes away about the middle of June’ (In the modern calendar these dates would be two weeks later). Another account related how the great auks or garefowl ‘are taken by intercepting their way to the sea and knocking them on the head with a staff: they lay their eggs a little above the sea mark on rocks of easy access; they carry off their young soon to feed them at sea.’ But by this time (around 1758) the bird was a rare visitor to St Kilda. One was caught by the islanders in 1801. Another was apparently caught on Stac an Armin around 1840 and, sadly, was one of the very last birds in existence. The great auk officially became extinct when a lone survivor was killed in Iceland in 1844.

Although at lower densities, other species also contribute to this dazzling assemblage. Not only is this a rich diversity of species but also a diversity of form and of function; an array of ecological and behavioural processes are represented here evidenced by a wide variety of feeding techniques and feeding loci in the sea. The black-legged kittiwake is a small gull whose breeding performance depends largely on its key food source of sandeels, and as such is an important indicator of the availability of these at or near the surface of the sea (as the auks would be at greater depths). Around 3,900 pairs of black-legged kittiwakes breed on the islands; just less than those that would indicate national importance. Other species that comprise the diverse spectrum of seabirds on the islands are four other gull species, the great black-backed, the lesser black-backed, the herring and the mew gull, all of which rely on more natural food sources at St Kilda than their conspecifics at less remote locations. Also present are the European shag and another auk, the black guillemot, both of which exploit inshore feeding habitats. Completing the assemblage is the Arctic skua, a species that relies for food by parasitising other seabirds. Not only has St Kilda been classified as an EU Special Protection Area for its important breeding populations of both storm-petrels but it is also officially recognised as such for the whole breeding seabird assemblage.

St Kilda also hosts important breeding populations of the closely-related common guillemot. A cliff-nesting auk that also feeds on small fish such as sandeels, herring and sprat, the common guillemot dives from the sea surface to greater depths than the Atlantic puffin; it has been recorded at a depth of 180m. One chick per year is produced and, still flightless, is taken to sea by the male parent at the end of the breeding season.

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Mammals
Besides the wren, two other species demonstrate how the St Kilda environment has moulded the appearance and habits of animals into unique subspecies, the housemouse and the fieldmouse, both of which had to rely on human assistance to reach St Kilda.

The St Kilda Housemouse
The housemouse undoubtedly came with the early human settlers, at most only a few thousand years ago. Its association with people in such a remote and challenging environment enabled it to evolve distinctive characteristics. It was first noted by Seton in 1878 and collected in 1894 when it, like the wren, was first accorded full specific status as *Mus muralis*. In 1906, however, it was realised to be merely a robust and pale form of *Mus musculus*. Its fate was sealed, however, when the islanders evacuated St Kilda in 1930. So dependent had it become on humans and their dwellings that within a few years it had become extinct. Scientists were able to study the last few in the Village in 1931 but by 1938 the unique St Kilda housemouse *Mus musculus muralis* had vanished altogether.

The St Kilda Fieldmouse
The St Kildan fieldmice are much larger and heavier than their Scottish mainland counterparts, measuring around 17cm in length and weighing over 70g when fully grown. They occur all over Hirta but are rare in short grass and heather. The mice are, however, especially common in the old cultivations around the Village where, having less of a burrowing habit than mainland mice, they prefer the shelter of stony recesses, old walls, cleitean and other buildings. In 1931 no fieldmice were ever caught near the houses but in 1938, without competition, from the housemice they were everywhere, a good example of the phenomenon known as niche expansion. Robert Atkinson in his book entitled *Island Going* (1938) described trapping fieldmice in the byres and houses, the cleitean and the old walls – all former housemice habitat – as well as in the long grass, even to the summit of Conachair. At some time past, somehow, they had also colonised Dun, but the St Kildans were careful to ensure they did not infest Boreray. Parallel evolution seems to have moulded the St Kilda fieldmouse to the unusual and rigorous conditions presented by the St Kilda archipelago.

British races of fieldmice
In 1895 it was recognised that ‘a sharply differentiated local form’ of the fieldmouse *Apodemus sylvaticus* was to be found in the Outer Hebrides, larger and darker than the mainland form but with smaller ears. It was named as a new species *Apodemus hebridensis*. Four years later another new species was described from St Kilda – *A. hirtensis*, larger still but with more yellowish-brown on the underside. But the following year (1900) a review of all the specimens in the British Museum concluded that these two forms were only sub-species. Undeterred a new species from Fair Isle was described in 1906 – *A. fridariensis*. By 1940 no less than 15 sub-species were being postulated, from islands all round the British coast. It was not until 1961 that some rationality was introduced to the problem, and the fieldmice from Rum, the largest of the island forms, was the only one to retain its subspecific status – *Apodemus sylvaticus hamiltoni*. No longer was it speculated that the mice had reached these offshore islands by a complex system of land bridges or Ice Age refugia, but there was general agreement that humans were involved. One anatomical study highlighted how more similar the island mice were to those from Norway than to British mainland populations. The Vikings were proposed as the most likely agent of dispersal, especially since the St Kildan and Icelandic mice were the most Norwegian of all. Mice could easily stow away in the belongings, foodstuffs and animal fodder carried by sea-faring colonists, but whether the Vikings or some more recent immigrants were responsible, remains a matter of debate.
The Soay Sheep.

In 1952 Morton Boyd – then a student at Glasgow University – wrote that ‘St Kilda presents many superb problems in plant and animal ecology, and none would be more rewarding than a study of the wild sheep.’ As soon as he joined the Nature Conservancy, Boyd initiated just such a study, which has continued virtually uninterrupted to this day, and is now supervised by the Institute of Cell, Animal and Population Biology at the University of Edinburgh under the direction of Dr Josephine Pemberton.

Soay sheep have been described as ‘a remarkable survival of the type of domestic sheep that people kept in the Bronze Age’. Indeed bones excavated from earlier Neolithic sites in Britain seem identical to those of the Soay sheep of St Kilda. Scottish shortwool and then, from 1872 or so, blackfaces were kept on both Hirta and Boreray, but the inaccessible island of Soay retained the original primitive Soay sheep where they were ‘hunted’ rather than shepherded. They scatter rather than let themselves be rounded up by dogs or men, so are effectively wild sheep.

Boreray Sheep

Toward the end of the 19th century the ubiquitous blackface sheep were kept on Hirta and Boreray. The islanders cleared Hirta of sheep when they departed in 1930 but those on Boreray, some 6km to the northeast and difficult of access at the best of times, were abandoned to their fate.

With dark collars and white or tan markings they look like a cross between Soay sheep (the true St Kildan sheep) and blackface sheep, but in fact they are survivors of a cross between early blackface and the old Scottish shortwool sheep that still survive on North Ronaldsay in Orkney and in the Shetland Islands. Atkinson in 1938 described the Boreray sheep as ‘…often striped and mottled in a curious manner, and long in the leg, giving one very much the idea of reverting to Nature.’

They have large curving horns, especially on the rams, and have a largely creamy-brown coat; some are grey-brown, a few blackish and an occasional one is tan in colour. The face varies from black and white to greyish, with a few completely black, tan or white. Both Soay and Boreray lambs withstand cold and wet better than commercial sheep but freely make use of shelter in the clefts. They are also skilled climbers so the varied topography of the island cliffs offers shelter too.

Numbers of sheep vary, probably due to weather. Counting sheep on Boreray is difficult, however, and land counts are better than those undertaken from a boat offshore. Totals fluctuate from 350 or so to nearly 700, although ram mortality is high, presumably because they expend so much energy in the rut, just before winter sets in.

Only about 60ha of Boreray’s rocky 77ha can act as pasture for the sheep so the density of animals is high, about 12 per ha, five times the density of hill sheep in the Hebrides; lowland sheep only reach densities of 15 per ha. Although soaked in salt spray the vegetation of Boreray is well manured by guano from the nesting seabirds. The diversity of plants making up this well-grazed sward has a thick and extensive root system which, together with compaction of the soil by the sheep flock, helps reduce erosion. Thus such a high density of sheep on such steep, wind-swept slopes does not appear to be a problem. Lambing percentages on Boreray can be high, equivalent to shepherded hill farms in the Scottish Borders.

Figure 3.15: Annual counts of the sheep on St Kilda’s islands (data from Dr J Pemberton)
Revised Nomination of St Kilda for inclusion in the World Heritage Site List

3

Adult males reach 38kg or more in summer and adult females about 25kg. About 5% of the sheep have miscellaneous white markings on the face or body. The population is dimorphic with about three times as many having a light brown coat than light fawn. Rather more than half of the ewes are polled (i.e. hornless), the remainder carrying horns, some of which (10-12% males and 65% females) are scurred (i.e. having small and crumpled horns). The light coat frequency has remained at about 20-25% while over the same period the frequency of scurred individuals has fluctuated around 20%.

When the inhabitants finally abandoned St Kilda in 1930 they removed all their sheep from Hirta, but two years later the islands’ proprietor, the Marquis of Bute, had 107 Soays of mixed age and sex transferred from Soay to Hirta. They comprised 20 rams, 44 ewes, 22 ram lambs and 21 ewe lambs but it could not have been an easy task! Despite this limited gene pool, however, the Soay sheep of Hirta have been found to have a remarkably high degree of genetic variation.

Soay was so difficult of access, the Hirta flock, organised census in 1952 revealed 1,114. Since then populations have fluctuated around 20%.

The presence of this second flock helped ensure the future of the breed. By 1939 the flock on Hirta was estimated at about 500, and the first organised census in 1952 revealed 1,114. Since Soay was so difficult of access, the Hirta flock, especially those in Village Glen, have become a study population, and have been censused annually since 1955. The Hirta population averages 1,200 animals, (with crashes every four years or so), representing a density of some 0.9 ewes per hectare – a relatively low figure in comparison with the average mainland stocking density being about 2.5 sheep per hectare.

The rut takes place in November, triggered by the shortening days of the northern autumn. After a few weeks of intense activity, without much time to feed, adult rams have to enter the winter in poor condition and mortality can be high. There is thus a preponderance of ewes in the population, varying annually from three ewes to every ram, to as many as eight.

Lambs are born after a gestation of 151 days; this is several days longer than modern breeds, which also mature faster. Most births are clumped within 10 days on either side of 20 April. A small number of twins are born (and at least one instance of triplets is recorded) but their survival is poor. Lambs weigh about 2kg at birth and are weaned by July. The ewes can then spend the rest of the summer regaining condition before the rut in November.

Those animals that survive population crashes can enjoy a ripe old age; the oldest tagged ewe being 15 when she died; others have lived to be 14, 13 and 12 years of age. However, for a ram to live to 10 is rare, however, and most die before they are six.

The counts reveal periods of rapid increase to high density, followed by periodic crashes when up to 60% of the population can die in a single winter. These crashes seem to have become more regular in recent years but weather effects can obscure this; one of the highest population counts ever was in 1996, but the population declined little the following winter implying that high density does not necessarily trigger a crash. Crashes have also occurred from relatively low populations when the sheep might have been expected to be in good condition. Gales in March appear to be an important factor but the overwinter mortality seems to be exacerbated by parasites, particularly gut worms.

Parasite burdens increase as the density of sheep increases, imposing a strong natural selection for parasite resistance. Indeed Soay sheep demonstrate one of the highest resistances to parasites anywhere in the world. They share the same parasites as blackfaces but seem to be more effective in dealing with them, which has important implications for commercial sheep husbandry. High parasite loads in domestic sheep can cause heavy stock losses and helminth worm treatments are costly so this aspect of the Soay study has attracted much interest.

Peter Jewell concluded that ‘these long-term studies can probe more deeply into the processes of evolution itself and add profoundly to our better understanding of the world that we live in. More than any other feature of the natural history of the archipelago of St Kilda, the Soay sheep are a treasure of surpassing value’. From time to time, following a crash when so many carcases of sheep are scattered over the island, a debate is reopened as to whether they ought to be left unmanaged. It must be remembered that the sheep population of Soay has not had any management to speak of for some considerable time, hundreds perhaps thousands of years, and the sheep population there seems to behave in a similar manner to the Hirta Soay sheep; as in fact do those on Boreray. Morton Boyd concluded that to lose the sheep, would remove assets of great cultural, historical and scientific interest. ‘Removal of the sheep would also reduce the diversity of plant life that their grazing sustains on the islands. . . . The sheep are now adjusted over centuries to meet the rigours of their world.’

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Figure 3.16: Number of Soay Sheep counted on Hirta each year

The sheep are now adjusted over centuries to meet the rigours of their world.'
Seals
The only seal to frequent the shores of St Kilda is the Atlantic grey seal. The inhabitants once hunted the seals, their dried skins contributing towards rent. Once the human population abandoned Hirta, seals moved in to breed. Pups are born in October and November. Before the MoD Base was constructed some pups were born on the beach below the Manse. A few were dropped at Mol Ghiasgar and at Mol Shoay but most are to be found on the flat, sloping rocks of Dun where there were about 30 or so pups born in 1957 and 100 the following year. There are fewer now with increased disturbance by the visitors and traffic to the Base. Around 300 to 400 adults and juveniles frequent St Kilda’s shores throughout the year with the main concentrations in Glen Bay, Soay Sound and on both sides of the neck of the Cambr. Their calls echo round the Tunnel at Gob na h’Ainde and, appropriately enough, at Geo nan Ron – the cleft of the seals.

Cetaceans
Sightings of cetaceans have increased in recent years, probably because of more interest, better data collection and more observers experienced in identification. To date 37% of records of cetaceans were inside or crossing the mouth of Village Bay; 23% of records were from elsewhere on the Hirta coast and 9% were from Boreray; 23% of the reported sightings were from vessels at sea. Most are made in the summer months May to August but some killer whales, harbour porpoises and Risso’s dolphins have been seen in the period November to March. Ten species have been sighted from St Kilda so far, all but one known to occur regularly off the Scottish west coast in summer. The exception was a Sowerby’s beaked whale that was washed up in Village Bay on 29 September 1994.

Minke whale is the most commonly recorded species of cetacean, usually occurring in ones or twos, but occasionally in greater numbers with as many as five and eight being seen in one day, and exceptionally on 2 August 1984 no fewer than 15 were seen from Hirta. Killer whales are the next most commonly seen species, typically no more than two reports a year, usually between May to August. There have also been a few sightings in February, March and October. Pods vary in size, with an estimated 40 to 50 animals being seen in July 1984. Occasional groups may remain around the islands for several days or even weeks. Some have been seen breaching in Village Bay and in February/March 1996 they were seen lob-tailing close inshore, and playing with a freshly-killed grey seal.
Groups of up to 15 Risso’s dolphins have been seen, as well as white-sided dolphins; on one occasion 200 of the latter species were observed off Village Bay on 2 July 1984 and 50–60 actually inside Village Bay on 29 July 1996. Harbour porpoises were first recorded in 1989 but usually only single individuals. Small numbers of white-beaked dolphins have been seen with a maximum of 20 in Village Bay on 21 July 1990. Bottlenose and common dolphins are rarely observed but large whales are occasionally recorded.

Intertidal
The majority of the intertidal of all the islands, stacs and skerries are extremely exposed to wave action and the influence of the almost constant oceanic swell. Some small areas such as Village Bay are relatively less exposed and this is reflected in a slightly different flora and fauna. Typically the intertidal comprises vertical or near vertical bedrock; in a few places small horizontal platforms/ledges occur on which there are some shallow rock pools that support a specialised fauna and flora. The classical intertidal zonation pattern of communities reflecting the duration of emersion is greatly extended above Mean High Water Spring Tide (MHWS) mark due to the effects of wave splash and swell. The supralittoral typically extends up to 20m above MHWS mark and exceptionally to 50–100m on some of the most exposed westerly/north-westerly facing cliffs.

Figure 3.17: Typical zonation of animal and plant communities around St Kilda
The supralittoral comprises a very broad band of lichen dominated rock characterised by extensive growths of the encrusting black lichen (*Parmelia pinnata*). In other areas the ephemeral red alga, *Porphyra umbilicalis* covers the rock in a band, up to 4m wide, of glistening, ruby-red sheets. Very few animals are able to survive in these conditions, with only the occasional barnacle and small limpet and various tiny winkles that are able to find some shelter in the small cracks and crevices etched in the rock surface. 

The eulittoral zone is characterised by different mixtures of a small number of biotopes that reflect subtle variations in the local topography. Nonetheless they are all typical of the highly wave exposed nature of the area and whilst they are relatively species poor, animal dominated, they do include some constituent species considered rare in the UK and further afield. 

The majority of the upper eulittoral zone is colonised by either barnacles (*Chthamalus montagui* and *Semicalanus balanoides*) that form a broad grey-white band; or in the more exposed areas, by a dark blue-black band of small blue mussels. Limpets are interpersed amongst the barnacles and the uniformity of the white band is interrupted by patches of black tufted lichen (*Ceramium shuttleworthianum*, *C. pygmaea*). Amongst the mussels, various small red algae (*e.g.* *Corallina officinalis, Mastocarpus stellatus* and *Osmundea pinnatifida*) covers the rock in a narrow band in places below the *F. distichus* band. Towards the bottom of the eulittoral zone, the barnacles and mussels give way to a dense turf of *Mastocarpus stellatus* under which there is a variety of other algae including *Palmaria palmata*, *Corallina officinalis* and *Osmundea pinnatifida* and encrusting corallines. Extensive growths of *M. stellatus* as seen at St Kilda are scarce elsewhere in the UK. In other parts, the lower eulittoral is characterised by growths of the surge tolerant brown alga, *Fucus serratus*, which is ideally adapted to survive the constant wave surge. The rock beneath is covered by a startling pink covering of coralline algae creating a dramatic visual contrast with the orange-brown of the dabberlocks. In many areas, the surge tolerant species present are the same as seen at St Kilda are scarce elsewhere in the UK. 

The sublittoral of the islands largely comprises an extension of the topography seen above the surface with vertical or near vertical underwater cliffs plunging for 40-50m before a more gradual slope, largely of massive boulders takes over extending down to a depth of around 70m. Below the sea surface, away from the islands, skerries, etc. a remarkable underwater topography is concealed. Large expanses of rugged bedrock and boulder outcrops from the sea bed, the result of erosion by rain and ice over the last 50-60 million years before sea levels rose to their current levels drowning much of a dramatic landscape, the remnants of which is the current archipelago. Between the main islands there are extensive areas of gravelly/sandy sea bed with a mega-rippled surface reflecting the effects of the relentless Atlantic swell even at depths of 70m or more. The various islands form the visible part of a circle of rock outcrops traced out on the sea bed that lies in around 70m of water, forming a plateau from which the sea bed falls away rapidly to a sandy/boulder plain in around 140m of water. 

Immediately below the sublittoral fringe of dabberlocks, the steeply sloping bedrock cliffs are covered by a rich, dense forest of kelp surrounding the islands. One of the remarkable features of St Kilda’s marine environment is the depth to which this kelp forest extends. The low turbidity of the oceanic waters means that sufficient light is able to penetrate the water to support dense growths of kelp (kelp forest) to a depth of over 30m. The density of kelp plants begins to reduce below this depth, to form a ‘park’ of individual plants and it is not unusual to find them at depths of over 40m (the deepest recorded was at 45m), compared to around 15m in other parts of the west coast and as little as 5m on the Scottish east coast.

The dense kelp forest that surrounds the islands like a vast protective curtain is dominated by *cuvie* and supports a rich underflora of red algae together with a variety of encrusting fauna including various sea anemones such as, *Corynactis viridis*, *Metridium senile*, *Parazoanthus anguicorns* and *Sagartia elegans* that create vast, colourful carpets over the rock. Other encrusting animals include various sponges (e.g. *Myxilla incrustans*, *Leucosolenia complicata*, *Leucosolenia nivea*, *Pachymatisma johnstonia* and *Clathrina coriacea*), bryozoans (e.g. *Crisis spp.*, *Bagula flabellata*, *Scrupocellaria spp.*, *Porella compressa*, *Elodia foliacea* and *Securiflustra securifrons*), the colonial sea squirt, *Botryllidens leachi* and the corals, *Carposphylla smithii* and *Alyxion digitatum* all compete for space. Mobile species are limited but the large pink tassels, *Callitoma zigzagum* is ubiquitous together with a variety of small but colourful sea slugs. Similar dense assemblages are associated with the deeper areas where the kelp is less abundant. In some of the most exposed areas below the dabberlocks where it is too turbulent for *cuvie* to develop or where it has been lost due to storms the kelp forest comprises the opportunistic, fast growing sugar kelp and furzebellows.
In the circalittoral, below the kelp zone where the light has diminished to levels capable of supporting only encrusting red algae, the rock surfaces are dominated by dense aggregations of encrusting animals that themselves support populations of scavenging and grazing organisms such as sea slugs, gastropods and echinoderms.

A notable feature of the underwater cliffs is the caves, tunnels and gullies. The walls and ceilings are colonised by dense sponge crusts such as Mytilopsis incrustans together with hydroids such as Tubularia indivisa and bryozoans (e.g. Escharoides cocinea) and where there is sufficient light specialised, surge-tolerant red algae, including Paramenina trigonosa and Schmitzia hiscockiana. In areas of reduced surge, anemones such as the Phellia gausapata, jewel anemones, Parazoanthus anguicorpus and Sagartia elegans are abundant often occurring in massive monospecific aggregations, along with thin encrusting sponges, and bryozoans and feather stars (Antedon bifida). Within the deeper caves there is an apparent wave exposure gradient with species more typically found in more sheltered environments such as the fan worm, Sabella pavonina and the burrowing anemone, Cerianthus lloydii present in the inner reaches. Rarely recorded nocturnal species also occur in the innermost reaches of some caves including the crab, Bathynectes longipes and the sea anemone, Asachna larsi. The floors of many of the caverns are covered in large, rounded boulders that act as massive rock mills grinding out pits in the bedrock beneath. In more shallow areas these boulders support a sparse fauna of megaripples. These areas lack any conspicuous fauna of note but do support a diverse infauna of nematodes, sipunculids, annelids, crustacea, molluscs, bryozoans, echinoderms and tunicates.

A number of notable species have been recorded in recent surveys. The jewel anemone, which has a predominantly southern and western distribution, is present in super abundance. The rarely recorded small, Sinia putida is a southern species that is intimately associated with the soft-coral dead man’s fingers. Other southern species at or about the extreme of their range include the sponges, Tethyspira spinosa and Placimilla coriacea, the soft coral, Paragorgia verrucosa, the sea slugs, Crinaria papillata, Esbranchus dorias and Antipodia hiapalina and the brown alga, Carposmita costata. In addition there are also a number of northern species reaching the southern limit of their ranges such as the sea anemones, Paracanthurus anguicorpus which is particularly abundant, and Phellia gausapata, the spider crab, Lithodes maia and the starfish, Stichasterella rosea.

Excessive areas of rocky outcrops and boulders are found between 60–80m that are still affected by surge and complex deep water eddies and currents. These are highly unusual conditions to occur at such depths and is reflected in the unusual species assemblages found here. The community is characterised by erect sponges such as Axinella spp. and Ptychodera spp., as well as bryozoans, including Porella compressa. The erect coral-like bryozoans, Pentaclonia falcata and Coronopora truncata are found on these deep rocks and cobbles. Occasionally at depths in excess of 70m there are patches of pink encrusting algae, emphasising the remarkable water clarity. The crevices amongst the boulders are ideal for brittlestares such as Ophiocorinina nigra and squat lobsters – Munida spp.

Within the centre of the plateau that is bounded by the rocky outcrops, lying in water at a depth of ~70m, there is an extensive sediment plain with a mosaic of fine rippled sand with only occasional stones and boulders and coarse gravely sand in megaripples. These areas lack any conspicuous fauna of note but do support a diverse infauna of nematodes, sipunculids, annelids, crustacea, molluscs, bryozoans, echinoderms and tunicates.

**Cultural Heritage**

The importance of the cultural heritage of St Kilda centres on the extraordinary post-medieval remains coupled with exceptional supportive documentary evidence. For the most part the archaeological record relies on the remains still visible on the ground. A few relatively small-scale excavations have also taken place, shedding light on the nature of the sometimes-rich buried deposits.

**Documentary Evidence**

The way of life on St Kilda has been remarkably well documented in the writings of early visitors to St Kilda, such as Monro in 1549 and Martin Martin in 1697. Other key works include Macaulay’s History of St Kilda (1764) and the writings of the Rev. Neil Mackenzie from 1829-1843. Illustrative material by Sir Thomas Dyke Acland (1812) and Sharbau’s plans of 1860 are immensely useful in clarifying the texts, and Captain Thomas’s sketch of Blackhouse K in the 1860s is also revealing. To these records must be added the remarkable photographic archive for St Kilda, which documents the life and times of the inhabitants from about 1860 to the evacuation and beyond. These documents and illustrations have allowed the flesh to be put on the bones of the archaeological evidence, and have been drawn upon extensively to support the interpretations in the following descriptions. These accounts do, however, have to be read with caution: they were almost all written by outsiders, most of whom had their own hidden agendas which are reflected in their writings.

**An island paradise?**

Virtually all the historical accounts have been written by visitors to St Kilda, and recent research has begun to question the accuracy of the information that they have passed down to us. The published reports of Martin Martin, the first major chronicler of the islands, are very positive about the islanders, but associated papers and correspondence hint that he was generally reporting what his sponsors wanted to hear. Their honesty and cheery disposition might not have been the whole story.

Similarly, convincing arguments are emerging to suggest that 19th-century visitors had a very clear impression of what they wanted to see and experience during their St Kildan visit. These expectations arose out of the Sublime movement, with roots in the Scottish Enlightenment of the 18th century. Their accounts therefore focus on the remoteness, the noble savagery, the spectacle of the landscape, etc. Even today, the available travel literature perpetuates the qualities of the Sublime, influencing modern visitors’ perceptions of the past and present of the islands.
Recent research has asked the simple question why, in such an apparently egalitarian utopia, there was a widespread need for the famous wooden tumbler locks, of which several examples still survive. What were the islanders trying to keep under lock and key? And was it outsiders they feared, or the attentions of their fellow islanders?

Careful scrutiny of the archaeological, ethnographic and historical records is revealing more and more evidence that contradicts the received wisdom about life on St Kilda. But more and more evidence that contradicts the ethnographic and historical records is revealing different from that on similar Hebridean islands, although life may turn out not to have been all that different from that on similar Hebridean islands, even this knowledge is unlikely to unduly diminish the powerful experience of the place that most visitors still take away with them.

Early Prehistoric

In 1764 Macaulay reported the existence of a stone circle at Tigh an t-Sithiche, a bandway, describing a typical Late Neolithic example, but in 1976 Sands could find no trace of this structure. If it did indeed exist this would represent the earliest known human occupation on St Kilda; recently discovered Neolithic pottery certainly confirms activity at this time. The Rev. MacKenzie wrote of the Fairies) at Village Bay has been excavated no less than four times, with some success in terms of producing dating evidence. Over 30cm of peat ash and soil covered a paved floor with a drain beneath, and finds included: coarse pottery, some of Iron Age type; hammer stones; stone tools; flint; loom weights or net sinkers; stone ard tips; querns; stone lamps; shells; animal bones; and a Viking iron spearhead. Pottery excavated in the late 1980s has been dated (by thermoluminescence) to AD 150±360, confirming activity on the islands at this time.

From 1998 onwards, excavations on the screes below Mullach Sgar have located the remains of structures containing Iron Age pottery; one such structure, previously entirely hidden in the scree, survives to almost 1.5m high in places.

Stone tools are found in abundance on Hirta. They would have been used in agriculture as digging points, and are often very skilfully worked. The distribution of their findspots is focused around the areas that once were fields. The tools were often discarded in Village Bay and subsequently reused as pinning stones in cleitean and other structures. Such tools were found when excavating the souterrain, and are similar to those from the Northern Isles where they are dated to the Late Neolithic/Bronze Age period. Excavations in 2000 in a structure dated to the Iron Age revealed probable debitage from working such tools, which would give the earliest evidence to date for their manufacture on St Kilda. Work in the late 1990s showed that several areas above the screes of Mullach Sgar were used for quarrying stone tools, which would give the earliest evidence to date for their manufacture on St Kilda. Work in the late 1990s showed that several areas above the screes of Mullach Sgar were used for quarrying.

Iron Age/Viking/Early Medieval

Several finds of Viking date and Norse influence have been found on Hirta. These include two Viking brooches of the 9th or 10th century, the Viking spearhead found in a souterrain, and a Viking sword. Recently excavated finds of steatite were probably brought from Norse Shetland, while pottery has been dated to AD1135±170. Early Christian grooved crosses built into House 16 and Cleit 74 are thought to show some Norse influence, but the presence of various Scandinavian-type place-names is an even better measure of this strong influence on the islands, which probably extended to the end of the 13th century.

The ‘boat shaped’ appearance of the twenty or so settings at An Lag might have been expected to be of Norse origin, but the form of these stone settings is often not convincingly boat-shaped overall, and their dating remains unknown.

Medieval

The medieval (taken here to mean pre-1380s) core of settlement seems to have centred on a now barren area at and just above the present head dyke, and is featured on a sketch of 1812 by Sir Thomas Dyke Acland. A recently-discovered sketch of the Village in 1831 shows that blackhouses actually stretched down towards the shore, and platforms thought to be associated with these structures have now been noted beneath and around the Consumption Dykes.

Martin Martin records that the well named Tobar Childa was in Village Bay, and Macaulay describes the layout of the settlement in his time. The ‘tolerable causeway’ between the houses is no longer visible within the grassy terraces, but the patchwork of small, irregular enclosures in this area may have been contemporary with the medieval settlement.

All but one of the pre-improvement houses are said to have been removed when the village was replanned in the 1830s, but a few other traces...
may also survive within cleitean. Calum Mor’s House – a ‘beehive’ type structure but with external turf insulation giving a mound-like appearance – may well be the sole intact survivor. Further reasons for the poor survival of medieval structures could be the re-use of stones for dyke and cleft building, but also, as MacKenzie (in the mid-19th century) records, when new houses were built, old ones were usually removed. Outlying areas of cultivation and enclosure of this period can be found at Ruaval and An Lag, while some structures at Gleann Mor may have been re-used and new ones built as shielings.

Three chapels are said by Martin Martin to have existed on Hirta in 1697: Christ’s Church, probably where the current burial ground stands; St Branan’s at Ruaval; and St Columba’s at the western fringe of the village area. A further chapel or ‘teampull’ is said once to have stood on Boreraig but by 1882 was represented only by a single inscribed stone. The oval graveyard, which was used until the 20th century, is likely to be of medieval origin, associated with Christ’s Church, but the scatter of small headstones leaves few clues as to who was buried there and when. Martin Martin describes seasonal shelters or bothies used during the sea-fowl harvesting on Stac Lee. However, the most common type of small structure is the cleft, of which about 1,260 examples have been recorded on Hirta, and more than 170 others on the outlying islands and stacks: even in Martin’s time he guessed that there were around 500 of these unusual structures. Cleftean are small drystone structures of round-ended rectilinear form, with drystone walls and a roof of slabs covered with earth and turf. Within this basic plan are numerous variations of door position, and some examples (which may have been converted from earlier dwellings) even include integral adjoining cells. Although perhaps influenced by the Norse tradition of storehouse building, the cleftean may equally have been derived from the basic design of earlier St Kildan buildings such as the Amazon’s House and Calum Mor’s House.

Cleftean were usually used as stores, and their generally low wall construction was designed to allow a through-flow of air. They were used to store game for birds, eggs and feathers, harvested crops, and peat and turf that were both used as fuel.

Blackhouses and Early 19th-century Buildings

Monastic cells?
Although undated, and constructed differently from other known Early Christian structures, the two cellular structures investigated near the site of St Branan’s chapel could conceivably represent the remains of a monastic foundation – perhaps the ‘monkshiss’ referred to in a historical document. The presence of three chapels on so small an island as Hirta in the late 17th century begs explanation, and the islands are certainly remote enough to satisfy the requirements of Early Christian hermits. The dedication of one chapel to St Columba might support this hypothesis.

The first main deviations from the relatively primitive St Kildan structures were the building of the Store (or ‘Featherstore’) before 1818, and the Church and Manse to plans of 1826. The Store is a two-storey gabled structure that was used to store commodities gathered as payment in kind for rent. The Church is a relatively plain two-bay oblong structure built to plans of 1826, a schoolroom being added on the north-west side in 1898. The Manse was built at the same time as the Church.

In an effort to provide more up-to-date accommodation, the Rev. Neil MacKenzie instigated a move from the old village core to a laid out string of blackhouses, mostly end-to-end in what is now known as The Street. These structures, 24 of which survive fairly intact, were mainly built in the 1830s, but one example (Blackhouse E) possibly dates from as late as the 1870s. The blackhouses were of the usual Hebridean plan, being rectangular, with thick double-skinned walls and with rounded external corners. The roofs were thatched with barley straw, some later gabled, and the windows were glazed. There was a single entrance, used by both animals and humans, and the lower end was normally used as a byre. A plan published by Thomas in 1870 showed how the living quarters were laid out. Some examples include a crub or well-bed, a feature carried on from the medieval building tradition. Several variations on the general plan can be seen, including the recently excavated kiln-barn (Blackhouse W), and the conjoined Blackhouses M and N.

The fertile plain of Village Bay was divided into numerous radial plots, most of which are still evident through dykes, cultivation lynchets or lines of stones. The plots were now related to individual blackhouses whereas previously plots of land were allocated to families on a rotational system based on run-rig. The head dyke, into which pre-existing cleftean and other structures were integrated, was probably built in the 1830s, as was the high seaward wall. To the rear of the blackhouses are enclosures which may define small gardens, and MacKenzie refers to adjacent manure pits which are no longer obvious. Small circular gateless enclosures within the head dyke form ‘cowpens’, used to shelter growing crops of kail or cabbages. The An Lag enclosures, the date of which is unknown, might also have been enclosures where vegetables would have grown in this relatively sheltered location without being eaten by the livestock.

Hidey Holes
Always hidden, and often forgotten, traces of at least 16 structures have been found in the screens below Mullach Sgar. Stories tell of their use as hiding places in times of strife, when pirates or other unfriendly visitors made an appearance. The islanders are said to have hidden in the screens in 1746, when soldiers came in search of Bonnie Prince Charlie who they thought might have taken refuge on St Kilda.

Later 19th-century Houses
After a damaging hurricane in October 1860, the opportunity was taken to further improve the living accommodation in the village. Construction of the row of 16 new whitehouses strung along The Street started in 1861. The 16 houses erected were lime-mortared, gabled and chimneystones. Of a standard Scottish Highland three-roomed design, these buildings are quite different from their predecessors; they face seaward, not end-on to the Bay, and have a hard rectangular outline of mortared stone with cement-rendered walls, and chimneystones. Their roofs were covered with zinc plates nailed down to sarking boards as a security against the wind, but some plates were too short to cover the whole roof and all were apparently prone to condensation. The zinc was subsequently replaced by tarred felt held down by spikes and stays. In 1898 the houses were provided with new floors which were partly of concrete, and partly timber. Set into the slope, most of these houses have a revetted drainage ditch at the rear, a common mainland technique.

The construction of these houses caused modifications to the building pattern on the street frontage, but most new structures appear to have been fitted into the gaps between the blackhouses. While most of the blackhouses were reused as byres or stores, one or two, such as Blackhouse X, were still used as dwellings after the construction of the new houses. A good deal is known, from documentary and photogenic evidence, about the layout and functions within the houses, and this has been supplemented by the excavation of Houses 6 and 8 in the late 1890s. The present Factor’s House was probably also built in the 1860s. This building was used by the Factor during his annual visits to collect the rent. It stands towards the lower end of the street, close to the Church and Manse. Built on common ground, it is of a conventional mainland type with one-and-a-half storeys and a projecting front porch. Marked on Sharbau’s plan is a structure described as a ‘mill erected in 1861’ although it is not known whether this was a grain mill which ever had a working existence.
Early 20th Century to the Evacuation

The addition of the schoolroom to the Church occurred between 1897 and 1900, and fragments of writing slates found in recent excavations may date from around that time. The concrete slipway and jetty were built in 1921, and the naval gun (brought from a First World War naval gunboat) and ammunition store were added in 1918 in response to a German U-boat attack which left the Store in ruins and other buildings severely damaged. Excavated finds show that the islanders’ tastes became more developed as tourism brought in a little extra income and contact with the outside world, for while their life remained comfortable but basic.

Post-evacuation

Following the evacuation in 1930, the buildings of St Kilda began to decay rapidly, and within 10 years most were roofless. In 1957 the Air Ministry re-occupied the Manse and Factor’s House, repaired the Church, and built a block of Nissen huts. At about this time the road to the top of Mullach Mor was built, using material quarried from the side of the hill. The present MoD buildings were occupied in 1969, and the radar facilities on Mullach Mor and Mullach Sgar have gradually developed over the last 35 years.

The remains of several aircraft are to be found on St Kilda. A Sunderland flying boat and her crew – six New Zealanders, an Australian and three Britons – crashed in Gleann Mor in June 1944 while on a night operational flight from Oban. All crew members died in the crash and the wreckage was later dismantled and buried by the RAF in the summer of 1944. A Beaufighter, based at Port Ellen on Islay, crashed on Conachair on 3 June 1943, also during a night flight. Most of the wreckage fuselage plunged over the cliffs and no bodies were ever found. A Wellington Bomber wrecked fuselage plunged over the cliffs, and the remains of several aircraft are to be found on St Kilda. A Sunderland flying boat and her crew – six New Zealanders, an Australian and three Britons – crashed in Gleann Mor in June 1944 while on a night operational flight from Oban. All crew members died in the crash and the wreckage was later dismantled and buried by the RAF in the summer of 1944. A Beaufighter, based at Port Ellen on Islay, crashed on Conachair on 3 June 1943, also during a night flight. Most of the wreckage fuselage plunged over the cliffs and no bodies were ever found. A Wellington Bomber

In her classic book An Isle called Hirta, Mary Harman (1997) summarises accounts of fowling by the St Kildans. The gathering of eggs, young and adult birds naturally depended on the life cycle of the birds themselves. Adult birds were collected as soon as they returned to the island in spring – common guillemots from February to April, adult shearwaters and northern gannets in March. Adults and eggs of northern fulmars and Atlantic puffins, and the eggs of common guillemots, were then harvested, as the birds were laying in May. Common guillemots could be harvested twice, with a gap of 18 days, and sometimes even a third time, as they would usually lay a replacement egg. Adult Atlantic puffins were still taken in May, June and July, after which the fledglings then became available, together with the young of northern gannets (gugas), shearwaters and northern fulmars. The northern gannet harvest necessitated visiting Boreray and its stacks, Stac Lee was the most difficult to land on and the men sometimes over-nighted in stone bothies there. The men often worked in small groups, descending the highest cliffs in stages using ropes of hemp or horsehair. The women and children often helped deal with the catch at the cliff-top. The lower sections of cliff were scaled from a boat. Snares made of horsehair were employed to catch auks, one woman catching 127 Atlantic puffin eggs collected, calculated from the number of eggs collected as soon as they returned to the island in spring – common guillemots from February to April, adult shearwaters and northern gannets in March. Adults and eggs of northern fulmars and Atlantic puffins, and the eggs of common guillemots, were then harvested, as the birds were laying in May. Common guillemots could be harvested twice, with a gap of 18 days, and sometimes even a third time, as they would usually lay a replacement egg. Adult Atlantic puffins were still taken in May, June and July, after which the fledglings then became available, together with the young of northern gannets (gugas), shearwaters and northern fulmars. The northern gannet harvest necessitated visiting Boreray and its stacks, Stac Lee was the most difficult to land on and the men sometimes over-nighted in stone bothies there. The men often worked in small groups, descending the highest cliffs in stages using ropes of hemp or horsehair. The women and children often helped deal with the catch at the cliff-top. The lower sections of cliff were scaled from a boat. Snares made of horsehair were employed to catch auks, one woman catching 127 Atlantic puffin eggs collected, calculated from the number of eggs collected, calculated from the number of eggs

Landscape

For most visitors, the fascination of St Kilda lies in the combination of spectacular natural phenomena linked to the almost tangible atmosphere of the remains of human settlement. The remains of these buildings, clefts and walls erected by the now absent St Kildans, are a very influential feature of the landscape, providing as they do a physical link to the existence of the people. They provide the imagination with an idea of how the St Kildans might have lived, reliant on the natural resources of the islands and challenged at every turn by the isolation and climate of the place.

Juxtaposed against these poignant remains are the Army camp buildings in Village Bay, the masts and radomes of the radar sites on Mullach Mor and Mullach Sgar, and the remains of the quarry opened to extract road building materials. These provide a startling reminder of the presence and influence of modern humans on St Kilda and may appear to some as intrusive and undesirable for this reason as for their physical appearance.

The most common way of reaching St Kilda is by boat and the views of the archipelago from a vessel moving between the stacs or around the cliffs, will reinforce the dramatic impacts of its‘spirit of place’.

Scheduled Ancient Monuments

Extensive areas of Hirta have been scheduled as nationally important ancient monuments. The largest is a tract of the Village Bay medieval and later settlement, but excluding the structures associated with the MoD Base. It stretches from the enclosure at An Laidir to the activity area and the supposed site of St Brian’s Church at Ruaival. The cluster of structures and dykes at Geo Chrubaidh, and the cleften and possible structure at Clairogan on an Tigh Faire, between Mullach Bi and Claigeom Mor are also scheduled. In addition, a large swathe of Gleann Mor has been scheduled, including the Amazon’s House and associated ‘horned’ structures.

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Figures on just how many seabirds were harvested are scant and probably unreliable. Martin Martin, for instance, gives an annual northern gannet harvest of 22,600 that is unlikely to have been sustainable over a long period. Similarly estimates of numbers of Atlantic puffin eggs collected, calculated from the number of creels removed from Dun, would have necessitated robbing the burrows of well over half the current population of Atlantic puffins. The 19th-century figures are perhaps the most reliable, but represent the harvests of a declining human population. During the 1830s, the northern gannet (including gugas) harvest never exceeded 4,000, along with 12,000 to 20,000 northern fulmars. In one exceptional day on Boreray in the 1880s, however, 1,000 northern gannets were harvested and the incredible figure of 89,600 adult Atlantic puffins has been calculated for 1876. By the early 1900s the annual average harvest was of 7,500 northern fulmars and about 5,000-6,000 common guillemot eggs.
3

History of St Kilda Prior to NTS Acquisition
In 1703 Martin Martin wrote how ‘descriptions of countries without the natural history of them, are now justly reckoned to be defective’. He was the first of many visitors to describe in detail the island and its inhabitants. It was only by the beginning of the 20th century that the first scientific studies began. The first geological survey of St Kilda took place in 1927-28 (forming the basis for all subsequent geological work) and, soon afterwards, the Oxford/Cambridge expedition provided an early description of the vegetation; they were the last to record the habits of the house mouse just prior to its demise. Soay sheep were then introduced to Hirta in 1932 to become a significant factor in the subsequent development of plant communities there, as studied by later botanists.

Since the lives of the islanders were so dependent upon the seabirds most early visitors, since Martin Martin’s time, had something to offer on the avifauna. So it is not surprising that the seabirds were so well documented and then censused on a regular basis. A detailed checklist of the all birds was updated in the year 2000. The presence of a nature reserve warden for six weeks was introduced in 1999 to become a significant factor in the subsequent development of plant communities there, as studied by later botanists.

A Landscape of Tradition and Legend
The landscape of St Kilda is littered with features and places linked with folklore and legend. These stories are all closely tied to those of the rest of the Outer Hebrides and Atlantic seaboard, but some have been adapted to suit the special circumstances of St Kilda. Without the plethora of documents associated with this landscape, these place names and traditions would have been lost, and the meanings of the landscape to the inhabitants would, as in many other places, have been forgotten forever.

The Mistress Stone
The Mistress Stone was a place where young men would establish their climbing prowess before their wedding.

‘In the Face of the Rock, South of the Town, is the famous Stone, known by the Name of the Mistress-Stone; it resembles a Door exactly, and is in the very Front of this Rock, which is twenty or thirty Fathom perpendicular in height, the Figure of it being discernible about the Distance of a Mile: Upon the Lintel of this Door, every Bachelor-Wooer is, by an ancient Custom, obliged in Honour to give a Specimen of his Affection for the Love of his Mistress, and it is thus: He is to stand on his left Foot, having the one Half of it over the Rock, he then draws the right Foot towards the left, and in this Posture bowing, puts both his Fists further out to the right Foot; after he has performed this, he has acquired no small Reputation, being ever after accounted worthy of the finest Woman in the World…’

Martin Martin, 1753, A voyage to St Kilda: The remotest of all the Hebrides or Western Isles of Scotland (4th ed.; London) p. 61.

Calum Mor’s House
Probably the last surviving dwelling from the medieval village, the house is said to have been built in a day by the strong-man Calum Mor in order for him to prove his manliness.

The Amazon’s House
The ‘House of the Female Warrior’ who once lived in Gleann Mor. The ‘Amazon’ is said to have hunted with her hounds at a time when there was a land bridge between St Kilda and the Western Isles. The structure may be hundreds or even thousands of years old.

St Kilda Parliament
The Parliament was convened almost every morning, when the menfolk would decide what, if anything, should be done that day. The Parliament was part of a communal system of sharing tasks and resources – one of the few aspects of life in which St Kilda appears to have differed significantly from other parts of the Western Isles.

St Kilda has a very special genius loci – or ‘spirit of place’ – which casts a spell on all those who visit it. It is a place of natural superlatives – of high cliffs, moody weather and teeming bird life. All of these add to the qualities of St Kilda, but so much of what is special about the islands is rooted in its human history. Its built heritage is a testament to a society that existed in relative isolation for centuries, and yet was unable to survive in the 20th century. This human history of St Kilda has been so important in giving the islands the qualities, both tangible and intangible, which they possess today.

The following account is necessarily brief: more detailed accounts of the history of St Kilda can be found in the many publications about the islands (see Bibliography).

The origins of the name St Kilda are uncertain as there has never been a saint called Kilda. Skildar is the Old Icelandic word for ‘shield’ that would describe the shape of the islands as they appear to rest on the surface of the water. The form S. Kildar appeared in a book of charts in 1592 and probably led to the later adoption of the name St Kilda. An alternative suggestion was related by Martin Martin, a visitor to the islands in 1697, who thought that the islands may have been named after a well (Tobar Childa) near the village on Hirta. Another and possibly the most likely explanation comes from a knowledge of the way the St Kildans themselves pronounced Hirta in their native tongue.
St Kilda’s Language and Culture

It is perhaps not surprising that so many of the St Kildan evacuees of 1930 spent their exile craving return to their homeland and indeed some continued to return each summer throughout the 1930s until the outbreak of war. The Earl of Dumfries regarded the islands as a nature reserve and Neil Gillies, a St Kildan, was employed as a summer warden. These evacuees, retained the ‘St Kildan lisp’, mentioned by Martin Martin as early as 1897. In effect, this was a mispronunciation of consonants. L (before a broad vowel) and V both became W. Similarly, R became L. The word ‘razorbill’ for example – pronounced elsewhere in the Hebrides as ‘laavy’, became ‘waawy’. The islanders pronounced the word Hiort (Hirta) as ‘hilt’. As Norman Heathcote mentioned in his book published in 1900, it is probably that the name ‘St Kilda’ is a corruption of the already corrupted ‘hilt’.

Although almost all the placenames of the archipelago have a Norse derivation, for at least 400 years Gaelic was the language of Hirta. The following words, unique to the St Kildan vocabulary, are redolent of the islanders’ extraordinary lifestyle: Ion – a climbing rope made of strips of plaited rawhide and regarded as a precious heirloom; mogas – an anchor, consisting of heavy stones placed in a seal-skin sack; snanadh – slipping off a rock; crathadh – the usual method of despatching a bird, i.e. dislocating its neck; faire – literally ‘nightwatch’ (wearing dark clothes but with a white cloth tucked under the throat, the hunter tricked razorbills into coming in to roost). Many such words pertaining to sea-fowling were peculiar to St Kilda with its seabird economy.

Throughout the islands recorded history, superstition was widespread. As in other parts of the Highlands and Islands, it was believed that sithichean (little people) lived in grassy hillocks, close to human habitation. The Graugach, the benign female spirit that was believed to look after the cattle, resided within a monolith located close to the Village. In the remote Gleann Mor, invalids offered gifts to the spirit residing in Tobar nam Buadh (the well of virtues) before drinking what was supposedly the well’s healing waters.

Some 300 years ago, Martin Martin reported that composing songs and ballads to celebrate victory and making up humorous rhymes were favourite pastimes of both the men and women of St Kilda. Early in the 19th century, visitors collected songs that must have been composed at times when the community felt buoyant and self-confident. The best known of these are the Bhasma Hirtlich (St Kilda wedding) and Cilete Gaidig (Gadig Rock), both of which were composed in an age when mouth-music and dancing were acceptable expressions of well-being and happiness. Dancing to music ‘scratched out of a bad kiddle’ was popular at all times of the year. In summer pony races and shinty matches were held on the beach of Village Bay.

After the famous evangelist Dr John Macdonald of Ferintosh (known as ‘The Apostle of the North’) visited the island, albeit briefly, in 1822 and 1823, he reported the people steeped in a mixture of ‘pagan belief and Popish superstition’. Chastisement and persuasion, Macdonald’s influence over the minds of the islanders was profound. Following a century without a resident minister, in 1829 the islanders welcomed into their midst the Rev. Neil MacKenzie. Under these Presbyterian influences many of the older islanders became introspective and conscience-stricken, and began to spend more time in prayer and theological debate than in earning a living. It is undeniable that MacKenzie worked hard to improve the material as well as the spiritual plight of his parishioners, and his account of island life has become a classic in St Kildan literature. MacKenzie also left to posterity a collection of laments and poems popular during his time on the island – all of them inspired by feelings of intense grief or piety, or both.

Without a resident spiritual leader, the older members of the community began to fret and endlessly debated their future. This sense of uncertainty and unhappiness persuaded many of the young to escape their isolation. In 1852 for instance, 36 of the island’s youngest and ablest emigrated to Australia. On the voyage to Melbourne, 18 of them perished. When the news of the tragedy reached St Kilda the people ‘shut themselves up in their houses and wept for a week’.

On a visit to St Kilda in 1865, the folklorist Alexander Carmichael was determined to meet Oighrig NicCruimein (Effie MacCrimmon), an 84 year old famed as a tradition-bearer. The Rev. Mackay, at that time the incumbent minister, did all he could to discourage the meeting. ‘You should be aware’, he declared, ‘that the people of St Kilda have now discarded songs, music and dancing and the stories of their foolish past’.

Thankfully, Carmichael persisted and, during his brief hours in her company, discovered that Oighrig could recall many of the island’s ancient songs, stories and traditions. Included in her treasury was An Comhradh (The Conversation) which Oighrig’s parents had composed together during their courtship days in the late 18th century. The tune of An Comhradh is robust and inventive although the translation fails to express the full vigour and vitality of the lyric. The young man looked forward to the challenge of hunting gannets on Bonerty Bay.

The song is noteworthy, not least in that it encapsulates the genius and tragedy of the St Kildans. Sadly, days before Oighrig was born, her father and grandfather, tied together by their climbing rope, plunged to their death whilst fowling on the cliffs at the back of Oiseval.
Archaeological evidence suggests that Hirta has been occupied, almost continuously, for well over 2,000 years and that the first human activity began a further 3,000 or more years beforehand. It is certain that the Vikings had an influence on the islands and that Hirta was also occupied by early Christians. The place names on the islands reflect both the Norse and Gaelic influence.

The first comprehensive account of life on St Kilda was provided by Martin Martin (1697), tutor to the MacLeods of Harris and Dunvegan. At this time, St Kilda was owned by the MacLeods of Harris and Dunvegan, and would remain with a branch of the family until the year after the evacuation in 1930. At the time of Martin’s visit there were approximately 180 people on Hirta, living in a main settlement in Village Bay. They kept sheep and cattle and grew crops – but the most important component of their diet came from seabirds. The seabird harvest included the northern gannets that were so abundant on Boreray and the Stacs and, in later times, came to depend on the northern fulmars and Atlantic puffins that nested on the cliffs of Hirta and Dun. The St Kildans were consummate and fearless climbers and caught the birds by either scaling the cliffs from the bottom, or more usually, by lowering themselves down to the cliff ledges where the birds nested. The bird life also provided them with oil, feathers and eggs, which they collected and used as payment in-kind for their rent.

Ropes and fowling rods were usually the property of all of the islanders, as were the areas of pasture and other items such as boats and the numerous cleitean (drying chambers) which can still be found densely dotted around the islands. Ropes could, however, also be owned by individuals and, at some stage in the history of the islands, they often formed part of a dowry. At the time of Martin’s visit, the people of St Kilda led a simple life. They were guided by basic though at times idiosyncratic Christian principles with their lifestyle ‘in tune’ with nature and adapted to the pressures of survival in a difficult environment. In later times their lifestyle was to become strongly influenced by the Church, through the strenuous efforts of the many clergy who spent time on the islands.

In 1822, St Kilda was visited by the renowned evangelical preacher, Rev. John Macdonald, the so-called ‘Apostle of the North’. Macdonald set about constructing the foundations of a highly organised and puritanical religion on St Kilda. These were built upon by the Rev. Neil MacKenzie who arrived on the islands in 1830. He also decided to try to improve the standard of living of the St Kildans and under his guidance the traditional ‘runrig’ system of agriculture was replaced by a permanent allocation of land to each family. The old village was demolished and replaced around 1834 by a curving line of blackhouses around the curve of Village Bay. In 1861, MacLeod, the landlord, paid for a new set of cottages for the St Kildans that were built by his masons from Dunvegan. These were erected alongside the 1830’s blackhouses, many of which were retained as byres. In 1866 the Rev. John Mackay was sent to St Kilda and set about imposing a particularly strict religious rule over the islanders: the St Kildans embraced his teaching and ignored their own traditions.

Another factor in the history of the St Kildans was the influence of disease on the islanders. The islands were devastated by a smallpox epidemic in 1724, from which only four adults and 26 children survived. (A further three men and eight boys escaped exposure to the disease as a result of being stranded for several months on Boreray while on a fowling expedition.) Although some new families were introduced from Harris and Skye, the population never again exceeded 110. A further factor in the decline was infant tetanus, which, until it was finally eradicated in 1891, exacted a toll of two out of every three live births. The emigration of 36 islanders to Australia in 1852 reduced the population to approximately 70, from which it never recovered.

By this time, the islanders’ traditional economy had also begun to falter, with the oil and feathers they exported losing value on the mainland – though still accepted by the Factor as part payment of the rent. From the 1870s, however, steamers were calling regularly at Village Bay, full of well-meaning, curious visitors – tourists. They came ashore to see the inhabitants, whom they regarded as quaint, and to buy souvenirs made by them. Money was introduced for the first time and the St Kildans came to rely on these tourists to provide them with a source of income. But by the beginning of the 20th century this fickle and uncertain source of income began to decline as St Kilda began to go out of vogue. What followed were years of hardship when illness, bad weather, poor harvests and lack of food seriously affected the quality of life and the expectations of the St Kildans. They had few sources of income, although the sale of cattle and tweed to Skye and the mainland continued through the estate Factor until after the First World War. Communication with the mainland was also difficult, with the efficiency of their post office, which opened in 1899, often affected by weather conditions.

During the First World War, the islanders experienced a short reprieve when a Naval unit stationed on the island brought them a measure of prosperity as well as radio communication, regular mail, employment and supplies. However, in 1919 the Navy pulled out and the islanders’ situation was once again desperate. By 1929 the population had fallen to 37 and in 1930 the remaining islanders, guided by Nurse Williamina Barclay, decided that they had no future on St Kilda. They signed a petition requesting evacuation, which was sent to the Secretary of State for Scotland in May 1930. Eventually, their request was granted and on 29 August 1930 the 36 remaining St Kildans left the islands. They were taken by HMS Harpée to the mainland where the majority was to settle in Morvern, Argyll, to work for the Forestry Commission – most having never before seen a tree! The MacLeods sold the island in 1931 to the Earl of Dumfries, later to become the 5th Marquess of Bute. He retained the island, unoccupied and managed as a bird sanctuary, until his death in 1956, following which the islands came into the care of The National Trust for Scotland, when it also became a National Nature Reserve under the supervision of The Nature Conservancy (now SNH).
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‘Operation Hardrock’, established the need for St Kilda as an early warning radar outpost during the Cold War. An MoD Base was established in 1957, initially by the RAF, and this has gradually evolved into the MoD Base for the South Uist Rocket Range. This establishment continues to provide the island with its most permanent occupants as well as electricity, running water, medical support, and lines of supply. In order to cause minimal disturbance to the Village, the Base was established on the ‘Glebe Land’ – agricultural land in the control of the church. Initial plans to demolish the Village and use the stone for road building were successfully opposed in 1957 by representatives of The Nature Conservancy and the NTS; the Village was spared and the quarry above Village Bay was established instead. Various radar facilities have come and gone on the hills, but the most sustained activity of this type is confined to the area of the Base, now run by the commercial company QinetiQ.

From 1968 onwards, volunteer ‘Work Parties’ of The National Trust for Scotland have visited St Kilda regularly as well as electricity, running water, medical support, and lines of supply. In order to cause minimal disturbance to the Village, the Base was established on the ‘Glebe Land’ – agricultural land in the control of the church. Initial plans to demolish the Village and use the stone for road building were successfully opposed in 1957 by representatives of The Nature Conservancy and the NTS; the Village was spared and the quarry above Village Bay was established instead. Various radar facilities have come and gone on the hills, but the most sustained activity of this type is confined to the area of the Base, now run by the commercial company QinetiQ.

The very first NTS Work Party, in August 1958, decided to investigate the remains at Gleann Mor and elsewhere on the islands:

Archaeological Investigations
Archaeological observations on St Kilda began as early as the 1830s. During his agricultural and housing improvements, Rev. Neil MacKenzie noted the presence of:

‘very numerous ... green mounds called ‘gnocan sithichean’, which were looked upon as abodes of fairies. These were all removed in the course of agricultural improvements. They were composed of stones mixed with a little earth to a depth of two or three feet. At some distance below this layer were stone coffins formed in two different ways.... In a few of them bones were found, and in nearly all of them pieces of earthen vessels.’

The very first NTS Work Party, in August 1958, decided to investigate the remains at Gleann Mor and elsewhere on the islands:

‘Set off with sandwiches up the road to the Col and down into Gleann Mor with Prof. O’Dell to examine the bee-hive dwellings. We took spades and crow-bar with us. Started work on digging out the floors of the buildings. The Amazon House is the best-preserved of the buildings described in detail in the Scottish Field, by Ken Williamson. We dug down carefully in several houses but came on nothing of interest.’

The results of several years of intensive field survey coupled with documentary research were published in 1988 by Geoffrey Stell and Mary Harman in Buildings of St Kilda, and this survey information continues to provide the base-line information from which all new work stems.

Partly for logistical reasons, very few archaeological excavations have so far taken place on St Kilda. Early efforts related to the souterrain, where unfortunately the contemporary techniques of excavation succeeded in destroying some extremely important information. Houses 15 and 16 were investigated in the 1970s. More recently, the excavation of the floor deposits of House 6 in advance of reconstruction has produced useful results, as has the examination of House 8, Blackhouse W, and a rubbish pit behind House 7 and Blackhouse G. The results of these excavations of 1986-90 were published in 1996 as the first in a series of monographs on the archaeology and ethnography of St Kilda.

In 1993 and 1994 Glasgow University undertook research excavations at Ruaval, on two circular areas and at An Lag where the ‘boat-shaped’ settings were investigated following an earlier excavation in 1973. Several areas identified as being at risk from cliff erosion have been investigated, especially a ‘boat-shaped’ setting at The Gap (excavated in 1995) and some field boundaries at Ruaval.

Since 1995, small-scale excavations have focused on the screes below Mullach Sgar, in the southwest part of Village Bay. Numerous stone structures have been rediscovered and recorded, while, on the terrace below, a ‘horned structure’, similar to those found across in Gleann Mor, has been examined and may have prehistoric origins, as well as activity into the 1st millennium AD. Nearby, investigations are in progress (2002) of part of a small but surprisingly complete Iron Age building, surviving in places almost to roof height.

For the years 1996-2001, the St Kilda Archaeological Management and Research Plan was implemented. As part of the work contained in this plan, an archaeologist has been employed on the islands during the summer months to carry out condition surveys and extensive monitoring of the built structures on the islands. This information is being used to direct building maintenance work by helping to determine priorities for repair or maintenance.

The condition of the grave markers in the graveyard has slowly been deteriorating and the area has been the subject of a detailed drawn and photographic record, to add to the already extensive records of the islands which have been maintained by the Trust since its acquisition of St Kilda.

Palaeoenvironmental research by Durham University has examined pollen and other remains from a transect through Village Bay, as well as looking at the evidence for plants grown in the plantcories, where the use of medicinal plants has been revealed. Work on the soils at An Lag has shown that large volumes of soil were imported into the enclosures to enhance fertility and provide a good growing medium.

The Universities of Lampeter and Sheffield have a long-term programme of research into the stone tool industry which flourished on St Kilda, probably from the early prehistoric period and through to at least the Iron Age, or perhaps even to relatively recent times. Excavations of quarry material have shown that the landscape above and to the south of the village has been substantially modified by human activity.
c. Form and date of most recent records of site

The first detailed map and account of the geology of St Kilda was produced in 1935. The most detailed modern investigations of the geology have been those that took place in the 1960s. In 1979 and 1980 the islands were researched and remapped by the British Geological Survey.

The marine geology to the west of Scotland has been researched only since the mid-1960s, before which it was almost totally unknown. In the 1960s, the British Geological Survey (BGS) commenced a systematic offshore regional mapping programme of the UK Continental Shelf. The BGS marine operations (run mainly during the late 1970s and early 1980s) involved the collection of shallow-seismic, gravity and magnetic data, supplemented by seabed sampling and coring, and the drilling of shallow boreholes to a depth of up to 300m below the seabed. Initially, this offshore work was funded by the Department of Education and Science, but subsequently major sponsorship was provided by the Department of Energy/Department of Trade and Industry. The BGS summarised the results of this programme in a series of geological maps at a scale of 1:250 000, which divides the shelf into named sheet areas. The St Kilda archipelago lies on the 1:250 000 St Kilda Sheet, which is also identified by the position of its south-west corner (57º N-10º W). The St Kilda geological sheet covers an area of one degree of latitude by two degrees of longitude and comprises the following three maps; Seabed Sediments, Quaternary and Coastal Geology and Solid Geology. These maps were prepared largely from data collected during the BGS field programmes, supplemented by information from released hydrocarbon exploration data, universities, other institutes and the Hydrographic Office. To complement the map series, the BGS has also published a series of UK Offshore Regional Reports together with small-scale geological and geophysical maps and specialist reports.

The onshore Quaternary landforms and deposits were mapped by J. Waterston in 1906 and W. Eagle Clarke in 1910-1911 to James Fisher (who was first to census the gannets) in 1939 and 1947-1949. An important publication of the earlier period had been made by the Oxford-Cambridge Expedition in 1931, immediately following the evacuation, Edinburgh University followed in 1948, and Glasgow University (headed by J. Morton Boyd) in both 1954 and 1956. The first Nature Conservancy warden, Ken Williamson, studied bird migration, wrens, snipe and even found time to make some of the first maps of the antiquities. David Beddington and Estlin Waters made good use of their time whilst posted at the MoD Base on St Kilda in the late 50s/early 60s, to study seals, wrens, petrels and other birds. Subsequent wardens have contributed biological records, alongside visiting scientists interested in specific aspects such as lichens (by Oliver Gilbert) and fungi (by R. Watling). There have been various studies of the vegetation and plant communities, notably by Gwynne Milner and Hornungh in Island Survivors, with a recent National Vegetation Classification undertaken by Alan Booth in 1996. Professor M. Crawley has also studied the vegetation with emphasis on the impact of the Soay sheep. Cambridge University took up the sheep studies in 1985, under Professor T. Clutton-Brock, and now several other universities are contributing their expertise in diverse aspects of this important project.

M. P. Harris undertook a classic study of Atlantic puffins on Dun and, with S. Murray, assembled a checklist of the birds of St Kilda in 1978; Murray updated this in 2002, collating all previous records and counts. The seabird colonies of St Kilda were considered completely most recently in 1999 and 2000 by the UK Joint Nature Conservation Committee; this census reaffirmed the national and international importance of St Kilda’s seabird community. The northern gannet colony on Boreray and associated stacks is surveyed every 10 years.

In addition, the JNCC monitors northern fulmar, common guillemot and razorbill numbers in selected plots every three years, since 1990. Scottish Natural Heritage has annually monitored breeding productivity of northern fulmars (since 1989) and of black-legged kittiwakes (since 1986) while the CEH (Centre for Ecology and Hydrology; formerly the Institute of Terrestrial Ecology) analyse northern gannet eggs at regular intervals, for the presence of pesticides and other chemical pollutants.

There have been various opportunistic but mostly incomplete surveys of some seabird species except the storm-petrels over the past few decades.

The historical bathymetric and seabed character data are limited, as shown on Admiralty Chart 2524. Most soundings are from lead line surveys carried out between 1857 and 1909. More detailed surveys of St Kilda benefits from having a number of particularly detailed records of its historic buildings and archaeological sites. The base-line record was produced by the Royal Commission on the Ancient and Historical Monuments of Scotland, consisting of detailed survey of the Village Bay area, Gleann Mor, and other principal sites, plus ground and some elevational/cross-sectional illustrations of standing buildings and other selected structures.

The RCAHMS survey has more recently been supplemented by more detailed pieces of work, including a comprehensive survey of the 1,430 or so cleitane on the islands by Dr Mary Harman, and by condition surveys of houses, blackhouses, other buildings, walls and selected cleitane by Lorna Johnstone, NTs St Kilda Archaeologist 1996-2000. Most of this information is now in the public domain, being held in the National Monuments Record of Scotland.
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As noted above, more detailed archaeological and palaeoenvironmental investigations have also take place recently, the results of an on-going research partnership between The National Trust for Scotland and the Universities of Glasgow and Durham, and also by the Universities of Sheffield and Wales Aberystwyth and by the University of Aberdeen. This and other archaeological, historical and scientific research into the cultural heritage of St Kilda is promoted and guided by the St Kilda Archaeological Research Committee; a panel of invited individuals and representatives from bodies with an interest in the islands’ heritage.

Present State of Conservation

Difficulties of access to St Kilda and its satellites have necessitated studies being somewhat intermittent and short-term so it is difficult to assess trends in flora and fauna. Seabirds – especially Atlantic puffins and northern gannets – are relatively well documented. Northern gannets are increasing at about 0.8% per annum with a similar increase in northern fulmars, although more erratic over the decades. Great skuas first bred in 1963 and now number nearly 200 pairs. In contrast black-legged kitiwake numbers have declined in recent years. Although earlier counts may not be strictly comparable, the black-legged kitiwake numbers have dropped from 11,485 pairs in 1969 to only 3,886 pairs in 1999. This decline is apparently a recent phenomenon, since 1993, perhaps related to food abundance near the Continental Shelf Break where the black-legged kitiwakes feed. Although there has been an apparent decrease from 310,000 pairs of Atlantic puffins in 1978 to 230,500 in 1988, more systematic counts are needed to determine if this drop is in fact significant. From intermittent census work it seems that the number of St Kilda wrens is stable, while the fieldmice are known to have spread since the human inhabitants left and the house mice became extinct. Seal numbers have also increased slightly since 1930 but the nature of St Kilda’s coastline offers limited opportunities for this to continue. The numbers of Soay sheep on Hirta are monitored annually, with intermittent counts undertaken of the other sheep on Soay itself and on Boreray; although numbers fluctuate from year to year no significant trend has yet been detected.

Its unsurpassed natural heritage has also attracted the full range of designations. In 1957 it became one of Britain’s first National Nature Reserves (NNRs) for its geology, its plants, the seabirds, sheep, wrens, and other features. The new NTS Management Plan will be approved as a working document with which NTS will manage the NNR on behalf of SNH. The buildings and archaeological remains became protected under the Ancient Monuments Acts (1963, 1972, 2002) while in 1976 St Kilda became a Biosphere Reserve (though recently delisted because of difficulties in fitting some of the criteria). In 1981 it became a National Scenic Area (NSA), one of three in the Outer Hebrides. In 1984, under the Wildlife and Countryside Act it was designated a Site of Special Scientific Interest (SSSI) and it is also a Geological Conservation Review (GCR) Site for Tertiary Igneous, Quaternary of Scotland and coastal geomorphological interests. St Kilda became Scotland’s first World Heritage Site in 1987 for its natural heritage and in 1992 it became a Special Protection Area (SPA) for its seabird colonies, under the European Birds Directive. Consultations are ongoing to have it become a Special Area of Conservation (SAC) for its vegetated sea cliffs and marine interests under the European Habitats Directive.

The marine environment around St Kilda is in near pristine condition with very little impact from any human activities. Anchoring is limited to a small number of visitors each year and concentrated on Village Bay where the soft sea bed provides good holding ground and results in minimal damage. There is only a very small amount of sporadic fishing in the area, largely using creels fishing for lobsters or crabs. The creels themselves result in negligible damage to the sea bed and associated benthos and the catch taken is well within levels that may be regarded as sustainable.

Almost uniquely on a landscape scale in Scotland, the continuing conservation aim for St Kilda is largely to arrest deterioration of historic fabric, and to ‘fossilise’ the landscape as closely as possible to its appearance when it first came into the care of The National Trust for Scotland. Most large-scale deviations from this philosophy relate to the early infrastructural works associated with the creation of the MoD Base in the late 1950s and 1960s, or to the careful and very sympathetic restoration works of selected structures for operational or interpretative reasons.

The current policy for standing fabric is firmly to maintain the status quo, in an attempt to preserve the spirit of the place as much as possible. To that end, the NTS continues to send out annual conservation Work Parties of volunteers of mixed skills, who attend to most of the routine repairs and also to some fairly substantial ones. Since 1996, in partnership with Historic Scotland, the NTS has employed a seasonal St Kilda Archaeologist, part of whose task has been to ensure that adequate records are made of Work Party repairs, and to guide this work according to best conservation practice.

The St Kilda Archaeologist has also compiled detailed written and photographic information regarding the condition of archaeological sites and historic buildings, and has produced an Archaeological Action Plan (working draft) which includes proposals for a prioritised programme of monitoring and further recording as well as targeted conservation actions. This working draft is a key reference document, informing the formal 5-year Management Agreement between the NTS and Historic Scotland, regarding permitted works affecting the designated parts of St Kilda (see 4c below). However, prioritisation of resources has had to focus on the main settlement in Village Bay and surrounding areas; outwith this, selected cleftane have been identified for monitoring and conservation. The possibly prehistoric structures in Great Mory are currently being assessed for appropriate conservation actions.

The National Trust for Scotland has a policy of open access to all its countryside properties, and this applies to St Kilda – subject to certain restrictions within the St Kilda bylaws. However, St Kilda is the most remote inhabited island in Great Britain and Ireland, and remains surprisingly difficult to get to due to the ferocity and unpredictability of the Atlantic Ocean and its weather systems, and of the microclimate of the islands themselves. Presentation and promotion focuses as much on ‘remote access’ as on direct interpretation for those few visitors (around 1,750 annually) who are lucky enough to set foot on the islands.

Presentation on the Islands

As the only island on which people are likely to set foot, presentation is focused on Hirta. SNH’s NNR sign is positioned near the top of the pier to provide visitors with basic information, maps and direct them to the Warden’s office at the Factor’s House. The presentation of the Village is in itself a presentational effort, but the remains are allowed to speak for themselves, and there is no open-air interpretation, other than the NNR sign. House No. 3, however, has been restored to house a small museum in which a few authentic St Kilda everyday artefacts are on show, and which contains a great deal of information, presented on information panels, about all aspects of the island’s natural and cultural heritage. (The museum displays and interpretative resources are in the process of being updated and improved.) In addition, House No. 6 has been restored to the
The site is designed to give visitors a flavour of all aspects of the islands—natural history, built heritage, ethnology, and St Kilda today and its future. Different levels of information are available, and there are many links to other sites with content on St Kilda. A Guestbook records the reactions of visitors from every continent, and shows that people are being moved by the site and are being caught up with the fascination for the place. The website is under continuous development, and promises to bring more sights and sounds to its international audience. Major future developments include the provision of a Gaelic language version (the language of the St Kildans), and the production of a children’s section in conjunction with the nearest local school—some 80km (50 miles) away.

Promotion of the Site

The results of SNH’s underwater surveys were brought together into an attractive exhibition that has toured many parts of Scotland and the Outer Hebrides. SNH has produced a video for sale that includes all the highlights of these recent surveys; versions are available with Gaelic or English commentaries, together with a series of six free posters that highlight the marine environment of the archipelago. More recently a further two free posters and postcards have been produced that celebrate all aspects of the St Kilda WHS experience. SNH also distributes to local Tourist Information Offices throughout the Outer Hebrides its colour, bilingual leaflet about the National Nature Reserve, and is currently producing a glossy booklet on the wildlife of St Kilda. They also recently subsidised the Scottish Ornithologists’ Club to publish the revised Birds of St Kilda by Stuart Murray, available to members and non-members alike. Local SNH staff provide illustrated lectures to local schools, visitors and community groups in the Western Isles and provide background information to a variety of students undertaking projects about the islands; every few years SNH-sponsored environmental competitions to local schools are themed on National Nature Reserves or St Kilda in particular.

The National Trust for Scotland is acutely aware of the difficulties people experience in getting to St Kilda, and helps facilitate access through its own cruises, and also by providing opportunities for people from 18 to 75 years old to participate in active conservation on the islands through the long-established St Kilda Work Parties. The Trust also facilitates the St Kilda Club (which exists to promote the conservation of the islands), and works in association with cruise ships and with local boat operators. All access opportunities are promoted through the Trust’s St Kilda website, but all means of visiting are inevitably expensive.

St Kilda Work Parties are heavily subsidised by the NTS, with support from Historic Scotland, but nevertheless cost participants in the region of £500 (around 750 euros) for the 16-day trip—which includes food and accommodation but excludes the cost of travel to and from Oban, the point of departure from the mainland.
St Kilda will be managed as a model of integrated conservation management, where natural and historic interests are balanced together.

Management

a. Ownership

St Kilda is wholly owned on behalf of the Scottish nation by the independent Scottish conservation charity, The National Trust for Scotland. The Trust has ‘barony title’ to the foreshore – the area between mean high and low water marks.
b. Legal Status

Natural Heritage
The site is currently a classified Special Protection Area under the EU Birds Directive; and a candidate Special Area of Conservation under the EU Habitats Directive. Under domestic legislation, the site is a National Nature Reserve under the 1949 National Parks and Access to Countryside Act; an SSSI under the Wildlife and Countryside Act 1981; and a National Scenic Area, established by order of the Secretary of State in 1981 under planning legislation. The sea surrounding St Kilda is a marine consultation area which is a non-statutory designation recognised in marine strategic planning.

Cultural Heritage
Large areas of Hirta are included on the Schedule of Ancient Monuments and Archaeological Areas Act 1979. Under this Act, anyone found guilty of destroying or damaging such protected places without lawful excuse can be liable to a fine or imprisonment or both. Historic Scotland acts for Scottish Ministers on the management of the monuments, and considers and decides upon any proposals that might affect their preservation or setting.

The cultural landscape of Hirta makes a significant contribution to the scenic qualities of the area.

c. Protective measures and means of implementing

Natural Heritage
The European designations (under the Birds and Habitats Directives) produce a number of obligations on the UK to protect the qualifying features. These are enacted into UK law through the Conservation (Natural Habitats, etc.) Regulations 1994. The National Nature Reserve is managed by the National Trust for Scotland through a Management Agreement with SNH which sets out objectives for protecting and managing the natural heritage. The SSSI, through the Wildlife and Countryside Act 1981 requires potentially damaging operations to be identified and requires SNH to be consulted where any proposed development might involve one of these. The National Scenic Area requires SNH to be consulted by the Local Authority over certain types of development that may impact the landscape character. The marine consultation area involves the appropriate Regulatory authorities in consulting with SNH over certain marine activities.

This combination of strict legal obligations, development controls and land tenure provide a high degree of protection for the natural heritage of this area.

In 1967 St Kilda became one of Britain's first National Nature Reserves (NNRs) for its geology, its plants, the seabirds, sheep, wrens, and other features. Once approved the new NTS Management Plan will be the working document with which NTS will manage the NNR on behalf of SNH.

Figure 4.1: Map of Hirta showing areas protected under Section 28 of the Ancient Monuments and Archaeological Areas Act 1979

Cultural Heritage
Under the Ancient Monuments and Archaeological Areas Act 1979, it is a criminal offence to alter, damage or destroy a scheduled ancient monument without the written consent of Scottish Ministers. The use of metal detectors also requires permission. Provision is made for the giving of grants for the maintenance and management of ancient monuments within the Act under two schemes administered by Historic Scotland: Ancient Monuments Grants, and Management Agreements.

The day-to-day management of the scheduled areas is controlled through a 5-year Management Agreement between Historic Scotland and The National Trust for Scotland in which conservation and management activities are agreed and method statements are appended. Historic Scotland also monitors the management through regular visits by Inspectors of Ancient Monuments, Architects and other professional staff. The HS/NTS Management Agreement includes the provision of a seasonal St Kilda Archaeologist, who is based on the islands during the summer months and who monitors and advises on all works within and outwith the scheduled areas. Activities not covered by the Management Agreement are subject to individual applications for Scheduled Monument Consent, and, if consent is granted, works are monitored by Historic Scotland.

The National Planning Policy Guideline Archaeology and Planning (NPPG 5) and its associated Planning Advice Note Archaeology – the Planning Process and Scheduled Monument Procedures (PAN 42) were issued by the Scottish Office (now the Scottish Executive) in 1994. They provide advice to planning authorities on how to deal with ancient monuments under the development plan and development control systems. Local authorities should have ready access to a professionally maintained Sites and Monuments Record, and should take account of the cultural heritage in Structure Plans, Local Plans and Development Control. Many monuments that are not scheduled are deemed to be of national or regional importance, and are protected through the planning legislation and individual Council policy.

The impact of development proposals on the setting of scheduled monuments is not addressed in the Ancient Monuments and Archaeological Areas Act 1979 and no additional controls result from World Heritage Site designation, but both are a material consideration in the planning system.

Section 15(1) (j) of the Town and Country Planning (General Development Procedure) Scotland Order 1992, as amended by Section 5 of the Town and Country Planning (General Development Procedure) (Scotland) Amendment (No2) Order 1994 requires planning authorities to consult Scottish Ministers where a development may affect the site of a scheduled monument or its setting. With regard to the marine environment, methodologies for Environmental Impact Assessment and Strategic Environmental Assessment would require impact on the World Heritage Site, including visual impact, to be fully addressed and mitigated.

The islands are covered by UK and Scottish planning laws under which Comhairle nan Eilean Siar has various powers and duties. The Structure Plan prepared by Comhairle nan Eilean Siar, approved by the Secretary of State for Scotland in 1988, is the principal strategic planning document. This includes a variety of relevant policies, including PD4 relating to the protection, maintenance and enhancement of the natural and built environment of the Western Isles, where particular note will be taken of Scheduled Ancient Monuments, archaeological sites and Listed Buildings. A revised Structure Plan was open for consultation until May 2002; this also seeks to protect the cultural heritage (Policy SC8) and has specific policies for Listed Buildings (RM18) and Archaeological sites (RM18). Policy ED5 relates to tourism developments, and makes a commitment towards sustainable tourism. The Council employs an archaeologist to advise on these matters.

The Finalised Harris Local Plan (2000) contains a number of specific references to St Kilda. Policy EN5 indicates that ‘the Comhairle will not permit development that would have an adverse affect on any of the international or national environmental designations afforded to St Kilda. An Environmental Impact Assessment will be required for any proposals that may adversely affect St Kilda’. In addition, Policy EN20 provides for the protection not only of Scheduled Ancient Monuments, but of other nationally important remains and their
settings, while policies EN14-18 relate to the protection of the character and setting of Listed Buildings and other buildings of significance.

Very little is known about the condition or existence of historic wrecks around St Kilda, although there is historical and first-hand evidence that some wrecks do – or did – exist. Although not commonly used, such remains could be protected under the Protection of Wrecks Act 1973 that would afford them statutory protection. Similarly, wrecks – both ships and aeroplanes – can be designated under the Protection of Military Remains Act 1986, especially if they are formally considered to be war graves.

The ownership by The National Trust for Scotland offers other protection to the heritage assets of the islands. The purposes of the Trust have been defined in various Acts of Parliament, but the principal purposes can be summarised in modern terms as conservation and access. The Trust’s Conservation Principles declare that ‘Conservation processes should seek to resolve conflicts, but where irreconcilable differences between conservation aims and other aims arise, conservation will prevail’. (Principle 7). In addition, St Kilda is held inalienably, which provides a major obstacle to compulsory purchase and to uncontrolled activities by third parties. The National Trust for Scotland has also created formal Bylaws for St Kilda, which protect the natural and cultural heritage from a variety of sources of detrimental activity.

Landscape

The whole St Kilda archipelago has been designated as a National Scenic Area by Scottish Ministers and is subject to additional planning control to conserve its outstanding scenic significance. Where appropriate, applications covered under NSA legislation are monitored by the Local Authority and by Scottish Natural Heritage – the competent body within The Scottish Executive responsible for administration of the Wildlife and Countryside Act 1981. It is a statutory consultee with respect to developments within National Scenic Areas. It is the competent authority with respect to Special Areas of Conservation as explained in Scottish Office Circular No. 6/1995.

d. Agency/agencies with management authority

Scottish Natural Heritage (SNH) maintain ultimate responsibility for the National Nature Reserve, but from May 2003 largely devolve this function to the owners, The National Trust for Scotland (NTS) as an Approved Body. SNH will approve the NTS Management Plan for the NNR and continue to monitor the NNR, retaining its statutory role regarding the SSSI, SPA, NSA, SAC and other designations. Historic Scotland and the Scottish Environment Protection Agency (SEPA) are also involved in the consents procedures under the SSSI/European Regulations and, together with Comhairle nan Eilean Siar, in planning consents under the NSA, etc. A sub-lease from SNH to the MoD ensured consultation and co-operation with, in the past the Royal Artillery, and then DERA who ran the Range, and now the various contractors (currently the independent company QinetiQ). In return the staff at the Base fulfil an informal monitoring presence on the island during the winter on behalf of SNH and NTS.

i. The National Trust for Scotland, Wemyss House, 28 Charlotte Square, Edinburgh EH2 4ET, Scotland, United Kingdom

The National Trust for Scotland is an independent charity, established in 1931, the aims of which were defined in The National Trust for Scotland Order Confirmation Acts of Parliament in 1935 and subsequently, including “…promoting the permanent preservation for the benefit of the nation of lands and buildings in Scotland of historic or national interest or natural beauty…”

ii. Historic Scotland, Longmore House, Salisbury Place, Edinburgh EH9 1SH, Scotland, United Kingdom

Historic Scotland is the executive agency within The Scottish Executive responsible for administering the laws concerning the protection and management of the historic environment, including ancient monuments (buildings, ruins and archaeological sites). The legislation concerned for St Kilda is the Ancient Monuments and Archaeological Areas Act 1979.

iii. Comhairle nan Eilean Siar, Sandwick Road, Stornoway, Western Isles HS1 2BW, Scotland, United Kingdom

Amongst its many other duties, Comhairle nan Eilean Siar is responsible for Structure and Local planning, and for development control in the Western Isles. It also has powers under the Ancient Monuments and Archaeological Areas Act 1979.

iv. Scottish Natural Heritage, 12 Hope Terrace, Edinburgh EH9 2AS, Scotland, United Kingdom

Scottish Natural Heritage is an agency with responsibility for administration of the Wildlife and Countryside Act 1981. It is a statutory consultee with respect to developments within National Scenic Areas. It is the competent authority with respect to Special Areas of Conservation as explained in Scottish Office Circular No. 6/1995.

e. Level at which management is exercised (e.g. on site, regionally) and name and address of responsible person for contact purposes

Overall responsibility for the management of the islands of St Kilda lies with the NTS Regional Director for the Highlands and Islands, based in the Trust’s Inverness Office. Policy management is the responsibility of the Strategic Management Group, which includes NTS, SNH, HS, MoD and Comhairle nan Eilean Siar and is chaired by the NTS’ Regional Conservation Manager for the Highlands and Islands Region. Operational management is the function of the Operational Management Group, chaired by NTS’ Area Manager for the Western Isles. Day-to-day management is the responsibility of the NTS Western Isles Area Manager, Scotland, email: st.kilda@nts.org.uk.

The principal point of contact on St Kilda is the NTS Warden (Seasonal). The Warden is responsible for visitor management and has other duties concerned with nature conservation. The NTS St Kilda Archaeologist (Seasonal) helps ensure that the historic environment is monitored and that proposed changes conform to best conservation practice and to appropriate legislation.

Also Scottish Natural Heritage, Stilligarry, Isle of South Uist HS8 5RS. (Phone 01870 620238; Fax 01870 620350). As the Government’s advisors on conservation, this office continues to monitor, implement and advise upon natural heritage/conservation/landscape matters through statutory procedures and European regulations. It also supervises NTS management of the National Nature Reserve.
f. Agreed plans related to property (e.g. regional, local plan, conservation plan, tourism development plan)

As indicated above, the Western Isles Structure Plan, both in current and revised draft form, makes provision for the protection of archaeological sites and historic buildings of significance. These provisions are reinforced by the Finalised Harris Local Plan, showing the commitment of the local authority to the conservation of the special qualities of places like St Kilda.

The Corporate Plan 1999-2004 of The National Trust for Scotland reinforces the statutory purposes of the Trust, all of which are relevant to the Trust’s care of St Kilda:

• to ensure the conservation, through ownership or other means, of nationally important land, buildings and contents;
• to enable people to visit and enjoy the Trust’s properties, to see and experience them in ways which are consistent with their conservation;
• to influence and persuade others by example to share and support the Trust’s aims and work.

The NTS Conservation Principles now apply to all of the Trust’s properties, and aspire towards best practice for the conservation of the natural and cultural heritage. Amongst other things, the Principles suggest that: conservation decisions should be based on a systematic approach to evaluation of significance based on thorough knowledge and understanding; and that conservation should take into consideration all aspects of significance, both tangible and intangible.

The St Kilda Management Plan, a joint document produced by the NTS on behalf of those bodies with a direct responsibility for the management of St Kilda and which SNH approves as a working document for the National Nature Reserve, is described in 4j.

The marine SAC management scheme is a joint document that will be produced by a group of relevant and competent authorities to ensure the maintenance of favourable conservation status of the marine features of the marine SAC.

g. Sources and levels of finance

Funding for the NTS management operations on St Kilda comes from a variety of sources. The core funding is from an NTS St Kilda Fund, which recently has been topped-up from the Trust’s Islands Fund. This covers the funding shortfall for the Trust’s operations. The shortfall is reduced through various grants and donations.

Funding for the Warden’s post comes from SNH, while 50% of the cost of the St Kilda Archaeologist is funded by Historic Scotland under a 5-year Management Agreement, which also covers 50% of the deficit of running the St Kilda Work Parties (building conservation). SNH has contributed considerable funding to scientific survey to date and will continue to do so as appropriate. In addition, together with NTS, SNH also sponsor and encourage the Soay sheep research. Both SNH and Historic Scotland have also contributed towards the cost of creating and maintaining the St Kilda website, and to a variety of other activities on St Kilda.

The St Kilda Club primarily exists to raise funds on behalf of the NTS for the benefit of St Kilda. The Club regularly makes substantial annual donations. Other charities also contribute towards the Trust’s work on St Kilda, such as Scottish Heritage USA, the Garfield Weston Foundation, the Peter Storomtht Darling Charitable Trust, the Seven Pillars of Wisdom Charitable Trust, and individual donors. Such donations are often given towards specific projects, such as the website, the upgrading of the museum, and particularly the archaeological excavations that have occurred almost every year since the mid-1980s.

h. Sources of expertise and training in conservation and management techniques

The St Kilda Warden is skilled and experienced in visitor management and as National Nature Reserve warden is expected to have a special nature conservation interest and expertise. The Warden is a qualified first aider, and usually obtains a boat-handling certificate before going to the islands. The Warden was until recently managed from and will continue to have close links with the SNH Area Office on South Uist, where staff have specific statutory responsibilities related to the nature conservation and other designations.

Staff in the Uist Office of the Western Isles Area of SNH are graduates (zoology, anthropology and biological sciences) with considerable experience in the biology, history, monitoring and management of remote offshore islands. This office also manages the Monach Isles NNR, 6km west of North Uist, and staff have undertaken expeditions to all the major offshore islands around the Hebrides and elsewhere and maintain good working relationships with NTS staff, the Range staff in Benbecula, boat operators etc. Furthermore, Advisory Services specialist staff are called upon when necessary. Staff within the Maritime Group are all graduates of marine biology or related topics and have considerable experience in developing and implementing management and monitoring schemes on designated marine sites. SNH was heavily involved in a large EU LIFE Programme funded project to develop management techniques for marine SACs and this has resulted in a wide range of products designed to inform and assist all those involved in developing such schemes. Other related initiatives exist, such as the Marine Life Information Network project (MarLIN), which is providing accessible and understandable advice on the sensitivities and management options for marine biotopes through the web.

Cultural Heritage

The St Kilda Archaeologist is a qualified and experienced archaeologist, with proven skills in archaeological fieldwork and abilities in interpreting the historic environment. Training is given in first aid and usually also boat handling, and further training in drystone dyking techniques, and in the use of lime mortar in building repairs is also usually given. Professional guidance is given by the NTS Highlands and Islands Region Archaeologist, a qualified and experienced archaeologist with wide-ranging expertise. An agreed programme of continuing professional development is provided. Advice may also be given by the Trust’s Senior Archaeologist, based at Head Office in Edinburgh. As the head of a conservation discipline, this person will be a highly experienced archaeologist of national standing.

The St Kilda Archaeologist also benefits from the input of the NTS Highlands and Islands Region Building Surveyor, who is a qualified surveyor with extensive experience in the conservation of historic structures. The Regional Building Surveyor is responsible for managing the maintenance and repair of the historic buildings of St Kilda, and may call upon the advice of the Trust’s Senior Buildings Advisor based in Edinburgh.

Archaeological and historic buildings conservation advice and guidance is also available from the Historic Scotland Inspector of Ancient Monuments and District Architect for the area. Further advice is available from Historic Scotland’s regional Monument Conservation Unit, and from the Technical Conservation, Research and Education Division of Historic Scotland based in Edinburgh.

The St Kilda Archaeologist also benefits from the advice of the Comhairle nan Eilean Siar’s Archaeologist, and of the Historic Scotland Field Monuments Warden for the area. Further advice is available from the NTS Regional Countryside Manager and Regional Conservation Manager.
i. Visitor facilities and statistics

There are two main categories of visitor: those staying overnight on the islands and casual visitors from charter boats, yachts and cruise ships. The main difference is that those staying overnight on the islands – NTS Work Party members, campers, researchers, workers (generally employed by or contracted to MoD/QinetiQ) on the MoD Base – are permitted to use various accommodation facilities and in particular may use the ‘ablutions block’ which houses toilets and showers. Camping for up to six people is permitted by The National Trust for Scotland by prior arrangement. The restriction in numbers is because of limited water supply in dry summers and the restricted washing and toilet facilities available.

Other visitor facilities on the island consist of: the Museum (House No. 3) that has displays about the natural heritage of the islands; the reconstructed house (House 6); a shop run by the St Kilda Club selling souvenirs, books, postcards, etc., and the ‘Puff Inn’ bar run by MoD/QinetiQ staff. In addition, there is a small orientation point at the pier with an NNR sign that explains a little about the island, and both Scottish Natural Heritage and The National Trust for Scotland by prior arrangement. The warden will often accompany vessels on a cruise around Boreray and the stacks, which offers an awe-inspiring experience around the towering sea stacks and impressive seabird colonies. There is no tourist accommodation on Hirta other than the small campsite; so most visitors stay on board their vessel anchored in Village Bay overnight.

Visitor statistics have been collected by the St Kilda Warden for over 15 years:

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j. Site Management Plan and statement of objectives

St Kilda is already a World Heritage Site on account of its terrestrial natural heritage, and in addition is a National Nature Reserve: both of these designations include a commitment to produce and maintain a Site Management Plan, and both Scottish Natural Heritage and The National Trust for Scotland have had and continue to have an active Site Management Plan for St Kilda. The 1996-2001 St Kilda Management Plan recently expired, and is being replaced by a 2002-2007 Plan (Annexed to formal Revised Nomination Document submitted to the World Heritage Committee, and available for comment from: The National Trust for Scotland, Wemyss House, 28 Charlotte Square, Edinburgh EH2 2ET, Scotland, United Kingdom. It is hoped to make the Management Plan available electronically through the Trust’s St Kilda website www.skilda.org.uk.

The most relevant guiding principles of management are as follows:

1. St Kilda will be managed as a model of integrated conservation management, where natural and cultural interests are considered together.
2. The principal land-use of the islands will be conservation.
3. For natural heritage interests, natural processes will normally be allowed to continue without intervention.
4. For cultural heritage interests, conservation action will proceed on the basis of minimum intervention required to retain the significance of the site.
5. The sheep on St Kilda will continue to be treated as wild and unmanaged animals.
6. For the marine natural heritage, the same level of protection as that on land will be sought.
7. New developments will only proceed if judged to have minimal detrimental effect on the site.
8. Scientific research that improves the understanding of the property in order to guide its management will be encouraged.
9. Education and interpretation programmes will instil a long-lasting appreciation for the qualities of this unique site and for the importance of sustainable conservation on St Kilda and across the globe.
10. Access for visitors, whether in person or through interpretative materials will continue to be provided.
Objectives and prescriptions will address immediate management priorities to deliver:

1. Extension of World Heritage Site status to include the marine environment and cultural landscape.
2. A framework to involve partner organisations in supporting the integrated conservation management of the property.
3. Enhanced staffing and financial resources to meet the operational needs and vision for the property.

In addition, there will be a focus on continuous improvement of conservation management as well as the provision of access and benefit, to achieve the following outcomes:

4. Continued conservation of historic and natural features to maintain them in favourable condition, ensuring no loss or damage to significant features.
5. Acting to mitigate threats to key features.
6. Enhanced knowledge and understanding of the islands and their cultural and natural features, and greater promulgation of the research results to share knowledge and understanding.
7. Continued provision of informed, responsible, virtual and enjoyable access.
8. Establishment of education and interpretation programmes that promote a greater understanding both of St Kilda and of sustainable conservation management amongst visitors and non-visitors, particularly the establishment of interpretation facilities on the Western Isles.
9. Regular liaison with the local Western Isles community to understand each other’s aspirations for St Kilda.
10. Assessment of options for increasing the property endowment.

k. Staffing levels (professional, technical, maintenance)

Two members of staff are currently based on St Kilda during the summer months. The St Kilda Warden spends around six months per annum on Hirta, involved in visitor management and some nature conservation duties. The St Kilda Archaeologist spends over four months a year on the islands, with duties ranging from monitoring monument condition, supervising archaeological fieldwork, monitoring conservation work of Work Parties, and informing visitors about the cultural heritage of the islands. These staff are managed by the NTS Western Isles Area Manager based on Benbecula.

St Kilda Work Parties are administered through the well-proven NTS Thistle Camp mechanism, with significant input from the NTS Western Isles Area Manager. An Inverness-based Regional Building Surveyor ensures that the buildings of St Kilda are maintained in favourable condition. Similarly, the Inverness-based NTS Regional Archaeologist has an over-arching responsibility for devising management and maintenance systems, and ensuring quality control appropriate to the level of significance of the remains. Backup from NTS Head Office staff and from Historic Scotland staff is described in 4h above.
5 Factors Affecting the Site

a. Development Pressure
(e.g. encroachment, adaptation, agriculture, mining)

St Kilda is not deemed under any development threat. The MoD Base was already underway when the property was acquired by NTS and the NNR declared by the Nature Conservancy (the government grant-in-aid body that is now Scottish Natural Heritage). Since then the development of the Base and its facilities has been subject to rigorous scrutiny and control in keeping with the international status of the property. Co-operation between MoD, NTS and SNH has been excellent, manifested in a regular tri-partite annual meeting to discuss management. An Annual Operational Plan will be agreed between NTS, SNH, HS and MoD/QinetiQ which will be discussed and agreed annually to be implemented with regular liaison at a local level. Local SNH staff and NTS staff from the mainland liaise with the Range staff on a routine basis.

Other than frequent and often ferocious storms, large-scale natural disasters are unlikely on St Kilda.
Developments on St Kilda are carefully controlled by The National Trust for Scotland and by the statutory agencies. Most development relates to the use of the MoD Base (which largely lies outwith the scheduled area). Apart from a long-term strategy of providing protective cladding to the ageing buildings on the Base, no new developments of any significance are being proposed. Beyond the Base, the restoration programme for historic structures has now been completed, and the only additional building which may be considered for reconstruction in the near future would be a blackhouse adjacent to House 6, which would become part of the interpretative reconstruction of an early 20th-century domestic unit. There are no foreseeable changes to the current land-use beyond the base: no agricultural or other organised activity occurs on any of the islands other than that associated with the artillery-tracking facility.

Archaeological deposits on the islands are arguably under pressure from the work of archaeological researchers. This work is, however, very closely monitored, and invasive research is only permitted following scrutiny by the St Kilda Archaeological Research Committee, and with the appropriate consents from Historic Scotland, Scottish Natural Heritage, Scottish Environment Protection Agency and The National Trust for Scotland.

b. Environmental pressures (e.g. pollution, climate change)

Natural Heritage

The main potential threat is the accidental reintroduction of alien species, both plants and animals. Fortunately the number of human visitors per year is small so the opportunities for other invading plants and animals to arrive is minimal. Landing by visitors on the islands and stacks other than Hirta is strictly controlled (for reasons of both accidental introduction of new plant seeds or small animals and for Health and Safety reasons). The warden on Hirta monitors arrivals during the visitor season in summer. No vessel is allowed to tie up alongside the small pier (which is barely suitable anyway) and all visitors by boat decant into small tenders to come ashore at the steps on the pier. Landings are rarely possible anywhere else. Supplies for the base arrive either by helicopter, or by landing craft. The vessels are screened for rats and other undesirable species and the warden is equipped with cage traps, etc. in the event of any mammals getting ashore. There is a very low risk of non-native marine species being introduced, either through ship ballast or as fouling organisms falling off the hull of visiting vessels. No dogs are allowed on the island to minimise disturbance to nesting birds and sheep, and to prevent the accidental introduction of sheep parasites.

c. Natural disasters and preparedness (earthquakes, floods, fires, etc.)

Other than frequent and often ferocious storms, large-scale natural disasters are unlikely on St Kilda. Coastal erosion through storms has recently increased, and the Store is now under threat of being undermined. Research is currently underway to consider whether the Store can be saved without compromising the other heritage values of Village Bay.

Storms have regularly caused damage to the roofs of the historic structures in Village Bay, but their repair is seen as being part of a regular process of maintenance, rather than a response to a natural disaster.
d. Visitor/tourism pressure

The remoteness, expense of transport, lack of landing facilities, limited accommodation and toilet facilities, water shortages in summer and the total unpredictability of the weather all conspire to impose a limit on visitor numbers. Less than two thousand visit annually, mostly from yachts, charter vessels and a few larger cruise ships. Helicopters, which might offer highly disruptive and dangerous landing opportunities on the other islands and stacks of the archipelago, are prohibited. There is a helipad on Hirta for the regular re-supply helicopters and for emergencies but the only permissible flight path is directly into Village Bay from the sea and out again. Low-flying aircraft over the island are discouraged and minimal and, because of the high possibility of bird-strike, not without considerable risk.

Most visitors come for the St Kilda experience, to enjoy its dramatic scenery, its extraordinary history, and its wonderful wildlife. Divers charter vessels to experience the exciting undersea world around St Kilda’s shores but other recreational activities, such as rock climbing, are discouraged. Disturbance to nesting seabirds and damage to the geology and vegetation of the sea cliffs could result, not to mention the extreme difficulties of executing any cliff rescue. The warden, armed with the bylaws, is an effective ‘policing’ presence and visitor access is difficult and minimal in the winter months.

The ambience and fragility of the grass-covered street in the Village could be spoilt by excessive visitor numbers, but the inaccessibility of the place prevents large number of people from being able to visit and acts as a regulator to visitor pressure. There is no runway on the islands, and helicopter access is almost entirely restricted to official flights; even these can be hampered for days or even weeks at a time by weather conditions – especially high winds, and mist formed by the island’s microclimate. The vast majority of visitors must therefore gain access by the sea – either on cruise ships, day-trip boats, yachts, or sea-going canoes. All access by sea is subject to suitable weather conditions, and the tiny pier is not capable of taking vessels much larger than inflatable dinghies. Even if boats manage to get to Village Bay, the often rough conditions may well prevent their passengers from landing. It is therefore not anticipated that visitor numbers will increase significantly over the next few years, in which case the current level of pressure is not considered to be particularly damaging to significant features of the cultural heritage.

e. Number of inhabitants within site

The Army Base has the capacity to accommodate up to 30 personnel. Currently the Base is maintained by a minimum of 12 civilian staff who work a rota of time on and off the island, but can reach full complement for short periods with visiting contractors, official visitors, etc. There are no permanent full-time inhabitants of any of the island. Up to 15 sheep researchers can be on the island during the height of their season, and during summer there is a seasonal Warden and the St Kilda Archaeologist.
a. Key indicators for measuring state of conservation

The warden monitors visitors and activities while collating natural history records. He/she undertakes periodic counts of birds and sheep while the universities co-operating on the sheep study undertake an annual census of the sheep on Hirta. Whenever the opportunity arises the warden will attempt sheep counts on Soay and Boreray, although numbers fluctuate from year to year no significant trend has yet been detected.

A census of all seabirds on the archipelago takes place every 15 years (every 10 years for northern gannets) and the warden monitors breeding success of certain species such as black-legged kittiwakes, northern fulmars and skuas each summer. In addition, the JNCC monitored northern fulmar, common guillemot and razorbill numbers in selected plots in 1990, 1993, 1996 and 1999. Scottish Natural Heritage has annually monitored breeding productivity of northern fulmars (since 1989) and of black-legged kittiwakes (since 1986) while CEH analyse northern gannet eggs at regular intervals, for the presence of pesticides and other chemical pollutants.
Within the St Kilda candidate marine Special Area of Conservation, monitoring/surveillance of specific marine features will be carried out over a rolling six-year programme. The features for which the marine SAC has been identified are characteristic rocky reef habitats associated with vertical rock walls, overhangs, ledges and surge gullies. Also included are the numerous submerged and partially submerged sea caves. The broad scale surveys carried out by SNH in 1997 and 2000 provide a comprehensive and extensive baseline showing seabed topography and character and will guide more detailed monitoring efforts in the future. This will include the use of video documentation obtained from remotely operated vehicles or drop down equipment deployed at deep water sites and scuba diver observation where it is considered appropriate to do so. At the same time when monitoring the marine SAC features other habitats, not included within the SAC designation (due to their omission from the Habitats Directive Annex 1), such as the deep sublittoral sediment areas will be monitored also.

Because of the way the site is managed, the conservation is very closely monitored. The first job each season is to examine the features in and around Village Bay and report any collapses of built historic structures – including drystone walls and enclosures, as well as damage to mortared buildings. This ensures that immediate conservation work can be agreed with Historic Scotland. In addition, the working draft of the Archaeological Action Plan details the monitoring work that is required on a cyclical basis, for example the Gleann Mor structures. The very large number of historic features on Hirta, and the inaccessibility of the other islands of the archipelago, has necessitated a prioritised monitoring regime, based on the significance of each feature or group of features. For example, around 300 of the 1270 + cleftean on Hirta have been selected for regular monitoring.

Monitoring information is recorded on a database and photographically. Depending on available resources, appropriate actions are prescribed to prevent the deterioration of built structures and to repair those which have suffered damage since the last monitoring period. Details of monitoring actions, and of conservation actions, are added to The National Trust for Scotland Sites and Monuments Record database where they form a permanent, easily accessed record.

All actions on the islands which have the potential to disturb archaeological levels or historic buildings are carried out under archaeological supervision, having first selected a strategy of works designed to cause least damage. Cables, for instance, are normally laid on the surface rather than being dug into the ground. Summaries of all works that have required the attention of an archaeologist are contained in the St Kilda Archaeologist’s Annual Report.

The Work Party Leader reports on those conservation activities carried out by voluntary Work Parties shortly after returning from St Kilda. Leaders’ reports are summarised by NTS staff, and a report is published in the annual St Kilda Mail (the publication of the St Kilda Club), and a verbal report is given to the Annual General Meeting of the St Kilda Club. The report is also submitted to Historic Scotland for scrutiny, and the works are discussed at the annual ‘Tripartite’ meeting between the NTS, Scottish Natural Heritage, the Ministry of Defence, and Historic Scotland.

Details of all archaeological excavations or other pieces of research that affect the physical remains are summarised within a few months of fieldwork, and summary reports are disseminated to appropriate archaeological resource managers and to local and national archives. A short summary of the year’s fieldwork activities is published annually in the archaeological journal Discovery and Excavation in Scotland.

The Historic Scotland Field Monument Warden aims to visit St Kilda every three-five years in order to report on the state of standing and buried archaeological features within the areas designated as scheduled ancient monuments; it is planned to involve some of this recording to the St Kilda Archaeologist. The Field Monument Warden contributes towards a database of information relating to the state of preservation of the Scheduled Ancient Monuments.

b. Administrative arrangements for monitoring property

The St Kilda Archaeologist produces an Annual Report of activities, including all activities associated with the historic fabric of the islands. This report is submitted to Historic Scotland for scrutiny in accordance with the Trust’s obligations under the Management Agreement with Historic Scotland related to conservation works on scheduled areas. The St Kilda Archaeologist also produces more specific reports relating to monitoring and recording projects.

Representatives of Historic Scotland visit St Kilda at least once a year to examine work carried out the previous year and to discuss the programme of conservation and other works being proposed for the coming season. That meeting is attended by NTS Regional conservation staff, who are responsible for fulfilling the Trust’s obligations under the Historic Scotland Management Agreement, but who also have a responsibility for the whole historic landscape – large tracts of which are not covered by the scheduling.

The St Kilda warden/ranger submits monthly reports to NTS and SNH and an annual report to the Tri-partite Committee. SNH logs all Natura/SSSI/NSA casework.

c. Results of previous reporting exercises

National Trust for Scotland Work Parties have been involved in the active conservation of the built structures and archaeology of St Kilda since 1958, and from 1963 have produced sporadic reports outlining the nature of the work done by the Parties. Recording became more formalised towards the end of the 1980s, and in the past decade the summaries have been completed without fail. A new initiative has been the compilation of conservation records relating to individual buildings or features, as opposed to chronologically-ordered exercises. These reports are now being compiled and kept up to date, enabling an at-a-glance appraisal of the degree of reconstruction or restoration undertaken on each feature over many years. The very severe weather conditions on St Kilda have taken their toll on most standing structures, and much rebuilding of fallen drystone walling, and repointing of mortared structures has occurred. Nevertheless, this work has taken place under the guidance of the best conservation practice of the time, which has meant that rather than now being a series of highly ruinous shells and piles of stones, the essential character and integrity of the structures has been retained as far as possible.
... they are kind and hospitable in the highest degree; observe the most scrupulous regard for truth; and are obliging and attentive to strangers to a most pleasing extent. They are celebrated for the goodness of their singing and their cheeses...

from: *Expeditions to the Hebrides* by George Clayton Atkinson, 1831
a. Photographs, slides and, where available, film/video

Extensive documentary, photographic records and videos, together with collections of archaeological finds and other artefacts are available from a number of sources (see 4d below).

A representative selection of photographic slides and video are included with this submission.

b. Copies of site management plans and extracts from other plans relevant to the site

The 2002-2007 St Kilda NNR Management Plan is in a separate document, submitted with this revised nomination.

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