St Kilda revisited: Bryophytes on the edge of the world

'Bonxie' attacks, fulmars and wonderful bryophytes: hazards and rewards of bryologising on St Kilda. Ron Porley, Nick Hodgetts and Clare Rickerby recount their trip to an island ‘on the edge of the world’

It is a measure of the remoteness of St Kilda, located 8°33’ E 57°50’ N and some 65 km beyond the nearest landfall on the Outer Hebrides, that the rocky and often wind-swept islands are slightly over half an hour later than Greenwich Mean Time. The poignant story of its inhabitants, especially from the 19th century up to their voluntary evacuation in 1930, has been told in a vast body of literature, photographs and film. Visitors today not only marvel at the hardships endured by the island people, but are captivated by the ruggedness and the singular beauty of St Kilda.

The archipelago comprises four main islands, Hirta, the largest and the subject of the present bryological study, Boreray, Soay and Dun (five if Levenish is included, but this is little more than a rock) and imposing sea-stacks that support internationally important sea-bird colonies. Hirta is just over 2 miles long east to west and more or less the same north to south, with an area of about 628 ha. It consists of two valleys or glens surrounded on three sides by lofty hills, including Chonachair at 430 m and the highest sheer vertical (376 m) sea cliff in the British Isles. The west side of the island, including Mullach Br, consists predominately of gabbro, with veins of mafic (ultrabasic) dolerites, whilst the east side is largely granophyre and granite, separated by the Mullach Mor ridge, itself a complex of dolerite with sheets of microgranite and microdiorite. St Kilda lies within the zone of 200 wet days per annum (Ratcliffe, 1968), and this is reflected in the strong oceanic bryophyte element. Another significant biotic factor is salt: sea-spray is pervasive. The halophytic moss Schistidium maritimum grows not only on rocks on the coast, but in the interior of Hirta too.

History of bryological recording on St Kilda

The first, and rather meagre, St Kilda bryophyte collections date from the beginning of the last century. The dearth of early records is undoubtedly in part due to the islands’ remoteness and inaccessibility. Derek A. Ratcliffe (1929-2005) visited St Kilda for about two weeks in 1959 on the cusp of a new era of bryophyte recording on the islands. In the seminal Nature Conservation Review (Ratcliffe, 1977) the entry for St Kilda mentioned the presence of the southern Mediterranean-Atlantic Fossombronia angulosa, and the wide distribution of such hygrophilous oceanic plants such as Frullania teneriffae, but the bryological interest remained understated (perhaps eclipsed by the seabirds). In 1989 DAR presented a large part of his bryophyte herbarium to the Royal Botanic Garden Edinburgh (RBGE), and subsequently his field notes and additional bryophyte specimens relating to St Kilda. In 1991 David G. Long added substantially to our bryophyte knowledge of St Kilda, even though his collecting opportunities were limited by time and poor weather. In 1994 RBGE acquired the bryophyte herbarium of the Nature Conservancy Council which included a number of St Kilda vouchers. Pulling all the available data together for the first time, DGL tracked down just about every bryophyte ever collected on Hirta and checked the identifications; the exceptional bryological interest of St Kilda (especially Hirta) was at last recognized and documented (Long & Ratcliffe, 1996). A further opportunity arose in 2010 for DGL to visit St Kilda, but the weather was so bad that time on Hirta was again fleeting. However, the stopover did produce 17 new species, including the rare oceanic liverwort Acrobolbus wilsonii, new to the Outer Hebrides, and the first hornworts for the island, Anthoceros punctatus and Phaeoceros laevis.

Bryophyte survey of Hirta, 8-13 July 2013

Amongst the many other interests on the islands, there is a need for up-to-date biodiversity data to inform nature conservation policy. In the 2012-2017 Management Plan there is a brief section on bryophytes and lichens. Objective 10 reads “To gain a greater understanding of the important plant communities on the archipelago, especially the bryophyte and lichen communities”. Prescription 10.1 follows: “Identify the main locations of the bryophyte and lichen communities on the archipelago and...”
maintain a list of these species”. Against this background in 2013 the NTS (National Trust for Scotland) put out a tender for a bryophyte survey of Hirta, and so it was that three slightly green bryologists disembarked on St Kilda (the crew told us that the voyage was relatively calm; we did not wish to contemplate the voyage in more challenging conditions). Bryophytes new to St Kilda are indicated with an asterisk.

Day 1, 8th July
At 08.30 on a cool misty morning we boarded our boat, operated by Kilda Cruises, at Leverburgh on Harris (having camped close by the previous evening). The speed of the boat crashing over the waves made standing on deck tricky and using binoculars all but impossible.

We settled in to the 3-hour trip as best we could, full of anticipation of what was to come. After what seemed an eternity, Hirta emerged amid a veil of mist and Village Bay materialized. After what seemed an eternity, Hirta emerged amid a veil of mist and Village Bay materialized. Immediately the diversity increased, with *Zygodon conoideus* on a sheltered concrete wall of the ‘Store’ building (not *Z. viridissimus* as one might expect), *Schistidium crassipilum*, *Hennediella heimii*, *Tortula viridifolia*, possible *T. modesta* (unfortunately sporophytes were lacking) and the pleurocarp *Amblystogium serpens* var. serpens and *var. salinum*, *Campylium protenuum* and *Drepanocladius polygnmus*. The low cliffs above the beach and the lower stretch of Abhainn Mhor consist of locally derived till deposit with boulders in a gravel and sand mixture, evidence of a former glaciation, and Moranic ridges on the lower slopes are evidence of a small valley glacier that occupied Village Bay during the Devensian glaciation maximum.

The street, shown by the row of grey-roofed houses, provided our accommodation and the grey modern building at bottom left for ablutions, all surrounded by the distinctive stone cleits. The S-facing scree supports *Bazzania trilobata* and *Grimmia muehlenbeckii* and the burn Abhainn Mhor is seen top left.

Day 2, 9th July
This was our first full day, and in fine weather we began not too far from the Village, on the NE facing slopes and scree of Clash na Bearnach. More *Hennediella heimii* and *Tortula viridifolia*. The St Kilda wren was in full song, skulking between the large boulders. At the mouth of Abhainn Mhor was *Cephalozia pleniceps* intimately mixed with *Sphagnum subnitens*, but we were unable to re-find the two hornworts reported by DGL in 2010. A smaller unnamed burn to the east of the bay, although less interesting overall, supports *Sciuro-hypnum plumatum* on a boulder at its only site on the island.
crags and gullies above. In one particular small gully we were rewarded with finding *Acrobolbus wilsonii* on a mossy ledge, but the largest and most bryologically diverse gully here is known locally as ‘The Chimney’ (there is a ‘tradition’ in which one has to ascend ‘The Chimney in the shortest time possible, although we decided bryological speed was much more appropriate for us). Its mid-point is about 160 m a.s.l., its bryological speed was much more appropriate (epiphytic on the ubiquitous *Frullania tenerifae*), *Herbertus aduncus subsp. buchiniae*, *Hypnum callichroum*, *Plagiochila bifaria*, *P. punctata*, *R. spinulosa*, *Radula aquilegia*, *R. lindenbergiana*, *Sacogyna viticulosa* and on spongy turf ledges amongst rocks plentiful *Acrobolbus wilsonii*. This Nationally Scarce and globally rare liverwort possibly occurs on Hirta in greater abundance than at any other site in the British Isles. After lunch, amongst the fulmars but at a prudent distance, we made a bee-line for the southernmost tip of Ruabhal, looking over to Dun. On the west side of Ruabhal is an area of *Plantago maritima* turf, this is possibly too disturbed by sea-birds to be of interest for bryophytes, although in maritime turf amongst rock outcrops was more *Henediella heimii*, *Tortula viridifolia* and a distinctive form of *Amblystegium serpens* with homomallous branch and stem tip leaves suggestive of the var. *litonale* as described in Nyholm (1954). Our attention was then drawn away from the mosses to a bizarre rock outcrop resembling a portal with a huge precariously balanced lintel, the whole thing teetering on the edge of a sheer cliff that plummets hundreds of metres to the rocks below, known to the St Kildans as ‘The Mistress Stone’. Martin (1749) described the ritual associated with this rock: ‘Upon the Lintel of this Door, every bachelor-Wooper is by an ancient Custom obliged in Honours 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 his sole over the Rock, and then he draws the right Foot further out to the left, and in this Posture bowing, puts both his Fists further out to the right Foot; and then after he has performed this, he has acquired on small reputation, being always after it accounted worthy of the finest Mistress in the World’. Possibly in anticipation of an interesting *Grimmia*, RDP scrambled on to the Mistress Stone, wavering transitorily over the precipitous cliff. Regrettably no one actually witnessed this event, and worse still no *Grimmia* was found.

Turning our backs to the Mistress Stone, we trekked north along a grassy ridge. Just below the radar mast on the summit of Ruabhal at about 200 m we found *Sanionia orthothecioides*, the first of many colonies on Hirta of this fine moss, mostly distributed along the western Mullach Bi ridge and in similar habitats on the eastern slopes of Conachair and the north-facing slopes of The Gap, north of Oisebhal. Also known as St Kilda Hook-moss, *Sanionia orthothecioides* was collected by D. A. Ratcliffe in 1959 from Hirta as ‘Drepanoclados uncinitus var.’ thus signifying that he considered it to be atypical. DAR sent two collections to E. F. Warburg who recognized it as being close to var. *orthothecioides* (Lindb.) Moenk. However, DAR’s collections languished unsorted in newspaper packets in his garage in Cambridge until 1990 when DGL rescued them and discovered *Sanionia orthothecioides*, recently reviewed by Hedenäs (1989), and published it new to Britain in 1992 (Long, 1992). However, this may not be the first collection in Britain. In 1958 D. N. McVean undertook floristic recording of vegetation on St Kilda and presented relevés from mixed grassland on Mullach Sgar

![Image](image_url)
Day 3, 10th July

The target today was Mullach Bi, a long chain of outcropping gabbro rocks (the oldest on Hirta) on the west side of the island. To expedite access we elected to ascend the Military Road (built in 1957) winding its way to the top of Mullach Bi. Eventually the mist evaporated, unlocking the spectacular views but time was ticking away so we dropped down into Glen Bay. We were soon stopped in our tracks however by several patches of tightly grazed Plantago maritima turf forming slightly raised domes and rich in hepatics including Ceratolejeunea bicuspidata, Diplolophyllum albidum, Frullania tamariscina, Lejeunea patens, *Lophozia incisa, L. ventricosa, Radula aquilegia, Saccogyna viticolona and Scapania gracilis and to our astonishment Geocalyx graveolens. The mosses Aulacomnium palustre, Campylopus brevipilus and Isothecium myosuroides var. brachythecioides are also present as components of the turf. Realising that we had rather lost track of time we pushed on up Abhainn a’ Ghlinne Mhor, a burn that would take us up to the ridge to join the Military Road. Along the way the bonxies launched their offensive (Gleann Mor is their breeding ground) but undeterred we came across a good population of Fassombronia angulosa and the only site on the island for Conocephalum concinnum. That evening storm petrels were seen over the Bay as the light was fading, although darkness never seems to visit this far north during summer nights.

The rocky ridge of Mullach Bi momentarily reveals itself through a gap in the mist. C. Ruckley, *Schistidium maritimum, Ulota phyllantha and Glyphomitrium daviesii jostle for position on the rocks, Mullach Bi. RD Porley. Above: The Oceanic Southern-temperate *Glyphomitrium daviesii, on Hirta confined to the basic outcrops of Mullach Bi. RD Porley. S-Right, top to bottom: The Hyperoceanic Liverwort *Radula aquilegia is frequent on Hirta. RD Porley. Hepatic-rich *Plantago maritima turf above Glen Bay, including Geocalyx graveolens. NG Hodgetts

trudged up the hard-surface road, our attention diverted momentarily by a concrete culvert which supported *Schistidium crustipillum. Mullach Bi is known for its rich bryoflora and it did not disappoint, despite the mist that hung in the air depriving us of spectacular views. The rocks are dotted with *Schistidium maritimum and Ulota phyllantha and Racomitrium fasiculare is everywhere. *Frullania is a significant part of the bryophyte community, with *E. teneriffae especially abundant, including a rare dwarf form of it known previously in Ireland, but *F. frigidusfola and *F. tamariscis are also frequent.

The oceanic moss *Glypnomitrium daviesii also adorns the rocks, sterile cushions necessitating careful examination as *Racomitrium ellipticum is also locally common here. *Andreaea rapetora occurs in small quantity, and more rarely *Griniaia trichophylla and, surprisingly, *G. muehlenbeckii. Both these species presented facies indicative of the harsh conditions on Hirta (at least for Grimnia). Present too is *Schistidium maritimum var. piliferum, marked by its hyaline hair point. This taxon was reported new to the British Isles recently (Hodgetts, 2010) from Shetland, and is frequent on Mullach Bi. The precise nature of this taxon needs further study but is otherwise known from Fennoscandia, NW Russia, Svalbard, Greenland and N. America. More sheltered and shaded rocks, especially dark declivities and beneath overhangs, support oceanic species such as *Aphanolejeunea microcopicum, *Cohena calyptrifolia, *Harapalejeunea molleri, *Metzgeria violacea, *Radula aquilegia, *R. lindenbueriana and the moss *Isothecium myosuroides var. brachythecioides, a common taxon on Hirta. Moving along the NE-facing slopes below Mullach Bi, we stumbled across a great skua chick beautifully camouflaged on the grassy ground; this explained why a couple of adult ‘bonxies’ were agitated and urged us onward, but not before we found *Chiloscyphus pycnans in a small flush. Spongy turf on peaty ledges and moist slopes are rich in bryophytes. These include *Acrobothus wilsonii, *Blepharostoma trichophyllum, *Ricardia palmatia, *Scapania scandica, *S. umbrosa and *Trinomaria excentriforis, with the larger and more conspicuous tufts of *Herbertia adnucus subsp. *butch.Sinuicola, *Plagiochila spinulosa and more rarely *Mylia taylorii amongst the rocks. *Mniaceum hornum is also common in such places, forming dense tussocks or scattered shoots, finding a niche on an island with no woodland.

Eventually the mist evaporated, unlocking the spectacular views but time was ticking away so we dropped down into Glen Bay. We were soon stopped in our tracks however by several patches of tightly grazed *Plantago maritima turf forming listing, amongst other bryophytes, *Drepanoclados uncinatus (McVean, 1961). There is no vouched collection of *D. *Saxonia uncinatus from St Kilda, so McVean’s record most likely refers to *S. orthothecioides. In the present study we typically found this moss in 10-12 cm tall Festuca-nardus grassland just below a ridge on the leeward side with *Thymus polytrichus, *Euphrasia sp. and *Rhytidiadelphus squarrosus. In very warm conditions we peeled off west at about 10 am winding its way to the top of Mullach Bi, except that we peened on up Abhainn a’ Ghlinne Mhor, a burn that would take us up to the ridge to join the Military Road. Along the way the bonxies launched their offensive (Gleann Mor is their breeding ground) but undeterred we came across a good population of Fassombronia angulosa and the only site on the island for Conocephalum concinnum. That evening storm petrels were seen over the Bay as the light was fading, although darkness never seems to visit this far north during summer nights.
Day 4, 11th July

Part of our objective was to visit each 10 km square and record species distributions across the island. So once again we retraced our steps up the Military Road eventually to join Mullach Bi where we had finished recording yesterday. Today, given the beautiful weather, we would continue north along the top of the cliffs focusing on the upper line of crags and onto the peninsula of An Campar. We were soon picking up Acerobolbus wilsonii on mossy ledges mixed with Pleurobrarma trichophyllum and more Scotania scandinica and S. umbrosa. A large cleft in the cliffs supported much Radula aquilegta, a commonly encountered species in sheltered spots on the island, with Lophocolea fragrans and Aphanolejeunea microsperma. On exposed rocks a curious highly gemmiferous form of Metzgeria furcata was found (presumably the taxon known as ‘variety ulenula’), and a colony of *Porella cordatana* lurked in a dark humid ‘cave’ overlooking the peninsula.

Descending to An Campar, we were before too long treading on a large spongy raised dome of Plantago maritima turf. Referable to MC10 of the National Vegetation Classification, it is said to be poor in bryophytes, but on Hirta it is hepatic-rich, distinctive and to the best of our knowledge, a unique undescribed variant. Fresh in our minds from our encounter yesterday with a similar vegetation type in Glen Bay, we dropped onto hands and knees in anticipation. The hepatic-rich turf, 1-2 cm tall, was at first perplexing with miniaturized vascular plants and bryophytes but one by one we teased out the species. It proved to be exceptionally interesting.

*Geocalyx graveolens* occurs in greater quantity than we have ever seen in the British Isles, forming pure yellow-green mats 1-2 cm across. *Lophocolea bidentata* was throughout the turf and was checked carefully with the lens in case it was *Geocalyx*, but then another lookalike revealed itself, the Western British *Harpanthus scutatus*, separated only with some difficulty by searching for its relatively large underleaves. The list of bryophytes in the Plantago turf was impressive: *Blepharostoma trichophyllum*, *Cephalozia bicuspidata*, *Lejeunea patens*, *Lophozia ventricosa* and *Nardia scalaris* and amongst the mosses *Campylium protonemum*, *Hypnum cupreiforme*, *Isothecium myosuroides* var. brachytheceoides, *Mniium horatum* and *Sphagnum subnitens*, all packed closely together with *Armeria maritima*, *Festuca rubra*, *Leontodon autumnalis*, *Plantago coronopus* and *Sagina procumbens*. The occurrence of *Plantago maritima* dominated maritime turf on Hirta is well documented. Pett (1933) identified a maritime vegetation type on Hirta influenced by sea-spray and dominated by *Plantago* at Ruabhal, Gleann Mor and Gob na h-Airde, and Poore, Robertson & Godwin (1949) added An Campar. However, bryophytes are conspicuous by their absence from their floristic tables. McVeans (1961) did include bryophytes in his floristic tables from An Campar and it compares very well with our data even though *Geocalyx graveolens* was not recorded (possibly it was overlooked or not present 50 years ago). The Plantago turf overlies a type of dense, friable peat (over 1 m deep on An Campar) and develops under sustained grazing. The island once supported c. 1300 black-face sheep, and since 1931 Soay sheep have grazed Hirta, averaging about 1,200 animals with population crashes every four years or so (Love, 2009). Sheep are known to relish Plantago maritima and clearly spend much time on these areas. The Plantago turf occurs on gently sloping sites at relatively low elevations and is drenched with sea-spray, thus although the peat is acidic it has a high base saturation due to exchangeable magnesium and sodium. How the hepatics survive such high salt levels though is a subject for further research.

With soggy knees we left the *Plantago* turf behind and headed due north to reach the very end of An Campar peninsula. Although little of bryological interest was found the views over to Soay, Boreray and the sea-stacks were stunning and we marvelling at a red admiral butterfly, which had somehow journeyed all the way to St Kilda. Turning our faces to home, we trudged back over Gleann Mor once more through bonxie territory, adding *Diceranum bonjeanii*, *Hycomium amoricum* and *Scorpidium cossonii* to the day’s list. We did not know it at the
morning’s work. It was carrying just a trickle of water, ideal for bryophyte-hunting on rocks and along the banks, although much of the ground in the gully was scoured and some significant finds by David Long in 1991 (e.g. Bryum dixonii, Solenostoma subellipticum) could not be re-found. A reasonable range of species were present however, including Glyphomitrium daviesii, Nardia compresa, Psychromitrium polyphyllum and *Racomitrium affinis on rocks and Anomobryum julacemum, Marsupella emarginata and Ricardia latifrons on earth banks. A diversion to Cnoc a Bheannachta, the site of an old quarry originally opened to provide rock for the military road, turned out to be fortuitous. Amongst the Nardia scalaris on the quarry floor were many other pioneer bryophytes including Dichodontium pellucidum, Diályodon fallax, *Racomitrium elongatum, *Scatapnia nemorosa and a minute leafy hepatic that in the field was thought to be a Laphria, possibly bicaerata. However, later examination showed it to be the Red Listed (VU) *Cephalozia integrerrima, hitherto unknown from Scotland, and elsewhere in the British Isles known only from a few spots in southern England and Ireland. Its southern distribution in Britain is odd, as it shows a more northern distribution in Europe, so it perhaps should not be so unexpected on Hirta. Outside Europe it is otherwise known only from subarctic N. America.

Continuing up the burn we added a few more species to the list including *Oligotrichum bicrenatum, *Polytrichum commune var. perigensiale and more *Racomitrium elongatum. Another interesting taxon, recorded throughout the island, is Fissidens bryoides var. caespitas (characterised by the dense tomentum of deep red rhizoids). This oceanic southern-temperate taxon (formerly known as *F. cornutus) completely supplants the generally more common var. bryoides on Hirta.

Having reached the head of the burn we put on coats against the chill and proceeded north in heavy mist to the bealach between Mullach Mor and the grassy slopes of Conachair. An expanse of old peat cuttings are being recolonized by a range of Sphagnum, including *S. cuspidatum, *S. denticulatum and even *S. nigellanicum in the wetter hollows, and several stands of *S. fimbriatum and *S. flexuosum were also found, as well as more expected species such as *S. capillifolium subsp. rubellum, *S. fallax, *S. palustris, *S. papillosum, *S. subnitens and *S. tenellum. Associated liverworts found here include *Cephaloziella hampeana and *Mylia anomala. Campylopus gracilis was also found, albeit in a different location to where D. A. Ratcliffe reported it in 1959 (slopes of Oisebhal, not re-found). The thick mist soon hid us from each other so we re-grouped and continued around the east flank of Chonachair catching glimpses of the towering sea-cliffs with seals hauled out on rocks far below. We huddled close to the ground to escape the buffeting wind, and in so doing discovered a good population of Sanionia orthotrichoides. Quite unexpectedly we came across a propeller of an aircraft that crashed into Chonachair in 1943 during a training exercise, a poignant reminder of how perilous these islands can be (another aircraft, a Sunderland, came down in 1944 with the loss of ten airmen; the wreckage is still present at the head of Gleann Mor). We found a brief respite from the gusting wind on the lee side of the hill in an area of springy Luzula sylvatica turf, a bryophyte unfriendly niche. On our descent to Village Bay the mist finally thinned to reveal an amazing landscape of shielings and cleits with The Street curving away into the distance, beckoning us home.

**Day 6, 13th July**

Our last day on Hirta broke fine and clear. After having had an eye on it all week, RDP opted to work the boulder scree at Glacan Chonachair and the crags immediately below the imposing peak of Chonachair. Despite being relatively accessible to Village Bay it turned up some surprises. The south-facing boulder scree concealed Lilliputian woodland of dwarf Calluna. Here, a rich bryophyte flora nested, including Rhytidionaitalus triquetrus and *R. loreus, Dicranum majus, Frullania teneriffa, Mnium hornum, Plagiothecium undulatum, Thuidium tamariscinum, Hylocomium splendens.
Hoekeria lucens, Hypnum callichroum, Leucobryum glauum, *Plagiochila bifaria, P. punctata, Saccogyna viticulosa and the filmy fern Hymenophyllum wilsonii. Acrobothus wilsonii creeps through the bryophyte turf, with *Bazzania trilobata, a species not previously recorded in the Outer Hebrides (VC110), most likely due to lack of woodland. Aphanolejeunea microscopica is epiphytic on Isothecium myosuroides var. brachythecioides and *Plagiochila bifaria. On rock Frullania fragilifolia is frequent, together with *F. microphylla, Pychomitrium polyphyllum and more rarely Grimmia trichophylla and *G. mucilalembekii. The steep crags high above the scree, complete with fulmars, are not especially rich, but one wet crag face supported *Andreaea robitii subsp. falata (the only known site on the island) amongst much Racemortium aquaticum and Marsupella emarginata. Meanwhile, NGH and CLR covered the stony slopes of Oisebhal (spelt as such on OS 1:25,000 map but also known as Oiseval) further west where the south facing slopes are very steep and dry with heavily grazed and wind-clipped heather. Rhytidadelphus tripertus was quite common here, and also colonizing bare patches was Campylopus introflexus in greater abundance than seen elsewhere on the island. After an unsuccessful search for Campylopus gracilis near the summit of Oisebhal we gradually headed back down the Glen trying to avoid tireless boxie and arctic skua attacks!

By 15.00 we had to be ready to leave the island. We snatched a quick lunch and then carried all our gear down to the pier. There was just enough time to look in the restored church (built 1830), which was crucial to its contact with the outside world, a service provided today by The St Kilda Club. Although in our hearts we were a little sad to be leaving Hirta, we were excited by the unanticipated news that on the voyage back we would go via Boreray and the sea-stacks. St Kilda is the most important seabird breeding station in north-west Europe with around one million birds which once were vital to the survival of the islanders.

Lichenologists and bryologists donned life jackets and woolly hats, boarded the Kilda Cruises vessel with binoculars at the ready. As we approached Boreray and the sea-stacks the tiny specks from a distance morphed into a noisy wheeling mass of sea-birds. Disturbed by our boat, gannets launched themselves off the guano-plastered cliffs and stacks and soared above. There are estimated to be some 60,000 pairs of gannets on St Kilda, the world’s largest colony. It is also home to the oldest and largest colony of fulmars in Britain with about 68,000 pairs, and the largest colony of puffins in Britain with over 140,000 pairs, and many sea-birds including manx shearwater, kitiwake, guillemot and razorbills. It was hard to take the whole scene in: Stac an Armin rising 191 m from the sea, the highest in the British Isles, and Stac Lee 172 m high, the swell of the Atlantic, the cacophony of seabirds which once were vital to the survival of the islanders.

Post-expedition conclusions

Our trip to St Kilda was bryologically very successful (in no small part due to our luck with good weather), and built upon the work of David Long and Derek Ratcliffe. Only 11 previously recorded bryophyte taxa were not found in 2013 (it is likely that some or most of these are still present, although others may have been transient occurrences). Prior to our trip, there were 180 bryophyte taxa recorded from Hirta (including Radula lindenbergiana in 1959 and Schistidium apocarpum sens. lat. in 1904). Of the 221 taxa recorded during the 2013 survey, 54 are new to Hirta (including Schistidium crusipillum but not Radula lindenbergiana). Sixteen taxa are newly recorded or de-bracketed for Outer Hebrides (VC 110) and one taxon is new to Scotland. A total of 233 bryophyte taxa are now known on Hirta (Hodgetts et al., 2013). By comparison, Hirta is known to support about 140 species of vascular plants, and none is Nationally Rare or Scarce except for two Euphrasia species (Crawley, 1993). A detailed report of our visit including a full species list has been submitted to NTS (Hodgetts, Rickerby & Porley, 2013).

It is clear that Hirta is astonishingly rich in bryophytes. It is particularly important for its suite of oceanic (Atlantic) species, and for the presence of several rare or scarce taxa and species otherwise unknown in the Outer Hebrides. As noted by Long & Ratcliffe (1996), the oceanic element is the most interesting phytogeographical feature of Hirta, mostly associated with wet rocks and spongy turf amongst rocky outcrops. Hirta supports perhaps the largest and most important population of Acrobothus wilsonii in the British Isles. An impoverished expression of the ‘North Atlantic mixed hepatic mat’ community occurs on the steep NE-facing slopes of Mullach Bi and Ruabhal, with Bazzania tricrenata and Herbertia adansuc subsp. lehriinae the dominant species. There is also a distinct southern element in the bryophyte flora of St Kilda, presumably due to the relatively high mean winter temperature. This includes Mediterranean-Atlantic species such as Anhicriocus punctatus (recorded in 2010), Entosthodon attenuatus, Fuscobolus angolana and Tortula viridifolia (the latter two especially rare and unusual in western Scotland) and southern-temperate species such as Lophocolea fragrans, Fusidenu bryoides var. caespitosa, Glyphomitrium daviesii, Pychomitrium polyphyllum, Saccogyna viticulosa and a good variety of small...
St Kilda revisited

hypereoceanic southern-temperate liverworts. The northern element in the bryophyte flora is most significantly represented by Cephalozia integrerrima, a mainly northern species with an anomalous southern distribution in the British Isles, Sanionia orthoboeacioides, which has a large and important population here, and Schistidium maritimum subsp. piliferum. Perhaps of most interest is the hepatic-rich spongy Plantago maritima turf; similar vegetation has been observed elsewhere in the Hebrides, in the Shetland Islands and in Ireland, but the species composition seems to vary considerably from site to site. The prominence of the rare Geocalyx gravolens is a particularly noteworthy feature of this habitat on Hirta. More intensive survey and subsequent monitoring of this community on An Campar, above Glen Bay and Gob na h-Airde would be desirable in view of its rarity and significance. A vegetation survey comparing the Plantago habitat with that in Shetland and other parts of the British Isles would be extremely interesting, as it clearly differs from ‘typical’ MC10, and is currently an undefined element of British vegetation.

Acknowledgements

We would like to thank NTS, in particular Richard Lunnane for letting and managing the contract, Alison Andrew and Susan Bain for logistical support and information, and staff and volunteers on the island for their help. We are grateful to Kilda Cruises personnel for taking us there and back and for the once-in-a-lifetime trip around Boreray and the sea-stacks. Brian Coppins, Andy Acton, John Douglas and Steve Price provided congenial companionship and discussions (and occasionally food and drink) during the evenings. Also to Gill Hodgetts for helping with menus and food, Manuela Sim-Sim for confirming Lophozia and Tom Blockeel for commenting on voucher specimens. Last but not least we thank David Long for making available unpublished records, helping with our questions and with difficult identifications.

References


Ron Porley, Nick Hodgetts & Clare Rickerby

e ron.porley@sapo.pt