

Lost & Found Lichens: survey visit to the Scilly Isles, 19-26 March 2016

Here follows a report of a survey visit made under the auspices of the Lost & Found Fungi project (<http://fungi.myspecies.info/content/lost-found-fungi-project>), managed by the Royal Botanic Gardens, Kew and generously funded by the Esmée Fairbairn Foundation.

Recipe for a fantastic week:

1. Have a couple of projects to work towards - preferably funded!
2. Pull together a really diverse collection of lichenologists
3. Book comfortable accommodation in a great landscape
4. Find a trip leader who knows the trick of booking suitable weather

A recent lichenological trip to the Isles of Scilly got the recipe just right.

The Lost & Found project had identified a number of lichenised fungi that needed checking or re-finding on the Isles of Scilly. This project was combined with an extension of an ecological project funded by the BLS in 2014 to survey *Heterodermia* species on the islands. Holger Thüs wanted to search for new sites for *H. leucomela* and *H. propagulifera* and re-check populations previously seen. Material was also needed to confirm that British material named *H. propagulifera* is the same taxon as the widespread tropical species.

The trip was populated with two professional scientists, Paul Cannon (Royal Botanic Gardens, Kew) and Holger Thüs (Natural History Museum, London); two part-time lichenologists, Graham Boswell and Maxine Putnam; two intermediate amateurs, Catherine (SharpEyes) Tregaskes and Fay Newbery; and two lichen apprentices from the recent Making the Small Things Count project run by PlantLife and supported by the BLS in the South West of England, Adam Smith and David Brabban. This breadth of knowledge and experience turned out to be one of the most influential factors in the success and enjoyment of the week (not least because there were both a number of good cooks in the group and an equal number of good washer-uppers!). The variety and breadth of discussions in the field and in the evenings was a consequence of this diversity.

The group stayed in a holiday let backing onto the beach in Hugh Town on St. Mary's, with enough space to set up microscopes, a large multi-functional dining room table for examination of specimens and enough comfy sofas to sink into for that first cuppa after a hard day out.

Saturday evening - St Mary's

After a smooth crossing from Penzance on the Scillonian, cases were left in the accommodation and the group headed out past the Garrison above Hugh Town towards Doctor's Keys to search for *Heterodermia*. A memorial bench, placed to look out over the sea, proved a serious distraction with the first sighting for the week of

Pertusaria pluripuncta. This turned out to be widespread across the islands, occurring on lignin, turf and rock. On Doctor's Keys themselves, despite records from the 1990's, there was no sign of *Heterodermia leucomela* or *Gyaleta jenensis* var *macrospora* but good specimens of *Roccella fuciformis* were seen.

Sunday - Bryher

Ferries between the islands in the Isles of Scilly archipelago run daily from Hugh Town on St. Mary's. Most leave at the civilised time of 10.00 or 10.15 and offer open-boat transportation. This, of course, is only a pleasant experience in the absence of rain. It is a testament to Paul's organisational skills that no rain was experienced during any sea crossing between the islands throughout the entire week. Waterproofs were still useful for breaking the wind and fending off occasional spray, however.

Bryher is home to approximately 80 people. There are few signs of active farming, with daffodil fields mostly in poor condition. The only grazing animals seen were a flock of geese. Provision for tourists is minimal, but friendly, with maps of the island available on the quays and a waiting room at the largest quayside. This was provisioned with information about island life and two huge rolls of carpet waiting for collection by a local household!



Two coastal species from Bryher: *Lecanora zosterae* (left) and *Teloschistes flavicans* (right)

Heterodermia leucomela [see front cover of this Bulletin] occurs in extremely short, discontinuous coastal turf. It has a particular liking for the edges of flat rocks sunk in the turf but also occurs in the turf itself. Population counting is challenging since it is difficult to tell whether individual lengths of thallus are part of the same individual or not. Holger has developed a method for counting 'patches' defined as thalli clearly separated by one centimetre or more from its neighbours, although even this clear methodology results in extremely different counts by different people! At the site seen in Hell's Bay *H. leucomela* is holding its own while *H. propagulifera* is clearly expanding. These populations exist on a narrow strip of approximately level turf at the cliff edge maintained by rabbit grazing and light trampling but threatened by erosion. Some previously surveyed sites on the islands have simply fallen away and are gone. With

more extreme weather becoming more frequent in the Isles of Scilly this represents an increasing threat to coastal turf species.

One largish section of cliff edge turf was found broken off from the cliff and suspended part way down the crumbled cliff face. The slab of habitat was large enough to accommodate half a dozen lichenologists at a time and revealed small populations of *Lobaria pulmonaria* and *Nephroma laevigatum* which are, unfortunately, doomed to be washed away by another storm. Fellow passengers from the ferry expressed concern that lichenologists might fall away too!

Heterodermia populations were also checked at Shipman's Head and Poppleslope Brow.

Monday – Tresco

Ferry landing on the islands depends on the tides. The group were dropped at the southernmost tip of Tresco due to the low tide and faced a long hike up to Castle Down in the north to look for *Heterodermia* amongst the wind-swept coastal turf. One known site for *H. leucomela* had been eroded away but other sites seemed to be intact. Maxine and Graham put Fay, Adam and David through their lichenological paces on a siliceous rock at the cliff edge while Holger, Paul and Catherine went on to assess another *Heterodermia* site. *H. propagulifera* was clearly increasing (although having Catherine EagleEyes present does help to make sure every small scrap of *Heterodermia* features in population counts!).



Counting *Heterodermia* colonies at Castle Down, Tresco



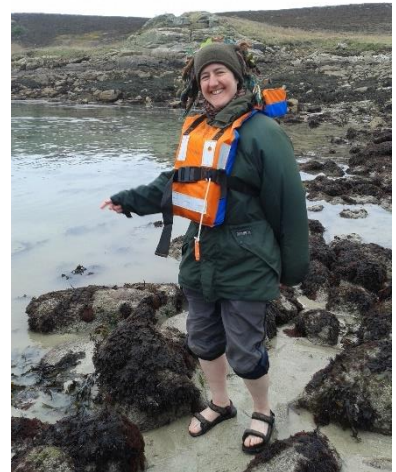
Two members of the *Physciaceae* from Castle Down: *Heterodermia leucomela* (left) and *Anaptychia ciliaris* subsp. *mamillata* (right). Either there are two distinct ecotypes of this last species in Britain, or we have two species masquerading as one....

Teloschistes flavicans was also seen on rocks and amongst the turf on the west side of Castle Down providing a vivid splash of colour. The ferry off the island left from the western quay shortening the return hike. One of the great benefits of lichenology is the presence of lichen covered walls to help while away any spare minutes spent waiting for transport so the records from the trip do include quayside walls!

Tuesday – Great Ganilly

Great Ganilly is an un-inhabited island amongst the Eastern Islands. This island group is much visited by bird-watchers. Landing is prohibited but regular boat trips throughout the summer season bring visitors within spotting distance of nesting colonies for guillemots, gulls, oyster-catchers and puffins. The Isles of Scilly Wildlife Trust had granted permission for the group to land on Great Ganilly which had not been previously surveyed for lichens. Landing involved a chartered boat from Hugh Town which anchored off shore and being ferried to shore in an inflatable dingy.

The shoreline was explored for a while, especially by the newer lichenologists, as a chance to make records and to get to grips with some typical acidic rock shore species. The island included *Calluna* heath, rough coastal grassland, bracken and brambles, granite outcrops, a single stunted tree of *Prunus spinosa* and a small area of *Thymus* heath on sand. EagleEyes spotted *Acarospora*



What the best-dressed lichenologists wear on Great Ganilly...

subrufula on an east-facing outcrop and then took a well-deserved rest to watch a group of fifteen seals that had spent hours intently watching the strange two-legged animals climbing over the rocky outcrops at the highest point of the island. They were probably wishing it was safe to come out and play on the sandy shore. *Acarospora subrufula* was one of the group's Lost & Found target species and was the undisputed highlight of the 60+ lichen species recorded on the island. One large thallus of *Heterodermia leucomela* was found on one of the rock outcrops but there was no short turf habitat available for *H. propagulifera*.



Acarospora subrufula on rocks just above the splash zone, Great Ganilly

Wednesday – Tresco

Tresco is the only island in the Isles of Scilly where the Wildlife Trust does not manage a large proportion of the land. Instead the influence of the Abbey Gardens dominates, in the south in particular. Hottentot fig (*Carpobrotus edulis*) is visible as soon as visitors land at the southern quay. This gives way to the bromeliad *Fascicularia pitcairniifolia* on the sand behind the cliffs while *Agapanthus praecox* and the hottentot fig have invaded the southern heathland. The largest British population of *Lobaria scrobiculata* occurs on the north side of a granite outcrop in this heathland accompanied by good growth of *L. pulmonaria* but this area is threatened by brambles, *Agapanthus* and hottentot fig.

The Abbey Gardens are well-known as a site for *Sticta* spp. Two of the newly recognised species were seen on damp shaded walls: *S. fuliginoides* and *S. ciliata*. A stunning lichen site that has not been previously noted is a length of lane on the east side of the island approaching Old Grimsby. The lane is lined with un-mortared granite



Lobaria species on Tresco: *L. scrobiculata* on coastal dunes (left) and *L. virens* [image © Fay Newbery] on a roadside wall (right).

walls which have shrubs overtopping them on the seaward side and probably sport tall vegetation in the summer months. Two metres of west-facing wall are covered with large (20-30 cm) thalli of *Lobaria virens*. This is not a species which is expected to be exposed to full sunlight at any time of year! It is the first record for *L. virens* on Tresco and only the second recent record in the Isles of Scilly. On the other side of the lane, slightly closer to Old Grimsby, the stones on the top and side of the granite wall are covered with *Gyaleta jenensis* var *macrospora* for a distance of more than 10 metres despite little chance of either basic or salt influences which were believed to be required by this species.

Thursday – St Mary’s

Bad weather was booked for Thursday - maybe Paul felt it would be greedy to book dry days throughout the week – so the group stayed on St. Mary’s. The first task for the day was to check on populations of *Bacidia incompta*. This is an epiphytic species that has a preference for mature elm trees. Elm still exists on the Isles of Scilly as mature trees whereas it is almost exclusively limited to suckers and young trees on the British mainland. *B. incompta* occurs in run-off tracks below old wounds on the trunks, producing characteristic petrol-green streaks with black apothecia. It appears to be limited to the undersides of sloping trunks. At its site in Watermill Lane it has been saved from destruction through the vigilance of the Isles of Scilly Wildlife Trust. Holger had surveyed the population in 2012 as part of a NHM Collection Enhancement project and had reported the site to the Wildlife Trust. The Trust was therefore able to arrange the preservation of the host trees when the line of roadside elms were planned for removal. The Trust have also undertaken the removal of ivy from the trunks in order to prevent the exclusion of *Bacidia* due to severe shading.

In Watermill Cove a small stream meets the sea. This has moved its stream bed approximately 5 metres from its position in 2012 but still supports a population of *Verrucaria aquatilis*. *V. ditmarsica* is also present at the stream mouth, growing on a cliff face that is wet with runoff from the land above and influenced by salt spray at high

tides. A nearby un-mortared field wall held another population of *Gyalecta jenensis* var *macrospora* on the semi-shaded top.



Bacidia incompta on elm trees, Watermill Cove, St Mary's (left), *Gyalecta jenensis* var. *macrospora* on maritime granite, Great Ganilly (right).

A second population of *B. incompta* still exists at the entrance to Holy Vale Nature Trail but here ivy has not been controlled. The nature trail follows a raised 'path' through a wet woodland with elms of all sizes growing on the raised path. These are coated in *Enterographa crassa*. The group had great difficulty trying to separate *Ramalina farinacea* (which was frequently found fruiting) and *R. portuensis*. Various 'hopefuls' for *R. portuensis* were collected during the week for thin layer chromatography work at the Natural History Museum.

Drum rock on the coast holds a strange community of mosses, *Cladonia* spp and epiphytes (including *Hypogymnia tubulosa*, *H. physodes* and *Usnea* spp) mixed with coastal species. Both *Roccella fuciformis* and *R. phycopsis* occurred on the seaward side on slightly overhanging rock faces. *Melanelexia fuliginosa* was found bearing fruit. The group managed to brave the wind and rain to check a *Heterodermia leucomela* site on Giant's Castle where no change was found and then marched home to enjoy the sofas and two or three cups of tea/coffee apiece.

Friday – St. Martins and White Island

Good weather and low tide had been booked for the group's trip to White Island. This is a small island to the north of St. Martin's. It can be reached by crossing a rocky causeway at low tide. This is a known site for the two *Heterodermia* spp that were being monitored and for *Pseudocyphellaria aurata*. This beautiful foliose species grows in a small area on White Island in short, moist turf and is easily recognised by the bright yellow soredia on the wavy edges of its thallus. It is so prolific once found that it is difficult to walk without treading on it! The species dominates an area of turf high on

the side of a gulley that is slowly cutting through the island from the north-east. The turf is protected from winds coming from the majority of directions but looks likely to be subjected to salt spray in stormy weather. Rabbits are prolific on the island and are helping to keep the turf short. Large thalli of *Lobaria pulmonaria* are also present at the same site and small amounts of both *Nephroma laevigatum* and *N. tangeriense*.



Pseudocyphellaria aurata growing in quantity in rabbit-grazed maritime turf, White Island

At the furthest end of the gulley where it is cutting back into the lower part of the island, an area of extremely short and broken turf supports a large, expanding population of *Heterodermia propagulifera*. This area is not only rabbit-grazed but is

subjected to human trampling as visitors to the island pass around the end of the gully. Small amounts of *Heterodermia leucomela* were also found in the turf.



The horizontal survey technique demonstrated on White Island ...

St. Martin's Head has previously been reported as a site for *Lobaria pulmonaria*. This has been described as occurring in the wave heath on the top of the peninsula. Wave heath occurs when the prevailing winds kill the windward side of *Calluna vulgaris* shrubs resulting in a pattern of dead stems to windward and tightly-packed fresh growth on the more sheltered side of the shrubs. Very short wave heath had been observed on Castle Down on Tresco, whereas the 'waves' on St. Martin's Head were 30-40 cm tall. No *Lobaria* was found amongst the waves despite an extensive search but *Lobaria pulmonaria* was present in profusion on the west side of the headland. A small quantity of *Nephroma laevigatum* was also found and a previously unreported population of *Pseudocyphellaria aurata*. This may represent re-colonisation of St. Martin's since *P. aurata* was not seen at this the site when it was surveyed by Brian Edwards in 2002 as part of a PlantLife survey to supply data for a biodiversity action plan for *Heterodermia leucomela*.

In all the Isles of Scilly expedition was a great success. Of the three target species for the Lost & Found project: *Acarospora subrufula* was recorded at a new site on Great Ganilly, the first properly geolocated record for Great Britain [it is otherwise known from the Channel Is]. *Heterodermia propagulifera* was re-found at multiple sites, most often with a larger population than was seen in 2014, and also recorded at new sites.

Putative specimens for *Usnea subscabrosa* were collected at two sites, one on Tresco and one on St. Mary's, though subsequent thin layer chromatography work at the Natural History Museum showed that they both belonged to the commoner *U. flammea*. Thanks to permission from the Isles of Scilly Wildlife Trust, Holger now has material of *Heterodermia propagulifera* that can be used to confirm that the Isles of Scilly populations, which are the only populations in Europe, are the same species as tropical populations.

It was fantastic to witness the expansion of the two *Heterodermia* spp. and the possible re-colonisation of St Martin's by *Pseudocyphellaria aurata*. *P. aurata* has been widespread in the archipelago in the past. To quote Holger during his excited summation of the week: this is a "symbol of hope" that the "tide is turning" for these special coastal species.

Coastal habitats in the Isles of Scilly will always be dynamic in nature due to the effects of erosion and storm damage but increased incidence of severe storms in recent years is accelerating change. And there are other threats: low turf vegetation relies on rabbit grazing and could be detrimentally affected by new outbreaks of myxomatosis; heathlands and cliff-top vegetation require larger grazers to control bracken and bramble; and invasive garden plants are shading out natural vegetation. Heathlands and cliff vegetation are threatened by hottentot fig and *Agapanthus*, lesser New Zealand flax (*Phormium cookianum*) is widespread on St Martin's Head, replacing native species and diverting footpaths more successfully than gorse does! while on all the islands the evergreen shrub *Pittosporum crassifolium* threatens to shade out lichens and other organisms dependant on rock outcrops. The islands rely heavily on tourism and these colourful species are part of the attraction of the coastlines for many people but, hopefully, a balance can be maintained that leaves room for the special lichens that these islands support.

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