British Lichen Society *Bulletin* no. 123

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Together with your Winter 2018 *Bulletin* you will be receiving a revised and updated version of the Society's Handbook. The Handbook is packed with a wealth of information on how to get started with looking at lichens and full details of the benefits of becoming a BLS member. Significantly it is now protected from becoming out of date by linking to the website where information can be regularly refreshed.

The vulnerability of certain lichens and their habitats is highlighted in this *Bulletin* by Sandy and Brian Coppins' excellent account of the proposed golf course at Coul Links in the Moray Firth basin. We all await the outcome of the appeal with crossed fingers. In addition do read about Becky and Kristine's work in transplanting *Pseudocyphellaria intricata* in the Royal Botanical Garden of Edinburgh in an attempt to slow the disappearance of this rare species. Here in Devon we are trying similar techniques with *Lobaria virens* and a modified method with *Gyalolechia (Fulgensia) fulgens*.

Since 2011 the guidelines for the selection of biological SSSIs has been under revision and currently Part 2 (dealing with habitat and species groups) has been undergoing more comprehensive revision. A team of top lichenologists has been working on this. See http://jncc.defra.gov.uk/page-2303. A number of changes have been made and are detailed in Chapter 13 which deals with lichens and associated microfungi. Importantly new lichen habitat indices have been adopted for a variety of different habitats including heathland and moorland, dead wood and metalliferous habitats. We hope to hear more about this in the next *Bulletin.*

In this issue we have some very useful hints on new and more established techniques to assist examination and identification of lichens. These range from things you can try at home to the very latest technology being used to reveal early axe head carvings from the Bronze Age on the Stonehenge monuments.

In the Summer 2018 *Bulletin* we were fortunate to have reports from Greece and The Netherlands and this time we have an account of an energetic group in Canada doing inspirational work with an impressive list of supporters.

Finally a reminder concerning the constitutional changes the Society is presently undergoing. You will no doubt be aware of the change from Charitable Unincorporated Organisation to an Incorporated status which allows the employment of staff as well as affording protection to trustees regarding financial liability. The deadline for comments on the draft Constitution has now passed and these comments will be debated at the AGM in Kew on 26th January 2019. Following this, members will be invited to vote so that the Society can be registered as a Charitable Incorporated Organisation.

Front cover: 'Chilled to the Bone'. *Ochrolechia frigida* f. *frigida* growing at a lead mine near Nenthead, Cumbria. The thallus is thought to resemble a pile of fish bones. Photograph J. Simkin.

Pat Wolseley at 80 (19th June 2018) a celebration and an appreciation

Pat, examining some of Walter Watson's Somerset lichens in the Somerset Heritage Centre, Taunton, 31st Oct 2016. This was part of the on-going project to produce the Lichen Flora of Somerset, in collaboration with Brian Coppins, picking up a project begun several decades ago by Francis Rose. The Somerset Lichen and Lichenicolous Fungi Checklist will be published by Somerset Archaeological and Natural History Society in 2018.

Pat's octogenarian status is belied by her continuing amazing energy and enthusiasm for life. She is a Scientific Associate of the Natural History Museum (NHM), and it seems to us that Pat has always been at the Museum, welcoming lichenologists from around the world, with her characteristic cheery, slightly shambolic greeting, always seemingly in a hurry because something or someone else is also arriving. It has made the Lichen section a welcoming place, so although the Museum is a most august and

imposing building, Pat's presence puts visitors at ease. But of course, although Pat's life is perhaps centred at the Museum, she does have a home at Nettlecombe, deep in Somerset, and she has also dedicated many years to exploring and teaching lichens in SE Asia.

This appreciation and celebration of Pat is a somewhat personal one, and she will no doubt be amused and not a little embarrassed by "the fuss", but I know I am not alone in having learnt so much and really been encouraged to get into lichens from knowing Pat many years ago, in the late 1980s.

Pat has a long history with lichens, nurtured and inspired from meeting Peter James at the NHM in the 1960s, and also spending time with Francis Rose. The BBC Radio 4 series *The Life Scientific* (14th August 2012) was a good interview with Pat, downloadable at *https://www.bbc.co.uk/programmes/b01lsyj6*. Jim Al-Khalili drew out Pat's early botanical and artistic interests before her "obsession" with lichens began, and how they reveal so much about the environment, both the historical story related to ancient woodlands, but also the stories lichens tell about changes in overall climatic and atmospheric conditions. And it is that passion to show the way lichens are so useful in understanding environmental changes that led Pat to her deep involvement in OPAL – the Open Air Laboratory, for analyzing air quality surveys, using lichens through nationwide involvement, a citizen science initiative, that really took off and has been fundamental in raising awareness of lichens to the wider public (See *http://www.britishlichensociety.org.uk/activities/opal*.) Pat is essentially a modest person, but I think if she was ever pressed as to what she felt was her most proud achievement, I reckon the OPAL project would be pretty high on the list.

My involvement with Pat dates back to the late 1980s. I was surprised when Pat arrived in my kitchen one day and asked if I would join her in a major two-year project looking at lichens for the Exmoor Woodland Lichen Survey (EWLS). Wow, this was so thrilling although I felt totally inadequate to the task, but Pat's natural enthusiasm, confidence and encouragement – "Oh come on Sandy, of course you can!" – prevailed, and I agreed.

Then followed two (or was it three) years of intense involvement, not only learning about Exmoor woodlands and lichens, but tutelage on landscape interpretation, woodland history, woodland stand types, even tree identification! And I really learned my woodland lichens, habitats and communities. Pat is a consummate teacher, infinitely patient and good fun to work with. Our work pattern was that I would arrive at Nettlecombe Monday night, and we would work Tuesday, Wednesday and Thursday, with me returning home to my family Thursday night.


A
B
C
D
E

A Nettlecombe February 2014. At home, working on the lap-top.

B Nettlecombe September 2006. Chutney making with Brian Coppins.

C Exmoor, Hawkcombe Wood January 1988. Pat using the woodland lichen poster to explain lichens to the Chairman and foresters of Exmoor National Park and at the Exmoor Woodland Lichen Survey 1987-1988.

D November 1987. Pat in the pouring rain and the famous blue Renault.

E Exmoor: Nine Acre Copse April 1987.

Did it rain every day? The pictures might suggest so, but indeed, we had some good weather too. After a day in the field, we would repair to Nettlecombe, to the delightful shambles of Pat's place, and invariably, a welcome whisky, before supper was cooked, and the day's specimens sorted, dried out, examined, packeted and labelled, record cards filled, field notes checked, maps for the next day sorted. Our microscope skills improved, and we would send off problems to Francis Rose and (particularly those "awful green sterile crusts") to Brian Coppins. It was intensive, exhausting, but thoroughly enjoyable. Peter James and Francis also occasionally joined us. It was a superb project, initiated by Rob Jarman (at that time Conservation Officer of the Somerset Trust for Nature Conservation, STNC), and funded by STNC, with grant aid from WWF, Exmoor National Park and the Nature Conservancy Council (NCC) as it then was. Towards the end of the project, Pat took her first trip to East Asia, and so started on a whole new leg of lichenology. But I know that I would never have got so involved or become a half-way competent lichenologist without those years with Pat and the EWLS.

Running concurrently with the EWLS, was also the Experimental Pollarding Project at Eastwater, Horner Woods on Exmoor, another project initiated by Rob Jarman, concerned about the parlous state of some of the old pollards but also wanting to try and create 'new' pollards from young ash trees. This was in 1988. Some of the photos in this piece are from that project. Again, I was fortunate to work with Pat on this, and how wonderful it would be, 30 years along, to go back and re-record the data we collected. We have the field notes, the data, and the photographic slides.

There are so many other projects that Pat has been actively involved in: so, leaving aside the tremendous work in SE Asia (See notes from Gothamie Weerakoon page 8). I could list the Acid Rain Project with John Henry Looney and Peter James (1985), which involved setting up quadrats over examples of *Lobaria* on trees around Britain (a project run by NHM), the idea being to re-visit (monitor) changes over subsequent annual visits. This was partially, but only incidentally repeated, another project languishing, soon to be lost unless rescued.

F and **G** Pat and Sandy recording trees for the Horner, Eastwater Experimental Pollarding project, February 1988. Photos Rob Jarman.

H Here Pat is setting up a 'Community Band', recording all lichens and bryophytes that occur around the circumference of the bole of this ancient pollard. Oak 008. GR. SS/894.431. The tree was to be re-pollarded as the two remaining boughs were overgrown, heavy and liable to break off or split the tree.

This was 30 years ago – how interesting it would be to re-visit these experimental pollarded trees again.

I Exmoor: Nettlecombe, January 1988.

J Nettlecombe: 23rd June 2017 – dendrochronology, looking at the base of an old Sweet Chestnut, Pat with Rob Jarman.

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Biomonitoring with lichens is a constant theme, whether it is woodlands or on the wild Pembrokeshire coast of Skomer. Pat has collaborated in research and published papers with colleagues around the world, including co-editing *Monitoring with Lichens – Monitoring Lichens* (Nimis *et al*. 2002) a book that resulted from an international workshop gathering, organised by Pat, at Orielton in Wales in 2000. More recently, Pat continues her love of woodland lichens working with colleagues such as Neil Sanderson, exploring the patterns of lichen composition in the New Forest and how this relates to history and management. Undoubtedly, one of her greatest loves are ancient woodlands, the habitat, the old trees, the history, and particularly the lichens. Living at Nettlecombe, with its ancient parkland, right on the edge of the wooded Exmoor valleys, this place and the landscapes are inspirational.

At the time when Francis Rose was formulating his Indices of Ecological Continuity (Rose, 1974, 1976), woodland sites were being 'discovered' for their lichens, including the Exmoor woodlands (initiated during field courses at Nettlecombe FSC with Francis from the 1970s). This was a very exciting time; lichens were really being noticed and regarded as important, particularly as environmental indicators. NCC were commissioning Francis and Peter James to assess woodlands for inclusion in SSSIs. Pat was also involved, and Rob Jarman at STNC realized that the Exmoor woodlands would benefit from an overall lichen survey, and hence the Exmoor Woodland Lichen Survey arose. Pat also has a strong affiliation with the gnarled oaks of Ty Canol in Pembrokeshire; it is a place that has provided a long term study, initially with Francis, but later with Peter James. In those years, whether it was Ty Canol or Nettlecombe, Pat would collect Peter from the railway station, feed him, provide accommodation and there was a mutual benefit in exchange of knowledge and ideas – enhanced by Peter's occasional gathering of fungi for an added delicacy to supper.

Despite her deceptively easy-going nature and ability to communicate with total beginners and general members of the public, Pat is a serious academic. My personal appreciation of Pat cannot deal with her vast output of publications, but she is highly respected for her scientific integrity, original thinking and ability to work well with people. She has overseen students at the NHM and is an inspirational teacher. Yet, above all this, Pat remains totally accessible and there is absolutely no snobbery or sense of being exclusive; just an overwhelming instinct to be inclusive to anyone showing a curiosity about lichens. This is borne out by her involvement over many decades with the Field Study Council (FSC), running courses at Orielton and Nettlecombe, teaching fieldwork skills and running identification workshops. Pat was behind the idea and design of The Twig Key (to be used by schools and anyone really), enabling identification of lichens on twigs as an aid, providing indications of the ambient atmospheric conditions, which was also largely an FSC promoted project.

Pat's hospitality is legendary, always. I have not mentioned her love of literature, poetry, music and art, or what an innovative cook she is. Or her love of Guinness, good wine and the occasional whisky. Her energy commuting on a weekly basis between Nettlecombe and the NHM is impressive and a constant source of disbelief, as is her jet-setting around the world to SE Asia or Australia. Above all, she has a real joy for life and is the eternal optimist. She will take on seemingly impossible tasks that

daunt most others, but her enthusiasm cannot be denied, and you really do get drawn in. And, there is her lovely, familiar apology about rushing to get things done "Time, the old dragon!" something to which we can all totally relate.

With Pat, it's difficult to know where to stop. I've left out loads; her involvement with a book on Water Plants, her work on a Flora of Malta, a European Rivers study, Somerset Wetlands study - she defies description really. However, she has been recognised for her outstanding contribution to lichenology, as she is an Honorary Member of the British Lichen Society and was President of the Society 2006–2008. She is currently President of Somerset Archaeological and Natural History Society (SANHS), 2017–2018. This last honour is linked to her latest project, the production of the Lichens of Somerset, a joint publication with Brian Coppins to be published by SANHS in 2018 (Wolseley *et al.*, 2018). This was something Francis Rose started, decades ago, and it languished, until Pat……. "let's do this, Brian" she said, in typical positive Pat-speak. And done it they have (with a wee input from me).

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Some extra notes from Gothamie Weerakoon, currently in post as head of the Lichen Section, NHM, but who has worked with Pat in Sri Lanka:

· Without Pat, lichenology would have not been established in Sri Lanka!
· Pat conducted 4 lichen workshops in Sri Lanka.
· She was the co-Pi of National Geographic and Dilmah Conservation funded lichen research project conducted in 2015 and 2017.
· She is invited for ASOMPS symposium Plenary address in 2018 December that is going to be in Sri Lanka.
· She has supervised two Lichen PhD students in Sri Lanka

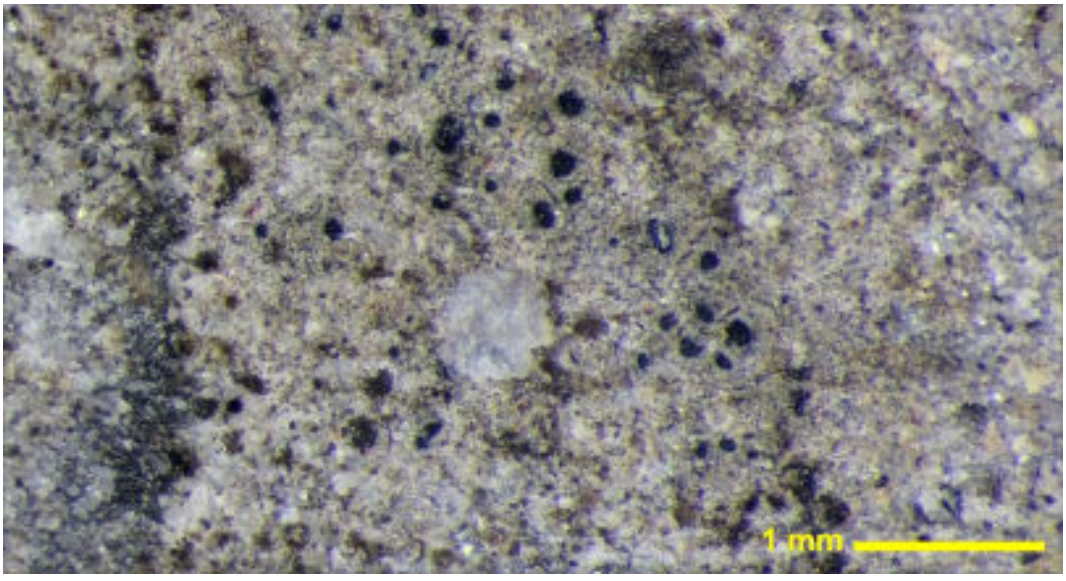
Three rarely recorded lichens from the Prosperous Lead Mine Site, Yorkshire

The Prosperous Mine is near Pately Bridge in Nidderdale, West Yorkshire. The remains of this nationally significant lead extraction and smelting site have been recognized as forming an important heritage site within Upper Nidderdale, but appear never to have had a proper lichen survey. We spent much of a beautiful day at the end of June carrying out an informal preliminary assessment.

The remains are primarily the extensive spoil tips of waste from industrial processes, but also include the remains of the smelt mill, its associated flues and condenser to the Prosperous mine shaft itself. The shaft itself was not accessible. Spoil tips are usually geologically challenging to interpret, as mixtures of all types of waste rock from the site occur, with much of it further disturbed during reprocessing operations to extract the last remnants of useful ore. Here, we were surprised to find that limestone only formed a very minor component of the spoil tips, as the local landscape is dominated by that rock type and lead veins are usually formed within limestone. Almost all of the spoil material was found to be a calcareous sandstone.

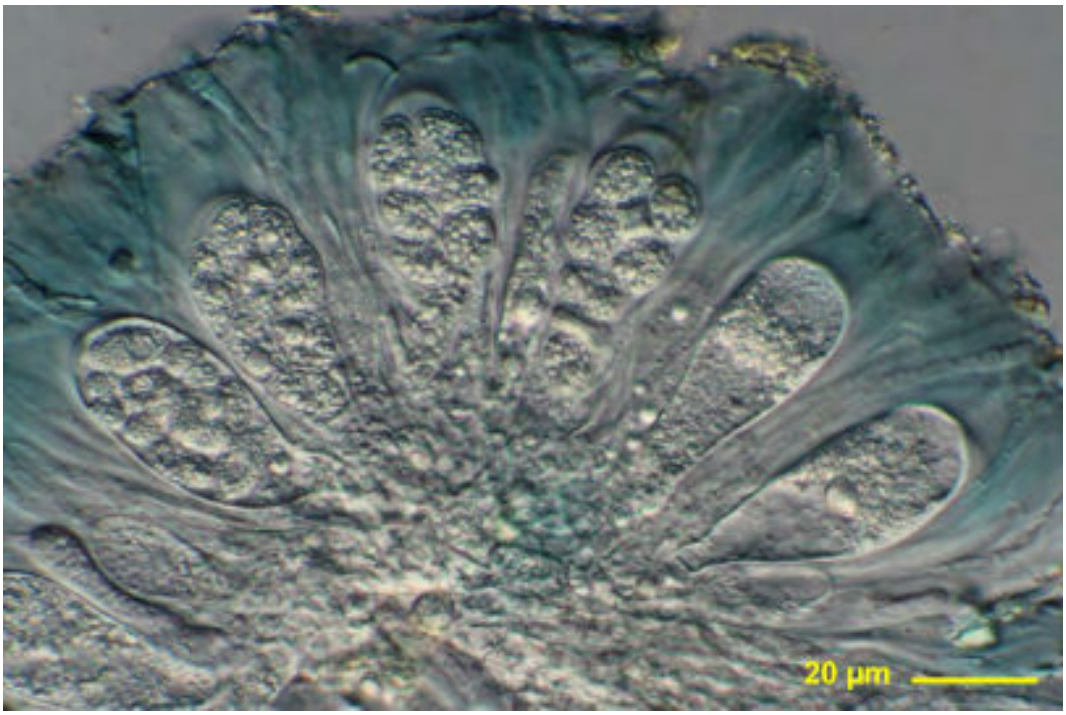
Our initial exploration suggests that the site supports a rather depauperate lichen assemblage, but there were three species of note which are described and illustrated below. Externally, none of them are particularly remarkable, but all have notable internal features.

Eiglera flavida



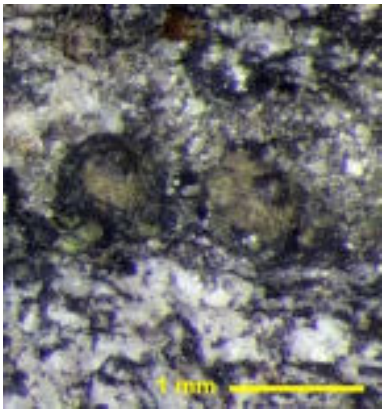
Eiglera is an enigmatic genus that has been classified in its own family, the *Eigleraceae*, or within the *Hymeneliaceae* with *Hymenelia* and *Ionaspis* (Hafellner 1984, Brodo & Lutzoni 1995). However, recent (but preliminary) molecular studies have suggested that it occupies a basal position in or near the *Acarosporales* (Miadlikowska et al. 2014).

There are currently two accepted species, *E. flavida* and *E. homalomorpha*; the latter is not known from Great Britain and Ireland. Externally, *E. flavida* is reminiscent of a minute *Aspicilia* with its small dark immersed apothecia within an inconspicuous greyish thallus.



A remarkable feature of this species is the gel in the upper hymenium which is pigmented bright turquoise – the image above is of a specimen mounted in water, not iodine. *Eiglera flavida* has a scattered distribution in northern parts of Great Britain and Ireland, including the Pennines and Cumbria and the northern and central Scottish Highlands, with single records in Ireland and the Welsh borders. It is almost certainly under-recorded.

Sporodictyon terrestre



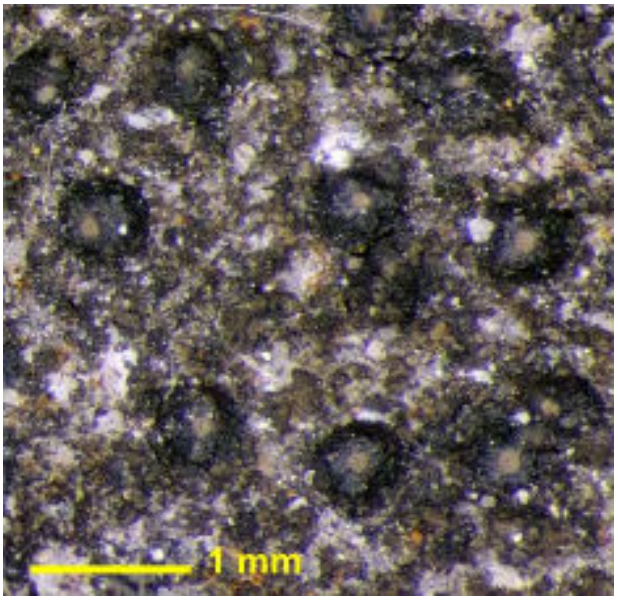
Not all members of the *Verrucariaceae* have "boring" ascospores. This species has a rather variably developed thallus, sometimes partially overgrown with a cyanobacterial crust, as here. Large perithecia (to 0.8 mm according to Orange 2013) are almost superficial with a prominent black ostiole, and partially covered with thalline material that can be khaki green in shaded conditions.

The ascospores in *Sporodictyon* are muriform with multiple transverse and longitudinal septa.

In *Sporodictyon terrestre* they are hyaline, or almost so, but in the two other British species they are medium to dark brown when mature. The ascospores on the left of the image are mounted in water which tends to obscure the septa. The ascospore on the right is mounted in warmed lactic acid, which disrupts the lipid droplets in the cell and makes the septa easier to see.

The species was considered to be rare by Orange (2013) but has been quite frequently recorded in the Scottish Highlands and upland Wales. This collection constitutes the first English record.

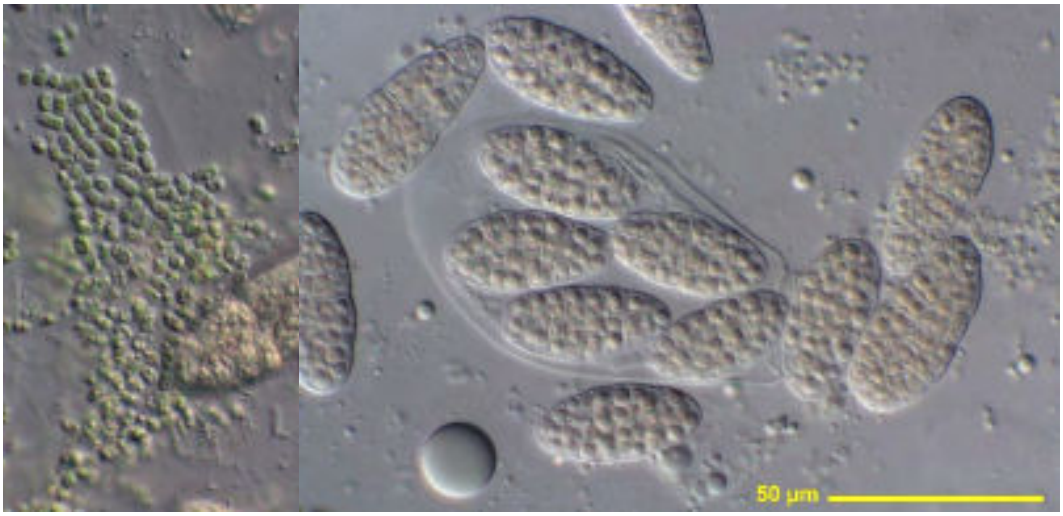
Staurothele succedens



Staurothele succedens is another member of the *Verrucariaceae*. The genus is remarkable for the presence of small green algal photobiont cells in the hymenium within the black perithecial walls. Presumably these are dispersed along with the ascospores and aid the establishment of new lichen colonies. However, the algae need light to photosynthesize and even though the ostioles in this species are quite broad, it is difficult to understand how they survive and divide.

As with the *Staurothele*, the ascospores in this species are

large, hyaline and muriform. In the images below, the hymenial algae (left) are mounted in water. and the ascospores (right) in warmed lactic acid.



There are around a dozen species of *Staurothele* recorded for Great Britain and Ireland (Orange 2013). The genus as circumscribed is polyphyletic (Gueidan et al. 2009), but *S. succedens* has not been sequenced and it is unclear whether it truly belongs to that genus. There are two previous records from the Pennines and a few from Cumbria, but it has not previously been reported from VC64.

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Dune Lichen Habitat under threat

In May this year, the British Lichen Society (BLS) registered an objection to the proposed planned 18-hole golf course at Coul Links, part of Loch Fleet SSSI.

Background

Loch Fleet is a tidal, salt-water inlet, flanked on the north and south by dune habitats (Grid Ref: NH 7896). The site is designated a SSSI, encompassing 1231.77 ha. Loch Fleet NNR overlies the SSSI except for part of the SE section.

The SSSI citation for Loch Fleet states:

> Loch Fleet Site of Special Scientific Interest (SSSI) is the most northerly inlet on the east coast of mainland Britain and is located in the Moray Firth basin, about 3km south of Golspie. Extensive intertidal flats support nationally important numbers of wintering birds. The surrounding coastal and woodland habitats and the assemblages of plants and breeding birds they support are also of national importance.

It also states:

> Part of Loch Fleet SSSI is part of the Moray Firth Special Area of Conservation (SAC) designated for the European habitats and species listed below [subtidal sandbanks, Bottlenose Dolphin].

Loch Fleet SSSI is also part of Dornoch Firth and Loch Fleet Special Protection Area (SPA) designated for the European birds listed below [non-breeding waterfowl assemblage, plus eight named species].

The dune and woodland area north of the Fleet is known as **Ferry Links**, and the dunes to the south are **Coul Links**.

The SSSI citation continues to describe the dunes:

Sand dunes (vegetation)

> Coul Links is an extensive dune system which is unusual in displaying a complete transition from foredune to slacks. Coastal heathland is well developed in drier areas, supporting juniper scrub locally. Flooded slacks and winter lochs contribute to the variety of habitat, with a rich diversity of vascular plants such as variegated horsetail *Equisetum variegatum,* purple milk-vetch *Astragalus danicus,* rue-leaved saxifrage *Saxifraga tridactylites,* moonwort *Botrychium lunaria* and frog orchid *Coeloglossum viride*. Ferry Links is slightly less rich in vascular plants but has large areas of lichen-rich and moss-rich heathland. A breach in the dune front allows occasional flooding from the sea, creating a large stand of sea milkwort *Glaux maritima*.

Hence, there is a strong emphasis on both Ferry Links and Coul Links complementing each other with regard to habitat and species within the wider Loch Fleet SSSI.

In November 2017, Nick Halfhide, Director of Operations SNH, provided advice to Highland Council regarding why SNH would be objecting to the proposed development of an 18-hole golf course at Coul Links. The advice was very measured, balancing both interests, but concluded:

"We recognise the many benefits the development would bring to Embo and the local economy, and we welcome the developers' commitment to high standards of construction and management. However, we are not able to fully support the development as proposed due to the loss of more than 16 hectares of nationally important sand dunes, and the impact on the special

plants and animals found there.
The development proposals include a range of measures to improve the management of the site for nature but SNH considers these do not outweigh the permanent loss to the sand dunes.
Coul's sand dunes contain some of the best dune habitat in Scotland and this is also one of the few sites in Scotland to support populations of green felt lichen and the rare Fonseca's seed fly."

So, the weight of the objection put forward by SNH was on the Green Felt Lichen (*Peltigera malacea*) and Fonseca's seed fly (*Botanophila fonsecai*) – a lichen and a fly!

The background to BLS becoming involved with submitting an objection to the proposed golf course came from Dr Tom Dargie, who lives locally, and is an expert on Scottish coastal terricolous habitats (he leads a campaign 'Not Coul'). He it was that alerted us, together with Stewart Taylor who had visited the site. Several NGOs (e.g. RSPB, SWT, Buglife, etc.,) were also actively seeking support to object to the proposed development. It is quite a commitment to undertake a structured objection to a Planning Proposal, requiring scrutiny of the existing submitted planning documents, and gathering supportive evidence on which to make a good case for submitting a formal objection.

We considered that from the point of view of lichen interest at Coul Links, the case made by the Environmental Survey submitted by the developers was not sufficient, and the BLS should respond on behalf of the lichens. The consultancy report did not adequately acknowledge the lichen interest and there seems to have been little effort to gain more information, either by contacting the BLS or commissioning a specialist survey of the site. The SNH case for objecting to the development on the basis of the lichen interest is very good, and Dr David Genney of SNH (Genney 2017) recommended a specialist survey to enable a full assessment of the lichen interest and a better understanding of likely impacts of the proposed development.

The lichenological importance of Coul Links has long been known. In a report to the then Nature Conservancy Council, on a *Survey and Assessment of Lowland Heath, Dune and Machair Lichen Habitats in the UK*, the BLS assessed Ferry-Coul Links as of National [UK] importance (Fletcher *et al*. 1984). Their closing comment was "The site is unique, of Oceanic Northern Dunes type and is reminiscent of some features of Culbin, Forvie and Cuthill Links. It stands alone, however, no back-up sites can be suggested." After 34 years this assessment has not changed.

Fryday (1991) carried out a rather cursory survey of only the northern part of Coul Links and recorded much of it as rather 'disappointing' compared to Ferry Links, but he did not record 3 of the Red-listed species recorded between 2016 and 2018 and this probably reflects the limited areas visited by him. Nevertheless, Fryday did record the Red-listed *Cladonia mitis*, further to the north.

More recently, the site has been visited by staff from SNH (October 2017), and Stewart Taylor (December 2017). These visits were of a walk-over nature, but certainly raised awareness of the potential lichen importance of Coul Links by finding nationally important populations of the rare and endangered lichen *Peltigera malacea* and the nationally scarce *Peltigera neckeri* (Halfhide 2017, Genney 2017, Stewart Taylor pers. comm.).

The 2018 field visit to Coul Links

However, we were concerned that the lichen interest of the site may be somewhat under represented, given that there has been no comparable full lichen survey similar to that afforded to Ferry Links to the north (Coppins & Coppins 1998). Consequently, a brief visit to the site was made on 3rd May 2018 by four members of the BLS: Andy Acton, Paul Cannon, Brian Coppins and Heather Paul, accompanied by Tom Dargie. There was not time for a full lichen survey, but we aimed to cover some ground not covered by David Genney and Stewart Taylor in October and December 2017 respectively. Some of the locations for the proposed golf greens, fairways and access tracks were also included in the walk-over. Andy Acton took GIS readings of locations of notable species and plotted them onto a map. Although the distribution of lichen interest will inevitably partly reflect recording effort, it is clear that the footprints of the proposed greens, fairways and access tracks coincide with some key areas of high lichen interest.

The visit confirmed that the site was under-recorded as 34 were species added to the site total, including 14 terricolous lichens (soil growing species), 7 epiphytic lichens (growing on plants, mostly on *Calluna*), 3 saxicolous lichens (growing on rocks, on shingle at northern end) and 10 lichenicolous fungi (growing on lichens). Much of the site is still unexplored and more species can be expected to occur there.

We also recorded more locations for the priority species, *Peltigera malacea,*

Peltigera malacea (dry) Photo B J Coppins

Peltigera malacea Photo B J Coppins

and also for other notables, namely *Leptogium palmatum* and *Stereocaulon condensatum*.

Leptogium palmatum Photo Andy Acton

Stereocaulon condensatum

Notable new finds at Coul were *Massalongia carnosa* (elsewhere in dunes systems only at Findhorn), *Polychidium muscicola* and *Bryobilimbia sanguineoatra*, the last two being new finds for a dune system anywhere in the British Isles, their usual habitat being mossy tree trunks or rocks in oceanic areas of the western Highlands. These emphasise the uniqueness of the Loch Fleet dune system. More expected additions were *Cladonia rangiferina*, *C. uncialis* subsp. *uncialis* and *C. zopfii*.

Lichen importance of the Loch Fleet SSSI dunes system in a national context.

The combined total number of terricolous lichens at Loch Fleet is 101 species, the highest total found at any coastal dune system in the British Isles. In the Objection report we reiterated and strongly endorsed the comments made by Genney (2017), that both parts of the dune system within Loch Fleet SSSI must be considered as a whole: the two halves of the dune systems are complementary to one another as both have features not found in the other. Ferry Links has a total of 87, with 31 not found on Coul Links, whereas Coul Links with a total of 71, has 14 lichens not found on Ferry Links (**Table 2**).
[The SSSI total is arrived at by taking the 87 species found at Ferry Links and adding the 14 additional species found at Coul Links = 101].

In this overall total of 101 terricolous species, there are 17 notable species (see **Table 1**) including four Red-listed species. The four Red-listed species are also Scottish

Biodiversity List species that Scottish Ministers consider to be the highest priority for biodiversity conservation in Scotland (Scottish Biodiversity List, 2013).
Formal assessment criteria have recently been developed for heathland, moorland & coastal heath habitats (Sanderson *et al.*, 2018), and assessing against these criteria also supports the high importance of Loch Fleet SSSI for lichens.

The lichen evidence now gathered significantly raises the profile of the lichen importance of Coul Links, and reinforces the points and comments made in the Statements from SNH (2017).

Table 1 Notable lichen species recorded from Coul Links (as of May 2018)

Species	Conservation status/rarity	Species	Conservation status/rarity
Agonimia gelatinosa	NS	Lepraria elobata	NS
Bacidia caligans	NS	Leptogium palmatum	**NT, NS, Sc**
Bryobilimbia sanguineoatra	NS	Moelleropsis nebulosa	NS
Cladonia mitis	**NT, NR, Sc**	Peltigera malacea	**EN, NR, P, Sc**
Cladonia uncialis subsp. uncialis	**NT, NS, Sc**	Peltigera neckeri	NS
Cladonia zopfii	NS	Polychidium muscicola	NS
Cryptodiscus gloeocapsa	NS	Psoroma hypnorum	NS
Lecania subfuscula	NS	Stereocaulon condensatum	NS
Lecanora zosterae	NS		

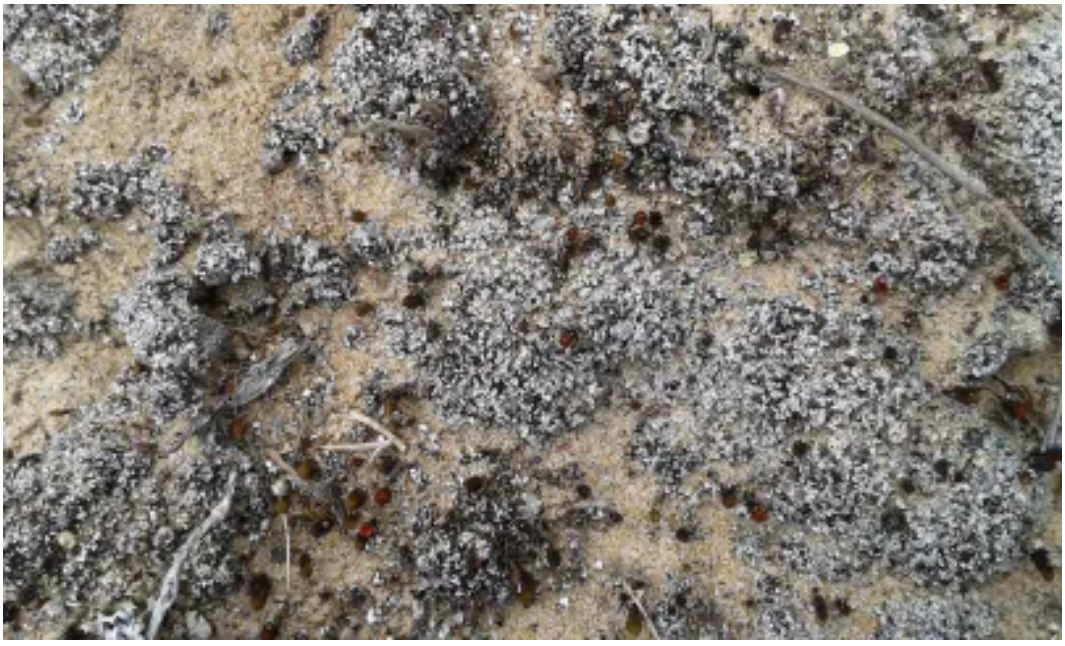
Conservation Evaluation etc.: EN = Endangered; NT = Near Threatened; NR = Nationally Rare; NS = Nationally Scarce; P = UK BAP priority species; Sc = on Scottish Biodiversity List [Sect.2(4)].

In the report, we listed reasons why the dune system of Loch Fleet SSSI is important for lichens, e.g. the large extent and range of habitats; the dynamic nature of the habitat. The role of rabbits was also significant; during the visit to Coul, we found areas of rabbit activity to be a key or main niche for most of the more notable species in the dune heath, namely *Leptogium palmatum*, *Massalongia carnosa*, *Moelleropsis nebulosa*, *Peltigera malacea* and *Stereocaulon condensatum*. These little localized disturbances are integral to the dynamism of the habitat requirements for terricolous lichens. Old tracks and track edges were also found to be valuable niches for development of these communities. In many cases these areas seem to be associated with rabbit burrows and scrapes. The necessary rabbit control needed by a golf course management could lead to the marked decline or loss of this valuable habitat niche.

Moelleropsis nebulosa/Massalongia carnosa habitat Photo B J Coppins

Peltigera malacea habitat showing disturbance caused by rabbits Photo B J Coppins

The role of rabbits is emphasised in the report of *Management of Natura 2000 Habitats – fixed coastal dunes with herbaceous vegetation "grey dunes"* (Houston 2008): "Rabbit activity – grazing, burrowing, scraping, trampling and dunging are all important factors in the maintenance of the habitat and its heterogeneity."



Stereocaulon condensatum Photo B J Coppins

The BLS objection report also cited the undesirability of nutrient input into dune systems, explaining that terricolous lichens are poor competitors, but evolved to cope with high levels of stress; in the case of heathland lichens the stresses provided by the habitat are a low nutrient status, combined with often rapid fluctuations from wet to dry conditions. Fertilisers are toxic to lichens (e.g. Remke *et al*. 2009, Vagts & Kinder 1999). We are concerned that fertiliser treatment to greens and fairways would increase the nutrient status of ground outwith these playing areas. We also emphasised that any fungicidal treatment of the playing area would also be fatal; even if only a confined area was sprayed or treated with fertilizer or fungicide, there is the danger of accidental drift.

Summary points for the BLS's objection to the Golf Course proposal

- Physical destruction of existing habitat in a site of national and international importance through creation of greens, fairways and vehicular access.
- Fragmentation of an intact dune system of national and international importance.
- Reduction of small scale, localised disturbance from control of rabbits.
- Increased nutrient input into the system through fertiliser treatment, for vegetation that is dependent on low nutrient status.

- Possible impact of fungicide treatment.
- Nearby areas for the location of a golf course are apparent, leaving an intact Coul Links as an impressive back-drop.
- Transplantation of lichens is not considered a workable mitigation in the long-term.

On this last point, transplantation of patches of *Peltigera malacea* have been successfully carried out by Heather Paul at Findhorn from an area that was going to be built on. But Heather emphasised that the habitat niches and the system she used successfully at Findhorn would probably not be replicated at Coul Links:

"I did do two lots of transplanting. The first was less successful than the second. Just about all of the first group disappeared. I think I took smaller bits the first time with less sandy soil and took the *P. malacea* to similar ground about half a kilometre away. The second attempt in 2012 was successful.

The second time I identified an area of similar flat ground very near where they were to come from - i.e. only 100 metres or so away. We cut "turves" and treated it like laying a lawn- i.e. putting down pieces cut out by a spade - not necessarily joined up but putting each section in an area that looked suitable. As far as I can remember this was an area without any *P malacea* and I have monitored it over the last 6 years. About 100 *P malacea* were moved and when I counted recently a similar number remain - possibly some will be next generation. Also there are fertile *P. malacea* nearby and in general I am convinced (no proof though) that the population is expanding at Findhorn so some may have come in/ been there ready to grow.

Leptogium palmatum has also moved into to this area under the *Calluna*. These two often grow together here so I had chosen a very suitable area to transplant into.

I think that any attempt to move the *Peltigera malacea* from Coul Links would probably be less successful - it would have to move further than I moved it and at Coul lots were growing in little sandy areas amongst the heather - maybe quite loose sand and a particular environment that could be harder to replicate. My transported *P malacea* was in more stable sand/ small pebbles habitat. I am not sure the cutting "turves" idea would work at Coul. I think the amount of *P malacea* was considerably less at Coul than at Findhorn which is showing itself to be a very favourable area for its spreading and therefore any attempt at transplanting probably has more chance of success at Findhorn."

Heather Paul (email sent June 2018).

It is unlikely that some of the key species such as *Stereocaulon condensatum* which forms a 'biological soil crust over loose sand, could be translocated, even if a suitable receptive niche could be found.

Table 2. Tabulation of number of terricolous lichens from a selection of important dune systems in UK and Isle of Man.
Scottish sites are ordered from north to south, the others are arranged numerically as to number of terricolous lichens recorded. The list includes only lichens found on the ground, and **does not include** those found only on shingle, shell fragments, shrubs, or man-made structures.

UK locations	County	Terricolous lichens
Scotland:		
Loch Fleet SSSI (Ferry + Coul) Ferry Links Coul Links	East Sutherland	101 87 71
Cuthill Links	East Sutherland	71
Morrich More	East Ross	26
Whiteness Head	Easterness	37
Culbin Sands, Culbin Forest and Findhorn Bay SSSI Culbin Sands & Forest Findhorn Dunes	Moray	86 73 63
Sands of Forvie	Aberdeenshire	41
Menie Links (pre golf course)	Aberdeenshire	30
Kinnaber Links	Angus	50
Barry Links	Angus	51
Tentsmuir	Fife	48
Aberlady Bay	East Lothian	41
Sandy Knowes & West Links	East Lothian	30
Yellow Craig & East Links	East Lothian	21
Tyninghame (N of Bathan's Strand)	East Lothian	16
Belhaven Bay	East Lothian	24
Barns Ness	East Lothian	12
Torrs Warren	Wigtownshire	45
England, Wales & Isle of Man:		
Braunton Burrows	Devon	48
Blakeney Point	Norfolk	46
Ainsdale/Freshfield	Lancashire	44
Penhale Sands	Cornwall	40
Winterton – Horsey Dunes	Norfolk	38
Studland	Dorset	33
Newborough Warren	Anglesey	32
Nicholaston Burrows	Glamorgan	24
Point of Ayre	Is of Man	21
Morfa Harlech	Merioneth	16
Scolt Head	Norfolk	14
Kenfig Burrows	Glamorgan	8
Ynyslas Dunes	Ceredigion	6

The press of course, did pick up the story, including *The Scotsman* (I suppose Scotland's equivalent of *The Times*), with their Environment Correspondent, Ilona Amos, heading her piece "101 reasons to stop the Coul Links golf course." She was the only journalist to pick up on the lichen interest, the 101 being the total number of terricolous lichens recorded – so far – from Loch Fleet SSSI.

There is still a glimmer of hope: surrounding the future of Coul Links: although Highland Council has given the go-ahead to the developers, the campaigners requested that the Scottish Government 'call in' the decision, i.e. open it up for wider debate, a public enquiry. This would be something of a last ditch stand, and one wondered if – under the constant cloud of Brexit – the Scottish Government would be bothered to consider the strong environmental grounds (including the fate of some lichens) of this area of dune. But it seems they do, as the decision has been 'called-in' and there will be a hearing and/or an enquiry session. So, there is still hope remaining on the outcome of this matter. So, watch this space……

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Update on social media

By the time this comes out we will have marked our first year of the BLS on social media across two platforms. It has been a joy and we have met some amazing people through it all. We are now the proud celebrants of more than 1600 followers on Twitter, and Facebook is increasing all the while too, now standing at 368 likes and 408 follows. Thank you to everyone who has made this go so well and who shares this experience with us.

Social media tend to get an extremely negative press, which is a huge shame. They are alternately brandished as the solution to all problems or, more oft repeated, as the source of torment and hijacking of the soul. They are neither. Social media, like all means of communication from the quill- penned letter through to the mobile phone text message and beyond, are tools to be used with care. The penny post almost certainly generated a certain degree of discomfort, but it was less public. Pamphleteering in the Georgian era was just the same as the modern blog for spreading amusing or nefarious content. Tools should be used in the way that works for the people using them and for natural history there has rarely been a chance to share identification questions as effectively as through platforms such as Twitter and Facebook while advising caution as regards the accuracy of identification through photographs alone.

Our reach has been remarkable, both in terms of miles travelled and in age communicated with. On one occasion there was the news that a little girl of 7 had come down to breakfast singing the praises of lichens and declaring how much she wanted to study them. Her father was then awash with offers of help from many including us, although he's probably very capable of helping her himself for a while yet.

This summer has, for much of the country, been a bit of a challenge for studying lichens, as the wet spring contributed to rather a lot of mollusc-grazing and the drought to some very crisp material. Both states caused some confusion,

particularly when looking only at the photos. This has meant that the past few months have been a bit quieter than over the winter period, which was also how we expected it to be with so much other natural history going on.

Sometimes it is possible to make public mistakes when trying to answer questions in a shortish time. This can happen to all of us and although a bit dispiriting it can throw up some brilliant conversations that go way further than they would go otherwise. On the 1st May a fascinating discussion took place about a fuzzy photograph of a bright yellow lichen in Scotland. At first look it appeared to be a *Trentepohlia* species, but when the photographer went back it turned out through more detailed photography to be *Xanthoria candelaria*!

I

Xanthoria candelaria (Copyright Bob Macintosh (@scotfot)

In June the Wildlife Trusts run an event they call #30DaysWild which operates on many different platforms. We took the opportunity to share a lichen each day and generated significant interaction throughout the month.

The photos were not the usual identification tips that we run in the cooler months, but more about storytelling and habitats.

Copyright Glenda Dowling (@GlendaDowling2)

One really warming thing that happened was the chance to inspire an Australian naturalist to go looking for lichens in the Sydney area and surprise herself by how many she was able to find

To date the search for lichens around Sydney continues and she has been finding and photographing some real beauties. If anyone has good knowledge of Australian lichens, whether on social media or not, it would be helpful to have some ID assistance as we are not as good on Australian lichens as we would like to be.

Another memorable #30DaysWild discussion was prompted by a photograph of *Flavoparmelia caperata* on a chestnut fence and our comment on how several lichens

have been lost through the replacement of older fencing and the subsequent loss of the lichen cover. It gave the chance for us all to support the use of old fencing as source material and in September we were 'tagged' in a photograph of new posts and old struts at Penhurst Retreat, nearly three months after the discussion began.

One of the June photos was supposed to be about lichens on the mortar of a churchyard wall, but the beady eyes of Twitter spotted that the lichens were being munched by bristly millipedes.

As June progressed the lichens did get crunchier and crunchier and we struggled to identify many of the ones we had photographed ourselves as we were photographing and posting each day. All the extra munching wasn't helping. We are thinking of running a repeat exercise in January, which we hope will get more people involved in sharing their own findings, linked to the New Year Lichen Hunt we ran last January. These events are a fabulous education opportunity in a warm cloak of entertainment.

Throughout this season some very special conversations have taken place with lichen identification and fieldcraft getting some special input from Mark Powell and Rebecca Yahr in particular.

Phaeographis smithii (Copyright Mark Powell @obfuscans3)

In mid July, Mark (@obfuscans3) and a talented young fledgling lichenologist called James embarked upon a lengthy and detailed exploration of lichens in James's garden.

More recently an eye-catching photograph from Barrie Hamill initiated a thought-provoking discussion on the true meaning of the prothallus. Comments from Mark and Rebecca led us to question established definitions of the prothallus and indicated a need for further research on the subject.

Interface between *Ochrolechia parella* and *Tephromela atra* Copyright Mark Powell (@obfuscans3)

As the wet weather has returned the lichens are plumping up. Fewer munching organisms are raising youngsters so they are remaining smart for longer. *Cladonias* and *Xanthoria parietina* are retaining their popularity, which is unlikely to change anytime soon but as they are the flag wavers for us we need to be grateful to them.

Please do think seriously about becoming at least a lurker to see what is happening. By being selective about whom you follow you will have access to a

constant stream of the highest quality images and be part of some lively discussion. It is exciting to be able to say that we now have a reach through social media of people from the ages of 7 to 74 in terms of known age. It can be a rich zone of beauty, insight and reaching hands across oceans to share knowledge and a love of lichens.

We want to say thank you to Mark Powell and Rebecca Yahr for their help, and also to Toby Spribille and Troy McMullin in Canada for helping with identifications.

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Lichens in Chelsea Physic Garden

Chelsea Physic Garden, founded in 1673 as the Apothecaries' garden, is the second oldest botanical garden in England full of interesting specimens of trees and herbaceous plants that have a medicinal application from many countries in the world. Although laid out much like other medieval European botanical gardens and used as a place of research, it has been open to the public since 1983. Many of the older trees in the garden have lived through periods of high air pollution from acid rain during the smogs of the 1950s and 1960s and today from the nitrogen oxides from the surrounding traffic. Lichens have never been deliberately introduced to the garden but there are many suitable substrates and a recent visit by Mark Powell and Pat Wolseley in June 2018 has allowed us to compare changes in the lichen communities since 1977 when Peter James first recorded the lichens that he found in the Physic Garden. Subsequent visits by Peter James, Ann Allen and Barbara Hilton in 2000 and 2002 allowed us to compare changes in the lichen community over the last forty years (Table 1).

There are 106 species on our list and 55 of these are new records in 2018, while others recorded earlier have disappeared. The pollution-tolerant lichen *Lecanora conizaeoides* was frequent on old tree trunks and sandstone capping in the garden in 1977, less frequent in 2002 and not found in 2018. This species was widespread throughout London and other cities during the 1950s and 1960s but the Clean Air Acts resulted in a decrease in sulphur dioxide and an increase in bark pH due to the effects of atmospheric nitrogen. This species only survives on highly acidic substrates. Other conspicuous losses among the species that prefer acidic substrates include *Cladonia* species, *Hypogymnia physodes* and *Lepraria* species which have not been refound in 2018 (Table 1). There are few native trees here yet today lichens are abundant especially on younger trees and branches, while older trees such as the cork oak, an old poplar (*Populus alba*) and an ancient ash tree (*Fraxinus ornus*) on the boundary with the Embankment support only nitrogen-tolerant species such as *Hyperphyscia adglutinata, Phaeophyscia orbicularis* and *Xanthoria parietina* (rare in the gardens in 1977 but now frequent throughout urban and rural areas). The surprises were however on the branches and trunks of younger introduced trees. On the branches of *Rhus chinensis* we

found a beautiful specimen of *Physcia tribacioides* (Fig. 1), an IUCN Vulnerable species, the first record in Greater London but a species that we should look out for as it occurs in the warmer climates of Africa and Asia as well as in Europe.

Fig. 1. *Physcia tribacioides* growing on the branch of *Rhus chinensis* at Chelsea Physic Garden.

Other new records of foliose species on this tree included *Flavoparmelia caperata* and *Punctelia* species together with *Evernia prunastri* and a very small specimen of *Usnea* – too small to identify, demonstrating the changes that are occurring in urban sites that were formerly highly polluted with acid rain. These species spread by producing vegetative propagules (a mixture of fungal hyphae and the photobiont) and are now colonising the more accessible benches below the trees (Fig 2). An example is *Punctelia borreri,* a species that appears to be spreading north and east across England.

Fig. 2. Wooden bench seat, beneath *Rhus chinensis* where we recorded *Punctelia borreri* (arrow) which was also on the branches. The separation of *Punctelia borreri* from *P. subrudecta* can be found at: *http://fungi.myspecies.info/sites/fungi.myspecies.info/files/Punctelia%20borreri.pdf#overlay-context=file/15362*.

Another species that is colonizing the eastern parts of England is *Normandina pulchella,* found on the trunk of a large *Cercis* tree in Chelsea Physic Garden. The prospect of finding this species in London would have seemed fanciful a few years ago. Other interesting changes in formerly common species include *Scoliciosporum umbrinum* which was widespread from 1977 to 2002 but not recorded on this survey and *Xanthoria polycarpa* which was widespread on twigs in 2002 but is now rare.

We were looking for lichens on shrubs such as hazel when we found a small *Cornus mas* tree (native to Southern Europe and SW Asia) with such a variety of unusual species that are more western in distribution and have not been recorded in Greater London including *Arthopyrenia cinereopruinosa, Caloplaca cerina, Phaeographis*

smithii, Pyrenula macrospora and others. We suspected that these were brought in with the young tree but were curious as to where it had come from. On consulting with Nell Jones the head gardener we found that this tree had been planted in 2015. The lichens looked healthy and occurred on branches and the trunk (Fig 3) but will they survive on this tree in the warmer drier urban climate of the Physic Garden?

Fig. 3. The *Cornus mas* with an introduced lichen community that appears to be thriving and colonizing younger branches.

Apart from trees the garden provides a great variety of substrates for lichens: the lignum of the numerous wooden benches, the brick paths and terracotta urns and the lava around the pond that Joseph Banks brought back from Iceland. Considering that it is Europe's oldest rock garden the Pond Rockery was somewhat disappointing as

the lumps of basaltic lava from Iceland support few lichens. A lump of sandstone has several well-developed (but sterile) patches of *Caloplaca albolutescens* (Fig 3*)*. Old pieces

Fig. 4. Part of the Pond Rockery, the left arrow indicating patches of *Caloplaca albolutescens*, the right arrow indicating the site of a yet, unidentified species of *Verrucaria*.

of limestone support a community which includes *Caloplaca marmorata*, a species often associated with old masonry and formerly recorded in Britain as *C. lactea* (Powell & Vondrák 2011) and *Sarcogyne regularis*. Also present on one of the carved pieces of limestone is a species of *Verrucaria* which has so far defied identification. Many of the brick paths are now cleaned with high pressure hoses so that they are rather bare of lichens except in the crevices but a large terracotta urn supports a community which includes two lichens which have been much under-recorded (*Caloplaca albolutescens* and

Verrucaria ochrostoma). *V. ochrostoma* is classed as Nationally Rare but has proved to be much more common than previously realized.

The revival of this species from British obscurity is an interesting story which emphasises the valuable work that amateur field recorders can undertake. The renowned botanist William Borrer described *V. ochrostoma* in the first half of the nineteenth century but considered it to be a rare species of old walls. It turns out to be a rather common colonist of calcareous substrata rather than a rarity. During a visit to the Natural History Museum, *V. ochrostoma* was found in abundance on the low walls just outside the public entrance where it has grown unnoticed on the 'doorstep' of the spiritual home of British lichenology and of Borrer's lichen collection.

Other additions to the list include five lichenicolous fungi that Mark recorded which were probably overlooked by earlier recorders concentrating only on lichens.

Urban sites provide an interesting combination of high atmospheric nitrogen combined with a warmer drier climate that has encouraged colonization by species that enjoy a Mediterranean climate, such as *Flavoparmelia soredians* and *Physcia tribacioides*, to spread in the UK. There is however a conspicuous absence of cyanobacterial species which are more sensitive to increasing nitrogen and drier conditions. Sites like Chelsea Physic Garden provide a relatively stable habitat to monitor the response of lichen communities to changing urban conditions.

Acknowledgements

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Table 1. Lichens recorded as present (•) in the Physic Garden on 4 different surveys; those in bold text are new records in 2018, names follow those used in Smith *et al.* 2009.The conservation status is given, where appropriate, after Woods & Coppins 2012.

Taxon name	1977	2000	2002	2018	Cons. Status
Amandinea punctata	•	•	•	•	LC
Anisomeridium biforme				•	**LC**
Arthonia parietinaria				•	**NE NS**
Arthonia phaeophysciae				•	**LC NR**
Arthonia radiata				•	**LC**
Arthopyrenia cinereopruinosa				•	**LC**
Aspicilia contorta				•	**LC**
Bacidia arceutina				•	**LC**
Bacidia caligans				•	**LC NS**
Bacidia delicata	•	•	•		LC
Bacidia laurocerasi				•	**LC**
Bacidia neosquamulosa		•			LC NS
Bilimbia sabuletorum		•			LC
Caloplaca albolutescens				•	**LC NS**
Caloplaca arcis				•	**LC NS**
Caloplaca cerina var. cerina				•	**LC**
Caloplaca cerinella				•	**LC**
Caloplaca citrina		•			LC
Caloplaca crenulatella				•	**LC**
Caloplaca flavescens		•		•	LC
Caloplaca flavocitrina		•		•	LC
Caloplaca holocarpa s. str.				•	**LC**
Caloplaca marmorata				•	**LC**
Caloplaca oasis				•	**LC**
Caloplaca obscurella				•	**LC**
Caloplaca phlogina				•	**NE ?NS**
Candelaria concolor	•	•	•	•	LC
Candelariella aurella		•		•	LC
Candelariella reflexa			•	•	LC
Candelariella vitellina f. vitellina		•	•	•	LC
Catillaria chalybeia var. chalybeia		•	•	•	LC
Cladonia coniocraea		•			LC
Cladonia humilis		•			LC
Clauzadea monticola			•		LC
Evernia prunastri				•	**LC**
Flavoparmelia caperata		•	•	•	LC
Flavoparmelia soredians				•	**LC**
Hyperphyscia adglutinata				•	**LC**
Hypogymnia physodes		•			LC

Hypotrachyna afrorevoluta				•	**LC**
Hypotrachyna revoluta s. str.				•	**LC**
Lecania inundata				•	**LC NS**
Lecania cyrtella				•	**LC**
Lecania naegelii				•	**LC**
Lecanora albescens				•	**LC**
Lecanora argentata				•	**LC NS**
Lecanora barkmaniana				•	**LC NS**
Lecanora campestris subsp. *campestris*		•	•	•	LC
Lecanora carpinea				•	LC
Lecanora chlarotera		•	•	•	LC
Lecanora confusa		•			LC
Lecanora conizaeoides	•	•	•		LC
Lecanora dispersa	•	•	•	•	LC
Lecanora expallens				•	**LC**
Lecanora hagenii				•	**NE**
Lecanora muralis	•	•	•	•	LC
Lecanora symmicta		•		•	LC
Lecidella carpathica				•	**LC**
Lecidella elaeochroma f. elaeochroma		•		•	LC
Lecidella scabra				•	**LC**
Lecidella stigmatea				•	**LC**
Lepraria incana		•	•		
Lepraria lobificans		•	•		LC
Melanelixia subaurifera				•	**LC**
Normandina pulchella				•	**LC**
Opegrapha atra				•	**LC**
Opegrapha varia				•	**LC**
Parmelia sulcata		•	•	•	LC
Parmotrema perlatum				•	**LC**
Phaeographis smithii				•	**LC**
Phaeophyscia orbicularis		•	•	•	LC
Physcia adscendens	•	•	•	•	LC
Physcia aipolia				•	**LC**
Physcia caesia		•	•		LC
Physcia dubia		•	•		LC
Physcia stellaris				•	**LC**
Physcia tenella		•	•	•	LC
Physcia tribacioides				•	**VU NS**
Physconia grisea		•	•	•	LC
Protoblastenia rupestris				•	**LC**
Punctelia borreri				•	**LC**
Punctelia jeckeri				•	**LC**
Punctelia subrudecta s. str.		•		•	LC
Pyrenula macrospora				•	**LC**
Ramalina farinacea				•	**LC**

Rinodina oleae		•	•	•	LC
Sarcogyne regularis				•	**LC**
Scoliciosporum umbrinum	•	•	•		LC
Taeniolella phaeophysciae				•	**LC**
Thelocarpon intermediellum		•			LC NR
Trapelia coarctata		•	•	•	LC
Trapelia involuta			•		LC
Unguiculariopsis thallophila				•	**LC NS**
Usnea sp.				•	
Verrucaria elaeina				•	**LC**
Verrucaria dolosa		•			LC
Verrucaria muralis	•	•	•		LC
Verrucaria nigrescens f. *nigrescens*	•	•		•	LC
Verrucaria ochrostoma				•	**DD NR**
Verrucaria viridula		•			LC
Vezdaea leprosa			•		LC
Xanthoria candelaria		•	•		
Xanthoparmelia verruculifera			•		LC
Xanthoria parietina	•	•	•	•	LC
Xanthoria polycarpa		•	•	•	LC
Xanthoriicola physciae				•	**LC**

Thoughts from a stone circle

Stonehenge may be one of the most important prehistoric monuments in Britain, but roughly a quarter of its stone surface has never been studied. These surfaces are covered by lichen, a material that conventional surface scanning techniques such as laser scanning cannot penetrate. Nonetheless a 2012 survey of the stones using this technique found 71 new prehistoric axe-head carvings, important for developing our understanding of Stonehenge, on its bare surface. This doubled the number of Early Bronze Age axe-head carvings known to Britain. Hence many more of such carvings, which are of benefit to archaeologists, may lie undiscovered beneath the surfaces obscured by lichen.

For my PhD I was tasked with using imaging techniques that could "see" through the lichen to hopefully discover more axe-head carvings at Stonehenge. The obvious solution is to use subsurface imaging techniques employing x-ray, infrared or terahertz (radiation that sits between infrared and microwave in the electromagnetic spectrum). But these are often too time-intensive and require considerable training to use. My solution was simpler and required only a decent camera.

On 17th July 2018 I took a trip to Stonehenge to gather photographic data. Since access to the stone circle could only be granted outside of opening hours, I arrived there at 4 am. The walk from the Stonehenge visitor centre to the stone circle was roughly 30 minutes and apart from the initial conversation with the guard at the gate, who understandably was rather confused at the appearance of a kid at an ungodly

hour with a suspiciously large backpack (this was, unfortunately, close to the Salisbury Novichok poisoning incident), all was silent. With an hour till sunrise, everything became a silhouette, lit only by a pre-dawn sky.

As Stonehenge emerged over the horizon, I was struck by how insignificant the stones looked. To an alien it probably resembles a bunch of misplaced rocks in a field beside a busy road. But to humanity it is infinitely more than that. No matter the original intention of its builders, much like a classic novel, the meaning of Stonehenge is now beyond the control of its authors. For me, it's an enduring symbol of our curiosity.

And in no time at all I was in the midst of the stones. One interpretation of the site has always stayed with me: the idea that the stones were erected for the ancestors of the builders. The theory says that the bluestones were originally sourced for a local stone circle to the south west of Wales but were later moved to the south of England to symbolise the unification in culture of two geographically distinct groups—a theory that Mike Parker-Pearson calls ancestral unification. Now, standing under the stones' looming height, I felt like a child looking up to paternal and maternal figures.

From my backpack I removed a DSLR camera, a tripod and a work light. The subject of my work today was the variety of lichen species seen on the stones. I took roughly 20-30 multi-perspective shots of each unique species I could identify. Using my limited time and expertise I found 25 species, which is a total of roughly 650 photos. Each set of multi-perspective shots would then be processed through structure from motion photogrammetry software. This converts sets of 2D photos into 3D models of each lichen species.

The 3D models will then be passed through artificial intelligence algorithms to understand the morphology of each lichen species. Ultimately it will be able to predict the underlying surface topography of the stone by essentially "subtracting" the lichen. Developing the algorithms to do this is what I'm currently working on in my PhD.

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An instance of the cyanobacterial morph of *Peltigera britannica* in Cumbria

Following the discovery by botanist Jeremy Roberts of a fourth site for this rare upland species in Cumbria in May 2018, I visited the site, in Heltondale, near Haweswater, in September to record the location and condition of the colony. The thalli extend over some 0.2 m^2, near the base of a low, acid crag in a deep gill at approximately 410 metres altitude. Whilst there I made a special point of looking for a feature of this species which is mentioned in various lichen *Floras* but seems rarely reported. The cyanobacteria-containing cephalodia in this species are especially deciduous, leaving small white scars where they detach. The detached cephalodia can grow initially to form blue-green cyanomorph thalli, lacking green algae and using their cyanobacteria

to provide the photosynthetic function. Normal green thalli, containing the algal partner then develop from these. I collected a small sample from the base of the colony, which did indeed seem to include these blue-green forms, which are small, irregularly lobed and with whitish crazing, sparse short rhizinae and no cephalodia. (They could easily be taken for another cyanomorphic species of *Peltigera*!) The example shown here has a 'normal' green lobe (arrowed) just starting growth. A much larger green lobe adjacent to it already has a dense covering of cephalodia.

I am not sure whether this phenomenon has been noted so far in Cumbria, since the species has very few sites. However, it can surely be expected to be a normal occurrence.

I sent the image shown here to Orvo Vitikainen, a veteran (his word!) authority on the taxonomy of the genus in Europe, who agrees with my interpretation. The possible significance of the nitrogen-fixation capabilities of the blue-green morph in the early development of thalli is discussed in that magnificent volume, *Lichens of North America* (2001) by Brodo *et al.,* which also illustrates both morphs.

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Lichen interest in the Birks of Aberfeldy

In mid-October 2017, I was fortunate enough to spend some time looking at lichens in the Birks of Aberfeldy Site of Special Scientific Interest (SSSI) with John Douglass. John had been commissioned by Scottish Natural Heritage (SNH) to assess the lichen interest of these ravine woodlands ahead of the sensitive removal of beech (*Fagus sylvatica*) – particularly from areas where native tree species and rocks supported lichens of high conservation value. The lichen assemblage within the 45.18 ha. Birks of Aberfeldy SSSI is a listed feature of the reserve, together with its upland mixed ash (*Fraxinus excelsior*) woodland. However, locally abundant beech regeneration is a threat to the lichen assemblage here (because of the shading impact) and the Birks of Aberfeldy SSSI is currently in an unfavourable condition (Douglass 2013). Continued beech regeneration without intervention, might ultimately cause the woodland to become completely dominated by this tree species – reducing substrate diversity for the epiphytic lichen assemblage.

The Birks of Aberfeldy SSSI straddles the often steep slopes and cliffs either side of the Moness Burn, south of Aberfeldy, in Highland Perthshire (VC 88). Metamorphic rocks such as dark-green basic schists and quartz-mica schists comprise the underlying geology (P. Aspen cited in Douglass 2013). Apparently, these were formed from the parent sandstones, mudstones and volcanic material during the Grampian orogeny 500 million years BP. Aspen (in Douglass 2013) continues to note that the Moness Burn now cascades through a north–south feature that resulted from the shearing and shattering action of later earth movements and cross-faulting resulted in the series of waterfalls within the glen. The northern part of the reserve, including the car parking area, is dominated by beech. Mixed ash woodland is mainly found on the eastern side of the Moness Burn close to the river. Mature willows (*Salix* sp.), with their surprisingly tall straight trunks, are a feature of the reserve and are most frequent in the mixed ash woodland but are occasional throughout. Further away from the river, where the gradient is less steep, the woodland comprises mature oak (*Quercus* sp.) and silver birch (*Betula pendula*) with scattered hazel (*Corylus avellana*) and rowan *(Sorbus aucuparia*).

Silver birch is most common in the upper part of the reserve either side of the Moness Burn. The historic frequency of this species in the woodland is recognised in the name, The Birks of Aberfeldy, coined by Robbie Burns in the title of his famous poem which was inspired by the series of waterfalls that cascade through the ravine woodland. Beech is now scattered throughout the site and locally abundant in several places. There have been 8 previous visits by recording lichenologists to the reserve including a recent round of Site Condition Monitoring (Douglass 2013). Hitherto, the Birks of Aberfeldy SSSI supported 171 species of lichen including several Nationally Scarce species and a large number of lichens which are indicative of ecological continuity in old woodlands. This was the first time a full survey of the Birks of Aberfeldy had been commissioned by SNH.

During John's previous visit, Peder Aspen had discovered an unusual-looking *Nephroma* sp. growing with *N. laevigatum*, amid a bryophyte mat, on the bole of a magnificent veteran willow (*Salix* sp.). There had been some uncertainty about whether it was *N. helveticum* or *N. resupinatum* (both of which are believed extinct in the British Isles). The lichen was still present in October 2017 and John and I could examine it carefully *in situ*. First impression was of a sickly-looking *N. laevigatum* but closer inspection revealed a densely tomentose and pale lower surface with scattered white papillae.

Nephroma resupinatum Photo Oliver Moore

We decided that this lichen was *N. resupinatum* because *N. helveticum* is supposed to be much less tomentose and dark brown to black below with no white papillae (Smith et al. 2009).

A very small specimen was collected for DNA evidence to confirm the field identification. It was thrilling to be crouched there, in my local woods, looking at a species thought to have been extinct from the British Isles (Church et al. 1996; Woods and Coppins 2012). Its conservation status should now be upgraded to Critically Endangered, which is very pertinent because *N. resupinatum* hangs on as a palm-sized patch amid a mat of bryophyte on this single old willow. One patch of moss where it formerly grew has already been blown off and lost since 2012. We were not able to find any more stands of *N. resupinatum* during our survey of the woods. The willow grows relatively close to the main footpath and could easily be dislodged by someone hauling themselves up the slippery slope to the base of the tree.

Nephroma resupinatum – underside Photo John Douglass

Tall veteran willows like the one on which *N. resupinatum* occurs proved to be an important phorophyte for several other lichens of conservation interest. *Nephroma laevigatum* and *Megalaria pulverea*, for example, were often associated with these willows. To my mind, *M. pulverea* looked as if there had been a cross between a *Lepraria* sp. and a mint ice cream because of the relatively large and soft-looking, greenish-white coalescent soralia over a thin, effuse thallus. One stand was fertile with contrasting black apothecia that were sessile and becoming slightly convex in form. *Megalaria grossa* was found low down in the fork of an old ash. This species looked more like a robust *Lecidella elaeochroma* with relatively large black apothecia and lacked the coalescent soralia of its congener. It was also good to see a small stand of *Loxospora elatina* – another crustose species with greenish soredia which were organised into mounded soralia on a yellowish-grey thallus. The foregoing species are listed on the East of Scotland Index of Ecological Continuity (ESIEC) for woodland epiphytic lichen habitats; the presence of each species generally adds one point to the tally and total scores of ≥10 are an indication of woodland with high conservation importance in eastern Scotland (Coppins and Coppins 2002).

Megalaria grossa on an old ash Photo Oliver Moore

There were several members of the Lobarion lichen assemblage within the Birks of Aberfeldy SSSI and most of these are also included within the ESIEC. The mossy stems of mature hazel trees, in the more humid locations, were particularly good habitat for species such as *Nephroma parile*, *Normandina pulchella*, *Peltigera collina*, *Sticta limbata* and *S. sylvatica*. These species occurred on other phorophytes in humid parts of the woodland but never in the same quantity. Several small thalli of *Degelia plumbea* were recorded from a single mature ash.

Lobaria pulmonaria was also rare in the woodland with one decent population on a single rowan and a scrap of thallus on a hazel stem within the same area of steep ravine woodland, on the western slopes of the gorge. *Lobaria scrobiculata* was recorded from two

mature trees – an oak and an ash – both with mossy boles. We collected a lichen from the same ash that supported *L. scrobiculata* in the hope that it would turn out to be *Catinaria atropurpurea* but John later identified this as *Bacidia absistens* owing to its multi-septate ascospores – among various other characteristics. There was a decent stand of *Parmeliella triptophylla* on a mature ash in an overgrown part of the woodland. Proximity to the footpath and the relatively steep slope would have discouraged deer at this location – allowing natural regeneration to get underway. The extra humidity conferred by the developing understorey may have made all the difference for the establishment of species such as *P. triptophylla*. A few beech saplings were pulled from this area to slow down the succession and the other young trees were mainly ash – which was encouraging in this age of ash dieback disease. These saplings were left to take their chances. *Parmeliella parvula* was a new record for the Birks of Aberfeldy SSSI – found growing on a mossy ash in this well vegetated part of the woodland. *Fuscopannaria mediterranea* has also been recorded around this area in recent years but was not re-found.

Thelotrema lepadinum was frequent on mature trees of various deciduous species. Brian Coppins had urged us to keep an eye out for *T. macrosporum*. This much rarer lichen also resembles a colony of barnacles that have been predated by dog whelks (*Nucella lapillus*). *Thelotrema macrosporum* has a hyperoceanic distribution but might just occur in an undisturbed part of the Birks of Aberfeldy SSSI on hazel twigs, in the proximity of a waterfall, for example. We haven't found it yet but this is something to keep in mind for those that follow. You should look for a barnacle lichen that has a greenish-grey thallus and apothecia with a smaller aperture. Microscopic examination of its dark brown ascospores (when mature) with numerous longitudinal septa is necessary to properly distinguish *T. macrosporum* from *T. lepadinum* (Smith et al. 2009).

John had previously spotted a small grey rosette growing on an ash, very close to the Moness Burn, from his vantage point on the footpath. We suspected that it was *Pannaria conoplea* (based on a crude zoomed-in photograph) but it was just too high up to safely confirm. Neither of us had binoculars on our October visit. John's dedication was manifest when he returned in late November with a long ladder. It was only when we were walking Patch (John's dog) through the snowy and icy woodland track that fine Sunday morning, carrying the ladder between us, that the absurdity of the scene cracked me up. Other people out for a walk greeted us with the usual hellos and tended to avoid any mention of the ladder that John and I carried. On one section of path, where it narrows above a steep drop to the river, a concerned mother told her children to mind out for the chaps carrying the ladder – as if it was perfectly ordinary for two grown men to be taking their dog for a walk, in the snow, whilst either end of a long ladder. Before we set out with the ladder from the car park I had checked that John was qualified to operate this equipment. John had indeed been on a one-day ladder course during his time working as a Countryside Ranger for South Lanarkshire Council, so all was fine. We decided it was safer to erect the ladder from the base of the tree at the water's edge rather than from the bank above and John was able to confirm what we had suspected.

"Rather you than me!" Photo John Douglass

Pannaria conoplea had not been recorded from the Birks of Aberfeldy SSSI since the 1980s but then not many lichenologists tend to spend a day in the woods with a 30 foot ladder. This escapade is not without precedent since I had once strapped a step-ladder to my rucksack, before walking 2 hours into the Letterewe mountains, in order to get onto an otherwise unsurmountable boulder which had been randomly selected for one of my research projects.

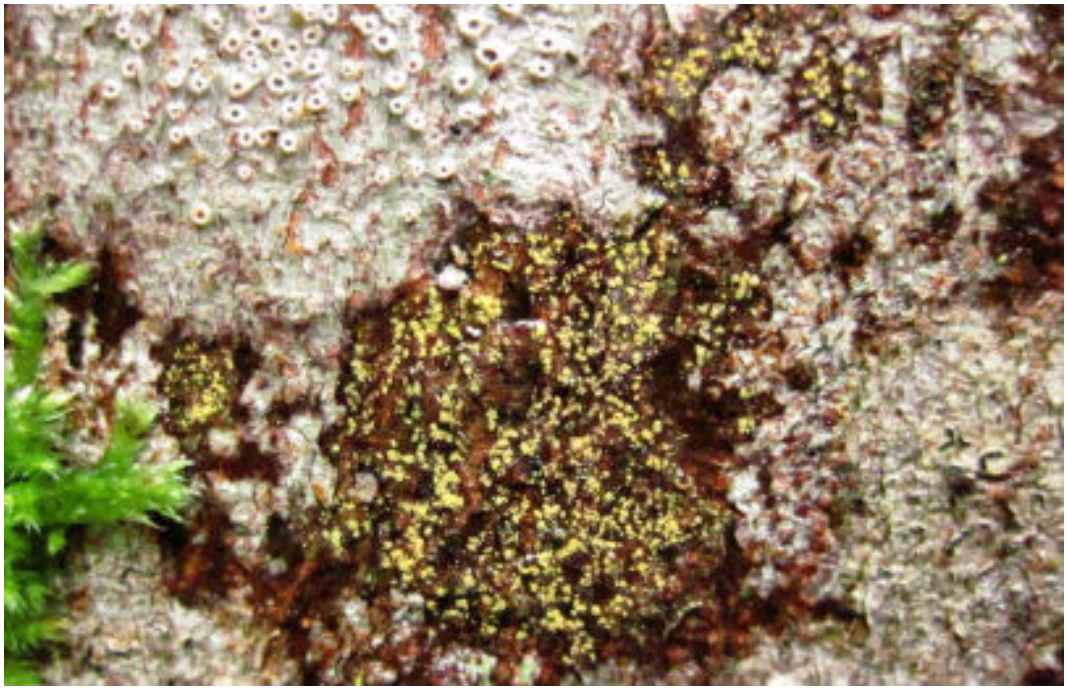
The Birks of Aberfeldy SSSI supported the growth of several other ESIEC species. *Lopadium disciforme* was notable for its frequency and catholic choice of phorophyte within the woodland. Dingy green squamules with a whitish margin, scattered amid epiphytic liverwort and/or moss, causes a discolouration that gives first indication of this lichen. Sometimes black apothecia were also seen. Virtually every mature oak with a decent cover of moss on the bole seemed to support *L. disciforme* and it was recorded from moss on other tree species, including an old silver birch. Another crustose species associated with epiphytic bryophytes, on various deciduous tree boles, was *Mycobilimbia epixanthoides*. The yellowish smears of this lichen were comprised of effuse and coalescent yellow soralia that emanated from a granular-verrucose thallus, according to the description in Smith et al. (2009). It is distinguished from *Biatora chrysantha* (also present on similar substrates in the Birks of Aberfeldy SSSI) by the C– reaction but otherwise closely resembles this species.

Mycobilimbia epixanthoides Photo Oliver Moore

Mycobilimbia epixanthoides was frequent in the woodland on mossy trees and occurred on different phorophytes including ash, beech, oak and willow. *Varicellaria* (*Pertusaria) hemisphaerica* was occasional on some of the older mossy-oaks in more open woodland. Their *Phlyctis*–like thalli grew as whitish patches with concolorous blueish-white soralia that were distinctly convex in form (in contrast to the yellowish-green soralia of *Ochrolechia androgyna*). John told me that *V. hemisphaerica* can form more extensive patches on parkland trees where there is less shade. *Arthonia vinosa* was present on almost every mature oak and was even recorded from a veteran silver birch and an old ash. Its vinous-orange immersed thallus contrasted well with associated species such as the blueish-grey granules of *Lepraria incana*, paint-yellow powder of *Chrysothrix candelaris* and the mauve-tinged whitish covering of *Lecanactis abietina*. Several pin-head lichens grew in the sheltered crevices of old oaks and birches often in association with *A. vinosa*. The characteristic orangey patches in an otherwise blueish-grey thallus of *Chaenotheca ferruginea* were frequent. *Chaenotheca trichialis* was occasional; its bright green granular thallus might be mistaken for *Calicium viride* to the untrained eye but identification was aided in the field by the brownish mazaedia rather than being pure black. *Chaenotheca furfuracea* was rarer but present in its usual habitat in crevices among the roots of old birch trees where it also grew on dry soil. Its bright yellow-green leprose thallus captured attention and the mazaedia were also covered in a yellowish pruina. *Chaenotheca chrysocephala* was present in small quantity and had an even more intense

yellow-green granular thallus than the previous species – similar to the colour of Wolf Lichen. The golden pruina on the mazaedia was a useful character in the field. *Chaenothecopsis savonica* was found on an oak on the NE slopes and *Calicium viride* was occasional in the birch woodland on the western side of the gorge. Six species of pin-head lichen in any particular woodland are collectively needed to score a point on the ESIEC.

John showed me a very small stand of *Bacidia subincompta* that had been found previously, low down on the mossy trunk of an ash, in woodland close to the river. It was pleasing that he managed to find more of this lichen in another part of the woodland during the present survey. The specimen that I saw had a disparate granular thallus with black apothecia. These apparently have a green epithecium and red-brown upper hymenium which are characters that help distinguish this species from *B. incompta* (Smith et al. 2009). Nearby was a beautiful specimen of *Opegrapha sorediifera* with its characteristically attractive orange soralia scattered over an immersed thallus growing on ash bark.



Thelotrema lepadinum - top left and *Opegrapha sorediifera*- centre Photo Oliver Moore

On an old tree stump we encountered a mass of deeply divided *Cladonia* squamules that really looked like that they might belong to *C. parasitica*. However, the UV and chemical tests were unable to confirm our suspicions in the field and without podetia on this particular stand we could not give further pronouncement. John did record a small scrap of *Collema furfuraceum* on the smooth bark of an ash which constitutes a Bonus Species (BS) on the list of ESIEC species recorded from the Birks of Aberfeldy SSSI.

Other exciting finds included the Nationally Scarce saxicolous lichen *Bryobilimbia ahlesii* (see Woods and Coppins 2012) which occurred on a rock in the car park area near the river. It was heavily shaded by mature beech trees.

Bryobilimbia ahlesii Photo John Douglass

My first impression was that *Lecidella elaeochroma* was growing on rock since it had a thin continuous thallus that was greenish in colour and several black sessile apothecia with an obvious true exciple. Thüs and Schultz (2009) note that the humid conditions in shaded situations close to rivers are usually enough to benefit this species without the need for inundation. This species may be one to watch if there is a sudden removal of beech trees from the lower part of the reserve before other trees have had a chance to confer enough shade. Elsewhere, John and I had managed to navigate ourselves to the bottom of a steep section of the ravine with precipitous cliffs on either side. I went upstream to search (in vain) for *Pseudocyphellaria crocata* which had last been recorded from vertical rock in this area by the Reverend Hugh Macmillan in the mid 19th century. Meanwhile, John's interest was piqued by brownish crusts with black perithecia growing directly on the periodically inundated siliceous rocks, above a series of cascades. His efforts were rewarded when one of these samples proved to be *Thelenella larbalestieri* with some impressive muriform ascospores. This lichen is believed to be an endemic to the British Isles and listed as Nationally Rare and Vulnerable (Woods and Coppins 2012) although John thinks that it may be under recorded because lichenologists do not usually visit such heavily shaded ravine water courses. This species had been found by John a couple of years previously during some

surveys in relation to hydroelectric schemes in Argyllshire, on the Allt Glinne Mhoir and Lettermay. At both sites, the habitat was the underside of boulders and rock outcrops close to the water.

Protopannaria pezizoides was frequent in the woodlands and there was a particularly impressive stand of this species, in which it dominated, growing over bryophytes on a fallen willow. I still maintain that *P. pezizoides* looks like something has eaten a lichen and then vomited it over bryophytes on rocks and trees in humid locations. *Peltigera horizontalis* was occasional in the woodland although *P. praetextata* was the most common member of this genus. The frequent presence of *Leptogium lichenoides* added to the oceanic feel of the Birks of Aberfeldy SSSI and John also recorded one or two incidences of *Pyrenula occidentalis* – more usually associated with the Graphidion assemblage in old woodland. *Mycobilimbia pilularis* was another new species for me that John pointed out. I saw it wet, over-growing bryophytes, on a mature ash tree. The orangey-pink globular apothecia seemed gelatinous and contrasted with its matt green, granular thallus. We came across 3 or 4 mature aspen (*Populus tremula*) trees in the woods and one particularly large specimen supported the second only known site for *Megalaria grossa* within the SSSI. A veteran elder (*Sambucus nigra*) added several members of the Xanthorion community that were typical of twigs.

Mycobilimbia pilularis overgrowing moss on mature ash tree Photo Oliver Moore

Abundant beech regeneration and shading by mature trees was clearly a problem in several parts of the woodland and some effort has already gone into removing this species from the reserve. Note was made of extant mature beech trees that should be prioritised for careful removal in order to increase light levels during this survey. Areas

that would benefit from extensive hand-pulling of beech saplings were also recorded but this will always be a problem while there is a source of seed. Removing all of the beech in a single effort would dramatically change the present character of the Birks of Aberfeldy SSSI and may even threaten stands of shade-loving species such as *Bryobilimbia ahlesii* on rocks within the ravine. John suggested that ring-barking the mature beech might be a good strategy – allowing the trees to die *in situ* and still retaining some level of shade and humidity. This would prevent further regeneration from beech mast and allow other saplings to grow towards the canopy without creating too much aesthetic impact. There could be health and safety issues with this strategy since standing dead trees may be more susceptible to falling in strong winds. However, even living beech is known as the 'widow-maker' because of its reputation for whole limbs falling for no apparent reason. We pulled up beech saplings that were likely to threaten pockets of lichen interest in the woodland as we conducted our survey.

John's kit bag was beginning to resemble something that Inspector Gadget would carry. Not only had he produced the ladder and a lethally sharp blade for removing specimens from the most recalcitrant of bark but proudly proffered me his folding handsaw for tackling older beech saplings. I had also been impressed by the way he effortlessly moved up steep and slippery slopes that left me scrabbling for purchase until he showed me the underside of his studded booties. Fortunately, we did not have to stick our heads into a glass-bottomed bucket on this excursion (John generally reserves this for monitoring *Collema dichotomum* in likely rivers). John told me about other bits of kit that were available to the determined fieldworker, such as midge nets for the lower part of each leg. This would facilitate being able to wear shorts in the West Highland summer – I don't think that they sold very well because surely trousers had got there first.

The present survey has increased our understanding of the lichen assemblage within the Birks of Aberfeldy SSSI. The ESIEC score of 24 (22 ESIEC + 2 BS) demonstrates how important this woodland is and the need to tackle the beech incursion. Even if the ESIEC had given a total score of <10 the woodland would still have been recognised as having high conservation importance because of the presence of a *Nephroma* species long considered extinct from the British Isles. John's find of *Thelenella larbalestieri* also highlights the importance of conducting a thorough exploration of the aquatic and amphibious lichen assemblage – when water levels permit. The present survey has added 37 new lichen species recorded for the reserve including the following species of conservation concern: *Bacidia carneoglauca* (NS) *Chaenothecopsis savonica* (NT, NR, Sc), *Collema furfuraceum* (ESIEC, Bonus species), *Lecanora argentata* (NS), *Lepraria ecorticata* (NS), *Parmeliella parvula* (Sc, L, IR), *Schismatomma umbrinum* (NS, Sc, IR), *Sphaerophorus globosus*, *Sticta fuliginosa* (Sc, L, IR) and *Thelenella larbalestieri* (VU D2 NR E Sc IR) with designations in line with Woods and Coppins (2012). Eight lichenicolous fungi were also recorded as new for the reserve including *Endococcus brachysporus* (NR) on *Porpidia rugosa*, *Illosporiopsis christiansenii* (NS) on *Physcia tenella*, *Lichenoconium erodens* on *Evernia prunastri*, *Opegrapha thelotrematis* (NS Sc IR) on *Thelotrema lepadinum*; *Sagediopsis lomnitzensis* (NS) on *Ionaspis lacustris*; *Stigmidium microspilum* on *Graphis scripta*, *Tremella coppinsii* (NS) on *Platismatia glauca* and *Unguiculariopsis lettaui* (NS) on *Evernia prunastri*. More details

can be found in Douglass (2018) from which the following full lichen species list (Appendix 1) has been compiled. The Birks of Aberfeldy SSSI is a fantastic place to visit but beware of some seriously precipitous cliffs and watch out for two chaps walking the circular route with their ladder.

Acknowledgements

OM is grateful to Laura Taylor (Taylor Wildlife) for allowing him to assist with this survey and to write up this account as part of his continuing professional development. JD wishes to thank Brian Coppins for helping with the survey on an extremely gloomy day in October.

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Appendix 1. Taxa recorded for Birks of Aberfeldy for all recording periods (lifted from Douglass 2018)

* = New site records.

Taxa	**Status & rarity**	**E**	**86**	**01**	**12**	**1974 & 1986**	**2001**	**2012 & 2013**	**2017**
Acrocordia gemmata			+	+		Ap,U	Ap		Fx
Amandinea punctata			+			U			
Anisomeridium biforme			+	+		U	Fx		Fx
Anisomeridium polypori			+	+		U	Fx		
Arthonia didyma			+	+		Co,Fx, Q,U	Co		Co, Fx, CTi
Arthonia elegans		E		+			Fx		
Arthonia muscigena	NS			+			E-by		

Taxa	Status & rarity	E	86	01	12	1974 & 1986	2001	2012 & 2013	2017
Arthonia punctiformis			+			Cort			Fg, Co, Bt
Arthonia radiata			+	+		Co	Co		Co, Sb, Fx
Arthonia spadicea			+			U			Bt
Arthonia vinosa		E	+	+	+	Q	Q	Q	Q, Bt
Arthopyrenia analepta			+			Cort			Bt
Arthopyrenia carneobrunneola	NS IR			+			Fx		Co
*Arthopyrenia punctiformis**									Co
Arthopyrenia salicis			+	+		Co	Co		
*Aspicilia caesiocinerea**									Sax
Aspicilia laevata	NS			+			Sax		
Bacidia absistens			+	+		U	Fx,Q		Sx
Bacidia arceutina			+			Fx			
Bacidia beckhausii	NS	E	+	+		Q	Fx		
*Bacidia carneoglauca**	NS								Sax
Bacidia circumspecta	NS VU P	L B	+			U			
Bacidia delicata				+			Co		
Bacidia rubella			+			U		CFx	
Bacidia subincompta	NS VU P	E	+		+	Q		Fx	Fx,Q
Bacidia sulphurella	NS			+			Co		
Bacidia viridifarinosa			+	+		U	Sax		
Bacidia inornata			+			Sax			
Baeomyces rufus			+			Sax/T			Sax
Biatora chrysantha	NS	E		+	+		Fx	Sx	CCo, CQ
Biatoropsis usnearum (Lic)							On Usnea subflo		On U. subflo on Fg
Bilimbia sabuletorum			+			Sax-con			
Bryobilimbia ahlesii	NS			+			Sax		Sax
Bryoria fuscescens			+	+		Cort	Bt, Sx		Bt, Q
Bryoria subcana		L			+			Lx	Bt
Buellia disciformis			+			Fg			
*Buellia griseovirens**									CBt
*Buellia schaereri**									Lx
*Candelariella reflexa**									Fx
Calicium glaucellum		e	+			Q			
Calicium viride		e	+	+		Q, L-st	Q		Bt
Caloplaca cerinella									Sm
Caloplaca cerinelloides									Sm
Catinaria atropurpurea		E	+		+	U		Q	
Cetraria muricata			+			L-st			
Cetraria sepincola			+	+		Bt-tw	Bt-tw		Bt-tw
Chaenotheca brunneola		e		+			Q		
Chaenotheca chrysocephala		e		+			Q		Bt
Chaenotheca ferruginea		e	+	+		L-st	L-st		Bt
Chaenotheca furfuracea		e	+			Sax/T			Bt, Q, Lx
Chaenotheca trichialis		e	+	+	+	L-st	Q,L-st	Q	Q, Bt

Taxa	Status & rarity	E	86	01	12	1974 & 1986	2001	2012 & 2013	2017
*Chaenothecopsis savonica**	NT,NR,Sc	e							Q
Chrysothrix candelaris			+	+		Cort	Q		Q, Bt
*Cladonia bellidiflora**									Bt, Sax
Cladonia chlorophaea agg.			+			L			
Cladonia ciliata var. *ciliata*			+			Sax			Terr+Lig
Cladonia coccifera agg.			+			Sax			
Cladonia coniocraea			+	+		Cort	Sx		Bt, Q
Cladonia digitata			+			L			Lig
Cladonia macilenta			+			L			Bt
Cladonia polydactyla var. *polydactyla*			+			L			Q
Cladonia portentosa			+			L			
Cladonia pyxidata				+			Fx, Q		Sax+BrySx
Cladonia squamosa var. *squamosa*			+			L	Q		Bt
Cliostomum griffithii			+	+		Cort	Q		
Collema flaccidum				+			Sax		
*Collema furfuraceum**		E							Fx
Cyrtidula quercus			+			Q-tw			
Cystocoleus ebeneus			+	+		Sax	Sax		Sax
Degelia plumbea s. str.	IR	E	+	+	+	Q	Fx	Fx	Fx
Dimerella pineti			+			U			
Endococcus bryochysporus	NE NR								Lic
Evernia prunastri			+	+		Cort	Q		Q, Bt Fx, Fg, Lx
Fellhaneropsis vezdae			+	+		U	Fx		
Fuscopannaria mediterranea	NS	E	+		+	Q		Q	
*Graphis elegans**									CSb
Graphis scripta			+	+		C	Co		Co, Fx Bt Sx
Gyalecta jenensis			+			Sax-con			
Haematomma ochroleucum var. *porphyrium*				+			Sax		Sax
Hypocenomyce friesii	NS	L	+			L-st			
*Hypocenomyce scalaris**									Lx
Hypogymnia physodes			+	+		Cort	Bt		Bt, Lx, Al, Fx
Hypogymnia tubulosa			+			Cort	Sb		Fg
*Hymenelia lacustris**									Sax
Lecanactis abietina			+	+		Cort	Q		Bt, Q, Fg
Lecania cyrtellina			+			U			
Lecanora carpinea			+			Cort			Fx
Lecanora chlarotera			+	+		Cort	Co,Ppt		Q, Fx
Lecanora expallens			+	+		Cort	Q		Fg
Lecanora intricata			+			Sax			

Taxa	Status & rarity	E	86	01	12	1974 & 1986	2001	2012 & 2013	2017
*Lecanora intumescens**									Fx
Lecanora muralis			+			Sax			
Lecanora pulicaris			+	+		Bt	Bt		Bt
Lecidella elaeochroma			+			Cort			Fx,Co,Fg
Lepraria finkii (syn. *lobificans*)				+			Co,Fx ,Sx		Fg,Fx,Ap, U,Bt,Q,Sb, Lx, Sax+Bry
Lepraria incana s. str.			+	+		Cort,Sa x	Q		Q,Fx,Sax, Lx, Fg
Lepraria jackii				+			Q		
Lepraria rigidula				+			S		Bt
Leptogium lichenoides			+	+	+	Fx,Sax-con	Q,Sax	Fx	Sax+Bry Fx,Sx, Sb,Co
Leptorhaphis epidermidis			+			Bt			
Lichenomphalia ericetorum			+			L			Lig
Lichenomphalia hudsoniana			+			L-st			
Lobaria pulmonaria	IR	E		+	+		Sb	Sb	Co,Fx
Lobaria scrobiculata	IR	E	+			Q			Q,Sx
Lopadium disciforme		E	+	+	+	Q	Q,Sx	Q,Sx	Bt,Sx, Q
Loxospora elatina		E	+			Fg,Q		Ap	Bt
Megalaria grossa		E	+			Cort			Fx
Megalaria pulverea		E		+	+		Sx	Sx	Sx
Melanelixia fuliginosa			+			Sax			
Melanelixia glabratula			+	+		Cort	Co		
Melanelixia subaurifera			+	+		Cort	Sb		
*Melanohalea exasperata**									CFg
*Melanohalea laciniatula**									CFg
Micarea adnata	NS	L		+			L-st		
Micarea bauschiana			+			Sax			
Micarea lutulata			+			Sax			
Micarea melaena			+	+		L	L-st		
Micarea prasina s. lat.			+	+		Co	Q		
Mycobilimbia epixanthoides		E		+	+		Fx	Fx	Fg,Fx
Mycobilimbia pilularis		E	+	+	+	U	Fx,Sa x	Fx	
Nephroma laevigatum	IR	e	+		+	Cort		Fx,Sb ,Sx	Fx,Sx
Nephroma parile		E	+	+	+	Cort	Sx	Sx	Sx
*Nephroma resupinatum**	Ex							Sx	Sx
Normandina acroglypta				+			Ppt		
Normandina pulchella		E		+	+		Fx	Fx	
Ochrolechia androgyna			+	+		Q	Q,Sx		Q
Ochrolechia microstictoides			+	+		Q	Bt		
Ochrolechia parella				+			Sax		Sax
Opegrapha gyrocarpa			+	+		Sax	Sax		Sax
Opegrapha herbarum				+	+		Fx	Fx	

Taxa	Status & rarity	E	86	01	12	1974 & 1986	2001	2012 & 2013	2017
Opegrapha ochrocheila			+			Co			
Opegrapha rufescens			+			U			Fx
Opegrapha sorediifera			+			U			Fx,Sx
*Opegrapha thelotrematis** (Lic)	NS, IR								On *T.lepadinum* on Fg
Opegrapha varia			+			Ap,U			Sm, Fg
Opegrapha vermicellifera			+	+		U	Ap		
Opegrapha vulgata			+			E			Co,Fx,Q
Pannaria conoplea	IR	E	+			Q			Fx?
Parmelia saxatilis			+	+		Fg, Cort	Fx		Sax, Bt, Fg, Fx
Parmelia sulcata			+	+		Cort	Sx		Bt,Lx,FxFg
*Parmeliella parvula**									Sx
Parmeliella triptophylla	IR	E	+	+	+	Q	Fx	Fx	Fx
Parmeliopsis ambigua			+			Cort			
Parmeliopsis hyperopta				+			L-st		
Peltigera collina	IR	E	+	+	+	Co,U	Co,Fx	Fx,Sb Sx	Sx,Fx,Co,Sb
Peltigera degenii	NS	L	+			Sx			
Peltigera didactyla			+			T-car park			
Peltigera horizontalis		L	+	+		Cort	Sx	?	L,Sax+Bry, Sx
*Peltigera hymenina**									Fg,Fx,Sx
Peltigera membranacea			+		+	Sx		Sx	Cort+Sax+ Bry
Peltigera praetextata			+	+	+	Fx,Sx	Co,Fx ,Q,Sax	Fx,Sx	U,Fx,Sx
Pertusaria albescens var. *albescens*			+	+		Q	Fx,Q		Q,Ti,Sx
Pertusaria albescens var. *corallina*				+			Fx		
Pertusaria amara			+	+		Cort	Co		Fx,Bt,Q,Ap
Pertusaria coccodes				+			Q		
Pertusaria hymenea			+	+		Fx	Q		Fg,Fx,Q
Pertusaria leioplaca			+	+		Co	Co		Ti,Co,Fx,Pr, Q,Al
Pertusaria pertusa			+	+		Cort	Fx		Fg,Fx,Sx,Q ,Co
Pertusaria pupillaris			+	+		Fg	Bt		
Phaeophyscia endophoenicea	NS			+			Co		
Phlyctis argena			+	+		Cort	Co,Fx		
*Physcia adscendens**									Sm
Physcia aipolia			+			Co			
*Physcia tenella**									Sm
Placynthiella icmalea				+			Q,L-fp		
Platismatia glauca			+	+		Cort	Q,Sx		

Taxa	Status & rarity	E	86	01	12	1974 & 1986	2001	2012 & 2013	2017
Porina aenea			+	+		Co	Co		
Porina chlorotica			+	+		Sax	Sax		Sax
Porina lectissima				+			Sax		Sax
*Porpidia rugosa**									Sax
Porpidia tuberculosa			+	+		Sax	Sax		
Pronectria pertusariae (Lic)						on *P.pertusa* on Fx			
Protopannaria pezizoides		L	+		+	L		Sx	Sx
Pseudevernia furfuracea var. *ceratea*				+			Sx		
Psilolechia lucida			+	+		Sax	Sax		
Ptychographa xylographoides	NS NT IR	L		+			L-conifer-st		
Pyrenula occidentalis	IR	L	+	+	+	Co,Fx	Co,Fx, Sb	Fx	Fx
Racodium rupestre			+			Sax			Sax
Ramalina farinacea			+	+		Cort	Q		Fx,Sm
Rhizocarpon geographicum			+	+		Sax	Sax		Sax
Rhizocarpon lavatum				+			Sax		Sax
*Sagediopsis lomnitzensis** (Lic)	LC NR								On *I. lacustris*
Scoliciosporum chlorococcum			+			Lx-tw			
*Schismatomma umbrinum**	LC NS Sc IR								Sax
*Sphaerophorus globosus**									Bt
*Stenocybe pullatula**		e							CAl
*Sticta fuliginosa**		e							Sb
Sticta limbata		E						Fx	Q, Co,Fx,Sx
Sticta sylvatica	IR	e	+	+	+	Q	Co	Sb,Sx	Sx,Sb,Co,Q
*Stigmidium microspilum**									On *G.scripta* on rowan
*Thelenella larbalestieri**	VU D2 NR E Sc IR								Sax
Thelotrema lepadinum		E	+	+	+	Co,Q	Sx	Fx,Q, Sx	Fx,Q, Sx
Trapelia corticola				+			Q		Q
*Trapelia placodioides**									Sax
Trapeliopsis flexuosa			+	+		L-st	L-fp		
Trapeliopsis pseudogranulosa			+	+		L-st	Bt		
*Tremella coppinsii** (Lic)	NS						on *Violella fucata*		On *P. glauca* on birch

Taxa	Status & rarity	E	86	01	12	1974 & 1986	2001	2012 & 2013	2017
Tuckermannopsis chlorophylla			+	+		Cort	L-fp		
*Unguiculariopsis lettaui** (Lic)	NS								On *E.prunastri* on Fg
Usnea filipendula				+			Bt		
Usnea hirta			+	+		Bt	Bt		
Usnea subfloridana			+	+		Cort	Bt,Q, Sx		
Usnea wasmuthii				+	+		Sx	Q	
Varicellaria (syn. *Pertusaria*) *hemisphaerica*		E	+	+		Q	Q		Q
Verrucaria hydrela			+			Sax			
*Verrucaria hydrophila**									
*Verrucaria margacea**									Sax
*Verrucaria dolosa**									Sax
*Verrucaria elaeina**									Sax
*Verrucaria rosula**	LC ?NR								Sax
Violella fucata				+			Bt		
*Vouauxiella lichenicola** (Lic)									On *L. chlarotera*
Xanthoria candelaria s. lat.			+			Q			

Nomenclature

Lichen nomenclature and conservation evaluations follows Woods and Coppins (2012).

The lichen interest at the Birks of Aberfeldy is assessed using the East of Scotland Index of Ecological Continuity (ESIEC) (Coppins & Coppins 2002). This is a list of Indicator species selected to assess the overall conservation interest of woodland sites in Eastern Scotland. ESIEC species are mostly old woodland species of the *Lobarion* community (James et al. 1977).

Key to abbreviations

ESIEC = East of Scotland Index of Ecological Continuity (old woodland indicator species) (Coppins & Coppins 2002).

IR = International Responsibility

L = Old woodland indicators of the *Lobarion* community**.**

NS = Nationally Scarce

NR = Nationally Rare

NT = Near Threatened Red Data List category

P = UK BAP Priority species

VU = Vulnerable IUCN Red Data List category

Substrates

Ap = Acer pseudoplatanus
Bry = bryicolous
Bt = Betula;
Cort = corticolous
Co = Corylus
Fg = Fagus
Fx = Fraxinus
Lig = on lignum
Ppt = Populus tremula
Q = Quercus
Sax = saxicolous.
Sx = Salix
Sb = Sorbus
T = terricolous.
TW = on twigs.
U = Ulmus.

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Gates and car parks, why are they often so rich?

In April 2018 a joint survey involving members of the BLS, Plantlife and Natural England confirmed the importance of the lichen communities associated with veteran trees at Moccas Park, Herefordshire. The number of notable species known to be present was considerably increased and this will be the subject of a future Bulletin article.

The wooden entrance gate (Fig. 1) is flanked by park pales. The pales are rather disappointing with thinly developed lichen crusts dominated by *Lecanora conizaeoides*, *L. expallens* and *L. pulicaris*. Even the top of the horizontal fence rail is poorly colonized. The gate rails support a much more exuberant and diverse lichen community which includes *Hypogymnia physodes*, *H. tubulosa*, *Imshaugia aleurites*, *Ochrolechia arborea*, *Protoparmelia oleagina*, *Pseudevernia furfuracea* and *Violella fucata*. I suspect that there is a reason why gates are often, as here, found to have richer lichen communities than on adjacent fencing. The park pales are set in the ground and so there is easy access to molluscs. The gate has no such direct access. Apart from some grass which reaches the gate stiles, the route taken by any mollusc would involve climbing the gate posts and traversing iron gate fittings.

Fig. 1. The entrance gate of Moccas Park, Herefordshire

I have often noticed how rich the lichen communities are on trees in car parks, including those of motorway service stations. I suspect one of the main reasons for this phenomenon is the scarcity of molluscs (due to large areas of hard-standing and mortality beneath tyres). Lichens are attractive to molluscs as a food source, especially the algal layer contained within them. Perhaps the lack of browsing explains the extensive sheets of *Parmelina tiliacea* on poplar trees at Corley Services (M6, Warwickshire) and the exuberant growths of foliose lichens at Rownhams Services (M27, Hampshire). The trees at Rownhams Services support three species of *Punctelia*, including well-developed thalli of *P. borreri*. Until recently this species, which appears to be spreading and becoming more common across lowland England, had caused me considerable uncertainty. I had feared that micro-crystallization or TLC methods were required for reliable separation of *P. borreri* from *P. subrudecta*. However, a careful study of both species leads me to consider that they can be separated without recourse to chemical analysis. An illustrated document outlining the important differences can be found here:

http://fungi.myspecies.info/sites/fungi.myspecies.info/files/Punctelia%20borreri.pdf

The only confirmed occurrence of *P. borreri* in Bedfordshire was found in February 2018 in the external car park of Whipsnade Zoo where it grows with *Melanohalea laciniatula*, also at its only known location in VC 30. Three species of

Punctelia grow on the closest tree shown in Fig. 2. (*P. borreri*, *P. jeckeri* and *P. subrudecta*). A fence in the car park at the nearby Whipsnade Tree Cathedral supports *P. reddenda*. Whipsnade must be one of the few English parishes to contain all four British members of this genus.

Fig. 2. The external car park at Whipsnade Tree Cathedral, Bedfordshire

The closest tree supports *Melanohalea laciniatula* and *Punctelia borreri*, both at their only known station in the county.

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Lichen Revival in Western Canada

Britain has an enviable record of public engagement in lichenology, but western Canada is different. Here a small population scattered across a large land base has made it challenging for lichen enthusiasts to meet and network. That doesn't mean we aren't trying. In Alberta, Peter Whitehead recently formed the Western Canada Bryophyte and Lichen Interest Group (*http://www.wcblig.com/index.html*). Darcie Thauvette, Mireille Martel and I provide free lichenology workshops through the Alberta Native Plant Council. University courses and workshops covering lichens can be found at Royal Roads University (Juliet Pendray), and the University of Alberta (the author, Toby Spribille, and periodically Janet Marsh). The Tombstone Territorial Park in the Yukon hosts an annual Fungi and Lichens weekend. The events with the widest reach however are based in British Columbia, where a 'movement' called the Lichen Revival began a decade ago.

The hub of this movement is a sanctuary named Edgewood Blue (Fig, 1) and the lichenologists who call it home, Trevor Goward (Fig. 2) and Curtis Bjork – co-curators of lichens at the University of British Columbia. Edgewood is located in the Clearwater Valley, about 2 hours north of Kamloops and snug against Wells Gray Provincial Park, renowned for its forests, waterfalls and subalpine meadows. Wells Gray is also a global hotspot of lichen diversity, with 424 macro- and meso-lichens documented to date (*https://www.waysofenlichenment.net/wells/checklists/macrolichens*) – testament to the tremendous diversity of habitats, including ancient inland rainforests, volcanic canyons, and waterfall spray zones.

Fig. 1. Edgewood Blue, home of Trevor Goward and Curtis Bjork. Photo by Diane Haughland.

What I've enjoyed about this movement is its deliberate inclusiveness. Academic conferences are revitalizing and intellectually exciting. A good revival takes that academic core and combines it with enthusiastic people from all walks of life who love lichens enough to study lichens in their spare time and dedicate personal resources to being with other lichen-lovers.

Fig. 2. Trevor Goward, Wabasso Trail, Jasper National Park. Photo by Daryl Thompson. Revival III.

In October 2008, Trevor and Curtis welcomed a small group to the first lichen revival, run mostly out of Edgewood's sitting room. Warmed by the wood stove, and with a view to the wetland out front, we discussed lichen symbiosis and the conundrum of naming organisms (lichens) that are also ecosystems (fungi and algae). Curtis led us on walks to learn crustose lichens. The dew that makes the Clearwater Valley so rich in fruticose lichens greeted us each morning.

By the next revival in 2014, Trevor and Curtis had transformed Edgewood into an educational retreat, complete with outdoor classrooms and welcoming gardens. Inspired by the work of Philippe Clerc Trevor, Darcie Thauvette and I co-led a workshop on *Usnea* in which we introduced the latest taxonomic concepts to a diverse group of participants from as far afield as California, Washington and Alaska, not to mention British Columbia and Alberta. We balanced our time between exploring species concepts in the lab aided by thin layer chromatography, learning chemical tests, and looking at *Usnea* diversity 'blooms' in the field. Participants shared meals in the community kitchen and made smores over the campfire on our last night. If you're not familiar with smores, picture a graham cracker cortex and roasted-marshmallow and melted-chocolate medulla.

In 2017 we embraced our Alberta cohort by hosting the third lichen revival in Jasper National Park, at the Palisades Stewardship and Education Centre (Fig.3).

Fig. 3. Getting to know each other by playing "What lichen am I?". Photo by Diane Haughland.
Revival III

Against a stunning Canadian Rocky Mountain backdrop, Trevor and I focused on new developments in macro-lichen taxonomy, emphasizing tricky genera like *Bryoria*, *Hypogymnia*, and *Peltigera*. We discussed species newly discovered in British Columbia and Alberta (the latter in part through the work of the Alberta Biodiversity Monitoring Institute) and we re-acquainted ourselves with some stand-out stand-bys.

Fig. 4. *Evernia divaricata,* Jasper National Park.
Photo by Diane Haughland Revival III.

We were fortunate to have guest lectures from Toby Spribille and Gulnara Tagirdzhanova (newly of the University of Alberta), and Juan Carlos Villarreal (Laval University).
Highlights included visiting a *Evernia divaricata* hotspot (Fig.4), and observing cephalo- and cyanolichens 'step-down' onto erratic boulders in the dry pine forests of Wabasso Trail.

We conversed on *Peltigera* (Fig. 5) and *Cladonia* ecology and diversity along the shores of Maligne Lake, and learned to identify *Hypogymnia dichroma*, a recent segregate in the *Hypogymnia austerodes* group. (Fig. 6). Janet Marsh provided historical context by sharing her experiences with the biophysical surveys of Jasper.

Fig. 5. *Peltigera scabrosa,* Jasper National Park. Photo by Anne Robinson. Revival III.

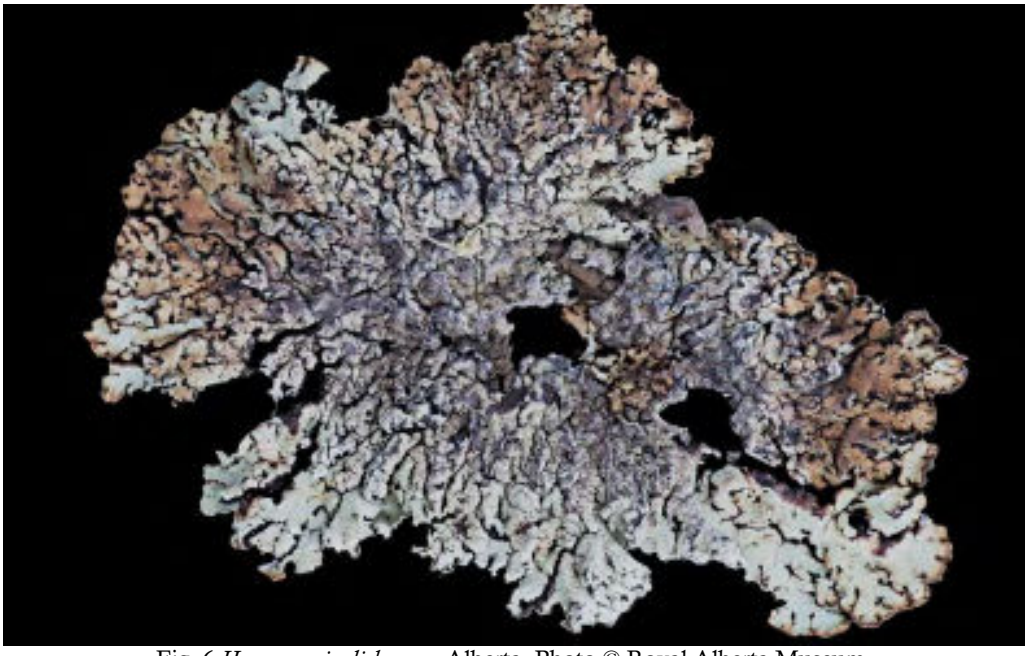

Fig. 6 *Hypogymnia dichroma*, Alberta. Photo © Royal Alberta Museum.

This September, the fourth and most recent revival returned us to the Clearwater Valley, this time to the Thompson Rivers University Field Station. Here Toby, Darwyn Coxson (University of Northern British Columbia), and Yngvar Gauslaa (Norwegian University of Life Sciences) led an enthusiastic, research-oriented group in wide-ranging discussions of lichen evolution, ecology and physiology (Fig. 7).

Fig. 7. Lichen Revival IV participants in part. Photo from Yngvar Gauslaa.

The depth of experience shared was humbling, as we learned about the lichen cortex from Toby, moisture and drip zones as drivers of lichen distributions from Yngvar, and nitrogen fixation by soil crusts from Darwyn (Fig. 8).

We also hiked in the alpine meadows of the Trophy Mountains, where we were thrilled to find *Tholurna dissimilis* (Fig. 9) and the enigmatic *Peltigera* (*Hydrothyria*) *gowardii* (Figs. 10, 11) On another outing, we saw Chinook attempt to jump Bailey's Chute, a waterfall that effectively forms the final barricade to even the most motivated migrating salmon, and pondered some undescribed species of *Peltigera*.

The Revivals do not focus on blitzing biodiversity or making lists, at least thus far. Instead, we help each other navigate new taxonomy, appreciate the complex communities that are lichens, and read the lichen thallus to better understand what lichens are saying about the state of our environment. It is about listening and learning, visiting and sharing and - as one participant recently noted - it's about expanding our 'lichen nerd bubble'. After four revivals, our lichen community is growing, and it feels like the fun has just begun.

Fig. 8. Measuring the temperature of alpine soil crusts. Photo by John Villella. Revival IV.

Fig 9. *Tholurna dissimilis*, growing on *Abies bifolia*. Wells Gray Provincial Park. Photo by John Villella. Revival IV.

Fig. 10. *Peltigera gowardii* in a slow flowing alpine creek, Wells Gray Provincial Park. Photo by Meaghan Petix. Revival IV.

Fig 11. *Peltigera gowardii* thallus. Wells Gray Provincial Park. Photo by Darwyn Coxson. Revival IV.

Acknowledgements

Thank you to the wonderful individuals (participants and teachers alike) who through their enthusiasm and commitment make the Lichen Revivals successful. We are indebted to Trevor and Curtis for sharing their home and their knowledge with revivalists from across western North America. Lyn Baldwin and John Villella volunteered invaluable organization, Darwyn, Toby and Yngvar led classes at no charge, and Jason Hollinger kindly provided web support (*https://www.speaktothewild.org/events/#lichen_revival_iv*). We thank Parks and Climate Change Canada for permitting us to study and collect in Jasper National Park. Finally, I am grateful to Trevor for help with an early version of this report. Any omissions or memory lapses are, however, solely my responsibility.

Lichen Revivalists in alphabetic order, Origin (Revivals attended)

Heather Ahn, Washington (IV)
Lyn Baldwin, British Columbia (IV)
Curtis Bjork, British Columbia (I, IV)
Lalita Calabria, Washington (IV)
Darwyn Coxson, British Columbia 9 (IV)
Stu Crawford, British Columbia (II)
Mari Decker, Alberta (III)
Karen Dillman, Alaska (II)
Melissa Duffy, Washington (I, II)
Ruth Errington, Alberta (III)
Keaton Freel, British Columbia (III)
Yngvar Gauslaa, Norway (IV)
Katherine Glew, Washington (II)
Trevor Goward, British Columbia (I, II III, IV)
Diane Haughland, Alberta (I, II III, IV)
Eri Hiraga, Alberta (III)
Laura Hjartarson, Alberta (III, IV)
Peter Josty, Alberta (III)
Margaret Krichbaum Alberta (III)
Janet Marsh, Alberta (II, III)
Mireille Martel, Alberta (III, IV)
Jesse Miller, California (IV)
Miko Nadel, California
Scott Nielsen, Alberta (III)
Juliet Pendray British Columbia (IV
Meaghan Petix, Washington (IV)
Anne Robinson, Alberta (III)
Meagan Robson, Alberta (III)
Chris Shapka, Alberta (II)
Andrew Simon, British Columbia (I, II, IV)
Toby Spribille, Alberta (III, IV)
Ivy Strother, British Columbia (III)
Gulnara Tagirdzhanova, Alberta (III)
Darcie Thauvette, Alberta (II, III)
Daryl Thompson, British Columbia (I, III, IV)
Juan Carlos Villarreal, Quebec (III)
John Villella, Oregon (I, IV)

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https://www.waysofenlichenment.net/
http://beatymuseum.ubc.ca/research-2/collections/herbarium/herbarium-fungi-and-lichens/
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Saving the Specklebelly
Translocations of *Pseudocyphellaria intricata* to Benmore

Scotland's temperate rainforest is one of the UK's iconic habitats, and appreciation of its unique value is growing. However, many of the species dependent upon our temperate rainforests are in desperate trouble, restricted to only a handful of sites and potentially threatened by small population sizes, improper management, and ongoing habitat loss. The specklebelly lichens, *Pseudocyphellaria* spp., are some of these species found only in a handful of sites. For example *Pseudocyphellaria intricata* (Figure 1A) is found in about 20 sites across the UK, and was the subject of study by recently-graduated PhD student Kristine Bogomazova. She found that in fact, it is even rarer than we thought, since it belongs to an evolutionary lineage restricted to Atlantic rainforests and is not the cosmopolitan widespread species it was formerly thought to be (Bogomazova, in prep.).

Figure 1. Translocation experiment at Benmore Botanic Garden.

A UK material of *Pseudocyphellaria intricata,* translocated to Jaunas Majas ('New home' in Latvian) using snail slime.
B Snail slime collection.
C Translocation in action at Jaunas Majas.
D Mesh covering newly translocated material.

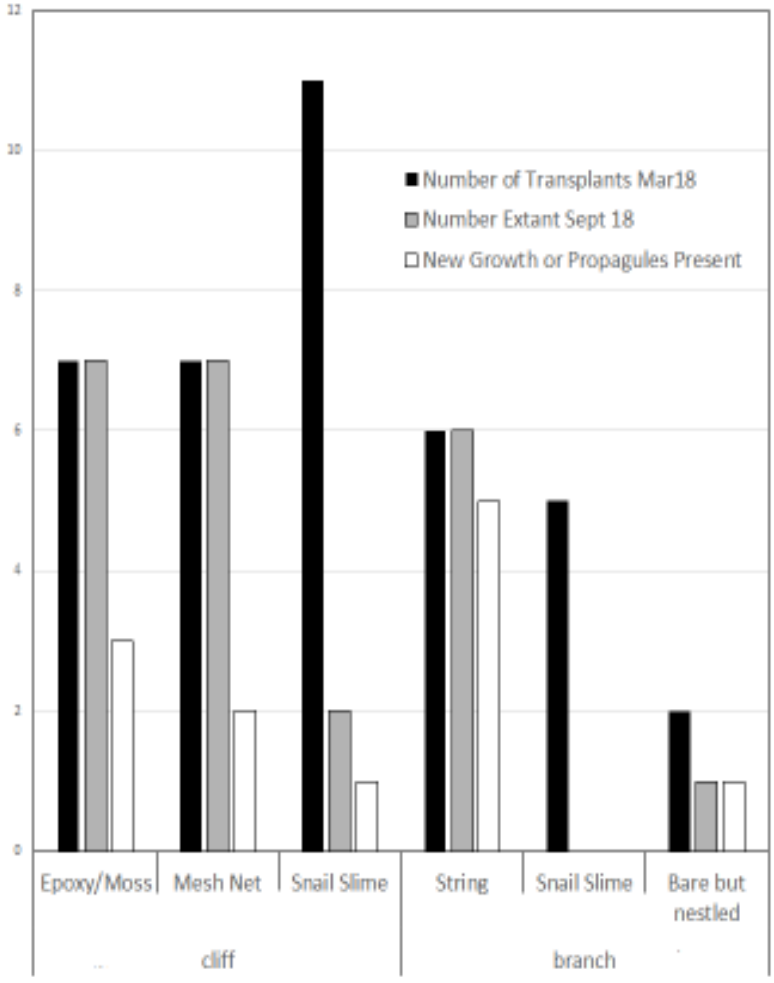
Now that we know just how rare *P. intricata* is, we decided to take some proactive conservation measures. Specifically, we wanted to enhance its population sizes and learn more about its biology by experimentally translocating a portion of an unprotected population into a protected area. Kristine's extensive experience in Scotland, Norway, Wales and Ireland helped her to choose appropriate locations for experimental work. We applied the principles of the Code for Scottish Conservation Translocations, developed by RBGE in cooperation with Scottish Natural Heritage to help ensure source populations are not negatively impacted and newly established populations are documented and looked after in the long term. Source material was used to translocate from a site in Argyll near Kilbride farm along Allt Hoshuim (NM8308) to two locations in Benmore Botanic Garden.

In March 2018, a total of 41 thalli of *P. intricata* were translocated to the two sites at Benmore Botanic Garden. Of these, 28 were transplanted onto a moist vertical rock outcrop (Jaunas Majas, 'New Home' in Latvian, Figure 1), and 13 were transplanted to boughs of *Picea glehnii*, both located in a moist valley bottom. Several treatments were trialled for promoting attachment to the rock outcrop: a natural adhesive (freshly harvested snail slime; Figure 1B), 2-part epoxy onto moss mats attached to the undersides of young thalli, which were then epoxied to the moss/rock outcrop; with mesh nets then holding thalli near moss mats (Figure 1D). In three additional microsites, propagules and thallus fragments were spread onto rock or moss surfaces in hope of promoting long term establishment.

Six months later, the translocated thalli were checked for presence and vitality, and measurements were taken of thallus sizes. Just over half of all translocated thalli were still present, with a quarter showing signs of growth and/or reproduction (soredia). Of the 28 transplants onto the rock outcrop, 16 were still present and alive (showing signs of new growth) after 6 months (Figure 2).

Three different methods were also trialled for attachment onto bryophyte-covered spruce boughs: natural adhesive (snail slime), string, and 'bare' thalli nestled into moss mats for a total of 13 thalli, 7 of which were still in place and alive after 6 months. Epoxy, mesh nets, and string were all effective means of translocations, with most thalli still present and exhibiting new growth after 6 months, though few thalli had formed new attachments. Snail slime as a natural adhesive was not effective, with only 2 of 16 thalli still present, and only 1 exhibiting new growth. This was a disappointing result, since the adhesiveness of the slime was initially very convincing, apparently attaching thalli snugly in place to recipient sites. No sign of development of new thalli was noted at microsites where propagules and thallus fragments were spread. Six-monthly monitoring will continue by members of RBGE staff, with the hopes that we have added a new, stable population of the rare Intricate Specklebelly to Benmore Botanic Garden.

Figure 2. Numbers of extant, growing/reproducing thalli after 6 months compared with original translocated numbers.



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What is an areole?

Two years ago, I wrote an article with the same title (Powell 2016). At that time, I assumed that the definitions in the glossary of LGBI2 (Smith *et al*. 2009) provided the intended usage by the various authors. It was perhaps unfortunate that a very narrow definition was provided in the glossary while authors were free to use the term areole in its widest sense. Hence my confusion and frustration at that time. In anticipation of a future edition of the 'Flora' considerable thought has gone into promoting consistency and to make sure that the glossary provides definitions which reflect usage throughout the work.

The definition provided by Smith et al. (2009) is as follows:

"**areole"**, an island of thallus which develops on the hypothallus. The islands often enlarge and abut one another and are separated from adjacent areoles by surrounding prothallus (crazy paving-like)"

The proposed new definition is:

"areole", a more or less discrete unit of crustose thallus, separated from adjacent units by a gap, groove, or crack. Areoles can arise as discrete areas of lichenisation on the prothallus (when they may be termed primary areoles), later merging, or becoming subdivided by cracks (into secondary areoles). In other cases, the young thallus margin may be entire, but the older thallus is divided by cracks (sometimes termed rimose-areolate). These distinctions are difficult to apply consistently across all lichens, and it is recommended to use 'areole' as a neutral term for all cases, with additional explanation where needed. The variation in size, outline, and three-dimensional shape of areoles often determines the characteristic appearance of the intact thallus of a species. Discrete corticate patches on the podetia of some *Cladonia* species are also sometimes referred to as areoles.

Although less concise, the proposed new definition will encompass the various ways that different authors will use the term 'areole' and provides reassuring explanation for those readers who require guidance.

An areole can be any piece of thallus which has a sort of individuality, either a single lump, or a bit delimited by cracks. So, an areole could, by cracking itself up, give rise to other areoles. If it is important in a species or genus, these could be called primary and secondary areoles. Lichens are just lumps of fungal tissue containing algae, that become cracked or subdivided in various ways. Since the lichenized habit has evolved so many times, the areole of a *Verrucaria* cannot be homologous with the areole of a *Caloplaca*. The new definition, though appearing to be less precise, will cause less confusion and reflect the messy reality of the various ways that lichens develop individual units of thallus.

In my 2016 article I hesitantly proposed the adoption of a new term ('rimeole') and I am rather relieved that this term has not been widely used. Broadening our definition of an areole renders that term obsolete and prevents yet another term from entering the lichenological lexicon.

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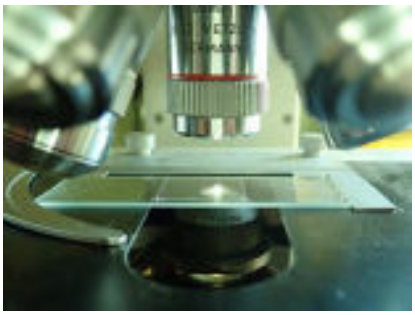
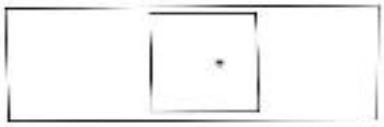
A basic technique for placing specimens on a microscope slide

I've been peering down microscopes for years but have only just worked out a more practical technique for preparing slides.

My new-found trick is to mount the specimen in the tiniest drop of water possible, produced by touching the tip of the dropper bottle to the slide. I then put on the cover slip, making a mental note of roughly where the drop is in relation to the cover slip, then put it immediately under the lowest power on the microscope. The water droplet and specimen will shine out like a beacon when viewed from the side if it is sitting directly over the light coming through from below. Then you can remove the slide from the stage and manipulate it, add more water or chemicals, squash it gently or whatever you do, and when you put it back onto the microscope stage it will (should) still be there in the middle of the view. If you get a layer of water over the whole area under the cover slip you can spend ages hunting around for the specimen, even though it will still sparkle when directly in line.



Another trick is not to centre the specimen. If you want to draw liquids such as K, ink and vinegar through it (Mark Powell's magical technique for staining specimens!), it is much easier if it is relatively near the side of the slide otherwise you can wait for what seems ages for the applied liquids to flood across, get impatient and lift the corner with a razor blade, at which point the specimen can shoot off. If you are lucky, you may find it again in a gutter line at the edge of the cover slip but you probably won't be able to retrieve it for viewing.



The sweet spot is maybe a third of the way across the area to be covered by the slip and half way up. I'm not so keen on doing this when at the highest magnification as I think there is a greater chance of getting corrosive liquids onto the objective lenses. You can try gently nudging the specimen more to the middle with a gentle sideways push of the cover slip when at least it will remain on the same "latitude". It is good practice to dab any free liquids off the exposed part of the slide and cover slip with a tissue before placing them on the stage.

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Spot tests and staining: some recent advances

The new K/UV test

A couple of years ago I noticed that the spots where I had applied reagents to lichen thalli sometimes fluoresce. The K+ yellow spots due to atranorin exhibit a spectacular yellow fluorescence. Initially, I dismissed this observation as of trivial importance. Those of you who are members of the UKLichens Yahoo forum will have followed correspondence between me and Neil Sanderson when, in May this year, I reported my successful use of the K/UV+ yellow test to make more apparent the vague K+ yellow reaction given by a poor specimen of a *Physcia*. Neil soon reported back on his own experiments and found that a specimen of *Cladonia rangiformis* showing a barely perceptible K+ yellow reaction, still gave an intense K/UV+ yellow fluorescence. We had found a useful means of detecting atranorin in specimens containing low concentrations. The fluorescence in the test for atranorin is most intense when the spot treated with K has dried.

In July I was trying hard to convince myself that I had found *Inoderma* (*Lecanactis*) *subabietina*, well out of its known range, at an ancient site in Suffolk. The K+ yellow which is characteristic of the pycnidial pruina in *I. subabietina* is sometimes weak and was undetectable in my specimen, despite all other characters seeming correct. I wondered if shining UV on to the K-spots on the pycnidia would prove the presence of a low concentration of the K+ yellow substance but it did not. I did however notice that the thallus gave a strong K/UV+ mauve fluorescence, and that this mauve fluorescence was not produced by the thalli of the look-alike species *Lecanactis abietina* and *Opegrapha vermicellifera*. Neil kindly tested a specimen of *Inoderma subabietina* and reproduced my observation. Suspecting that the K/UV+ mauve may be indicating the presence of confluentic acid, this test raised the exciting possibility of being able to separate sterile specimens of *Lecanographa amylacea* from *L. lyncea*. Neil has experimented with New Forest material and I have visited BM to examine specimens there. So far, all the convincing specimens of *L. lyncea* give a K/UV+ mauve while *L. amylacea* does not. This test may prove of value in recording these notable lichens of ancient trees. This pair of species has been much

misunderstood and many old specimens of '*L. amylacea*' appear to be of *L. lyncea*. The literature implies that only *L. amylacea* has 'brown flecks', that the apothecia of *L. amylacea* are strictly round and different colours of fluorescence are given for the thallus. There are problems with all those assertions, a subject for a future article.
Other confluentic acid-containing lichens show the K/UV+ mauve reaction including *Enterographa crassa* and *Porpidia tuberculosa*. The fluorescence is apparent even before the spot has dried. 'Fryday bubbles' are produced by confluentic acid when potassium hydroxide solution is added to a microscopic preparation, but the production of these bubbles appears somewhat unreliable. The K/UV test may provide an easier and more reliable test for confluentic acid, one that can be performed in the field.

I have not observed many instances of fluorescence produced from the site of a spot test using C, but I have seen intense fluorescence from Pd spot tests. For example, *Pertusaria amara* and the medulla of *Flavoparmelia caperata* appear to give an intense Pd/UV+ yellow, but only when the reagent has been used very sparingly (lightly 'brushed' on). This Pd/UV reaction is presumably caused by a substance created by the reaction of Pd and protocetraric acid, and this phenomenon appears to easily become 'swamped' if the reagent is applied liberally. Pd itself fluoresces mauve so most spots of Pd solution give a Pd/UV mauve and even when performed on an inert surface. It remains to be seen whether there are any further useful fluorescent colours exhibited by spot reactions; the experiments are at an early stage.

Alcoholic Steiner's solution

Seven years ago, I experimented with a stable alcoholic solution of Pd and reported my successful trials (Powell 2011). Subsequently Harrold (2012) reported his careful experiments in which he demonstrated that, using 1 g of Pd per 100ml of solute, "the addition of up to 25% alcohol may fractionally decrease full reaction time." I suspect that further experiments in which the amount of Pd used had been increased would have shown a far greater advantage in using a proportion of alcohol in the solute; Pd is considerably more soluble in alcohol than it is in water. In Paul Harrold's experiment it is likely that all the Pd was dissolved whether the solute was pure water or some mixture containing alcohol. Only if a greater amount of Pd was used would the full advantage of using alcohol have been demonstrated.

I feel that alcoholic Steiner's solution has stood the test of time and it is now used by several of the most prolific and respected field lichenologists. Formerly such lichenologists shunned the traditional water recipe for Steiner's because of its slow, weak reactions and they put up with having to make fresh batches of alcoholic solution almost daily.

Someone more methodical than me could produce an exact recipe for alcoholic Steiner's solution but I have successfully made many batches without any measuring. I add a layer of sodium sulphite crystals to cover the base of a small dropper bottle and then three quarters fill the bottle with vodka (or a mixture of meths and water). Then I add some Pd crystals, using my judgement of what has worked well before. Pd is more soluble in alcohol than in water, hence the use of alcohol in the solute. By contrast, sodium sulphite is scarcely soluble in alcohol, so a good proportion of water is necessary in the solute mix. Standard spirits such as vodka are 40% alcohol by

volume and this seems to be an effective proportion. Traditional Steiner's solution may seem adequate for lichens containing high concentrations of strongly reacting substances (such as *Cladonia coniocraea*) but I have seen weak and misleading results with the traditional water version when used on species such as *Fuscidea cyathoides*, *Halecania viridescens* and *Lecanora conizaeoides*.

Staining – the ink-vinegar method

All the common staining methods infill the lumina of the hyphae; they do not stain the chitin walls of the hyphae. It is important to understand this, or else lichen structures can be easily misinterpreted. Staining with ink gives similar results to using the old traditional lactophenol-cotton blue (LCB) but with some advantages. LCB is potentially carcinogenic and certainly messy making it difficult to wipe slides clean with tissue. LCB also requires heating for good results. (LCB does have the advantage of producing semi-permanent slides while ordinary ink-vinegar methods dry out rapidly). Parker blue-black ink appears to be particularly good for ink-vinegar staining.

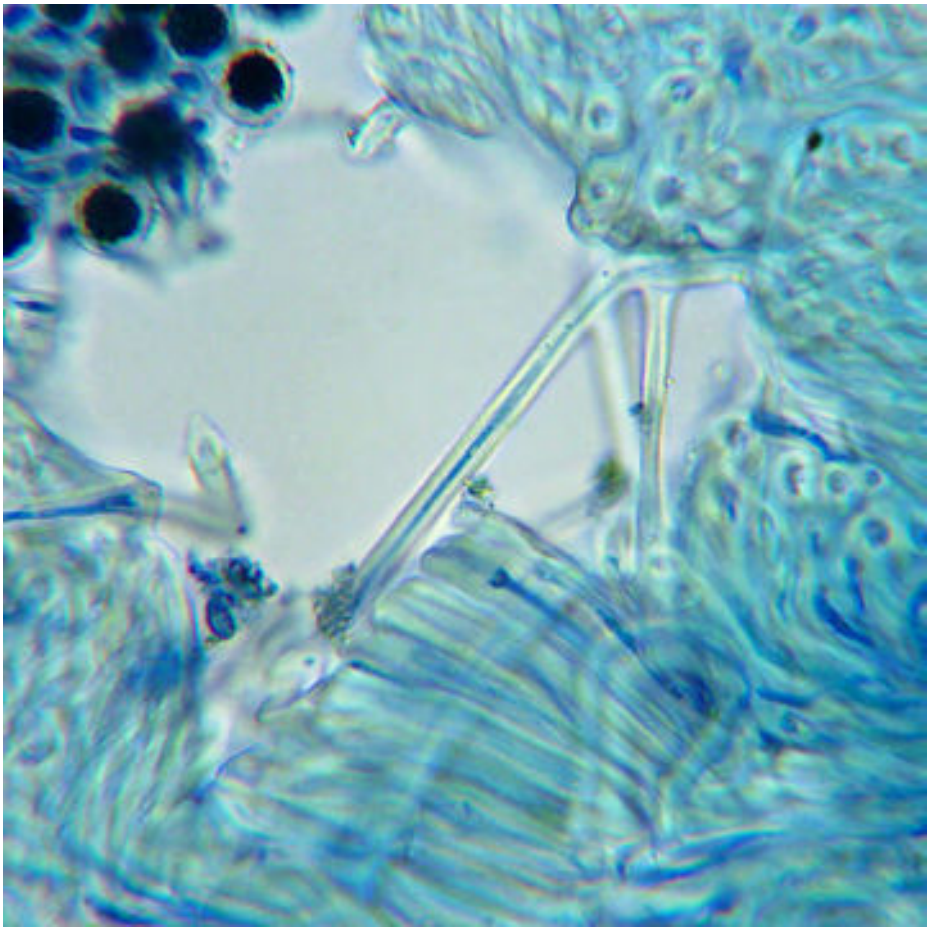


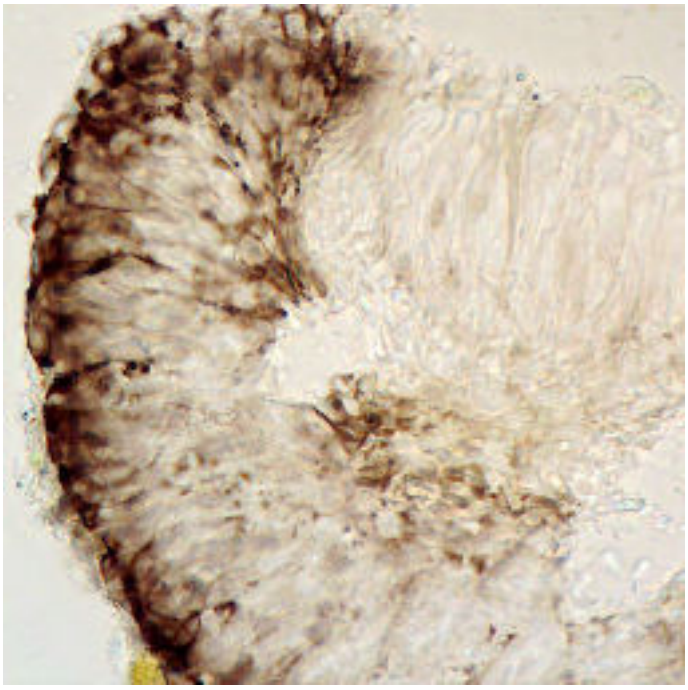
Fig. 1. A medullary hypha of *Xanthoria parietina*, showing that the ink stain has infilled the lumina rather than stained the chitin walls.

Method A (K/ink-vinegar): Put a drop of K on a microscope slide, add enough ink to colour the K darkly. Transfer your section to the inky drop and apply a cover slip. Then put a drop of acetic acid at the edge of the cover slip – it will readily sweep through removing the excess ink. Heating the slide before adding the cover slip tends to give superior results but it is not usually essential.
Method B (N/ink-vinegar): Same as Method A but use nitric acid in place of K.

Notes:
The concentrations of the liquids are not critical. 10% K, 10% acetic acid and 30% nitric acid work fine. If you haven't got acetic acid to hand, then use vinegar – even brown malt vinegar works. Sodium hydroxide (caustic soda) solution is a good substitute for K.

If you want to heat a slide, a tea-light candle is convenient. For best results you want to get the drop of stain hot but not boil it dry. Hold the slide two or three inches above the top of the flame. Heating is best done before applying the cover slip. With a cover slip on you risk generating rather explosive bubbles formed which can disrupt the section.

Using nitric acid (rather than K) has a slight tendency to produce better results without heating but that is not the main reason it is used. When examining sections of pyrenocarps growing on and in limestone, the nitric acid in the mix dissolves any adhering particles of limestone which would otherwise keep the cover slip propped up. The nitric acid is also superior at revealing the septation and the septa are made even more conspicuous with ink in the mix.



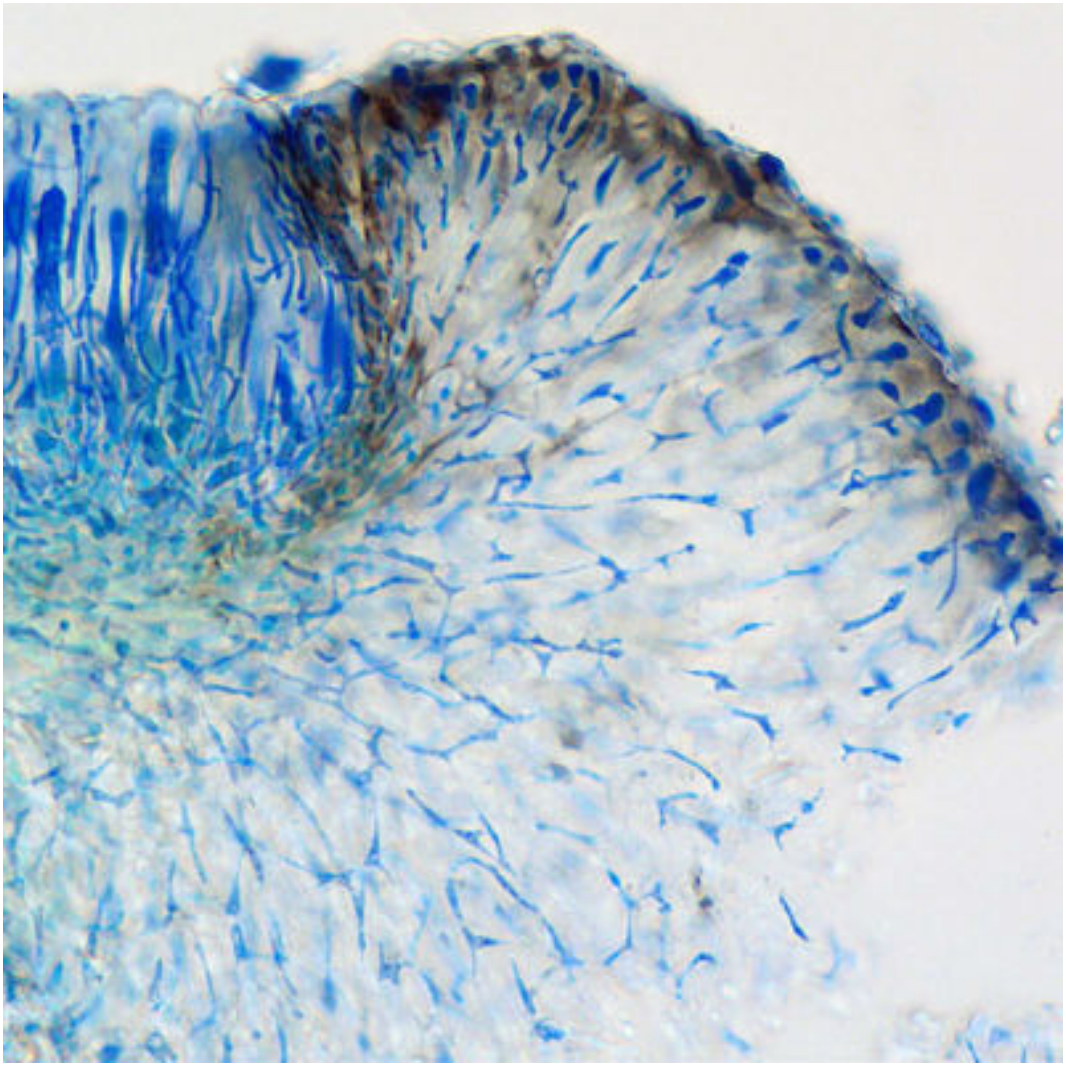


Fig. 2. The structure of the exciple in *Bacidia caligans*, revealed by using the ink-vinegar staining technique.

Ascus tips (iodine tests of the ascus apex)

The procedure outlined in the 'Flora' (Smith *et al.*, 2009, pg. 14) sounds like a bit of a palaver and puts some people off. Steps 4 and 6 are not directly relevant to elucidating the nature of the ascus. A cover slip is applied at Step 4 requiring subsequent treatments to be drawn through with a tissue. The K is left for five minutes as a pre-treatment.

A simpler procedure might be:

1. Place section in a drop of K on a slide
2. Wait five minutes or gently heat for ten seconds or so
3. Swab surplus K and add a drop of Lugol's iodine
4. Apply cover slip and examine

The pre-treatment with K is mainly used to disperse any hymenial gel. If this gel is not dissolved it can hinder the technique in two ways. Firstly, the gel itself may produce

an amyloid reaction and obscure the fine detail in the ascus tips. Secondly the gel binds the asci together. Ideally you want the asci to separate easily so that they can be examined individually but without having to exert undue pressure on them. [The pre-treatment may alter the subsequent iodine reaction of the hymenial gel in some genera. With *Arthonia* you tend to get red reactions without pre-treatment but blue reactions with.] Some genera, especially those with little or no hymenial gel, produce good results even without pre-treatment (*Catillaria* is an example). In the Flora procedure, the K is flushed away with water before adding the Lugol's, but the latter can be used itself for flushing. Even better, dilute acetic acid (e.g. ordinary distilled vinegar) can be used to 'neutralise' the K. If excess K is present, the blue amyloid reaction won't appear, while too great a concentration of iodine can result in an amyloid reaction which is too intense. It is sometimes necessary to push the reaction back and forth (intensifying with iodine and weakening with K or water) to get the ideal intensity of reaction. I find that flushing with acetic acid and then gradually working up in strength of Lugol's from very weak results in far less frustration than flushing with water and then using the standard concentration of Lugol's. Indeed, it often helps to use a much weaker solution of Lugol's than generally recommended. Sometimes you must keep on trying until you happen to get an ascus properly separated, at the right stage of development and appropriately stained.

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Epping Forest Field Meeting September 2017

This field meeting took place between the evening of Wednesday 6th and Sunday 10th September, the local organiser being John Skinner. This large forested area to the north east of London has been studied for its lichens for more than 250 years and the aim of the meeting was to obtain a 'snapshot' of its current lichen flora.

There was no residential headquarters so participants arranged their own accommodation, meeting on site each day. However, laboratory space was arranged for the evenings at the Epping Forest Field Centre, run by the Field Studies Council, at High Beach. A total of 22 people attended the meeting although only 8 were present for all four field days. Attendees were Ken Adams, Juliet Bailey, Joe Beale, Ishpi Blatchley, Pat and Keith Cavanagh, Jeremy Dagley, Neil Fuller, Sally Gadsdon, Dannae Hasketh, Geof Howe, Mark Powell, Steve Price, Maxine Putnam, Neil Sanderson, Paula Shipway, John Skinner, Catherine Tregaskes, Bob Vaughan, Tim Wilkins, April Windle and Pat Wolseley.

On the evening of Wednesday 6th September most participants met at High Beach Conservation Centre for introductory talks. John Skinner gave a brief introduction to the Forest and its long history of lichen recording. Essex Botanical and Bryological recorder Ken Adams talked about the Forest's ecology with special reference to the moss *Zygodon forsteri,* and Sally Gadsdon, Environmental Stewardship Officer for the City of London, Epping Forest, stressed the importance to the Forest Conservators of updating their lichen records.

Epping Forest is a 2,400 hectare area of ancient woodland between Epping in the north and Wanstead in the south. It is a former royal forest and is managed by the City of London Corporation. It is about 19km long in the north-south direction but only a maximum of 4km wide east-west. It lies on a ridge of high ground, about 100m altitude, topped by gravelly soils. Historically it was within Essex but today the southern areas are included within boroughs of Greater London. For biological recording the bulk of the Forest is within Watsonian vice-county 18, South Essex, with a small portion being within vice-county 19, North Essex.

The Forest is an ancient wood pasture landscape, one of the few remaining large-scale such sites in lowland Britain. It is well known for its number of veteran pollards, around 50,000 in number, about two-thirds being hornbeam with beech and oak making up the remainder. There is a mosaic of habitat types across the Forest ranging from densely concentrated areas of pollards and small grassy glades to more open ancient heathy plains and scattered water bodies. It is recognised as an internationally important site for conservation with over two thirds being SSSI.

The Forest's corticolous lichen flora has been documented since the time of Edward Forster who recorded 65 species between 1784 and 1796. Later, the Reverend James Morrison Crombie recorded lichens between 1865 and 1868 and between 1881 and 1885 finding many ancient woodland indicators. Thereafter, the number of corticolous lichens declined, mainly due to sulphur dioxide pollution reaching a low point around 1970 when only 28 species were recorded (Hawksworth, Rose & Coppins (1973)). Around 1990, after several decades of falling sulphur dioxide pollution, signs

of recovery of the lichen flora were noted and by 2003, James and Davies recorded 64 epiphytic lichens at four sites. They note that the number of newly recorded lichens included a number of nitrophilous species that were responding to the increasingly eutrophic conditions. More recent unpublished studies by James and Davies (2007, 2003) of terricolous lichen communities and roadside lichen communities have added to the list. For a fuller account of the history of lichen recording in Epping Forest the reader is referred to papers by James & Davies (2003) and Hawksworth & McManus (1992).

Honey Lane Quarter - 7th September 2017

Honey Lane Quarter is an area to the north-west of the central part of the Forest on a north-west facing slope. The lower part consists of old mixed scrub and hornbeam-oak wood pasture rising to relict beech wood pasture and the open heathy area known as Big View.

Eighteen participants set out and the concerns of the local organiser that the site might yield little of interest were quickly dispelled by the almost immediate discovery of a large spread of *Punctelia borreri* on a horizontal moribund oak bough. This was a first record for Essex although, interestingly, it has since been found at three other localities.

Examining an old dead pollard at Honey Lane Quarter. Image ©John Skinner

Old hornbeam pollards among the scrub bore *Opegrapha vermicellifera*, *Enterographa crassa* (rare in Essex, restricted to old woodlands) and *Chaenotheca hispidula*. A standing dead oak had *Microcalicium ahlneri*, *Chaenotheca brunneola* and *Chaenothecopsis nigra*, all new to the Forest. *Pertusaria leioplaca* was also seen, the first record of any *Pertusaria* in the Forest since the early 1970s.

Cladonia callosa beside the path at Big View. Image © Geof Howe

Proceeding uphill, the more open dry heathy area of Big View was reached and beside the path Neil Sanderson introduced the group to *Cladonia callosa*, a first record for the Forest but presumably previously overlooked. It is recognised by its grey basal squamules which are white-tomentose and UV+ white-violet fluorescence (grayanic acid).

Looking down on a podetium of *Cladonia callosa*, Sunshine Plain. Image © Geof Howe

A short walk led to Sunshine Plain, north and south, bisected by Wake Lane. These remnant heathlands sit in an area of relict beech wood pasture. The vegetation is dominated by *Molinia caerulea* with *Calluna vulgaris* and *Erica tetralix*. The central area of the plain had little of lichen interest but the sparse ground flora under the beeches around the edge allowed some lichen growth, ncluding *Cladonia caespiticia*. on a bank, not seen in the Forest since the 19th century. More *Cladonia callosa* was seen, this time fertile, growing, unusually, on a rotting birch log. Exposed flint pebbles bore common saxicolous species *Rhizocarpon reductum* and *Micarea erratica*.

The edge of Sunshine Plain showing *Molinia*, beech pollards and the more open ground at the edge of the plain. Image © John Skinner

The Lower Forest (Wintry Wood) - 8th September 2017

The Lower Forest is isolated from the main Forest and lies to the north of the town of Epping. Historically, as the scattered oak and hornbeam pollards attest, the site was more open than it is today, secondary woodland of oak, ash and field maple making many areas shaded. A wide ride, the Stump Road, once the main road from London to Cambridge, runs through the wood. This area was the only site visited that was in vice-county 19.

Twelve people met at the car park as heavy rain began. Much of the lichen flora is typical of many Essex woodlands today with, among others, *Lecidella*

elaeochroma, *Lecanora chlarotera*, *L. carpinea*, *Lepraria incana*, *Opegrapha* species, *Porina aenea* and *Strigula taylorii*. *Cresponea premnea* and *Lecanactis abietina*, both very rare in this part of the world, were found on oak. The main lichenological interest of the Lower Forest was found to be the veteran pollards and dead standing trees along the Stump Road. 'Pin lichens' were particularly well represented with *Chaenotheca brachypoda*, *C. brunneola*, *C. ferruginea*, *C. stemonea*, *C. trichialis* and *Chaenothecopsis nigra*. On the lignum of one tree the rare *Lecanora sarcopidioides* was seen.

On the return walk to the car park, as the rain died away, a large foliose lichen on a fallen oak branch provoked discussion until identified by Mark Powell as *Parmotrema pseudoreticulatum*, a first for the Forest and for Essex.

Parmotrema pseudoreticulatum on a fallen oak branch, Lower Forest. Image width about 14 cm. Image © John Skinner

Great Monk Wood - 8th September 2017

While most attendees were exploring the Lower Forest, Neil Sanderson and Tim Wilkins met Ken Adams to look at Great Monk Wood, a beech wood in the central block of the Forest. For many years Ken has been keeping detailed records of the rare moss *Zygodon forsteri* which has its stronghold here. It also grows in the New Forest where Neil has recorded a strong association between *Zygodon* and the lichen *Collema fragrans*. Although this particular association was not found in Great Monk Wood,

Neil did find *Zygodon* associated with another cyanolichen, *Leptogium subtile*, on several trees.

Also observed were some very unusual lichen rich terricolous communities found in small glades in the old growth Beech stands. These are not heathland assemblages, being found within clearly identifiable beech woodland vegetation (NVC community *Fagus sylvatica – Deschampsia flexuosa* Woodland, *Deschampsia flexuosa* sub-community, W15b). Neil was aware that *Cladonia furcata* could be locally abundant in W15b stands in the New Forest but had not noticed anything like as rich as these communities. As well as *Cladonia furcata*, in three recorded stands associated species were *Arthrorhaphis aeruginosa* (on *Cladonia diversa* and *Cladonia ramulosa*), *Cladonia caespiticia* (frequent at one site), *Cladonia callosa*, *Cladonia cervicornis*, *Cladonia cryptochlorophaea*, *Cladonia diversa*, *Cladonia floerkeana*, *Cladonia polydactyla* var. *polydactyla*, *Cladonia portentosa*, *Cladonia ramulosa* (locally dominant), *Cladonia squamosa* var. *subsquamosa*, *Lichenomphalia umbellifera*, *Micarea prasina* s. lat., *Micarea viridileprosa*, *Placynthiella icmalea* and *Trapeliopsis flexuosa*. Since then Neil has also found similar, but smaller, patches of lichen rich beech wood in the New Forest. This lichen rich variant of W15b appears rare and unusual, he can find no reference to lichen rich woodland in continental Europe, and it requires further investigation.

A lichen rich small glade in Great Monk Wood. Image © N A Sanderson

Jack's Hill area - 9th September 2017

Jack's Hill itself is a rather indeterminate feature within the main block of the Forest. The B172 road runs east-west through this area, the part to the south being high canopy beech relict wood pasture with a sparse ground flora while north of the road a path, the Green Ride, runs north through oak-birch woodland. The day's group of fifteen people headed along this ride, eventually turning west to Long Running, the largest heathy plain of the Forest.

Cladonia caespiticia, Jack's Hill. Image © Geoff Howe

An area north of the car park had been found to be the richest area in the Forest for terricolous lichens by James and Davies (2007). Their survey recorded 11 species of *Cladonia*. The site consists of a number of old shallow excavations set among, mainly, birch trees. The group recorded 11 species of *Cladonia* but there was an overlap with James and Davies. *Cladonia portentosa* (exceptionally rare in the Forest) and *C. furcata* were not seen on this visit although recorded by James and Davies but a beautiful display of *C. caespiticia* and some *C. floerkeana*, neither recorded in 2007, were found. The whole site would appear to be in danger of being shaded out by trees.

The group then examined the trees and open ground surrounding the *Molinia*-dominated heath of Long Running. *Melanohalea exasperatula* and *Rinodina sophodes* on ash were both new to Essex and at the south-west corner of the plain Neil again found *Cladonia callosa* under a large beech tree.

Inspecting *Cladonia callosa*, Long Running. Image © John Skinner

Fairmead Bottom, North Long Hills and Bury Wood - 10th September 2017
Numbers were somewhat reduced on this, our final day, only ten people among whom we were delighted to welcome Dr.Jeremy Dagley, Head of Conservation, Epping Forest, City of London. This area is south of the main beech-dominated ridge and the topography is flatter, the ground acid to neutral grassland between the wooded areas. Some areas have been the object of a wood pasture restoration project and the Conservators were interested to obtain information about their lichen flora.

Fairmead Bottom (TQ 4096) has a number of well-spaced oaks beside the rides and these yielded common corticolous species, perhaps the highlight being *Phaeographis smithii* on an oak twig (also seen at Long Running), the second recent record for Essex.

Few records were made at North Long Hills (TQ 3995) but the area in Bury Wood around Cuckoo Pits (TQ 399 968) proved more interesting. Finds included *Phylloblastia* cf. *bielczykiae* on holly leaves (see Powell (2017)) and *Enterographa crassa* and *Pyrenula chlorospila* on hornbeam. The tiny thalli of the latter species found here

and at Honey Lane Quarters are the only Essex records, much to the surprise of colleagues from the west of the UK where it is abundant.

Phaeographis smithii on an oak twig, Long Running. Image © Geof Howe

Church of the Holy Innocents, High Beach - 6th September 2017

Before the meeting, Mark Powell and Juliet Bailey visited the Church of the Holy Innocents, a short walk from the Conservation Centre. The church is Victorian, Gothic style, and 53 lichens were recorded from the church, gravestones and trees in the churchyard.

Conclusion

During the meeting 176 lichen taxa were recorded (150 if exclusively saxicolous lichens from the churchyard are excluded), 52 of which are first post 1970 records for the Forest. Many new records are of species that are spreading rapidly on trees and in woodland in this part of Britain (*Strigula* spp., *Opegrapha viridipruinosa*, *Halecania viridescens*, *Ramalina fastigiata* for example); others, such as the several new *Chaenotheca* species are probably relict species which perhaps survived the years of high sulphur dioxide pollution in a depauperate condition.

Ten lichenicolous fungi were also recorded. They have not been scored as new records for the Forest although some undoubtedly are.

Acknowledgements

Particular thanks are due to Dr. Sally Gadsdon, Environmental Stewardship Officer, and Dr. Jeremy Dagley, Head of Conservation, both of the City of London (Epping Forest), for their encouragement and assistance in arranging the meeting. Many thanks to the staff of the Epping Forest Conservation Centre, particularly Gin Cameron, for their co-operation. Thanks to Dr. Brian Coppins and Alan Orange for identifying specimens and to Dr. Ken Adams for sharing his knowledge of the Forest.

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Taxa recorded at the Epping Forest meeting, September 2017

Sites:

Honey Lane Quarter	TQ 4199
Sunshine Plain	TQ 4299
Lower Forest (Wintry Wood)	TL 4703
Jack's Hill area (inc. Long Running)	TQ 4399
Fairmead Bottom	TQ 4096
Bury Wood	TQ 3995 and TQ 4095
North Long Hills	TQ 4096
Church of the Holy Innocents, High Beach	TQ 407978

LF = lichenicolous fungus

* = new (post-1970) record for the Forest (saxicolous species not scored)

BLS Number		Honey Lane Quarter	Sunshine Plain	Wintry Wood	Great Monk Wood	Jack's Hill area	Fairmead Bottom	Bury Wood	North Long Hills	High Beach church
0212	Amandinea punctata	●			●	●	●			●
0049	Anisomeridium polypori *	●	●	●			●			
0056	Arthonia didyma *			●						
0068	Arthonia punctiformis		●	●		●				
0069	Arthonia radiata	●	●	●		●	●	●		●
0070	Arthonia spadicea	●			●			●		
1540	Arthopyrenia analepta			●			●			
1542	Arthopyrenia punctiformis *						●			
1916	Arthrorhaphis aeruginosa (LF)				●	●				
2015	Athelia arachnoidea (LF)	●		●						
0137	Bacidia cf. caligans					●				
0176	Baeomyces rufus					●				●
0165	Bilimbia sabuletorum									●
1628	Botryolepraria lesdainii									●
0200	Buellia aethalea									●
0207	Buellia griseovirens		●		●	●				
2442	Caloplaca arcis									●
0249	Caloplaca crenulatella									●
2443	Caloplaca dichroa									●
2315	Caloplaca flavocitrina	●			●					●
2527	Caloplaca holocarpa s.str.									●
2607	Caloplaca limonia									●
0271	Caloplaca obscurella	●		●	●		●			
2317	Caloplaca phlogina *			●						
0289	Candelaria concolor	●		●		●				
0297	Candelariella reflexa	●		●		●	●			●
0298	Candelariella vitellina f. vitellina				●		●			●
1609	Catillaria atomarioides									●

BLS Number		Honey Lane Quarter	Sunshine Plain	Wintry Wood	Great Monk Wood	Jack's Hill area	Fairmead Bottom	Bury Wood	North Long Hills	High Beach church
0306	Catillaria chalybeia var. chalybeia									●
0311	Catillaria lenticularis									●
0316	Catillaria nigroclavata *				●					
0470	Chaenotheca brachypoda *			●						
0341	Chaenotheca brunneola *	●		●						
0344	Chaenotheca ferruginea	●		●		●		●		●
0345	Chaenotheca hispidula *	●								
0348	Chaenotheca stemonea *			●						
0349	Chaenotheca trichialis *			●				●		
1831	Chaenothecopsis nigra *	●		●		●		●		
0364	Cladonia caespiticia *		●		●	●				
0388	Cladonia callosa *	●	●		●	●				
0369	Cladonia cervicornis subsp. cerv.	●			●					
0371	Cladonia chlorophaea s.lat.						●			
0375	Cladonia coniocraea	●	●	●	●	●	●	●		
0380	Cladonia cryptochlorophaea *		●		●	●				
0383	Cladonia digitata	●			●	●				
1749	Cladonia diversa				●					
0384	Cladonia fimbriata	●		●	●	●		●		
0386	Cladonia floerkeana		●		●	●				
0389	Cladonia furcata subsp. furcata	●			●					
0376	Cladonia humilis	●				●				
0396	Cladonia macilenta	●		●		●				
0404	Cladonia parasitica *	●	●	●						
0408	Cladonia polydactyla var. polydactyla		●	●	●	●				
0409	Cladonia portentosa				●					
0359	Cladonia ramulosa	●			●	●				

BLS Number		Honey Lane Quarter	Sunshine Plain	Wintry Wood	Great Monk Wood	Jack's Hill area	Fairmead Bottom	Bury Wood	North Long Hills	High Beach church
0417	Cladonia squamosa var. subsquamosa *				●	●				
0429	Cliostomum griffithii			●	●					
2034	Clypeococcum hypocenomycis (LF)					●				
0459	Collema tenax var. tenax						●		●	
0605	Cresponea premnea *			●						
0912	Cyrtidula quercus	●		●			●			
0489	Dimerella pineti	●		●	●	●		●		
0504	Enterographa crassa	●		●				●		
0511	Evernia prunastri	●		●		●	●	●		●
0987	Flavoparmelia caperata	●		●	●	●	●	●		
1018	Flavoparmelia soredians	●		●		●				
0521	Fuscidea lightfootii		●	●		●	●			●
0532	Graphis elegans					●				
0533	Graphis scripta	●		●						
1704	Halecania viridescens *	●		●		●	●		●	
2240	Heterocephalacria physciacearum (LF)	●		●	●	●	●			
1125	Hyperphyscia adglutinata	●								
0578	Hypocenomyce scalaris			●		●				
0582	Hypogymnia physodes	●		●			●	●		
0583	Hypogymnia tubulosa					●	●		●	
2468	Hypotrachyna afrorevoluta *	●		●	●	●	●			
2577	Hypotrachyna revoluta s. str.	●		●	●	●	●	●		●
2071	Illosporiopsis christiansenii (LF)	●		●		●			●	
0547	Jamesiella anastomosans	●		●		●	●	●		●
2667	Laetisaria lichenicola (LF)	●					●			
0592	Lecanactis abietina			●						
0613	Lecania cyrtella	●		●						

BLS Number		Honey Lane Quarter	Sunshine Plain	Wintry Wood	Great Monk Wood	Jack's Hill area	Fairmead Bottom	Bury Wood	North Long Hills	High Beach church
1625	Lecania hutchinsiae									●
1059	Lecania naegelii *	●		●						
0627	Lecanora albescens									●
2121	Lecanora barkmaniana *	●		●		●	●			
0635	Lecanora campestris subsp. campestris									●
0636	Lecanora carpinea	●		●		●	●			
0639	Lecanora chlarotera	●		●		●	●	●		●
0641	Lecanora confusa	●					●			
0643	Lecanora conizaeoides f. conizaeoides			●		●				
0646	Lecanora dispersa			●	●					
0649	Lecanora expallens	●		●		●	●	●		
0621	Lecanora hagenii *								●	
0672	Lecanora pulicaris *									●
0678	Lecanora sarcopidoides *			●						
0610	Lecanora semipallida									●
0680	Lecanora stenotropa						●			
0688	Lecanora symmicta	●					●			
0797	Lecidella elaeochroma f. elaeochroma	●		●		●	●	●		
0802	Lecidella scabra									●
0803	Lecidella stigmatea									●
1629	Lepraria finkii	●								
1974	Lepraria incana s. str.	●		●	●	●	●	●		
1716	Lepraria umbricola *			●						
1604	Lepraria vouauxii									●
1717	Leptogium subtile *				●					
2108	Marchandiobasidium aurantiacus (LF)	●		●		●			●	
0997	Melanelixia glabratula *	●				●	●			
1020	Melanelixia subaurifera	●		●		●	●	●		●
0993	Melanohalea elegantula *	●		●		●				

BLS Number		Honey Lane Quarter	Sunshine Plain	Wintry Wood	Great Monk Wood	Jack's Hill area	Fairmead Bottom	Bury Wood	North Long Hills	High Beach church
0996	Melanohalea exasperatula *					●				
1001	Melanohalea laciniatula *	●		●						
1720	Micarea coppinsii *									●
0719	Micarea erratica		●			●				
2359	Micarea micrococca *	●								
0887	Micarea prasina s. lat.	●		●	●	●				
0838	Micarea viridileprosa *		●		●	●				
1441	Microcalicium ahlneri *	●				●				
0920	Normandina pulchella	●			●	●				
0938	Opegrapha atra			●						
0948	Opegrapha herbarum *			●			●			
0954	Opegrapha ochrocheila	●		●	●			●		
0958	Opegrapha rufescens *			●						
0965	Opegrapha vermicellifera *	●								
2441	Opegrapha viridipruinosa *			●		●	●			
0943	Opegrapha vulgata	●			●					
2135	Paranectria oropensis (LF)				●					
1022	Parmelia sulcata	●		●	●	●	●	●		●
1008	Parmotrema perlatum	●		●	●	●	●	●		
2511	Parmotrema pseudoreticulatum *			●						
1012	Parmotrema reticulatum *	●				●				
1053	Peltigera didactyla	●								
1079	Pertusaria leioplaca	●								
1103	Phaeographis smithii *					●	●		●	
1107	Phaeophyscia orbicularis	●				●	●			
1110	Phlyctis argena			●			●			
	Phylloblastia cf. bielczykiae *	●						●		

BLS Number		Honey Lane Quarter	Sunshine Plain	Wintry Wood	Great Monk Wood	Jack's Hill area	Fairmead Bottom	Bury Wood	North Long Hills	High Beach church
2464	Phylloblastia inexpectata			●						
1112	Physcia adscendens	●		●		●	●			
1113	Physcia aipolia			●			●			●
1120	Physcia tenella	●		●	●	●	●	●		●
1126	Physconia enteroxantha *	●								
1492	Placopyrenium fuscellum									●
1735	Placynthiella dasaea	●			●	●				
0732	Placynthiella icmalea				●	●		●		●
0788	Placynthiella uliginosa	●								
1168	Porina aenea *	●		●	●	●				
1614	Porina byssophila *	●			●					
1690	Porpidia soredizodes									●
0572	Porpidia tuberculosa									●
1189	Protoblastenia rupestris									●
1200	Psilolechia lucida					●				●
1630	Psoroglaena stigonemoides *				●		●			
0985	Punctelia borreri *	●								
1989	Punctelia jeckeri	●		●		●	●	●		
2070	Punctelia subrudecta s. str.	●		●		●	●			
1221	Pyrenula chlorospila	●						●		
1234	Ramalina farinacea	●		●		●	●	●		
1235	Ramalina fastigiata *						●			
1266	Rhizocarpon reductum		●							●
1289	Rinodina oleae	●								
1298	Rinodina sophodes					●				
1624	Ropalospora viridis *					●				
1315	Schismatomma decolorans	●								
1374	Strangospora pinicola *						●			
1375	Strigula jamesii *			●			●			
1378	Strigula taylorii *	●	●	●	●					

BLS Number		Honey Lane Quarter	Sunshine Plain	Wintry Wood	Great Monk Wood	Jack's Hill area	Fairmead Bottom	Bury Wood	North Long Hills	High Beach church
1389	Thelidium incavatum									●
1415	Toninia aromatica									●
1431	Trapelia coarctata		●							●
1595	Trapelia placodioides									●
0692	Trapeliopsis flexuosa	●	●	●	●	●	●			
1582	Trapeliopsis pseudogranulosa					●				
2260	Unguiculariopsis thallophila (LF)						●			
	Usnea sp.			●						
1519	Verrucaria macrostoma f. furfuracea									●
1507	Verrucaria muralis								●	
1510	Verrucaria nigrescens f. nigrescens									●
2514	Verrucaria nigrescens f. tectorum									●
2649	Verrucaria obfuscans									●
1518	Verrucaria viridula									●
0908	Violella fucata				●					
1530	Xanthoria parietina	●		●		●	●			●
1531	Xanthoria polycarpa			●		●	●		●	
2272	Xanthoriicola physciae (LF)	●		●					●	

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Notes on terricolous communities in beech stands by Neil Sanderson
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British Isles List of Lichens and Lichenicolous Fungi

September 2018 update to list

The fully corrected list is available on the BLS web site, *www.britishlichensociety.org.uk*

We are indebted to Nicola Bacciu, Paul Cannon, Alan Orange, Heather Paul, Neil Sanderson, and other checklist users, for bringing several of the required changes to our notice. Anyone encountering difficulties or errors regarding nomenclature or BLS code numbers, please contact one of us, as below.

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Add:			
2714	Arthonia thoriana ##	Arthon thor ##	
2716	Bacidina mendax	Bacidina mend	
2706	Caloplaca itiana	Calo itia	
2707	Caloplaca sol	Calo sol	
2701	Cercidospora thamnoliae #	Cerc tham #	
2703	Dactylospora scapanaria ##	Dact scap ##	1
2708	Didymocyrtis consimilis #	Didymoc cons #	
2718	Didymocyrtis foliaceiphila #	Didymoc foli #	
2705	Endococcus protoblasteniae #	Endococ proto #	
2719	Lecidea subhumida	Lecidea subh	
2715	Lichenochora hyperphysciae #	Lichenochora hype #	
2717	Lichenopeltella santessonii #	Lichenopelt sant #	
2704	Placopyrenium trachyticum	Placopyren trac	
2720	Rinodina exigua	Rino exig	
2702	Sphaerellothecium cinerascens #	Sphaerell cine #	
2700	Sphaerellothecium thamnoliae #	Sphaerell tham #	
2709	Trapelia collaris	Trapelia coll	
2710	Trapelia elacista	Trapelia elac	
2713	Trapelia glebulosa s. str.	Trapelia gleb s.s.	2
2711	Trapelia involuta	Trapelia invo	
2699	Trichonectria pertusariae #	Trichonectria pert #	
2712	Trichosphaeria lichenum #	Trichosp lich #	
2697	Verrucaria ahtii	Verrucar ahti	

Change of genus (sometimes also species epithet):						
Change from:			Replace with:			Notes
2292	Hainesia pertusariae #	Hain pert #	2292	Epithamnolia pertusariae #	Epit pert #	
2671	Hainesia xanthoriae #	Hain xant #	2671	Epithamnolia xanthoriae #	Epit xant	

Change of number and abbreviation:						
Change from:			Replace with:			Notes
1432	Trapelia glebulosa	Trapelia gleb	1432	Trapelia glebulosa s. lat.	Trapelia gleb s.l.	2

Change of spelling:						
Change from:			Replace with:			Notes
1850	Aspicilia simoënsis	Aspi simo	1850	Aspicilia simoensis	Aspi simo	
424	Cladonia symphycarpia	Clad symp	424	Cladonia symphycarpa	Clad symp	
786	Japewia tornoënsis	Japewia torn	786	Japewia tornoensis	Japewia torn	
748	Ochrolechia frigida f. lapuënsis	Ochr frig lapu	748	Ochrolechia frigida f. lapuensis	Ochr frig lapu	
1494	Ochrolechia szatalaënsis	Ochr szat	1494	Ochrolechia szatalaensis	Ochr szat	

Notes
1 – Non-lichenized hepaticolous fungus often recorded by lichenologists.
2 – Changes arising from the recent splitting of *Trapelia glebulosa* into *T. glebulosa* s. str. (2713) and *T. involuta* (2711).

B.J. Coppins, M.R.D. Seaward & J. Simkin

Literature pertaining to British lichens – 63

Lichenologist **50**(3) was published on 8 May 2018, **50**(4) on 23 July 2018, and **50**(5) on 26 September 2018.
Taxa prefixed by * are additions to the checklists of lichens and lichenicolous fungi for Britain and Ireland. Aside comments in square brackets are by the authors of this compilation.

HOLIEN, H. & PALICE, Z. 2018. *Lecidea subhumida* Vain., a pine wood specialist new to Scandinavia. *Graphis Scripta* **30:** 59–64. Provides a modern description and habit photo of this species, since identified from four sites in the eastern native pinewoods of Scotland.

LAMBLEY, P. 2018. The demise of the Breckland lichen flora. *Journal of Breckland Studies* **2:** 39–51. A well-illustrated, sobering documentation and discussion of the staggering decline in a one-time classic habitat for terricolous lichens.

ORANGE, A. 2018. *Caloplaca sol* (*Teloschistaceae*), a new coastal lichen from Great Britain. *Lichenologist* **50:** 411–424 (2018). **Caloplaca sol* Orange is newly described from the south and west coasts of Great Britain, growing on calcareous or basic rocks. Comparisons are made with similar species with orange-yellow thalli, including **C. itiana* Cl. Roux, M. Boulanger & Malle (2009), known from the Welsh coast.

PINOS-BODAS, R., BURGAZ, A.R., AHTI, T & STENROOS, S. 2018. Taxonomy of *Cladonia angustiloba* and related species. *Lichenologist* **50:** 267–282. DNA studies are reported to show that *C. angustiloba* and *C. convoluta* fit within the broad concept of *C. foliacea*, and they are both synonymized with that species. [Nevertheless, and in the meantime, these two segregates of *C. foliacea* will be retained by the BLS Taxon Dictionary. They are both recognizable entities, and we may not have heard the latest on their taxonomy. Indeed, the three photos published of *C. convoluta* do not closely resemble the lichen given this name from sites in southern England, such as those on The Mendips.]

SØCHTING, U. & ARUP, U. 2018. *Marchantiana asserigena* comb. nov., a possible European immigrant from Australia. *Graphis scripta* **30:** 115–120. *Caloplaca asserigena* (J. Lahm) Della Torre & Sarnth. (1902) [note corrected author citation] is lectotypified and tentatively assigned to the Southern Hemisphere genus *Marchantiana* S.Y. Kondr., Kärnefelt, Elix, A. Thell & Hur (2014), as *M. asserigena* (J. Lahm) Søchting & Arup. [There is both taxonomic and nomenclatural uncertainty here, as no mention is made of the genus *Streimanniella* S.Y. Kondr. *et al.* (2015) to which four species of *Marchantiana* have been transferred.]

SUIJA, A., VAN DEN BOOM, P., ZIMMERMANN, E., ZHURBENKO. M. & DIEDERICH, P. 2018. Lichenicolous species of *Hainesia* belong to Phacidiales (Leotiomycetes) and are included in an extended concept of *Epithamnolia*.

Mycologia **109:** 882–899. The genus *Epithamnolia* Zhurb. (2012) is now considered to include the lichenicolous species previously assigned to *Hainesia*; those reported from the British Isles are: *Epithamnolia pertusariae* (Etayo & Diederich) Diederich & Suija (syn. *H. pertusariae*) and *E. xanthoriae* (syn. *H. xanthoriae*). These species are found to be less host-specific than previously assumed. A key to all known species of *Epithamnolia* is provided.

B.J. Coppins
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New, rare and interesting lichens

Contributions to this section are always welcome. Submit entries to Chris Hitch, Orchella Lodge, 14, Hawthorn Close, Knodishall, Saxmundham, Suffolk, IP17 1XW, in the form of species, habitat, locality, VC no, VC name, (from 1997, nomenclature to follow that given in the appendix, see BLS *Bulletin* 79, which is based on the Biological Record Centre for instructions for Recorders, ITE, Monks Wood Experimental Station, Abbots Ripton, PE17 2LS, 1974). Grid Ref (GR) (please add letters for the 100km squares to aid BioBase and Recorder 2000, as these are used in the database and on the NBN Gateway), altitude (alt), where applicable in metres (m), date (month and year). NRI records should now include details of what the entry represents, e.g. specimen in Herb. **E**, Hitch etc., with accession number where applicable, field record or photograph, to allow for future verification if necessary or to aid paper/report writing. Determined/confirmed by, Comments, New to/the, finally recorder. An authority with date after species is only required when the species is new to the British Isles. Records of lichens listed in the RDB are particularly welcome, even from previously known localities. In the interests of accuracy, the data can be sent to me on e-mail, my address is cjbh.orchldge@freeuk.com, or if not, then typescript. Copy should reach the subeditor at least a fortnight before the deadline for the *Bulletin*. *Please read these instructions carefully*.

New to the British Isles

Didymocyrtis foliaceiphila (Diederich, Kockourk. & Etayo) Ertz & Diederich (2009): on squamules of cf. *Cladonia chlorophaea* s. lat. on large bough of *Salix cinerea* growing in marshy grassland, mire by New Pool, Angler's Retreat, VC46, Cardiganshire, SN746.922, alt. *c.* 395 m, August 2018. Herb. S.P. Chambers (**E**). Confirmed by B.J. Coppins. This species is known only by its pycnidial anamorph. Previously known as *Phoma foliaceiphila* Diederich, Kockourk. & Etayo (2007). For descriptions and illustrations see Diederich *et al.* in *Lichenologist* **39:** 153–163, and Ertz *et al.* in *Fungal Diversity* (2015) [**doi:** 10.1007/s13225-015-0345-6]. **BLS No. 2718.** *S.P. Chambers*

Lecidea subhumida Vain. (1883): (i) on attached decorticate branch of *Pinus*, east northeast of Forest Lodge, Abernethy Forest, VC 96, Easterness, GR NJ01-16-, alt

275–300 m, April 1980. Herb., leg. B.J. Coppins & M.A. Sherwood, Coppins 4841 (**E**); (ii) on standing decorticate pine, pinewood north of Derry Lodge, Mar Forest, VC 92, South Aberdeenshire, GR NO0--9--, alt 430–500 m, May 1984. Herb. Coppins 10710 (**E**); (iii) *ibid.*, by Glenbeg Burn, Ballochbuie Forest, GR NO1--8--, May 1984. Herb. Coppins 10783 & 10805 (**E**); (iv) *ibid.*, Glen Quoich, GR NO1068.9192, April 2006. Herb. Coppins 22155 (**E**). A distinctive species of decorticate pine in the eastern Caledonian pinewoods, with a blackish granular to isidiose thallus, convex, immarginate, brown-black apothecia and broadly ellipsoid to subglobose spores. Originally described from northern Finland. It has since been found in Russia, close to the Norwegian border and from north Norway (Nordland). Its occurrence in Scotland is a major extension of its known range. For an excellent detailed description, habit photo and discussion see Holien & Palice in *Graphis Scripta* **30:** 59–64 (2018) [PDF available free on-line]. **BLS No**. **2719**. *B.J. Coppins*

Rinodina exigua (Ach.) S. Gray: on moderately nutrient rich bark on a veteran *Fraxinus*, in parkland, south east of Lawn Pool, Moccas Park NNR, VC36, Herefordshire, SO3470.4266, alt. 110, May 2108, with *Lecanora sublivescens*. Det. Dr. Helmut Mayrhofer. Similar material was seen on a *Fraxinus* north of lawn pond but this was not collected (SO3445.4310, alt. 80m). Resembles a small *Rinodina roboris* and also contains atranorin (K + yellow or yellow–orange, K/UV + bright electric yellow) but has smaller apothecia to 0.4mm diameter, with the thalline margin less well developed, soon receding and never becoming crenulate. The spores are also of the *Physcia*-type as opposed to the larger *Pachysporaria*-type spores of *Rinodina roboris*. The Moccas *Rinodina exigua* spores were measured as 14 – 22 x 8 – 10µm over different samples but measuring only mature to over mature spores gave measurements of 18 – 22 x 8 – 9µm. The name *Rinodina exigua* was misused in Britain in the past for the common *Rinodina oleae*, a species of highly nutrient enriched habitats. This is similar to *Rinodina exigua* in size but lacks atranorin (K –), has a more persistent thalline margin and smaller *Dirinaria*- to *Physcia*-type type spores. A potentially rare species of veteran trees in lowland parklands, possibly over looked as stunted *Rinodina roboris* in the past. Photographs of one of the Moccas collections can be seen at <*http://fungi.myspecies.info/all-fungi/rinodina-exigua*>. **BLS No. 2720.**
N.A. Sanderson, *S. Price*, *P.F. Cannon* & *M. Powell*, BLS Meeting

Other Records

Abrothallus caerulescens: parasitising *Xanthoparmelia conspersa*, Great Cumbrae, The Lion, VC100, Clyde Isles, GR NS178.549, alt. 36 m, June 2017. New to the county.
N.G. Bacciu

Agonimia flabelliformis: on base rich bark on large veteran *Quercus* x *rosacea* within sheltered denser pasture woodland in parkland, Moccas Park NNR, VC 36, Herefordshire, GR SO3403.4281, alt 110 m, May 2018. Found on a single exceptionally rich tree that supported several oceanic woodland species. New to the Vice-county. *N. A. Sanderson*, BLS Meeting

Agonimia octospora: on base rich bark on large veteran Quercus x rosacea within sheltered denser pasture woodland in parkland, Moccas Park NNR, VC 36, Herefordshire, GR SO3403.4281, alt 110 m, May 2018. A major range extension and very surprising find for this site, of a strongly southern oceanic species. Found on a single exceptionally rich tree that supported several oceanic woodland species. New to the Vice-county. *N.A. Sanderson* BLS Meeting

Alectoria nigricans: in open *Racomitrium* heath (NVC: U10), growing with *Stereocaulon alpinum*, Grasmoor, Buttermere Fells SSSI, VC 70, Cumberland, GR NY177.203, alt 840 m, July 2018. The first English record of this montane lichen this century.

N. A. Sanderson & A. M. Cross, BLS Meeting

Anisomeridium biforme: on *Salix* in north car Park, Almondell and Calderwood Country Park, VC 84, West Lothian, GR NT09-69-, May 2018. Specimen not retained. New to the Vice-county. *B.J. Coppins*

Arthonia epiphyscia: parasitising *Physcia tenella* on *Salix* twig, Great Cumbrae, Farland Point, VC100, Clyde Isles, GR NS174.543, alt 5 m, June 2017. New to the county. *N.G. Bacciu*

Arthonia ilicinella: on *Corylus* bush, within *Corylus* dominated pasture woodland, above Seathwaite Bridge, Seatoller Wood SSSI, Borrowdale, VC70 Cumberland, NY2385.1287, alt 200 m, July 2018. An important addition to the assemblage of hyperoceanic *Corylus* specialists lichens, recorded from this site. New to northern England and the second English record. *N. A. Sanderson & A. M. Cross,* BLS Meeting

Arthonia muscigena: on *Sambucus nigra* trunk, Low Scrubs, Wendover, VC 24, Buckinghamshire, GR SP854.061, April 2018. New to the Vice-county. *P. Shipway*

Arthonia muscigena: on *Crataegus* twig, Kenfig, VC 41, Glamorganshire, GR SS796.810, alt 11 m, May 2018. New to the county. *N.G. Bacciu*

Arthonia parietinaria: parasitising *Xanthoria parietina* on *Crataegus* twig, Kenfig, VC41, Glamorganshire GR SS796.810, alt 11 m, May 2018. New to the county. *N.G. Bacciu*

Arthonia parietinaria: parasitising *Xanthoria parietina*, Great Cumbrae, Farland Point, VC 100, Clyde Isles, GR NS174.543, alt 5 m, June 2017. New to the county. *N.G. Bacciu*

Arthopyrenia nitescens: on young *Quercus* planted in parkland, Moccas Park NNR, VC 36, Herefordshire, GR SO3409.4311, alt 80 m, May 2018. An unexpected find of

a species normally found in humid oceanic woods. Potentially overlooked in other habitats. New to the Vice-county. *P.F. Cannon & N.A. Sanderson*, BLS Meeting

Aspicilia grisea: on sandstone headstone, churchyard (St James), Upper Stowe, VC 32, Northamptonshire, GR SP643.567, June 2018. Herb. Powell 4674. This species may be more widespread in the lowlands than generally realised. Most lowland occurrences are K+ yellow (rather than K+ yellow turning red) which may have resulted in some specimens remaining undetermined. New to the Vice-county.
M. Powell

Bacidia arceutina: on young *Acer pseudoplatanus* in woodland, Almondell and Calderwood Country Park, VC 84, West Lothian, GR NT09-69-, May 2018. Specimen not retained. New to the Vice-county. *B.J. Coppins*

Bacidia bagliettoana: overgrowing moss and limestone chippings within a curbed grave, growing with *Cladonia chlorophaea* s. lat. and *Leptogium pulvinatum*, in churchyard (St Nicholas), Swineshead, VC 30, Bedfordshire, GR TL058.659, July 2018. Herb. Powell 4673. This is the only known occurrence in the north. This curbed grave mimics a tiny scrap of limestone heath. Very rare in the Vice-county.
B.J. Coppins & M. Powell

Bacidia incompta: on wound tracks on four trees, two *Acer campestre* and two *Aesculus* in parkland, Moccas Park NNR, VC 36, Herefordshire, GR SO3401.4257, GR SO3395.4253, GR SO3405.4264 & GR SO3403.4262, 125 – 160 m, May 2018. A substantial colony of this threatened Section 41 lichen.
D. Lamacraft, M. Powell & N.A. Sanderson, BLS Meeting

Bacidia subturgidula: on exposed *Quercus* lignum, on two stunted trees on granite outcrops, one dead, and an ancient boundary tree, in oceanic pasture woodland, Hisley Wood, Bovey Valley Woodlands SSSI, VC 3, South Devon, GR SX7780.8071, GR SX7784.8071 and GR SX7763.8047, alt 95 – 190 m, May 2018. A significant new population for an internationally rare lichen, known only from England and Ireland. New to the Vice-county. *N.A. Sanderson*

Bacidia subturgidula: on exposed lignum on ancient *Ilex* within *Quercus – Corylus – Ilex* pasture woodland, above Thorneywaite Farm, Borrowdale, VC 70 Cumberland, GR NY2510.1343, alt 130 m, July 2018. New to northern England and a considerable range extension for this internationally rare lichen.
N.A. Sanderson, A.M. Cross & D. Lamacraft, BLS Meeting

Bacidia sulphurella: a small sterile pycnidiate thallus on southwest-side of nutrient-enriched *Salix cinerea* bough, on road verge adjacent to arable (winter stubble) field, Allt Maestir, c. 2.5 km northwest of Lampeter, VC 46, Cardiganshire, GR SN547.502, alt 260 m, April 2018. Herb. SPC. Second Vice-county record for this species.
S.P. Chambers

Bactrospora corticola: on dry bark of three ancient *Quercus*, near Lawn Pond, Moccas Park NNR, VC 36, Herefordshire, GR SO3447.4286, GR SO3462.4280 & GR SO3429.4303, alt 80 m, May 2018. All material was sterile with pycnidia only. New to the Vice-county. *T. Wilkins* & *N.A. Sanderson*, BLS Meeting

Biatora chrysantha: on wound track on smallish *Quercus* cut recently as a pollard, within pasture woodland, Great Wood, Gregynog SSSI, VC 47, Montgomeryshire, GR SO0821.9763, alt 220 m, May 2018. New to the Vice-county. *N.A. Sanderson*

Biatoridium delitescens: on *Quercus robur*, Weekpark plantation, Torridge, VC 4, North Devon, GR SS428.035, alt 109 m, May 2018. Herb. Putnam & (**K**). Second record for the species in the Vice-county, at a new site.
N.G. Bacciu, *T. Holwill* and *M. Putnam*

Biatoropsis hafellneri: two records from Wales; (i) on *Usnea* cf. *flammea* on *Calluna vulgaris* in coastal heath, west-side of Ramsey Island, VC 45, Pembrokeshire, GR SM700.240, alt 50 m, August 2000; (ii) frequent on *U.cornuta* on *Betula* trunk in humid streamside *Quercus* wood, Cyneiniog Valley, east of Cwmere, VC 46, Cardiganshire, GR SN704.882, alt 165 m, September 2010. Both collections, Herb. SPC, previously named *B. usnearum,* but having 2-celled basidia with a single transverse septum. New to Wales. *S.P. Chambers*

Buellia badia: on slate roofing tiles, West Down, VC 4, North Devon, GR SS517.420, alt 155 m, June 2018. Herb. Putnam. New to the Vice-county. *M. Putnam*

Buellia hyperbolica: on three large pieces of fallen *Quercus* lignum in parkland, near Lawn Pond, Moccas Park NNR, VC 36, Herefordshire, GR SO3457.4270, GR SO3452.4278 & GR SO3415.4306, alt 80 m, May 2018. A significant extension in range for this Section 41 species. New to the Vice-county.
T. Wilkins & *N. A. Sanderson*, BLS Meeting

Buellia hyperbolica: on *Quercus* lignum, and rarely bark, at nine locations, on veteran standing dead and fallen dead trees, within pasture woodland stands in parkland; (i) eight locations in Brook's Corner, Cranbourne Park, GR SU94.73 & GR SU95.73, alt 40 – 60 m, July 2918; (ii) one location at Cooks Hill, Windsor Great Park, GR SU9779.7283, alt 30 m, August 2018; all Windsor Forest and Great Park SSSI, VC 22, Berkshire,. Largest known English colony for this Section 41 species and the first records from Windsor since the lichen was first collected in Britain there, in 1967 by Dr F. Rose. *N.A. Sanderson*

Buellia schaereri: on lignum on standing dead *Quercus*, in parkland, Dark Wood, Windsor Great Park, Windsor Forest and Great Park SSSI, VC 22, Berkshire, GR SU9578.7164, alt 65 m, August 2018. New to the Vice-county. *N.A. Sanderson*

Buellia violaceofusca/ Lecanographa amylacea: on dry bark of veteran *Quercus* on the edge of a dense pasture woodland stand in parkland, Moccas Park NNR, VC 36, Herefordshire, GR SO3438.4250, alt 110 m, May 2018. Found as a composite thallus, mostly with brown flecks, containing a *Trentepohlia* type alga, but also areas of brownish-violet soredia, abrading green, with a *Trebouxia* type alga. *Buellia violaceofusca*, is now known to be a *Trebouxia* green algal morph of *Lecanographa amylacea.* This was the first record of the sorediate *Trebouxia* morph from southern England.

N.A. Sanderson

Calicium victorianum: on the bark of old *Ilex*, within *Quercus – Ilex* pasture woodland, Neadon Cleave, Bovey Valley Woodlands SSSI, VC 3, South Devon, GR SX7578.8197, alt 180 m, May 2018. Found in a very different lichen rich habitat, compared to the original find on a fence post. The stalkless *Calicium* apothecia are especially distinctive and this not an easy species to overlook during lichen surveys. In this case the lack of other records of the species, since it was found in Sussex in 1999, suggests it is likely to be rare. In this collection, some of the spores were two septate but most were one septate and the lichen otherwise matched the descriptions. New to Devon and second British record. *N.A. Sanderson*

Caloplaca cerina* var. *chloroleuca: on moss in open maritime grassland on top of sea cliff, Mull of Galloway, VC 74 Wigtownshire, GR NX1557.3036, alt 80 m, August 2018. New to the Vice-county and south west Scotland. *N.A. Sanderson*

Candelaria pacifica: on piece of bark on the ground from *Acer platanoides* 'at my bus stop', Newington Avenue, Southchurch, Southend-on Sea, VC18, South Essex, GR TQ902868, July 2018. Herb. P.M. Earland-Bennett. Confirmed by B.J. Coppins. Second Essex and East Anglian record, with *Lecanora compallens*. *P.M. Earland-Bennett*

Carbonea supersparsa: on *Lecanora intricata* on bridge parapet, Milsieburn Bridge, Lauder, VC 80, Roxburghshire, GR NT543.457, alt 160 m, June 2018. Herb. Coppins 25325 (**E**). New to the Vice-county. *B.J. Coppins*

Catillaria fungoides: on nutrient-rich bark on southwest facing trunk of hedgerow *Fraxinus excelsior* at edge of sheep pasture *c.* 250 m north of Brynhelyg, 1 km southwest of Ffostrasol, VC 46, Cardiganshire, GR SN362.469, alt 210 m, September 2018. Herb. SPC. New to Wales. *S.P. Chambers*

Chaenotheca brunneola: on lignum inside hollow trunk of a veteran *Quercus*, Ickworth Park, VC 26, West Suffolk, GR TL8145.6166, August 2018. Field record confirmed by M. Powell, with its immersed thallus and Pd+ yellow reaction. New to the Vice-county. *M. Powell, P.W. Lambley & C.J.B. Hitch*

Chaenotheca chrysocephala: on lignum of standing dead *Quercus* and lignum of veteran *Quercus*, within pasture woodland stands in parkland, Brook's Corner,

Cranbourne Park, Windsor Forest and Great Park SSSI, VC 22, Berkshire, GR SU9485.7321 & GR SU9473.7289, alt 60 m, July 2018. New to the Vice-county. *N.A. Sanderson*

Chaenotheca chrysocephala: on lignum of collapsed section of veteran *Quercus*, Ickworth Park, VC 26, West Suffolk, GR TL8145.6166, August 2018. Field record confirmed by M. Powell. New to the Vice-county.
M. Powell, P.W. Lambley & C.J.B. Hitch

Chaenotheca furfuracea: sterile, growing on soil of upturned root plate in Swineshead Wood, VC 30, Bedfordshire, GR TL063.669, July 2018. Herb. Powell 4675. When sterile this lichen closely resembles *Psilolechia lucida* which can grow in similar situations. *P. lucida* usually has *Trebouxia* as its photobiont rather than *Stichococcus*. In the rare instances that *P. lucida* contains *Stichococcus*, the chains of that alga are broken up whereas in *C. furfuracea* the *Stichococcus* remains in chains. New to the Vice-county.
B.J. Coppins & M. Powell

Chaenotheca stemonea: on lignum inside hollow *Alnus* and dry bark on veteran *Quercus*, in parkland, near Wood Cottage, Gregynog SSSI, VC 47, Montgomeryshire, GR SO0790.9735 & GR SO0783.9752, alt 220 m, May 2018. New to the Vice-county.
N.A. Sanderson

Chaenotheca stemonea: in basal hollow of trunk of old *Quercus* by path, Almondell and Calderwood Country Park, VC 84, West Lothian, GR NT09-69-, May 2018. Specimen not retained. Sterile. New to the Vice-county. *B.J. Coppins*

Chaenotheca stemonea: on dry bark on eight veteran *Quercus* within pasture woodland stands and more isolated trees in parkland, Cranbourne Park and Windsor Great Park, Windsor Forest and Great Park SSSI, VC 22, Berkshire, Grid Refs. SU95-73-, SU94-73-, SU95-72-, SU95-71-, SU95-70-, SU98-73-, SU96-68, alt 30 – 70 m, July & August 2018. New to the Vice-county. *N.A. Sanderson*

Chaenotheca stemonea: on veteran *Quercus* trunk in Berrygrove Wood, Aldenham, VC 20 Hertfordshire, GR TQ133.980, August 2018. Identified by M. Powell. New to the Vice-county. *P. Shipway*

Chaenotheca trichialis: on trunk of old *Quercus* by path, Almondell and Calderwood Country Park, VC 84, West Lothian, GR NT0883.6889, May 2018. Field record. New to the Vice-county. *B.J. Coppins*

Chaenothecopsis debilis: small amount on standing dead *Quercus* in grassland at edge of pasture woodland in parkland, Brook's Corner, Cranbourne Park, Windsor Forest and Great Park SSSI, VC 22, Berkshire, GR SU9521.7333, alt 50 m, July 2018. First English record of this species, since the 19th century. *N.A. Sanderson*

Chaenothecopsis pusilla: on exposed lignum on ancient *Quercus* and on two standing dead trees, within pasture woodland stands and more isolated trees in parkland, Brook's Corner, Cranbourne Park Windsor, and Cavalry Exercise Ground and Cooks Hill, Windsor Great Park, all in Windsor Forest and Great Park SSSI, VC 22, Berkshire, GR SU9491.7345, GR SU9618.7468 & GR SU9775.7300, alt 30 – 60 m, July & August 2018. New to the Vice-county. *N.A. Sanderson*

Chaenothecopsis retinens: parasitic on *Sporodophoron* (*Schismatomma*) *cretaceum* on veteran *Quercus*, within pasture woodland, Great Wood, Gregynog SSSI, VC 47, Montgomeryshire, GR SO0833.9773, alt 200 m, May 2018. This an internationally rare lichenicolous fungus, has been only recorded from five sites in southern England and one in Switzerland in recent decades. New to Wales. *N.A. Sanderson*

Cladonia arbuscula* subsp. *squarrosa: on parched acid grassland, in areas of shallow soil over rock, Chase End Hill, Malvern Hills, VC 37, Worcestershire, GR SO7603.3538, GR SO7598.3520 & GR SO7598.3519, alt 150 – 180m, June 2018. These appear to be the only records for this declining reindeermoss from the Midlands this century. The site appeared little or ungrazed and the population is likely to be threatened by increasing sward height. *N.A. Sanderson*

Cladonia callosa: on thin soil on ledge of ultrabasic rock with *Cladonia cervicornis*, Black Crag, Carrock Fell, Mosedale, Skiddaw Group SSSI, VC 70 Cumberland, GR NY356.325, alt 230 m, July 2018. New to the Vice-county.
N.A. Sanderson & *J. Simkin*, BLS Meeting

Cladonia crispata* var. *cetrariiformis: on parched acid grassland, in areas of shallow soil over rock, Midsummer Hill, Malvern Hills, VC 36, Herefordshire, GR SO7594.3746, alt 280 m, June 2018. New to the Vice-county. *N.A. Sanderson*

Cladonia rangiferina: (i) two strong populations found, both in stands of *Vaccinium myrtillus* – *Cladonia arbuscula* Heath (NVC: H19) at the top edge of the montane heath zone, but also with individual thalli found in the *Racomitrium* heath (NVC: U10), above Grasmoor, Buttermere Fells SSSI, VC 70 Cumberland, GR NY1781.2011 to GR NY1779.2017 and an outlying thallus at GR NY1769.2027, alt 790 – 840 m July 2018; (ii) at Carl Side, Skiddaw, Skiddaw Group SSSI, VC 70 Cumberland, the main population in GR NY254.278 & GR NY254.279 with outlying thalli in GR NY254.280, GR NY253.280 & GR NY252.282, alt 700 – 740 m, July 2018. Healthy populations of an upland lichen, which has otherwise not been reported from northern England this century. *N.A. Sanderson* & *A.M. Cross*, BLS Meeting

Cryptolechia carneolutea: large colony on senescent ancient *Fagus*, Wooson's Hill, Mark Ash Wood, New Forest, VC11, South Hampshire, GR SU2602.0771, alt 50 m, April 2018. A new colony for this very threatened lichen. *N.A. Sanderson* & *A.M. Cross*

Cystocoleus ebeneus: on northeast-facing basaltic outcrop under shade of trees, Cat Craig, Bowden Hill, VC 84 West Lothian, GR NS975.742, alt 180 m, June 2018. Specimen not retained. New to the Vice-county. *B.J. Coppins*

Didymocyrtis epiphyscia: as the anamorph, on the apothecial discs of *Physcia aipolia* on branch of *Fraxinus excelsior* in coastal woodland, Tresaith, VC 46, Cardiganshire, GR SN276.515, alt 45 m, April 2018. Herb. SPC. The second Vice-county & Welsh record for this species. *S.P. Chambers*

Didymocyrtis slaptoniense: parasitising *Xanthoria parietina* on *Acer pseudoplatanus*, Whiteford Beach, VC 41, Glamorganshire GR SS437.938, alt 29 m, May 2018. New to the county. *N.G. Bacciu*

Didymocyrtis slaptoniense: on *Xanthoria parietina* on *Fraxinus* twig, Great Cumbrae, Farland Point, VC 100, Clyde Isles, GR NS174.543, alt 5 m, June 2017. New to the county. *N.G. Bacciu*

Dimerella lutea: on stems of *Vaccinium myrtillus* growing alongside a large boulder (or rounded outcrop) on grassy east-facing slope of Bowden Hill, VC 84, West Lothian, GR NS9785.7442, alt 220 m, June 2018. Herb. Coppins 25323 (**E**). New to the Vice-county. *B.J. Coppins*

Dimerella tavaresiana (*Coenogonium tavaresianum*): on flushed base rich streaks, on the trunks of three veteran *Quercus* within pasture woodland, near Wood Cottage and in Great Wood, Gregynog SSSI, VC 47, Montgomeryshire, GR SO0783.9742, GR SO0835.9767, and GR SO0824.9765, alt 200 – 220 m, May 2018. New to Wales and third site in Britain for an apparently internationally rare southern Atlantic – Mediterranean species. *N.A. Sanderson*

Dimerella tavaresiana (*Coenogonium tavaresianum*): on flushed base rich streaks on trunks of two veteran *Quercus* in parkland, Moccas Park NNR, VC 36, Herefordshire, GR SO3457.4273 & GR SO3432.4254, 80 & 115 m respectively, May 2018. An important find of an internationally rare species, only recently found in Britain. New to the Vice-county. *M. Powell & N.A. Sanderson*, BLS Meeting

Endococcus rugulosus: parasitising *Ionapsis lacustris* on metamorphic siliceous rocks in mire, Cox Tor, Dartmoor, VC 3, South Devon, GR SX525.763, alt 344 m, September 2018. Herb. Bacciu. New to the county. *N.G. Bacciu*

Enterographa sorediata: recorded on 29 trees - 28 *Quercus* and 1 *Fraxinus*, within more sheltered areas of pasture woodland, Great Wood, Gregynog SSSI, VC 47, GR SO08-97-, alt 190 – 220 m, May 2018. A substantial population of what is now known to be a sorediate morph of *Syncesia myrticola*. It is easily the largest known population in Wales. *N.A. Sanderson*

Enterographa sorediata: single thallus on dry bark on veteran *Quercus* by glade within pasture woodland in parkland, Brook's Corner, Cranbourne Park, Windsor Forest and Great Park SSSI, VC 22, Berkshire, GR SU9499.7318, alt 55 m, July 2018. A remarkable find this close to London. Now known to be a sorediate morph of *Syncesia myrticola*. New to the Vice-county. *N.A. Sanderson*

Epicladonia sandstedei: parasitic on *Cladonia cyathomorpha* on dry stone wall, by Seathwaite Bridge, Seatoller Wood SSSI, Borrowdale, VC 70 Cumberland, GR NY2395.1278, alt 120 m, July 2018. First record from northern England. *N.A. Sanderson*, *A.M. Cross* & *D. Lamacraft*, BLS Meeting

Erythricium aurantiacum: on *Physcia tenella* on *Prunus* sp. (cherry) twigs, Lanfair Caereinion Playground, VC 47, Montgomeryshire. GR SJ10-06-, March 2018. Herb A.J. Hotchkiss. New to the Vice-county. *A. J. Hotchkiss*

Flavoparmelia soredians: immature thalli on trunk of mature *Acer pseudoplatanus* in rough pasture, east of Bowden Hill, VC 84, West Lothian, GR NS9812.7448, alt 195 m, June 2018. Specimen not retained. New to the Vice-county. *B.J. Coppins*

Flavoparmelia soredians: on upper surface of lowish vertical man-made sandstone tombstone in churchyard (St Peter & St Paul), Fressingfield, VC 25, East Suffolk, GR TM261.774, August 2018. Field record. Confirmed by MP and CJBH. It is interesting for two reasons, possibly the first saxicolous record for this taxon and also the size of the immaculate condition of the thallus, which from a distance suggested *F. caperata*.. There is no mention of this species being seen during previous visits in 1981 and 1995. *M. Powell & C.J.B. Hitch*

Graphina pauciloculata: parasitic on *Graphina ruiziana* on *Betula* and *Corylus* within upland *Quercus – Betula* pasture woodland, Bull Crag, Stonethwaite, Stonethwaite Woods SSSI, Borrowdale, VC 70, Cumberland, GR NY2657.1316 & GR NY2659.1314, alt 270 – 280, July 2018. First record from northern England for this Section 41 species. *N.A. Sanderson*, *A.M. Cross* & *D. Lamacraft,* BLS Meeting

Gyalecta jenensis: abundant on limestone blocks forming pyramidal mausoleum, Blickling Hall Park, VC 27, East Norfolk, GR TG166.294, May 2018. Second modern vice-county record. *P.W. Lambley*

Gyalecta truncigena: growing on mossy string course of tower of church (St Nicholas), Swineshead, VC 30, Bedfordshire, GR TL058.659, July 2018. Herb. Powell 4673. New to the Vice-county. *B.J. Coppins & M. Powell*

Hypotrachyna afrorevoluta: on branch of *Prunus* sp. (cherry), Almondell and Calderwood Country Park, VC 84, West Lothian, NT09-69-, May 2018, field record. New to the Vice-county. *B.J. Coppins*

Illosporiopsis christiansenii: on *Physcia tenella* on *Sambucus*, Almondell and Calderwood Country Park, VC 84, West Lothian, GR NT09-69-, May 2018, field record. New to the vice-county. *B.J. Coppins*

Imshaugia aleurites: the dominant lichen on the boughs of a fallen Monterey Pine in hedgerow, adjacent to footpath through fields north of Mawnan Smith, VC1 West Cornwall. GR SW777.297, alt 65 m. May 2018. Herb. Blatchley. New to the Vice-county. *K. Sandell, I. Blatchley, L. Balfe*

Inoderma (Lecanactis) subabietina: on trunk of veteran *Quercus*, Staverton Thicks, Wantisden, VC 25, East Suffolk, GR TM358.505, August 2018. Herb. Powell 4669. Almost overlooked as *Opegrapha vermicellifera* in the field, the pycnidia of this material do not give a discernible K+ yellow reaction. Examination of the specimen led to the discovery of the K/UV+ mauve fluorescence which seems to be an indicator of the presence of confluentic acid. New to the county and East Anglia. *M. Powell*

Intralichen christiansenii: parasitising *Lecania cyrtella* on *Sambucus nigra* twig, Bridgwater, VC 5, South Somerset, GR ST298.365, alt 8 m, June 2018. New to the Vice-county. *N.G. Bacciu*

Intralichen christiansenii: parasitising *Lecania cyrtella* on *Fraxinus* twig, Tapeley Park, VC 4, North Devon GR SS480.289, alt. 69 m, April 2018. New to the Vice-county. *N.G. Bacciu*

Intralichen christiansenii: parasitising *Lecania cyrtella* on *Populus alba* twig, Lockeridge Dene, VC 7, North Wiltshire, GR SU146.674, alt 151 m, June 2018. New to the county. *N.G. Bacciu*

Lecanographa lyncea: recorded on 92 trees - 90 *Quercus* and 2 *Fraxinus*, within pasture woodland and, rarely, more open parkland trees, Great Wood, near Wood Cottage and The Warren, Gregynog SSSI, VC 47, Montgomeryshire, GR SO08-97- & GR SO07-97-, alt 190 – 220 m, May 2018. An exceptionally large population for this international responsibility species, easily the largest in Wales and equal to the largest known in England. *N.A. Sanderson*

Lecanographa lyncea: on dry bark on large veteran *Quercus* x *rosacea* in sheltered denser pasture woodland within parkland, Moccas Park NNR, VC 36, Herefordshire, GR SO3438.4250, GR SO3403.4281, alt 110 m, May 2018. New to the park, fertile, so could be separated from *Lecanographa amylacea* in the field.
N.A. Sanderson, BLS Meeting

Lecanora albellula* var. *albellula: *Quercus* lignum, on fallen tree and on standing dead tree, within pasture woodland in parkland, Brook's Corner, Cranbourne Park, Windsor Forest and Great Park SSSI, VC 22, Berkshire, GR SU9516.7362 & GR SU9521.7333, alt 50 m, July 2018. New to the Vice-county. *N.A. Sanderson*

Lecanora barkmaniana: On *Fraxinus* on Broome Heath, VC 27, East Norfolk, GR TM344.912, July 2018. New to the Vice-county. *C.J.B. Hitch & P.W. Lambley*

Lecanora barkmaniana: on willow, thallus fertile, Weekpark Plantation, near Cookbury, VC 4, North Devon, GR SS432.036, alt 112m, August 2018. *T. Holwill*

Lecanora barkmaniana: growing in abundance, some thalli fertile, on wooden bench seat, RHS Garden, Wisley, VC 17, Surrey, GR TQ064.588, August 2018. Herb. Powell 4676. Common in lowland England but rarely found fertile.

F. Newbery & M. Powell

Fertile *Lecanora barkmaniana* growing with *Physconia enteroxantha* on a wooden bench seat, RHS Wisley. Photo Mark Powell

Lecanora quercicola: on mesic bark on the trunks of two veteran *Quercus* in parkland, Moccas Park NNR, VC 36, Herefordshire, GR SO3457.4273 & GR SO3432.4254, alt 80 & 115 m respectively, May 2018. New to Moccas Park and an important new site for this Section 41 species with few recent records.

M. Powell & N.A. Sanderson, BLS Meeting

Lecanora sinuosa: on branch of *Acer pseudoplatanus*, Almondell and Calderwood Country Park, VC 84, West Lothian, GR NT09-69-, alt 90 m, May 2018. Herb. Coppins 25306 (**E**). New to the Vice-county. *B.J. Coppins*

Lecanora sublivescens: recorded on 57 trees - 50 *Quercus*, 6 *Fraxinus* and 1 *Acer pseudoplatanus*, in open areas within pasture woodland and on parkland trees, Great Wood, near Wood Cottage and The Warren, Gregynog SSSI, VC 47, Montgomeryshire, GR SO08-97- & GR SO07-97-, alt 190 – 220 m, May 2018. A very large population and potentially the largest known in Europe. *N.A. Sanderson*

Lecanora sublivescens: well lit on mesic bark on 19 veteran trees – (18 *Quercus* and 1 *Fraxinus*), in parkland, Moccas Park NNR, VC 36, Herefordshire, GR SO34-42- & GR SO34-43-, May 2018. A large population and potentially the largest known in England, especially as this was a transect through the park, not a comprehensive survey and more trees with *Lecanora sublivescens* are likely to occur in unvisited sections of the park. *M. Powell & N.A. Sanderson*, BLS Meeting

Lecanora sublivescens: on five veteran *Quercus* in parkland, along Duke's Lane, Windsor Great Park, Windsor Forest and Great Park SSSI, VC 22, Berkshire, GR SU958.715, GR SU957.712, GR SU952.705 & GR SU959.717, alt 55 – 60 m, July 2018. First records for Windsor Great Park since the lichen was recorded from old *Fagus* trunks in 1887 by J.M. Crombie. Quite a surprising refind. *N.A. Sanderson*

Lecidea nylanderi: widespread on *Quercus* lignum and acid bark, within pasture woodland, Great Wood and near Wood Cottage, Gregynog SSSI, VC47, Montgomeryshire, GR SO08-97- & GR SO07-97-, May 2018. This mainly northern species appears to have been overlooked in the past until recently, within high quality pasture woodlands and parklands in the south. New to Wales. *N.A. Sanderson*

Lecidea nylanderi: on lignum on fallen *Quercus* and exposed lignum on ancient *Quercus*, in parkland, Moccas Park NNR, VC 36, Herefordshire, GR SO3452.4278 & GR SO3444.4267, alt 80 & 85m respectively, May 2018. A northern species apparently overlooked until recently at high quality old growth sites in the south. New to Herefordshire. *M. Powell & N.A. Sanderson*, BLS Meeting

Lecidea nylanderi: on acid bark on an old *Larix*, an isolated old conifer in upland *Quercus – Betula* pasture woodland, Ashness Wood, Lodore – Troutdale Woods SSSI, Borrowdale, VC 70, Cumberland, GR NY2695.1903, alt 250 m, July 2018. First record for northern England. *N.A. Sanderson & N.G. Baccui*, BLS Meeting

Lecidea nylanderi: on *Quercus* lignum on dead fallen tree within pasture woodland in parkland, Cooks Hill, Windsor Great Park, Windsor Forest and Great Park SSSI, VC22, Berkshire, SU9778.7255, alt 65m, August 2018. New to the Vice-county.
N.A. Sanderson

Lecidea turgidula: on lignum of fallen *Quercus* hulk, west of Nettlecombe Court, Nettlecombe Park SSSI, VC 5, South Somerset, GR ST0544.3774, alt 130 m, October 2017. Herb. Coppins 25319 (**E**). Previously known in Somerset, only from Horner Woods. *B.J. Coppins*

Lecidoma demissum: in very exposed wind blasted *Racomitrium* heath (NVC: U10), growing with *Thamnolia vermicularis* var. *subuliformis*, Grasmoor, Buttermere Fells SSSI, VC 70, Cumberland, GR NY1739.2036, alt 838 m, July 2018. The first English record of this montane lichen this century. *N.A. Sanderson* & *A.M. Cross*, BLS Meeting

Leprocaulon calcicola: on capstone footing of church, (St Nicholas), Dersingham, VC 28, West Norfolk, GR TF693.304, Aug 2017. Determined by M. Powell Second vice county record for this species. *P.W.Lambley*

Leptogium diffractum: on top of low limestone chest tomb, (St Mary Magdalene) Woodstock, VC 23, Oxfordshire, GR SP443.167, July 2018. Herb. Powell 4677. New to the Vice-county. (See photo opposite page.) *B.J. Coppins & M. Powell*

Leptogium subtile: in wound tracks on *Acer campestre* and *Aesculus* in parkland, Moccas Park NNR, VC 36, Herefordshire, GR SO3395.4253 & GR SO3405.4264, alt 125 & 160m respectively, May 2018. New to the Vice-county.
D. Lamacraft, *M. Powell* & *N.A. Sanderson*, BLS Meeting

Leptorhaphis maggiana: on *Corylus* stem in woodland strip beside Wisley Lane, VC 17, Surrey, GR TQ068.581, August 2018. Herb. Powell 4676. New to the Vice-county.
F. Newbery & M. Powell

Lichenochora obscuroides: on *Phaeophyscia orbicularis* on *Fraxinus*, Almondell and Calderwood Country Park, VC 84, West Lothian, GR NT09-69-, May 2018. Specimen not retained. New to the Vice-county. *B.J. Coppins*

Lichenochora weillii: lichenicolous on *Physconia grisea*, on trunk of *Acer pseudoplatanus* in churchyard (St Peter & St Paul) Fressingfield, VC 25, East Suffolk, GR TM261.774, August 2018. Herb. Powell 4663. Determined by M. Powell. New to the county and East Anglia. *M. Powell & C.J.B. Hitch*

Lichenoconium lichenicola: on *Physcia tenella* on *Sambucus*, Almondell and Calderwood Country Park, VC 84, West Lothian, GR NT09-69-, alt 90 m, May 2018. Herb. Coppins 25305 (**E**). New to the Vice-county. *B.J. Coppins*

The tiny, closely appressed rosettes of *Leptogium diffractum* at Woodstock, with fertile *Leptogium plicatile* to the left and *Collema fuscovirens* to the right. Photo Mark Powell

Lichenodiplis opegraphae: on *Opegrapha herbarum* and *O. niveoatra* on *Acer pseudoplatanus*, Old Broadmeadows Burn, Yarrowford, VC 79, Selkirkshire, GR NT41-30-, June 2018. Specimens not retained. New to the Vice-county. *B.J. Coppins*

Micarea botryoides: on northeast-facing basaltic outcrop under shade of trees, Cat Craig, Bowden Hill, VC 84 West Lothian, GR NS975.742, alt 180 m, June 2018. Specimen not retained, pycnidia only. New to the Vice-county. *B.J. Coppins*

Micarea herbarum: on *Quercus* lignum on trunk dumped in old pit, in parkland, near Sandpit Gate, Windsor Great Park, Windsor Forest and Great Park SSSI, VC 22,

Berkshire, GR SU9513.7181, alt 85 m July/August 2018. New to Berkshire and second record from Britain of a recently described species, which is potentially relatively widespread. *N.A. Sanderson*

Micarea misella: on *Quercus* lignum on standing dead tree and on fallen trunks, in parkland, Dark Wood and Cookes Hill, Windsor Great Park and Brook's Corner, Cranbourne Park, all in Windsor Forest and Great Park SSSI, VC 22, Berkshire, GR SU978.726, GR SU9578.7164 & GR SU946.730, alt 60 m – 75 m. Seen in both July and August 2018. New to Berkshire. *N.A. Sanderson*

Micarea polycarpella: on flat, southeast facing side of old softwood fencepost in fence line, edge of forestry plantation, Bryn-beddau, *c.* 1 km northeast of Bethania, VC 46, Cardiganshire, GR SN586.642, alt *c.* 320 m, November 2015. Herb. SPC. Determined by B.J. Coppins. New to Wales and the first lignicolous record for the species. *S.P. Chambers*

Micarea pycnidiophora: on eleven old *Ilex*, within *Quercus – Ilex* pasture woodland, Neadon Cleave, Bovey Valley Woodlands SSSI, VC 3, South Devon, GR SX757.819, GR SX758.819, GR SX759.816, GR SX759.817, GR SX759.817, GR SX758.817, GR SX758.818, GR SX7588.816 & GR SX757.820, alt 160 – 180. May 2018. A strong population of a lichen which is rather rare outside of south central England. New to the county. *N.A. Sanderson*

Micarea ternaria: on piece of sandstone lying loose on heathy slope above forestry track entrance splay, Bryn Du plantation, *c.* 0.5 km north of Cwm Twrch, VC 46, Cardiganshire, GR SN684.516, alt 435 m, July 2018. Herb. SPC. The second Vice-county and third Welsh record for this species. *S.P. Chambers*

Micarea xanthonica: on acid bark of two old *Quercus* within pasture woodland, Great Wood, Gregynog SSSI, VC 47, Montgomeryshire, GR SO083.976 & GR SO081.975 alt 200 m, May 2018. New to the Vice-county. *N.A. Sanderson*

Microcalicium ahlneri: on *Quercus* lignum on two standing dead trees and exposed on an ancient tree, within pasture woodland in parkland, Brook's Corner, Cranbourne Park and Cookes Hill, Windsor Great Park, both sites in Windsor Forest and Great Park SSSI, VC 22, Berkshire, GR SU9485.7321, GR SU9782.7299 & GR SU9782.7299, alt 40 & 75 m respectively, July & August 2018. New to the Vice-county. *N.A. Sanderson*

Microcalicium disseminatum: on *Quercus* lignum on standing dead tree by glade, Brook's Corner, Cranbourne Park, Windsor Forest and Great Park SSSI, VC 22, Berkshire, GR SU9482.7326, alt 65 m, July 2018. This specimen consisted of pycnidia only. The southernmost record of a species mainly found in the Scottish Highlands. New to the vice-county. *N.A. Sanderson*

Muellerella lichenicola: in apothecia of *Caloplaca cerinella* on *Fraxinus* branch, east of Bowden Hill, VC 84, West Lothian, GR NS9822.7451, alt 195 m, June 2018. Specimen not retained. New to the Vice-county. *B.J. Coppins*

Neobarya peltigerae: lichenicolous on moribund thallus of *Peltigera* on stone bridge over East Water, Horner Wood, VC 5 South Somerset, GR SS894.430, November 2017. Herb. Kew. Confirmed by Paul Cannon. First record for this species in England and the second of it in the British Isles.

H. Paul, BLS Education and Promotions Committee meeting

Ochrolechia arborea: on lignum of small fallen *Quercus*, within pasture woodland, Great Wood, Gregynog SSSI, VC 47, Montgomeryshire, GR SO0822.9755, alt 190 m, May 2018. This probably overlooked, but local, lichen of dead wood, is being found more widely with the use of powerful field UV lamps, which make this species much easier to detect. New to Wales. *N.A. Sanderson*

Ochrolechia arborea showing the intense UV+ yellow fluorescence Photo Mark Powell

Ochrolechia arborea: on worked timber of gate in the park pales and on *Quercus* lignum of a fallen limb, in parkland, Moccas Park NNR, VC 36, Herefordshire, GR SO3470.4286 & GR SO3400.4300, 80 & 90 m respectively, May 2018. New to the Vice-county. *M. Powell & N.A. Sanderson*, BLS Meeting

Ochrolechia arborea: on lignum of wooden frame of interpretative board, growing with *Lecanora albella*, *L. conizaeoides*, *L. pulicaris* and *Micarea nitschkeana*, Jubilee Arboretum, RHS Garden, Wisley, VC 17, Surrey, GR TQ064.578, August 2018. Herb. Powell 4676. New to the Vice-county. *F. Newbery & M. Powell*

Ochrolechia frigida f. lapuensis: small amounts in open *Racomitrium* heath (NVC: U10), Grasmoor, Buttermere Fells SSSI, VC 70, Cumberland, GR NY175.203 & GR NY177.204, alt 840 – 850 m, July 2018. This is the first English record of this species form. *N.A. Sanderson & A.M. Cross*, BLS Meeting

Opegrapha physciaria: parasitising *Xanthoria parietina* on coastal rock, Great Cumbrae, Fintray Bay, VC 100, Clyde Isles GR NS160.574, alt 5 m, June 2017. New to the Vice-county. *N.G. Bacciu*

Ophioparma ventosa: on northwest-facing, low basaltic outcrops, on west side of Bowden Hill, VC 84, West Lothian, GR NS976.744, alt 215 m, June 2018. Field record. All thalli only of the grey morph. New to the Vice-county. *B.J. Coppins*

Pachyphiale carneola: (i) on old *Quercus* by footpath in woodland, Old Broadmeadows Burn, Yarrowford, VC 79, Selkirkshire, GR NT4156.3013, alt 180 m, June 2018. Herb. Coppins 25321 (**E**); (ii) nearby on old *Acer pseudoplatanus* at woodland edge, GR NT4161.3026, 195 m, Coppins 25322 (**E**). New to the Vice-county. *B.J. Coppins*

Parmelia omphalodes: several thalli, between c. 0.75 - 1.25 m up south side of mature *Picea abies* trunk in upland grassland, c. 300 m northwest of New Pool, Angler's Retreat, VC 46, Cardiganshire, GR SN744.924, alt 400 m, August 2018. Field record (supported by digital photographs). First Vice-county record as an epiphyte for the species. *S.P. Chambers*

Parmotrema pseudoreticulatum: on branch of multi-stemmed small non-native tree, Oakwood (Wild Garden), RHS Garden, Wisley, VC 17, Surrey, GR TQ063.583, August 2018. Herb. Powell 4676. New to the Vice-county. *F. Newbery & M. Powell*

Pertusaria coronata: on mesic bark on two veteran Quercus in parkland, Moccas Park NNR, VC 36, Herefordshire, GR SO3442.4273 & GR SO3432.4254, 80 & 115m respectively, May 2018. This species is potentially being over looked for the similar *P. coccodes* in England. As well as the darker isidia of *P. coronata* and the K+ yellow spot test, by using UV lamps at Moccas, it was noted that the UV + orange fluorescence was very useful in picking out *P. coronata*. *P. coccodes* is UV –. New to Herefordshire and the English Midlands. *N. Baccui*, *M. Powell* & *N.A. Sanderson*, BLS Meeting

Phaeophyscia endophoenicea: on mossy *Fraxinus* by river, Almondell and Calderwood Country Park, VC 84, West Lothian, GR NT0862.6858, alt 75 m, May 2018. Herb. Coppins 25307 (**E**). New to the Vice-county. *B.J. Coppins*

Phylloblastia inexpectata: on leaves of *Rhododendron ponticum*, Almondell and Calderwood Country Park, VC 84, West Lothian, GR NT09-69-, May 2018. Specimen not retained. New to the Vice-county. *B.J. Coppins*

Physcia tribacioides: on dead *Alnus*, West Down, VC 4, North Devon, GR SS518.423, alt 163 m, September 2018. First recent record for the Vice-county for this RDB Vulnerable species. *M. Putnam*

Polycoccum squamarioides: parasitic on *Placopsis* sp. on doleritic rocks, Cox Tor, Dartmoor, VC 3, South Devon GR SX530.760, alt 427 m, September 2018. Herb. Bacciu. New to the South West peninsula. *N.G. Bacciu*

Placopyrenium trachyticum var. ***subtrachyticum***: Abundant in gutter at base of church (St Michael), Broome, VC 27, East Norfolk, GR TM346.391, July 2018. New to, the county and second record of the species for the country.
C.J.B. Hitch & P.W. Lambley

Porina byssophila: on *Sorbus aucuparia*, Almondell and Calderwood Country Park, VC 84, West Lothian, GR NT08-68-, May 2018. Specimen not retained. New to the Vice-county. *B.J. Coppins*

Porina byssophila: on *Acer pseudoplatanus*, Old Broadmeadows Burn, Yarrowford, VC 79, Selkirkshire, GR NT41.30, June 2018. Specimen not retained. New to the Vice-county. *B.J. Coppins*

Porina byssophila: in wound track on ancient hollow *Fraxinus*, within upland pasture woodland, above Stonethwaite Bridge, Stonethwaite Woods SSSI, Borrowdale, VC 70, Cumberland, GR NY2391.1282, alt 140 m, July 2018. New to the Vice-county.
N.A. Sanderson, *A.M. Cross* & *D. Lamacraft*

Porina coralloidea: on base rich bark on a large veteran *Quercus* x *rosacea* within sheltered denser pasture woodland in parkland, Moccas Park NNR, VC 36, Herefordshire, GR SO3403.4281, alt 110 m, May 2018. A major range extension and a surprising find for this site. Found on a single exceptionally rich tree that supported several oceanic woodland species. New to the Vice-county.
N.A. Sanderson, BLS Meeting

Protoparmelia atriseda: on *Rhizocarpon geographicum* on east-facing rock of sub-vertical outcrop, within ungrazed open forestry plantation, south end of Pencreigiau'r Llan, c. 0.5 km north-east of Llyn Conach, VC 46, Cardiganshire, GR SN745.937, alt

490 m, August 2018. Herb. SPC. Third Vice-county record for the species and new for the hectad SN79. *S.P. Chambers*

Psilolechia clavulifera: on root plate of fallen tree. Felbrigg Great Wood, VC 27, East Norfolk, GR TG189.400, March 2018. New to the Vice-county.
P.W. Lambley & M. Powell

Pycnothelia papillaria: on acid humus on side of path rut in heather moor, southern ridge of Carl Side, Skiddaw, Skiddaw Group SSSI, VC 70, Cumberland, GR NY2539.2750 610 m, July 2018. First record this century for northern England and also new to the Vice-county. *N.A. Sanderson* & *A.M. Cross*, BLS Meeting

Pyrenidium actinellum: lichenicolous on *Baeomyces rufus* on soil in old quarry, Rosemullian Head, VC1 West Cornwall, GR SW796.279, alt 20 m, May 2018. Herb. Blatchley. New to the Vice-county. *K. Sandell, I. Blatchley, L. Balfe*

Pyrenula hibernica: frequent on six stems, and spreading to others, on single *Corylus* bush and probably a single small thallus on a nearby *Corylus* bush, in *Corylus* dominated pasture woodland, above Seathwaite Bridge, Seatoller Wood SSSI, Borrowdale, VC 70 Cumberland, GR NY2385.1288 & GR NY2385.1289, alt. 170 – 180m, July 2018. A remarkable find, of an internationally rare hyperoceanic Atlantic Hazel wood specialist. The find adds considerably to the importance of the Seathwaite Bridge Hazel stand, which is the richest known Atlantic Hazel wood in England. New to England. *N.A. Sanderson*, *A.M. Cross* & *D. Lamacraft*, BLS Meeting

Pyrenula macrospora: growing on lower trunk of *Cornus mas*, Chelsea Physic Garden, VC 21, Middlesex, GR TQ277.777, July 2018. Herb. Powell 4662. The tree is known to have been planted at Chelsea Physic Garden in 2015, having been sourced from a nursery in Bedfordshire. The lichen community on this tree includes *Anisomeridium biforme*, *Arthopyrenia cinereopruinosa*, *Bacidia arceutina*, *B. laurocerasi*, *Caloplaca cerina* and *Phaeographis smithii*. It is not plausible that this community developed while the tree was present in Bedfordshire and it is likely that the tree was originally sourced from Western Europe. New to the Vice-county. *M. Powell & P.A. Wolseley*

Ramalina fraxinea: a single thallus, *c.* 10 cm long, on trunk of a multi-stemmed *Acer pseudoplatanus*, Almondell and Calderwood Country Park, VC 84, West Lothian, GR NT0900.6910, May 2018. Field record. New to the Vice-county. *B.J. Coppins*

Ramonia chrysophaea: on base rich streak on trunk of veteran *Quercus*, in parkland, near Wood Cottage, Gregynog SSSI, VC 47, Montgomeryshire, GR SO0783.9742, May 2018. New to the Vice-county. *N.A. Sanderson*

Ramonia dictyospora: in wound track on *Acer campestre* in parkland, Moccas Park NNR, VC 36, Herefordshire, GR SO3405.4264, alt 160m, May 2018. New to the Vice-county. *M. Powell* & *N.A. Sanderson*, BLS Meeting

Ramonia dictyospora: on spongy bark on old *Quercus* and exposed lignum on two ancient *Ilex*, within *Quercus – Corylus – Ilex* pasture woodland, above Thorneywaite Farm, Borrowdale, VC 70 Cumberland, GR NY2517.1342, GR NY2510.1343 & GR NY2505.1337, alt 130 m, July 2018. First record from northern England for this Section 41 species. *N.A. Sanderson*, *A.M. Cross* & *D. Lamacraft*, BLS Meeting

Rhaphidicyrtis trichosporella: on dry bark on two veteran *Quercus*, within pasture woodland, Great Wood, Gregynog SSSI, VC 47, Montgomeryshire, GR SO0839.9756 & GR SO0808.9772, alt 190 – 220 m, May 2018. New to the Vice-county.
N.A. Sanderson

Rinodina biloculata: on *Sambucus nigra* twig Low Scrubs, Wendover, VC 24, Buckinghamshire, GR SP851.062, April 2018. Determined by M. Powell. New to the Vice-county. *P. Shipway*

Rinodina griseosoralifera: sparse and poorly developed on south side of trunk of old free standing *Quercus* in wooded stream valley, south bank of Nant Clywedog, Llanfair Clydogau, VC 46, Cardiganshire, GR SN631.510, alt 155 m, October 2015. Herb. SPC. Confirmed by B.J. Coppins. New to the Vice-county. *S.P. Chambers*

Roselliniopsis ventosa: lichenicolous on *Placopsis lambii* on rock, Honister, VC 70 Cumberland, GR NY221.135, July 2018. Herb H. Paul. Confirmed by B.J. Coppins. First record for this species in England. *H. Paul*, BLS Meeting

Schismatomma quercicola: on acid bark on two veteran *Quercus*, within pasture woodland, near Wood Cottage, Gregynog SSSI, VC 47, Montgomeryshire, GR SO0797.9743 & GR SO0795.9746, 206 m, May 2018. New to the Vice-county.
N.A. Sanderson

Schismatomma umbrinum: on dry bark on three veteran *Quercus*, within pasture woodland, near Wood Cottage and the western edge of Great Wood, Gregynog SSSI, VC 47, Montgomeryshire, GR SO0795.9748, alt 196 m, GR SO0792.9749, alt 204 m, GR SO0803.9762, 200– 220 m, May 2018. A rare occurrence of this normally saxicolous species on veteran trees. *N.A. Sanderson*

Skyttea buelliae: on thallus of *Amandinea punctata* on trunk of *Acer pseudoplatanus* by road at edge of field, Easter Broomhouse, VC 82, East Lothian, GR NT679.770, alt 30 m, May 2018. Herb. Coppins 25239 (**E**). New to the Vice-county. *B.J. Coppins*

Staurothele hymenogonia: on mortar of southeast buttress of church (St Dunstan's) Snargate, VC15 East Kent, GR TQ990.286, alt 0.3 m. Herb. Powell. Determined by M. Powell. New to the Vice-county. *K. Sandell. I. Blatchley, K. Palmer*

Stenocybe septata: on veteran *Ilex aquifolium* within ancient woodland, Burnt Wood, Loggerheads, VC 39, Staffordshire, GR SJ736.348, August 2018. Herb A.J. Hotchkiss. New to the Vice-county. *A.J. Hotchkiss*

Stereocaulon alpinum: in open *Racomitrium* heath (NVC: U10), growing with *Alectoria nigricans*, Grasmoor, Buttermere Fells SSSI, VC 70, Cumberland, GR NY177.203, alt 840 m, July 2018. The first post 1959 English record of this rare montane lichen. *N.A. Sanderson* & *A.M. Cross*, BLS Meeting

Stigmidium congestum: parasitising *Lecanora chlarotera* on *Fraxinus* twig, Undercliff, Rousdon landslip, VC 3, South Devon GR SY270.896, alt 76 m, May 2018. Herb. Bacciu. New to the county. *N.G. Bacciu*

Strigula jamesii: several small thalli on sheltered, fertile craggy bark of old *Quercus* at bottom of streamside pasture, Glanrhyd, c. 2 km south of Capel Dewi, VC 46, Cardiganshire, GR SN457.407, alt 105 m, May 2018. Herb. SPC. Only the second corticolous record of the species for the Vice-county. *S.P. Chambers*

Strigula taylorii: on lower trunk of *Acer pseudoplatanus* in secondary woodland of disused railway cutting, VC 57, Derbyshire, GR SK232.667, August 2018. Herb. Powell 4672. Another example of the remarkable spread of this species across the Midlands. New to the Vice-county. *M. Powell*

Taeniolella toruloides: parasitic on *Thelotrema lepadinum* on ancient *Ilex*, within upland pasture woodland, Stonethwaite, Seatoller Wood SSSI, Borrowdale, VC 70, Cumberland, GR NY2391.1282, alt 140 m, July 2018. New to the Vice-county. *N.A. Sanderson*, *A.M. Cross* & *D. Lamacraft*

Telogalla olivieri: parasitising *Xanthoria parietina* on coastal rock, Great Cumbrae, Farland Point, VC 100, Clyde Isles GR NS174.543, alt 5 m, June 2017. New to the Vice-county. *N.G. Bacciu*

Telogalla olivieri: parasitising *Xanthoria parietina*, Kenfig, VC 41, Glamorganshire GR SS796.810, alt 11 m, May 2018. New to the Vice-county. *N.G. Bacciu*

Thamnolia vermicularis* var. *subuliformis: six small populations were found in very open, wind blasted *Racomitrium* heath (NVC: U10), Grasmoor, Buttermere Fells SSSI, VC 70, Cumberland, GR NY1741.2035, GR NY1740.2035, GR NY1739.2036, GR NY1725.2036, GR NY1735.2034, GR NY1750.2031, alt 810 – 850m, July 2018. Only the second record made this century from England for this montane species. *Thamnolia* was described as widespread on Grasmoor by Gilbert and Giavarini (1993) *Lichenologist* **25**(2): 162, but now appears to be rather rare here.
N.A. Sanderson & *A.M. Cross*, BLS Meeting

Thelidium pyrenophorum, on limestone chamfered plinth of church (St Peter and St Paul), Fressingfield, VC 25, East Suffolk, GR TM261.774, August 2018. Herb. Powell 4663. Determined by M. Powell. Also present (mostly sterile) on several old limestone memorials within the churchyard. New to the Vice-county. *M. Powell & C.J.B. Hitch*

Thelotrema petractoides: single thallus on dead stem on *Corylus* bush, within *Corylus* dominated pasture woodland, above Seathwaite Bridge, Seatoller Wood SSSI, Borrowdale, VC 70 Cumberland, GR NY2383.1285, alt 180 m, July 2018. A remarkable find, of a hyperoceanic Atlantic Hazel wood specialist. The find adds to the importance of the Seathwaite Bridge Hazel stand, which is the richest known Atlantic Hazel wood in England. New to England.
N.A. Sanderson & *A.M. Cross*, BLS Meeting

Toninia subfuscae: on *Lecanora campestris* on siliceous blocks receiving lime-wash from mortar courses above, base of wall on south-side of chapel, Capel Bwlch-y-groes, c. 1 km southeast of Ffostrasol, VC 46, Cardiganshire, GR SN378.462, alt 242 m, September 2018. Herb. SPC. The second Vice-county and Welsh record for the species.
S.P. Chambers

Trapeliopsis aeneofusca: in open *Racomitrium* heath (NVC: U10), Grasmoor, Buttermere Fells SSSI, VC 70, Cumberland, GR NY1751.2036, alt 850m, July 2018. *Trapeliopsis gelatinosa* was found nearby and differed only in the green colour of the epithecium, as opposed to the red-brown epithecium of *Trapeliopsis aeneofusca*. New to northern England. *N.A. Sanderson* & *A.M. Cross*, BLS Meeting

Tylophoron hibernicum: parasitising *Lecanactis abietina* on at least 15 trees, mostly *Quercus*, but also *Fraxinus* and *Sorbus* in mixed deciduous woodland, Meeth Quarry Devon Wildlife Trust Reserve, VC 4, North Devon GR SS525.079, alt 84 m, May 2018. Herb. Bacciu & Putnam. A new site in Devon for this rarely recorded species.
N.G. Bacciu, *T. Holwill* and *M. Putnam*

Tylothallia biformigera: on NE-facing basaltic outcrop under shade of trees, Cat Craig, Bowden Hill, VC 84 West Lothian, GR NS975.742, alt 180 m, June 2018. Field record. New to the Vice-county. *B.J. Coppins*

Unguiculariopsis thallophila: on *Lecanora chlarotera*, on *Sambucus*, Almondell and Calderwood Country Park, VC 84, West Lothian, GR NT09-69-, May 2018. Field record. New to the Vice-county. *B.J. Coppins*

Verrucaria obfuscans: dominating a fallen limestone cross in churchyard (St Peter and St Paul), Fressingfield, VC 25, East Suffolk, GR TM261.774, August 2018. Herb. Powell 4663. New to the Vice-county. *M. Powell & C.J.B. Hitch*

Verrucaria praetermissa: on boulders, edge of River Calder, Almondell and Calderwood Country Park, VC 84, West Lothian, GR NT08-68-, May 2018. Specimen not retained. New to the vice-county. *B.J. Coppins*

Verrucaria sphaerospora: on slate roofing tiles, West Down, VC 4, North Devon, GR SS517.420, alt 155 m, June 2018. Herb. Putnam. New to the county and fourth record of the species for the British Isles. *M. Putnam*

Verrucaria squamulosa: on upper surface of large sandstone boulder in the Rock Garden, RHS Wisley, VC 17, Surrey, GR TQ062.582, August 2018. Field record. Determined by M. Powell. Identified by the green squamule-like areoles and some of its perithecia occurring isolated between the areoles. New to the Vice-county.
F. Newbery & M. Powell

British Lichen Society Field Meetings & Workshops Programme 2019

Field Meetings Secretary: Steve Price, Woodlands, Combs Road, Combs, High Peak, Derbyshire SK23 9UP
email fieldmeetings@britishlichensociety.org.uk

note: ***All members*** *of whatever level of experience are welcomed on* ***all BLS Field Meetings****. No member should feel inhibited from attending by the fact that some meetings may be associated with BLS Council meetings or the AGM. Workshops, on the other hand, may be aimed at members who have some level of experience. If so this fact will be specified in the meeting notice.*

BLS AGM 2019 Field Outing – Painshill Park, Surrey
Sunday 27th January 2019
Local organizer: Paul Cannon

A one day field outing will follow the AGM which is being held at Kew Gardens, London. We will be visiting Painshill Park, in Cobham, Surrey. Painshill (https://www.painshill.co.uk/) was established in the eighteenth century as a landscape park by the Hon. Charles Hamilton, and is now being restored by the Painshill Park Trust. It has extensive parkland and wooded areas around a lake, and is filled with follies, including a Gothic Tower, a Turkish Tent, a Ruined Abbey and a quite extraordinary Crystal Grotto. It appears that only a single species of lichen has been reported previously from Painshill. The park is currently threatened by a planned expansion of the M25/A3 interchange, so a lichen survey is particularly opportune.

Painshill Park is situated on Portsmouth Road, Cobham KT11 1AA, about one mile from the M25/A3 interchange. It is around two miles from Cobham & Stoke d'Abernon railway station, and four miles from both Walton-upon-Thames and Weybridge stations. It should be straightforward to take a taxi, but if we can match supply and demand we will try to organize a shuttle service. Train times for the day in question are not yet advertised, but we will aim to meet in the cark park at Painshill at 11.00 AM.
If you are planning to attend – **and especially if you are not able to attend the AGM the day before when final details will be advertised** – please email Paul Cannon at *p.cannon@kew.org* or phone/text at 07597 551059.

BLS WINTER WORKSHOP 2019 – Cloughton, Scarborough

Bring along more problems

Friday 1st – Sunday 3rd March 2019

Tutors: Brian Coppins and Mark Powell

Following on from the success of the *'Bring along your problems'* weekend in 2018 this workshop will provide members with a further opportunity to air and share their lichen identification problems and their problems in using techniques needed to aid identification.
Look out those problematic specimens which have been haunting you; most likely they are nameable. Problems with techniques can include issues with microscopes / chemical tests / staining etc. Problems and their solutions will be shared throughout the group.No problem too small! The bulk of the time will be spent in the adequately sized meeting room. The grounds of Cober Hill and its environs offer plenty of opportunity to take a short walk and to find more question-posing material.

Meeting Base

The meeting will be residential at Cober Hill, Cloughton, Scarborough, North Yorkshire YO13 0AR
tel: 01723 870310 email: enquiries@coberhill.co.uk
See www.coberhill.co.uk to have a look at the accommodation and facilities.

Accommodation and costs

Accommodation for 20 people in single and twin en-suite rooms has been reserved and a deposit paid by the BLS. These bed spaces are being held for us until the end of August 2018 (6 months before the meeting date). Subject to availability rooms will be able to be booked after this date.

Full-board accommodation (incl. dinner, breakfast and sit-down lunches) for the two nights is £177.50 per person (inc. VAT at 20%). This price includes the hire of the meeting room from early evening on Friday until late Sunday afternoon. The group package is for the 2 nights and there is no reduction for a shorter stay.

The earliest check-in time for rooms is 15.00. Dinner is at 19.00.

Booking
Attendees should book their rooms with the Field Meetings Secretary, Steve Price, email: fieldmeetings@britishlichensociety.org.uk or by post to Woodlands, Combs Road, Combs, High Peak SK23 9UP and send him a £50 deposit, cheques payable to 'The British Lichen Society' (not 'BLS' please). If members prefer to pay by bank transfer please request details from the Field Meetings Secretary.
The deposit once paid by BLS to Cober Hill will be non-refundable.

Cancellation of places less than 16 weeks before the meeting will incur extra charges, therefore the balance (£127.50) needs to be paid by the end of October 2018.
Please advise of any special dietary needs and also if you do not need dinner on the evening of arrival. Note there will be no reduction in the cost if you do not take dinner that night.

Microscope work
A very large meeting room has been reserved for the duration of the meeting for microscope work and presentations. The BLS microscopes will be available for communal use.

Timetable
Meet for dinner on Friday 1st at 19.00hrs. We need to vacate the bedroom accommodation after breakfast on Sunday 3rd and the meeting room by 16.00hrs on the Sunday afternoon. Lunch is provided on the Sunday.
Further details of the programme will be sent out to attendees nearer the time of the meeting.

BLS SPRING FIELD MEETING - Morvern, Argyll, Scotland

Tuesday 23rd to Tuesday 30st April 2019
Field-sites organiser: Andy Acton

This meeting is based in the village of Lochaline on the west coast of highland Scotland. The main habitats to be studied include Atlantic oakwoods and hazelwoods with their uniquely rich *Graphidion* and *Lobarion* lichen communities. Some excursions to heavy-metal and upland sites are also being investigated.

Following the productive and enjoyable 2017 meeting on Öland, Sweden, members of the Svensk Lichenologisk Förening (Swedish Lichenological Society) are being invited to join us here.

Meeting Base
Lochaline Dive Centre & O2 Café, Lochaline, Morvern, Argyll, Scotland PA80 5XT
Tel. 01967421627 (m) 07407183670

website: http://www.lochalinedivecentre.co.uk/
http://www.streetmap.co.uk/map.srf?X=168027&Y=743305&A=Y&Z=120

Accommodation and costs

The BLS has booked the whole of the Lochaline Dive Lodge for the week -12 en-suite bunk rooms, each sleeping two persons. The cost is £210 per person for the week. Breakfast £6.50, dinner £16.

Self catering facilities are available at the accommodation and any food brought for lunches etc can be stored in the fridges.

Attendees are asked to advise when booking what, if any, meals they wish to take and to advise of any special dietary needs. The cost of meals is to be settled up directly with the Dive Centre at the time of the meeting.

Other accommodation is available in Lochaline including the Lochaline Hotel, B&B guest-houses and self-catering cottages. Attendees wanting to use these need to make their own arrangements.

Booking

Attendees should book onto the meeting with the Field Meetings Secretary, Steve Price, email: fieldmeetings@britishlichensociety.org.uk or by post to Woodlands, Combs Road, Combs, High Peak SK23 9UP and send him a £35 deposit per person, cheques payable to 'The British Lichen Society' (not 'BLS' please). If attendees wish to pay by bank transfer details will be sent on request.

If taking meals please advise of any special dietary needs.

Microscope Work

Microscope work will take place in the Café of which we have use from 4pm to 8am. *Note*: We cannot leave anything in the Café outside of those times.

Bring your own microscopes if you can. The BLS stereo and compound microscope will also be available for communal use. If possible please try to bring your own consumables (microslides / cover slips / razor blades / chemicals).

Timetable

The meeting will run from Tuesday 23rd when we will gather in the Café after dinner for an introductory meeting. We vacate the accommodation in the morning of Tuesday 30th.

Further details of the field programme will be sent out to attendees nearer the time of the meeting.

Transport to the meeting

Lochaline is accessible by car and by public transport.

Using public transport trains from Glasgow to Oban connects with the ferry from Oban to Craignure, Mull. The bus 495 connects with the ferry at Craignure and travels to Fishnish for the short ferry journey across the Sound of Mull to Lochaline.

see https://www.calmac.co.uk/oban-craignure-mull-ferry-summer-timetable
see http://www.westcoastmotors.co.uk/timetables/oban-isle-of-mull/
see https://www.argyll-bute.gov.uk/lochaline-fishnish-ferry-timetable

Transport during the meeting

It is anticipated that there will be enough car transport to move attendees around for the field visits. If ahead of the meeting it is recognised that there will be a shortage then the additional cars may be hired.

Relevant publications

Sandy and Brian Coppins, 2012, *Atlantic Hazel - Scotland's Special Woodlands*, Atlantic Hazel Action Group see http://sites.google.com/site/atlantichazelgroup/

Plantlife, 2008, *Lichens of Atlantic Woodlands, Guide 1: Lichens on ash, hazel, willow, rowan and old oak*, a fold-out field guide.

Plantlife, 2008, *Lichens of Atlantic Woodlands, Guide 2: Lichens on birch, alder and oak*, a fold-out field guide.

The two Plantlife guides above can be downloaded in pdf format from http://www.plantlife.org.uk/scotland/our-work-scotland/projects-scotland/celtic-rainforests

Maps of the area

The following maps may be useful and dependent upon the location of field sites additional maps may also be recommended.

OS Explorer Series 1:25,000 scale
Sheet 383 Morvern & Lochaline (meeting base on this map)
Sheet 374 Isle of Mull North & Tobermory
Sheet 375 Isle of Mull East

OS Landranger Series. 1:50,000 scale
Sheet 49 Oban & East Mull (meeting base on this map)
Sheet 47 Tobermory & North Mull

British Geological Survey 1:50,000
Sheet 52W - Tobermory
Sheet 52E - Strontian
Sheet 44W and part 44E - Eastern Mull

BLS SUMMER FIELD MEETING - Holy Island, Anglesey, Wales

Friday 19 to Friday 26 July 2019
Local organiser: Tracey Lovering

This meeting is based on Holy Island on the very north-west corner of Wales. The complex geology of Anglesey offers a range of interesting lichen habitats, including disused copper mines. There is of course plenty of coastal habitat to study, including rocky shore, dunes, coastal heath, streams and the Menai Straits. The majority of the coastline is accessible via the All Wales Coastpath. As well as collecting new records for the Island, we will re-visit a selection of previously well-recorded sites supporting interesting records, to record change. Site visit options will also include churchyard and woodland. Lots of interest for everyone.'

Meeting Base

Anglesey Outdoors, Porthdafarch Road, Holyhead, Angelsey LL65 2LP
Tel. 01407 769 351
website:http://www.angleseyoutdoors.com/index.html
http://www.streetmap.co.uk/idld.srf?X=223787&Y=380706&A=Y&Z=115&lm=1

Accommodation and costs

The BLS has booked for exclusive use the whole of the Main Centre and the Maris accommodation at Anglesey Outdoors. The 12 bedrooms of varying capacities have been allocated to provide 22 bed-spaces for our group.
We have booked on a full-board basis.
The costs are:
Single accommodation £447 per person for the week (there are four single-occupancy rooms available)
In twin accommodation £387 per person for the week (there are six twin-occupancy rooms available)
In triple accommodation £352 per person for the week (there are two triple-occupancy rooms available)

Attendees are asked to advise when booking of any special dietary needs.

Anglesey Outdoors has camping facilities and a range of other accommodation is available on Holy Island. Attendees wanting to book these facilities need to make their own arrangements.

Booking

Attendees should book onto the meeting with the Field Meetings Secretary, Steve Price, email: fieldmeetings@britishlichensociety.org.uk or by post to Woodlands, Combs Road, Combs, High Peak SK23 9UP and send him a £50 deposit per person, cheques payable to 'The British Lichen Society' (not 'BLS' please). If attendees wish to pay by bank transfer details will be sent on request.
If taking meals please advise of any special dietary needs.

Microscope Work

Microscope work will take place in the lounge and dining areas of the Main Centre.

Bring your own microscopes if you can. The BLS stereo and compound microscope will also be available for communal use. If possible please try to bring your own consumables (microslides / cover slips / razor blades / chemicals).

Timetable

The meeting will run from Friday 19th when we will gather after dinner for an introductory meeting. We vacate the accommodation in the morning of Friday 26th. Further details of the field programme will be sent out to attendees nearer the time of the meeting.

Transport to the meeting

Holyhead is the terminus station of a mainline railway. The train station is less than 2km from the meeting base.

Maps of the area

The following maps may be useful and dependent upon the location of field sites additional maps may also be recommended.

OS Explorer Series 1:25,000 scale
Sheet 262 Anglesey West/ Gorllewin Yns Mon(meeting base on this map)
Sheet263 Anglesey East / Dwyrain Yns Mon

OS Landranger Series 1:50,000 scale
Sheet 114 Anglesey / Yns Mon(meeting base on this map)

British Geological Survey 1:50,000
Special Sheet - Anglesey

BLS AUTUMN FIELD MEETING 2019 - Juniper Hall, Surrey

Wednesday 30th October to Sunday 3rd November 2019

Local organiser: Paul Cannon

The Autumn 2019 Field Meeting will be based at the Juniper Hall Field Centre, at the base of Box Hill near Dorking. Surrey is a surprisingly diverse county for lichen habitats, even though exposed rock is largely restricted to churchyards. Recent indications suggest that the recovery of lichen populations from historical air pollution is going well, although nitrification remains a major concern. Expect woodland borders and old trees on the chalk soils of the North Downs, and parkland and lowland heath habitats on the Greensand. Some of the iconic lichen churchyards of the south-east will be in range, including Mickleham within walking distance of the centre which may still hold the national record for species numbers.

Meeting base: Field Studies Council, Juniper Hall, Old London Road, Dorking, Surrey RH5 6DA
Tel 01306 734501

https://www.field-studies-council.org/centres/londonregion/juniperhall.aspx
http://www.streetmap.co.uk/map.srf?X=517257&Y=152710&A=Y&Z=120

Accommodation and costs

The BLS has booked 15 bedrooms for single or twin occupancy.
We are booked on a full-board basis.
The costs per person are:
Single accommodation £212.60 plus VAT (at 20% total = £255.12)
Twin accommodation £152.00 plus VAT (at 20% total = £182.40)

Attendees are asked to advise when booking of any special dietary needs.

Booking

Attendees should book onto the meeting with the Field Meetings Secretary, Steve Price,
email: fieldmeetings@britishlichensociety.org.uk or by post to Woodlands, Combs Road, Combs, High Peak SK23 9UP and send him a £35 deposit per person, cheques payable to 'The British Lichen Society' (not 'BLS' please). If attendees wish to pay by bank transfer details will be sent on request.

Microscope Work

A workroom has been booked for microscope work, presentations etc.
Bring your own microscopes if you can. The BLS stereo and compound microscope will also be available for communal use. If possible please try to bring your own consumables (microslides / cover slips / razor blades / chemicals).

Timetable

The meeting will run from Wednesday 30th when we will gather after dinner for an introductory meeting. We vacate the accommodation in the morning of Sunday 3rd November.
Further details of the field programme will be sent out to attendees nearer the time of the meeting.

Transport to the meeting

T*rain*s: Dorking Station (1.6 miles) - regular trains from London (Victoria and Waterloo) and Horsham. Taxis are readily available outside the main station.
Dorking Deepdene (1.6 miles) - trains from Reading, Guildford, Gatwick, Redhill and Reigate stop at Dorking Deepdene station.
Box Hill and Westhumble (1 mile).

Buses: The 465 service runs between Dorking (opposite the main train station) to Kingston upon Thames and stops just outside the centre.

Satnav: please use RH5 6BZ for Satnavs.

Although it is extremely rare for anything to go wrong with the arrangements for our field meetings and workshops, it has happened. In 2015 the hotel we had booked for accommodation cancelled without warning and at short notice. The BLS is not liable for such actions, and will not reimburse participants for losses out of the Society's control. Attendees on our meetings are advised to at least consider holiday insurance (note that for insurance purposes our meetings are best classified as themed holidays). The Society does not arrange such cover although it does of course have Public Liability Insurance.
In the unfortunate event of an unforeseen cancellation, participants should be diligent in keeping receipts of all expenditure they incur as a result of such action. The case for re-imbursement may depend on the production of receipts.

Supporting BLS members who deliver talks and training to the public

Delivering talks and training to members of the public is one of the key activities of the Society. At a recent Education and Promotions Committee (EPC) meeting the wide range of activities that individual members are involved in ranged from tutoring on Field Studies Council and PlantLife courses to giving talks to Wildlife Trusts, gardening groups, schools, U3A and many more.

Photo Mary Breeds

These valued activities bring new members to the BLS and develop interest in and understanding of lichens.

The EPC would value your help in 2 ways:

a) Please let us know if you have delivered any courses or talks during 2018, to help us to get an overall view of involvement with the public

b) Give us an approximation of the number of members of the public who have been involved during 2018.

c) Let us know if there are any promotional items which would help to engage the public e.g. free stickers, lenses seem popular.

If you are willing to share ideas/resources for delivering to a range of audiences please contact Sue Knight (*lesknight@btinternet.com*).

New Members
since publication of the 2015 Winter Bulletin

Welcome to the following new members of the British Lichen Society …

Julia Adams, United States of America
Mr Jeremy Atkinson, United Kingdom
Mrs Jennifer Bannister, New Zealand
Ms Aniya Barker, United Kingdom
Mr Phi Barnett, United Kingdom
Mr Joseph Beale, United Kingdom
The Revd Dr Paul Beetham United Kingdom
Mr George Bentley, United Kingdom
Janet Bethune, United Kingdom
Sam Bosanquet, United Kingdom
Dr Isabella Brey, United Kingdom
Mr James Brockbank, United Kingdom
A Brown, United Kingdom
Mr David Brown, United Kingdom
Mrs Eileen Brown, United Kingdom
Dr Tim Brown, United Kingdom
Graham Bull, United Kingdom
Mr Jacob Burch
Miss Georgina Burlinson, United Kingdom
Mr Steve Butterworth, Guernsey
Mr Kevin Byrne, United Kingdom
Mr Robert Cameron, Canada
Robyn Campbell, Canada
Mrs Marion Campbell, United Kingdom

Mr Max Carstairs, United Kingdom
Ms María José Chesa Marro, Spain
Mr Derek Christie, United Kingdom
Dr Stephen Clayden, Canada
Mrs Rosalind Cole, United Kingdom
Dr Claudia Colesie, Sweden
Mr Scott Cook, United Kingdom
Mr Gary Cooper United Kingdom
Mrs Megan Crewe United Kingdom
Mr Chris Curtis, United Kingdom
Mrs Leanne Dack, United Kingdom
Mr Piero D'Angelo, United Kingdom
Mrs Amanda Davey, United Kingdom
Mr Roger Davies, United Kingdom
Ms Claire Dean, United Kingdom
Dr Chris Deduke, Canada
Mr Bill Dodd, United States of America
Mr Peter Earland-Bennett, United Kingdom
Mrs Margarete Earle, United Kingdom
Mrs Margaret Embleton, United Kingdom
Dr Evelyn Fleming, United Kingdom
Dr James Floyd, United Kingdom
Mr David Ford, United Kingdom
Mr Chris Forster Brown, United Kingdom
Dr Paul Gainey, United Kingdom
Mrs Amanda Garratt, United Kingdom
Miss Maddie Geddes-Barton, United Kingdom
Ms Liz Goyder, United Kingdom
Mr Mike Guwak, Germany
Dale Haigh, United Kingdom
Mrs Leonie Haigh, United Kingdom
Mr Chris Hall, United Kingdom
Mr David Hall, United Kingdom
Claire Halpin, United Kingdom
Dannae Haskath, United Kingdom
Mrs Andree Hawke, United Kingdom
Mr Paul Heaton United Kingdom
Mrs Carrie Hedges, United Kingdom
Mr Mark Horgan, United Kingdom
Mr Paul Hotchkin, United States of America
Mr Alastair Hotchkiss United Kingdom
Mr Geoffrey Howe, United Kingdom
Dr Christine Johnson, United Kingdom
Ms Amanda Jones, United Kingdom
Miss Ellie Jones United Kingdom

Mr John Jones, United Kingdom
Nerys Jones, United Kingdom
Dr Tom Jonesman, United Kingdom
Mrs Joanne Kaar, United Kingdom
Miss Gaby Kaza United Kingdom
Mr Robert Kemp, United Kingdom
Dr Jonathan Kemp, United Kingdom
Ms Tatiana Kyriacópoulos, Greece
Mr Les Ladbury, United Kingdom
Mr Dave Lamacraft, United Kingdom
Phil Larkin, United Kingdom
Mr Mark Leach, United Kingdom
Mr Joshua Leigh United Kingdom
Mrs Margaret Longworth, United Kingdom
Mr Anthony Lovegrove, United Kingdom
Ms Janet Ludlow, United Kingdom
Francois Lutzoni, United States of America
Dr Reyim Mamut, China
Mr Callum Maries
Dr Daniel McCarthy, Canada
Mr Philip McGrade, United Kingdom
Mr Don McNeil, United Kingdom
Ms Lynda Miller, United States of America
Mr William Mitchell, United Kingdom
M G Morando, Italy
Dr Anthony Morris, United Kingdom
Ms Jan Murdock, United Kingdom
Miss Lydia Murphy, United Kingdom
Garry Neil, United States of America
Dr Gerhard Neuwirth, Austria
Ms Andrea Nicholls, United Kingdom
Mr Daniel Niepsch, United Kingdom
Dr Dennis Nuernberg, United Kingdom
Dr Martin Page, United Kingdom
Miss Charlotte Perkins, United Kingdom
Mr Philip Perry, Portugal
Nathan Phinney, Norway
Dr Heleen Plaisier, United Kingdom
Mr Roar Poulsen, Denmark
Miss Helen Renny, United Kingdom
John Ridge, United Kingdom
Professor Colin Robertson, United Kingdom
Mr Michael Robinson, United Kingdom
Dr Vilma Rosato, Argentina
Ayumi Sakata, Japan

Mr Neil Sanders, United Kingdom
Mrs Elizabeth Saundry, United Kingdom
Miss Joyce Scott, United Kingdom
Mrs Paula Shipway, United Kingdom
Ali Shuttleworth, United Kingdom
Ms Moselle Singh, United Kingdom
Sarangthem Singh India
Ms Alison Smith, United Kingdom
Mr John Smith, United Kingdom
Mrs Fiona Spence, United Kingdom
Mr Keith Sprague, Switzerland
Dr Daniel Stanton, United States of America
Mrs Mary Steer, United Kingdom
Jon Steeves, United States of America
Mr Andy Stephens, United Kingdom
Mark Stephens, United Kingdom
Dr Joe Taylor, United Kingdom
Mr Ian Taylor, United Kingdom
Miss Diane Thomas, United Kingdom
Mr John Thorpe, Australia
Ms Katherine Tonge, United Kingdom
Mr Ray Trapmore, United Kingdom
Mr Barry Turner, United Kingdom
Dr Naomi van der Velden, United Kingdom
Dr Reinaldo Vargas Castillo, Chile
Dr Robert Vaughan, United Kingdom
Mr Armando Vidal, Spain
Mr John Vigay, United Kingdom
Wayne Voller, United Kingdom
Mrs Mia Walding, United Kingdom
Mr Stuart Walker, United Kingdom
Ms Jessica Walker, United Kingdom
Mrs Claire Ward, United Kingdom
Mr David Wareham, United Kingdom
Dr Gothamie Weerakoon, United Kingdom
Dr Silke Werth, Germany
Stephen Wharton, United Kingdom
Dr Colin Whiteman, United Kingdom
Mr Todd Widhelm, United States of America
Mr Les Wilkins, United Kingdom
Miss April Windle, United Kingdom
Mr Robbie Wohanka, United Kingdom
Abi Woodbridge, United States of America
Mrs Clare Young
Dr Anna Zalewska, Poland

Obituary

Sadly we have to inform you that the following members of our society have passed away:

Dr D S H Cannon
Mr Albert Henderson
Mr Kenneth Hill
Dr Hugh A P Ingram
Jack R Laundon
Ms E J Mackintosh
Michael C F Proctor
Prof Sir D C Smith
Dr Pauline B Topham
Dr Roger Martin Veall

Thank you

To the following members for kindly supporting the British Lichen Society with a donation:

Jack Laundon
Dr Pauline B Topham

Notice of Annual General Meeting 2019

Venue

The AGM and Winter Meeting for 2019 will be held at the Jodrell Building, Royal Botanic Gardens, Kew, Richmond, Surrey TW9 3AB, on Saturday 26 January 2019.

For the BLS meetings approach the Jodrell Building by the Jodrell Gate on Kew Road (at any of the visitor gates an entrance fee will be charged). Should you find this gate closed, pick up the phone in the yellow box at the right hand side, which will connect you to Kew Constabulary. Let them know that you are attending the BLS meetings, and they will release the gate for you. (See below for a local map showing the location of the Jodrell Building)

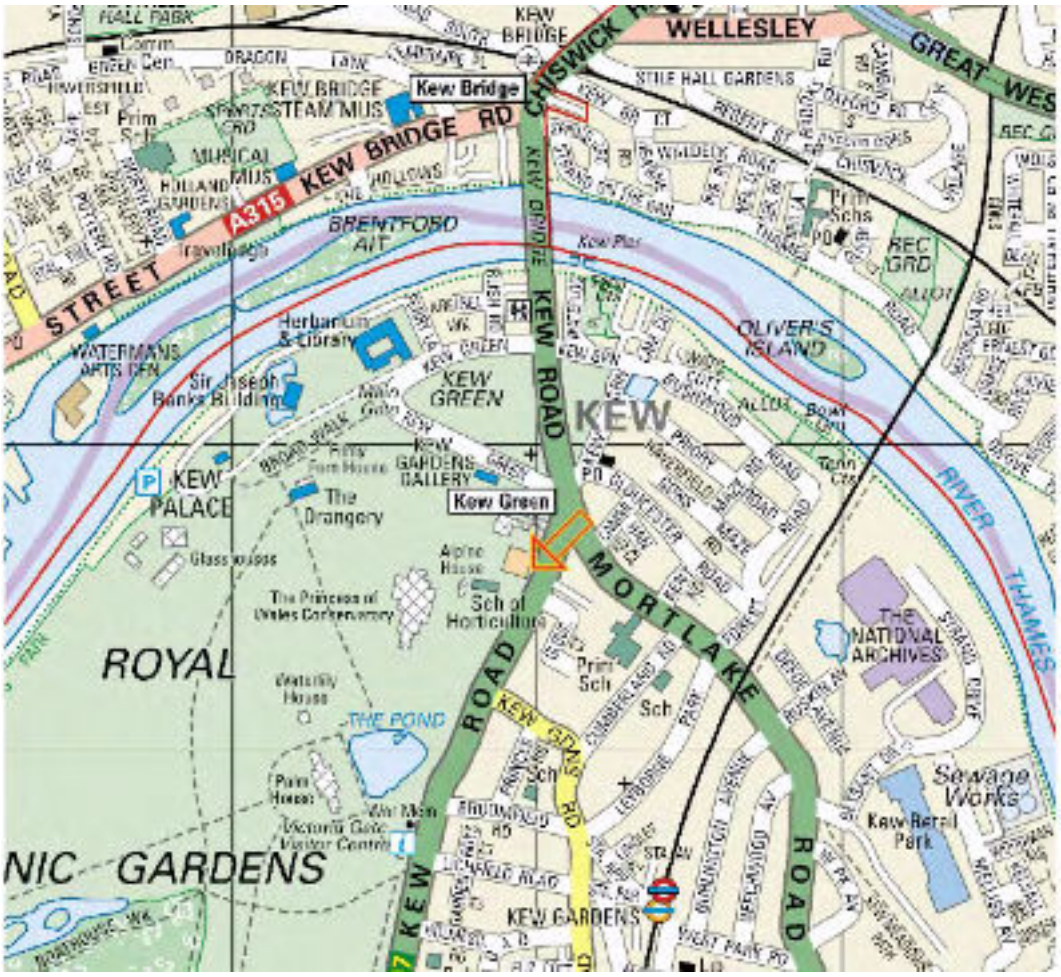


Image © streetmap.co.uk

Kew Gardens is well signposted from all the major local roads. The South Circular (A205) passes the north-east corner of Kew Gardens and Kew Road (A307) forms the eastern border. There is no parking at the Jodrell Building but parking can usually be found on Kew Road or around Kew Green.

The venue is about 10 min walk from Kew Gardens Station (District Line tube, also London over-ground) or Kew Bridge Station (South West trains). Buses 65 and 391 stop directly outside the Jodrell Building (bus stop 'Mortlake Road').

Exhibition

Exhibits can be put up in the Jodrell Building from 15.00 on Friday and should be ready for viewing by 17.30. They can be viewed during tea breaks until the close of the meeting on Saturday. Please advise Paul Cannon by e-mail (*p.cannon@kew.org*) of your requirements for tables or display stands before **Monday 14 January** as these have to

be ordered in advance, and arrange with him if you need access by car when bringing any bulky or heavy items.

Timetable

Friday 25 January:

17.30 – Reception (wine and soft drinks) and Exhibition in the Atrium of the Jodrell Building, with poster presentations.
18.30 – **Swinscow Lecture in the Lady Sainsbury Lecture Theatre**

We are delighted to announce that Dr Damien Ertz (Meise Botanic Garden, Belgium) will present the 2019 Swinscow Lecture on "Overview and recent insights into the phylogeny of Arthoniales."

19.45 – Dinner after the Swinscow Lecture at the ASK Italian restaurant on Kew Green, cost £20 (two courses) or £27 (three courses). Booking is essential, please see the form posted to you with this *Bulletin*. The Book Auction will take place after dinner.

Saturday 26 January:

9.45 – Coffee and tea, and poster exhibition in the Reception area of the Jodrell Building

10.30 – Annual General Meeting, Lady Sainsbury Lecture Theatre, Jodrell Building

13.00 – Lunch (at own expense). Restaurants within a few minutes walking distance are situated within the gardens and around Kew Green.

14.00 Winter Meeting. Introduction – Paul Cannon, President of the Society
14.05 The Welsh Cennadeers. *Tracey Lovering*, Plantlife Wales.
14.25 A Force for Nature: building a biographical memoir of Dr Francis Rose. *Simon Davey*, Sussex.
14.45 Ecological patterns in urban epiphytic lichen communities. *Theo Llewellyn*, RBG Kew/QMUL.
15.05 Developing monitoring tools for data-deficient conservation-priority lichen species. *Naveed Bhatti*, University of Aberdeen.
15.25 Tea in Reception
15.50 Exploring the evolution of the lichenicolous lifestyle within the Ascomycota. *Rowena Hill*, RBG Kew.
16.15 Reindeer diet in the Cairngorms: can fungal barcoding diagnose lichen species? *John Howieson*, University of Edinburgh.
16.40 Arrangements for field meeting to Painshill Park, Cobham. *Paul Cannon*
17.00 Close

Nominations for Officers of the Society

Nominations are invited for Officers for 2019 and for three members of Council for the period 2019–2021 (retiring at the AGM held in early 2022, subject to changes in the Society's Constitution). Proposals should be sent by e-mail or in writing to the Secretary (Sandy Coppins, 37 High Street, East Linton, East Lothian EH40 3AA, email *secretary@britishlichensociety.org.uk*) at least two weeks before the AGM. No person may be nominated without their consent. Tracey Lovering and Tim Wilkins are due to retire from Council and are not eligible for re-election, and David Genney has asked to retire also. We thank them all for their service and support.

AGM Agenda

Please sign the attendance list and write your own name badge.

1. Apologies for absence
2. Minutes of the Annual General Meeting held at the Tullie Museum, Carlisle, January 2018.
3. Matters arising.
4. Reports of Officers and Committee Chairs:
   - 4.1 President (Paul Cannon)
   - 4.2 Treasurer (John Skinner)
   - 4.3 Conservation (Bryan Edwards)
   - 4.4 Data (Les Knight)
   - 4.5 Education and Promotions (Fay Newbery)
   - 4.6 *Bulletin* Editor (Maxine Putnam)
   - 4.7 Senior Editor, *Lichenologist* (Peter Crittenden)
   - 4.8 Website Editor (Janet Simkin)
   - 4.9 Social Media (Amanda Davey)
   - 4.10 Field Meetings Secretary (Steve Price)
   - 4.11 Librarian (Ray Woods)
   - 4.12 Archivist (Mark Seaward)
   - 4.13 Herbarium Curator (Richard Brinklow)
5. Changes to the Constitution – see below for details
6. Election of Officers, including three members of Council
7. Any other business
8. Date and place of AGM 2020

Proposed changes to the Constitution of the British Lichen Society

As described in the Summer 2018 Bulletin (see pages 139-140), the BLS intends to become a Charitable Incorporated Organization under UK Charity Law. Members at the AGM will be invited to vote on the following motion:

We, the membership present at the 2019 Annual General Meeting:

1. Approve the new Constitution and Rules of the Society, as published on the Society's website (http://www.britishlichensociety.org.uk/the-society/legal-matters/constitution).

2. Give Council a mandate to convert the British Lichen Society into a Charitable Incorporated Organization, subject to approval of our new Constitution by the Charities Commission.

3. Authorize the Treasurer to open new bank accounts (needed as we will receive a new Charity Number), and to transfer the Society's financial and all other assets to the CIO.

4. Following the transfer, direct Council to request that the Charities Commission wind down our organization in its current form as an Unincorporated Charity.

Post-AGM excursion

On Sunday 27th January we will visit Painshill Park, near Cobham, Surrey. We will meet at 11.00 at the Painshill car park, postcode for satnavs KT11 1AA. For more information please see the Field Meetings Programme in this Bulletin.

Accommodation

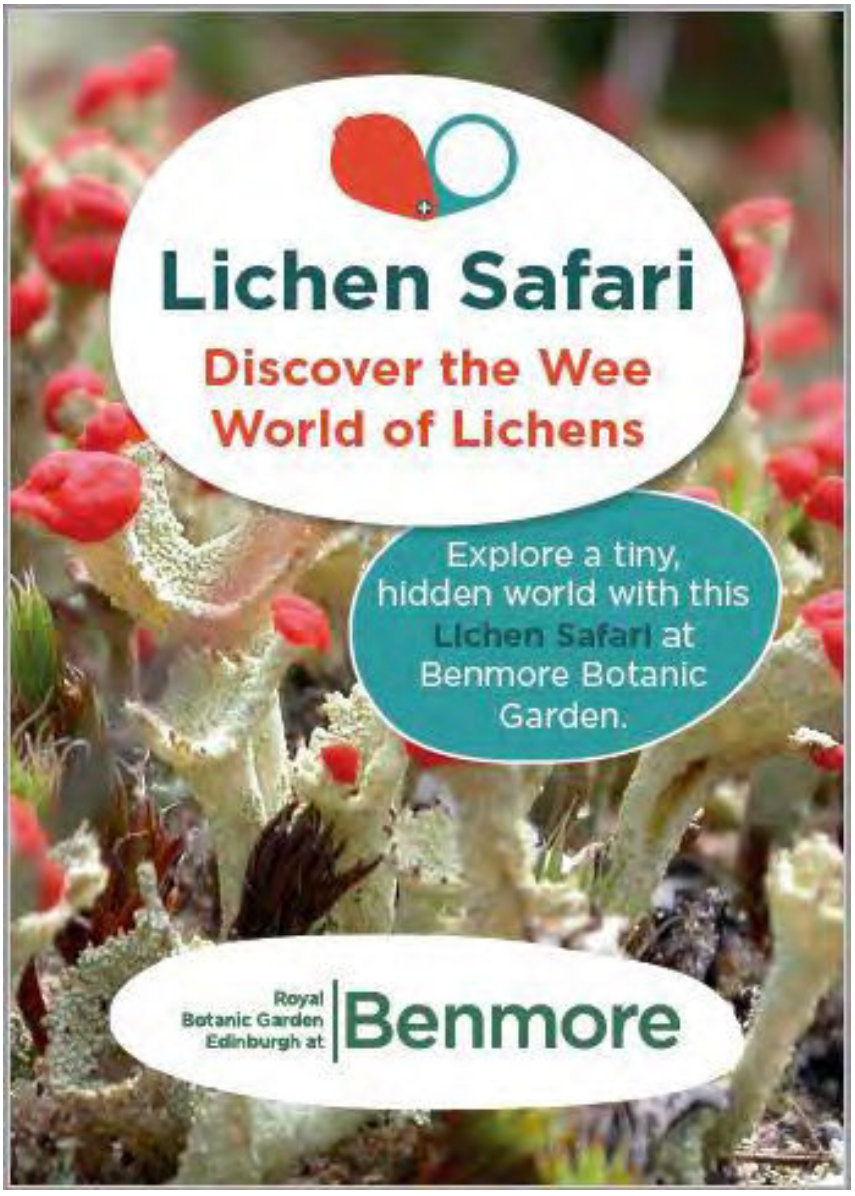
A range of accommodation is available within walking distance of the Royal Botanic Gardens, including the Coach & Horses pub on Kew Green and the more affordable Premier Inn, London Kew Bridge. You may find a list of local B&Bs near RBG Kew helpful, which is available at *http://kewaccommodation.com/*).

Local Organiser

Dr Paul Cannon, Mycology Section, Royal Botanic Gardens, Kew, Richmond, Surrey TW9 3AB, email *p.cannon@kew.org*.

The Wee World of Lichens – A new trail in Argyll

We are excited to announce the new Lichen Safari at Benmore Botanic Garden near Dunoon.The 30-page information booklet is available with admission to Benmore Botanic Garden and highlights 10 new interpretive signs in the garden and tells engaging stories about lichens found there. Currently the booklet is offered to all visitors, along with a good quality 10x handlens to borrow. The lanyard on the lens, the trail guide booklet, and the eye-catching trail nodes offer information and illustrations to encourage a new perspective of the miniature but important Wee World of Lichens adorning the living collection at Benmore and its environment.



With Benmore located in Scotland's iconic Atlantic Rainforest, its lichens form an important part of the globally rare temperate rainforest environment. The new Lichen Safari booklet provides interpretation to help its visitors appreciate the diversity and ecological roles of these species, and is unique in being the only lichen trail in the rainforest of Scotland. The first Lichen Safari trail in Edinburgh has been in place for more than 18 months, with more than 500 trail guides sold; we hope that this latest trail translates to an increased engagement with nature, and perhaps the inspiration for future self-led explorations.

Trail Nodes at Benmore

Each node on the trail has an eye-catching sign, and these lead visitors through a mostly low-level path, reaching a large proportion of the site. The ten nodes highlight:

1. the nature and antiquity of the lichen symbiosis;
2. how and where to spot them;
3. roles in nutrient cycling;
4. roles in biodiversity;
5. pioneers and competitors;
6. chemical diversity and human uses;
7. environmental indicators;
8. translocation experiment for endangered specklebelly;
9. temperate rainforest lichens; and
10. "Seeing the world through different eyes", an ant's eye view of the world.

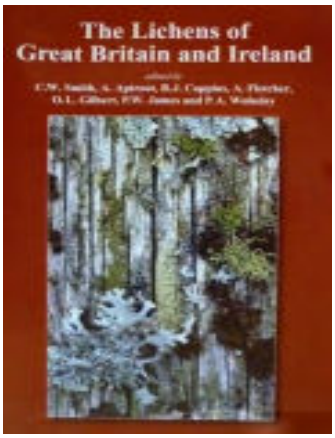
Trail sign at Node 4. "Diversity for life", highlighting one of the more than twenty species of lichens draping this Enkianthus treelet.

Drop in session in the Courtyard Gallery, with microscopes, a display of lichens, and experts on hand for interpretation (right), and "Who is eating and drinking at this table?" - lichen food and drink for humans and other animals (below).

Rebecca Yahr
R.Yahr@rbge.org.uk
Frances Stoakley

Publications and other items for sale

Please contact The Richmond Publishing Co. Ltd, The Cottage, Allerds Road, Slough, SL2 3TJ, tel. (+44) (0)1753 643104, email *rpc@richmond.co.uk* to purchase these items and to enquire about overseas postage prices outside of Europe. RPC now accepts BACS transfers (account no. 90901210, sort code 20-78-58) and payments via PayPal (PayPal address rpc@richmond.co.uk).



Cat.1. The Lichens of Great Britain & Ireland. Ed. Smith et al. (2009). Hardback, 700pp. **NOW BACK IN PRINT!**
This work, a much enlarged revision of 'The Lichen Flora of Great Britain and Ireland published in 1992, reflects the enormous advances in lichen taxonomy over the last two decades. There are keys to 327 genera and 1873 species, with detailed descriptions and information on chemistry and distributions. The language is accessible, avoiding obscure terminology and the keys are elegant. The Lichens of Britain and Ireland is undoubtedly the standard work for the identification of lichens in Great Britain and Ireland and will be indispensable to all serious students of lichens and to other biologists working in the related fields of ecology, pollution, chemical and environmental studies.

BLS members: £45.00, non-members £65.00
Postage & Packing £10.00 UK, £15.00 overseas (note this is a very heavy book!).

Lichen Atlas of the British Isles, ed. M.R.D. Seaward
The Atlas has been published in fascicles, unbound A4 sheets hole-punched for keeping in a ring binder. Each species account includes a distribution map and a discussion of the lichen's habitat, ecology, identification and status.

Cat.2. Fascicle 2: *Cladonia* part 1 (59 spp). 1996. **Out of print.**

Cat.3. Fascicle 3: The foliose *Physciaceae* (*Anaptychia*, *Heterodermia*, *Hyperphyscia*, *Phaeophyscia*, *Physcia*, *Tornabea*) plus *Arctomia*, *Lobaria*, *Massalongia*, *Pseudocyphellaria*, *Psoroma*, *Solorina*, *Sticta*, *Teloschistes*. (54 spp) 1998.

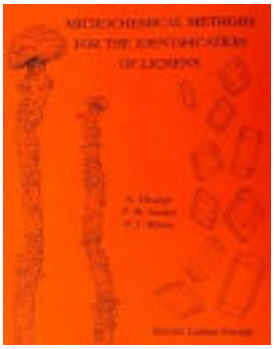
Cat.4. Fascicle 4: *Cavernularia*, *Degelia*, *Lepraria*, *Leproloma*, *Moelleropsis*, *Pannaria*, *Parmeliella*. (36 spp) 1999.

Cat.5. Fascicle 5: Aquatic Lichens and *Cladonia* part 2. (64 spp). 2000.

Cat.6. Fascicle 6: *Caloplaca*. (58 spp) 2001.

All fascicles are offered to members and non-members at a special price of £3.00 each (approximately half price). Postage & Packing £3.50 UK, £10.00 overseas, per fascicle.

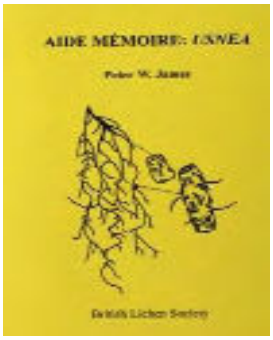
Cat.7. Fascicles 3 to 6 for £9.00 (Buy 3 get one free!). Postage and packing £8.50 UK, £25.00 overseas.



Cat.8. Microchemical Methods for the Identification of Lichens by A. Orange (2010)
2nd edition, with two colour plates. Full of useful information on pigments, crystals, colour tests with reagents and TLC.

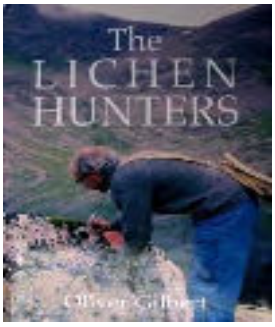
Price £9 members, £11 non-members.
Postage & Packing £4.00 UK, £9.00 Europe

Cat.9. Conservation Evaluation of British Lichens and Lichenicolous Fungi by B.J. Coppins and R.G. Woods (2012)
An update and revision of the 2003 edition and now extended to include lichenicolous fungi. Provides a comprehensive catalogue of threat statuses. Also included are lists of specially protected species in England, Scotland and Wales and those species for which Britain has an internationally important population. It is no. 13 of the JNCC's Species Status volume series. A4 paperback 155pp. £7.00. Postage and Packing £5.00, £12.50 overseas.



Cat.13. Usnea 'Aide Memoire' by P.W. James
A5 booklet with drawings and many useful tips for identifying the British species of this difficult genus.

BLS members £2.00, non-members £3.00. Postage & Packing £1.50 UK, £2.50 overseas.



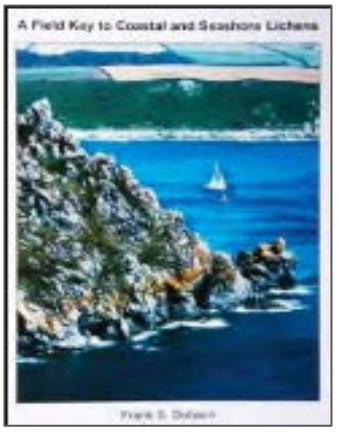
Cat.14. The Lichen Hunters by O.L. Gilbert (2004). Hardback, 208pp. If you have been on any lichen field meetings in the last fifty years, this is a book you will enjoy. The late Oliver Gilbert's boundless enthusiasm comes across in every page as he describes field meetings and explorations around Britain. Many past and present members of the Society are fondly remembered in this delightful book.
Special price now £6.00. Postage & Packing £4.50 UK, £10.50 overseas.

Cat.15. 'Understanding Lichens' by George Baron (1999). Paperback, 92pp.
An excellent introduction to lichenology, from the basic biology of lichens to their environmental importance as well as the history of the science.

BLS members £8.95, non-members £9.95. Postage & Packing £2.50 UK, £6.50 overseas.

Cat. 16. A Field Key to Common Churchyard Lichens by Frank Dobson (2003) Spiral-bound book with strong paper. Illustrated keys to lichens of stone, wooden structures, soil and mosses. 53 colour photographs. Covers many common lowland lichens.

BLS members £6.50; non-members £7.50. Postage & Packing £2.50 UK, £6.50 overseas.

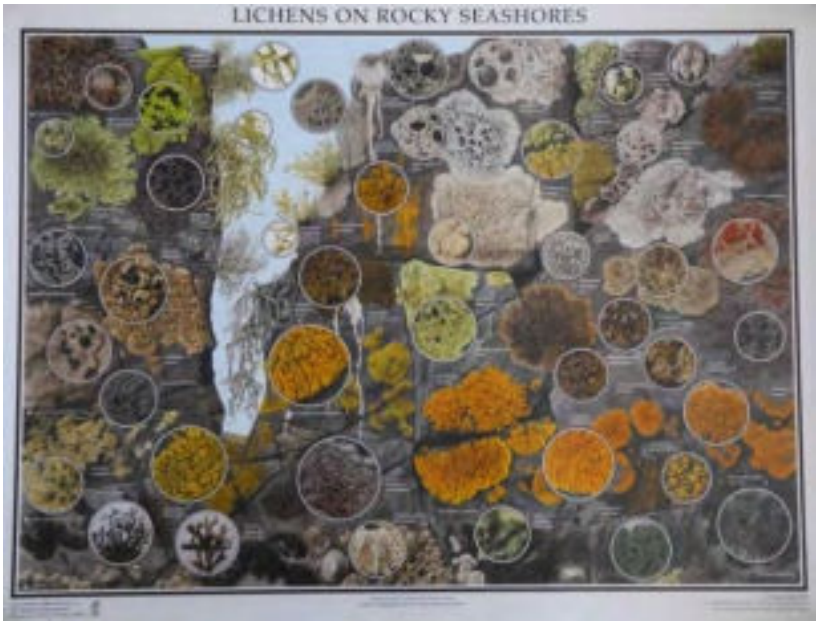


Cat. 17. A Field Key to Coastal and Seashore Lichens by Frank Dobson (2010)
A superb guide to over 400 species. 96 colour photographs. In the same format as **Cat. 16**.

BLS members £10.00; non-members £12.00. Postage & Packing £2.50 UK, £6.50 overseas.

Cat. 18. A Field Key to Lichens on Trees by Frank Dobson (2013)
A superb guide to around 500 species. 96 colour photographs. In the same format as **Cat. 16**.
16.BLS members £15.00; non-members £17.00. Postage & Packing £2.50 UK, £6.50 overseas

Cat. 21 and 22. Lichen Wall Charts illustrated by Clare Dalby.

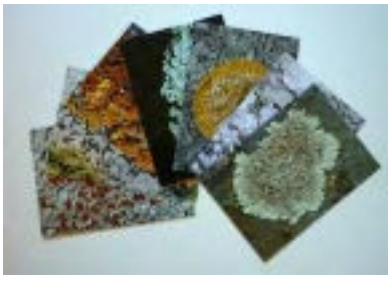


Two beautifully illustrated wall charts, **'Lichens on Trees'(cat.21)** and '**Lichens on Rocky Seashores' (cat.22)** have been produced by artist Clare Dalby. Each is A1 size (80cm wide x 60cm high) and feature over 40 species in colour, nomenclature updated to 2010.

£5.00 per poster, £4.00 per poster for purchases of 8 or more. Postage & Packing (for up to two posters) £5.00 UK, £7.00 overseas.

Cat.25. Greetings Cards/Notelets by Claire Dalby
A set of five cards with envelopes, featuring five exquisite pen and ink illustrations of British lichens.
£2.00 per set. Postage & Packing £2.00 UK, £3.50 overseas.

Cat.26. BLS Postcards
A set of 16 beautiful photographic postcards of British lichens.
£2.00 per set. Postage & Packing £1.50 UK, £3.00 overseas.



Cat.27. Woven ties with below-knot motif of BLS logo. Attractive ties with discreet BLS logo. Colours available: maroon, navy blue, brown, black and gold.

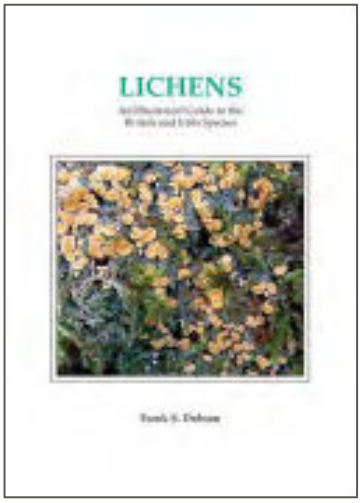
£7.00. Postage & Packing £1.50 UK, £3.00 overseas.

Cat. 28. Enamel badge
Diam. 2.5 cm, pin fixing, matt finish. A well -made attractive badge.

Cat. 29. Fabric badge
Diam. 6 cm. Ideal for sewing onto a cap or rucksack

Cat. Nos. 28 and 29 £1.00 each. Postage & Packing £1.00 UK, £2.50 Europe, £3.00 rest of the world {exception: **Cat. 28** £1.50 UK}

Cat.31 Lichens – An Illustrated Guide to the British and Irish Species 7th Edition



The new edition of this popular book provides an invaluable guide to identifying the British and Irish species, both for the beginner and the more advanced lichenologist.
With detailed air pollution references and distribution maps, it offers the environmentalist and ecologist a concise work of reference, compact enough to be used in the field. The 7th edition conforms with the nomenclature of 'Lichens of Great Britain and Ireland' (LGBI) ed. Smith, C. W. et al (2009) and more recent changes. Over 1,000 species are treated.

This new edition includes many species not currently in LGBI and a section by Mark Powell on lichenicolous fungi on *Physcia* and *Xanthoria.*

Entries consist of a description of each species, a photograph, notes on habitat, chemical tests and line drawings of microscopic and other diagnostic features. Help is also provided in separating similar species.
The popular generic lateral key has been retained and enlarged together with a section on sterile species. A generic synopsis is included to assist the more experienced lichenologist.

Price: Paperback £30 members, £35 non- members. Hardback £45 members, £50 non-members.
Postage & packing: £5.00 UK, £12.00 Europe.

Publication of the Summer 2019 Bulletin

Copy for the Summer 2019 Bulletin should reach the editors (contact details on the inside front cover) by 1 May 2019

British Lichen Society Bulletin no. 123
Winter 2018

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