British Lichen Society *Bulletin* no. 106 Summer 2010

British Lichen Society *Bulletin*

no. 106: Summer 2010

BRITISH LICHEN SOCIETY OFFICERS AND CONTACTS 2010

PRESIDENT S.D. Ward, 14 Green Road, Ballyvaghan, Co. Clare, Ireland, email sdward@eircom.net.

VICE-PRESIDENT B.P. Hilton, Beauregard, 5 Alscott Gardens, Alverdiscott, Barnstaple, Devon EX31 3QJ; e-mail bphilton@eclipse.co.uk

SECRETARY C. Ellis, Royal Botanic Garden, 20A Inverleith Row, Edinburgh EH3 5LR; email c.ellis@rbge.ac.uk

TREASURER J.F. Skinner, 28 Parkanaur Avenue, Southend-on-Sea, Essex SS1 3HY, email johnskinner@southend.gov.uk

ASSISTANT TREASURER AND MEMBERSHIP SECRETARY H. Döring, Mycology Section, Royal Botanic Gardens, Kew, Richmond, Surrey TW9 3AB, email h.doring@kew.org

REGIONAL TREASURER (Americas) J.W. Hinds, 254 Forest Avenue, Orono, Maine 04473-3202, USA; email jwhplh@earthlink.net.

CHAIR OF THE DATA COMMITTEE D.J. Hill, Yew Tree Cottage, Yew Tree Lane, Compton Martin, Bristol BS40 6JS, email d.j.hill@bris.ac.uk

MAPPING RECORDER AND ARCHIVIST M.R.D. Seaward, Department of Archaeological, Geographical & Environmental Sciences, University of Bradford, West Yorkshire BD7 1DP, email m.r.d.seaward@bradford.ac.uk

DATA MANAGER J. Simkin, 41 North Road, Ponteland, Newcastle upon Tyne NE20 9UN, email janetsimkin@btinternet.com

SENIOR EDITOR (*LICHENOLOGIST*) P.D. Crittenden, School of Life Science, The University, Nottingham NG7 2RD, email pdc@nottingham.ac.uk

***BULLETIN* EDITOR** P.F. Cannon, CABI and Royal Botanic Gardens Kew; postal address Royal Botanic Gardens, Kew, Richmond, Surrey TW9 3AB, email p.cannon@cabi.org

CHAIR OF CONSERVATION COMMITTEE & CONSERVATION OFFICER B.W. Edwards, DERC, Library Headquarters, Colliton Park, Dorchester, Dorset DT1 1XJ, email b.edwards@dorsetcc.gov.uk

CHAIR OF THE EDUCATION AND PROMOTION COMMITTEE: position currently vacant.

CURATOR R.K. Brinklow, Dundee Museums and Art Galleries, Albert Square, Dundee DD1 1DA, email richard.brinklow@dundeecity.gov.uk

LIBRARIAN R.G. Woods, Ty Mawr Mill, Llanfihangel Brynpabuan, Builth Wells, Powys LD2 3SH; e-mail r.woodsadvisor@ccw.gov.uk

WEBMASTER J.I.J. Middleton, 4 Down Close, Heyshott, Midhurst, West Sussex GU29 09N, email jacquiandbruce@tiscali.co.uk

CHAIR OF THE MEMBERS' SERVICES COMMITTEE D.J. Hill, Yew Tree Cottage, Yew Tree Lane, Compton Martin, Bristol BS40 6JS, email d.j.hill@bris.ac.uk

FIELD MEETINGS SECRETARY S.G. Price, Woodlands, Combs Rd, Combs High Peak, Derbyshire SK23 9UP, email lichenrecords@sorby.org.uk

MEMBERS OF THE COUNCIL G. Boswell, A. Britton, L. Davies, D. Hawksworth, I. Pedley, K. Sandell, M. Simms, H. Thüs, R. Woods.

REFEREES (Regional & Specialist) See web-site: www.thebls.org.uk

British Lichen Society Bulletin no. 106

Summer 2010

Welcome to the Summer 2010 BLS Bulletin –after our cold wet winter we are at last able to look forward to better collecting weather. This must be the most voluminous issue of the *Bulletin* ever – as always, a very big thank-you to all that submit articles for publication. If anyone's nervous of their contribution not measuring up to scratch, rest assured that the rejection rate is very small!

2010 is the International Year of Biodiversity, and the BLS is marking this with an appeal for surveys of lichens in gardens – often overlooked habitats but often remarkably diverse. See the article on the following page for more information. The more results we get the better! The special garden record form available on the BLS website may be of limited use for our foreign members, but I'd be really pleased to receive articles about garden lichenology in exotic locations.

The BLS is also launching its new conservation strategy – you should receive a copy with this *Bulletin*. It's an excellent basis for persuading landowners that lichens matter, or for persuading organizations to part with grant money in these days of hardship. We've also produced a small poster on lichens in churchyards, thanks to the hard work of Ishpi Blatchley and colleagues, which is ideal for passing on to our ecclesiastical contacts to remind them that lichens are an important part of their local environmental heritage. The Anglican Church has chosen lichens in churchyards and church school grounds as its own contribution to the International Year of Biodiversity – so someone must have contacts in *very* high places!

I was also really pleased to receive an article about the derivation of *Usnea* as a lichen name, and of its history in medicine. The physician concerned lived in the ninth century, and as well as using lichens as antibiotic preparations, he made the first descriptions of smallpox and hay fever, was a major contributor to the development of ethics in medicine and wrote a series of textbooks that were influential for centuries following. And no, he didn't come from Western Europe – see p. 3 for more.

Field meetings in 2009 were memorable, two major events are detailed here, as well as an important account of the lichens of the Scilly Isles and a note on a field meeting in 1962 – which must be the record delay for a write-up!

And finally, be careful how you Google! Search for the British Lichen Society and rather than landing on *www.thebls.org.uk*, you might encounter the OTHER British Lichen Society – a rock group based in Tees-side! Listening to their outputs, I fear that many members of *our* BLS might find their music rather on the violent side. Those preferring something more gentle might appreciate the album *Graphis scripta* by the new-age type Latvian group Nature Concerthall.....

Paul Cannon, BLS *Bulletin* editor: email *p.cannon@cabi.org*

Front cover: The tree frog *Hyla rufitela* mimicking lichen-covered leaves in the rainforests of Costa Rica (see p. 39). ***Thanks to Robert Lücking for the image.***

International Year of Biodiversity – IYB 2010

The British Lichen Society is supporting the global initiative to help raise awareness of the importance of biodiversity.

As a special project during 2010 BLS members are invited to survey lichens in gardens – both in their own back yards and also in larger, public gardens.

See *www.thebls.org* for more information and to download a special garden record form (or contact Barbara Hilton for a copy – see contact details on the inside front cover of this *Bulletin*). We hope to build a picture of the diversity of lichens in gardens across Britain and Ireland and to find which are the most frequently occurring, or noteworthy and special.

Information on lichens from all gardens in the UK and Ireland will be welcomed – urban, suburban and rural, postage-stamp or Capability Brown-designed, beautifully manicured or reverting to nature! Not got a garden? Tell us about the lichens on your house – please use binoculars for roof surveys unless you're quite comfortable with ladders! Or survey someone else's garden – **do get permission, please!**

Fancy doing a survey of the gardens of your local stately pile, or surveying urban parks or ornamental gardens? All these records will be welcome also. **Please get permission first, especially if you think you may need to use chemicals,take pieces for identification or tread on flowerbeds.** The BLS will not indemnify you against irate landowners, park-keepers etc....

If you are planning to survey a public garden, especially if it's well-known, contact Barbara beforehand to check that the garden (or part of it, if it's very extensive) has not already been surveyed. With prior agreement, the BLS will reimburse legitimate expenses for members (entrance fees etc., not cream teas!) – enclose a note of your expenses with your survey card when you return it to Barbara.

After the survey **remember to return your card** to Barbara. Many gardens have an amazingly high diversity of habitats within a small space, and may be unrecognized havens of native biodiversity. You'll be helping to create a major new data set for the mapping scheme, too.

As part of the IYB initiative, the BLS and the Royal Horticultural Society are getting together for a survey of the garden at Wisley on Sunday 3 October; all will be welcome, and BLS members will receive free entry. See p. 127 for more information.

STOP PRESS: Lichens in churchyards and church-school grounds will also be in the spotlight during 2010 as the Anglican Church's contribution to IYB. Find out more through your local diocese and parishes.

Ethnological uses and etymology of the word *Usnea* in Ebubekir Razi's "Liber Almansoris"

The generic lichen name *Usnea* comes from an Arabic word; *Ushnah*, which was translated to Latin by Ebubekir Muhammed bin Zekeriya Razi, also known as Rhazes or er-Razi. Some medicinal uses of *Usnea* are reported, as mentioned in *Liber Almansoris (Kitab el Mansuri)*, the famous work of Rhazes.

Introduction

Lichens have been used in medicine, pharmacy, and industry from antiquity to present day (Richardson, 1991; Çobanoğlu & Yavuz, 2003) because they produce a wide range of bioactive secondary metabolites (referred to as 'lichen substances'; Huneck & Yoshimura, 1996). The lichen genera *Alectoria, Evernia* and *Usnea* all contain usnic acid, a secondary metabolite with antimicrobial properties (Ingólfsdóttir *et al.*, 1998; Romagni *et al.*, 2000; Çobanoğlu *et al.*, 2005).

An imagined image of Razi, artist unknown; source http://www.chemistrydaily.com/

Some herbal medicines certainly acquired their reputation from genuine observations of the effects of administering decoctions on patients, but many supposed effects must have been based on superstition. Foremost among these was the *Signatura plantarum*, the belief that the healing potential of plants can be deduced from their appearance. For instance, *Xanthoria parietina* was used because of its colour to heal jaundice, and *Lobaria pulmonaria* was a remedy to treat pulmonary diseases due to its thallus morphology (Richardson, 1988). *Usnea* and *Alectoria* species when compressed look somewhat like a mass of cloth fibres, and suggested to primitive people that they might be a useful application for wounds and skin inflammation. This turned out to be a valuable application in antiquity (Malhotra *et al.*, 2008; Ingólfsdóttir, 2002).

Due to the similar appearance of their thalli, some species of *Usnea* (Figure 1) and *Alectoria* (Figure 2) are easily confused and were named as *"Muscus arboreus"* in medicinal manuscripts. It is not clear if Razi, when he mentions Ushnah in his works, is referring to *Usnea* or *Alectoria.*

Materials and methods

Accounts of the medical uses of lichens were investigated in Liber Almansoris (Latin) and Kitab el Mansuri (Arabic), versions of Ebubekir Zekeriya Razi's[1] famous work. The Latin translation was done in the 1480s in Milan and comprises ten volumes. It deals exhaustively with Greco-Arab medicine. The ninth volume was

[1] His complete name is *Ebubekir Muhammed bin Zekeriya Razi* and was known as *Rhazes* (occidental sources) and *er-Razi* (oriental sources).

translated by Gerard of Cremona as "Nonus Al-Mansuri". This was a popular text in Europe until the sixteenth century. Razi in his el-Mansurî devoted four out of the book's ten treatises to diets and drugs, medicated cosmetics, toxicology and antidotes, amelioration of laxatives and compounded remedies, all of which are of pharmaceutical interest (Al-Gazal, 2003).

Depiction of Razi with a patient in the Nonus Al-Mansuri. The tonsure must surely have been conjecture on the part of the artist! Or maybe political spin is an older art than we imagine (Ed.)

The original Arabic text in the Süleymaniye Library (Istanbul) was studied in comparison with the Latin translation printed in 1544. By means of etymological, deontological, ethnobotanical and lichenological approaches, the historical relationship between the Latin term *Usnea* and the Arabic *Ushnah* is discussed.

Etymological Review: *Usnea - Ushnah*

In the history of Turkish medicine, Turkish physicians used the Arabic language for their books or publications, because Arabic was the common science-language in the Turk-Islam Civilization. For this reason, the terminology for medicinal plants or materia medica frequently comes from Arabic. In Turkish folkloric medicine, lichens were named according to their medicinal uses. *Sakal Likeni* (beard lichen), *Ciğer Otu* (lung wort), *Temreği Otu* (lichen planus wort) are the Turkish names used for some lichens. Lichens were often confused with mosses and liverworts until the sixteenth century (Richardson, 1975; Yavuz & Yavuz, 2009).

Usnea spp. have been used for traditional medicine in China, Egypt, Greece, India, Middle East and Europe since ancient times (Llano, 1951), and they were among the most commonly used lichens in Europe. Etymologically, the Latin word *"Usnea"* has an Arabic origin. We can find many references where *Usnea* is cited as coming from the Arabic and/or Persian word *"Ushnah"*. For example:

***Usnea*:** Pl. *Usnea*s, *Usnea*e [med. L. (12th cent.), ad. Arab. and Pers. اشنة *ushnah* moss. Hence F. *usnée* (1530).] (Little, 1961).

Usnée: Littré published another work within the *Supplément* volume of his great dictionary *Dictionnaire de la Langue Française*; the *Dictionnaire Étymologique des Mots d'Origine Orientale* (Littré, 1876), an etymological dictionary for French words with oriental origin. The term "Usnée" is mentioned in Littré's work twice, the first

time with some general information about the genus and the second with an explanation of the etymological origin of the word: **Usnée:** Usnée est l'arabe-persan **اشنة** *ouchna*, mousse, lichen. Il en est parlé dans *l'Almansouri de Razi,* fol. 47 recto du manuscrit déja cité (Littré, 1876). *"Usnée is Arabic – Persian,* **اشنة** *ouchna, moss, lichen. It has been mentioned in the Almansouri of Razi at folio 47, the manuscript cited before"*[2].

Ushna اشنة : Odorant lichen, it is known as "Old Woman's Gray Hair, Shaib al-'Agûz" and grows on oaks and other trees. The name Ushna is applied in the Orient to many kinds of odoriferous lichens, mostly of the species of the *Usneae* (which is derived from the Arabic one). *Ramalina*, *Parmelia* and *Physcia* species are all named shêba. *Usnea florida* Hoffm. and *Alectoria (Parmelia) usneoides* Ach. are the lichens which are called to-day *ushna*. According to *Sickenberger* this Arabic term designates all kinds of moss growing on trees. **Synonyms:** Gr: βρυον *(bryon)*; Lat.: Muscus arboreus, modern Lichen odoriferum; Ar. (Egypt): *shaiba;* Turk: *eyî kokan yosun* ای کوکان یوصون; Pers: *dewâle, dewâleh* دواله; Eng. Fragrant Moss; Fr.: Mousse Odoriférante; Germ.: Wohlriechende Bartflechte (Sezgin, 1996).

Ušna: Le nom Arabe *ušna* provient du Syriaque שנתא *šanţā* et désigne aujourd'hui toutes sortes de mousses et de lichens poussant sur l'écorce des arbres (Meyerhof, 1940). (*The Arabic name ušna comes from Syrian* שנתא *šanţā and indicates today all types of mosses and lichens growing on bark of trees*).

اشنة : Applied in the present day to moss and particularly tree moss, in Persian **اشنة** but it is a thing that winds itself upon the trees called بلوط and صنوبر (oak and pine) as thought it was pared off from a root (كَأَنَّهُ مَكْشُورٌ مِنْ عِرْق) and it is sweet in odour and white (Lane, 1980).

اشنة : Ushne, A kind of tree moss used as a perfume, Muscus arboreus (Redhouse, 1978).

Deontological Review: Rhazes

Ebubekir Muhammed bin Zekeriya Razi, better known as er-Razi or Rhazes, was born in 854 in Ray, (in Iran, south of the Caspian Sea). Being thought to have a Scythian origin, he was one of the leading figures in philosophy, chemistry and medicine. One of his famous works was *Kitab el Mansuri,* dedicated to the Samanid Prince *Mansur bin Ishak*. He died around 925 AD, and his name is commemorated in the *Razi Institute* near Tehran (Al-Gazal, 2003).

Kitab el Mansuri deals with general medical issues and simple drugs. It was translated into Latin with the name of *"Liber Medicinalis Almansoris"* and printed in Milan (1481) and Venice (1510). This publication was used as a text in several faculties of medicine until the eighteenth century. Littré had cited Usnée from *Traite III, ch. xxviii* (Article III, Chapter xxviii) which is about simple or basic drugs. In a 1531 Strasbourg edition of Liber Medicinalis Almansoris, this chapter is translated in Latin as below (van de Velde, 1941):

[2] Littré gives his reference as *"Man. de la Bibliothéque Nationale, No: 1005 du Supplément Arabe"* which is *Almansouris* of Razi.

Latin:

"Rasis fili Zachariæ de Simplicibus ad Almansorem

p 373 Cap. I. Dictio universalis ad sciendum uirtutes Nutrientium & Medicinarum:

p 391 Cap. XXVIII. De virtutibus specierum, quibus omni hora multum est utendum, quod secundum literarum Arabicarum ordinem dispositum est. Cuius enim speciei nomen incipit ab A, in capitulo de A inuenitur, similiter quoq; in aliis fit literis. Caput de A XXVIII: asarum, squinantum, ***vsneæ****, antimonium, abel, acatia, sarcocolla, epithimum, berberis, emblici, azedarach, urtica, coagulum, squilla, absynthium, sticados, mellilotum, anisum, amoniacum."*

English translation:

Rhazes son of Zachariae, about Simple (Drugs) at (Liber) Almansoris

p 373 Cap. I. Generally telling about to know (about) virtues of Nutrients and Medicines:

p 391 Cap. XXVIII. About virtues of species which are (found) every time many and used, all of which are placed here following order of Arabic letters. For instance, species whose names begin with (letter) A. The chapter of A comes upon (and) similar to that (chapter) others are done. Chapter A xxviii: Asarum sp., Andropogon schoenanthus, ***Usnea sp.,*** *antimony (Chemical Element Stibium), fruits of Juniperus communis, Acacia sp. or Robinia pseudoacacia, Penaea sarcocolla, Cuscuta epithymum, Berberis vulgaris, Emblica officinalis, Melia azedarach, Urtica sp., Coagulum (?), Scilla sp., Artemisia absinthium, Sticados arabicum (Lavandula stoechas), Mellilotus officinalis, Pimpinella anisum, gum of Dorema ammoniacum*

In this edition, two hundred and thirty-five simple drugs are mentioned. The drugs are in original Arabic alpha-numeric (Ebced - Abjad) order.

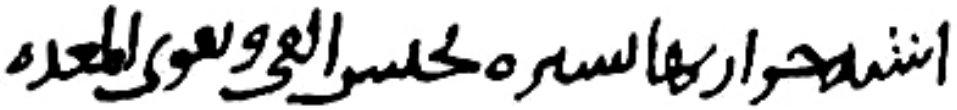
Arabic Codex

What does Razi tell in his book about vsneæ - **اشنة** ? The answer is kept today in Süleymaniye Library where a great number of Turkish, Arabic and Persian manuscripts are preserved. In the library, the manuscript registered as *Collection Ayasofya, No: 3751*, is "Kitab el-Mansuri". The first page of the book contains a note:

"Kitab el-Mansuri er-Razi min et-Tıbb" (Kitab el-Mansuri of Rhazes, about medicine). The book is written in Arabic with Arabic handwriting style.

In folio 42 recto, the title is: El-Makalet es-Salise fî Kuvvaya el-Ağdiyete vel-Adviyyete / Article III – About Powers of Foods and Drugs.

In folio 55 recto, the title is: Fasl fî Edviyyet el-Müstamelet el-Müfredat / Section About Simple Drugs. Under a brief introduction, Razi gives explanations of simple drugs in alphabetical order. The first five simple drugs are الاسارون "el-asarun" (*asarum* in Lat.), الادهر "el-edhâr" (*squinantum* in Lat.), اشنه "uşne" (*vsneæ* in Lat.), اثمد "ismad" (*antimonium* in Lat.) and ابهل "ebhel" (*abel* in Lat.). The text about اشنه / uşne / usneæ with an English translation is as follows:



"Uşne, warm, with this it is easy to prevent vomiting and it strengthens the stomach."

Latin Codex

Today we can find the Medieval Latin translations of Kitab el-Mansuri in various libraries, including the Library of Medical Books at the Universitad Complutense, Madrid. UCM has a digital library (*Colección Digital Complutense* > *Catálogo Digital Dioscórides* > *Medicina Árabe*) where the reader can print or save a copy of a page from the manuscript (*http://alfama.sim.ucm.es/dioscorides/consulta_libro.asp?ref=X53189771X&idioma=0*). The title of the book is: *Abvb Rhazæ ad Mansor*, in the first page, there is an inscription (see below):

Latin:

"Abubetri Rhazæ Maomethi, ob usum experientiamque multiplicem, et ob certissimas ex demostrationibus logicis indicationes, ad omnes præter naturam affectus, atque etiam propter remediorum uberrimam materiam, summi medici opera exquisitiora quibus nihil utilius ad actus practicos extat, omnia penitus et carius quæ habet aut Hippocrates obscuriora, aut Galenus fusiora, fidelissime doctissimeque exponit et in lucem profert.

per Gerardum Toletanum medicum Cremonensem, Andream Vesalium Bruxellensem, Albanum Torinum Vitoduranum latinitate donata, ac iam primum quam castigatissime ad vetustum codice summo studio collata & restaurata, sic ut a medicinae candidatis intelligi possint.

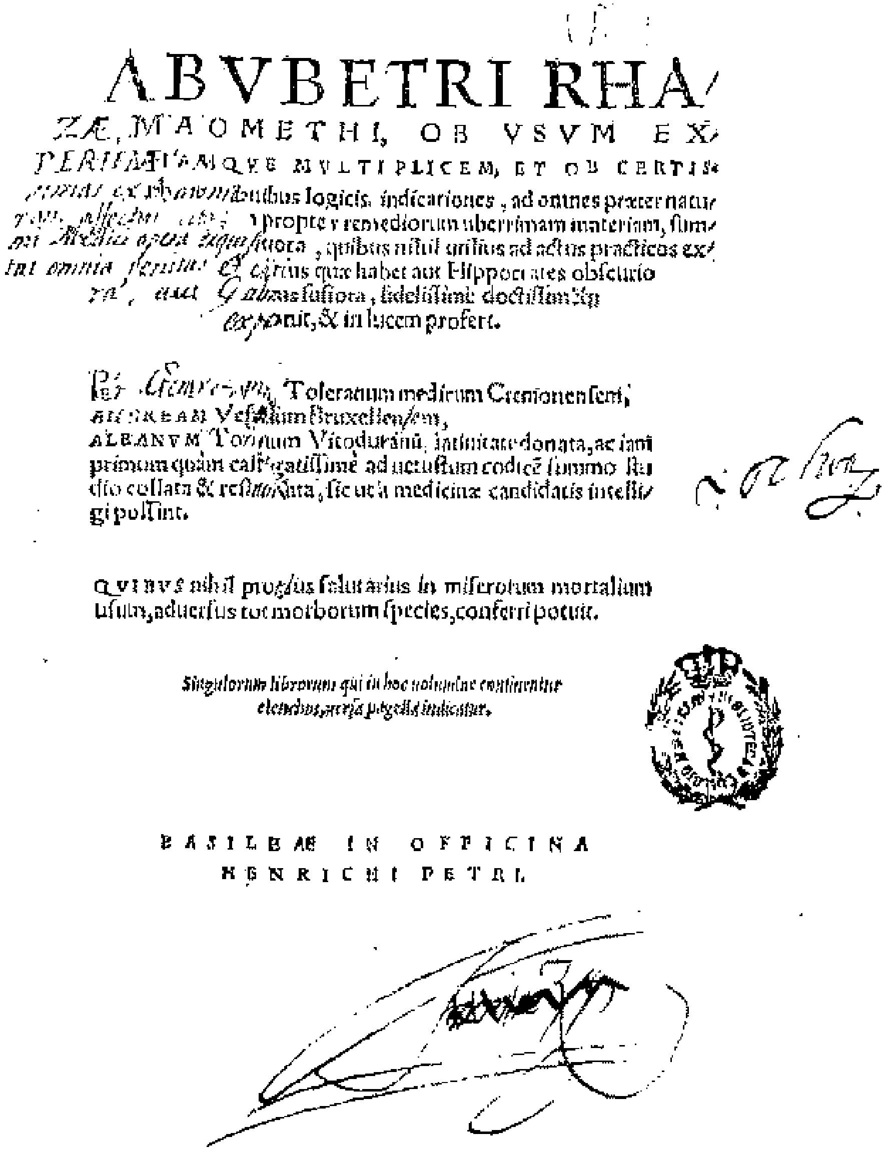
Quibus nihil prorsus salutarius in miserorum mortalium usum, adversus tot morborum species, conferri potuit. "

English translation:

"Ebubekir Razi Muhammed; on account of uses, and experience together on a fixed result of the identifications and logical indications; about every(thing), besides the nature of the affection; furthermore, together with on account of plentiful remedy material(s), the top of the excellent curative works to which there is nothing to advantage about practical actions, all the things inside and precious which either Hippocrates has obscure, or Galenus has spread, loyally learned and exposed and even discovered the light.

By Gerard from Toledo, the doctor of Cremona; Andreas Vesalius from Brussels; Alban Thorer from Winterthur (Vitoduran); who present in Latin and besides foremost tightly drawn about ancient codices, the summit studies were brought together and restored thus, in order that by practice of medicine, the candidates may be able to understand.

By which, all species can be able to be collected to use against diseases of miserable humans (for) absolute health-giving. "


ABVBETRI RHA-
ZAE, MAOMETHI, OB VSVM EX-
PERIENTIAMQVE MVLTIPLICEM, ET OB CERTIS-
simas ex demonstrationibus logicis indicationes, ad omnes praeter natu-
ram affectus atque propter remediorum uberrimam materiam, sum-
mi Medici opera exquisitiora, quibus nihil utilius ad actus practicos ex-
tat omnia seruntur. Et certius quae habet aut Hippocrates obscurio-
ra, aut Galenus fusiora, fidelissime doctissimeque
exponit, & in lucem profert.

Per Gerardum Toleratum medicum Cremonensem,
Andream Vesalium Bruxellensem,
Albanum Torinum Vitoduranū, integritate donata, ac iam
primum quam castigatissime ad uetustum codicē summo stu-
dio collata & restaurata, sic ut a medicinae candidatis intelli-
gi possint.

Quibus nihil magis salutarius in miserorum mortalium
usum, aduersus tot morborum species, conferri potuit.

Singulorum librorum qui in hoc uolumine continentur
elenchus, uersa pagella indicatur.

BASILEAE IN OFFICINA
HENRICHI PETRI.

Cover inscription of Liber Almansoris

On the second page, the publication date of the book is given: *"Basileæ per Henrihcum Petrum Mense Martio, Anno MDXLIIII"* (Published by Henrichi Petri in Basel in March of 1544).

The chapter beginning on page 78 is about Uses of Simple Drugs: *De uirtutibus ſpecierum quibus omni hora multum eſt utendum....* and the titles for drugs are in the original Arabic order. Here, Razi says (translated into Latin:

"Vſneæ parum exiſtit calidum. Quod uomitum abſtinendo ſtomachum efficit rigidum."
"Usnea exists to be a bit hot. Because it prevents vomiting, brings strength to stomach."

tò uicinum exiſtit. Alia uerò electuaria cauſa delitiarum tantummodo co/meduntur.

De uirtutibus ſpecierum, quibus omni hora multum eſt utendum, quod ſecundum literarum Arabicarum ordinem, diſpoſitum eſt. Cuius enim ſpecieci nomen incipit ab A. in capitulo de A. inuenitur: ſimiliter quoq; in aliis ſit literis.

De A. Cap. XXVIII.

ASarum calidum eſt & ſiccum. Quod in hepate oppilationem habentibus confert, & urinam prouocat, atque hypoſarcam patientibus, auxiliũ cõfert. Scœnoſanthos calidũ eſt & ſiccum, duro apoſtemati ſtomachi, uel hepatis beneficiũ præſtãs, quando ex eo fit emplaſtrum deſuper. ✠ Vſneæ parum exiſtit calidum. Quod uomitum abſtinendo, ſtomachum efficit rigidum. ✠ Anthimonium frigidum eſt & ſiccum. Quod oculum efficiens robuſtum, ipſius cuſtodit ſanitatem, ſuppoſitum quoq; menſtrua conſtringit. Abel calidum eſt & ſiccum, menſtrua uehemẽter prouocat atq; abortire facit. Acatia eſt frigida & ſicca. Quæ ſanguinis arcet fluxum, atque longanonem exeuntẽ reducit interius. Ventrem quoque ſtringit, fit de ſucco paruæ cuiuſdam arboris iuncoſimilis in Alexandria. Sarcocolla in oculis patientibus lippitudinem confert, plagis etiam recentibus remedium præbet. Epithymum calidum exiſtens, bilem expellit nigram, ac timorem minuit. Berberis frigidum eſt. Quod & uentrem ſtringit, & ſitim aufert, ſtomacho quoque ac hepatis ardorem patientibus remedium affert. Emblici frigidi ſunt & ſicci. Qui & ſtomachum faciunt robuſtum, & capillorum corroborant radices. Azedarach calida eſt & ſicca. Hæc oppilationibus quæ ſunt in capite congrua exiſtens, capillos prolongat, fructus tamen eius ualdè exiſtit ſtomacho nociuus, qui etiam quandoque pernicioſus inuenitur. Vrtica calida eſt, quæ coëundi ſtimulans uoluntatem, de pectore uiſcoſum expellit phlegma, uentrẽmque mouet. Coagulum omne calidum eſt. Quod & uentrem uehementer conſtringit, atque ſanguinem fluere non permittit. Scylla calida eſt & acuta. Hæc autem epilepſiæ, ac tumori ſplenis, necnon & eius magnitudini atque uiperarum morſibus, & dyſpnœæ uetuſtæ auxilium tribuit. Abſinthium calidum eſt & ſiccum. Quod ſtomachum reddens robuſtum, hepatis aperit oppilationem, atque febribus longi temporis auxiliatur. Stichas calida eſt, bilemq; nigram & phlegma expellit, epilepſiæ quoque ac melancholiæ beneficium præbet, cum multo tiens bibitur, ut uentris faciat purgationem. Melilotum calidum exiſtens, dura apoſtemata in artubus, uel in interioribus nata mollificat.

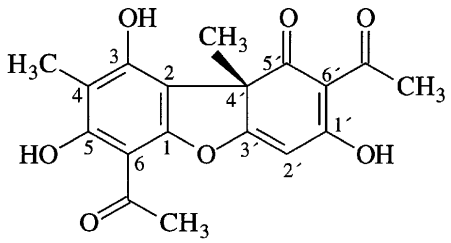
Aniſum calidum eſt. Quod uentoſitatis diſſolutiuum exiſtens, hepatis aperit oppilationem, coëundi præterea uoluntatem ſtimulat.

Ammoniacum calidum exiſtens, dura mollificat apoſtemata, ſcrophulásque diſſoluit.

Pharmaceutical Review: Usnic acid

Usnic acid and its derivatives have been studied for their antibacterial, antifungal, and antiprotozoal effects. In addition, usnic acid has been found to have in vitro antiproliferative activity. Allergic contact conjunctivitis and dermatitis also have been reported after topical use of usnic acid-containing products (Ingólfsdóttir, 2002). Usnic acid has dose-dependent anti-inflammatory activity when tested on rats where the anti-inflammatory action of (+) Usnic acid was comparable to ibuprofen at

the same dose level (Vijayakumar *et al.*, 2000). Usnic acid is used in powders and ointments for the treatment of infections of the skin.



Usnic Acid ($C_{18}H_{16}O_7$**)**

Usnic acid works as an uncoupled agent in the cellular mitochondria and it can cause dangerous body overheating. It has been shown to uncouple oxidative phosphorylation in a murine mitochondrial model, with resultant loss of mitochondrial respiratory control and inhibition of adenosine triphosphate synthesis (Abo-Khatwa *et al.*, 1996). Dietary supplements containing usnic acid are marketed for weight loss and have been associated with hepatotoxicity (Sanchez *et al.*, 2006).

Usnea species and usnic acid are commercially availabile. In its purified form, usnic acid is an ingredient of creams, toothpaste, mouthwash, deodorants, antibiotic ointments and sunscreen products. Usnic acid and copper usnate have been produced as antimicrobial preparations. In Germany, lichen extracts used in cosmetics and pharmaceuticals are marketed under trade names *Omnigran a, Granobil*, and *Usnagren A* and *T*. In Italy, usnic acid has been used in vaginal creams, foot creams, powders, and hair shampoo. In Argentina, *"Barba della Piedra" (Usnea densirostra)* has been sold to treat many ailments. In all these products, usnic acid is employed as an active agent as well as a preservative. Extracts of lichens rich in usnic acid have been utilized in pharmaceuticals, perfumery, and in cosmetic applications (Frankos, 2005).

Discussion

In ancient Greece, Hippocrates prescribed and recommended *Usnea barbata* for uterine troubles (Llano, 1951), while Dioscorides recommended *"Beard Moss"* for certain diseases peculiar to women (Schneider, 1904). An important question is whether *Usnea* or usnic acid has any effects on the stomach as Razi mentioned. Three esearch papers suggest that there are beneficial effects.

The gastroprotective effect of usnic acid isolated from *Usnea longissima* was investigated in the indomethacin-induced gastric ulcers in rats. Gastric lesions were significantly reduced by all doses of usnic acid as compared with the indomethacin (25 mg/kg body weight) treated group (Odabaşoğlu *et al.*, 2006). This suggests that the gastroprotective effect of usnic acid can be attributed to its reducing oxidative damage and neutrophil infiltration in tissues.

The antiulcerogenic effect of diffractaic acid isolated from *Usnea longissima* was also investigated on indomethacin (IND)-induced gastric lesions in rats by Bayır *et al.* (2006). This suggests that the gastroprotective effect of DA can be attributed to its enhancing effects on antioxidant defence systems as well as reducing effects of neutrophil infiltration.

The antiulcerogenic effect of a water extract obtained from *Usnea longissima* was investigated by Halıcı *et al.* (2005) using indomethacin-induced ulcer models in rats; where the water extract of *Usnea longissima* showed moderate antioxidant activity. This indicates that the water extract of Usnea longissima has a protective

effect in indomethacin-induced ulcers, which can be attributed to its antioxidant potential.

These works provide scientific support for the value of *Usnea* for treating stomach problems as described in folkloric medicine during antiquity and medieval times. Razi mentioned that *"Uşne (Usnea* spp.*) protects stomach"* and this is confirmed almost one thousand years after he wrote his treatise. Thus, Razi in his great work Kitab el-Mansuri, made a remarkable contribution to pharmaceutics and ethno-lichenology.

Acknowledgements

The authors thank Prof. D.H.S. Richardson for his valuable comments on an early draft of this manuscript and for his help with English and grammar.

References

Abo-Khatwa, A.N., al-Robai, A.A. & al-Jawhari, D.A. (1996). Lichen acids as uncouplers of oxidative phosphorylation of mouse-liver mitochondria. *Natural Toxins* **4**: 96-102.

Al-Gazal, S.K. (2003). The valuable contributions of Al-Razi (Rhazes) in the history of pharmacy during the Middle Ages. *Journal of the International Society for the History of Islamic Medicine* **2**: 9-11.

Bayır, Y., Odabaşoğlu, F., Çakır, A., Aslan, A., Süleyman, H., Halıcı, M. & Kazaz, C. (2006). The inhibition of gastric mucosal lesion, oxidative stress and neutrophilinfiltration in rats by the lichen constituent diffractaic acid. *Phytomedicine* **13**: 584-90.

Çobanoğlu, G. & Yavuz, M. (2003). Tıp tarihinde likenlerle tedavi. *Yeni Tıp Tarihi Araştırmaları* **9**: 37–90

Dauzat, A. (1947). *Dictionnaire Étymologique de la Langue Française*. Librairie Larousse, Paris.

Frankos, V.H. (2005). *NTP Nomination for Usnic acid and Usnea barbata Herb.* FDA-CFSAN-ONPLDS Food and Drug Administration, Division of Dietary Supplement Programs, USA.

Halıcı, M., Odabaşoğlu, F., Süleyman, H., Çakır, A., Aslan, A. & Bayır, Y. (2005). Effects of water extract of *Usnea longissima* on antioxidant enzyme activity and mucosal damage caused by indomethacin in rats. *Phytomedicine* **12**: 656-62.

Huneck, S. & Yoshimura, I. (1996). *Identification of Lichen Substances.* Springer-Verlag, Berlin.

Ingólfsdóttir, K. (2002). Usnic acid. *Phytochemistry* **61**: 729-736.

Ingólfsdóttir, K., Chung, G.A.C., Skúlason, V.G., Gissurarson, S.R. & Vilhelmsdóttir, M. (1998). Antimicrobial activitiy of lichen metabolites in vitro. *European Journal of Pharmaceutical Sciences* **6**: 141-144.

Lane, E.W. (1980). *An Arabic-English Lexicon*. Librarie du Liban, Beirut.

Little, W. (1965). *The Oxford Universal Dictionary (Illustrated)*. Caxton Publications, London.

Littré, É. (1876). *Dictionnaire Étymologique des Mots D'Origine Orientale.* Librairie Hachette, Paris.

Llano, G.A. (1951). Economic uses of lichens. *Annual Report, Smithsonian Institute* **1951**: 385-422.

Malhotra, S., Subban, R. & Singh, A. (2008). Lichens' role in traditional medicine and drug discovery . *Internet Journal of Alternative Medicine* **5**: 2.

Meyerhof, M. (1940). *Sarh Asma' Al-'uqqar (l'Explication des Noms de Drogues): un Glossaire de Matière Medicale Composé par Maimonide.* Imprimerie de l'Institut d'Egypte, Cairo.

Odabaşoğlu, F., Çakır, A., Süleyman, H., Aslan, A., Bayır, Y., Halıcı, M. & Kazaz, C. (2006). Gastroprotective and antioxidant effects of usnic acid on indomethacin-induced gastric ulcer in rats. *Journal of Ethnopharmacology* **103**: 59-65.

Redhouse, J.W. (1978). *A Turkish and English Lexicon.* Çağrı Yay, İstanbul.

Richardson, D.H.S. (1975). *The Vanishing Lichens: Their History, Biology and Importance*. David & Charles, Newton Abbott etc.

Richardson, D.H.S. (1988). Medicinal and other economic aspects of lichens. In Galun, M. (ed.), *CRC Handbook of Lichenology.* **3**: 93-108. CRC Press.

Richardson, D.H.S. (1991). Lichens and Man. In Hawksworth, D.L., *Frontiers in Mycology* pp. 187-210. CAB International, Kew.

Romagni, J.G., Meazzab, G., Nanayakkarac, N.P.D. & Dayana, F.E. (2000). The phytotoxic lichen metabolite usnic acid is a potent inhibitor of plant *p*-hydroxyphenylpyruvate dioxygenase. *FEBS Letters* **480**: 301-305.

Sanchez, W.T., Maple, T.J., Burgart, L.J. & Kamath, P.S. (2006). Usnic acid hepatotoxicity *Mayo Clinic Proceedings* **81**: 541-544.

Schneider, A. (1904). *A Guide to the Study of Lichens.* Knight and Miller, Boston.

Sezgin, F. (1996). *Islamic Medicine.* Institut für Geschichte der Arabisch-Islamischen Wissenschaften an der Johann Wolfgang Goethe-Universität. Süleymaniye Kütüphanesi. Sec. Yabancı Diller 1705~1804.

Van de Velde, A.J.J. (1941). *De Chemico-Medicus Rhazes. Die Omstreeks 940 Overleed.* 730–735 (Vol. III. 1996 Islamic Medicine 26. ISBN 3-8298-3026-2).

Vijayakumar, C.S., Viswanathan, S., Reddy, M.K., Parvathavarthini, S., Kundu, A.B. & Sukumar, E. (2000). Anti-inflammatory activity of (+)-Usnic acid. *Fitoterapia* **71**: 564-566.

Yavuz, M. & Yavuz, S. (2009). Türk Halk Tıbbında Likenler ve İlgili Terimlerin Etimolojisi. *Türk Liken Topluluğu Bülteni* **7**: 24–28

Mustafa Yavuz
Isparta BILSEM Science and Arts Center, Vatan M. 4405 S. No: 8, Isparta 32040, Turkey. *email mustafay007@gmail.com*

and

Gülşah Çobanoğlu
Marmara University, Science and Letters Faculty, Biology Department, Göztepe Campus, Istanbul 34722, Turkey. *email gcoban@marmara.edu.tr*

Lichens of the Isles of Scilly

Introduction

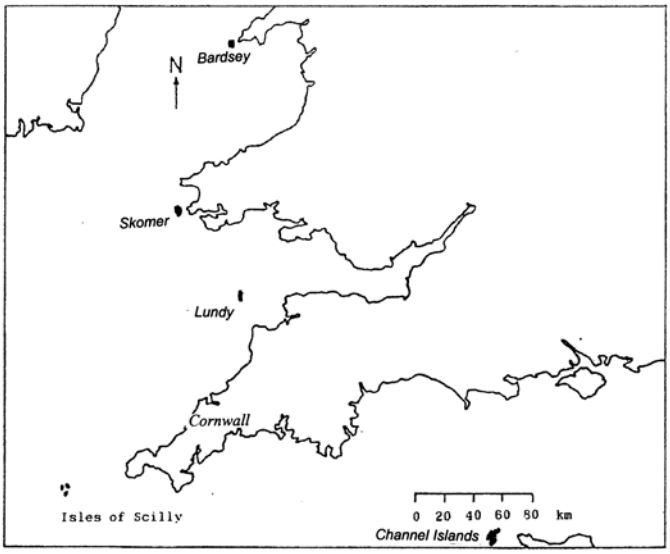
The Isles of Scilly, an archipelago some 45 kilometres (28 miles) south-west of Land's End in Cornwall are, excepting the Channel Islands, the most southerly part of the British Isles. Sitting in the Atlantic Ocean, bathed by the Gulf Stream, they fall within four 10-kilometre grid squares and occupy a total land area of 16 km^2**.** Of the 10 island groups which have a total of 818 islands exposed at mean high water of spring tides (MHWS), only the five largest islands (St Mary's, Tresco, St Martin's, Bryher and St Agnes, see map) are inhabited, with a total resident population of about 2,000. By far the largest population is on St Mary's (Parslow, 2007).

Islands so placed as the Isles of Scilly, which remain free of extensive modern development and atmospheric pollution, have grown in significance because of the scope they offer as areas in which to monitor climate and atmospheric change, for which lichens are important indicators. However, as the horticultural and fishing industries have declined, and tourism is now the major industry, new pressures threaten the natural environment, such as disturbance by trampling.

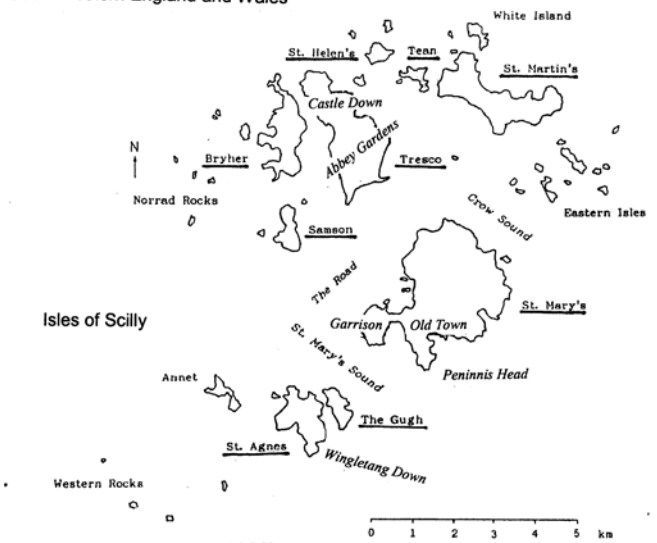
The islands are chiefly low-lying, with hills barely rising to 45 metres. The sea around the islands is mostly shallow and at the lowest water, in some places, allows access by foot from one island to another. Ranwell (1966), in his excellent account of lichens on Bryher, distinguished three maritime lichen habitats above mean sea level: a coastal zone (0 – 3 m) with the highest diversity of lichen species, a lowland zone (3 – 15.2 m) more sheltered and cultivated, and a summit zone (15.2 – 30.5 m) of wind-exposed heathland or 'downs'. This island (Bryher), the most north-western, while being exposed to the full thrust of the Atlantic waves, provides shelter for the western side of nearby Tresco. Similarly, further south, St. Agnes is exposed towards the west and provides shelter for Gugh, which is connected to St Agnes by a sand bar only at low water.

The climate is equitable and mostly frost-free (monthly mean temperature = 11.7 ºC) – mild and oceanic – with cooler sunny days in summer and damper, warmer winters (February mean = 7.3 ºC) than on mainland Cornwall (Parslow, 2007). Gales and strong salt-laden winds are frequent, especially in winter, and many areas are prone to persistent sea-fog and high humidity. The climatic conditions, with salt-spray reaching most of the low-lying land, encourage a rich and distinctive maritime lichen flora.

The shoreline is extensive and the geology of its rock is of paramount importance in determining the lichen communities of the supralittoral zone. The rock is uniformly (and almost exclusively) acidic granite, a dome-shaped mass, related to the granite found at Land's End in Cornwall but whiter and lacking tin and copper. An older coarse-grained granite is found at the margins of the group of islands and merges into a younger fine-grained granite which has intruded into the centre of the islands. Weathered granite has given rise to the extensive blown sand, forming beaches and bars which are essentially siliceous with little or no calcareous component.



South-western England and Wales



MAPS (after Printzen, 1990)

The local granite has been used in the construction of walls and buildings. Field walls (dating from the Iron Age) are sometimes referred to as 'stone hedges', the oldest type being a double granite wall with soil in-between. Later walls, still often ancient, were of dry stone construction of one row of granite. By Elizabethan times, as in the construction of the Garrison on St Mary's, mortar was used in walls and buildings. Mortar, cement and concrete have introduced basic calcareous substrates for lichen colonisation. Churches and their churchyards (Bryher, St Agnes, St Mary's Old Church and Tresco) have provided further variety in rock type and substrate.

While there is little running water on the islands, there are wetlands, pools and ponds, both brackish and freshwater. Of considerably more interest for lichens are

the coastal turf (eg on Tresco) and areas of heathland (especially on Tresco and St Agnes) which provide habitats for some of the rarest and most interesting lichens of the islands.

Originally wooded in prehistoric times, much of the land, especially of the larger islands, was cleared and converted into arable land and pasture to support agricultural settlements. Today, trees are either used in landscaping or for windbreaks and boundaries. Such trees, greatly enhanced by those in the exotic collection in the world-famous sub-tropical Abbey Gardens of Tresco, provide bark substrates for lichen colonisation. Interestingly, elms, possibly resistant to Dutch elm disease, have survived in the Isles of Scilly, with many tall old specimens in sheltered Holy Vale (St Mary's). Stunted examples of elms are also found as remnants of field boundaries and as windbreaks around bulb-fields. Other plants used as hedges include *Pinus*, *Hebe*, *Escallonia* and, more recently, *Pittosporum* which, unfortunately, has proved to be not entirely frost-hardy. Thus, the Abbey Gardens apart, the diversity and abundance of bark are limited, but the presence of elms (considered to have very basic bark) is potentially significant, as elsewhere today they are seldom seen throughout Britain. The elm species on the Isles of Scilly is thought to be *Ulmus* x *hollandica* (Dutch elm), while the species more commonly encountered in nearby mainland Britain are *U. procera* and *U. carpinifolia* (Lousley, 1971; Parslow, 2007).

Earlier Records

Today the Isles of Scilly are recognised as an important reservoir of lichens, contributing to the oceanic component of British lichens and showing relationships with Macaronesian, coastal Mediterranean and Lusitanian flora. Unlike in the Channel Islands where, in the nineteenth century, Charles Larbalestier and associated eminent lichenologists were at the forefront of active collecting, naming and exchanging of specimens, historical excursions to the Isles of Scilly were few. Although by 1867 it was possible to reach Penzance in Cornwall by rail, it was a long, tedious journey and the prospect of a sea voyage (often rough) to follow must have seemed daunting. Thus, collectors were mostly local, living in or around Penzance and historical records from these Isles are sparse and scattered over a period of time.

Summaries of these early records may be found in Ranwell (1966) and Printzen (1990). Hooker (1833) made the journey to the Isles of Scilly and refers to *Roccella tinctoria* (pp. 221-222), a Mediterranean species, probably mis-identified for *Roccella fucoides* (= ***Roccella phycopsis***) with which it was often confused in early records. Courtney (1845) listed in his Appendix, p. 18, three lichen species for the Isles of Scilly: *Borrera leucomela* (= ***Heterodermia leucomela***), ***Roccella fuciformis*** and *Roccella tinctoria* (= *R. phycopsis*). The sisters L. and M. Millett (1852) recorded that their nephew (Tracey Millett) discovered *Sticta crocata* (= *Pseudocyphellaria crocata*) on Tresco, Bryher and Gugh, and *Sticta pulmonaria* (= ***Lobaria pulmonaria***) on several of the islands. Salwey (1853) recorded *Lecanora cervina* (= *Acarospora cervina*, a doubtful record) and *Lecidea scabra* (= ***Lecidella scabra***) from the Isles of Scilly; and in his 1854 postscript (p.148) to his 1853 list of Penzance lichens, he further recorded *Sticta aurata* (= ***Pseudocyphellaria aurata***) on St Mary's, Scilly, from the Millett collection

which he had examined. Ralfs (1882, p. 213) noted that *Sticta aurata*, originally discovered by Tracey Millett, was still plentiful on Tresco, Bryher and Gugh. Tracey Millett had also been responsible for the discovery of the very rare *Sticta crocata* at Carn Galva near Penzance. These records, together with the absence of any voucher specimen from the Isles of Scilly for *Pseudocyphellaia crocata*, support the conclusion that the name *Sticta crocata*, originally recorded by the Milletts, had been in error for *Sticta aurata*.

Pseudocyphellaria aurata, Isles of Scilly © Bryan Edwards

Curnow (1872) provided a list of 12 species for the Isles of Scilly, including eight new species: *Lecidea Muddii* (= ***Halecania ralfsii***), *Lecanora aipospila* (= ***Lecania***

aipospila), *Ramalina scopulorum* (= ***R. siliquosa***), *Parmelia perlata* (= ***Parmotrema perlatum***), *Stictina limbata* (= ***Sticta limbata***), *Stictina fuliginosa* (= ***Sticta fuliginosa***), *Stictina scrobiculata* (= ***Lobaria scrobiculata***) and *Ricasolia laetevirens* (= ***Lobaria virens***). Oddly, Curnow failed to include *Heterodermia leucomela* in his list although there is an 1872 Curnow specimen, labelled *Physcia leucomela* (= *Heterodermia leucomela*), from Bryher in the BM.

Thus, by 1872 a total of **14 species** had been recorded for the Isles of Scilly (shown above in bold), most being backed up by fine specimens, especially those of Curnow, as can be seen in the BM collections. Tonkin & Tonkin (1887) listed only 10 species, but included *'Physcia leucomela'* and provided specific island localities. Even 81 years later, Watson (1953) gave only 39 lichen taxa for the Isles of Scilly (35 by today's nomenclature). In the 1960's the total number of lichen species observed increased significantly, enhanced through collecting visits by lichenologists, especially Ranwell (1966), who published the results of a most important study on Bryher and reported 110 species for the Isles of Scilly overall. However, by this time, most of the macrolichens of the Lobarion community of the earliest records had become very rare (eg *Pseudocyphellaria aurata* and *Sticta limbata*). A British Lichen Society (BLS) visit to the islands in 1968 resulted in records and important voucher specimens in the BM collections, but no list was published.

The need for a published modern account reassessing and drawing together these diverse and historic records with more recent work has become apparent. A start was made with the BLS visit to the islands in 1999, but no published record of this meeting resulted which would have provided a basis for future work. The framework for this current lichen list is provided by an unpublished Isles of Scilly Lichen Check-list. This list, compiled by Peter James in 1999, was distributed to BLS members attending the field meeting and served as guidance, representing a summary of species which had been recorded by that time, including confirmed pre-1950 herbarium records, and those of Ranwell (1964, 1965), the 1968 BLS meeting, James & Printzen (1989) and James, Allen & Hilton (1997).

Additional records and specimens, made available since 1999, have been incorporated in the new updated list provided here. These include: further records and specimens of Peter James from 1980 and 1999, and records of David Hill (1963), Mark Seaward (1967), Christian Printzen (1989), Ivan Pedley (1999), and significant, more recent, records of Bryan Edwards (2001, 2002 and 2006). We thank Holger Thűs for making the BM collections available, assisting with tlc information and identifying *Verrucaria* species, and Brian Coppins for confirmation of the identification of difficult species. We gratefully acknowledge the contributions made by these BLS members and especially that of Barbara Hilton who, throughout, has proof-read and assisted with fieldwork and in herbarium searches at the BM.

In the list that follows, nomenclature and authorities follow those of Smith *et al.* (2009) and the most recent BLS synonym Check-list on the BLS website (*www.thebls.org.uk*).

Isles of Scilly Lichen Check-List 2010

Key:

Y = St Mary's
T = Tresco
M = St Martin's (including White Island)
B = Bryher
A = St Agnes (including Gugh)
S = Samson
H = St Helen's
E = Tean
G = record for Gugh, but not St Agnes

\+ = record in 1999 based on:
a) early (pre-1950) herbarium records (confirmed)
b) Ranwell (1964, 65)
c) BLS meeting (1968)
d) James & Printzen (1989)
e) James, Allen & Hilton (1997)
? = identification not confirmed
\- = not yet recorded for this island
e = extinct
f = fertile

Additions (provided after 1999)
from Ivan Pedley 1999 = p
from PWJ list of 1980 = 80
from PWJ (private) 1999 = 99
from M Seaward 1967 = (+)
from B Edwards = 01, 02, 06
from David Hill 1963 = 63

Species	Y	T	M	B	A	S	H	E
Acarospora fuscata	63, 80	+	+	+	+	-	+	+
A. impressula	+, 80	+	p	+	p	-	+	-
A. nitrophila	-	99	-	-	-	-	-	-
A. smaragdula	+	+	+	+	p	06	80	-
A. subrufula	-	+	-	-	-	-	-	-
A. veronensis	p	-	-	-	-	-	-	-
Acrocordia gemmata	+	+	+	-	-	-	-	-
A. macrospora	+	p	p	-	-	-	-	-
A. salweyi	+	+	+	+	80	-	-	+
Agonimia allobata	p	-	-	-	-	-	-	-
A. globulifera	+	-	-	-	99	-	-	-
A. tristicula	+, 02	+	-	-	-	-	-	-
Amandinea coniops	-	-	-	-	+	-	-	-
A. lecideina	+ 99	+ 99	+	+	+ 80	-	-	-
A. punctata	+	+	+	+	+	+	-	+
Anaptychia ciliaris ssp. *mamillata*	-	-	80	+	-	-	-	-
A. runcinata	+	+	+	+	+	+	+	+
Anisomeridium biforme	+	+	+	-	+	-	-	-
A. polypori	+	+	99	-	-	-	-	-
Arthonia apotheciorum	99	99	-	-	-	-	-	-
A. atlantica	+	-	+	+	+	-	+	+
A. cinnabarina	-	+	-	-	-	-	-	-
A. endlicheri	99	99	99	80?	99	-	80?	-
A. lapidicola	99	80	-	-	-	-	-	-
A. muscigena	-	+	-	-	+	-	-	-

Species	Y	T	M	B	A	S	H	E
A. phaeobaea	-	99	-	-	-	-	-	-
A. pruinata	+?	+	+?	-	-	-	80	-
A. punctiformis	+	+	80	-	-	-	-	-
A. radiata	+	+	80	-	80	-	-	-
Arthopyrenia analepta	-	80	-	-	-	-	-	-
A. punctiformis	+	99	-	-	-	-	-	-
A. salicis	-	99	-	80	80	80	-	-
Arthothelium norvegicum	-	63	-	-	-	-	-	-
Aspicilia caesiocinerea	+	-	+	+	+	-	-	-
A. calcarea	+	-	p	+	-	-	-	-
A. contorta subsp. *contorta*	+	+	-	-	-	-	-	-
A. contorta subsp. *hoffmanniana*	99	99	-	-	-	-	-	-
A. epiglypta	80	80	-	80	+	+	-	80
A. intermutans	80	80	-	+, 63	80	80	-	-
A. leprosescens	+	+	+	+	+	80	+	+
[1]*A. sp. 1*	-	+	-	p	p	-	-	-
[1]*A. sp. 2*	-	-	+	-	-	-	-	-
[1]*A. sp.* B-blue	-	p	-	80	-	-	-	-
Bacidia arceutina	+	+	+	+	p	-	+	+
B. arnoldiana	80	+	-	-	-	80	-	+
B. assulata	-	+	-	-	-	-	-	-
B. bagliettoana	02	-	-	-	-	-	-	-
B. carneoglauca	-	-	-	+	-	-	-	-
B. delicata	+	-	-	p	+	-	-	-
B. egenula	99	99	-	-	-	-	-	-
B. friesiana	-	+	-	-	-	-	-	80
B. incompta	+, 02	+	-	-	(+)	-	-	-
B. laurocerasi	+	+	+	+	+	-	-	+
B. phacodes	+	+	-	-	+	-	-	-
B. rubella	+	+	-	-	+	-	-	-
B. scopulicola	+, 01	+f	+	+f, 06	+	80	+	80
B. sipmanii	-	99	-	-	99	-	-	-
B. viridifarinosa	+	+	p	-	+	06	-	-
Baeomyces rufus	+	+	-	-	(+)	-	-	-
Bilimbia sabuletorum	+, 02	+	+	+	+	-	-	-
Botryolepraria lesdainii	p	p	-	-	p	-	-	-
Buellia aethalea	+	+	+	+	+	06	+	-
B. griseovirens	-	99	-	-	99	-	-	-
B. leptoclinoides	80	-	-	-	-	-	-	-
B. ocellata	+	+	+	p	+	-	-	-
B sequax	+	-	-	-	-	-	-	-
B. stellulata	+	+	+	+	+	80, 06	-	+
B. subdisciformis	+	+	+	+	+	80, 06	+	+
Byssoloma subdiscordans	+	+	-	-	-	-	-	-
Calicium viride	-	+	-	-	-	-	-	-
C. hyperelloides	+	-	-	+	-	-	-	-
Caloplaca arcis	99	-	80	-	-	-	-	-
C. aurantia	+	+	+	+	-	-	-	-
C. britannica	-	80	-	+	-	-	-	+
C. ceracea	+	+	p	+	-	-	+	-
C. cerina var. *cerina*	+	+	p	-	+	-	-	-

Species	**Y**	**T**	**M**	**B**	**A**	**S**	**H**	**E**
C. cerina var. *chloroleuca*	02	-	-	-	-	-	-	-
C. cerinella	-	+	-	-	p	-	-	-
C. chrysophthalma	+	+	p	+	-	-	-	-
C. citrina	+	+	+	+	+	80	-	+
C. crenularia	+	+	+	+	+	+, 06	+	+
C. crenulatella	80	80	80	-	80	-	-	80
C. dalmatica	+	+	p	-	+	-	-	-
C. flavescens	+	+	+	+	(+)p	06	-	-
C. flavocitrina	80	80	80	-	80	-	-	-
C. flavovirescens	-	63	-	-	p	-	-	-
C. holocarpa	+	+	+	+	+	-	-	-
C. littorea	+	80	-	+	+	-	-	+
C. marina	+	+	+	+	+	+	+	+
C. maritima	+	+	+	+	+	06	-	-
C. microthallina	+	+	+	+	+	80	-	+
C. phlogina	+	-	-	-	-	-	-	-
C. saxicola	+	+	-	+	-	-	-	-
C. sorediella	02	-	-	+	-	06	-	-
C. teicholyta	-	+f	-	80	99	-	-	-
C. thallincola	+	+	+	+	+	+	+	+
C. verruculifera	80	+	+	+	+	80	+	80
Candelaria concolor	80	+	-	-	-	-	-	-
Candelariella aurella	p	+	p	+	p	-	-	-
C. coralliza	80	-	-	p	+	80	-	-
C. reflexa	+	+	-	-	-	-	+	-
C. vitellina	+	+	+	+	+	+, 06	+	+
Catapyrenium cinereum	p	80	-	80	80	-	-	-
Catillaria chalybeia	+	+	p	+	+	80, 06	-	+
C. lenticularis	+	80	-	-	+	-	+	-
C. nigroclavata	-	99	-	-	-	-	-	-
C. subviridis	-	+	-	-	+	-	-	-
Catinaria atropurpurea	-	+	-	-	-	-	-	-
Cetraria aculeata	+	+	-	-	+	-	-	-
C. muricata	-	+	-	-	G 80	-	-	-
Chaenotheca brunneola	-	80	-	-	-	-	-	-
C. ferruginea	-	+	-	-	-	-	-	-
Chrysothrix candelaris	+	+	-	-	+	-	-	-
C. flavovirens	+	+	-	-	-	-	-	-
Cladonia azorica	-	80	-	-	80	-	-	-
C. caespiticia		+	+	p	+	+	-	-
C. cervicornis subsp. *cervicornis*	+	+	+	+	+	-	-	+
C. cervicornis subsp. *verticillata*	-	+	+	-	-	-	-	-
C. chlorophaea s.lat.	+	+	+	+	+	+	+	+
C. ciliata var. *ciliata*	+	-	-	-	p	-	-	-
C. ciliata var. *tenuis*	+	+	+	+, 06	+	-	+	+
C. coniocraea	-	+	p	p	p(+)	-	-	-
C. crispata var. *cetrariiformis*	+	+	-	-	+, 01	-	-	-
C. cryptochlorophaea (confirmed by tlc)	+	+	-	-	-	-	-	-
C. digitata	-	99	-	+	-	-	-	-

Species	**Y**	**T**	**M**	**B**	**A**	**S**	**H**	**E**
C. diversa	+	+	+	+	+	+	-	+
C. fimbriata	+	+	p	+	p	80	+	-
C. firma	+, 01	+	p, 01	80,06	+	80	-	-
C. floerkeana	+	+	+	-	+	+	-	+
C. foliacea	+	+	+	+	+	+	+	+
C. furcata	+	+	+	+	+	+	+	+
C. gracilis	-	+, 01	+, 01	-	+, 01	-	-	-
C. humilis	+	+	+	p	+	80	-	-
C. macilenta	+	+	-	+	+	+	-	+
C. merochlorophaea (confirmed by tlc)	+	-	-	-	-	-	-	-
C. parasitica	-	+	-	-	-	-	80	-
C. pocillum	+	+	-	-	-	-	+	-
C. polydactyla var. *polydactyla*	80	+	p	+	80	+	-	+
C. portentosa	+	+	+	+	+	+	+	+
C. pyxidata	+	+	+	+	+	+	+	+
C. ramulosa	+	+	+	+	+	+	+	+
C. rangiformis	+	+	+	+	+	+	+	+
C. squamosa var. *squamosa*	-	+	+	+	+	-	-	-
C. squamosa var. *subsquamosa*	80	+	+	+	+	+	-	-
C. subcervicornis	+	+	+	-	+	+	+	-
C. subulata	-	+	-	-	-	-	-	-
C. uncialis subsp. *biuncialis*	80	+	-	-	(+)	-	-	-
Clauzadea monticola	p	+	80	+	-	-	+	-
Cliostomum griffithii	+	+	+	+	+	80	-	+
C. tenerum	+	+	+	+	+	80	+	+
Collema auriforme	80, 02	80	-	-	-	-	-	-
C. crispum	+	80	-	-	80	-	-	-
C. furfuraceum	-	+	-	-	-	-	-	+
C. nigrescens	99	-	99	-	-	-	-	-
C. tenax	+	+	+	+	+	-	+	+
Collemopsidium elegans	+	-	-	+	+	-	-	-
C. foveolatum	+	+	+	+	+	+	+	+
C. halodytes	99	-	99	99	-	-	-	-
Cresponea premnea	-	+	-	-	-	-	-	-
Cryptolechia carneolutea	+	+	-	-	-	-	-	-
Cyrtidula quercus	+	-	-	-	-	-	-	-
Degelia ligulata	-	99	-	-	-	-	-	-
D. plumbea	+	-	+	-	-	-	-	-
Dermatocarpon miniatum	-	-	-	-	p	-	-	-
Dimerella lutea	+, 02	80	-	-	-	-	-	-
D. pineti	80	+	-	-	-	-	-	-
Diploicia canescens	+	+	+	+	+	+, 06	+	+
Diploschistes caesioplumbeus	+	-	-	+	+	-	-	-
D. muscorum	+	-	-	-	-	-	+	-
Diplotomma alboatrum	+	+	p	+	+	-	-	+
D. chlorophaeum	+	+	+	+	+	-	-	+
Dirina massiliensis f. *massiliensis*	02	80	-	-	+	-	-	-
D. massiliensis f. *sorediata*	+	+	p	+	+	06	-	-

Species	**Y**	**T**	**M**	**B**	**A**	**S**	**H**	**E**
Enterographa crassa	+	+	+	80	(+)80	-	-	+
E. hutchinsiae	p	+	-	-	-	-	-	-
Evernia prunastri	+	+	p	-	(+)	-	-	-
Fellhanera viridisorediata	-	99	-	-	-	-	-	-
Fellhaneropsis vezdae	-	80	-	-	-	-	-	-
Flavoparmelia caperata	+	+	+	+	+	+, 06	+	+
F. soredians	+, 01	p	80	-	p	-	-	-
Fuscidea cyathoides	+	+	+	+	+	+, 06	+	+
F. lightfootii	+	99	-	-	-	-	-	-
Fuscopannaria mediterranea	-	80	-	-	-	-	-	-
Graphina anguina	-	+	-	-	-	-	-	-
Graphis elegans	-	+	-	-	(+)	-	-	-
G. scripta	+	63, 80	p	-	+	-	-	-
Gyalecta flotowii	+	+	-	-	-	-	-	-
G. jenensis var. *jenensis*	80	80	-	-	-	-	-	80
G. jenensis var. *macrospora*	+	+	p	-	-	06	-	+
G. truncigena	+	+	+	-	+	-	-	-
Haematomma ochroleucum v. *ochroleucum*	+	+	p	p	+	80	80	80
H. o. var. *porphyreum*	+	+	p	+	+	+	+	+
Halecania ralfsii	+	+	80	+	+	-	80	-
H. spodomela	-	-	-	-	99	-	-	-
Herteliana gagei	p	+	80	-	+	-	-	-
[2]*Heterodermia japonica* (= *propagulifera*)	-	+	02	06	-	-	-	-
H. leucomela	+	+	02	+, 06	+	-	-	-
H. obscurata	01	+	-	p	01	-	-	-
Hyperphyscia adglutinata	+	+	-	+	+	80	-	-
Hypogymnia physodes	+	+	+	+	+	80	-	-
H. tubulosa	-	+	-	-	+	-	-	-
Hypotrachyna britannica	+	-	-	+	-	-	-	-
H. endochlora	-	99	-	-	-	-	-	-
H. laevigata	+	-	-	-	-	-	-	-
H. revoluta	+	+	-	+	+	-	-	-
Jamesiella anastomosans	-	99	-	-	-	-	-	-
Japewiella tavaresiana	p	+	-	-	-	-	-	-
Lecanactis subabietina	+, 01	+	-	-	p	-	-	80
Lecania aipospila	+	-	-	+	+	-	+	+
L. atrynoides	+	-	-	+	-	-	-	-
L. baeomma	+	+	+	+	+	-	+	-
L. cyrtella	+	+	+	+	+	80	-	-
L. cyrtellina	+	-	-	-	+	-	-	-
L. erysibe	+?	+	+	+	(+)p	80	80	+
L. hutchinsiae	+	+	-	-	-	06	-	+
L. naegelii	+	+	+	-	+	-	-	-
L. rabenhorstii	p	-	p	-	+	-	-	-
L. suavis	80	-	-	-	-	-	-	-
L. subfuscula	+	-	-	-	-	-	-	-
L. turicensis	-	p	p	+	+	-	-	-
Lecanographa grumulosa	-	80	-	-	+	-	-	-
Lecanora actophila	+	+	+	+	+	-	+	+
L. albescens	+	+	p	p	+	-	-	-

Species	**Y**	**T**	**M**	**B**	**A**	**S**	**H**	**E**
L. andrewii	-	-	-	+	-	-	-	-
L. argentata	-	63	-	-	-	-	-	-
L. campestris	+	+	+	+	+	80, 06	-	+
L. cenisia	99	99	-	-	99	-	-	-
L. chlarotera	+	+	-	-	-	-	-	-
L. compallens	-	99	-	-	-	-	-	-
L. conferta	p	-	-	-	-	-	-	-
L. confusa	+	+	+	+	+	80	+	+
L. dispersa	+	+	+	+	+	+, 06	+	+
L. expallens	+	+	+	+	+	+, 06	+	+
L. fugiens	+	+	+	+	+	80,06	+	+
L. gangaleoides	+	+	+	+	+	+, 06	+	+
L. hagenii	99	99	-	-	99	-	-	-
L. helicopis	+	+	+	+	+	+	+	+
L. jamesii	-	+	-	-	-	-	-	-
L. muralis	-	-	+	-	+	-	-	-
L. ochroidea	-	+	-	-	+	-	-	-
L. orosthea	-	+	-	-	+	80	-	-
L. persimilis	-	99	-	-	-	-	-	-
Lecanora poliophaea	-	-	+	80	+	80	-	-
L. polytropa	+	+	p, 63	+	+	80	+	+
L. praepostera	+	+	+	+	+	-	-	-
L. rupicola	+	+	p	+	+	-	-	-
L. saligna	-	+	-	-	-	-	-	-
L. sambuci	-	+	-	-	+	-	-	-
L. semipallida	-	80	-	-	-	-	-	-
L. strobilina	+	-	-	-	-	-	-	-
L. sulphurea	+	+	+	p	+	+, 06	-	+
L. symmicta	+	+	p	+	p	-	-	+
L. varia	p	-	-	-	-	-	-	-
L. zosterae	99, 02	99	-	06	+	-	-	-
Lecidea diducens	+	+	p	-	-	-	-	-
L. erythrophaea	-	68	-	68	-	-	-	-
L. fuscoatra	+	+	+	80	+	-	-	-
L. grisella	-	99	-	-	-	-	-	-
L. lactea	-	80	-	-	-	-	-	-
L. sarcogynoides	+	+	+	+	+	-	+	+
Lecidella anomaloides	+	-	-	-	+	-	-	-
L. asema	+	+	+	+	+	+	+	+
L. carpathica	p	99	-	-	+	-	-	-
L. elaeochroma f. *elaeochroma*	+	+	+	+	+	+	+	+
L. elaeochroma f. *soralifera*	+	+	p	-	+	80	-	-
L. meiococca	+	+	-	+	-	-	-	-
L. scabra	+	+	+	+	+	06	-	+
L. stigmatea	+	+	p	+	80	-	-	-
[3]*Lepraria atlantica*	99	80	-	-	-	-	-	-
L. caesioalba	-	-	p	-	+	-	-	-
L. ecorticata	+80	+80	-	-	-	-	-	-
L. incana	+	+	+	+	+	+	+	+
L. lobificans	+	+	p	+	+	06	-	-
L. membranacea	80	+	-	-	80	+	-	-

Species	**Y**	**T**	**M**	**B**	**A**	**S**	**H**	**E**
L. vouauxii	p	+	-	-	-	-	-	-
Leprocaulon microscopicum	+	-	-	01	+, 01	-	-	-
Leptogium biatorinum	-	+	-	-	-	-	-	-
L. britannicum	01	99	-	-	-	-	-	-
L. cochleatum	-	+	-	-	-	-	-	-
L. coralloideum	-	+	-	-	-	-	-	-
L. cyanescens	-	+	-	-	-	06	-	-
L. gelatinosum	-	+	-	-	-	-	-	-
L. lichenoides	+	+	-	-	-	-	-	-
L. palmatum	-	99	-	-	-	-	-	-
L. schraderi	+	-	-	-	-	-	-	-
L. teretiusculum	+, 02	+	-	-	-	-	-	-
Leptorhaphis epidermidis	-	99	-	-	-	-	-	-
Lichina confinis	+	+	+	+	+	+	+	+
L. pygmaea	+	+	+	+	+	+	+	+
Lithographa tesserata	+	-	-	-	-	-	-	-
Llimonaea sorediata	99	-	-	-	80	-	-	-
Lobaria pulmonaria	+	+, 01	+, 02	+, 06	+	+	-	+
L. scrobiculata	80	+	+, 01	+	+	+	-	+
L. virens	-	-	-	+	-	-	-	-
Megalaria pulverea	-	+	-	-	-	-	-	-
Megalospora tuberculosa	-	+	-	-	-	-	-	-
Melanelixia fuliginosa subsp. *fuliginosa*	+	+	+	+	+	06	+	80
M. fuliginosa subsp. *glabratula*	+	+	+	+	+	-	-	-
M. subaurifera	+	+	+	+	+	80	+	-
Melanohalea exasperata	-	-	-	-	(+)	-	-	-
Menegazzia terebrata	+	+	-	-	-	-	-	-
Micarea denigrata	+	+	-	-	-	-	-	-
M. lignaria	+	-	-	+?	-	-	-	-
M. micrococca	80	80	-	-	-	-	-	-
M. nitschkeana	-	99	-	-	-	-	-	-
M. peliocarpa	-	+	-	-	-	-	-	-
M. prasina s. lat.	+	+	p	+	+	80	80	-
M. subviridescens	-	80	-	-	-	-	-	-
Moelleropsis nebulosa	+, 01	+	+	-	+	-	+	-
Mycoblastus caesius	+	-	-	-	-	-	-	-
Nephroma laevigatum	02	+	80	+	+	+	-	-
N. parile	+	80	-	-	-	-	-	-
N. tangeriense	-	+	-	-	p	-	-	-
Normandina pulchella	+	+	-	+	+	-	-	+
Ochrolechia androgyna	+	+	+	+	+	80	-	+
O. parella	+	+	+	+	+	+, 06	+	+
O. subviridis	99	99	-	-	-	-	-	-
O. ? tartarea	-	+	-	-	-	-	-	-
Opegrapha areniseda	80	+	80	-	-	06	-	-
O. atra	+	+	+	+	+	-	-	-
O. calcarea s.lat.	+	+	+	+	+	+, 06	+	+
O. cesareensis	+	+	-	+, 06	+	06	-	+
O. corticola	+	+	-	-	-	-	-	-

Species	Y	T	M	B	A	S	H	E
O. gyrocarpa	-	+	-	-	-	-	-	-
O. herbarum	+	+	-	-	-	-	-	-
O. lithyrga	-	+	-	-	+	-	-	-
O. multipuncta	+	+	-	-	-	-	-	-
O. niveoatra	-	+	-	-	-	-	-	-
Opegrapha prosodea	-	+	-	-	-	-	-	-
O. rufescens	+	+	-	-	-	-	-	-
O. saxigena	+	+	-	-	-	-	-	-
O. sorediifera	-	80	-	-	-	-	-	-
O. varia	+	+	-	+	80	-	-	+
O. vermicellifera	p, 02	+	-	-	-	-	-	+
O. viridis	-	+	-	-	G	-	-	-
O. vulgata	+	+	-	+	+	-	-	-
O. xerica	+	+	-	-	+	-	-	-
O. zonata	-	+	-	p	-	-	-	-
Parmelia omphalodes	+	+	80	+	+	+	+	+
P. saxatilis	+	+	+	+	+	+, 06	+	+
P. sulcata	+	+	+	+	+	+	-	+
Parmeliella parvula	-	+	-	-	-	-	-	-
Parmelina pastillifera	p	99	-	-	-	-	-	-
Parmelinopsis minarum	-	-	-	-	+	-	-	-
Parmotrema arnoldii	-	+	-	-	-	-	-	-
P. crinitum	+	+	+	+	+	80	-	-
P. perlatum	+	+	+	+	+	+	+	+
P. reticulatum	+	+	80	+	+	80, 06	-	-
Peltigera canina	+	+	+	+?	+?	+?	-	-
P. collina	99	-	-	-	-	-	-	-
P. didactyla	+	-	-	+	-	-	-	-
P. hymenina	+	+	+	+	+	+	+	+
P. membranacea	+	+	+	+	+	-	+	-
P. neckeri	-	-	-	+	-	-	-	-
P. praetextata	+	+	-	-	-	-	-	-
P. rufescens	+	+	-	-	-	-	-	+
Pertusaria albescens var. *albescens*	+	+	-	+	-	-	-	-
P. albescens var. *corallina*	99	99	-	-	-	-	-	-
P. amara f. *amara*	+	+	+	+	+	+	-	-
P. amara f. *pulvinata*	+	+	-	-	-	-	-	-
P. chiodectonoides	-	-	-	-	99	-	-	-
P. corallina	+	+	-	+	-	-	-	+
P. excludans	+	+	63	+, 06	01	06	-	-
P. flavicans	+	80	-	+	+	-	-	-
P. lactescens	-	p	--	p	p	-	-	-
P. leioplaca	-	+	-	-	-	-	-	-
P. monogona	+	+	+	+, 06	01	80	-	-
P. pluripuncta	+	+	+	+, 06	+	06	+	-
P. pseudocorallina	+	+	+	+	+	+, 06	+	+
Peterjamesia circumscripta	+	+	02	+, 06	+	+	-	+
P. sorediata	+	01	01	06	+	-	-	-
Phaeographis dendritica	-	+	-	-	-	-	-	-
P. lyellii	-	80	-	-	-	-	-	-
P. smithii	+	80	-	-	-	-	-	-

Species	Y	T	M	B	A	S	H	E
Phaeophyscia orbicularis	+	+	+	+	+	06	-	-
P. nigrescens	-	-	-	p	-	-	-	-
Phlyctis agelaea	-	+	-	-	-	-	-	-
P. argena	+	+	p	-	-	-	-	-
Physcia adscendens	+	+	+	+	+	+	+	+
P. aipolia	+	+	+	80	80	80	-	-
P. caesia	-	80	-	-	80	-	-	-
P. clementei	-	+	-	-	-	-	-	-
P. leptalea	+	+	-	-	80	-	-	-
P. tenella	+	+	80	+	+	-	+	-
P. tribacia	-	+	-	-	-	-	-	-
Physconia distorta	99	-	-	-	-	-	-	-
Placidium squamulosum	+, 02	-	-	-	-	-	-	-
Placynthiella icmalea	+	+	+	-	+	+	+	-
P. uliginosa	+	80	80	-	80	80	80	-
Placynthium nigrum	+	+	80	+	-	-	-	-
Platismatia glauca	-	+	-	-	(+)	-	-	-
Polycoccum microstictum	-	-	+	-	-	-	-	-
Polysporina simplex	+	+	+	+	80	80, 06	-	-
Porina aenea	+	80	-	-	+	-	-	-
P. chlorotica	+	+	+	-	+	80, 06	-	-
P. curnowii	+	+	-	+	80	06	-	+
P. leptalea	80	+	-	-	-	-	-	-
Porocyphus leptogiella	-	-	-	+	-	-	-	-
Porpidia cinereoatra	+	p	-	-	+	-	-	-
P. macrocarpa	+	+	+	+	+	+	-	+
P. platycarpoides	+	+	p	+	+	-	-	80
P. soredizodes	99	99	-	-	99	-	-	-
P. tuberculosa	+	+	-	+	+	-	-	+
Protoblastenia rupestris	+	+	+	80	-	-	80	-
Protoparmelia badia	-	80	-	-	+	-	-	-
P. montagnei	+	-	-	+	+	-	-	-
Pseudocyphellaria aurata	+e	+e	02	+e	+e67/80 -	-	-	
Psilolechia lucida	80	+	p	-	-	06	-	-
Psoroma hypnorum	-	+	-	-	-	-	-	-.
Punctelia borreri	+	-	-	-	-	-	-	-
P. subrudecta	+	+	-	+	-	-	-	-
Pyrenula chlorospila	+	+	p	-	+	-	-	-
P. macrospora	+	+	+	-	+	-	-	-
Pyrrhospora quernea	+	+	-	+	-	-	-	-
Ramalina calicaris	-	99	-	-	-	-	-	-
R. canariensis	+	+	+	+	+	80	-	-
R. chondrina	+	-	-	+	+	-	-	-
R. cuspidata	+	+	+	+	G	+	+	+
R. farinacea	+	+	80	+	+	-	-	-
R. fastigiata	+	+	+	+	+	80	-	-
R. lacera	+	+	+	+	80	80, 06	-	-
R. portuensis	+	+	+	+	+, 01	-	+	+
R. siliquosa	+	+	+	+	+	+, 06	+	+
R. subfarinacea	+	+	+	+	+	+, 06	+	+
Rhizocarpon petraeum	99	-	-	-	-	-	-	-
R. reductum	+	+	+	+	+	80	-	-

Species	**Y**	**T**	**M**	**B**	**A**	**S**	**H**	**E**
R. richardii	+	+	+	+	+	+, 06	+	+
Rinodina atrocinerea	+	+	+	+	+	80	+	+
R. beccariana	+	+	80	+, 06	+	80, 06	80	+?
R. biloculata	+	+	-	-	-	-	-	-
R. confragosa	+	+	+	+	-	+?	-	-
R. conradii	+	-	-	-	-	-	-	-
R. luridescens	+	+	+	+	+	80	+	+
R. occulta	-	-	+	-	-	-	-	-
R. oleae	+	+	p	+	+	80	+	+
R. roboris var. *roboris*	+	+	-	-	-	-	-	-
R. roboris var. *armeriicola*	+	+	+	+, 06	01	-	-	-
R. sophodes	-	99	-	-	-	-	-	-
R. teichophila	p	-	-	-	-	-	-	-
Roccella fuciformis	+	+	02	+	+	+	+	+
R. phycopsis	+	+	02	+	+	+, 06	-	+
Sarcogyne clavus	+	+	-	+	+	80	-	-
S. privigna	-	p	p	+	+	-	-	-
S. regularis	+	+	+	+	-	-	+	-
Schaereria fuscocinerea	-	-	+	+, 06	+	-	+	-
Schismatomma cretaceum	-	+	-	-	-	-	-	-
S. decolorans	+	+	-	-	-	-	-	-
S. niveum	-	+	-	-	-	-	-	-
Scoliciosporum chlorococcum	-	+	-	-	-	-	-	-
S. umbrinum	+	+	+	+	-	-	+	-
Solenopsora holophaea	+	+	+	+	+	80	80	-
S. vulturiensis	+	+	+	+	+	80	+	+
Sphaerophorus globosus	+	+	+	+, 06	+	80	-	+
Stenocybe septata	-	+	-	-	-	-	-	-
Sticta fuliginosa	-	+	-	-	+	-	-	-
S. limbata	-	+80,89	-	-	+e	-	-	-
S. sylvatica	-	+	01	+	+	+	-	-
Syncesia myrticola	p	+	p, 02	+	+	+	-	-
Teloschistes flavicans	+	+	+	+, 06	+	-	-	+
Tephromela atra	+	+	+	+	+	+, 06	-	+
Thelenella muscorum var. *muscorum*	p	+	p	-	p	-	-	-
Thelopsis rubella	01	99	-	-	-	-	-	-
Toninia aromatica	+	+	+	+	p	-	+	80
T. mesoidea	+	-	80	+	+	-	+	-
Trapelia coarctata	80	+	+	-	-	-	-	-
T. glebulosa	+	+	-	+	-	-	+	-
T. obtegans	+	-	-	-	-	-	-	-
Trapeliopsis flexuosa	-	+	-	-	-	-	-	-
T. granulosa	+	+	+	-	+	-	-	-
T. pseudogranulosa	+	-	-	-	-	-	-	-
T. wallrothii	-	+	80	+	+	-	+	-
Usnea cornuta	+	+	+	+	+	+	+	+
U. esperantiana	+	+	-	-	+	-	-	-
U. flammea	+	+	+	+	+	06	+	80?
U. silesiaca	+	80	-	-	+	-	-	-
U. rubicunda	+	+	-	+	+	-	-	-

Species	Y	T	M	B	A	S	H	E
U. subfloridana	+	+	+	-	-	-	-	-
U. subscabrosa	+	-	-	-	-	-	-	-
U. wasmuthii	+	+	-	+	-	-	-	-
Vahliella atlantica	-	-	+68		+89	-	-	-
[3]*Verrucaria aethiobola*	-	-	+	-	-	-	-	-
V. amphibia	+	80	-	-	+	-	-	-
V. baldensis	+	-	-	-	-	-	-	-
V. fuscella	+	-	-	-	-	-	-	-
V. fusconigrescens	+	+	p	+	+	80,06	+	80
V. halizoa	80	80	80	80	80	-	80	-
V. hochstetteri	+	+	+	+	-	-	-	-
V. internigrescens	-	-	-	+	+	-	-	-
Verrucaria macrostoma f. *macrostoma*	+	p	p	+	-	-	-	-
V. macrostoma f. *furfuracea*	+	+	+	+	+	-	-	+
V. maura	+	+	+	+	+	+	+	+
V. mucosa	+	+	-	+	+	-	-	+
V. muralis	p	+	+	p	p	-	80	+
V. nigrescens	+	+	+	+	+	-	-	+
V. prominula	+	-	+	-	+	-	-	-
V. striatula	+	+	+	+	+	80	+	+
V. viridula	p	p	80	p	(+)	-	-	80
Vezdaea aestivalis	80	+	-	-	-	-	-	-
V. leprosa	+	80	-	-	-	-	-	-
Wadeana dendrographa	02	-	-	-	-	-	-	-
Xanthoparmelia conspersa	+	+	+	+	+	-	+	+
X. delisei	+	-	80	-	+	-	-	-
X. loxodes	+	+	+	+	+	-	-	80
X. mougeotii	+	-	-	-	-	-	-	-
X. pulla	+	+	+	+	+	+	+	+
X. verruculifera	+	+	80	+	+	80	+	+
Xanthoria aureola	-	+	-	-	-	06	-	-
X. calcicola	p	-	-	-	-	-	-	-
X. candelaria	-	+	80	+	+	+	+	+
X. parietina	+	+	+	+	+	+, 06	+	+
X. polycarpa	+	+	-	-	-	-	-	-
X. ucrainica	99	99	-	99	99	-	-	-
Xylographa vitiligo	-	-	-	-	99	-	-	-
Total species numbers	**379**	**425**	**239**	**244**	**296**	**142**	**108**	**129**
Total number of taxa in the Scilly Isles list	**513**							

Notes

[1]***Aspicilia****: A. sp, 1, A. sp, 2* and *A.* sp B-blue can be recognised as entities but do not fit any currently accepted species. The genus *Aspicilia* is in urgent need of study including a reassessment of the species.

[2]***Heterodermia***: For the present there is some doubt over the application of the name *Heterodermia propagulifera* to the unique material in the Isles of Scilly which may be referable to another sub-tropical species. Further study and DNA analysis are required.

[3]***Lepraria*** and [3]***Verrucaria***: Species of these genera were determined with reference to Purvis *et al*. (1992) which did not embrace the modern approaches to these genera as found in Smith *et al*. (2009).

Species not included in the foregoing check-list:

a) Doubtful/unconfirmed records, mostly historic, with no relevant BM specimen found:

Acarospora cervina (from Salwey 1853, p. 145, unlikely distribution), *Lecania dubitans* (unlikely 1968 record for Tresco), *Lecanographa lyncea* (unlikely, ancient trees), *Lobaria amplissima* (Watson 1953 as *Lobaria laciniata,* possible old record, but none found in BM), *Parmelia panniformis* (not found in UK, delete), *Peltigera horizontalis* (mainland old woodland, remotely possible), *Pertusaria polythecia* (unlikely - would need chemical analysis), *Pseudocyphellaria crocata* (early record confused with *P.aurata), Ramalina pollinaria* (Ranwell 1966 for Bryher, probably confused with *R. portuensis*), *Roccella tinctoria* (no - early records confused with *R. fucoides* = *R. phycopsis*), *Sphaerophorus fragilis* (Watson 1953, possible misidentification), *Usnea articulata* (origin of record for Tresco obscure), *Usnea ceratina* (Watson 1953, possible, but 1959 U. Duncan specimen in BM for St Martin's redetermined 1989 with tlc as *U. flammea*), *Usnea fragilescens* (Ranwell 1966 for Bryher, unlikely, confused with *U. flammea*).

b) Included on the BLS database (courtesy of Mark Seaward) although no relevant BM specimens found and few records refer to specific islands:

Acarospora rufescens (possible), *Biatora vernalis* (Ranwell 1966 for Bryher, delete), *Degelia atlantica* (possible), *Lepraria elobata* (possible), *Loxospora elatina* (possible), *Pertusaria pertusa* (unlikely), *Sarcosagium campestre* var. *campestre* (possible).

Discussion

A total of more than 500 (513) lichen taxa for the Isles of Scilly, over a quarter of the species described for Great Britain and Ireland (Smith *et al.*, 2009), is quite remarkable in view of the uniform geology (all acidic granite) and lack of elevation. The composition of the lichen flora reflects the islands' geographical position, climate and strong maritime influence and, like the phanerogam flora (Lousley, 1971), shows connections with Macaronesian and Lusitanian lichen communities.

The total numbers of lichens on the individual islands also reflect the: size of each island (Parslow, 2007); frequency and thoroughness of visits by lichenologists; and each island's distinctive habitats. Tresco, the second largest island, has the largest number of taxa (425); lichenologists, along with many others, being attracted to the Abbey Gardens, with its exotic trees and corresponding variety of habitats. The diversity recorded for St Mary's (379), the largest island, is considerably more than for the smaller islands of St Martin's (239), Bryher (244), and St Agnes (296) with the totals for Samson, St Helen's and Tean reflecting their smaller areas. St Martin's, considerably larger than Bryher or St Agnes, and Samson with twice the area of St

Helen's or Tean, may be under-recorded, although large proportions of St Martin's and Samson are given over to shifting sand-dune.

The Isles of Scilly have a high proportion – 92% (65 of 71) – of the maritime indicator species listed by James & Wolseley (1990), and this is not surprising given the extent of the coastal surface area. These indicator species represent approximately 13% of the total lichen taxa now recorded for the Isles of Scilly. Printzen (1990) reported, after a thorough review of published and unpublished records, lists and specimens (including from his own fieldwork with Peter James, 1989), a total of 355 taxa and emphasised the significance of the maritime component (40 species being exclusively maritime). Looking at the individual islands of St Mary's, Tresco and St Agnes (including Gugh), the percentages of maritime lichen indicator species (compared with the total number of recorded taxa) are 15%, 13% and 18% respectively. These figures illustrate that the maritime influence is greater proportionally for the smaller island of St Agnes and less for Tresco which is approximately twice its size and has the greatest number of taxa at 427. Factors other than the maritime influence (eg the variety of habitats in the Abbey Gardens and well-established heathland), contribute to the greater lichen diversity of Tresco.

The rich maritime lichen communities are of special interest as they contain many south-western species (see Seaward & Hitch 1982, for relevant distribution maps) which are rare or absent from other parts of Britain and have Atlantic-oceanic, Mediterranean and Macaronesian distributions. Ranwell (1966) lists 12 south-western species, mostly maritime. Printzen (1990) recognised 'oceanic' and 'southern' distribution groups and stressed the importance of the south-western species in the Isles of Scilly and their relationships with Macaronesian flora. Sheltered underhang communities occur along the coastal rocks (eg Peninnis Head on St Mary's) and are characterised by species including, with *Roccella fuciformis* and *R. phycopsis*: *Cliostomum tenerum, Dirina massiliensis* f. *sorediata*, *Lecanora praepostera*, *Parmotrema reticulatum*, *Peterjamesia circumscripta*, *P. sorediata, Rinodina beccariana, Syncesia myrticola*, and occasionally the very rare *Arthonia endlicheri* and *Buellia leptoclinoides. Llimonaea sorediata*, only recently described (Van den Boom & Brand, 2007), is doubtless under-recorded in this community.

In addition to more common and widely distributed coastal species, on sunny more exposed granite, the lichens include Isles of Scilly specialities: *Pertusaria monogona* and *P. pluripuncta* with *P. excludens, Acarospora subrufula, Bacidia sipmanii* (rare, close to *B. scopulicola*, and also in crevices)*, Buellia subdisciformis, Caloplaca littorea, Degelia ligulata, Diploschistes caesioplumbeus, Lecidea sarcogynoides, Ramalina cuspidata,* the very rare *R. chondrina* (reported for three islands), *Rinodina atrocinerea, Sarcogyne clavus* and *Toninia mesoidea,* all having an Atlantic-oceanic distribution. *Ochrolechia androgyna* is often found fruiting (thus sometimes mistaken for *O. tartarea*). *Teloschistes flavicans*, not infrequent, requires more humid misty coastal conditions, as do *Porina curnowii* and *Hypotrachyna endochlora*, and also *Menegazzia terebrata* and *Nephroma parile*, both of the latter having been recorded for a humid, mossy, sheltered shoreline on St Mary's. The rare *Anaptychia ciliaris* subsp. *mamillata*, found widely scattered around

Britain on coastal sites, is recorded for St Martin's and Bryher (Ranwell specimen of 1961 from Bryher in the BM).

Heathland (known locally as 'downs') provides an important lichen habitat on most islands with Wingletang Down on the southern part of St Agnes and Castle Down on the north of Tresco being especially notable. *Pseudocyphellaria aurata* was once on many of the islands (beautiful historic specimens in the BM: Curnow, 1868, 1872, 1886; Tellam, 1872; Tonkin, 1875; see Earlier Records). Although collected from Wingletang by Ursula Duncan (1961) and from St Agnes by Shrimpton (1967) (see specimens in the BM), *Pseudocyphellaria aurata* was last seen by PW James in 1980 on St Agnes amongst heather and boulders and subsequently lost due to cattle-grazing on the site; it is probably extinct on the main inhabited islands. A recent record (Edwards, 2002b; Parslow, 2007) is now known for White Island, accessible from St Martin's at low water by a boulder causeway, where a healthy colony of this lichen is reported to be growing in wind-pruned coastal turf, with *Lobaria pulmonaria* and *Heterodermia leucomela*.

On the sheltered western side of Tresco, towards the northern tip, a species-rich granite outcrop in heathland supports a relict Lobarion community with *Lobaria pulmonaria* and *Parmotrema crinitum.* Also present among the *Calluna*, moss and low rock are over 40 lichen species including: *Amandinea punctata, Cetraria muricatum, Cladonia cervicornis* subsp. *cervicornis, C. cervicornis* subsp. *verticillata, C. ciliata* var. *tenuis, C. diversa, C. floerkeana, C. furcata, C. gracilis, C. humilis, C. portentosa, C. ramulosa, Fuscidea cyathoides, Hypogymnia physodes, Lecanora gangaleoides, Parmelia omphalodes, P. saxatilis, Parmotrema perlatum, P. reticulatum, Peltigera rufescens, P. hymenina, P. membranacea, Pertusaria monogona, P. pluripuncta, P. pseudocorallina, Placynthiella uliginosa, Platismatia glauca, Porpidia platycarpoides, Ramalina cuspidata, R. siliquosa, Rhizocarpon reductum, Solenopsora vulturiensis, Sphaerophorus globosus, Teloschistes flavicans, Usnea flammea, U. rubicunda* and *Xanthoparmelia conspersa. Lobaria scrobiculata* is recorded for Bryher on *Calluna* (Ranwell, 1966) and occurs on most other islands but is less plentiful than *L. pulmonaria* (Printzen, 1990). The rare *Parmelinopsis minarum* is recorded from a boulder on the edge of heathland on St. Agnes.

A fragile community of lichen species with a sub-tropical distribution: *Heterodermia leucomela, H. obscurata* and the endemic *H. propagulifera*, is found on the north-western, sheltered coast of Tresco, in short *Festuca* turf with *Armeria maritima, Calluna vulgaris, Plantago coronopus* and *Sedum anglicum*. In 1997 *Heterodermia leucomela* was becoming scarce and *H. obscurata* was almost absent. At that time other lichens occurring in this rare community included: *Anaptychia runcinata*, *Cladonia cervicornis* subsp. *verticillata*, *C. chlorophaea*, *C. firma*, *C. furcata*, *C. ramulosa*, *C. rangiformis*, *Pertusaria albescens* var. *corallina*, *Rinodina roboris* var. *ameriicola* (on semi-decaying, elevated tufts of *Armeria*) and *Solenopsora vulturiensis.* However, recent surveys carried out by Bryan Edwards in 2001 (Edwards, 2002a, 2006) concluded that *Heterodermia leucomela* was not under serious threat in the Isles of Scilly, based on records from 19 sites most of which were SSSI's or managed by the Isles of Scilly Wildlife Trust.

Populations of over 100 were recorded from four sites representing four different islands.

The creation of the sub-tropical Abbey Gardens in Tresco was begun in 1834 by Augustus Smith around the remains of the twelfth century St Nicholas Priory. The collection of exotic trees with their different barks includes, as a windbreak, an avenue of *Cryptomerias* (much destroyed by storm damage). Later, plantings of elm, oak, poplar, sycamore, Monterey pine and Monterey cypress followed, in order to increase shelter in various parts of the garden (Lousley, 1971). Smith introduced walls and terraces (providing hotter conditions above and cooler, more humid below) with shelter and different microhabitats for a range of sub-tropical plants – and lichens as well! In the more humid part of the garden *Nephroma tangeriense* and *Sticta fuliginosa* are found on mossy rocks with *Fuscopannaria mediterranea*, *Peltigera hymenina* and *P. membranacea*. *Sticta limbata* was last seen on Tresco by Printzen in 1989 in two localities: the Abbey Gardens and in heath behind Cromwell's Castle. (The small collection from the Abbey Gardens is typical, but the specimen from Cromwell's Castle is minute and may be a different species of the genus.) This species could now be extinct in the islands. *Lecanactis subabietina* and *Cresponea premnea* (interestingly on rock) are also recorded for this part of the garden, while *Usnea esperantiana* is found on *Malus* in the more open parts of the garden. Other lichens, mostly corticolous, reported from Tresco and not the other islands, include: *Arthonia cinnabarina, Arthothelium norvegicum, Bacidia assulata*, *B. viridifarinosa, Calicium viride, Candelaria concolor, Catinaria atropurpurea, Chaenothece brunneola, C. ferruginea, Degelia ligulata, Fellhanera viridisorediata, Fellhaneropsis vezdae, Graphina anguina, Jamesiella anastamosans, Lecanora argentata, L. compallens, L. jamesii, L. persimilis, L. saligna, Leptogium biatorinum, L. cochleatum, L. coralloideum, L. palmatum, Leptoraphis epidermidis, Megalaria pulverea, Megalospora tuberculosa, Opegrapha niveoatra, O. prosodea, O. sorediifera, Parmeliella parvula, Parmotrema arnoldii* (on heathland)*, Pertusaria leioplaca, Phlyctis agelaea, Physcia clementei, P. tribacia, Ramalina calicaris, Schismatomma cretaceum, S. niveum, Scoliciosporum chlorococcum, Stenocybe septata* and *Trapeliopsis flexuosa.* The only record of *Physconia distorta* is from St Mary's.

The lichen community recorded for elms is disappointing with few distinctive species and warrants further study and reassessment. *Bacidia incompta* (especially characteristic on old elm bark) and *Cryptolechia carneolutea*, both Lichen Red Data book species, are recorded for the Isles of Scilly (no relevant specimens in the BM), with a confirmed modern record for *Bacidia incompta* on elm (see Edwards, 2005). These species, once known for the Channel Islands, are now thought to be extinct there (James *et al*. 1999, 2001)

The Garrison on St Mary's includes a variety of lichen microhabitats – walls with mortar, trees including elm, and heath. Calcareous species, generally common elsewhere, are scarce in the islands, but notable are the very rare *Caloplaca chrysophthalma* on the Garrison wall (PW James, 1980 specimen in BM), and *Gyalecta jenensis* var. *macrospora* (first record, collected by PW James and subsequently

described as a variety by Vězda) which grows on shaded granite with basic run-off. Tom Chester summarised the records of the five churchyard surveys for the 1999 BLS meeting (unpublished data). A total of 183 lichen taxa was recorded, over one-third of the total taxa for the islands, the Old Churchyard in St Mary's having the highest number of lichens at 129. Granite was by far the most common substrate for the high proportion of saxicolous churchyard lichens. There were few records of calcareous lichens on limestone, marble and mortar.

Comparison with other islands

With a total area of approximately 1642 ha (Parslow, 2007), over 500 lichen taxa and 65 maritime indicator species for the Isles of Scilly, it is interesting to make comparisons with other southern and western islands, namely: Jersey, C.I., 17,000 ha*, 362 taxa (Davey, 2001); Alderney, C.I., 900 ha*, 345 taxa (James *et al.*, 2001); Sark, C.I., 543 ha (Hawkes, 1993), 325 taxa (James et al.,1999); Lundy, 445 ha*, 348 taxa (James *et al.*, 1995, 1996); Skomer, 292 ha*, 348 taxa (Wolseley *et al.,*1996); Herm, C.I., 200 ha*, 230 taxa (James et. al., 2003); and Bardsey, 180 ha*, 480 taxa (Fletcher, personal comm.) (*areas in ha approximations from the internet). Jersey and Bardsey apart, the lichen diversity roughly corresponds to the island size, although Sark, Lundy and Alderney all have a similar diversity (notwithstanding Alderney being about twice the size of the other two). The high diversity recorded for the small island of Bardsey reflects the thorough and repeated surveys carried out over many years, in addition to other habitat factors. In the Isles of Scilly overall species diversity is high: 513, as also is the number of maritime indicator species, explained by the large coastal area (sum of many islands). Between 45 and 55 maritime indicator species are recorded for most of these islands. In comparison the record for Jersey is low (39), while that of Herm, at 34, is not unexpected as about half this small island is sand-dune. Additionally, other factors include: climate, geographical position, and opportunity for a number of different habitats, including those suitable for south-western species and/or those locally providing shelter from exposure to salt-laden winds.

The Isles of Scilly are famous for migratory birds, but nutrient-enrichment from large seabird breeding-populations, as on Skomer (Wolseley *et al.* 1996), has little impact on the inhabited islands. Nevertheless, coastal lichens which are indicators of nutrient-enriched bird perches (eg *Caloplaca verruculifera*) occur throughout the islands. On the uninhabited islands such as Annet, where populations of breeding seabirds are large, *Xanthoparmelia verruculifera* is a conspicuous feature of the coastal rock (Parslow, 2007, p. 186).

Comparison of the lichens of the Isles of Scilly with those of the Channel Islands provides some striking similarities and differences. Lousley comments that there are more similarities between the phanerogams of the Isles of Scilly and the Channel Islands than with mainland Cornwall, although the Isles of Scilly have warmer winters (air-frost is very rare: on average four days per annum, St Mary's v. 11 days per annum, Jersey), lower maximum summer temperatures and less sun (Parslow, 2007). There are no records of *Ramalina chondrina* from the Channel Islands where it

might be expected. This species, found on north-facing, sheltered granite cliffs (Smith *et al.*, 2009), is possibly at its northern limit in the Isles of Scilly, requiring frost-free conditions, protection from rain and gales, and cooler summers. *Pertusaria monogona* and *P. pluripuncta* are common in the Isles of Scilly, but virtually absent from the Channel Islands (except for a single record of *P. pluripuncta* from Jersey). A single record of *P. monogona* is reported for Ramsey off the Pembrokeshire coast. *P. excludens*, although present in the Channel Islands, is much more frequent in the Isles of Scilly. While *P. leucosora* is fairly common in the Channel Islands it is not known from the Isles of Scilly. The distribution of saxicolous *Pertusaria* species may be influenced by geology, as well as temperature. The rock of the Channel Islands is much more varied, the 'granite' (granodiorite and diorite) often less acidic, and *P. leucosora* is often found on rock such as gneiss which occurs in Sark and the Cherbourg peninsula.

Rhizocarpon geographicum is not recorded for the Isles of Scilly, although it is common in the Channel Islands and Skomer (Wolseley *et al.*, 1996). The lichen is rare in Lundy, especially on the volcanic granite, appearing mostly where the granite impinges on the sedimentary slate. *Fuscidea cyathoides*, usually associated with mineral-deficient, coarse-grained granite, is common in the Isles of Scilly and Lundy, but either absent or very rare on the various Channel Islands. Particular rock type (chemistry and texture) is likely to be an important factor in these distribution patterns. Among the rarities recorded for the Isles of Scilly: *Parmelinopsis minarum, Hypotrachyna endochlora* and *Gyalecta jenesis* var. *macrocarpa, H. endochlora* is also recorded elsewhere, on Lundy (James *et al.*,1995), and *G. jenensis* var. *macrocarpa* on Jersey (Davey, 2001).

Skomer, and its neighbouring islands of Ramsey and Skokholm off the western Pembrokeshire coast, are also affected by the Gulf Stream; Skomer is at the southern limit for *Ramalina polymorpha* and the rare *Caloplaca scopularis* (Wolseley *et al.*, 1996). Both these species are associated with nutrient-enriched bird-perching sites; they are not recorded for the Isles of Scilly or the Channel Isles. On the other hand, Skomer is at the northern limit of *Roccella fuciformis* and *R. phycopsis,* which are both Atlantic-Mediterranean species, and found much more frequently on the frost-free cliffs of the Isles of Scilly and the Channel Islands, in particular Sark. *R. phycopsis* is very rare on Lundy and *R. fuciformis* absent (James *et al.*, 1995, 1996). These species, together with *Peterjamesia circumscripta*, *P. sorediata* and other representatives of a sheltered underhang community (see preceding description in this Discussion), as well as requiring a frost-free habitat, depend on the appropriate cliff formation and orientation for their colonisation. In some cases these species are undetected as they are inaccessible.

Teloschistes flavicans is not infrequently reported for the Isles of Scilly. It is dependent upon a mild climate (northern limit is Anglesey: Gilbert & Purvis, 1996) and humid, misty coastal conditions. It is abundant on the undisturbed, misty western coast of Lundy (James *et al.*, 1995, 1996; 30,000 thalli: Gilbert & Purvis, 1996). On the

Pembrokeshire islands, Skomer and Skokholm have relatively few thalli (250 and 200, respectively) but there are more (1,500) on the mist-prone south-western rocks of Ramsey (Skomer was surveyed by Wolseley *et al*, 1996; Ramsey was resurveyed by Wolseley & James, 1997; figures are from Gilbert & Purvis, 1996). In the Channel Isles, *T. flavicans* is rare in Sark (James *et al.*, 1999) and Guernsey (Charles David, personal comm.) and absent from Alderney, Herm and Jersey. The only modern record of *Teloschistes chrysophthalmus* from any of these islands is from Guernsey (Allen, 2008).

Sub-tropical *Heterodermia* species are limited to fragile coastal turf communities as in the Isles of Scilly (*H. leucomela, H. obscurata, H. propagulifera*); Jersey (*H. obscurata*); Sark (*H. leucomela*); Skomer (*H. obscurata*), and Bardsey (*H. leucomela, H. obscurata*; Gilbert & Purvis, 1996). Other rare south-western species include *Acarospora subrufula* on coarse granites in the Isles of Scilly, Alderney (James *et. al.*, 2001), Herm (James *et al.*, 2003) and Jersey (Davey, 2001); *Lecidea sarcogynoides* in the Isles of Scilly, Alderney and Jersey; and *Bacidia sipmanii* in supralittoral crevices and below overhangs in the Isles of Scilly.

Pseudocyphellaria aurata, once a conspicuous component of the Isles of Scilly lichen flora, was considered extinct from these islands, as well as the Channel Islands, until its recent discovery in 2001 on White Island by R A Finch (Edwards. 2002b). This modern record suggests that this species, and possibly other rare species, may be surviving on some of the lesser-known, uninhabited islands where their habitat is undisturbed. *Menegazzia terebrata* is recorded for the Isles of Scilly, but not the Channel Islands. *Usnea subscabrosa* is recorded for St. Mary's where it may be at its northern limit (Parslow, 2007, p. 216). The south-western corticolous species, *Ramalina portuensis*, notably widely distributed in the Isles of Scilly, is only rare or occasional on Alderney, Sark and Lundy. The common fertile corticolous lichens *Pertusaria hymenea*, *P. leioplaca* and *P. pertusa* are all absent from the treeless island of Skomer, but present in some of the wooded areas of the Channel Islands (eg Jersey and Sark) and Lundy. Only one record from this trio exists for the Isles of Scilly: *P. leioplaca* on Tresco. Reproduction by spores and/or colonisation/recolonisation in some way may be curtailed by the particular coastal conditions and thus limit the distribution of these *Pertusaria* species.

The Lobarion and ancient woodland communities are weakly represented and fragmented in the Isles of Scilly. While *Lobaria pulmonaria* (and to a lesser extent *L. scrobiculata*) are found on most of the islands of the archipelago, *L. pulmonaria* is best developed in the heathland community (with *Parmotrema crinitum*) as described for Tresco. Other old woodland species are present on sheltered, mossy rock in the Tresco Abbey Gardens (eg *Fuscopannaria mediterranea, Nephroma tangeriense, Sticta fuliginosa*), and still others are sparingly scattered over the islands on *Calluna* heathland or on sheltered rocks (eg *Degelia plumbea, Nephroma laevigatum, N. parile, Sticta sylvatica*). There are no recent records for *Lobaria virens*, but two BM specimens from 1872 (collected by Tellam from 'Scilly' and Curnow from Bryher) confirm that

this species has been present in the Isles of Scilly. The distribution of these relict species suggests a former ancient woodland cover across the islands. Pollen analysis and distribution maps of plant woodland indicator species (eg *Euphorbia amygdaloides*) support this theory (Parslow, 2007). *Lobaria pulmonaria* is known today for Sark on a holm oak (Allen, 2008); and *Lobaria virens* and *Nephroma tangeriense* are recorded from sheltered coastal rock on Sark (James *et al*., 2005). *N. laevigatum* is recorded for coastal heathland on Lundy, and *Sticta limbata* and *S. sylvatica* for Jersey. There are no modern records of Lobarion species from Skomer, Alderney or Herm.

Conclusion and Conservation

The Isles of Scilly and other islands cited are reservoirs and outposts where rare species are just managing to survive and others, south-western and oceanic species, enhance the lichen flora of the British Isles. While the islands have features in common, each is different, and makes its characteristic contribution to the overall flora. South-western maritime and oceanic influences are reflected in the high diversity of the Isles of Scilly lichen flora which is worthy of serious conservation concern. Some lichens, those most sensitive to disturbance, cultivation, reduction in cliff-top grazing and forms of pollution, have neared extinction in our lifetimes (eg *Pseudocyphellaria aurata* and *Sticta limbata*), and others, members of the Lobarion community, *Heterodermia* spp. and *Teloschistes flavicans*, are vulnerable. With climate change an increasingly important influence it would be well to monitor over time changes in the lichen communities of the Isles of Scilly using recognised lichen indicators, and to support measures to reduce loss of fragile habitats (eg the significant heathland) with the consequent loss of rare lichens and diversity.

References

Allen, A. 2008. *Lobaria pulmonaria* and *Teloschistes* species in the Channel Islands. *British Lichen Society Bulletin* **102**: 11-16l.

Courtney, J.S. 1845. *A Guide to Penzance and Its Neighbourhood, including The Islands of Scilly, with an Appendix*. Penzance: E. Rowe. London: Longman, Brown, Green and Longmans.

Curnow, W. 1872. The Cryptogamia of the Scilly Islands. *Hardwick's Science-Gossip* vol. **8**: 210.

Davey, S. 2001. Spring Field Meeting: Jersey 17th - 24th March 2001. *British Lichen Society Bulletin* **89**: 57-69.

Edwards, B. 2002a. The current status of *Heterodermia leucomela* (L.) Poelt on the Isles of Scilly. Report 193. *Plantlife/English Nature*. Last revised draft 13 February 2006. Edited by *Plantlife International.*

Edwards, B. 2002b. *Pseudocyphellaria aurata* (Ach) Vainio on the Isles of Scilly. *Dorset Environmental Records Centre.*

Edwards, B. 2005. The Elm Lichens. Last revised February 2007. Edited by *Plantlife International.*

Gilbert, O.L. and Purvis, O.W. 1996. *Teloschistes flavicans* in Great Britain: Distribution and ecology. *The Lichenologist* **28**: 493-506.

Hooker, W.J. 1833. *The English Flora of Sir James Edward Smith. Class XXIV. Cryptogamia*. Vol. **V**. London: Longman, Rees, Orme, Brown, Green & Longman. pp. 221-222.

James, P.W., Allen, A. and Hilton, B. 1995. The Lichen Flora of Lundy: I The Species. *Annual Report of the Lundy Field Society* **46**: 66-86.

James, P.W., Allen, A. and Hilton, B. 1996. The Lichen Flora of Lundy: II The Communities. *Annual Report of the Lundy Field Society* **47**: 93-126.

James, P.W., Allen, A. and Hilton, B. 1999. The Lichens of Sark. *Report and Transactions, La Société Guernesiaise*, **XXIV**, Part IV: 657-702.

James, P.W., Allen, A. and Hilton, B. 2001. The Lichens of Alderney. *Report and Transactions, La Société Guernesiaise*, **XXV**, Part I: 116-160.

James, P.W., Allen, A. and Hilton, B. 2003. Lichens of Herm. *Report and Transactions, La Société Guernesiaise*, **XXV**, Part III: 512-536.

James, P.W., Allen, A. and Hilton, B. 2005. New, Rare and Interesting Lichens: From Lundy and the Lesser Channel Islands. *British Lichen Society Bulletin* **96**: 86-96.

James, P.W., Hawksworth, D.L. and Rose, F. 1977. Lichen Communities in the British Isles: A Preliminary Conspectus. In Seaward, M.R.D., editor, *Lichen Ecology* 298-413. London: Academic Press.

James, P. and Wolseley, P.A. 1990. Coastal Lichen Survey: a report of coastal lichen sites in England, Wales and Scotland. Unpublished report to *Joint Committee for Nature Conservation.*

Lousley, J.E. 1971. *Flora of the Isles of Scilly*. Newton Abbot: David and Charles.

Millett, L. and Millett, M. 1852. Wild Flowers of the Isles of Scilly, observed in June and July. *Proceedings of the General Meeting of the Natural History and Antiquarian Society of Penzance*: 75-78.

Parslow, R. 2007. *The Isles of Scilly*. The New Naturalist Library. London: HarperCollins Publishers.

Printzen, C. 1990. *Flechtenflora und Flechtenvegetation der Isles of Scilly*. Diplomarbeit (unpublished). Botanisches Institut der Universität zu Köln.

Purvis, O.W., Coppins, B.J., Hawksworth, D.L., James, P.W. and Moore, D.M., editors. 1992. *The Lichen Flora of Great Britain and Ireland.* Natural History Museum Publications and British Lichen Society.

Ralfs, J. 1882. The Lichens of West Cornwall. *Transactions of the Penzance Natural History and Antiquarian Society. New Series.* Vol. **I**, 1880-1884: 205-219.

Ranwell, D.S. 1966. The Lichen Flora of Bryher, Isles of Scilly, and its Geographical Components. *The Lichenologist* **3**: 224-232.

Salwey, T. 1853. Observations on Penzance Lichens. *Transactions of the Natural History and Antiquarian Society of Penzance* **II** 1851-1855: 137-148.

Seaward, M.R.D. and Hitch, C.J.B., editors. 1982. *Atlas of the Lichens of the British Isles*, Volume 1. Cambridge: Institute of Terrestrial Ecology. National Environment Research Council.

Smith, C.W., Aptroot, A., Coppins, B.J., Fletcher, A., Gilbert, O.L., James, P.W., and Wolseley, P.A., editors. 2009. *The Lichens of Great Britain and Ireland.* British Lichen Society.

Tonkin, J.C. and Tonkin, R.C. 1887. *Guide to the Isles of Scilly*. Second Edition. Penzance: Rodda, 110 pages.
Watson, W. 1953. *Census Catalogue of British Lichens*. Foray Committee of British Mycological Society, XIX + 91 pages.
Wolseley, P.A., James, P.W., Coppins, B.J. and Purvis, O.W. 1996. Lichens of Skomer Island, West Wales. *The Lichenologist* **28**: 543-570.
Wolseley, P.A. and James, P.W. 1997. Resurvey and monitoring of *Teloschistes flavicans* in Pembrokeshire. Report to the Countryside Council for Wales.
Van den Boom, P.P.G. and Brand, A.M. 2007. *Llimonaea sorediata*, a new lichen (Ascomycota), widely distributed in western Europe. *The Lichenologist* **39**: 309-314.

Ann Allen, Peter James and Christian Printzen
Email maallen@eclipse.co.uk

Lichen camouflage and lichen mimicry

Camouflage is a widespread strategy throughout the animal kingdom to avoid detection. Lichens themselves are used by birds from the arctic to the tropics to reduce the visibility of their nests, as described and illustrated by David Richardson in his book *The Vanishing Lichens* (Richardson, 1975). Similar strategies are used by lacewing and bagworm larvae; here lichen fragments are piled onto their backs or attached to portable cases. David also shows pictures of moss forest weevils from New Guinea, on whose backs foliose lichens grow to protect them against predatory birds. A similar phenomenon has been discovered in Costa Rica by Robert Lücking and his colleagues (see Lücking, 2008), where mantids allow their front wings to be colonized by a range of normally foliicolous lichens (as well as liverworts and even non-lichenized fungi).

A mantid belonging to the genus *Choeradodis* with wings colonized by lichens. © Robert Lücking

Lichen mimicry, where the animals themselves develop external markings that mimic the lichen-covered plants on which they live, is also well-known. The most celebrated example must be the peppered moth *Biston betularia*, a convincing demonstration of natural selection (Majerus, 1998) where populations of the "normal" (lichen mimic) moth were shown to reduce in comparison with melanized morphs where industrial pollution had reduced lichen cover. Many other moths exhibit coloration and patterning that mimic lichen-covered bark, including geometrids such as the Brussels lace moth (*Cleorodes lichenaria*) in the UK, which both feeds on and mimics lichens. Their caterpillars can show convincing imitations of

lichen-covered twigs also; a good example is the scalloped hazel moth *Gonodontis bidentata*. As with the peppered moth, this also exists in two morphs, a "lichen-covered" morph in unpolluted areas and a "lichen-free" morph in urban environments. Both are illustrated in black and white by Richardson (1975), and a colour image of the lichen-covered morph is shown here, taken from the British Lichens website (*http://www.britishlichens.co.uk/lichenscapes*).

A caterpillar of the moth *Gonodontis bidentata* showing convincing "parmelioid" mimicry © Katie Grundy

There are many examples of lichen mimicry by insects in the tropics. The strongly flattened sap-sucking pentomid bug *Phloea subquadrata* has a shield-like body that mimics patches of lichen on tree bark in Brazil, and also acts as a shelter for its larvae. More information is available in Guilbert (2003), also available on the internet at *http://www.eje.cz/pdfarticles/180/eje_100_1_061_Guilbert.pdf* (with colour images).

Katydids (bush-crickets belonging to the *Tettigoniidae*) are also known to mimic lichens, as reported from Africa by David Richardson (Richardson, 1975) and Mark Seaward (Seaward, 1988). Lichen mimicking katydids are also known from the neotropics; Robert Lücking (Lücking, 2008) describes *Rosophyllum colosseum* which has its entire body covered in groups of rounded spots similar to colonies of *Strigula*, *Calopadia* and *Tapellaria* species, and also more elaborate spots that are strikingly reminiscent of the asexual morph of *Gyalectidium imperfectum*. See for yourself....

The katydid *Rossophyllum colosseum* on a lichen-covered leaf in Costa Rica © Andrea Bernecker

Arthropods are not the only animals to exhibit lichen mimicry. Tree frogs were first noted as mimics in Tanzania (Farkas & Pócs, 1989), and have also been observed in Costa Rica by Robert Lücking (see front cover). Not surprisingly, chamaeleons also mimic lichen-covered leaves and branches as part of the environment in which they hide. All part of the natural world around us....

This article draws heavily on the work of Robert Lücking and David Richardson; many thanks to both, and especially to Robert and Katy for the lovely pictures.

Farkas, E.É. & Pócs, T. (1989). Foliicolous lichen mimicry of a rainforest treefrog? *Acta Botanicae Academiae Scientiae Hungaricae* **35**: 73-76.

Guilbert, E. (2003). Habitat use and maternal care of *Phloea subquadrata* (*Hemiptera*: *Phloeidae*) in the Brasilian Atlantic forest (Espirito Santo). *European Journal of Entomology* **100**: 61-63.

Lücking, R. (2008). *Foliicolous Lichenized Fungi*. Flora Neotropica Monograph no. **103**: 866 pp.

Majerus, M.E.N. (1998). *Melanism. Evolution in Action*. Oxford University Press.

Richardson, D.H.S. (1975). *The Vanishing Lichens: Their History, Biology and Importance*. David & Charles, Newton Abbott etc.

Seaward, M.R.D. (1988). Contribution of lichens to ecosystems. In Galun, M. (ed.), *CRC Handbook of Lichenology* **2**: 107-129. CRC Press, Boca Raton.

Paul Cannon
CABI and Royal Botanic Gardens, Kew
email p.cannon@cabi.org

Back garden lichenology in East Devon

Although large public gardens should include more habitats back garden lichenology can be just as exciting and botanical visitors to mine are often asked if they can find anything interesting. Of the cryptogams probably the best discovery was *Leptodontium gemnascens,* the thatch moss, on the decaying reed of the porch. This caused a dilemma as maintaining a rotting roof was not what I had in mind.

The main thatched roof is a garden in itself especially on the north side which is unfortunately inaccessible without scaffolding so the red fruited Cladonias can only be admired from the ground though plenty fall during wet weather indicating that most of the Cladonias are *C. floerkeana, C. ramulosa* and *C. squamosa.*

The concrete tiles on the well lit south face of the extension roof is a totally different habitat which includes *Caloplaca chlorina, Lecanora muralis,* (mostly a church paths lichen in rural Devon), and discrete patches of *Xanthoria elegans*, which has fewer county records than *Lobaria pulmonaria*.

87 lichens have so far been listed in my garden, on many surfaces which one usually walks on or past without a thought. Some species have disappeared such as *Hypogymnia physodes,* and *Ramalina fraxinea* which regularly grew up to 10cm on a sycamore before 1990.

It is always worth looking for lichens in odd places in any garden. One of our banks appears constructed of discarded wagon wheel rims sunk too far to be visible but the odd bit of old iron above ground can have tantalising green crusts, one of which keys to *Bacidia saxenii*. Of the other interesting finds, *Bacidia delicata* is on the greenhouse base and thick branches of an old *Phlomis*, *Porina borreri* at the damp shaded base of a japonica hedge and *Bacidia laurocerasi* on an old rosemary before it succumbed to the -15 degree temperatures of this February.

Finally, the best lichen habitat is a fairly new arrival; an Indonesian deckchair of rough canvas. This is 5 years old and has 17 lichens, mainly foliose, covering all the canvas except where water collects in the seat. For two years it was used as it should but when the lichens made it too scratchy and the succession appeared to be interesting it was only used as a bed by local cats and where squirrels ate a passing snack. The garden is surrounded by well manured fields and this sheltered canvas is the only surface where *Usnea* thrives and *Hypogymnia physodes* put in a short appearance.

So lichenologists, your gardens just could provide a handy place for succession projects and be as interesting as the local churchyard.

Barbara Benfield
email bbenfield2@bbmax.co.uk

The lichens of thatched roofs

I was first drawn to the potential of thatch as a lichen habitat when I noticed an abundance of red-fruited *Cladonia macilenta* on my mother's roof. Elsewhere in North Bedfordshire this species is uncommon, occurring as small colonies of stunted podetia on rotting stumps and looking very different from the exuberant specimens on the thatch. A closer inspection of the roof revealed that it supported sixteen species of lichen including a new county record (*Pseudevernia furfuracea*).

My business is the supply of split hazel pegs ("spars") to local thatchers and this has opened up opportunities to record and collect from roofs due for re-thatching. Otherwise I find that a useful survey can be made from a ladder placed under the eaves; it is damaging to thatch to lay ladders upon it.

Thatched roofs have been studied across Northamptonshire, Bedfordshire and Cambridgeshire and the findings hint at considerable interest. Old thatch appears to provide a suitable habitat for lichens that would otherwise be typical of heathland or rotting stumps and which are rare in an intensive agricultural landscape. The importance of gravestones for providing a variety of saxicolous substrates in areas where natural rock outcrops are rare is well recognised. I propose that thatched roofs provide tiny refuges for heathland lichens in landscapes where heathland is rare or degraded.

The primary aim of a thatch survey is to compile a list of the species present. Many of the lichens growing on thatch are challenging to identify and include members of the bewildering genus *Cladonia* and various sterile crusts which often require chemical tests or microscopic examination. An attempt is made to estimate the age of the outer thatch layer if the exact age is unknown. This estimation is difficult, even for a thatcher, and so broad age categories are used. The aspect of thatch is important in influencing the community that develops. Most roofs have a "sunny" side and a "shady" side and this difference is best demonstrated on roofs with pitches that face approximately to the south and to the north. It has not been considered worthwhile to record aspect with greater precision than this basic division. The presence of any protective netting placed over the thatch, and the material that the netting is made from is recorded. In addition to lichens growing directly on the thatch, species that are found growing on other substrates associated with the roof are noted if possible; separate lists are made of lichens from netting and cement flashings.

The sunny side of a thatched roof often has lichens typical of weathered wood; *Amandinea punctata*, *Lecanora conizaeoides* and *Trapeliopsis flexuosa* are commonly present. *Physcia* and *Xanthoria* species sometimes occur where there is localised nutrient enrichment from bird droppings. The shady side often has dense swards consisting of the podetia of various species of *Cladonia*. Some roofs are dominated by a single species of *Cladonia*, while others have a mixed community of up to six members of this genus. This shaded, humus-rich substrate also provides a habitat for various sterile crusts. A thatch at Pytchley in Northamptonshire yielded *Micarea leprosula*, *Micarea lignaria* and *Trapeliopsis pseudogranulosa*, all of which are notable species for this region and are evocative of upland moors. At Yelden in Bedfordshire

I was puzzled by a sterile crust with abundant pycnidia and no fruits. Brian Coppins determined this material for me as an unusual sterile form of *Amandinea punctata*. The community found on shaded thatch could be assigned to the *Cladonietum coniocraeae* which has a wide ecological range including the bases of shaded trees, rotting wood and peaty soils. Most thatched roofs have some stick-work, split hazel or willow rods laid flat on the surface and held in place with spars driven in to the straw. The decorative criss-cross patterns on many ridges are formed from these thin, split rods. These sticks develop a limited community of lignicolous lichens. *Amandinea punctata* and *Micarea denigrata* are frequently present.

Roofs thatched with reed are usually unprotected by netting, though the habit of protecting the gable ends on some of them will provide opportunities to investigate the effect of zinc run-off on thatch lichens. The unprotected part of the roof should serve as an uncontaminated control. Roofs thatched in wheat straw are protected by netting, usually galvanised wire netting but sometimes plastic "trawler" net is used. Brightman and Seaward (in Lichen Ecology, ed. Seaward, 1977, pg. 265) considered that "the zinc of galvanising is inimical to lichens". Roofs protected by plastic netting certainly seem to be usually richer in species. The netting itself provides a substrate for lichens that are more usually found on twigs. *Xanthoria polycarpa* seems as happy on fish-net knots as on twig axils. The lichens beneath galvanised wire netting seem to be poor in species and stunted in stature. A roof at Ravensden in Bedfordshire had different types of netting over areas of thatch of the same age and material. *Cladonia ramulosa* was abundant amongst mosses under plastic netting while beneath galvanised netting the thatch was considerably less vegetated and the only lichen noted was *Cladonia chlorophaea*. An old straw roof at Knuston Hall in Northamptonshire seemed to contradict the hypothesis that zinc suppresses lichens. This roof, on one of the thatching school barns, has a single strip of wire netting fixed from ridge to eaves while the rest of the roof either side is unprotected. This strip of netting has been on the roof so long that the current tutors are unsure why it is there. The thatch beneath the netting has a dense sward of *Cladonia* podetia, mostly *C. macilenta* var. *bacillaris* with small amounts of *C. chlorophaea*. The thatch either side has a sparse vegetation of the same two species. In this case the physical protection afforded by the netting seems to be more important than any toxic effects on the lichens involved. The roof is noticeably less eroded under the netting which presumably provides some protection from rain splash, wind disturbance and the attentions of foraging birds. The slower erosion under the netting may allow the podetia to grow larger and if they do slip down the roof they have the benefit of a safety net to prevent them falling to the ground. I think this explains the abundance of *Cladonia* podetia beneath the netting rather than the lichens having any preference for zinc. *Cladonia macilenta* var. *bacillaris* and *C. chlorophaea* are the two macro-lichens that appear most vigorous beneath galvanised netting on thatched roofs and they may be somewhat tolerant of zinc.

I am not convinced that the type of thatch has much influence on the community that develops. At Robins Folly in Bedfordshire a skirt of reed was present above the eaves with the main body of the roof thatched in "wheat reed" above. The distribution of *Amandinea punctata* on the south side and that of *Cladonia fimbriata* on the north side seemed to be uninfluenced by the junction of thatching materials.

Thatch is a temporary habitat, twenty to thirty years is a typical lifespan for a wheat straw thatch and up to fifty years for reed. The mechanisms of colonisation are not yet known. The transport of spores and propagules by wind and on bird's feet are likely to play a part. Thatchers themselves may be a vector for distributing lichens. One of their tools is the legget which is used for "dressing" the thatch (pushing it up into the fixings to tighten it and neaten the finish). Thatched roofs are often re-ridged approximately half way through the serviceable life of the main body of the thatch. It is usual to remove surface lichen and moss vegetation at this stage and to re-dress the thatch. Leggets have a grooved plate and I speculate that they might transfer spores, soredia or other lichen fragments to the next new thatch. Ladders and clothing might also transport propagules.

Most thatched roofs in the study area support a small number of common species of lichen. Even in these cases the sight of several square metres dominated by the podetia of various *Cladonia* species is a spectacle that is unrivalled in most lowland parishes. I have yet to find a thatched roof, except those recently re-thatched, which is devoid of lichens. Even those that appear "clean" from the ground usually have small crustose species. The more interesting roofs considerably extend the known distribution of several lichen species into the East Midlands.

Amalgamated list of lichen species from thatched roofs in Northamptonshire, Bedfordshire and Cambridgeshire

Amandinea punctata. Frequent. On straw, reed and stick-work.
Cladonia chlorophaea. Frequent.
C. coniocraea. Occasional.
C. fimbriata. Occasional.
C. floerkeana. Rare.
C. glauca. Rare. Found on just one roof, but here dominant over a large part of the shady side.
C. macilenta. Occasional.
C. macilenta var. *bacillaris*. Frequent.
C. ochrochlora. Occasional.
C. pyxidata. Occasional.
C. ramulosa. Frequent. Often forms dense swards on the shady side.
Evernia prunastri. Rare.
Hypogymnia physodes. Rare.
H. tubulosa. Rare.
Lecanora conizaeoides. Frequent. On straw and reed, especially on the sunny side.
L. expallens. Rare.
L. cf. *hagenii*. Rare. On stickwork.
Lepraria incana. Rare.
L. lobificans. Rare.
Micarea denigrata. Occasional. Often on stickwork and sometimes on straw.
M. leprosula. Rare. Found once on old, shaded reed.
M. lignaria var. *lignaria*. Rare. Found once on old, shaded reed.
Physcia tenella. Occasional. On straw and stickwork.

Placynthiella icmalea. Frequent. On straw and stickwork.
Pseudevernia furfuracea var. *furfuracea*. Rare.
Trapeliopsis flexuosa. Frequent. On straw and reed, especially on the sunny side.
T. pseudogranulosa. Rare.
Xanthoria candelaria sens. lat.. Rare. On stickwork.
X. parietina. Occasional.
Additional species recorded only on plastic netting
Fuscidea lightfootii. Rare

Mark Powell
email markpowell222@btinternet.com

A day out with a lens and a notebook looking for lichens and the effect of nitrogen pollution

Earlier last year (7 April 2009) we visited a couple of orchards in Devon at the National Trust property at Killerton. I (DJH) was giving some help to Pat with lichen identification for her MSc project. Near the main entrance on the other side of the road is a small orchard surrounded by farmland of 50-100 trees (mainly apple) and we found 24 species of lichens on the twigs, branches and trunks (Table 1). For comparison we also visited another smaller orchard in Ashclist Wood, 3-4 km away as the crow flies. Here the orchard, with 34 species, was surrounded by woodland. The noticeable feature of the two species lists was that only 13 of species were present at both sites. In analysing the data further, we found more "nitrophytes" and at greater abundance in the orchard in farmland and more "acidophytes" in greater abundance in the other orchard. These differences suggested that the site near the Killerton entrance, in common with so much lowland Britain today, is heavily polluted with nitrogen but that woodland is an effective filter of air-born nitrogen pollution and the orchard within it is relatively unpolluted (Table 2) – reminiscent of orchards 20 or more years ago. The Ashclist Wood site is much richer in species. The abundance at each site of the species in common was surprisingly similar except for *Xanthoria parietina* which highlights its value as an indicator of nitrogen pollution (Figure 1). If you would like to delve into more information about nitrogen deposition rates across Britain, try using the CEH Edinburgh website (*http://www.atmosci.ceh.ac.uk/projects/Deposition.htm*) and other websites that might be useful are *www.apis.as.uk/* and *http://www.airquality.co.uk/reports/*. There is a lot of information about levels of nitrogen pollution and the effects on the ecosystem. Much of this is aimed at determining the critical level above which amounts of nitrogen deposition will cause a deleterious effect (see Fenn et al., 2008 and Glavich and Gieser, 2008). Pat Wolseley has developed a nice method for monitoring effects of air pollution using lichens on twigs (Wolseley, 2002; Wolseley *et al.*, 2006 and Vilsholm *et al.*, 2009).

In conclusion, this little study suggests the importance of surveying the interior of woodland areas, of the importance of larger rather than smaller areas of woodland for lichen conservation, the importance of glades or other open areas within large areas of woodland and the value of *X. parietina* as an indicator of nitrogen pollution. When considering surveying an orchard, bear in mind its setting in the landscape.

Table 1. Species occurring at the two orchard sites

Orchard near entrance to Killerton			**Orchard in Ashclist Wood**		
Trunks	freq.	ind.	**Trunks**	freq.	ind.
Cladonia ochrochlora	r	A	*Cladonia coniocraea*	r	A
Flavoparmelia caperata	c		*Cladonia ochrochlora*	r	A
Opegrapha atra	o	A	*Lepraria* sp	c	
Parmelia sulcata	c	Nr	*Peltigera horizontalis*	o	
Phlyctis argena	f	Pt	*Peltigera praetextata*	o	
Punctelia ullophylla	f	Nr	Moss	a	
Schismatomma decolorans	f	Nr			
Twigs			**Twigs**		
Arthonia radiate	c		*Arthopyrenia salicis*	f	
Candelariella reflexa	r	N	*Arthonia radiata*	c	
Diploicia canescens	r	Nr	*Candelariella reflexa*	r	N
Flavoparmelia caperata	a	A	*Evernia prunastri*	c	A
Haematomma ochroleucum var *porphyrium*	f	Nr	*Flavoparmelia caperata*	a	a
Hyperphyscia adglutinata	o	Nr	*Flavoparmelia soredians*	r	a
Hypotrachyna revoluta	a	C	*Graphis scripta*	c	
Lecania naegelii	o	Nr	*Haematomma ochroleucum* var *porphyrium*	o	nr
Lecanora chlarotera	o	C	*Hypogymnia physodes*	c	A
Lecidella elaeochroma	c	Pt	*Hypogymnia tubulosa*	f	A
Melanelia subaurifera	c	Pt	*Parmotrema perlatum*	a	a
Parmelia sulcata	o	Nr	*Hypotrachyna revoluta*	a	c
Phaeophyscia orbicularis	f	N	*Lecania negaelii*	o	nr
Physcia adscendens	o	N	*Lecanora chlarotera*	o	c
Physcia tenella	a	N	*Lecidella elaeochroma*	f	pt
Punctelia subrudecta	c		*Melanelia subaurifera*	c	pt
Ramalina farinacea	c		*Parmelia sulcata*	o	nr
Ramalina fastigiata	c	Nr	*Pertusaria albescens*	r	pt
Scoliciosporum chlorococcum	a	Nr	*Pertusaria amara*	c	
Xanthoria parietina	a	N	*Pertusaria pertusa*	o	
			Phaeographis dendritica	f	
			Physcia aipolia	o	nr
			Platysmatia glauca	c	A
			Ramalina farinacea	c	
			Usnea articulata	r	A

Orchard near entrance to Killerton			**Orchard in Ashclist Wood**		
			Usnea ceratina	r	A
			Usnea cornuta	c	A
			Usnea subfloridana	c	A
			Usnea wasmuthii	o	A
			Xanthoria parietina	r	N

freq. = frequency; a, abundant; c, common; f, frequent; o, occasional; r, rare. Ind. = indicator status: N, nitrophytes and A, "acidophytes" (van Herk, 2002). From Smith *et al*. (2009): nr = species characteristic of nutrient rich habitats; a = acidic conditions; c = wide tolerance; pt = pollution tolerant to some degree. No entry presumably indicates a lack of tolerance to some degree.

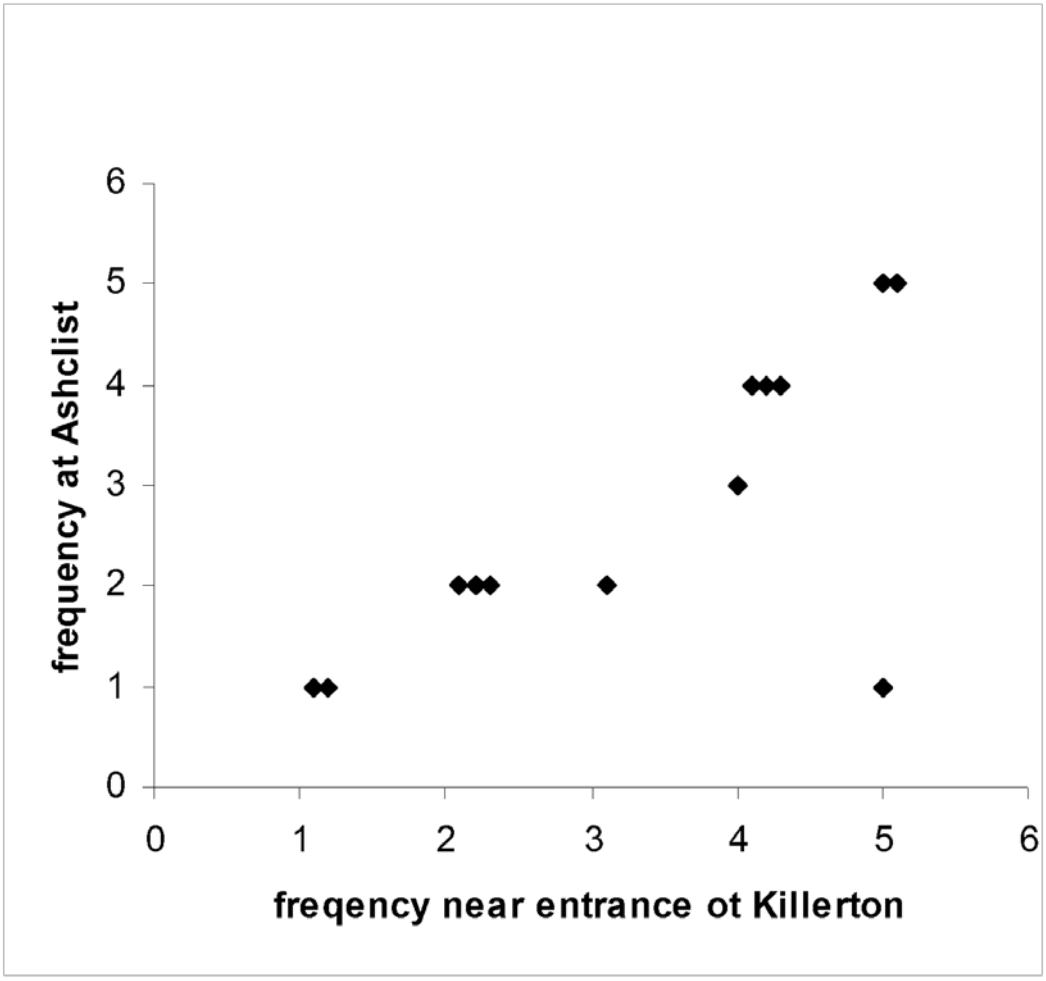


Figure 1. Relative frequency of the species which occurred at both locations. Each dot refers to a species. *Xanthoria parietina* (bottom right) shows as a strong indicator of the differences between the two sites.

Table 2. The numbers of indicator species at the two locations

Indicator species	Orchard near entrance to Killerton		Orchard in Ashclist wood	
Nitrophiles	5	3 “abundant”	2	both “rare”
"Acidophytes"	1	“rare”	13	4 “common”
nutrient rich	9		4	
acidic preference	3		3	
pollution tolerant	3		3	
no category	3		10	
Total number of spp	24		34	

References

Fenn, M.E., Jovan, S., Yuan, F., Geiser, L., Meixner, T. & Gimeno, B.S. (2008). Empirical and simulated critical loads for nitrogen deposition in California mixed conifer forests. *Environmental Pollution* **155**: 492-511.

Glavich, D.A. and Geiser, L.H. (2008). Potential approaches to developing lichen based critical loads and levels for nitrogen, sulfur and metal-containing atmospheric pollutants in North America. *Bryologist* **111**: 638-649.

van Herk, C.M. (2002). Epiphytes on wayside trees as an indicator of eutrophication in the Netherlands. In Nimis, P.L., Scheidegger, C. & Wolseley, P. (eds), *Monitoring with Lichens - Monitoring Lichens* Nato Science Series IV. Earth and Environmental Sciences Vol **7**: 285-289. Kluwer, Dordrecht.

Smith, C.W., Aptroot, A., Coppins, B.J., Fletcher, A., Gilbert, O.L., James, P.W. & Wolseley, P.A. (2009). *The Lichens of Great Britain and Ireland* edn 2. BLS, London.

Vilsholm, R.L., Wolseley, P.A., Søchting, U. & Chimonides, P.J. (2009). Biomonitoring with lichens on twigs. *Lichenologist* **41**: 189-202.

Wolseley, P.A. (2002). Using lichens on twigs to assess changes in ambient atmospheric conditions. In Nimis, P.L., Scheidegger, C. & Wolseley, P. (eds), *Monitoring with Lichens - Monitoring Lichens* Nato Science Series IV. Earth and Environmental Sciences Vol **7**: 291-294. Kluwer, Dordrecht.

Wolseley, P.A., James, P.W., Theobald, M.R. & Sutton, M.A. (2006). Detecting changes in epiphytic lichen communities at sites affected by atmospheric ammonia from agricultural sources. *Lichenologist* **38**: 161-176.

Patricia Farrell
David J Hill
email d.j.hill@bris.ac.uk

Latitudinal variation in the expression of the thallus cortex in the *Collema-Leptogium* complex

Gelatinous lichens are fascinating in that they alter shape rapidly in response to changes in water availability. The two most common, widespread and species-rich genera are *Collema* and *Leptogium*. Both have *Nostoc* as the cyanobacterial photobiont. *Nostoc*, alone and when present in these lichens, has the ability to take up large amounts of water and resist dehydration, so that these lichen genera have a very wide ecological amplitude. They are found in hot dry environments such as the Sonoran Desert of Arizona, the freezing conditions of Antarctica, and in high humidity environments such as tropical rain forests, while some species can grow semi-submerged in streams.

The genera *Collema* and *Leptogium* are distinguished formally by the presence of a thallus cortex in *Leptogium,* which is absent in *Collema*. However, the cortex may be poorly developed in some species of *Leptogium* (e.g. *L. biatorinum*) and a pseudocortex may be present in some *Collema* species (e.g. *C. nigrescens*) (Schultz *et al.*, 2004). The two genera are often difficult to distinguish in the field. Two recent phylogenetic studies using molecular markers have both shown that, while a combination of the two genera forms a monophyletic group, neither genus alone is monophyletic (Otálora *et al.*, 2010; Wedin *et al.*, 2009). This suggests that the current distinction of the two genera based on the presence/absence of a thallus cortex has no phylogenetic basis and Otálora *et al*. (2010) proposed the term '*Collema-Leptogium* complex' pending a formal revision of the nomenclature of the genera. They also inferred that the ancestral state in the *Collema-Leptogium* complex was without a thallus cortex, but that it was gained subsequently and may be related to environmental factors, in particular substrate exposure.

Tassilo Feuerer has collated and made accessible via his website (*www.checklists.de*) checklists of lichen species for a large number of nations/states/provinces world-wide, see also Feuerer & Hawksworth (2007). While using these checklists to understand the global distribution of *Collema* and *Leptogium* taxa, we noticed that the proportion of *Leptogium* species in the *Collema-Leptogium* complex appeared to vary systematically with geography.

To explore whether this was the case we collated the number of *Collema* and *Leptogium* species in each national checklist. In the case of the United States, Canada and Australia, data at the state/province scale was available and this was used as the size of these units were similar to many other nation states. The percentage of *Leptogium* species of the total of *Collema* and *Leptogium* species in each checklist was calculated. Values less than 50 indicate areas dominated by *Collema* species and those above 50 areas dominated by *Leptogium* species. The completeness of the checklists was an obvious problem and it was arbitrarily assumed that any checklist where the total number of *Collema* plus *Leptogium* species was less than 20 was incomplete and the data ignored.

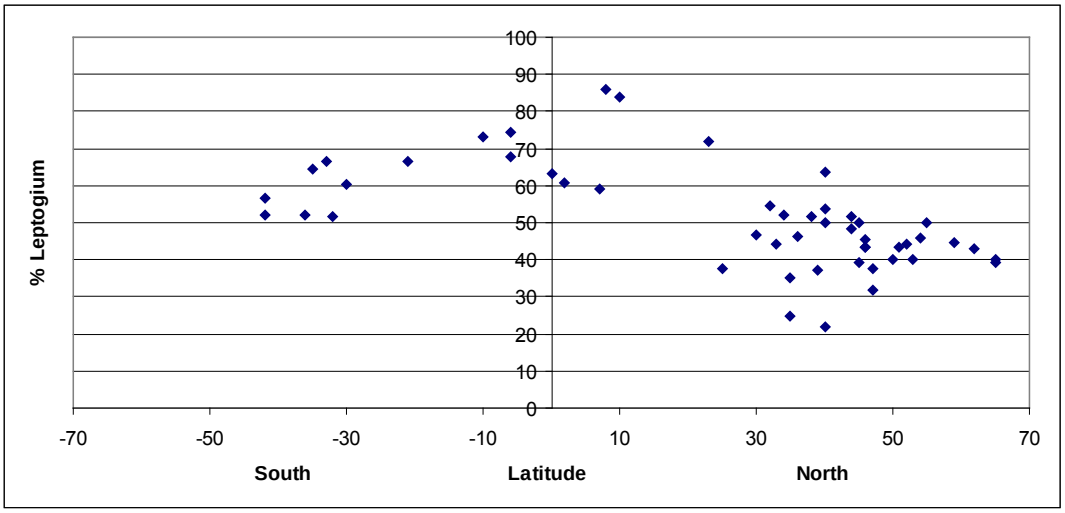


Figure 1. Percentage of *Leptogium* species*, in each national, state/provincial checklist plotted against a value of latitude typical of the latitudinal range covered by the checklist. Negative values for latitude refer to the southern hemisphere, positive values to the northern hemisphere. The equator is latitude zero.
Calculated as (100 number of *Leptogium* species / [number of *Leptogium* species + number of *Collema* species]).

The simplest possible measure of global distribution is latitude. A representative value for this was determined by considering the range of latitude covered by each checklist. Figure 1 shows the % *Leptogium* in the *Leptogium – Collema* complex plotted against latitude; southern hemisphere latitudes are shown as negative values so that the equator is at zero latitude. Perhaps the most remarkable feature of Figure 1 is that there is any structure at all given the variable nature of the data sets used and that along any latitude there will be a range of climate zones and diversity of potential substrates. However, in both hemispheres there is a clear trend for the % *Leptogium* to fall from higher values near the equator to lower values towards the poles. That is, cortex-bearing *Leptogium* species dominate in the tropics and cortex-free *Collema* species dominate polewards. Plots of the total number of species in each genus as a function of latitude (not included here) show that the observed trend in the ratio is due to a marked increase in the number of *Leptogium* species in the tropics, especially in Brazil, Costa Rica and Venzuela, plus to a lesser extent an increase in number of *Collema* species in temperate regions of Europe (Croatia, Germany, Great Britain, Ireland, Sweden), Asia (China, Japan), North America (British Columbia) and Morocco.

A number of functions have been suggested for the cortex in lichens including mechanical protection, modification of energy budgets, anti-herbivore defense, control of light intensity and water availability (Rundel, 1982; Büdel & Scheidegger, 2008). However, none of these alone would appear to be sufficient to explain the global distribution found here. Consider for example water availability. The *Collema-Leptogium* complex in tropical rain forests is rich in *Leptogium* species yet along the wet temperate western Atlantic and Pacific seaboards there is no such domination

and both genera occur with about the same frequency. This possibly implies that while there appears to be a "mega pattern" in terms of latitudinal distribution, any "micro pattern" linked to morphology/physiology is difficult to reconcile with this. We would welcome any thoughts that readers may have concerning this apparent distribution pattern and biology of these fascinating lichens.

Acknowledgements
Mark Seaward commented on an earlier draft of this note and we are thankful for his helpful suggestions.

References
Büdel, B. & Scheidegger, C. (2008). Thallus morphology and anatomy. In Nash, T.H. (ed.), *Lichen Biology* pp. 40-68. Cambridge, Cambridge University Press.

Feuerer, T. & Hawksworth, D.L. (2007). Biodiversity of lichens, including a world-wide analysis of checklist data based on Takhtajan's floristic regions. *Biodiversity and Conservation* **16**: 85-89.

Otálora, M.A.G., Aragón, G., Molina, M.C., Martinez, I. & Lutzoni, F. (2010). Disentangling the *Collema-Leptogium* complex through a molecular phylogenetic study of the *Collemataceae* (*Peltigerales*, lichen-forming *Ascomycota*). *Mycologia* **102**: 279-290

Rundel, P.W. (1982). The role of morphology on water relations in desert lichens. *Journal of the Hattori Botanical Laboratory* **53**: 315-320.

Schultz, M., Ryan, B.D. & Nash, T.H. (2004). *Collema*. In Nash T.H. *et al.* (eds), *Lichen Flora of the Greater Sonoran Desert Region* **2**: 65-80. Lichens Unlimited, Tempe, Arizona.

Wedin, M., Wiklund, E., Jørgensen, M. & Ekman, S. (2009). Slippery when wet: phylogeny and character evolution in the gelatinous cyanobacterial lichens (*Peltigerales*, *Ascomycetes*). *Molecular Phylogenitcs and Evolution* **53**: 862-871.

Les and Sue Knight
lesknight@btinternet.com

More about lichens on perennial fungal fruit-bodies

In a recent issue of the Bulletin, Richardson (2009) remarked on some cyanolichens found on fungi of the genus *Fomes*. It may be worth remarking just how unusual this is. There are records of lichens on long-lived fungi scattered, albeit very thinly, through the lichenological literature, but hardly any of them are cyanolichens.

The first (and perhaps only) attempt to gather together records of lichens from such a substrate is that on pages 84-85 of Arnold (1874). Arnold listed 10 species that

had been reported "auf Pilzen (*Polyporus*)". They were: *Lecanora lividella* Nyl., *Biatora phaeostigmella* (Nyl.) Arnold [=*Lecidea phaeostigmella* Nyl.], *Biatora microphaea* (Nyl.) Arnold [=*Lecidea microphaea* Nyl.], *Biatorina chloroticella* (Nyl.) Arnold [=*Catillaria chloroticella* (Nyl.) Zahlbr.], *Biatorina adpressa* var. *convexiuscula* Nyl., *Bilimbia igniarii* (Nyl.) Arnold [=*Bacidia igniarii* (Nyl.) Oxner], *Bacidia inundata* f. *carneolutea* (Nyl.) Arnold, *Coniangium patellulatum* f. *tenellulum* (Nyl.) Arnold [=*Arthonia patellulata* v. *tenellula* Nyl.], *Leciographa polyporina* (Nyl.) Arnold [=*Buellia polyporina* (Nyl.) Zahlbr.], and *Calicium incrustans* Körb. [=*Calicium trabinellum* (Ach.) Ach.]. Most of these are poorly known taxa, and several are known only from the type collection. None are cyanolichens.

The earliest record cited in Arnold was that of *Calicium incrustans* which, according to page 312 of Körber (1855), was collected "auf abgestorbenen Pilzen (*Polyporus*, *Hydnum* u.a.)". I imagine that a thorough search through the pre-1874 literature might discover a few more old records, but there will not be many. (I looked through a few of the most obvious places, and did not find any more records.) Records more recent than 1874 have probably never been gathered together.

Arnold's records were from central and northern Europe, but long-lived fungi in southern Europe also support a few lichens. In fieldwork in Greece I have recorded *Cladonia fimbriata*, *C. pyxidata* and *C. rangiformis*. All three records were from a single site in the west (i.e. the wetter side) of the Peloponnese. The substrate was noted simply as "bracket fungus", and was not determined to genus. I have not paid any particular attention to this substrate, and a focused search would no doubt produce more records, but if the three species seen to date are representative then it is not likely to support any cyanolichens.

It seems surprising that Arnold did not list any *Cladonia* species. Perhaps any old records of Cladonias from this substrate are lost under generalised descriptions like "on rotting wood", which are common in the literature.

References

Arnold, F. (1874). Lichenologische Fragmente XVI. *Flora* **57**:81-89, 97-110, 137-144, 150-155, 173-175.

Körber, G. W. (1855). *Systema Lichenum Germaniae*. 459pp. Trewendt & Granier, Breslau.

Richardson, D. (2009). Cyanolichens on perennial fungal fruit bodies. *British Lichen Society Bulletin* **104**: 9-10.

Linda in Arcadia
linda_in_arcadia@hotmail.com

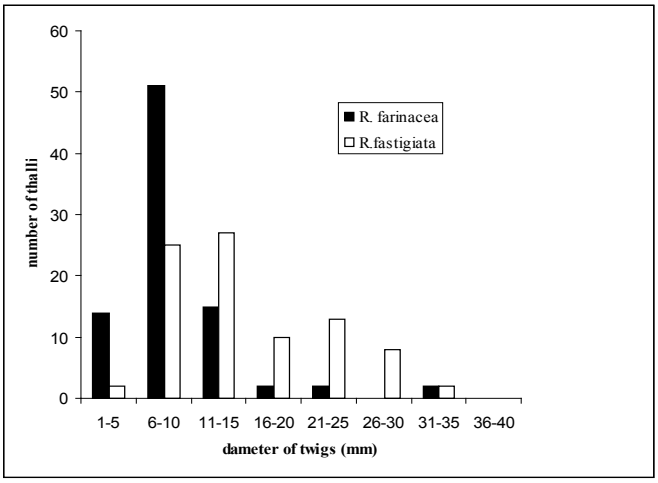
Fresh lichenicolous fungi required

A major project to grow lichenicolous fungi in culture, examine them for extrolite production, and ascertain their phylogenetic positions by molecular methods is currently underway at the Universdiad Complutense de Madrid. The project is entitled "Hongos liquenicolas: cultivo, producción de metabolitos secundarios y relaciones filogeneticas" and supported by Spanish Ministerio de Ciencia e Innovacion grant CGL2008-01600; it continues until September 2011. Dr Constantino Ruibal, well-known for his pioneering work on the isolation and characterization of fungi from bare rock, is employed on the project. Also involved in the project are Dr Ana Millanes (Madrid) and Dr Mats Wedin (Stockholm). We are aiming to determine the phylogenetic position of as many genera currently of uncertain position as possible, and to assess the species concepts in selected genera in which numerous species have been described from different lichens. The best results come from material collected within a few months which have been only air-dried. This is a great opportunity to enhance our understanding of these fascinating fungi, and we would be very pleased to receive abundantly sporing material of diverse lichenicolous fungi, and in particular from the genera *Abrothallus*, *Lichenoconium*, *Nesolechia*, and especially *Stigmidium*. Specimens can be sent direct to Constantino in Madrid (Departamento de Biologia Vegetal II, Facultad de Farmacia, Universidad Complutense de Madrid, Plaza Ramon y Cajal, Madrid 28040, Spain) or myself (Milford House, The Mead, Ashtead, Surrey KT21 2LZ, UK) as is most convenient. All those donating material will be acknowledged in the resultant publications.

David Hawksworth
email d.hawksworth@nhm.ac.uk

Distribution of two *Ramalina* species on an apple tree

An old apple tree (girth 132 cms) in my garden had to be cut down due to fungal infection of the roots which was killing it. This was an opportunity to find out if *Ramalina farinacea* (vegetatively reproducing with soredia) was distributed differently in the crown from *Ramalina fastigiata* (sexually reproducing with spores). The hypotheses that they might be was stimulated by a study by Ellis & Coppins (2007) who showed that on aspen in Scotland there was a higher frequency of sexually reproducing species on younger bark and a higher frequency of asexually reproducing species on older bark. During the process of cutting the tree, twigs with either these species were set aside and later the species determined and the diameter of the twig measured with callipers. About 20-30 thalli may have been knocked off during cutting and handling of the branches (thalli collected were about half of each species). Some of the smaller thalli (<20) could not be identified to the species and were ignored. Therefore there were probably losses in the data from the larger and the smaller thalli. There was not an obvious relationship between thallus size and twig size although thallus size was not measured.



The results showed that *R. farinacea* was confined to the smaller twigs but *R. fastigiata* occurred on a wider range of twig sizes but twig size does not indicate twig age. The smaller twigs on mature apple trees are mainly "short shoots" which do not grow much or thicken with age but have numerous bud scars which roughens the bark. Although the data cannot provide any evidence of a causal link, the rougher surface on the short shoots could aid the attachment of *R. farinacea* soredia. The fewer longer shoots which actively grow in length have smooth bark and thicken to become the thicker twigs and branchlets in the crown in time and tend to keep, at least to start with, smoother bark. It would appear that these are more suited to colonisation by *R. fastigiata*. These data are not necessarily at variance with what Ellis and Coppins (2007) found for aspen in Scotland. At least the hypothesis holds that sexually reproducing species and asexually reproducing species do indeed colonise different niches on a tree. The poor old tree supported about 30 other lichen species.

Reference

Ellis, C.J. & Coppins, B.J. (2007). Reproductive strategy and the compositional dynamics of crustose lichen communities on aspen (*Populus tremula*) in Scotland. *Lichenologist* **39**: 377-391.

David Hill; email d.j.hill@bris.ac.uk

Society of Biology: A unified voice for biology

On 25 March 2010 the Society of Biology was launched at the Fishmongers' Hall. The 300 people in this historic and glittering venue represented 58 societies with biological and medical interests plus 10 supporting members, including the Wellcome Trust, Medical Research Council and large pharmaceutical interests. The BLS was represented by Stephen Ward and Barbara Hilton.

The value and need of a unified voice for biology was conveyed throughout the event. The host, Professor Nancy Rothwell, introduced outstanding speakers. Sir Paul Nurse stressed the importance, on the one hand, of helping Government to understand science and, on the other, of public engagement. He gave a captivating overview which was lucidly expressed, with touches of humour. He urged cooperation between main political parties in supporting science as the seedcore of prosperity, especially in these times of shrinking finance; a joint stance has already been demonstrated by collaboration between Lords Sainsbury (Labour) and Waldegrave (Tory). Good news had been announced on the day of this Launch of £250 million pounds investment in a new world-class medical research centre in St Pancras, London, to work to deliver life-saving treatments and to translate research discoveries into competitive advantages for the UK economy.

Sir Paul described the highly valuable contribution by each stakeholder in the Society of Biology and he described some key challenges biology faces in the years (decades or century) ahead. Identifying the main messages underlying the mountain of information we are generating is paramount. He illustrated this by explaining that DNA is 'beautiful' not because of the structure of the double helix (although this is beautiful) but because of what the double helix can do as a digital storage device of genetic information. And while he was too modest to explain his own achievements, he might have described how his analysis of molecular structures led to understanding of the molecular machinery that drives cell division and controls cell shape, for which he was awarded the Nobel prize in 2001. Sir Paul reminded us that key messages in biology remain of the order of, for example, the *cell* as the unit of life, the *gene* as the unit of heredity, and *evolution*. It is important that such concepts are stressed so that we engage, rather than overwhelm, young students in biological sciences. The scope that natural history projects provide as a portal for capturing interest in science was illustrated by his own schoolboy survey of spiders' webs in his garden.

The second speaker, Sir David Attenborough, reinforced Sir Paul's speech by saying that biologists are well placed to present a unified voice for biology - they cooperate. Being interested in the natural world is important for us as human beings and this interest tells us something about the human condition. In response to a question he affirmed that taxonomy is the foundation stone of biological science and without it we are floundering. His own knowledge grew from a childhood passion for collecting and learning about relationships, which he looked back on appreciatively.

The last speaker was Dr Ceri Harrop of Manchester University. A young post-doctoral research worker, in a hall full of soberly suited middle-aged, she was a refreshingly youthful figure in a colourful dress. With lively vigour she illustrated the

importance of public engagement in science. She has been working with school students in the north-west, using models and explanations to convey her own research in respiratory diseases. Motivated because she wanted to pay back society for the funding channelled to her work by Government, she found that by working with young people she grew to greater understanding of the importance of her own work and its applications. She left us in no doubt that she enjoys contributing in this way, and finds time for it, alongside full-time commitment to research.

Three eloquent and captivating speakers affirmed that this new Society would be an enormous asset and strength in promoting biological sciences. Their clarity and ability to explain complex ideas in simple terms conveyed eloquently the richness and variety of biological disciplines and the enormous benefit to society and Government by investing in it. The SOB, led by Chief Executive Dr Mark Downs, is already known to many BLS members who have followed the formation of the new Society through the amalgamation of the Biosciences Federation and the Institute of Biology. A wide range of information, including its aims and objectives, and much related news and events, are available on its excellent website, www.societyofbiology.org including, topically, announcement of a Photographic Competition: Ready, aim inspire! to celebrate the International Year of Biodiversity.

Barbara Hilton
maallen@eclipse.co.uk

We're not the only ones looking at lichens

Awareness of lichens has been boosted hugely through the OPAL air survey project. From September 2009 until the end of January 2010, across the regions of England there were (numbers have been rounded):

- 46 big events such as exhibitions and open days featuring lichens (reaching 11,800 people)
- 94 training events about lichens as indicators of air quality (reaching 900 group leaders)
- 155 organised field walks or air quality surveys using lichens as bio-indicators (involving 2300 people).

This outreach involved about 15,000 individual people, some of whom would go on to assist others in surveying lichens, through their work with local groups.

Press coverage has been very extensive. On average, there have been 50 news items featuring lichens each week in local papers, following a burst of radio broadcasts – about 27 at the start of the 'live' phase of the air survey in September – supplemented by others more recently, as well as coverage on local TV channels. By the end of January 2010, audience numbers for newspaper and radio coverage nationally reached 8,220,000; regional papers and channels reached 1,913,649; and, together with items in specialist journals, the audience overall totalled 10,135,356!

Additionally, many people pursued their curiosity about lichens and air quality on-line. The millions of audience cited above exclude on-line newspapers and sites, 23 in all including, for example, www.thetimes.co.uk, www.theasiannews.co.uk , and www.nhm.ac.uk. The OPAL website, by the end of January, had registered over 11,000 clicks on the air survey main-page and 4,222 clicks on the lichen guide. On the results-so-far page there had been 3,700 clicks and on the enter-your-results page 3,500 clicks (enabling people to see how to upload results or actually enter them). However, the main method of putting information into the hands of the public has been the printed air survey pack: about 40,000 packs have been distributed and were very well received, as reflected in this small sample of comments from schools:

- 'I am dead amazed! I didn't know what they were before and now I know all about them!' (Pupil, Manchester primary school)
- 'I enjoyed it because we did some fieldwork rather than just copying from a textbook.' (Pupil, Leicester primary school)
- 'I enjoyed looking at all the trees and examining everything. I didn't know a lot of things that I know now.' (Pupil, Bradford secondary school)
- 'The outreach session covered many relevant branches of science to show the varied role of an ecologist.' (Teacher, Devon secondary school)
- 'My class did the survey in late September and it went down very well. It was very useful to what we were studying and it is a suggested activity for KS4 (GCSE years) – I will be using it again!' (Teacher, Hull secondary school)

Lichens have been associated with air quality for at least 200 years and in the second half of the 20th century the public became more aware of this link. In the last 40 years two lichenologists made very significant strides in involving the public (school-children, mostly) in surveying lichens as indicators of air quality in Britain and Ireland. Both used simplified scales based on the well-known Hawksworth and Rose scale (1970) of lichen species as indicators of the impact of sulphur dioxide on air quality and both benefited through collaboration with several organisations.

Oliver Gilbert (1974) devised a scale based on several types of lichens: *Lecanora conizaeoides* (with the alga *Desmococcus*), *Xanthoria parietina*, *Parmelia saxatilis* (with the moss *Grimmia pulvinata*), 'grey leafy lichens' and 'shrubby lichens' (*Usnea*, *Evernia*, *Ramalina*). Observations of these indicators on trees and stone surfaces defined up to six zones of air quality. In 1972 his survey was launched by the Sunday Times newspaper, with wide publicity. Survey packs were available from the Advisory Centre for Education in Cambridge and cost about £1 each. These materials, as in the OPAL air survey, gave quite full background information on air quality, explained the methods to be used with illustrations of the species sought, included response sheets and also strips of pH paper. By the end of that summer 15,000 packs had been distributed and 1,000 were returned with information from 2,000 different areas. While the final response-rate (under 10%) was much lower than for the survey of water quality which had preceded this (80%), O. Gilbert was pleased with the quality of the returns. The peak ages of participants were in the range 12–14 years and responses from boys slightly out-numbered those of girls (55:45 per cent).

In the 1980's David Richardson similarly investigated the impact of sulphur dioxide pollution on air quality in several separate areas in Ireland including Dublin, Cork city, the Shannon estuary, the south coast east of Cork city and the east coast of Ireland. In 1987 in Dublin City two methods were used: (a) observations of lichens on trees and also (b) enumeration of leaf yeasts. Seminars for teachers explained the scientific background and use of materials, and teachers received an air quality pack. Specimen kits of the 20 lichens that students were asked to map were given to each school (and also petri dishes containing agar jelly, for the cultivation of yeasts). The study was supported by the local school board, the government environmental protection agency (An Foras Forbartha) and Trinity College, Dublin. Responses were obtained from 104 middle schools, selected to provide coverage across the survey area; the students looked at a total of 2,215 trees and recorded over 5,000 separate lichens. Close working partnerships provided good support for teachers and also enabled correlation of results with local incidents which could impact on air quality.

Results of both were impressive. O. Gilbert's study produced the first lichen-zone map of Scotland and confirmed much of Hawksworth and Rose's map of England and Wales. D. Richardson's study concluded that lichen results reflected the condition of Dublin's air resulting from the previous few years' pollution but leaf yeasts indicated the condition of the air in the week preceding the survey. The distribution maps of lichens and of leaf yeasts could be correlated with air quality findings and augmented information from the network of mechanical monitoring. This chimes with O. Gilbert's finding that, at sites remote from towns, the maps produced were considerably more sophisticated than those constructed from instrument data, which was limited.

How is the OPAL air survey measuring up to these earlier surveys? Results will be uploaded onto the air survey website, which provides survey materials on-line as well as displaying findings, until the end of 2012. At the time of writing, about 2,000 sets of results have been entered, many from urban sites. It is far too soon to know the full picture and for evaluation, that will include sociological data collected by the University of Central Lancashire. Overall, survey results are consistent with research studies (Wolseley and James, 2004) on which the national project is based. Nitrogen-loving lichens are well represented around urban centres and major roads. Nitrogen-sensitive lichens are mostly being found where the air is recognised as 'clean'. Results on twigs are telling a different story from those on trunks, because their bark is newer and the lichens reflect current air quality while the lichens on trunks coped with circumstances in the past. It is widely acknowledged that the impact of nitrogen-pollutants is more complex than that of sulphur dioxide and yet, like those studies, the local information from the OPAL air survey is more detailed than that from monitoring sites. Interesting possibilities are emerging. Do we have clues about monitoring the impact of individual nitrogen compounds (rather than collective nitrogen pollutants) on air quality?

BLS members can help us to improve the outcome of the survey in two ways, by:
(a) submitting more results, which are reliable, from rural areas, especially from moors and woodland edges away from farmland. At present, geographic coverage of

results is patchy and urban areas are over-represented. Look at the OPAL website or *www.airsurvey.org* to download extra results pages and to check regions close to you, where results are thin; and
(b) enabling others to identify more accurately the lichens they find by helping with observations on iSpot, the website developed by the Open University as part of OPAL. More information is given in the short item that follows on Other OPAL Links.

The air survey is contributing well to OPAL's central objectives, to: involve people of all ages in observing and recording the world around them; provide an exciting and innovative programme; build a new generation of environmentalists; raise understanding of the state of the natural environment; and build a stronger relationship between the community, voluntary and statutory sectors. BLS benefits include a range of new resources (for beginner lichenologists, teachers and group leaders) such as 'lichen boxes' with specimens of 12 lichens including bio-indicators, now available in each of the English regions. Many resources are available on-line, including: the work pack, lichen-keys, iSpot, power-point slide displays, videos and films. Collaboration with others is proving very fruitful, as with the Open University and the British Science Association, and especially with the Field Studies Council. With their support we are planning a programme of low-cost one-day lichen courses at nine FCS field centres in 2011, to nurture interest that has been sparked by OPAL.

The BLS' benefits reach far beyond 'citizen lichenology'. By our participation in the public-engagement project using lichens as bio-indicators of air quality, we are working alongside nine universities: the Universities of Birmingham, Central Lancashire, Hertfordshire, Nottingham, Plymouth and York, also Kings College London, University College London and Imperial College London, which is home to the OPAL Air Centre. These universities, through their OPAL involvement, as well as providing community scientists also have related academic research and many of their projects include lichens and air quality. This is a very exciting dimension of OPAL and we look forward to hearing about their findings.

Other OPAL links

The BLS has also been involved with another OPAL project, the iSpot website based at the Open University (www.ispot.org.uk). This site allows people to post details of the wildlife they have observed, with a photo if possible, and seek help with its identification. BLS is one of a number of expert organisations that are participating in this project, and if you are can spare some time to help others on iSpot that would be greatly appreciated. iSpot is looking for people to help answer the lichen identification queries that come up on the site. Lichens have been a popular subject so far, but there is no expectation that any one person should have to answer lots of queries – any time you can spare will be welcome. And iSpot can help publicise BLS by setting you up as a BLS 'representative', so that any time you do participate on the site a BLS logo will appear next to your name, with a link back to the BLS website. If you're interested please contact Martin Harvey at the OU for further details: *m.c.harvey@open.ac.uk*.

The iSpot website also has some draft keys to common lichens, prepared with the help of BLS for use alongside the OPAL air quality survey. These keys can be accessed from: *www.ispot.org.uk:8080/webkeys/*.

Associated with iSpot is a new Open University course, called Neighbourhood Nature, that introduces people to learning about wildlife in the local area. The first activity that students undertake on the course is to search for a range of lichens near their home, and this has introduced the subject to almost 300 people so far, many of whom had not taken much notice of lichens before. Lichens have been working their magic, however, and feedback has included "I am now officially a lichen fan!" and "I am amazed at how looking for lichens has started to open my eyes to what is going on around me". For information see: *www.ispot.org.uk/s159_info*.

Grateful thanks to all who contributed information, particularly David Richardson (University of New Brunswick); Martin Harvey (Open University); Erika Hogan (BLS); OPAL Community Scientists for providing data and to Emma Green (OPAL Air Centre, Imperial College London) for its collation; Laura Stowe (NHM/OPAL communications officer); and Louise Parker (FSC).

References

Gilbert, O.L. (1974). An air pollution survey by school children. *Environmental Pollution* **6:** 175–180

Hawksworth, D.L. & Rose, F. (1970). Qualitative scale for estimating sulphur dioxide air pollution in England and Wales using epiphytic lichens. *Nature* **227:** 145–148.

Richardson, D.H.S. (1988). An air quality survey of the Greater Dublin area carried out by second level students. Report to An Foras Forbartha.

Wolseley, P.A., Leith, I.D., Van Dijk, N. & Sutton, M.A. (2009). Macrolichens on twigs and trunks as indicators of anmmonia concentrations across the UK. In Sutton, M.A., Reis, S. & Baker, S.M.H. (eds.) *Atmospheric Ammonia* pp. 101-108. Springer, Dordrecht.

Barbara Hilton and Pat Wolseley
maallen@eclipse.co.uk

Literature Pertaining To British Lichens - 46

Lichenologist **41**(6) was published on 9 October 2009, **42**(1) on 14 December 2009 ["2010"], and **42**(2) on 18 February 2010.

Taxa prefixed by * are additions to the checklists of lichens and lichenicolous fungi for Britain and Ireland. Aside comments in square brackets are ours.

NB. Authors of articles on British and Irish lichens, especially those including records and ecological observations, are requested to send or lend us a copy so that it can be listed here. This is particularly important for articles in local journals and newsletters, and magazines.

ACTON, A. 2010. Lichens, bryophytes and developments – some guidelines for ecological assessments. *In Practice* [*Bulletin of the Institute of Ecology and Environmental Management*] **67:** 20–23. An article providing awareness and guidelines for good practice for persons involved in environmental impact surveys.

APTROOT, A., SEAWARD, M.R.D. & SPARRIUS, L. (eds) 2009. Biodiversity and ecology of lichens. Liber Amicorum Harrie Sipman. *Bibliotheca Lichenologica* **99**. Berlin: Gerbrüder Borntrager. Pp. 439. ISBN 978-3-443-58078-0, ISSN 1436-1698. A festschrift in honour of Harrie Sipman, with papers from many of his friends and colleagues. Those papers of direct relevance to British lichens are cited separately.

BALOCH, E., DÖRING, H. & SPOONER, B.M. 2010. The genus *Cryptodiscus* in Great Britain. *Field Mycology* **11:** 26–32. An illustrated treatment of the five species found in Great Britain, including the one lichenized species, *C. gloeocapsa* (syn. *Bryophagus gloeocapsa*) [see below].

BALOCH, E., GILENSTAM, G. & WEDIN, M. 2009. Phylogeny and classification of *Cryptodiscus*, with a taxonomic synopsis of Swedish species. *Fungal Diversity* **38:** 51–68. The genus *Bryophagus* is shown to be a synonym of *Cryptodiscus* Corda (1838), which comprises mainly non-lichenized, wood-inhabiting species, and the new combination *C. gloeocapsa* (Arnold) Baloch, Gilenstam & Wedin (syn. *Bryophagus gloeocapsa*) is made.

BRAND, M., COPPINS, B.J., VAN DEN BOOM, P.P.G. & SÉRUSIAUX, E. 2009. Further data on the lichen genus *Bacidia* s. l. in the Canary Islands and Western Europe, with description of two new species. *Bibliotheca Lichenologica* **99:** 81–92. Corticolous material previously named Bacidia arnoldiana is treated as **B. sulphurella* Samp. and the new species, **B. sipmanii* M. Brand, Coppins, van den Boom & Sérus., is described to accommodate the non-isidiate, non-sorediate counterpart of *B. scopulicola*.

BREUSS, O. 2009. A synopsis of the lichen genus *Placopyrenium* (Verrucariaceae), with descriptions of new taxa and a key to all species. *Bibliotheca Lichenologica* **99:** 93–112.

BRITTON, A.J., BEALE, C.M, TOWERS, W. & HEWISON, R.L. (2009) Biodiversity gains and losses: evidence for homogenisation of the Scottish vegetation. *Biological Conservation* **142:** 1728–1739. Re-sampling and time-series comparison of the 'Birse plots' (early 1970s). Evidence for homogenisation of Scotland's upland vegetation, including a decline in lichen richness in areas of high N-deposition.

CZYZEWSKA, & K. & KUKWA, M. 2009. *Lichenicolous Fungi of Poland. A Catalogue and Key to Species.* [Biodiversity of Poland vol. 11]. Kraków: W. Szafer Institute of Botany, Polish Academy of Sciences. ISBN 978-83-89648-76-1. Pp 133. Price € 30. This book, with its key, host-index and bibliography is a valuable addition to the literature on lichenicolous fungi.

DAVIES, C. 2009. Factors affecting lichen community structure on aspen. In PARROT, J. & MACKENZIE, N. (eds) *Aspen in Scotland: biodiversity and management*. [Proceedings of a Conference held in Boat of Garten, Scotland 3–4 October 2008.] Highland Aspen Group, pp. 18–22 [downloadable as a pdf from *www.scottishaspen.org.uk*]. Preliminary results of an investigation into the variation of lichen assemblages in relation to different clones of aspen at the same site.

DIEDERICH, P., VAN DEN BOOM, P. & APTROOT, A. 2001. *Cladoniicola staurospora* gen. et. sp. nov., a new lichenicolous coelomycete from western Europe. *Belgian Journal of Botany* **134:** 127–130. Original description and illustrations of a species recently found in England on the squamules of *Cladonia pocillum*. The conidia are branched with four arms.

DIEDERICH, P. & ZHURBENKO, M. 2009. *Sphaerellothecium phaeorrhizae* and *Zwackhiomyces sipmanii* spp. nov. on *Phaeorrhiza sareptana* from north-eastern Asia, with a key to the species of *Sphaerellothecium*. *Bibliotheca Lichenologica* **99:** 113–122. A key to the 18 known species of *Sphaerellothecium* is provided.

EARLAND-BENNETT, P.M., HITCH, C.J.B. & HAWKSWORTH, D.L. 2006. New records and new species of lichens and lichenicolous fungi from Mataelpino (Sierra de Guadarrama, Comunidad de Madrid). *Bol. Soc. Micol. Madrid* **30:** 243–248. Includes the original description of *Nectriopsis physciicola* D. Hawksw. & Earl.-Benn. [which has recently been discovered in Ireland].

ELLIS, C.J. 2009. Composition and diversity of lichen epiphytes on aspen. In PARROT, J. & MACKENZIE, N. (eds) *Aspen in Scotland: biodiversity and management*. [Proceedings of a Conference held in Boat of Garten, Scotland 3–4 October 2008.] Highland Aspen Group, pp. 7–11 [downloadable as a pdf from *www.scottishaspen.org.uk*]. Includes an investigation of the three-way dynamic relationship between climatic setting, tree age and vertical height, and recommendations for conservation of lichen-rich communities on aspen.

ELLIS, C.J. & COPPINS, B.J. (2009) Quantifying the role of multiple landscape-scale drivers controlling epiphyte composition and richness in a conservation priority habitat (juniper scrub). *Biological Conservation* **142:** 1291–1301. Epiphytes were sampled from juniper scrub in the conservation network (SACs), and lichen species composition and richness were explained using contrasts between climate, pollution, and the extent of old-growth woodland.

ELLIS, C.J. & COPPINS, B.J. (2010) Integrating multiple landscape-scale drivers in the lichen epiphyte response: climatic setting, pollution regime and woodland spatial-temporal structure. *Diversity and Distributions* **16:** 43–52. Data selected from the Scottish site database was used to model the response of epiphyte composition and richness to climatic setting, pollution regime, and patterns of old-growth woodland extent.

FERRIS, R & HUMPHREY, J.W. (2009) A review of potential biodiversity indicators for application in British forests. *Forestry* **72:** 313–328. A review of biodiversity indicators, focussing on species indicators and indicators of 'habitat quality'. A section is devoted to fungi, including lichens.

FRYDAY, A.M. 2009. *Lecidea globulispora* is the correct name for *L. antiloga*. *Graphis scripta* **21:** 57–60. *Lecidea globulispora* Nyl. (1859), described from southern Chile, is considered to be an earlier name for *L. antiloga* Stirt. (1878). A full description and illustrations are provided.

GAYA, E. 2009. Taxonomical revision of the *Caloplaca saxicola* group (Teloschistaceae, lichen-forming Ascomycota). *Bibliotheca Lichenologica* **101:** 1–191. A morphological and anatomical revision of the *C. saxicola* group in the Northern Hemisphere. British material under the name *C. arnoldii* is here regarded as *C. arnoldii* subsp. *obliterata* (Pers.) Gaya, the basionym of which is neotypified on a specimen from Berwickshire, Scotland. *Caloplaca pusilla* (A. Massal.) Zahlbr., often considered a synonym of *C. saxicola*, is recognized as an independent species, differing in having more elongated lobes, more abundant pruina, and a salmon to yellowish-salmon coloration, rather than ochraceous yellow to orange. [Unfortunately, no British material of either *C. pusilla* or *C. saxicola* are cited, so an investigation is required to see if *C. pusilla* is present in the British isles.]

HAFELLNER, J. 2009. *Phacothecium* resurrected and the new genus *Phacographa* (Arthoniales) proposed. *Bibliotheca Lichenologica* **100:** 85–121. The genus *Phacothecium* Trevis. (1856) is resurrected to accommodate *P. varium* (Tul.) Trevis. (1856) (syn. *Opegrapha physciaria* (Nyl.) D. Hawksw. & Coppins), which lacks a K/I+ blue ring in its ascus apex. The new genus *Phacographa* Hafellner in proposed for *P. glaucomaria* (Nyl.) Hafellner (syn. *Opegrapha glaucomaria*) and *P. zwackhii* (syn. *Opegrapha zwackhii*). A key is provided to opegraphoid lichenicolous fungi with widely exposed discs.

HALICI, M.G. & HAWKSWORTH, D.L. 2008. Two new species of *Dacampia* (Ascomycota, Dacampiaceae), with a key to and synopsis of the known species of the genus. *Fungal Diversity* **28:** 49–54. **Dacampia rhizocarpicola* D. Hawksw. is newly described from Scotland (Angus), the new combination *Dacampia leptogiicola* (D. Hawksw.) D. Hawksw. (syn. *Pleospora leptogiicola*) is made, and a key to the seven known species is provided.

HERTEL, H. 2009. A new key to cryptothalline species of the genus *Lecidea* (Lecanorales). *Bibliotheca Lichenologica* **99:** 185–204. A revised key to species of *Lecidea* s. str. that usually or sporadically form endolithic thalli. It also includes some species from other lecidioid genera, such as *Adelolecia* and *Farnoldia*.

KNUDSEN, K. & KOCOURKOVA, J. 2009. A taxonomic study of *Polysporina gyrocarpa* and *P. cyclocarpa* (Acarosporaceae) and a new record from Asia of *P. arenacea*. *Bibliotheca Lichenologica* **100:** 199–206. Includes a full description and additional notes on *Polysporina cyclocarpa*.

LENDEMER, J. 2008. Studies in lichens and lichenicolous fungi: notes on some taxa from eastern North America. *Mycotaxon* **104:** 325–329. The lichen resembling *Cladonia humilis*, but differing in containing fumarprotocetraric acid and bourgeanic acid (rather than atranorin and fumarprotocetraric acid) has often been called *Cladonia conista*. However, it has been shown that the uses of that specific epithet are invalid. Accordingly, it is newly described as *Cladonia innominata* Lendemer.

RANDLANE, T., TÕRRA, T., SAAG, A. & SAAG, L. 2009. Key to European *Usnea* species. *Bibliotheca Lichenologica* **100:** 419–462. A dichotomous and a synoptic key to 32 *Usnea* species reliably reported from Europe. Diagnostic features for each species are illustrated with colour photos, and maps are also provided. These are followed by notes on morphology. chemistry and ecology and distribution. [More than just a key!].

SAVIĆ, S., TIBELL, L., GUEIDAN, C., & LUTZONI, F. 2008. Molecular phylogeny and systematics of *Polyblastia* (Verrucariaceae, Eurotiomycetes) and allied genera. *Mycological Research* **112:** 1307–1318. Includes the adoption of *Sporodictyon* A. Massal. (1852), with *S. cruentum* (Körb.) Körb. (1863) (syn. *Polyblastia cruenta*), *S. schaererianum* A. Massal. (1852) (*Polyblastia schaereriana*, *P. theleodes* auct. brit. p.p.) and the new combination *S. terrestre* (Th. Fr.) S. Savić & Tibell (syn. *Polyblastia terrestris*).

SAVILLE, R.E. 2009. An initial study of the feeding and egg-laying preferences of bark dwelling psocids (Psocoptera) using composite bark blocks. *Entomologist's Rec. J. Var.* **122:** 35–42. [Something of a pioneering study with regard to barkflies and lichens, using confidently identified lichen samples!] The Abstract is copied here: "*In vitro* studies on the feeding and egg-laying preferences of a selection of species of Psocoptera were undertaken. It was discovered that *Loensia variegata* (Latreille), Psocidae, is capable of eating alga (probably mainly *Apatococcus lobatus*) and the lichen *Xanthoria parietina.* It did not feed on any of the crustose lichens offered to it or two other foliose lichens. A sample of bare bark showed signs of having been eaten. Eggs were laid primarily on foliose lichens (*Parmelia sulcata* and *Melanelia subaurifera*) but also on one of the crustose lichens (*Cliostomum griffithii*). *Trichadenotecnum sexpunctatum* (L.), Psocidae, fed upon alga (probably mainly *Apatococcus lobatus*), the crustose lichen *Cliostomum griffithii* and the foliose lichens *Parmelia sulcata* and *Xanthoria parietina*. No eggs were laid. *Pteroxanium kelloggi* (Ribaga), Lepisopscocidae, was only found to eat alga (probably mainly *Apatococcus lobatus*). No eggs were laid. Result of the study using *Reuterella helvimacula* (Enderlein), Elipsocidae, was inconclusive."

SMITH, D. 2009. Doncaster's living churchyards - supplementary study – Lichens., *Doncaster Naturalists' Publications Series* - No 2. ISSN 1754-2359 (print), ISSN 2042-8170 (Online). A lichen survey of 37 churchyards.

THELL, A., SEAWARD, M.R.D. & FEUERER, T. (eds) 2009. Diversity of lichenology – Anniversary volume. *Bibliotheca Lichenologica* **100**. Berlin: Gerbrüder Borntrager. Pp. 512. ISBN 978-3-443-58079-7, ISSN 1436-1698. A 100th anniversary volume of *Bibliotheca Lichenologica*, with 18 papers. Those papers of direct relevance to British lichens are cited separately.

VAN DEN BOOM, P.P.G. 2009. New *Halecania* species (Catillariaceae) from Europe and South America. *Bryologist* **112:** 827–832. Includes the new species *Halecania laevis* M. Brand & van den Boom, described from France and Ireland (Connemara and Dingle Peninsula). It differs from *H. ralfsii* in having a P– thallus, which lacks any greenish (N+ red) pigment in the cortex, and smaller ascospores (8.6–10.7 × 3.1–3.4 vs. (13–)15–17(–20) × 6–9 µm). It grows on siliceous rocks in the supralittoral zone, and can also be mistaken for *Catillaria chalybeia*.

Brian Coppins & Chris Ellis
Royal Botanic Garden Edinburgh

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 users), altitude (alt), where applicable in metres (m), date (month and year). NRI records should now include details of what the entry represents, eg 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

Cladoniicola staurospora Diederich, van den Boom & Aptroot (2001): on squamules of *Cladonia pocillum*, Gang Mine, VC 57, Derbyshire, 43(SK)/288.554, alt 230 m, October 2009. Herb. B.J. Coppins 23037 (**E**). Recognized by its branched conidia

with four radiating arms *c.* 14–27 um long. For a full description and illustrations see Diederich *et al.* in *Belgian Journal of Botany* **134:** 127–130 (2001). **BLS no**. **2553**.

B.J. Coppins

Dacampia rhizocarpicola D. Hawksw. (2008): on "*Rhizocarpon obscuratum*" [*R. lavatum* or *R. reductum*], Glen Esk, VC 90, Angus, [no grid reference cited], 1989, R. Munro (IMI 332935 - holotype). This species has 2- to 4-spored asci, with golden brown, muriform ascospores (30–)34–39 × (10–)14.5–16 µm in size. Reported by Halici & Hawksworth in *Fungal Diversity* **28:** 49–54 (2008). **BLS no**. **2554**. *B.J. Coppins*

Halecania laevis M. Brand & van den Boom (2009): on coastal rocks in western Ireland [see 'Literature Pertaining' in this issue]. **BLS no**. **2552**.

Lecanora sinuosa Van Herk & Aptroot (1999): on west-facing side of roadside Fraxinus, through arable land, Tannington, VC 25, East Suffolk, GR 62(TM)/ 250.684, October 2000. Herb. C.J.B. Hitch (W4(2)). Determined by L. Spier. Not that dissimilar to *Lecanora chlarotera*, except for its very tumid, crenulate, thalline exciple, internal chemistry and presence of fine crystals. For a full description see van Herk, C. M. & Aptroot, A. (1999) in *Lichenologist* **31(6)**: 543-553, and illustration in van Herk, K. & Aptroot, A. (2004). *Veldgids korstmossen*. Utrecht: KNNV Uitgeverij. See also **Other Records**. **BLS no**. **2561**

P.M. Earland-Bennett & C.J.B. Hitch

Lichenochora epifulgens Nav.-Ros. & Cl. Roux (1998): on thallus of *Fulgensia fulgens*, Stackpole Warren, VC 45, Pembrokeshire, GR 11(SR)/9806.9422, November 2009. Herb. S. Price in **E**. Determined by B.J. Coppins. Seen as immersed black perithecia, but with no obvious discoloration of the host thallus. It has 8-spored, cylindrical-clavate asci, with uniseriately arranged, 1-septate, colourless ascospores, 14–19 × 9–10 µm in the Welsh specimen. Originally described from Spain by Navarro-Rosinés *et al.* in *Bull. Soc. Linn. Provence* **49:** 107–124 (1998). **BLS no**. **2557**. *S.G. Price*

Nectriopsis physciicola D. Hawksw. & Earl.-Benn. (2006): on thallus of *Physcia* cf. *aipolia* on fallen *Fraxinus* twig, Rathgaskig, Ballingeary, VC H3, West Cork, 10(W)/17.69, October 2009. Herb. Jenny Seawright in **E**. Determined by B.J. Coppins. Easily recognized by its very hairy, red perithecia, which collapse when dry and resemble a discomycete of the genus *Lachneum*. The ascospores are colourless, smooth-walled, 1-septate, and *c.* 16–23 × 8–10 µm in the Irish collection. Previously known only from Spain. For full description and illustrations see Earland-Bennett *et al*. in *Bol. Soc. Micol. Madrid* **30:** 243–248 (2006). **BLS no**. **2555**. *B.J. Coppins*

Toninia verrucariae (Metzler ex Nyl.) Timdal (1992): on thallus of Verrucaria baldensis, Blackhead, The Burren, VC H9, Clare, ??(M)/146.106, April 2009. Herb. D.J. Hill. Determined by B.J. Coppins. Has black, thickly marginate apothecia, *c.* (02–)0.3–0.4 mm diameter and 1-septate ascospores, 12–16.5 × 4–5.3 µm. It much resembles *T. episema*, which grows on *Aspicilia calcarea*, but differs in having a red-brown (not greenish) epithecium. **BLS no**. **2550**. *D.J. Hill*

Other Records

Agonimia octospora: on base rich bark on veteran *Quercus*, in *Quercus – Corylus* pasture woodland, Out Wood, Langley Wood NNR, VC 8, South Wiltshire, GR 41(SU)/2248.2104, January 2010. Herb. Sanderson 1391. A new 10km grid square record for this Near Threatened RDB species. *N.A. Sanderson*

Arthonia graphidicola: parasitising *Graphis scripta* on *Corylus*, in undisturbed *Corylus* stand within parkland, Dunsland Park SSSI, Bradford, VC 4, North Devon, GR 21(SS/4100.0502, December 2009. Field record. First record for Devon.
N.A. Sanderson

Arthonia invadens: parasitising *Schismatomma quercicola* on three trees, one *Alnus* and two *Fagus*, in humid woodland areas within parkland, Dunsland Park SSSI, Bradford, VC 4, North Devon, GR 21(SS)/4102.0541 & 21(SS)/4193.0404, December 2009. Field record. An extension of the known range for this Near Threatened and BAP species. *N.A. Sanderson*

Arthopyrenia salicis: on smooth bark of mature Ilex, in *Quercus – Fraxinus – Corylus* pasture woodland, Out Wood, Langley Wood NNR, VC 8, South Wiltshire, GR 41(SU)/2248.2065, January 2010. Herb. Sanderson 1394. The most easterly record along the south coast for this western species. *N.A. Sanderson*

Bachmanniomyces uncialicola: for details, see under *Taeniolella beschiana*.

Bacidia circumspecta: in wound track of old *Fagus*, in *Quercus* dominated pasture woodland, Little Wood, New Forest, VC 11, South Hampshire, G R 41(SU)/3573.0239, November 2009. Herb. Sanderson 1358. Fourth modern record from the New Forest for this Vulnerable RDB and BAP species. As with several other wound track specialists, this species appears to be maintaining a post Dutch Elm Disease population in the extensive old growth Beech woods of the New Forest.
N.A. Sanderson

Bacidia fuscoviridis: frequent on northeast-facing, 'grubby' limestone block faces at base of old mortared wall, Stackpole Home Farm, VC 45, Pembrokeshire, GR 11(SR)/976.956, alt 10m, November 2009. Field record. Confirmation of the presence of this species at Stackpole NNR and for Pembrokeshire. *S.P. Chambers*

Bacidia incompta: in fluted rain track of mature *Acer pseudoplatanus* trunk, at campsite, Raasay Outdoor Centre, Clachan, Raasay, VC 104, North Ebudes, GR 18(NG)/546.366, July 2009. Herb. Powell 842. Confirmed by B.J. Coppins.
M. Powell

Bacidia incompta: scattered over 1.5m in a wound track on a veteran *Fraxinus*, in *Quercus – Corylus – Fraxinus* pasture woodland, Out Wood, Langley Wood NNR, VC 8, South Wiltshire, GR 41(SU)/2236.2077, January 2010. Field Record. A new site for this Vulnerable RDB And BAP species. *N.A. Sanderson*

Bacidia neosquamulosa: on *Fraxinus excelsior* beside derelict farm buildings, Strawberry Hill, Knotting, VC 30, Bedfordshire, GR 52(TL)/014.623, May 2009. Herb Powell 770. New to the county. *M. Powell*

Bacidia subturgidula: on lignum on standing dead *Quercus* pollard, in *Quercus* pasture woodland on coastal slope, Doctors Wood, Countisbury, Exmoor Coastal Heaths SSSI, VC4, N. Devon, GR21(SS)7675.5004, November 2009. Herb. Sanderson 1353. Fifth record ever and third modern record of this rarely recorded endemic species and the first outside the New Forest and on *Quercus* lignum. All previous records were on *Ilex* lignum within the New Forest. The blue grey apothecia have a strong resemblance to *Lecidea turgidula*, but the *Bacidia* has numerous smaller brown pycnidia (to 0.05mm diameter), while the *Lecidea* has larger black pycnidia (to 0.1mm diameter); internally they are very different. This appears to be a very rare species; *Lecidea turgidula* is also very rare in the south and west, so *Bacidia subturgidula* is unlikely to have been over looked for it. The *Bacidia*, however, should be looked for in other sites on acid lignum in the south west. *N.A. Sanderson*

Biatoridium delitescens: (i) on damp, north-facing, but well-lit, *Fraxinus excelsior* trunk near stream in old woodland, Coed Pen-y-bont, near Tynygraig, VC 46, Cardiganshire, GR 22(SN)/685.704, alt 110 m, February 2010; (ii) on west-side of *Fraxinus excelsior* trunk by stream in old woodland, Coed Neuadd-lwyd, south of Llanerchaeron, VC 46, Cardiganshire, GR 22(SN/)478.587, alt 80m, March 2010. Both Herb. SPC. New hectad records for this likely overlooked species.
S.P. Chambers

Blarneya hibernica: over growing *Lecanactis abietina* and *Schismatomma niveum* on dry bark of old moribund *Quercus* on a boundary bank, in parkland, Dunsland Park SSSI, Bradford, VC 4, North Devon, GR 21(SS)/4126.0519, December 2009. Field record. A new site for this Near Threatened and BAP species. *N.A. Sanderson*

Bunodophoron melanocarpon: on bark of two *Quercus* and fertile on lignum of a standing dead *Quercus* in nowthwest-facing *Quercus* dominated pasture woodland, Ashway Hat Wood, Barle Valley SSSI, VC 5, South Somerset, GR 21(SS)/8632.3178, 21(SS)/633.3179 & 21(SS)/8631.3180, October 2009. Herb. Sanderson 1359. New to Somerset. *N.A. Sanderson*

Cladonia sulphurina: on peaty debris around decaying *Picea sitchensis* stump in regenerating *Calluna* heath on former clear-fell conifer plantation on northeast-facing hillside, Hirgoed-ddu, near Eisteddfa Gurig, VC 46, Cardiganshire, GR 22(SN)/809.832, alt 385 m, October 2009. Herb SPC. New to the vice-county.
S.P. Chambers

Cladonia uncialis* subsp. *uncialis: for details, see under *Taeniolella beschiana*.

Cliostomum flavidulum: on acidic bark of riverside *Quercus*, in *Fraxinus – Corylus* pasture woodland, Park Wood, Barle Valley SSSI, VC5, South Somerset, GR 21(SS)/ 8577.3392, October 2009. Field Record. New to Somerset. *N.A. Sanderson*

Collema cristatum* var. *marginale: a colony of about 5 thalli on damp concrete path at northeast-corner of church, Eglwys Capel Dewi, VC 46, Cardiganshire, GR

22(SN)/452.425, alt 130m, March 2010. Herb. SPC. First record & unexpected as the VC lacks natural limestone geology. *S.P. Chambers*

Cyrtidula quercus: on *Quercus robur* twigs of naturally regenerated trees on permanent set-aside, Knotting, VC 30, Bedfordshire, GR 52(TL)/020.626, May 2009. Herb. Powell 764. New to the county. *M. Powell*

Enterographa pitardii: on acid rock over hanging dry rock on sea cliff in *Sclerophytetum circumscriptae* community, Castle Rock, The Valley of the Rocks, VC 4, North Devon, GR 21(SS)/7047.4977, November, 2009. Field Record. New to the north coast of Devon. *N.A. Sanderson*

Enterographa sorediata: on dry bark of an old maiden *Quercus* on valley side, Ten Acre Cleeve, Horner Combe, North Exmoor SSSI, VC 5, South Somerset, GR 21(SS)/8927.4357, October 2009. Field Record. A new site for this BAP species. *N.A. Sanderson*

Gyalecta flotowii: in rain track of *Fraxinus* pollard, as a boundary tree on edge of woodland, Bransclose Copse, Ruttersleigh SSSI, Black Down Hills, VC 5, South Somerset, GR 31(ST)/2611.1667, February 2010. Herb Sanderson 1385. A refind of a declining species inside the SSSI, last recorded in 1991 by A. M. O'Dare just outside the SSSI. Its only recorded site in Somerset. *N.A. Sanderson*

Heterodermia obscurata: (i) 12 thalli on horizontal branch of an old *Quercus* in *Pteridium* stand, near a mire, in rough grazing, south of Mount Fancy Farm, Ruttersleigh SSSI, Black Down Hills, VC 5, South Somerset, GR 31(ST)/2543.1606, February 2010. Field Record; (ii) on three *Quercus* and one *Fraxinus* pollards, as old boundary trees and pasture woodland trees in sheltered situations, Ruttersleigh Common and Bransclose Copse, Ruttersleigh SSSI, Black Down Hills, VC 5, South Somerset, GR 31(ST)/2642.1647, 31(ST)/2650.1639, 31(ST)/2644.1628 & 31(ST)2590.1653, February 2010. Herb Sanderson 1382, 1384 & 1387. New to the Black Down Hills and a new site for this Near Threatened and BAP lichen. *N.A. Sanderson*

Lecania chlorotiza: on two veteran *Quercus* trees in old growth woodland, Out Wood and Blackbush, Langley Wood NNR, VC 8, South Wiltshire, GR 41(SU)/2282.2117 & 41(SU)/2231.1989, January 2010. Herb. Sanderson 1393. Re-finds of a Near Threatened and BAP species. The first record is a new location within the NNR. The second record is a re-find of a tree recorded in 1983-4 and 1994. *N.A. Sanderson*

Lecanora semipallida: on crumbling concrete of quarry reservoir dam, Mynydd Llandegai, Bethesda, VC 49, Caernarfonshire, GR 23(SH)/610.646, alt 29 m, March 2010. Herb SPC. New to the vice-county. *R.G. Woods, S.P. Chambers & A.D. Hale*

Lecanora sinuosa: on fallen branch of *Fraxinus*, in arable land, The Chestnuts, Cretingham, VC 25, East Suffolk, GR 62(TM)/218.574, July 2009. Herb. C.J.B. Hitch (1.) and digital photograph. Confirmed by L. Spier. Second British record. See also **New to the British Isles** *J. Garrett*

Lecidea turgidula: all in pasture woodland, New Forest, VC 11, South Hampshire, (i) fertile with pycnidia on an abandoned *Quercus* strainer post erected in 1963, Eyeworth Wood, GR 41(SU)/2243.1490; (ii) with pycnidia only, on standing dead *Quercus*, Frame Wood, GR 41(SU)/3656.0309; (iii)with pycnidia and a few small apothecia, on dead branch of old *Quercus* GR 1(SU)/3086.1132, September & December 2009 & March 2010. Herb. Sanderson 1339 & 1375. A rarely recorded species in the south, which may be being over looked on standing dead wood, as it seems that this lichen can occur with pycnidia only, or with a few apothecia. The pycnidia are distinctive under the microscope but not easy to pick out in the field. The population on the dated strainer post was accompanied by *Chaenotheca brunneola* in a rich deadwood community, giving an indication of the time required for deadwood to stand as support for rich deadwood lichen floras. *N.A. Sanderson*

Leprocaulon microscopicum: on sandstone of a mortared retaining wall, west boundary of Warren Wood, Clophill, VC 30, Bedfordshire, GR 52(TL)/082.373, March 2009. Herb. Powell 550. This lichen was an unexpected find in Bedfordshire and unusual in occurring on a man-made structure. It is frequent along a 100 metre stretch of this shaded roadside wall. *M. Powell*

Lichenochora mediterraneae: terricolous on a moribund sterile crust (resembling *Vahliella atlantica*) on cryptogam-dominated, southwest-facing coastal slope, Constitution Hill, Aberystwyth, VC 46, Cardiganshire, GR 22(SN)/583827, alt 50 m, March 2010. Herb SPC. New to Wales. *S.P. Chambers*

Megalospora tuberculosa: a few small thalli on an old *Fraxinus* by glade, in valley bottom *Fraxinus – Corylus – Quercus* pasture woodland, Rowbarrow, Horner Combe, North Exmoor SSSI, VC 5, South Somerset, GR 21(SS)/8852.4410, October 2009. Field Record. First record of this BAP species from Horner Combe since 1988. The species is threatened by increased shading due to under grazing here.

N.A. Sanderson

Micarea leprosula: on old thatch, Pytchley, VC 32, Northamptonshire, GR 42(SP)/856.747, June 2009. Herb. Powell 937. Confirmed by B.J. Coppins. New to the county, and growing with *Trapeliopsis pseudogranulosa*. Records such as these, hint at the importance of thatch as a refuge for heathland lichens in an intensive arable landscape. *M. Powell*

Micarea parva: under trees, on damp, shaded, volcanic stones on the ground, of the fort, at Killerton Park, VC 3, South Devon, GR 21(SS)/974.005, February 2010. Herb. B. Benfield. Determined by B.J. Coppins. New to southern England

B. Benfield

Mycomicrothelia confusa: on *Alnus* twig in sheltered humid woodland within parkland, Dunsland Park SSSI, Bradford, VC, North Devon. GR 21(SS)/4101.0487, December 2009. Herb Sanderson 1368. New to North Devon. *N.A. Sanderson*

Opegrapha fumosa: on five *Quercus* in humid wooded locations with parkland, Dunsland Park SSSI, Bradford, VC 4, North Devon. GR 21(SS)/4077.0544,

21(SS)/4105.0510, 21(SS)/4095.0495 & 21(SS)/4103.0489. Field records. New to the park and a considerable extension of its known range. *N.A. Sanderson*

Pannaria rubiginosa: three young thalli on *Populus tremula* on edge of abandoned damp meadow in parkland, Dunsland Park SSSI, Bradford, VC 4, North Devon, GR 21(SS)/4102.0493. Field record. A new location for this now rare species in the southwest. This is also a record of active colonisation, presumably from an unrecorded tree within the park. The three thalli were small and young and the *Populus* stand had been surveyed in 2000 by B.J. Coppins and A.M. Coppins, when no *Pannaria rubiginosa* was found. *N.A. Sanderson*

Peltigera britannica: on exposed vertical and near-vertical east-facing crags attached to the non-calcicole moss *Thuidium tamariscinum*, with *P. leucophlebia* also present on more calcareous rock, Wolf Crags, Matterdale Common, near Keswick, VC 70, Cumberland, GR 35(NY)/ 35544.22222 & 35(NY)/35365.22176, alt 500 m, April 2009. Herb. D.J. Clarke and digital photographs. Confirmed by R.W.M. Corner. Apparently first confirmed record for VC 70, but see also record for Hind Crag (above), submitted at same time. *D.J. Clarke*

Peltigera britannica: on exposed southwest-facing vertical and near vertical crags in some quantity on apparently acidic outcrops of fault breccia. Hind Gill, Borrowdale VC 70, Cumberland, GR 35(NY)/ 241-2.112-3, alt 450-525 m, May 2009. Herb. D.J. Clarke and digital photographs. A specimen was collected by F.J. Roberts August 1981 and determined at the time by Ivan Day as *P. aphthosa*. Recent inspection of this material has led to the current visit to the site and confirmation that the species is *P. britannica*. *D.J. Clarke and F.J. Roberts*

Pertusaria amara forma ***pulvinata***: on base-rich bark of two ancient *Quercus*, in southwest-facing *Quercus* dominated pasture woodland, Nine Acre Copse, Barle Valley SSSI, VC 5, South Somerset, GR 21(SS)/8708.3073 & 21(SS)/8710.3067, October 2009. Field Records. This *Pertusaria* taxon appears strongly associated with lichen-rich old growth woodland and is probably much under recorded. It is likely to be usually overlooked as *Pertusaria multipuncta*. It has little field resemblance to *Pertusaria amara* forma *armara*. However, it can be distinguished by the lack of a K + chestnut reaction and the presence of the less easy to see KC + violet reaction. The distinctive ecology of this taxon, found on the trunks of veteran trees in lichen rich stands and on coastal rocks, suggests that a higher rank than forma might be appropriate, but this would require additional evidence. New to Somerset.
N.A. Sanderson

Pertusaria amara forma ***pulvinata***: on two veteran *Quercus* in and near *Quercus* – *Corylus* pasture woodland, Out Wood and Heather New Copse, Langley Wood NNR, VC 8, South Wiltshire, GR 41(SU)/2295.2085 & 41(SU)/2246.2034, January 2010. Field Records. New to Wiltshire. *N.A. Sanderson*

Pertusaria coronata: mixed in a mosaic with *Pertusaria flavida* on well-lit, south-facing trunk of old *Quercus* at edge of river marsh, west side of the Afon Conwy, southeast of Caerhun, VC 49, Caernarfonshire, GR 23(SH) 774.699, alt 5m, October 2009. Herb SPC. New to the vice-county. *S.P. Chambers*

Porina ahlesiana: on shaded boulder at edge of River Teign, Dunsford Wood, Dunsford, VC 3, South Devon, GR 20(SX)/78-88-, July 2009. Herb. B. Benfield. Third record for Devon. *B. Benfield & C.J.B. Hitch*

Psilolechia clavulifera: on soil on root plate of fallen *Fagus*, in *Fagus – Ilex –Quercus* pasture woodland, White Moor, New Forest SSSI, VC 11, South Hampshire, GR 41(SU)/276.050, November 2009. Herb. Sanderson 1362. New to Hampshire. *N.A. Sanderson*

Ramonia chrysophaea: on two *Quercus* with base-rich bark, in strips of pasture woodland in gullies, Ruttersleigh Common and south of Mount Fancy Farm, Ruttersleigh SSSI, VC 5, South Somerset, GR 31(ST)2642.1625 & 31(ST)/2557.1635, February 2010. Herb. Sanderson 1387. New to the Black Down Hills. *N.A. Sanderson*

Ramonia dictyospora: on base-rich bark of large old *Quercus* in sheltered streamside woodland, Rhyd-Rosser, southeast of Cwm Mabws, VC 46, Cardiganshire, GR 22(SN)/563.677, alt 110m, December 2009. Herb. SPC. New to the vice-county. *S.P. Chambers*

Ramonia nigra: seven apothecia in a wound track on base-rich bark of veteran *Quercus*, on boundary bank in *Quercus – Corylus* woodland, Appsy Copse, Langley Wood NNR, VC 8, South Wiltshire, GR 41(SU)/2281.2060, January 2010. Field Record. In the past, only recorded on lignum inside hollow trees and only visible on *Quercus* bark when wet, so this may be an important habitat. First record for South Wiltshire for this rarely recorded endemic species, which has its headquarters in the nearby New Forest. *N.A. Sanderson*

Rhizocarpon subgeminatum: locally frequent on nutrient-enriched caps of large round-topped, gritstone erratic boulders, (present on at least 8 boulders and abundant on 2), Mynydd Llandegai, Bethesda, VC 49, Caernarfonshire, GR 23(SH)/609.639, alt 375 m, March 2010. Herb SPC. New to the vice county. *S.P. Chambers*

Sphinctrina tubiformis: parasitic on *Pertusaria leioplaca*, on trunk of fallen ancient *Fagus* at what was about 7 m up from the ground, in *Fagus – Ilex – Quercus* pasture woodland, The Ridge, Busketts Wood, New Forest, VC 11, South Hampshire, GR 41(SU)/3099.1100, March 2010. Herb. Sanderson 1402. First record from southern England since 1869, when the species was recorded by the Rev Crombie from Brockenhust. *N.A. Sanderson & A.M. Cross*

Taeniolella beschiana: locally frequent on galls formed by *Bachmanniomyces uncialicola* parasitizing *Cladonia uncialis* subsp. *uncialis.* Culbin Sands, Culbin Forest and Findhorn Bay SSSI, VC 95, Morayshire, GR 38(NJ)/025.641, Sept. 2009. *B.J. & A.M. Coppins*

Taeniolella beschiana: at base of podetia of *Cladonia floerkeana*, on trackside in lowland heath, Ambersham Common, near Midhurst, VC 13, West Sussex, GR 41(SU)/916.194, February 2010. Herb. Cannon P302 (**K(M)**). New to the vice-county and England. *P.F. Cannon*

Usnea esperantiana: single thallus on low sweeping branch of veteran *Quercus* in parkland, Dunsland Park SSSI, Bradford, VC 4, North Devon. GR 21(SS)/4116.0531, December 2009. Field record. A distinctive and possibly overlooked *Usnea*, to be looked out for further east and further inland than existing records suggest. New to North Devon. *N.A. Sanderson*

Usnea esperantiana: on thorn scrub in green lane, south end of Iley Lane, Keyhaven, VC 11, South Hampshire, GR 40(SU)/309.909, February 2010. Herb. J.A. Norton, specimen now in **E**. Confirmed by N.A. Sanderson. Second record for Hampshire. *N.A. Sanderson*

Usnea esperantiana: a single thallus on *Salix cinerea* twig, in recent scrub on mire, in rough grazing, south west of Mount Fancy Farm, Ruttersleigh SSSI, Black Down Hills, VC 5, South Somerset, GR 31(ST)/2502.1645, February 2010. Field Record. New to Somerset. *N.A. Sanderson*

Vahliella atlantica: on soil between shale on steep cliffs, Peppercombe, VC 4, North Devon, GR 21(SS)/378.242. May 2008. Herb. B. Benfield. Confirmed by P.W. James. New to Devon *B. Benfield*

Vezdaea rheocarpa: (i) on *Peltigera praetextata* on an inclined mossy *Fraxinus excelsior* trunk; (ii) on soft rotted lignum and *Nowellia curvifolia* on an adjacent collapsed horizontal *Quercus* trunk in old woodland, Coed Pen-y-bont, north of Tynygraig, VC 46, Cardiganshire, GR 22(SN/685.704, alt 110 m, February 2010. Herb SPC. First epiphytic, lignicolous and metal mine-unrelated occurrence for the vice county, though interestingly the wood has a small trial adit & spoil tip ca. 300 m to the south, but with no *Vezdaea* spp. recorded. *S.P. Chambers*

Wadeana dendrographa: on base-rich bark of ancient *Quercus*, on bank, in south-facing *Quercus – Fraxinus* pasture woodland, southeast of Nine Acre Copse, Barle Valley SSSI, VC5, South Somerset, GR 21(SS)/ 8728.3047, October 2009. Field Record. First record from the Barle Valley for this BAP species. *N.A. Sanderson*

Wadeana dendrographa: on two old *Fraxinus* on wood edge in valley bottom, Heddon's Mouth Wood, West Exmoor Coast & Woods SSSI, Trentishoe, VC4, North Devon, GR 21(SS)/6544.4855 & 21(SS)/6543.4873, December 2009. Field Records. A considerable extension in range for this BAP species. *N.A. Sanderson*

Wadeana dendrographa: on ancient *Fraxinus* pollard on old hedge bank in sheltered location, Ruttersleigh Common and Bransclose Copse, Ruttersleigh SSSI, Black Down Hills, VC 5, South Somerset, GR 31(ST)/2641.1630, February 2010. Field Record. This Near Threatened and BAP species was first found in this SSSI in 1990 by Francis Rose, but was unreported at the time. Otherwise unknown in southeast Somerset. *N.A. Sanderson*

Wadeana minuta: with *Pachyphiale carneola* on trunk of mature *Quercus* in wood pasture, Dol-y-cae, Cadair Idris, VC 48, Merionethshire, GR 23(SH)/730 116, alt 95 m, October 2009. Herb. SPC. New to Wales. *S.P. Chambers*

Xerotrema quercicola: on lignum of standing dead *Quercus* in glade in northwest-facing *Quercus* dominated pasture woodland, Ashway Hat Wood, Barle Valley SSSI, VC 5, South Somerset, GR 21(SS)/631.3180, October 2009. Herb. Sanderson 1359. First record from southwest England. *N.A. Sanderson*

Xerotrema quercicola: both records in New Forest SSSI, VC 11, South Hampshire, (i) on lignum of standing dead *Quercus* in moist glade, in *Fagus – Ilex – Quercus* pasture woodland, north of Allum Green, GR 41(SU)/2768.0715, December 2009; (ii) on standing dead *Quercus* in glade, in *Fagus – Ilex – Quercus* pasture woodland, Mallard Wood, GR 41(SU)/3323.0945, December2009. Herb. Sanderson 1363. New 10 km grid square and second and third records for the New Forest. *N.A. Sanderson*

British Isles List of Lichens and Lichenicolous Fungi — March 2010 update to list

This update should have appeared in the Winter 2009 issue of the *Bulletin*, but has been delayed to take account of the many changes arising from the publication of the recent 'Flora'. Unfortunately, a few late editorial changes in the "Flora" were unable to give due consideration to 'knock-on' effects to the pragmatics of recording and the application of BLS code numbers. Such difficulties are explained here in the notes provided. The fully corrected list is available on the BLS web site, *http://www.theBLS.org.uk*.

We are indebted to Ulf Arup, Alan Fryday, David Hawksworth, Paul Kirk, Alan Orange, Emmanuël Sérusiaux and other checklist users, for bringing several of the required changes to our notice. Anyone encountering difficulties regarding nomenclature or BLS code numbers, please contact one of us, as below.

E-mail contacts (with main responsibilities):
Brian Coppins (nomenclature, BLS and NBN species dictionaries, spelling, authorities, dates of publication) *lichensEL@btinternet.com*
Mark Seaward (allocation of BLS numbers and abbreviations)
m.r.d.seaward@bradford.ac.uk
Janet Simkin (Recorder, BioBase and spreadsheet species dictionaries)
janetsimkin@btinternet.com

Add:			Notes
2501	*Bacidia sipmanii*	Baci sipm	
2536	*Biatora ligni-mollis*	Biatora ligni	
2538	*Caloplaca coralliza*	Calo coral	1
2539	*Caloplaca herbidella s. str.*	Calo herb s.s.	1
2527	*Caloplaca holocarpa s. str.*	Calo holo s.s.	2
2461	*Caloplaca oasis*	Calo oasi	2, 4
2528	*Caloplaca pyracea*	Calo pyra	2

Add:			Notes
2532	*Caloplaca vitellinula*	Calo vitel	3
2553	*Cladoniicola staurospora* #	Cladoniic stau #	
2560	*Cliostomum coppinsii* ##	Clio coppins ##	10
2554	*Dacampia rhizocarpicola* #	Dacam rhiz #	
2540	*Degelia cyanoloma*	Degelia cyan	5
2541	*Degelia plumbea s. str.*	Degelia plum s.s.	5
2547	*Epicladonia simplex* #	Epiclad simp #	
2552	*Halecania laevis*	Halec laev	
2558	*Heterodermia propagulifera*	Hete prop	12
2551	*Lecania erysibe s. lat.*	Lecania erysibe s.l.	11
2549	*Lecania poeltii*	Lecania poel	
2530	*Leptogium pulvinatum*	Leptog pulv	
2533	*Lichenochora aipoliae* #	Lichenochora aipol #	
2534	*Lichenochora coppinsii* #	Lichenochora copp #	
2557	*Lichenochora epifulgens* #	Lichenochora epif #	
2535	*Lichenochora paucispora* #	Lichenochora pauc #	
2556	*Micarea byssacea*	Mica byss	
2559	*Multiclavula mucida*	Multi muci	
2555	*Nectriopsis physciicola* #	Nectriop phys #	
1994	*Opegrapha arthoniicola* ##	Opeg arth ##	10
2542	*Opegrapha hochstetteri* ##	Opeg hoch ##	10
2543	*Opegrapha verrucariae* ##	Opeg verruc ##	10
2529	*Petractis nodispora*	Petr nodi	
2531	*Placopyrenium cinereoatratum*	Placopyren cinereo	
2524	*Protounguicularia nephromatis* #	Protoung neph #	
2546	*Spiloma auratum* #	Spiloma aura #	
2525	*Taeniolella cladiniicola* #	Taeniolel clad #	
2537	*Thelocarpon coccosporum*	Thelocar cocc	
2550	*Toninia verrucariae* #	Toni verrucariae #	
2526	*Verrucaria anziana*	Verrucar anzi	
1910	*Verrucaria cernaensis*	Verrucar cern	7
2544	*Verrucaria placida* ##	Verrucar placi ##	10
2545	*Verrucaria rosula* ##	Verrucar rosu ##	10
2548	*Xenonectriella lutescens* #	Xeno lute #	

Delete (correct name or notes given below as applicable):						
Delete:			Replace with:			Notes
1244	*Caloplaca polycarpa*	Calo polyc	2461	*Caloplaca oasis*	Calo oasi	4
2163	*Polycoccum opulentum* #	Polycoc opul #	2519	*Lichenothelia renobalesiana* #	Lichenoth reno #	
2344	*Polysporina ferruginea*	Polysp ferr	1559	*Polysporina subfuscescens*	Polysp subf	

1500	*Verrucaria latebrosa*	Verrucar latebr	1473	*Verrucaria aethiobola*	Verrucar aeth	7

Change of genus (sometimes also species epithet):						
Change from:			Replace with:			
1975	*Aspicilia moenium*	Aspi moen	1975	*Acarospora moenium*	Acar moen	
1861	*Catapyrenium boccanum*	Cata bocc	1861	*Placidium boccanum*	Placidium bocc	
0301	*Catapyrenium lachneum*	Cata lach	0301	*Placidium lachneum*	Placidium lach	
0302	*Catapyrenium michelii*	Cata mich	0302	*Placidium michelii*	Placidium mich	
1586	*Catapyrenium pilosellum*	Cata pilo	1586	*Placidium pilosellum*	Placidium pilo	
1776	*Catapyrenium rufescens*	Cata rufe	1776	*Placidium rufescens*	Placidium rufe	
1608	*Catapyrenium squamulosum*	Cata squa	1608	*Placidium squamulosum*	Placidium squa	
1862	*Catapyrenium waltheri*	Cata walt	1862	*Involucropyrenium waltheri*	Invo walt	
2066	*Gelatinopsis ericetorum #*	Gelat eric #	2066	*Rhymbocarpus ericetorum #*	Rhym eric #	
825	*Leproplaca chrysodeta*	Lepropl chry	825	*Caloplaca chrysodeta*	Calo chrysod	
826	*Leproplaca xantholyta*	Lepropl xant	826	*Caloplaca xantholyta*	Calo xant	
2453	*Petractis hypoleuca*	Petr hypo	2453	*Gyalecta hypoleuca*	Gyale hypo	
2156	*Pleospora leptogiicola #*	Pleospor a lept #	2156	*Dacampia leptogiicola #*	Dacam lept #	
2015	*Unguiculariopsis groenlandiae #*	Ungu groe #	2015	*Llimoniella groenlandiae #*	Llimoniel groe #	
1478	*Verrucaria canella*	Verrucar cane	1478	*Placopyrenium canellum*	Placopyren cane	
2513	*Verrucaria crustulosa ##*	Verrucar crus ##	2513	*Placopyrenium formosum*	Placopyren form	
1492	*Verrucaria fuscella*	Verrucar fuscella	1492	*Placopyrenium fuscellum*	Placopyren fusc	

Change of epithet:						
Change from:			Replace with:			Notes
2461	*Caloplaca lithophila ##*	Calo lithop ##	2461	*Caloplaca oasis*	Calo oasi	

156	*Cladonia conista* ##	Clad conista ##	156	*Cladonia innominata*	Clad inno	
560	*Heterodermia japonica*	Hete japo	560	*Heterodermia obscurata*	Hete obsc	12
590	*Ionaspis chrysophana*	Iona chry	590	*Ionaspis suaveolens*	Iona suav	
1559	*Polysporina lapponica*	Polysp lapp	1559	*Polysporina subfuscescens*	Polysp subf	
1289	*Rinodina gennarii*	Rino genn	1289	*Rinodina oleae*	Rino oleae	9
1379	*Synalissa symphorea*	Syna symp	1379	*Synalissa ramulosa*	Syna ramu	

Change of rank						
Change from:			Replace with:			Notes
236	*Caloplaca arnoldii*	Calo arnol	236	*Caloplaca arnoldii* subsp. *obliterata*	Calo arnol	
260	*Caloplaca herbidella*	Calo herb	*260*	*Caloplaca herbidella s. lat.*	Calo herb s.l.	1
261	*Caloplaca holocarpa*	Calo holo	*261*	*Caloplaca holocarpa s. lat.*	Calo holo s.l.	2
1029	*Degelia plumbea*	Degelia plum	*1029*	*Degelia plumbea s. lat.*	Degelia plum s.l.	5
1866	*Endocarpon pallidum*	Endocar pall	1866	*Endocarpon pusillum* var. *pallidum*	Endocar pusi pall	
503	*Endocarpon pusillum*	Endocar pusi	503	*Endocarpon pusillum* var. *pusillum*	Endocar pusi pusi	

Change of number						
Change from:			Replace with:			Notes
2282	*Rinodina oleae*	Rino oleae	1289	*Rinodina oleae*	Rino oleae	9

Change of abbreviation						
Change from:			Replace with:			Notes
2418	*Arthonia apatetica*	Arthonia apat	2418	*Arthonia apatetica*	Arthonia apatetica	
1501	*Arthonia apotheciorum* #	Arthonia apot #	1501	*Arthonia apotheciorum* #	Arthonia apothec #	
245	*Caloplaca chrysophthalma*	Calo chry	245	*Caloplaca chrysophthalma*	Calo chrysoph	

Change of abbreviation						
428	*Cliostomum corrugatum*	Clio corr	428	*Cliostomum corrugatum*	Clio corrug	
575	*Hypocenomyce anthracophila*	Hypoc anth	575	*Hypocenomyce anthracophila*	Hypocen anth	
576	*Hypocenomyce caradocensis*	Hypoc cara	576	*Hypocenomyce caradocensis*	Hypocen cara	
577	*Hypocenomyce friesii*	Hypoc frie	577	*Hypocenomyce friesii*	Hypocen frie	
578	*Hypocenomyce scalaris*	Hypoc scal	578	*Hypocenomyce scalaris*	Hypocen scal	
616	*Lecania erysibe*	Lecania erysibe	616	*Lecania erysibe s. str.*	Lecania erysibe s.s.	11
328	*Melanelia commixta*	Melan comm	328	*Melanelia commixta*	Melanelia comm	
Change from:			Replace with:			Notes
992	*Melanelia disjuncta*	Melan disjun	328	*Melanelia disjuncta*	Melanelia disjun	
332	*Melanelia hepatizon*	Melan hepa	332	*Melanelia hepatizon*	Melanelia hepa	
1019	*Melanelia stygia*	Melan styg	1019	*Melanelia stygia*	Melanelia styg	
1157	*Polyblastia inumbrata*	Polyblastia inum	1157	*Polyblastia inumbrata ##*	Polyblastia inum ##	6
1418	*Toninia verrucarioides*	Toni verr	1418	*Toninia verrucarioides*	Toni verrucarioid	

Corrected spelling etc.: altered or added text <u>underlined</u>				Notes
327	*Tuckermann<u>n</u>opsis chlorophylla*	Tuck chlor		8

Notes

1 – British collections of *Caloplaca herbidella* have been shown to comprise two species: *C. coralliza* and *C. herbidella*. For records of this species aggregate that cannot be comfortably assigned to either of the segregate taxa, the name *Caloplaca herbidella* s. lat. and its number **0260** should be used. The new number given here, **2539**, should be used only for material critically determined as *C. herbidella* s. str., according to the concept of Arup & Åkelius (2009).

2 – The name *Caloplaca holocarpa* has been used in a broad sense encompassing several taxa, including for the most part, the mainly saxicolous *C. oasis*, *C. holocarpa* s. str., and the corticolous *C. pyracea*, but also the corticolous C. *cerinella* and *C. cerinelloides*. For records of this species aggregate that cannot be comfortably assigned to any of the segregate taxa, the name *Caloplaca holocarpa* s. lat. and its number **0261**

should be used. The new number given here, **2257**, should be used only for material critically determined as *C. holocarpa* s. str., according to the concept of Arup (2009).

3 – *Caloplaca vitellinula*. In the past the name *C. vitellinula* has been loosely used in the British Isles for saxicolous records of a wide range of *Caloplaca* species with a ± yellowish thallus, including *C. holocarpa* s. lat.., *C. crenulatella*, *C. dalmatica*, *C. maritima*, and probably some additional taxa that are not yet formally recognized. For such records the BLS Mapping Scheme has the number **0288 ##**. The new number, **2532**, is to be used only for critically identified material according to the concept of Arup (2009). **NB:** the taxonomy of such *Caloplaca* species is particularly difficult, and new approaches coupling molecular techniques with critical morphological and ecological assessments are likely to lead to the recognition of hitherto unrecognized taxa.

4 – The name *Caloplaca polycarpa* has been applied by British authors to a *Caloplaca* growing seemingly parasitically on foveolate *Verrucaria* species (especially *V. baldensis*). Such British material has recently been regarded as a 'parasitic' morph of the often non-parasitic *C. oasis*, whereas the obligately parasitic *C. polycarpa* in its correct sense is found only in southern Europe; see Arup (2009).

5 – In Blom & Lindblom (2009), *Degelia plumbea* in the old sense has been shown to comprise two species: the widely occurring *D. plumbea* s. str. (new number **2541**), and the newly segregated *D. cyanoloma* (**2540**), which has a more strongly oceanic distribution. The number **1029** is retained for *D. plumbea* s. lat., where the records cannot be correctly assigned to either of the newly defined species.

6 – *Polyblastia inumbrata* is a synonym of *Polyblastia terrestris* (**1161** – incorrectly given as **1157** in the recent 'Flora'), although most British records seem to refer to either *Polyblastia cruenta* or *P. theleodes* s. str. The number **1157 ##** will be retained until the identity of the supporting records can be ascertained.

7 – British records of **1500** *Verrucaria latebrosa* refer to the revised concept of *V. aethiobola* (**1473**). Note that records of *V. aethiobola*, according to its previous concept [and recorded under number **1473**], have been transferred to **1910** *V. cernaensis*. The spelling "csernaensis" in the recent 'Flora' is an orthographic error based on the Hungarian spelling of the River Cserna, and is that used on the type specimen. However, the epithet spelled as "cernaensis" is what appears in the original publication, based on the alternative spelling, River Cerna.

8. – Many recent authors have corrected Gyelnik's original spelling of *Tuckermannopsis* to *Tuckermanopsis*, believing it to be an orthographic error. Although Edward Tuckerman [with just one "n"] was being honoured, his name was Latinized for usage in the generic name, and is not to be considered an error.

9. – Now that there is a general consensus that *Rinodina gennarii* is a synonym of *R. oleae*, the number **1289** is now used for *R. oleae* in this broadened sense. Records under the number **2282**, previously used for *R. oleae*, should be transferred to **1289**.

10. – As yet unpublished names.

11. – Mainly to be used for inputting earlier records (*c.* pre-1995) where the component species (especially *L. erysibe* s. str., *L. inundata*, *L. hutchinsiae* and *L rabenhorstii*) were not distinguished. Note that *L. erysibe* s. str. is the sorediate/blastidiate member of this complex, and was often recorded under its synonym, *L. erysibe* f. *sorediata*.

12. – The name *Heterodermia japonica* has been wrongly applied to British material, and the species treated under this name in the recent 'Flora' should be called *H. obscurata* (as was used in the 1992 'Flora'). The name *H. propagulifera* is being used for the norstictic acid-containing "chemotype" from the Isles of Scilly.

References

Arup, U. (2008). The *Caloplaca holocarpa* group in the Nordic countries, except Iceland. *Lichenologist* **41**: 111–130.

Arup, U. & Åkelius, E. (2009). A taxonomic revision of *Caloplaca herbidella* and *C. furfuracea*. *Lichenologist* **41**: 463–480.

Blom, H.H. & Lindblom, L. (2009) *Degelia cyanoloma* (Schaer.) H.H. Blom. & L. Lindblom *comb. et stat. nov.*, a distinct species from western Europe. *Lichenologist* **42**: 23–27.

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

Field meeting reports

The following must represent a record for the longest time period elapsing between a field meeting and a report (Ed.)!

BLS Field Meeting in North Wales, 12-17 April 1962

A couple of years or so ago, Vince Giavarini emailed me to ask if I could report to him the details of this field meeting as there was to his knowledge no printed report written after the event. He knew I had been on it from a specimen I collected of *Megaspora verrulosa* which he saw in the Natural History Museum. Well, that find was beginner's luck! I was only an 18 year old and this was my first BLS meeting. And, as anyone who knows me, you can imagine I have very poor recollections of what happened. So I replied to Vince that I really had nothing much to add and I did not have any notes or details.

That turned out not strictly to be true. About a year later, I was occasioned to clear out my study for redecoration (rather overdue!) and I decided to see how much I could throw away and this included some old dusty note books. Before flinging them, I took a peep inside, and, yes, there were my species lists from the N Wales field meeting!

I had noted the occurrence of 155 species with locations (and I have made sure that the records have been sent in to the BLS mapping scheme and for our BLS database but how the names have changed!). In the interests of capturing further information about that Field Meeting before everyone who attended it is dead, does anyone remember being there, or know anyone still living who was there? I can remember Ursula Duncan, Dougal Swinscow, Frank Brightman (I think), Geoffrey Dodds and his wife and Prof David Catcheside but they have all passed on. Peter James was there, and wonderfully helpful to me, as were the others, but he has told me he doesn't have any further information available either. The BLS Bulletin (Volume 8 page 2 Nov 1962) reports that there were 42 people at this meeting which is an extraordinarily large number for that period of the Society – surely, apart from me and Peter, there must be someone else still alive! If you have any further information, please can you let me know.

PS Some of the odd things I can remember:

- My parents lived near Cambridge and so I went by train from Lord's Bridge Station in the last days before Beeching's cuts – this single track line was then immediately used for the huge dishes of the Mullard Radio Astronomy Observatory of Cambridge University because it was so straight for such a long distance across the flat East Anglian landscape.
- Dr and Mrs Dodd's "volcano" for boiling a pint of water with just one sheet of newspaper (I think either The Times or The Telegraph) for their obligatory afternoon cup of tea – they were environmentally minded long before most people.

- Discovery of *Aspicilia verrucosa* (now *Megaspora verrucosa*) in the grassland on Great Orms Head.
- Ursula showing me *Gyalecta exanthematica* (now *Petractis clausa*) on the limestone on Anglesey and Dougal showing me pyrenos and *Stenocybe byssacea* (now *S. pullatula*).
- Learning many species including *Ramalina calicaris* and some of the intertidal Verrucarias.

David Hill
d.j.hill@bris.ac.uk

Larbalestier Lichen Workshop, October 24-25 2009

On the weekend of October 24 & 25, 2009, the BLS held a small "Larbalestier Lichen Workshop" at the Natural History Museum, London, organized by Holger Thüs, Scott LaGreca and Simon Davey. The ten Workshop participants, led by Brian Coppins, updated the nomenclature—and sometimes re-identified—historically important lichen specimens from roughly half of Charles DuBois Larbalestier's personal herbarium, comprising nearly 1200 specimens on 468 sheets. [From what we understand, the other half of Larbalestier's personal herbarium may have already been incorporated in the BM British Lichen Herbarium, as well as in one of the "exsiccati cupboards" near the British Lichen Herbarium]. While most of the collections examined during the Workshop were British (many being from Jersey, where Larbalestier lived for much of his life), the material also include specimens from Ireland, Europe, and Colombia. [Many of the handwritten labels were difficult to read, so a significant portion of the Workshop time was devoted to translating them.] Roughly half of the specimens from this portion of his personal herbarium were collected by Larbalestier himself, while the remainder were evidently purchased from (or obtained through exchange with) luminous lichenological contemporaries such as William Leighton, William Mudd, William Nylander. The material includes a few new county records for Britain, and even a few type specimens. The Workshop was punctuated with two short talks, one by Simon & Amanda Davey (who have nearly completed a book on the lichens of Jersey) and one by Ted Ahti (who visited from Helsinki, where a significant number of Larbalestier specimens are deposited). Following the Workshop, Scott LaGreca (assisted by Simon and Holger) spent a fortnight databasing and curating these specimens as part of a "Special Funds" project granted by the NHM in 2008. This on-going project will conserve these valuable lichen specimens by re-housing them in new capsules with new labels. Once inaccessible within the massive BM backlog lichen collection, these renovated specimens will soon be filed and accessioned as part of the BM lichen herbarium.

Scott LaGreca
Simon & Amanda Davey
SLaGreca@berkshiremuseum.org

BLS Field meeting to Raasay 15 – 21 July 2009

'The approach to Rasay was very pleasing. We saw before us a beautiful bay, well defended by a rocky coast; a good family mansion, a fine verdure about with a considerable number of trees; and beyond it hills and mountains in gradation of wilderness.'

'Having resolved to explore the island of Rasay which could be done only on foot, I last night obtained my fellow-travellers permission to leave him for a day, he being unable to take so hardy a walk. Old Mr Malcolm McCleod, who had obligingly promised to accompany me, was at my bed side between five and six. I sprang up immediately, and he and I, attended by two other gentlemen traversed the country the whole of this day. Though we had passed over not less than four and twenty mile of very rugged ground, and had a highland dance on the top of Dun Can, the highest mountain on the island, we returned in the evening not at all fatigued , and piqued ourselves at not being outdone at the nightly ball by our less active friends, who had remained at home'

Extracts from James Boswell, *Journal of a Tour to the Hebrides with Samuel Johnson* (1785).

Introduction

Unlike Boswell and Johnson, our view from the quay at Sconser on the Wednesday evening was obscured by heavy rain and low brooding clouds hanging over the hills of both Raasay and Skye. Nevertheless as we crossed the Sound of Raasay, our anticipation increased at the thought of unexpected discoveries and beautiful habitats and scenery. Over the next five days we were not to be disappointed, although we did not dance on top of Dùn Caan and did not get to a ball, the island lived up to our expectations. Islands have a magic quality and it was not surprising that when Raasay was proposed as a venue for the BLS summer meeting in 2010 it soon attracted 22 members for all or part of the meeting. Our original plans were to stay in the Raasay House Adventure Centre but in early January we received an email to let us know that a fire had destroyed the house as it was being renovated. There were some hasty changes of plan and through the efforts of Ivan and the Raasay Centre staff we were able to book the hotel for the same rates. In due course the Activity Centre then took over the Hotel and to our relief by the time we arrived it did have a drinks licence!

We had mixed weather during our stay but it was never poor enough to prevent us getting out in the field. Despite dire warnings that this was a very bad midge year, we escaped lightly and midge nets bought as a precaution largely went unused. During the five days we had an excellent talk by Stephen Bungard, the very knowledgeable BSBI recorder for Skye and Raasay, who lives on the island and also one from Peder Aspen on the fascinating geology of the island. Additional instruction was given by Ivan who ran a moth trap during the meeting and early mornings saw lichenologists gazing at the night's trap. One of the more unusual highlights of the trip was the afternoon when the fire alarm at the hotel went off and everyone had to assemble out on the car park. We were treated to Raasay fire engine

attending in all its glory. Fortunately this was not a repeat of the January event and we were able to return to our rooms unscathed.

On the final evening we arranged to meet up with interested islanders at St Maol-lugs Chapel to talk with them about the use of lichens in the traditional woollen industry and this led to a wonderful rendition in Gaelic by Rebecca Macky and a friend of one of the traditional weaving songs. It was a lovely way to finish the meeting and we left the island the following day with wonderful memories of a beautiful place, friendly islanders and a much better knowledge of the very fine lichen flora.

In all we recorded 442 taxa during the 5 days. These were recorded on a 1 km basis and input through a spreadsheet into Recorder 6. About 200 taxa were newly recorded for the island, of which were 18 lichenicolous fungi.

Attendees

Ann Allen, Peder Aspen, Richard and Janet Brinklow, Annelie and Richard Burghause, Paul Cannon, Brian and Sandy Coppins, Ginnie Copsey, John Douglass Dave Genny, Katy Grundy, Barbara Hilton, Bob Hodgson, Les and Sue Knight, Peter Lambley, Ivan Pedley, Mark Powell, Steve Price and Mike Sutcliffe.

Geography

Raasay lies off the west coast of Scotland north of Kyle of Lochalsh, but is sheltered to some degree by the high ground and bulk of Skye to the west. It is a long narrow island that stretches northwards for about 14 miles, whilst at its widest towards the southern end it is nearly 4 miles across. It is separated from the Isle of Skye by the Sound of Raasay and is accessed by a small car ferry from Sconser. The highest point is Dùn Caan which is a very distinctive 443 metre table-topped hill. The west coast is generally lower and fringed with rocks and occasional pebble beaches, whilst the east has high cliffs which tumble down to the sea. The northern part of the island has more the topography of Harris, perhaps not surprising as it shares the same rock type.

Geology (contribution by Peder Aspen)

The geology of Raasay reflects in microcosm much of the geology of the NW Highlands of Scotland, in that it exposes some of the oldest and some of the youngest rocks in Britain. The oldest rocks are exposed in the northern half of the island and consist of Lewisian Gneisses and Torridonian sandstones, which range in age from 4000 million to 1000 million years. Both of these rock types are highly depleted in nutrients and form poor plant and lichen substrata.

These ancient rocks are separated from much younger Mesozoic and Tertiary rocks by a major fault, the Screapadal Fault, whose trace we saw on one of our excursions from Brae to the west coast. South of the fault, calcareous sandstones and shales of Jurassic age (around 200 million years ago) were seen several times, on the trip to Hallaig and especially on the long walk along the east coast going south from Brochel Castle, passing Screapadal to the cliffs at Drum an Aoinach.

One day was spent looking at lichens on igneous rocks of Tertiary age, especially on the granite to the west of Loch na Meilich and the basalt lavas of Dùn Caan. The

granite (granophyre) is very coarse and nutrient poor, whereas the lavas are rich in magnesium, calcium and phosphorus.

Habitats

The woodland on the island is mainly Birch (*Betula pubescens*) with some Hazel (*Corylus avellana*) and Rowan (*Sorbus aucuparia*) and with Alder (*Alnus glutinosa*) and willow (*Salix* sp.) in the wetter areas. On the east coast where the soils are richer there are some Wych elms (*Ulmus glabra*), some of which have grown into fine specimens. Around Raasay House and area there have been extensive plantings of Beech, Ash and Sycamore, the latter especially supporting a good *Lobarion*. There are conifer plantations both around Brochel in the north and around Inverarish in the south.

These mixed woods support excellent *Lobarion* communities especially on the more basic-barked Hazel and Rowan. Species present include *Degelia atlantica, Leptogium cyanescens, Lobaria pulmonaria, L. scrobiculata, L. virens, Nephroma laevigatum, Pannaria rubiginosa, Parmeliella parvula, Pseudocyphellaria crocata, P. intricata, Sticta fuliginosa, S. limbata and S. sylvatica*. Whilst there is also a good representation of the smooth-barked *Graphidion* community with characteristic species including; *Anisomeridium viridescens, Arthonia cinnabarina, Arthopyrenia carneobrunneola, Bactrospora homalotropa, Graphis alboscripta, G. elegans, G. scripta, Pyrenula laevigata, P. occidentalis, Thelotrema macrosporum* and *T. petractoides*. The Birch trees support a more acid flora with species such as *Bunodophoron melanocarpum, Cavernularia hultenii, Hypotrachyna laevigata H sinuosa* and *Menegazzia terebrata*.

Most of the upland is dominated by grasslands and Bracken communities especially on the richer Jurassic rocks. Where there have been small scale slippages as near Hallaig the exposed calcareous soil provides a habitat for such terricolous lichens as *Catapyrenium cinereum*, *Toninia sedifolia* and *Solorina saccata*. Whilst on the acidic rocks there is a range of dry *Calluna* dominated vegetation and *Trichophorum cespitosa – Calluna* bog which provides habitats for *Baeomyces rufus*, *Cladonia* species, *Icmadophila ericetorum* and *Pycnothelia papillaria*.

The acidic rock outcrops have a rather poor lichen flora with characteristic species such as *Fuscidea cyathoides, Ochrolechia tartarea, Parmelia omphalodes, Pertusaria pseudocorallina, Porpidia macrocarpa, Rhizocarpon geographicum, Stereocaulon vesuvianum*, and *Umbilicaria* species. However, the basalt lavas on Dùn Caan support a noticeably richer flora with species such as *Catillaria contristans, Immersaria athroocarpa, Lithographa tesserata, Pilophorus strumaticus, Placopsis lambii* and *Porpidia melinodes*. The more calcareous sandstones support *Collema* species, *Gyalecta jenensis* and *Dermatocarpon miniatum*.

Coastal rocks provided yet another habitat which was explored both on the east coast at Brochel and near Oskaig on the west. Species recorded in this habitat included *Anaptychia runcinata, Arthonia phaeobaea*, *Bacidia scopulicola*, *Caloplaca arnoldii, C. crenularia, C. marina, C. thallincola, C. verruculifera, Halecania ralfsii, Lecanora actophila, L. gangaleoides, L. helicopis, Lichina confinis, L. pygmaea, Ramalina cuspidata*, *R. siliquosa, Verrucaria mucosa*, and *V. striatula*.

History of lichen recording

The flowering plants have been well recorded and there is an excellent on-line flora by Stephen Bungard (see *http://www.users.waitrose.com/~suisnish/*). A few lichens were recorded in 1960 by Ursula Duncan, and Francis Rose visited the island on three occasions (28th May to 1st June 1987, 31st August to 3rd September 1988 and 19th – 20th July 1990 concentrating on the woodland lichen flora.

Recording during this meeting was made at a 1km square resolution and the records entered into the Scottish Lichen Data base in Recorder 6. For this report the listings have been simplified and some of the recording sites have been amalgamated in the table. Species names follow Smith et al. (2009) *The Lichens of Great Britain and Ireland*.

Sites visited

Coille an Leatraich & Brae 16th July

Squares recorded NG5541, 5542, 5641

Habitats: Birch-hazel woodland, coastal rocks & ruined buildings and walls with isolated sycamores.

After overnight rain and cloud, the day dawned warm and sunny and the party set off full of expectation along the only road north for the old crafting settlement at Brae. We arrived and managed to park in a gateway. Overhead we had a wonderful sight of a Golden Eagle circling which was an auspicious start to the day. Inevitably the party started by spending a lot of time examining the ruined buildings near the road and a number of old sycamores and also some willow scrub. These produced a number of interesting species including on the buildings; *Acarospora impressula*, *Caloplaca flavocitrina*, *Lecanora farinaria* (unusually saxicolous), *Leptogium cyanescens, Placopsis lambii*, *Placynthium nigrum* and *Protopannaria pezizoides.* Species recorded on the sycamores and willows included *Caloplaca ferruginea, Collema subflaccidum, Degelia atlantica, Lecanora persimilis, Leptogium lichenoides, Lobaria pulmonaria, L. virens*, and the uncommon corticolous form of *Tephromela atra - T. atra* var. *torulosa*. Brian also showed us *Degelia cyanoloma* a recent segregate from *Degelia plumbea* which is very distinctive in its larger size and other features. Whilst lignum supported *Bryoria fuscescens* and *Strangospora moriformis*. The path then led us down passed an attractive

Degelia cyanoloma

flush of black bog rush (*Schoenus nigricans*) with butterwort (*Pinguicula vulgaris*), which suggested a calcareous input from the stream.

Pannaria rubiginosa

The woods straddle a geological fault and it was possible within a few metres to move back from the Jurassic 650 million years to the Torridonian. The woods are birch with hazel and alder further down by a stream. Species of note included elements of the *Lobarion* for example *Lobaria pulmonaria, L. scrobiculata, L. virens, Degelia atlantica, Gyalideopsis muscicola, Leptogium cyanescens, Nephroma laevig-atum, Pannaria rubiginosa, Parmeliella parvula, Pseudocyphellaria crocata, Sticta fuliginosa, S. limbata and S. sylvatica*. Species on acid bark included *Cetrelia olivetorum, Hypotrachyna laevigata, H. sinuosa, Lepraria umbricola*, *Loxospora elatina, Menegazzia terebrata, Micarea stipitata, M. synotheoides*, *Parmotrema crinitum* and *Tuckermanopsis chlorophylla* (on birch twigs). Lichens of the smooth bark flora (Graphidion) included *Anisomeridium viridescens, Arthonia cinnabarina, Arthopyrenia carneobrunneola, Bactrospora homalotropa, Graphis alboscripta, Graphis scripta* (parasitized by *Arthonia graphidicola*), *Melaspilea atroides, Mycomicrothelia confusa, Pyrenula laevigata, P. occidentalis* (parasitized by *Skyttea pyrenulae*), *Thelotrema macrosporum* (parasitized by *Opegrapha thelotrematis*) and *T. petractoides*.

Pseudocyphellaria crocata

The path eventually led down to a pebble beach in a sheltered cove. The temptation of a bathe on a warm sunny day was too much for some and several members of the party temporarily forgot lichenology for the chance of a swim. Those that remained on shore were able to add maritime lichens to the list, including *Anaptychia runcinata, Caloplaca microthallina, C. thallincola, Dermatocarpon intestiniforme* (in the stream), *Halecania ralfsii, Lecanora actophila, L. gangaleoides, L. helicopsis, Lichina*

confinis, Verrucaria mucosa and *V. striatula*. It was a tired but contented party that made its way back to the Hotel late that afternoon.

Dùn Caan 17th July
Squares recorded NG5739, 5640, 5737, 5738, 5639
Habitats: upland moorland with acid rock outcrops & basalt outcrops.

Dùn Caan, photographed from near Hallaig

We were fortunate again to have another dry day and with the forecast threatening more unsettled weather in the next few days the opportunity was taken to explore the high ground which runs down the spine of the island. The intention was to reach Dùn Caan. This is an imposing table-topped 443 metre peak where Dr Johnson danced a jig during his tour of the Hebrides. The route began from the car park at NG562560 and we followed the path initially south eastwards over slowly rising rough *Trichophorum cespitosa – Calluna* bog, with some isolated rock outcrops. Characteristic species of this habitat included *Lecidea lithophila, Parmelia omphalodes, Rhizocarpon geographicum, Stereocaulon vesuvianum* and *Umbilicaria polyrrhiza* on rock, whilst *Baeomyces rufus, Cladonia uncialis* subsp. *biuncialis, Cladonia strepsilis, Icmadophila ericetorum* and *Pycnothelia papillaria* were found on the peaty ground. After a climb the path then descends a rocky escarpment (Bealach Ruadh), which marks a clear geological fault between the granite to the west and the olivine basalt to the east. We

skirted Loch na Mellich, once said to be the haunt of a sea horse that killed a young girl. We then began the climb up the grassy slopes with rock outcrops of Dùn Caan.

Baeomyces placophyllus, edge of thallus

The views from the top were stupendous with views across to the Applecross peninsula to the east and north to the Lewisian Gneiss glacier-scarred landscape of north Raasay and Rona. Immediately to the east the land falls sharply in a series of ridges and troughs of the newer Jurassic sandstones rocks falling away to the east coast. More uncommon or notable species recorded on the basalt outcrops and peaty ground on Dùn Caan included *Arthorhaphis citrinella, Baeomyces placophyllus,. Catillaria contristans, Immersaria athroocarpa, Lithographa tesserata, Pilophorus strumaticus, Placopsis lambii* and *Porpidia melinodes*. A trig-point attracted the concrete specialists and in this improbable habitat in such a wilderness, additional species were added, including *Caloplaca citrina, Candelariella aurella* and *Lecanora albescens.*

The party then split with some returning to the cars whilst others worked their way southwards recording as they went, adding records to the one kilometre squares NG5737, NG5738 and NG5639.

Sticta sylvatica

Oskaig area 17th July

Square recorded NG5437

Habitats: coastal rocks and turf, boundary wall, derelict building, fence posts and trees.

Brian and Sandy explored the coastal habitats to the south of Oskaig, concentrating on the small headland at NG545374, and recorded 109 taxa. The coastal rocks had a flora much as to be expected, with an additional *Lobarion* element, including *Degelia atlantica*, *D. plumbea* s. str., *Lobaria virens*, *Polychidium muscicola*, *Sticta* '*dufourii*' and *S. sylvatica*. Damp, N-facing gullies provided niches for locally abundant *Bacidia*

scopulicola and *Verrucaria internigrescens*, as well as for *Porpidia rugosa* and its host-specific parasite, *Arthonia amylospora*.

East coast 18th July

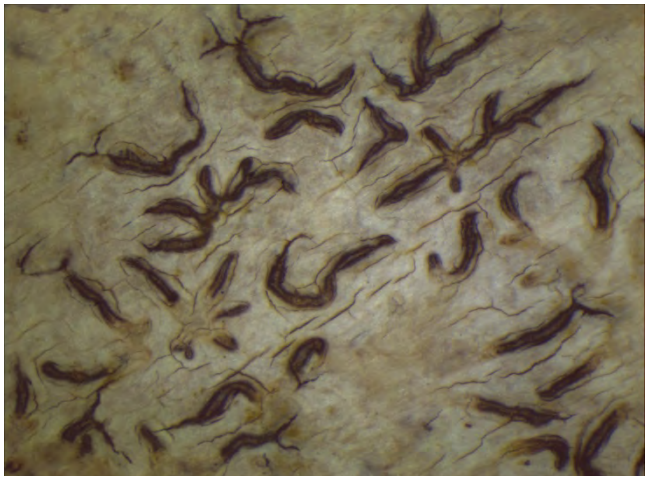
Squares recorded NG5842, 5843, 5844

Habitats: calcareous rock, Birch – Hazel – Wych Elm woodland on steep slopes.

The weather was less clement with spells of rain but it did not deter the party from exploring the eastern part of the island. The party split into those who explored the area around the spectacular ruins of Brochel Castle and the nearby coast and those who ventured south to Screapadal, Eaglais Breige and the spectacular hanging woods under the great line of cliffs of Creag na Bruaich. The rocks are generally a fine-grained calcareous Jurassic sandstone and large blocks have fallen away in places giving rise to a jumbled topography on the coast. This makes quite difficult terrain to explore but the effort was well worth it. These are woods of Birch and Hazel with some large and generally rather prostrate Wych Elm (*Ulmus procera*) trees.

Hypotrachyna taylorensis

The *Lobarion* communities were much in evidence with most of the species that might be expected, including *Bacidia caesiovirens, Degelia atlantica, Lobaria pulmonaria, L. virens, L. scrobiculata, Leptogium burgessii, L. cyanescens, Nephroma laevigatum, Pannaria rubiginosa, Parmeliella parvula, P. triptophylla, Sticta 'dufourii', S. fuliginosa,* and *Vahliella leucophaea*. The author remembers seeing *Pseudocyphellaria crocata* here in 1983 but it was not noted on this occasion. Other species of note found included: *Anisomeridium viridescens, Arthopyrenia carneobrunneola, Caloplaca ferruginea, Graphina anguina, Gyalecta truncigena, Hypotrachyna taylorensis, Pyrenula laevigata, P. occidentalis* and *Thelotrema petractoides,*



Graphina anguina

and Lepraria ecorticata and Llimonaea sorediata in rock underhangs. On the calcareous rock, species recorded included the uncommon *Collema fragile, Gyalecta jenensis, Leptogium britannicum, L. cyanescens, Opegrapha dolomitica, Placynthium subradiatum, Protoblastenia calva* and *P. incrustans*. Interesting vascular plants found included the filmy fern, *Hymenophyllum wilsoni* and *Moehringa trinervis*. A very fossiliferous boulder was pointed out on the way back with belemnites and other fossils confirming a Jurassic age for the deposit.

Brochel 17th, 18th & 19th July

Square recorded NG5846

Habitats: coastal rocks, birch-hazel woodland.

The 'fairy-tale' ruin of Brochel Castle, a small, early 16th century fortress crazily perched on the top of a pinnacle of sheer rock, was an obvious 'must-see'. Unfortunately, the dangerous state of the ruin meant that it was also a 'don't touch'. Those who spent time around Brochel Castle found an expected range of coastal, saxicolous species in the bay, including locally abundant *Vahliella leucophaea*. Behind the bay, the birch-hazel woodland, with some rowan, has a south- to south-east aspect. A good mix of *Graphidion* and *Lobarion* species made up the bulk of the 58 epiphytes listed, but with no surprises, except for an apparently undescribed species of *Lichenochora* on *Thelotrema macrosporum*.

Raasay Forest 18th July

Square recorded NG5746

Coniferous plantation, rides.

Although only a short list was made by Sandy five more species – *Micarea bauschiana, M. lithinella, Peltigera didactyla, Trapeliopsis granulosa* and *Verrucaria margacea*, were found here and nowhere else, which confirms the value of exploring what might appear to be unpromising habitats.

Hallaig and North Fearns 19th July

Squares recorded NG5936, NG5938

Birch woodland, steep grass slopes with bare soil, coastal rocks and cliffs.

Another rather wet day, though again the rain was not continuous. We parked at the end of the road and walked along the contoured track towards Hallaig through bracken-covered slopes and passed some Birch and Hazel woodland.

We passed Birch-Hazel woods in North Fearns (NG5936) en route to the bay with *Peltigera collina, Pyrenula macrospora* and *P. occidentalis*. In addition, rocks close to the track supported *Aspicilia contorta* subsp. *hoffmanniana, Pertusaria excludens*, *P. lactescens* and *Placopsis gelida*. In places the bracken gave way to a short turf with patches of calcareous soil where fine colonies of *Solorina saccata* occurred sometimes on the bank, right by the track.

We reached Hallaig (NG5938) in the rain and ate our lunch admiring the view north up the spectacular steeply sloping east coast. There is a fine memorial here to the Gaelic poet, Sorley MacLean (1911–1986), who was born on Raasay. On it is inscribed his most famous poem 'Hallaig' in Gaelic. A memorial like this was too tempting for Ivan Pedley and Mark Powell and they scrutinised it for lichens

recording 23 species from the sandstone and mortar, including *Caloplaca arcis, C. flavovirescens, C. flavocitrina* and *Verrucaria baldensis*. The party then split in to small groups to explore the birch woodland, coastal rocks and exposed stable soil around this fine, remote bay.

Investigating the stone memorial. Mother Christmas can just be seen behind Ivan...

Lichens recorded from the Birch with some Hazel woodlands included *Caloplaca ferruginea*, *Degelia atlantica, D. cyanoloma, D. plumbea, Hypotrachyna laevigata, Lobaria pulmonaria, L. scrobiculata, L. virens, Nephroma laevigata, N. parile* and *Thelotrema petractoides*. Soil on the coastal cliffs of Rubha na' Leac supported a fine colony of *Vahliella leucophaea*, a habitat for the species not mentioned in the new Flora. Other terricolous species growing nearby included *Catapyrenium cinereum, Romjularia lurida* and *Toninia sedifolia.* Several coastal species were also noted.

Boredale House Hotel, Kennel Wood and Raasay House area 19th July

Square recorded NG5536

Habitats: Mature planted Sycamore, Beech etc and conifer plantation.

The mature trees in the vicinity of the Hotel supported a number of species not seen elsewhere including *Lobaria amplissima*, and *Catinaria atropurpurea*, *Pachyphiale carneola* and *Parmeliella testacea on elm.* Kennel Wood produced *Usnea fragilescens* var. *mollis* otherwise not recorded during the meeting. North of Raasay House (NG546366), by the campsite, Mark Powell found *Bacidia incompta* in a rain track of an old sycamore; although without apothecia, the characteristic pycnidia and conidia provided confirmation under the microscope.

Woods north of Loch na Bronn 20th July (also on the 18th)

Square recorded NG5746

Habitats: Birch – Hazel woodland with rowan & willow. Moorland.

Those who went north largely escaped the rain, whilst those who explored the south coast got much wetter. This is an illustration on how much the weather can vary even within the confines of a small island. Initially we headed north of the Loch and explored the birch-hazel woods along a low rocky outcrop. We had hoped to find *Cavernularia hultenii,* which had been recorded by Francis Rose on a visit in 1987, but it was only when we started back and looked at the woods to the west of the Loch that we found it. This is probably where Rose recorded it. We noted it was growing


Cavernularia hultenii (left) and *Xanthoparmelia mougeotii* (right)

on small branches of birch about a centimetre thick in rather open scrubby birch with associated species: *Hypogymnia physodes, Melanelixia fuliginosa* subsp. *glabratula* (minute specimen), *Parmotrema crinita, Platismatia glauca, Usnea* (minute specimen) and the liverwort, *Frullania*. The woods generally support a rather leached bark community with *Bunodophoron melanocarpum, Hypotrachyna laevigata, H. sinuosa, H. taylorensis, Menegazzia terebrata, Mycoblastus sanguinarius f, sanguinarius* and *Ochrolechia tartarea.* The occasional Hazel and Rowan supported *Lobarion* with *Dimerella lutea, Degelia atlantica, D. cyanoloma, D. plumbea, Leptogium burgessii, Lobaria pulmonaria, L. scrobiculata, L. virens*, and *Pseudocyphellaria intricata*. The moorland had a suite of *Cladonia* species, including *C. diversa*, *C. fimbriata, C. floerkeana, C. portentosa, C. rangiformis, C. squamosa* var. *squamosa, C. strepsilis* and *C. subcervicornis*. Other terricolous lichens included *Icmadophila ericetorum, Lichenomphalia hudsoniana* and *Pycnothelia papillaria*. Rock outcrops supported a colony of *Xanthoparmelia mougeotii* and *Cystocoleus ebeneus*.

After our visit we took the car following the sign pointing towards the North Pole into the area of Lewisian Gneiss. We did not have time to record more than a few lichens but we were left conscious that there was still much of the island which we had not explored.

St Maol-luag's Chapel 20th July

Squares recorded NG547365

Ruined church & chapel with headstones & some mature trees.

The church yard has a ruined church and a chapel with some headstones and a number of mature trees, all in a very sheltered situation. We recorded 66 lichens of which 48 were on stone and the rest on trees, moss or soil. To those used to the drier south it still comes as a surprise and provokes a degree of envy to find species like *Degelia atlantica, Lobaria pulmonaria* and *L. scrobiculata* growing so luxuriantly in a variety of habitats, including stonework in a churchyard. It was also an ideal place to finish the meeting, especially with local islanders who had expressed an interest in

Lichen education for Raasay residents....

learning about what we were doing. In return we had a glimpse of the culture that still runs deep in this beautiful place. I think St Maol-luag looking down on us would have been happy with what he saw and heard.

Acknowledgements

To Brian Coppins for making many helpful comments and revisions and for a number of the site accounts. Peder Aspen for his contribution on the geology of Raasay and Ivan Pedley who as acting Field Meetings Secretary organised the meeting. To Stephen Bungard for help and advice on localities and for giving his excellent talk. Finally to the staff of Raasay House who did so much to make us feel welcome.

Peter Lambley
plambley@aol.com

Species	Coille an Leatraich & Brae	Dùn Caan	Lower ground in vicinity of Dùn Caan	Oskaig	Brochel	East coast	Hallaig and North Fearns	Woods north of Loch na Bronn	Boredale House area	St Maol-lugs Chapel
Abrothallus microspermus	•									
Abrothallus usneae	•									
Acarospora fuscata			•							
Acarospora impressula	•									
Acarospora smaragdula	•									
Acrocordia conoidea						•				
Acrocordia gemmata						•				
Acrocordia salweyi						•				
Agonimia tristicula						•				
Anaptychia runcinata	•			•	•		•			
Anisomeridium biforme	•									
Anisomeridium polypori						•				
Anisomeridium ranunculosporum						•		•		
Anisomeridium viridescens	•					•				
Arthonia amylospora				•						
Arthonia cinnabarina	•				•			•		
Arthonia didyma	•				•	•				
Arthonia graphidicola	•									
Arthonia ilicina	•				•	•				
Arthonia phaeobaea				•						
Arthonia radiata	•					•				
Arthonia thelotrematis						•				
Arthopyrenia analepta	•				•	•				
Arthopyrenia carneobrunneola	•				•	•				
Arthopyrenia cerasi						•				
Arthopyrenia cinereopruinosa	•					•				
Arthopyrenia nitescens	•				•	•				
Arthopyrenia salicis	•				•	•				
Arthoraphis aeruginosa	•						•			
Arthroraphis citrinella		•							•	
Aspicilia caesiocinerea				•			•			
Aspicilia contorta subsp. *contorta*							•			
Aspicilia contorta subsp. *hoffmanniana*							•			
Aspicilia grisea				•						
Aspicilia leprosescens				•						
Bacidia caesiovirens	•				•	•				
Bacidia incompta									•	
Bacidia scopulicola				•						
Bacidia viridifarinosa	•									

Species	**Coille an Leatraich & Brae**	**Dùn Caan**	**Lower ground in vicinity of Dùn Caan**	**Oskaig**	**Brochel**	**East coast**	**Hallaig and North Fearns**	**Woods north of Loch na Bronn**	**Boredale House area**	**St Maol-lugs Chapel**
Bactrospora homalotropa	•				•					
Baeomyces placophyllus		•								
Baeomyces rufus	•		•			•	•			
Belonia nidarosiensis						•				•
Bilimbia sabuletorum						•				
Botryolepraria lesdainii						•				•
Bryoria fuscescens var. *fuscescens*	•									
Bryoria subcana									•	
Buellia aethalea	•			•			•			•
Buellia arnoldii									•	
Buellia disciformis	•						•	•	•	
Buellia griseovirens	•									
Buellia ocellata	•						•			
Buellia subdisciformis	•							•		
Bunodophoron melanocarpum						•		•		
Caloplaca arcis						•	•			•
Caloplaca arnoldii				•						
Caloplaca brittanicum										
Caloplaca ceracea							•			
Caloplaca chrysodeta						•				•
Caloplaca cirrochroa						•	•			
Caloplaca citrina s.l.		•				•				•
Caloplaca crenularia	•	•		•	•		•			
Caloplaca dalmatica						•				
Caloplaca ferruginea	•					•	•	•		
Caloplaca flavescens	•					•	•			
Caloplaca flavocitrina	•					•	•			
Caloplaca flavovirescens							•			
Caloplaca holocarpa	•						•			•
Caloplaca marina				•	•		•			
Caloplaca microthallina	•				•					
Caloplaca saxicola						•				
Caloplaca thallincola	•			•						
Caloplaca variabilis						•				
Caloplaca verruculifera				•						
Caloplaca xantholyta										•
Calvitimela aglaea		•								
Calvitimela armeniaca			•							
Candelariella aurella forma *aurella*		•				•				
Candelariella vitellina forma *vitellina*	•			•	•	•				•

Species	**Coille an Leatraich & Brae**	**Dùn Caan**	**Lower ground in vicinity of Dùn Caan**	**Oskaig**	**Brochel**	**East coast**	**Hallaig and North Fearns**	**Woods north of Loch na Bronn**	**Boredale House area**	**St Maol-lugs Chapel**
Carbonea vorticosa			•							
Catapyrenium cinereum							•			
Catillaria chalybeia var. *chalybeia*							•			•
Catillaria contristans		•								
Catillaria lenticularis	•					•				
Catinaria atropurpurea									•	
Cavernularia hultenii								•		
Cetraria muricata		•	•							
Cetrelia olivetorum	•									
Cladonia arbuscula var. *squamosa*			•							
Cladonia bellidiflora			•					•		
Cladonia cervicornis subsp. *cervicornis*				•				•		
Cladonia chlorophaea sl.	•		•	•		•		•	•	•
Cladonia ciliata var. *tenuis*								•		
Cladonia coccifera sl.								•		
Cladonia coniocraea	•			•		•	•	•	•	
Cladonia digitata	•							•		
Cladonia diversa	•							•		
Cladonia fimbriata								•	•	
Cladonia floerkeana			•					•		
Cladonia furcata	•		•	•						
Cladonia gracilis		•	•			•				
Cladonia pocillum							•			
Cladonia polydactyla var. *polydactyla*	•				•					
Cladonia portentosa	•		•			•	•	•		
Cladonia pyxidata	•			•	•	•		•	•	•
Cladonia ramulosa	•									
Cladonia rangiformis				•		•	•	•		
Cladonia squamosa var. *squamosa*	•			•		•		•		
Cladonia strepsilis			•					•		
Cladonia subcervicornis		•	•	•		•		•		
Cladonia subulata	•								•	
Cladonia uncialis subsp. *biuncialis*	•		•		•			•		
Clauzadea monticola	•					•			•	•
Clauzadeana macula			•							
Cliostomum griffthii	•			•	•				•	
Coccotrema citrinescens				•						
Collema auriforme	•					•	•	•		•

Species	**Coille an Leatraich & Brae**	**Dùn Caan**	**Lower ground in vicinity of Dùn Caan**	**Oskaig**	**Brochel**	**East coast**	**Hallaig and North Fearns**	**Woods north of Loch na Bronn**	**Boredale House area**	**St Maol-lugs Chapel**
Collema crispum var. *crispum*								•		•
Collema cristatum var. *marginale*						•				
Collema flaccidum				•				•		
Collema fragile						•				
Collema furfuraceum				•					•	
Collema fuscovirens						•				
Collema subflaccidum	•					•	•			
Collema tenax var. *tenax*						•	•			•
Collemopsidium foveolatum				•	•					
Cornicularia normoerica		•	•							
Cystocoleus ebeneus					•			•		
Dactylospora lobariella					•					
Degelia atlantica	•			•	•	•	•	•		•
Degelia cyanoloma	**?**						•	•		
Degelia plumbea				•			•	•	•	
Dermatocarpon intestiniforme	•									
Dermatocarpon miniatum var. *miniatum*	•			•		•	•			
Dibaeis baeomyces	•	•			•					
Dimerella lutea	•							•	•	
Dimerella pineti						•			•	
Diploschistes scruposus		•								
Diplotomma alboatrum						•				
Dirina massiliensis forma *sorediata*						•				
Enterographa crassa						•				
Eopyrenula grandicula						•				
Ephebe lanata		•	•				•	•		
Evernia prunastri	•					•	•	•	•	•
Fellhaneropsis vezdae					•					
Flavoparmelia caperata							•	•		
Fuscidea cyathoides var. *cyathoides*	•	•	•	•	•		•	•		
Fuscidea gothoburgensis					•					
Fuscidea lightfootii	•						•	•		
Fuscidea lygaea		•	•	•						
Fuscidea recensa				•						
Graphina anguina						•				
Graphis alboscripta	•									
Graphis elegans	•					•	•	•	•	
Graphis scripta	•				•	•		•		

Species	**Coille an Leatraich & Brae**	**Dùn Caan**	**Lower ground in vicinity of Dùn Caan**	**Oskaig**	**Brochel**	**East coast**	**Hallaig and North Fearns**	**Woods north of Loch na Bronn**	**Boredale House area**	**St Maol-lugs Chapel**
Gyalecta jenensis						•				
Gyalecta truncigena						•				
Gyalideopsis muscicola	•									
Haematomma ochroleucum var. *porphyrium*				•	•					
Halecania ralfsii	•			•						
Homostegia piggotii	•			•						
Hypogymnia physodes	•	•	•		•	•	•	•	•	•
Hypogymnia tubulosa	•						•	•		
Hypotrachyna laevigata	•					•	•	•		
Hypotrachyna revoluta				•	•	•			•	
Hypotrachyna sinuosa	•		•					•		
Hypotrachyna taylorensis					•	•		•		
Icmadophila ericetorum		•	•					•		
Immersaria athroocarpa		•	•	•						
Ionaspis lacustris	•		•	•						
Kalchbrenneriella cyanescens	•									
Laeviomyces opegraphae				•						
Lecanactis abietina	•				•	•		•		
Lecania naegelii				•						
Lecanora actophila	•			•	•					
Lecanora aitema			•							
Lecanora albescens		•				•	•			•
Lecanora campestris subsp. *campestris*	•						•			•
Lecanora carpinea									•	
Lecanora chlarotera	•			•	•	•	•	•	•	•
Lecanora confusa	•			•	•			•	•	
Lecanora crenulata						•				
Lecanora dispersa						•				•
Lecanora ecortica						•				•
Lecanora expallens	•			•					•	•
Lecanora farinaria	•			•					•	
Lecanora gangaleoides	•			•	•					
Lecanora helicopsis	•			•	•					
Lecanora intricata	•	•	•		•	•				
Lecanora jamesii	•				•	•	•	•		
Lecanora persimilis	•									
Lecanora poliophaea				•	•					
Lecanora polytropa	•	•		•		•	•	•		•
Lecanora sulphurea	•									
Lecanora symmicta			•							
Lecidea grisella						•				
Lecidea lapicida		•		•						

Species	Coille an Leatraich & Brae	Dùn Caan	Lower ground in vicinity of Dùn Caan	Oskaig	Brochel	East coast	Hallaig and North Fearns	Woods north of Loch na Bronn	Boredale House area	St Maol-lugs Chapel
Lecidea lithophila			•	•						
Lecidea phaeops					•					
Lecidea plana				•						
Lecidella asema	•			•	•		•			
Lecidella elaeochroma forma *elaeochroma*	•			•	•	•		•		•
Lecidella elaeochroma forma *soralifera*	•									
Lecidella scabra	•			•			•			•
Lecidella stigmatea						•	•			
Lepraria caesioalba		•								
Lepraria incana s.s.				•	•					
Lepraria lobificans	•			•	•	•	•			•
Lepraria nivalis						•	•			
Lepraria rigidula	•									
Lepraria sylvicola					•					
Lepraria umbricola	•				•					
Lepraria vouauxii						•				
Leptogium britannicum				•		•			•	
Leptogium burgesii					•	•		•	•	
Leptogium cyanescens	•			•	•	•		•		
Leptogium gelatinosum					•	•	•	•		•
Leptogium lichenoides	•					•	•			
Leptogium plicatile						•				
Leptogium teretiusculum	•					•				
Lichenomphalia hudsoniana								•		
Lichenomphalia umbellifera	•					•				
Lichenopuccinia poeltii						•				
Lichinia confinis	•			•	•		•			
Lichinia pygmaea				•	•					
Lithographa tesserata		•	•							
Llimonea sorediata						•				
Lobaria amplissima									•	
Lobaria pulmonaria	•				•	•	•	•	•	•
Lobaria scrobiculata	•				•	•	•	•	•	•
Lobaria virens	•			•	•	•	•	•		•
Loxospora elatina	•				•	•	•	•	•	
Megalaria pulverea	•				•	•			•	
Melanelixia fuliginosa subsp. *fuliginosa*	•		•	•	•			•		•
Melanelixia fuliginosa subsp. *glabratula*	•	•			•	•		•	•	
Melanelixia subaurifera							•	•	•	
Melanohalea exasperata							•			

Species	Coille an Leatraich & Brae	Dùn Caan	Lower ground in vicinity of Dùn Caan	Oskaig	Brochel	East coast	Hallaig and North Fearns	Woods north of Loch na Bronn	Boredale House area	St Maol-lugs Chapel
Melaspilea atroides	•				•					
Menegazzia terebrata	•							•		
Micarea bauschiana						•				
Micarea cinerea forma *cinerea*						•				
Micarea denigrita				•						
Micarea leprosula		•		•		•				
Micarea lignaria var. *lignaria*				•		•				
Micarea lithinella						•				
Micarea micrococca	•			•	•	•				
Micarea peliocarpa				•						
Micarea stipitata	•				•	•				
Micarea synotheoides	•									
Micarea xanthonica	•			•						
Moelleropsis nebulosa							•			
Mycoblastus caesius	•			•		•			•	
Mycoblastus fucatus	•					•				
Mycoblastus sanguinarius forma *sanguinarius*	•							•	•	
Mycoglaena myricae	•		•					•		
Mycomicrothelia confusa	•					•				
Mycoporum antecellens	•				•					
Myxophora leptogiophila	•									
Nectriopsis lecanodes						•				
Nephroma laevigatum	•			•	•	•	•	•	•	
Nephroma parile							•	•		
Normandina pulchella	•				•	•	•	•	•	•
Ochrolechia androgyna	•	•			•	•	•	•	•	•
Ochrolechia parella	•			•	•	•	•		•	•
Ochrolechia subviridis						•			•	
Ochrolechia szatalaensis	•									
Ochrolechia tartarea		•	•					•		•
Opegrapha atra	•				•	•			•	
Opegrapha calcarea	•					•	•			•
Opegrapha dolomitica						•				
Opegrapha gyrocarpa	•			•	•					
Opegrapha herbarum	•				•	•				
Opegrapha niveoatra				•						
Opegrapha ochrocheila	•				•					
Opegrapha pertusariicola					•					
Opegrapha saxigena	•									
Opegrapha thelotrematis	•					•				
Opegrapha varia						•				

Species	**Coille an Leatraich & Brae**	**Dùn Caan**	**Lower ground in vicinity of Dùn Caan**	**Oskaig**	**Brochel**	**East coast**	**Hallaig and North Fearns**	**Woods north of Loch na Bronn**	**Boredale House area**	**St Maol-lugs Chapel**
Opegrapha vulgata	•				•	•	•			
Opegrapha xerica	•									
Opegrapha zonata	•			•	•		•			
Ophioparma ventosa		•								
Pachyphiale carneola									•	
Pannaria rubiginosa	•				•	•	•	•	•	•
Parmelia discordans		•								
Parmelia omphalodes	•	•	•	•	•			•		
Parmelia saxatilis	•	•	•	•	•	•	•	•	•	•
Parmelia sulcata	•		•		•		•	•	•	
Parmeliella parvula	•					•		•		
Parmeliella testacea									•	
Parmeliella triptophylla						•				
Parmeliopsis hyperopta								•		
Parmotrema crinitum	•			•	•	•	•	•	•	•
Parmotrema perlatum	•				•		•	•		
Peltigera canina		•				•				
Peltigera collina							•	•		
Peltigera didactyla						•				
Peltigera horizontalis						•				
Peltigera hymenina	•				•	•	•	•		•
Peltigera leucophlebia						•				
Peltigera membranacea	•	•		•	•	•	•	•		
Peltigera praetextata						•	•			
Peltigera rufescens	•									
Pertusaria albescens var. *albescens*								•		
Pertusaria albescens var. *corallina*	•									
Pertusaria amara forma *amara*	•				•			•	•	
Pertusaria coccodes	•									
Pertusaria corallina	•	•	•	•						
Pertusaria excludens		•			•		•			
Pertusaria flavicans		•				•				
Pertusaria hymenea	•				•	•	•			
Pertusaria lactea		•	•	•						
Pertusaria lactescens	•						•			
Pertusaria leioplaca	•				•	•	•		•	
Pertusaria multipunctata	•				•	•	•	•		
Pertusaria pertusa	•					•	•	•	•	•
Pertusaria pseudocorallina	•	•	•	•		•				
Pertusaria pupillaris	•									
Physcia adscendens										

Species	Coille an Leatraich & Brae	Dùn Caan	Lower ground in vicinity of Dùn Caan	Oskaig	Brochel	East coast	Hallaig and North Fearns	Woods north of Loch na Bronn	Boredale House area	St Maol-lugs Chapel
Physcia aipolia	•			•		•	•			
Physcia tenella subsp. *tenella*	•			•						
Physconia distorta	•								•	
Pilophorus strumaticus		•								
Placopsis gelida						•	•			
Placopsis lambii	•	•				•				
Placynthiella icmalea	•			•						
Placynthium nigrum	•					•	•			•
Placynthium subradiatum						•				
Platismatia glauca	•	•	•		•	•	•	•	•	•
Plectocarpon lichenum	•				•	•				
Polychidium muscicola				•						
Porina aenea	•					•				
Porina chlorotica forma *chlorotica*	•			•	•					
Porina lectissima					•					
Porina linearis						•				
Porpidia cinereoatra	•	•	•	•				•		
Porpidia crustulata					•					
Porpidia macrocarpa forma *macrocarpa*		•	•				•			
Porpidia macrocarpa forma *nigrocruenta*						•				
Porpidia melinodes	•	•								
Porpidia platycarpoides						•	•			
Porpidia rugosa				•						
Porpidia soredizodes							•			•
Porpidia tuberculosa	•	•	•		•		•			•
Protoblastenia calva						•				
Protoblastenia incrustans						•				
Protoblastenia rupestris	•					•	•			
Protopannaria pezizoides	•									
Protoparmelia badia		•	•			•				
Pseudephebe pubescens		•								
Pseudocyphellaria crocata	•									
Pseudocyphellaria intricata								•		
Pycnothelia papillaria		•	•					•		
Pyrenula laevigata	•				•	•				
Pyrenula macrospora	•				•	•	•	•		
Pyrenula occidentalis	•				•	•	•	•		
Pyrrhospora quernea						•				
Ramalina canariensis				•					•	
Ramalina cuspidata				•	•					

Species	Coille an Leatraich & Brae	Dùn Caan	Lower ground in vicinity of Dùn Caan	Oskaig	Brochel	East coast	Hallaig and North Fearns	Woods north of Loch na Bronn	Boredale House area	St Maol-lugs Chapel
Ramalina farinacea	•			•		•	•	•	•	•
Ramalina fastigiata	•				•			•	•	•
Ramalina siliquosa				•	•		•			•
Ramalina subfarinacea	•			•						•
Rhizocarpon geographicum	•	•	•	•	•			•		•
Rhizocarpon hochstetteri		•								
Rhizocarpon lavatum		•		•						
Rhizocarpon lecanorinum		•								
Rhizocarpon oederi	•	•	•		•					
Rhizocarpon petraeum						•	•			•
Rhizocarpon reductum	•		•	•	•		•			•
Rhizocarpon richardii	•			•	•					
Rimularia furvella	•									
Rinodina atrocinerea	•									
Rinodina efflorescens	•				•					
Rinodina gennarii				•						
Rinodina luridescens	•									
Romjularia lurida							•			
Schismatomma umbrinum				•	•					
Sclerococcum sphaerale				•						
Scolicisporum umbrinum		•				•				
Skyttea nitschkei	•					•				
Skyttea pyrenulae	•									
Solorina saccata							•			
Sphaerophorus fragilis								•		
Sphaerophorus globosus			•		•	•			•	
Stenocybe pullatula	•					•	•			
Stereocaulon leucophaeopsis	•									
Stereocaulon pileatum				•						
Stereocaulon vesuvianum var. *nodulosum*		•								
Stereocaulon vesuvianum var. *vesuvianum*		•	•	•		•		•		
Sticta dufourii	•			•		•	•			
Sticta fuliginosa	•					•	•		•	•
Sticta limbata	•						•	•		
Sticta sylvatica	•			•	•	•	•	•	•	
Stigmidium degelii	•									
Strangospora moriformis	•									
Strigula taganae	•									
Tephromela atra var. *atra*	•	•		•	•	•	•			•
Tephromela atra var. *torulosa*	•									
Thelotrema lepadinum	•				•	•		•		

Species	**Coille an Leatraich & Brae**	**Dùn Caan**	**Lower ground in vicinity of Dùn Caan**	**Oskaig**	**Brochel**	**East coast**	**Hallaig and North Fearns**	**Woods north of Loch na Bronn**	**Boredale House area**	**St Maol-lugs Chapel**
Thelotrema macrosporum	•				•	•				
Thelotrema petractoides	•				•	•	•	•		
Tomasellia gelatinosa	•					•				
Toninia aromatica							•			•
Toninia sedifolia							•			
Trapelia corticola	•									
Trapelia glebulosa	•			•		•	•			
Trapelia placodioides		•								
Trapeliopsis flexuosa				•						
Trapeliopsis granulosa										
Trapeliopsis pseudogranulosa	•									
Tremolecia atrata			•							
Tuckermanopsis chlorophylla	•								•	
Umbilicaria cylindrica		•	•							
Umbilicaria polyphylla			•							
Umbilicaria polyrrhiza			•							
Umbilicaria torrefacta			•					•		
Usnea filipendula									•	
Usnea flammea	•					•				
Usnea fragilescens var. *mollis*	•								•	
Usnea subfloridana	•		•		•	•	•	•	•	
Vahliella leucophaea				•	•	•	•			
Verrucaria baldensis						•	•			
Verrucaria caerulea						•				
Verrucaria dolosa						•				
Verrucaria elaeina										•
Verrucaria fusconigrescens	•			•			•			•
Verrucaria fuscella						•	•			•
Verrucaria hochstetteri						•	•			
Verrucaria internigrescens				•						
Verrucaria macrostoma forma *macrostoma*		•					•			
Verrucaria margacea						•				
Verrucaria maura	•			•	•		•			
Verrucaria mucosa	•			•						
Verrucaria muralis										•
Verrucaria nigrescens forma *nigrescens*		•				•	•			
Verrucaria striatula	•									
Xanthoparmelia loxodes								•		
Xanthoparmelia mougeotii								•		
Xanthoria aureola	•			•	•		•			
Xanthoria calcicola										•

Species	Coille an Leatraich & Brae	Dùn Caan	Lower ground in vicinity of Dùn Caan	Oskaig	Brochel	East coast	Hallaig and North Fearns	Woods north of Loch na Bronn	Boredale House area	St Maol-lugs Chapel
Xanthoria parietina	•			•	•	•	•		•	
Xylographa vitiligo				•						

Key to localities

Coille an Leatraich & Brae 16th July *Squares recorded NG5541 Coille an Leatraich (s), 5542; Coille an Leatraich (n); 5641;Brae. Alt. 0 – 140m.*
Habitats: Birch-hazel woodland, coastal rocks & ruined buildings and walls with isolated sycamores.

Dùn Caan 17th July *Squares recorded NG5739, Alt. 390 -443m.*
Habitats: High ground. upland moorland with acid rock outcrops & basalt outcrops.

Lower ground in vicinity of Dùn Caan 17th July *Squares recorded NG5640, Alt. 310 – 340m.; NG5737, Alt. 200 -250m.; NG5738,Alt. c.350m.; NG5639, 190-290m.*
Habitats: upland moorland with acid and calcareous rock outcrops

Oskaig 17th July *Square recorded NG5437. Alt. 0-20m.*
Habitats: coastal rocks and trees

Brochel 17th, 18th & 19th July *Square recorded NG5846. Alt. 0-100m.*
Habitats: coastal rocks, birch woodland

East coast 18th July *Squares recorded NG5842, 5843, 5844 5746. Alt. 0 – 130m.*
Habitats: calcareous rock, Birch – Hazel – Wych Elm woodland on steep slopes. Also forestry plantation

Hallaig and North Fearns 19th July *Squares recorded NG5936, NG5938. Alt. 0 – 140m.*
Birch woodland, steep grass slopes with bare soil, coastal rocks and cliffs

Woods north of Loch na Bronn 20th July (also on the 18th) *Square recorded NG5746. Alt. 90 -100m.*
Habitats: Birch – Hazel woodland with Rowan & willow. Moorland

Boredale House Hotel, Kennel Wood and Raasay House area 19th July *Square recorded NG5536. Alt. 20 – 60m.*
Habitats: Mature planted Sycamore, Beech etc and conifer plantation.

St Maol-lugs Chapel 20th July *Squares recorded NG547365. Alt. 20m.*
Ruined church & chapel with headstones & some mature trees

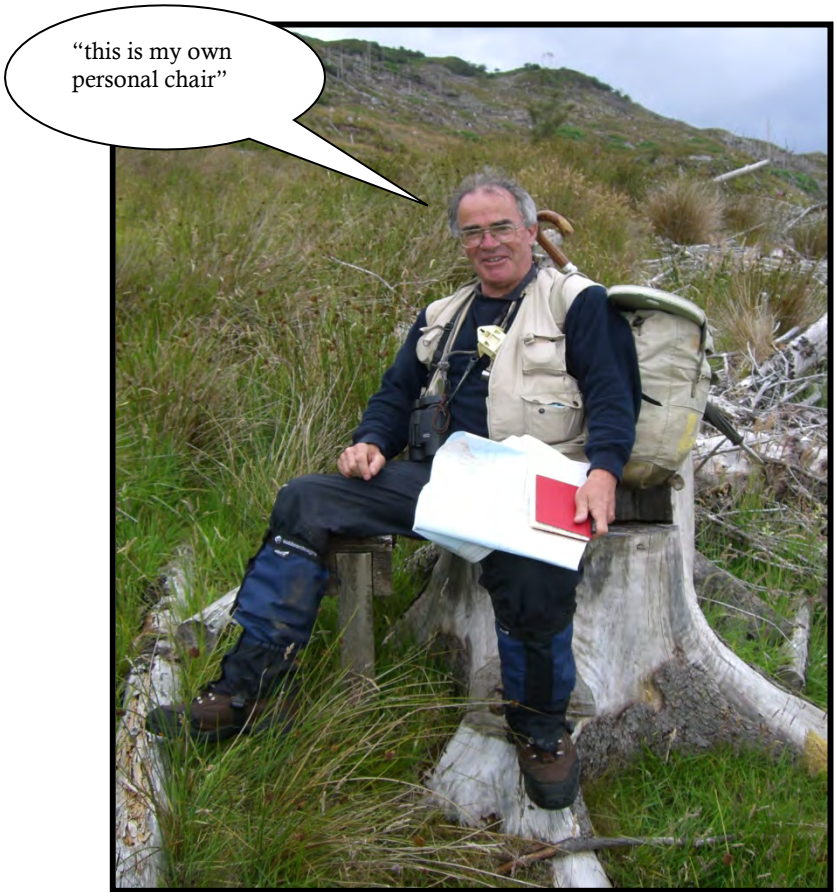
A very personal view of the BLS Meeting on Raasay, 2009 by Peder Aspen

Peder loses his grip on reality, but not on the North Pole!

'*El Presidente'* retreats from the pressures of high office!

Great white whale seen off the coast of Raasay; Captain Ahab sent for!

BLS members bravely stand by their heroic fire-raiser Brian Coppins



Ivan, never lost for words, is completely stumped

Report of the Derbyshire Limestone Field Meeting, 9-12 October 2009

Lodging at Hartington Hall Youth Hostel, in the carboniferous limestone area of the Peak District, many BLS members were pleasantly surprised by the total absence of any 'it's grim up north' scenery. Fortunately the weather, whilst it threatened when we were at 'high altitude', was up to the customary high standards set by previous BLS field meetings.

Jane Austen refers to there being "no finer county in England than Derbyshire", and features "all the the celebrated beauties of Chatsworth, Dovedale and the Peaks". Over the weekend some familiarity was gained with these beauties as well as with the lichens of various limestone habitats of the White Peak and, as a special treat, one morning was spent appreciating some veteran oaks at Chatsworth.

Karst country at High Edge

The limestone habitats visited included a high altitude karst area; both wet and dry limestone dales; dolomitised limestone; ancient lead workings and the inevitable churchyard.

The 32 attendees visited 9 sites and recorded 236 species. The lichenicolous fungus *Cladoniicola staurospora* at Gang Mine was new to the British Isles and *Hertelidea botryosa* at Chatsworth new to England. 19 other species were new to Derbyshire. Eight records gave reconfirmation of the presence of species rare in the county.

The hostel with its wood-panelled halls proved to be an ideal meeting base offering good food, a good workroom, comfortable accommodation, an excellent local beer and a location in a very attractive village in the higher reaches of the Dove valley.

Field Meeting Attendees:

Lesley Balfe; Ishpi Blatchley; Graham Boswell; Paul Cannon; Brian Carlysle; Brian Coppins; Ginnie Copsey; Robin Crump; Frank Dobson; Heidi Döring; David Hill; Pamela Jackson; John Jones; Les & Sue Knight; Peter Lambley; Craig Levy; Vivyan Lisewski; David & Pat Hawksworth; Angela Knisely-Marpole; Ivan Pedley; Steve

Price; Maxine Putnam; Ken Sandell; Janet Simkin; John Skinner; Mike Sutcliffe; Amanda Waterfield; Sam Willis (DWT); Pat Wolseley; Ray Woods.

Acknowledgements:

Thanks go to the following for permission to visit their sites: Paul Mortimer of The National Trust, South Peak Estate (Wolfscote Dale); Phil Bowler of Natural England (Lathkill Dale); Julia Gow of Derbyshire Wildlife Trust (Gang Mine); Dorothy & William Mellor of Hulme End (Long Dale); Ken Lomas of Brassington (Harboro' Rocks); Nick Wood of Chatsworth Settlement Trustees & The Duke of Devonshire (Chatsworth Old Park). Thanks also to the manager and staff of Hartington Youth Hostel for tolerating the oddities of our group.

Friday 9th October

Wolfscote Dale (SK1358)

This dale is part of the Derbyshire Dales NNR and is owned and managed by the National Trust. The River Dove keeps the moisture levels high and the steep open dalesides with many rock outcrops and cliffs provide habitat for a good range of rock face and crevice species. A 2km walk to the dale from the hostel by way of lichen encrusted drystone walled lanes whetted the appetite for lichens on 'real' rock. Here the river forms the boundary with Staffordshire and Ivan Pedley seemed magnetically drawn across the footbridge to kiss the ground on the other side. The local dogs looked on in disbelief!

Steve consults the oracle....

Two new species for the county list were found here: *Caloplaca arcis* and *Placynthium flabellosum*. The former species being part of the *Caloplaca citrina* complex and has only recently been recognised and was also recorded at other sites in the meeting.

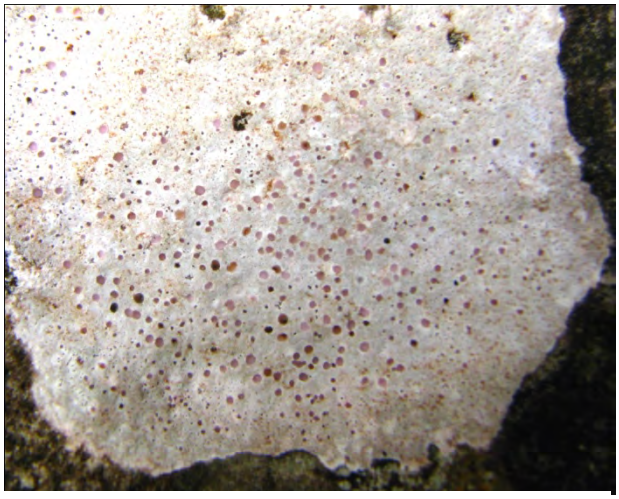
One species that attracted particular interest was *Dermatocarpon luridum*, here growing at the upper edge of limestone outcrops where the surface was flushed by water seepage. Because some discussion took place about the suitability of this habitat for that species a specimen was taken which later tested positive (cortex : Melzer's reagent +red). The same species was found the

next day in a similar habitat in Lathkill Dale.

Saturday 10th October

High Edge (SK 0568, SK0569, SK0668, SK0669)

This area of limestone pedestals and exposed bedrock is, at 475m AoD, some of the highest altitude limestone in the Peak District. Many of the sex-, sept- and octogenarians amongst the group were pleased that this intriguing karst landscape was a level 100m walk from the road-side parking area.



Hymenelia epulotica

Toninia verrucarioides, *Verrucaria nigrescens* f. *tectorum* and *Verrucaria polysticta* made their first recorded appearance in the county and *Caloplaca dichroa*, another member of the *Caloplaca citrina* complex, was also recorded for the first time here and again not unexpectedly found on other sites later in the weekend.

This area was notable for having six species of *Peltigera* and giving the opportunity for attendees to scratch away to compare and contrast *Hymenelia epulotica* and *H. prevostii.*

Lathkill Dale NNR (SK1566, SK1665, SK1666)

This area is owned and managed by Natural England. The upper end of Lathkill Dale is a dry valley and being orientated east west provides a range of habitats on both shady and sunlit cliffs and outcrops. In addition the dalesides support stable and mobile screes.

A find of *Leptogium massiliense* rewarded Brian Coppins' 30 minute search amongst the south-facing scree and *Collema multipartitum*, *Leptogium pulvinatum*, and *Protoblastenia lilacina* also put in their first recorded appearance in the county. *Lecanora persimilis* was recorded, where it should be, on twig nodes and a mystery *Usnea* found by Viv Lisewski which at first

was thought to be *U. hirta* is still, at the time of writing, baffling the TLC and DNA testing it is undergoing in Edinburgh.

Monyash St Leonards Church (SK151664)

A small group, frustrated by too many black dots, moved back into their comfort zone with a visit to the church in the nearby village of Monyash. Or was it the lure of the nearby café that took them there?

An invertebrate interlude. A case moth was found by Ishpi Blatchley in Monyash Church on a sandstone memorial, close up to the north wall -- a very damp and cheerless spot!!. It was identified by Ivan Pedley who reports as follows: There were several larvae all were *Luffia ferchaultella s.l.*(this is a group of moths under revision!!) with cases scattered with *Lepraria incana* granules/soredia. Every book on this moth just trots out the same mantra "feeds on lichens". All of us at the site were able to see that they were "selecting" *Lecanora soralifera* soredia.

Sunday 11th October

Harboro' Rocks, Brassington, (SK 2455)

In private ownership, these massive tors consist of dolomitised carboniferous limestone. It is thought that the rock may have gained its high magnesium content through being covered by the sea in Permian times. The area is popular with climbers, who, bemused, could not understand why anyone, never mind a group of apparently sane adults, could have such an intimate interest in rock faces and crevices. For many members it was the first sighting of *Lecanora campestris* subsp. *dolomitica,* a speciality of this rock type which occurs here in abundance. Also found here was *Squamarina cartilaginea*, probably more abundant here than elsewhere in Derbyshire where on the 'ordinary' carboniferous limestone it is at best only occasional. Its abundance here may be a result of the rock type.

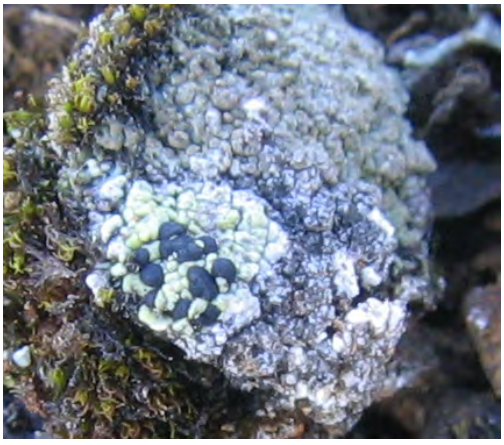
Lecanora campestris subsp. *dolomitica* © Mike Sutcliffe

Here the lichenicolous fungi

Vouauxiella verrucosa was found on *Lecanora campestris* by Brian Coppins and his matchstick 'flag-pole' guided many to the inconspicuous fertile specimen of *Bilimbia lobulata*.

Gang Mine SAC, Middleton-in-Wirksworth (SK288 554)

Managed and part owned by Derbyshire Wildlife Trust these lead workings offered good areas of lead mine spoil which is managed by relatively intensive grazing. The age of the site is illustrated by a document of the 1640s which refers to the area as 'ancient lead workings'. Here, new to the British Isles, was *Cladoniicola staurospora* found by Brian Coppins growing on *Cladonia pocillum*. The site allowed all attendees to appreciate the heavy-metal specialists including *Sarcosagium campestre* var. *macrosporum* growing on mosses on the lead-spoil heaps and *Epilichen scabrosus* growing on *Baeomyces rufus*. *Pronectria robergei* found on *Peltigera rufescens* was new to the county and *Rhizocarpon umbilicatum*, was a record of a species previously considered extinct in the county.



Epilichen scabrosus © Mike Sutcliffe

Long Dale, north off Hartington Dale (SK139 606)

On return from Gang Mine some of the group called off at this privately owned south facing daleside pasture site with plenty of plenty of limestone outcrops. This site is typical of many of the dales and gave a good list of species expected of such a habitat.

Monday 12th October

Chatsworth Old Park (SK2668)

Renowned for its ancient oak trees, this normally private area was accessed following permission being kindly granted by the Duke of Devonshire. The continued private nature of the site means that it can be managed in the best the interests of the trees with little concern for the health and safety aspects that would be essential if public access were to be granted. Hulks of 500 year old oaks are left to decay naturally and

fallen trees can be left where they lie. The results of this continuity of good management is illustrated by the list of quality species found here:

Hertelidea botryosa - new to England, on a fallen oak, previously found on fallen dead pines in the Scottish highlands; this is a near threatened nationally rare species.

Catillaria alba - new to Derbyshire, is a vulnerable, nationally rare species for which the UK has an international responsibility.

Chaenotheca stemonea - 1 historic Derbyshire record from the Old Park.

Chaenothecopsis nigra - 1 historic Derbyshire record from the Old Park.

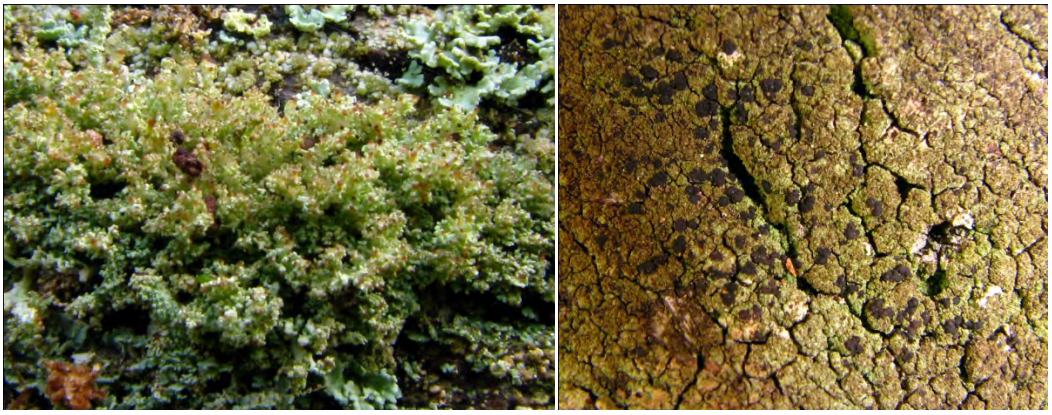
Imshaugia aleurites - 1 historic Derbyshire record from the Old Park.

Parmelina tiliacea - 1 historic Derbyshire record from the Old Park.

Strangospora moriformis - 1 historic Derbyshire record from the Old Park.

Cladonia parasitica - 2 historic Derbyshire records including one from the Old Park.

Chaenotheca brunneola - 2 historic Derbyshire records including one from the Old Park.



Cladonia parasitica (left) and *Hertelidea botryosa* (right)

The half-day scheduled for this visit proved far too short, most people only covering the lower slopes and huge areas left un-inspected. But worry ye not, the Duke has granted the BLS permission to continue the survey on a return visit to the site in October 2011.

Steve Price

lichenrecords@sorby.org.uk

Species table

The table below (next page) lists species by site. This is an aggregation of the records which were collected and input to the BLS data-base by 1km square.

Key: nd: new to Derbyshire; nbi: new to British Isles; ne: new to England; ndx: new to Derbyshire – previously considered extinct; rd1: reconfirmation of a site record – 1 site known in Derbyshire; rd2: reconfirmation a site in Derbyshire – 2 sites known in Derbyshire.

Species	**See key above**	**Wolfscote Dale NNR**	**High Edge**	**Lathkill Dale NNR**	**Monyash St Leonards Church**	**Harboro Rocks**	**Gang Mine**	**Long Dale / Hartington Dale sw.**	**Hartington**	**Chatsworth Old Park**
Acarospora cervina								•		
Acarospora fuscata					•		•			
Acarospora nitrophila					•					
Acarospora umbilicata forma *congredians*					•					
Acrocordia conoidea		•	•	•				•	•	
Acrocordia salweyi									•	
Agonimia tristicula		•	•	•		•			•	
Anisomeridium polypori						•				
Arthonia lapidicola							•			
Arthonia radiata		•		•	•	•		•		
Arthopyrenia analepta ##				•						
Arthopyrenia saxicola			•							
Aspicilia calcarea		•	•	•	•	•		•	•	
Aspicilia contorta subsp. *contorta*			•				•		•	
Aspicilia contorta subsp. *hoffmanniana*			•	•		•	•		•	
Bacidia bagliettoana			•				•			
Bacidia viridifarinosa						•				
Baeomyces rufus					•		•			
Belonia nidarosiensis		•	•	•	•	•		•	•	
Bilimbia lobulata						•				
Bilimbia sabuletorum		•	•	•		•	•	•	•	
Botryolepraria lesdainii		•	•	•	•			•		
Buellia aethalea					•					
Calicium glaucellum										•
Caloplaca arcis	nd	•	•		•	•				
Caloplaca aurantia		•	•	•	•			•		
Caloplaca chalybaea		•	•	•						
Caloplaca chlorina						•				
Caloplaca citrina s.lat.									•	
Caloplaca citrina s.str.		•	•	•	•		•	•		
Caloplaca decipiens			•							
Caloplaca dichroa	nd		•	•		•				
Caloplaca flavescens		•	•	•	•	•	•	•	•	
Caloplaca flavocitrina			•	•		•		•		

Species	**See key above**	**Wolfscote Dale NNR**	**High Edge**	**Lathkill Dale NNR**	**Monyash St Leonards Church**	**Harboro Rocks**	**Gang Mine**	**Long Dale / Hartington Dale sw.**	**Hartington**	**Chatsworth Old Park**
Caloplaca holocarpa			•			•				
Caloplaca lactea				•						
Caloplaca oasis		•	•	•	•					
Caloplaca ochracea		•	•	•				•		
Caloplaca saxicola				•				•		
Caloplaca variabilis			•	•						
Candelaria concolor	nd									•
Candelariella aurella forma *aurella*			•		•	•	•			
Candelariella medians forma *medians*			•		•	•				
Candelariella reflexa										•
Candelariella vitellina forma *vitellina*					•	•	•			
Catillaria alba	nd									•
Catillaria lenticularis		•	•	•	•	•		•		
Chaenotheca brunneola	rd2									•
Chaenotheca ferruginea										•
Chaenotheca stemonea	rd1									•
Chaenotheca trichialis										•
Chaenothecopsis nigra	rd1									•
Cladonia chlorophaea s.lat.							•			
Cladonia coniocraea		•								•
Cladonia fimbriata							•			
Cladonia furcata							•			
Cladonia macilenta										•
Cladonia parasitica	rd2									•
Cladonia pocillum		•	•	•		•	•			
Cladonia polydactyla var. *polydactyla*										•
Cladonia pyxidata		•							•	
Cladonia rangiformis			•				•			
Cladoniicola staurospora # (on *Cladonia pocillum*)	nbi						•			
Clauzadea immersa		•		•				•		
Clauzadea metzleri			•	•						
Clauzadea monticola		•	•			•				
Collema auriforme		•	•	•					•	

Species	**See key above**	**Wolfscote Dale NNR**	**High Edge**	**Lathkill Dale NNR**	**Monyash St Leonards Church**	**Harboro Rocks**	**Gang Mine**	**Long Dale / Hartington Dale sw.**	**Hartington**	**Chatsworth Old Park**
Collema cristatum var. *cristatum*		•		•						
Collema cristatum var. *marginale*				•						
Collema fuscovirens		•	•	•				•		
Collema multipartitum	nd			•						
Collema polycarpon				•						
Collema tenax var. tenax				•						
Collema tenax var. vulgare			•	•						
Dermatocarpon luridum		•		•						
Dermatocarpon miniatum var. *miniatum*		•	•	•						
Dimerella pineti										•
Diploicia canescens				•					•	
Diploschistes muscorum		•					•		•	
Diplotomma alboatrum				•		•		•		
Diplotomma hedinii						•				
Dirina massiliensis f. *sorediata*				•						
Epilichen scabrosus #	nd						•			
Evernia prunastri				•		•				•
Fuscidea lightfootii		•								
Gyalecta jenensis var. *jenensis*			•	•		•				
Hertelidea botryosa	ne									•
Hymenelia epulotica		•	•							
Hymenelia prevostii			•			•		•		
Hypocenomyce scalaris										•
Hypogymnia physodes										•
Hypogymnia tubulosa				•						•
Hypotrachyna revoluta										•
Imshaugia aleurites	rd1									•
Jamesiella anastomosans										•
Lecania cyrtella							•			
Lecania erysibe			•		•					
Lecanora albescens		•	•	•	•	•	•	•	•	
Lecanora campestris subsp. *campestris*					•	•			•	
Lecanora campestris subsp. *dolomitica*						•				
Lecanora carpinea				•						

Species	**See key above**	**Wolfscote Dale NNR**	**High Edge**	**Lathkill Dale NNR**	**Monyash St Leonards Church**	**Harboro Rocks**	**Gang Mine**	**Long Dale / Hartington Dale sw.**	**Hartington**	**Chatsworth Old Park**
Lecanora chlarotera		•		•	•					•
Lecanora conizaeoides forma *conizaeoides*										•
Lecanora crenulata			•		•			•		
Lecanora dispersa		•	•		•	•	•	•	•	
Lecanora expallens										•
Lecanora muralis			•				•			
Lecanora persimilis	nd			•						
Lecanora polytropa					•		•			
Lecanora pulicaris				•		•				
Lecanora rupicola var. *rupicola*					•					
Lecanora semipallida			•				•			
Lecanora soralifera					•					
Lecanora sulphurea					•					
Lecidella elaeochroma forma *elaeochroma*		•		•		•				
Lecidella scabra					•		•			
Lecidella stigmatea		•	•			•	•			
Lepraria incana s. lat.						•				
Lepraria incana s. str.					•					•
Lepraria lobificans		•		•		•				
Lepraria nivalis		•		•						
Lepraria vouauxii									•	
Leproplaca chrysodeta				•	•			•		
Leproplaca xantholyta				•						
Leptogium gelatinosum		•	•	•						
Leptogium massiliense	nd			•						
Leptogium pulvinatum	nd			•				•		
Leptogium schraderi			•	•						
Leptogium subtile							•			
Leptogium teretiusculum				•						
Leptogium turgidum				•						
Marchandiomyces aurantiacus #	nd									•
Melanelixia fuliginosa subsp. *glabratula*		•								•
Melanelixia subaurifera						•				•
Merismatium deminutum								•		

Species	**See key above**	**Wolfscote Dale NNR**	**High Edge**	**Lathkill Dale NNR**	**Monyash St Leonards Church**	**Harboro Rocks**	**Gang Mine**	**Long Dale / Hartington Dale sw.**	**Hartington**	**Chatsworth Old Park**
Micarea denigrata						•				
Micarea lignaria							•			
Micarea melaena										•
Microcalicium disseminatum #	nd									•
Ochrolechia androgyna										•
Ochrolechia microstictoides	nd									•
Opegrapha calcarea				•				•		
Opegrapha dolomitica				•						
Opegrapha rupestris #		•	•	•				•		
Parmelia saxatilis		•			•					•
Parmelia sulcata		•		•		•				•
Parmelina tiliacea	rd1									•
Parmeliopsis ambigua										•
Parmotrema perlatum		•				•				
Peltigera canina							•			
Peltigera horizontalis			•				•			
Peltigera hymenina		•	•				•			
Peltigera membranacea		•	•				•			
Peltigera neckeri							•			
Peltigera polydactylon			•							
Peltigera praetextata		•	•							
Peltigera rufescens			•			•	•			
Pertusaria lactescens					•					
Petractis clausa		•	•							
Phaeophyscia orbicularis			•	•		•				
Physcia adscendens		•	•		•	•	•		•	•
Physcia aipolia				•						
Physcia caesia			•			•	•			
Physcia tenella subsp. *tenella*				•		•				•
Placidium squamulosum		•		•		•				
Placynthiella icmalea						•				•
Placynthium flabellosum	nd	•								
Placynthium garovaglioi		•								
Placynthium nigrum		•	•	•		•				

Species	**See key above**	**Wolfscote Dale NNR**	**High Edge**	**Lathkill Dale NNR**	**Monyash St Leonards Church**	**Harboro Rocks**	**Gang Mine**	**Long Dale / Hartington Dale sw.**	**Hartington**	**Chatsworth Old Park**
Platismatia glauca										•
Polyblastia albida						•				
Polyblastia cupularis				•						
Polysporina simplex					•					
Porina linearis		•	•	•		•		•	•	
Porpidia crustulata							•			
Porpidia macrocarpa forma *macrocarpa*					•		•			
Porpidia tuberculosa					•		•			
Pronectria robergei # (on *Peltigera rufescens*)	nd						•			
Protoblastenia calva		•	•	•	•			•	•	
Protoblastenia incrustans		•	•					•	•	
Protoblastenia lilacina	nd			•						
Protoblastenia rupestris		•	•	•	•	•	•	•	•	
Protoparmelia badia					•					
Pseudevernia furfuracea s.lat.										•
Pseudevernia furfuracea var. *ceratea*										•
Psilolechia lucida					•					•
Punctelia jeckeri										•
Punctelia subrudecta s. str.						•				
Ramalina farinacea		•				•				•
Ramalina fastigiata										•
Rhizocarpon geographicum					•					
Rhizocarpon petraeum							•			
Rhizocarpon reductum					•		•			
Rhizocarpon umbilicatum	ndx						•			
Rinodina bischoffii				•						
Rinodina gennarii						•				
Rinodina teichophila						•				
Romjularia lurida		•	•	•						
Sarcogyne regularis						•				
Sarcosagium campestre var. *macrosporum*							•			
Solenopsora candicans			•			•				
Solorina saccata		•		•						
Squamarina cartilaginea			•			•				

Species	**See key above**	**Wolfscote Dale NNR**	**High Edge**	**Lathkill Dale NNR**	**Monyash St Leonards Church**	**Harboro Rocks**	**Gang Mine**	**Long Dale / Hartington Dale sw.**	**Hartington**	**Chatsworth Old Park**
Stereocaulon nanodes							•			
Stereocaulon pileatum							•			
Strangospora moriformis	rd1									•
Tephromela atra var. *atra*					•					
Thelidium decipiens		•	•	•				•		
Thelidium incavatum		•		•			•			
Thelidium papulare forma *papulare*		•	•	•	•	•		•		
Toninia aromatica		•	•			•				
Toninia sedifolia		•		•		•				
Toninia verrucarioides	nd		•	•						
Trapelia coarctata						•	•			
Trapelia placodioides					•		•			
Trapeliopsis flexuosa										•
Verrucaria baldensis		•	•	•	•			•	•	
Verrucaria caerulea		•		•						
Verrucaria calciseda			•	•				•		
Verrucaria dolosa				•			•			
Verrucaria dufourii		•						•		
Verrucaria fuscella		•	•	•				•		
Verrucaria hochstetteri		•	•	•		•		•	•	
Verrucaria macrostoma forma *furfuracea*			•							
Verrucaria macrostoma forma *macrostoma*				•						
Verrucaria muralis		•				•	•	•		
Verrucaria murina							•			
Verrucaria nigrescens		•	•	•	•	•	•	•	•	
Verrucaria nigrescens forma *tectorum*	nd		•							
Verrucaria pinguicula		•	•	•						
Verrucaria polysticta	nd		•	•						
Verrucaria viridula		•		•		•		•		
Vezdaea aestivalis							•			
Vouauxiella verrucosa # (on *Lecanora campestris*)	nd					•				
Xanthoria parietina			•	•	•	•	•		•	•
Xanthoria polycarpa										•

BLS Field Meetings & Workshops Programme 2010/2011

***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 are 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 SUMMER 2010 FIELD MEETING, Moray, Scotland

Saturday 14 - Saturday 21 August 2010

Based in Findhorn, this meeting plans to visit some exciting sites including the famous lichen heaths of Culbin Sands, the shingle at the mouth of the Spey and the woods of the lower Findhorn River. The windblown heaths of the Findhorn Dunes are within walking distance of our meeting base. If you want to get clued up on the terricolous Cladonias this is the meeting for you!

The BLS has booked (and paid a deposit for) five luxury self-contained caravans offering up to 24 bed-spaces in 7 twin and 5 double bedrooms at Findhorn Holiday Park (grid ref. NJ 053 635). Each caravan has toilets, showers, TV's, and fully equipped kitchens. Bed linen is provided, but bring your own towels.

Breakfast will have to be self-catered, there are food shops on-site, in Findhorn (2km away) and in Kinloss (3km away). Other meals can also be self-catered but there are pubs serving food in both Findhorn village and Kinloss. There is a café on-site. A secure room on-site have been reserved for the week this will provide some room for microscope use, and for displaying specimens, maps and books.

The cost of bed and laboratory accommodation will be in the region of £110 per person for the week. This amount depends upon all the bed spaces being used (in this respect couples are encouraged to request the double bedrooms). The maximum cost should not exceed £130 per person. These figures do not include the cost of any food.

Other types of accommodation can be found by searching the web with 'Moray accommodation' or similar. There is a medium-sized campsite on the Holiday Park, however they do not accept reservations, so there is no guarantee of spaces. Members not staying in the arranged accommodation will be asked to contribute to the cost of hiring the laboratory rooms.

The nearest rail station in Forres, is 7km from the meeting base and is on the line between Inverness (30 min journey) and Aberdeen (1hr 45 min journey). Overnight sleeper services serve both Inverness and Aberdeen. There is are regional airports at Inverness and Aberdeen.

Please book with the Field Meetings Secretary, Steve Price (email *lichenrecords@sorby.org.uk*) and also advise the local organiser Heather Paul (email *george.paul@btinternet.com*) if you plan to attend. Bookings will be taken on a first-come first-served basis, and a booking is secured on receipt of a deposit of £30 per person. As places are limited, please ensure your place by early booking. Cheques made payable to the BLS, please, should be sent to Steve Price, the Field Meetings Secretary, Woodlands, Combs Road, Combs, High Peak, Derbyshire SK23 9UP. The balance of the cost will need to be paid by the beginning of July 2010.

Heather Paul and Clare Scanlon (with the support of Sandy Coppins) will be arranging the details of the sites to be visited and more information will be sent out to attendees as plans develop.

RHS WISLEY

Sunday 3 October (day meeting) 10AM – 4.30PM

We are fortunate to have been invited to this prestigious garden to survey lichens. Habitats include informal avenues of native trees, wild plant areas, pinetum, fruit tree plantation, wooden benches, rock garden, stone and brick edging to flower beds and monuments, including some of granite. The garden is most attractive and provides good scope for lichen-hunting: over 400 hectares (1,000 acres) in all! Many substrates in the garden show a reasonable cover of common lichens that have established themselves over the last 40 years, as sulphur dioxide pollution has diminished. Some significant trees were lost in the severe gales of 1987 but badly affected woodland has been replanted. The A3 runs alongside the garden that is affected by nitrogen-pollutants from traffic and garden practice. However, the RHS is keenly aware of its responsibility in managing the garden in an environmentally sustainable way. Our challenge is to identify interesting niches in which less common lichens might be found! We aim to achieve a list of lichens that may be the basis of a leaflet which later may be available for visitors.

This day is a contribution by both BLS and RHS to the International Year of Biodiversity and is courtesy of Dr John David.

Programme

10.00–10.30 Arrive at the main entrance and make your way to the Hillside Events Centre. (Entrance is free for BLS members who do not belong to the RHS and are surveying lichens on this day)

10.30–10.45 Coffee or tea in the Hillside Events Centre, our base for the day. Coffee/ tea and X10, X20 viewing microscopes are available throughout in this base.

10.45 Welcome and introduction by Dr John David. John will describe the various garden habitats available and the scope provided for lichen diversity. We will decide which areas to survey, in small groups, during the morning and choose an alternative for the afternoon, so we can achieve as much coverage as possible. John will offer guidance on observing considerately, to fit in with garden practice.

11.15–3.30 During this time participants can record lichens in two different areas, with a break in between. Lunch is available in the garden café at reasonable cost.

3.30–4.00 Return to our base for a plenary session to pool results and discuss possible Next Steps.

4.00–4.30 **Lichens in Gardens by Dr William Purvis of the Natural History Museum. William has kindly agreed to give an illustrated talk.**

During the afternoon an Introductory Lichen Walk, 2.00–3.15, will be offered for members of the public, to introduce the fascinating tiny world of lichens.

Locally frequent species will be introduced, their life-style and habitat preferences explained. The walk will start from the Loggia at the east end of the Canal and at a gentle pace will cover several garden areas. Barbara Hilton will lead this, for a maximum of 22 people. (If you are willing to assist or take an extra group, please let Barbara know.) **Local RHS members and staff are welcome to join the final session (3.30 onwards).**

Getting there: The garden lies between Cobham and Ripley in Surrey, off the main London to Portsmouth road (A3) south of Junction 10 of the M25. Follow the brown tourist flower signs on the A3 and M25 to RHS Garden. Parking is free.
By bus: 515 Kingston to Guildford.**By rail**: Closest station is West Byfleet (3 miles) or Woking (4 miles). (No taxis on standby at West Byfleet.)

Those interested in attending this day contact Barbara Hilton, Beauregard, 5 Alscott Gardens, Alverdiscott, Barnstaple, Devon EX31 3QJ or: *bphilton@eclipse.co.uk*

BLS AUTUMN 2010 FIELD MEETING, Carmarthen, Wales

Thursday 7 to Monday 11 October 2010 (to include BLS Council meeting)

The autumn meeting will visit nationally important Dinefwr Park and castle, Llandeilo, the western uplands of the Brecon Beacons National Park and some inland limestone sites. The meeting base will be Glynhir Mansion, Llandybie (see www.theglynhirestate.com). This venue has been used by a number of botanical groups in the past with many repeat visits due to the excellence of the accommodation. The National Botanic Garden of Wales that now hosts the BLS Library is not far away and a visit to the library and the Botanic Gardens including a National Nature Reserve that forms part of the grounds will also be arranged. This is also one of the least recorded areas for churchyards and there are a number of very poorly recorded 10km squares for the square bashers to have a go at.

Provisional programme:

Thursday 7th:	2.00 p.m. Glynhir Area
Friday 8th:	a.m. Carreg Cennen Castle p.m. Council Meeting
Saturday 9th:	Welsh Botanic Garden (including the BLS Library) and Golden Grove Estate
Sunday 10th:	Dinewfr Deer Park and Castle Woods, Llandeilo
Monday 11th:	Carmarthen Black Mountain
meeting finish:	3.00 p.m.

Accommodation
The BLS has pre-booked accommodation in Glynhir Mansion, Llandybie, Carmarthenshire SA18 2TD tel 01269 850438 (grid ref. SN639151 - and named on OS Landranger Map 159 Swansea, Gower & surrounding area).

The accommodation in the mansion consists of 6 en suite rooms with double and single beds, and in 6 self-contained flats and cottages in the complex there are 17 other bedrooms with a variety of double and single beds. The charges based on 16 or more people staying are £42.50 bed and breakfast and £65 per day dinner bed and breakfast . The en-suite rooms attract a £4 supplement per day per room. These rooms as well as being en-suite are also to a more luxurious standard.

We can all eat together in the Mansion and the use of meeting and work rooms is included in this price. The food is said to be very good and they are adaptable to special dietary requirements. There may be a price reduction for those wishing to go self-catering. To do this you would need to organise to rent a whole cottage and to make the booking yourself directly with Glynhir (contact Katy Jenkins at Glynhir - see above).

Workroom / microscopes
A room on-site has been reserved for the meeting. This will provide some room for microscope use, and for displaying specimens, maps and books. The BLS's stereo and the compound microscopes will be available for communal use at the meeting. If intending to use these instruments please bring your own microscope consumables.

Other accommodation
Other types of accommodation can be found in the area though it has to be said that it is rather sparse in number and not much cheaper than Glynhir. Try in the Llandeilo, Trapp, Llandybie, Golden Grove and Llanarthne areas. Alternatively there will be Travel Lodge's and similar hotels on the A48 / M4 corridor..

Travel & local transport
The nearest rail station is in Llandybie on the Heart of Wales line (goes from Shrewsbury to Llanelli) 2km from the meeting base. Arrangements could possibly be made to collect you from the station.

Booking arrangements
To book please advise Steve Price, the BLS Field Meetings Secretary (on email: lichenrecords@sorby.org.uk) of:

- when you plan to arrive;
- how long you are staying;
- any special dietary requirements;
- if you want dinner on the day / evening of arrival;
- if you would like an en-suite room (£4 a day supplement) in the Mansion;

and send a deposit of £30 as a cheque made out to the BLS to Steve Price, Woodlands, Combs Road, Combs, High Peak, Derbyshire SK23 9UP. The balance of the costs of accommodation and meals can be paid to Glynhir at the meeting.

What next?
Full details of the sites to be visited and the timings will be sent out to attendees as plans develop.

Recommended maps
OS Explorer Maps OL12 *Brecon Beacons National Park Western Area* and Explorer 186 *Llandeilo and Brechfa Forest.*

If you have any queries relating to the areas we are to visit or if you are to arrive late contact the local organiser Ray Woods (email: Raygwoods@aol.com. Home phone number 01597 860309 and mobile 07792960725).

ASHTEAD COMMON, Surrey (day meeting)

Sunday 16 January 2011
This field trip is associated with the BLS AGM. For details see the forthcoming notice for AGM.

USING MICROSCOPES FOR IDENTIFYING LICHENS ON LIMESTONE

Friday 18 – Sunday 20 February 2011
Tutors: Dr B J Coppins and Dr D J Hill

There will be a weekend course held in conjunction with the Bristol University Botanic Garden from 7.30pm on Friday 18 February to 4.30pm on Sunday 20 February 2010. The University Botanic Garden is located in Stoke Bishop where there is plenty of nearby parking.

The course will help lichenologists who want to get to know how to use microscopes better and become more confident at examining species and identifying them reliably. The programme will start with an introduction to a site we will visit in the field to collect fresh material probably an area of limestone. Then we will consider how the habitats can be divided up into niches and their ecological characteristics with examples of the key species to be found. In the field we will learn how to approach these habitats in practice with the provisional identification of characteristic species that occur in these niches. The emphasis will be on linking an ecological understanding to the habitats in the field with laboratory work with material collected. The Laboratory work will learn how to set up a microscope for optimal resolution and how to use the features of the microscope to help in discerning different structural features. We will learn how to make slides for various parts of a lichen and different lichens and how to stain them and examine them. Where appropriate we will look at any other methods such as those for lichen substances. The intention is a theme of developing specific field and lab skills rather than a general field meeting.

Fee: £25.00 (excluding any board and lodging and catering)
We can have the option of spending more (about £100) and using teaching University laboratory with good microscopes etc provided free. This will make the learning experience much better.

Come and hone your identification skills. Please contact David as soon as possible as and say if you are able to come to the better alternative at about £100. If you have been on it already, you are very welcome to come again! *D.J.Hill@bris.ac.uk.* Tel 01761 221576. Fuller details will be sent out later to all those expressing an interest.

BLS SPRING 2011 FIELD MEETING, Islay & Jura, Scotland
Saturday 30 April - Saturday 7 May 2011

The Inner Hebridean islands of Islay and Jura offer a good range of very interesting sites for lichens. In addition to the varied geology of the coastal rock outcrops, there are good coastal woodlands , lochs on the limestone and some nice churchyards.

The BLS has booked (and paid a deposit) for sole use of the Youth Hostel in Port Charlotte, Islay (grid ref NR259584). Located in an old whisky warehouse the hostel sits by the beach on the shore of Loch Indaal. To keep the accommodation un-crowded we plan to use a maximum of 22 of the 30 bed-spaces available in the hostel. These beds are in a number of small rooms.

Breakfast will be self-catered and there are two hotels very close-by where restaurant and bar meals and other refreshment can be taken and there are local food shops in Port Charlotte. Because we have sole use of the hostel the lounge and or dining room can be used for microscope work.

The cost of bed accommodation will be in the region of £150 per person for the week. This amount depends upon the 22 bed spaces being occupied. The maximum cost should not exceed £165 per person. These figures do not include the cost of any food. Other types of accommodation can be found by looking at *www.islayinfo.com* or contacting the Islay Tourist Information on 01496 810254.

The ferry to Islay is operated by Caledonian MacBrayne (contact 08000 66 5000) and runs from Kennacraig on mainland Scotland. Citylink coaches from Glasgow and buses on Islay all connect with the ferry. Flights to Islay operate from Glasgow International Airport. More details of the above transport can be found through *www.islayinfo.com*.

Please book with the Field Meetings Secretary, Steve Price (email *lichenrecords@sorby.org.uk*) and also advise the local organiser Vince Giavarini (email *v.giavarini@sky.com*) if you plan to attend. Bookings for accommodation in the hostel will be taken on a first-come first-served basis, and a booking is secured on receipt of a deposit of £30 per person. Cheques made payable to the BLS, please, should be sent to Steve Price, the Field Meetings Secretary, Woodlands, Combs Road, Combs, High Peak, Derbyshire SK23 9UP. Please note that the balance of the accommodation cost will be required by March 2011.

Vince Giavarini will be arranging the details of the sites to be visited and more information will be sent out to attendees as plans develop.

p.s. Islay is pronounced 'eye-la';
p.p.s. I have just been reminded that between them the islands of Islay and Jura boast 10 whisky distilleries!

BLS SUMMER WORKSHOP 2011

The Identification and Ecology of Amphibious Lichens from Freshwater Habitats
Sunday 14 – Sunday 21 August 2011

A BLS residential workshop for intermediate and experienced lichenologists

Tutor : Holger Thues, The Natural History Museum
Location: Orielton Field Centre, Pembroke, Pembrokeshire

This workshop will study the identification and ecology of amphibious lichens from freshwater habitats, and will consist of indoor tutor sessions and field visits to the excellent range of freshwater habitats available in Pembrokeshire.

So that all attendees will have the opportunity to learn whilst both indoors and outdoors **the number of participants will be strictly limited to 14** and therefore booking is essential.

The cost will be £290 per attendee for full board (bed, breakfast, packed lunch, dinner, teas and coffees). This cost will include the hire of the work/tutor room for the group. The cost has been calculated on the basis of all attendees staying at the Centre. The workshop is therefore being run as a residential course. Attendees wishing to, will be able to bring partners to stay at Orielton. The same charge will apply as for workshop attendees.

Please book with the Field Meetings Secretary, Steve Price by email (*lichenrecords@sorby.org.uk*) or by post to Woodlands, Combs Road, Combs, High Peak, Derbyshire SK23 9UP. Initial interest should be expressed before 30 September 2010, if at that time the number of people interested exceeds the limit, attendees will be randomly selected by names being drawn out of a hat. After that date any spare places will be allocated on a first-come first-served basis. Booking for attendees is secured on receipt of a deposit of £30 per person with cheques made payable to the BLS, being sent to the Field Meetings Secretary. The balance of the cost will be required by the end of May 2011.

Details of the location of Orielton and travel there can be found on the Field Studies Council website *www.field-studies-council.org*. Individuals arrangements for transport to and during the workshop can be made nearer the time.

BLS AUTUMN MEETING 2011 – DERBYSHIRE – Advanced notice

Thursday 6 – Monday 10 October 2011

This meeting includes a full day visit to Old Park Chatsworth arranged for Sunday 9th. Other sites will include gritstone and basalt habitats. Accommodation has again been arranged at the Hartington Youth Hostel.

Booking details will appear in the Winter 2010 Bulletin and on the BLS website.

FIELD STUDIES COUNCIL LICHEN COURSES 2010

see: *www.field-studies-council.org* or phone 0845 3454071 for more details.

20-22 Aug, Slapton Ley **Lichens and Lichenicolous Fungi**
tutor: David Hawksworth

A workshop-style course covering identification of lichens and also the fungi that are obligately associated with them both, in the field and under the microscope. Ideal for those with enthusiasm and a little knowledge wishing to increase their confidence and learn more. Advantage will be taken of the rich material of lichens and lichenicolous fungi present in Slapton and in its vicinity.

David Hawksworth is a former President of the British Lichen Society and author of numerous articles on lichens and associated fungi.

10-12 Sept, Flatford Mill **Identifying Lichens: Intermediate Level Workshop**
tutor: John Skinner

This course is an intermediate level workshop on lichen identification for anyone who would like to take their interest several stages further. There will be a combination of field excursions, microscope work and use of keys to help you with the identification of scarcer lichens.

John Skinner is Senior Keeper of Natural History at Southend Museum and has extensive experience working with the lichens of the region.

1-03 Oct, Malham Tarn **Lichens in the Dales: An Introductory Course**
tutor: Allan Pentecost

The Malham Tarn area is rich in lichen species, occurring on rocks, trees and soil, allowing the beginner to form a useful and informative collection of material. Methods of collection and examination will be explained and specimens from the field will be examined further at the Centre. Gain confidence in using simple identification keys and chemical tests and obtain an understanding of their biology and impact on the landscape. A course for beginners or those with little experience with lichens, though the more experienced are also welcome.

Allan Pentecost, an experienced tutor, has published many research papers on lichens including Malham Tarn Lichen Flora. He has been visiting and collecting in the area for over 30 years.

Society business

Minutes of the 52ND Annual General Meeting of the British Lichen Society, 16 January 2010, Norwich Castle Museum

1. Present

Peter Lambley – President, Stephen Ward – Vice-President, John Skinner - Treasurer, Barbara Hilton – Minuting Secretary, Ann Allen, Peder Aspen, Barbara Benfield, Ishpi Blatchley, Jean Bryan (PM), Paul Cannon, Sally Caron, Don Chapman, Brian Coppins, Peter Crittenden, Heidi Döring, Bryan Edwards, Christopher Ellis, John Garrett, Vince Giavarini, Allan Green, Terry Hackwill, David Hawksworth, Mary Hickmott, David Hill, Chris Hitch, Bob Hodgson, John Mott, Fay Newberry, Ivan Pedley, Mark Powell, Steve Price, Sheila Quin, David Richardson, Neil Sanderson, Andrew Saunders, Peter Scholz, Mark Seaward, Alan Silvester, Janet Simkin, Mike Simms, Clifford Smith, Laurens Sparrius, Mike Sutcliffe, Holger Thŭs, Pat Wolseley

Apologies

Lesley Balfe, Richard Brinklow, Andrea Britton, Dennis Brown, Brian Carlyle, Sandy Coppins, Gillian Copsey, Robin Crump, John David, Linda Davies, Frank Dobson, Anthony Fletcher, Brian Green, Albert Henderson, Peter James, Angela Knisely-Marpole, Jack Laundon, Don Palmer, William Purvis, Ken Sandell, Amanda Waterfield, Ray Woods

Welcome

The President opened the proceedings and welcomed especially those who had come from further afield: Peter Scholz, Laurens Sparrius and David Richardson. He recalled working in this very room, which had been of different appearance when he had taken up his post at the Museum, at the start of his career.

Dr Tony Irwin, Senior Keeper of Natural History, warmly welcomed the Society and its members to the Norwich Castle Museum. He recalled the long association of the President with the Museum and the supervision which he had provided for he, himself, on joining the Museum staff. Tony wished the meeting every success and drew to our attention Museum displays of natural history and the significant collection of lichens, known as the 'Mayfield' collection after Arthur Mayfield and to which our President had contributed. Selected items from the natural history archive had been placed in our meeting room. These included extracts from the English Botany of Sir James Edward Smith (first president of the Linnean Society) and sections of the Cornish Tour of Dawson Turner (banker, botanist and antiquary).

The President thanked the Norwich Castle Museum for the facilities provided.

Death
The President recorded the death of Jeremy Gray who had served the Society for many years, as Assistant Treasurer and Membership Secretary, and in the provision of leaflets, publications and top-quality photographs. Ivan Pedley also paid tribute to his work and his friendship. A minute's silence was observed in memory of Jeremy.

2. Minutes of the AGM held at the Royal Botanic Garden Edinburgh in January 2009
The minutes were **agreed** as a correct recorded (proposed by David Richardson, seconded by Barbara Hilton and supported by a show of hands) and duly signed.

3. Matters arising. None

4. Officers and Committee Chair Reports

4.1 Peter Lambley, President
The President recalled the many achievements of the Society during 2009, as reported in the Winter 2009 issue of the *Bulletin*. Since he had written the report he had represented the Society at a launch of a Plantlife initiative at the House of Commons. It had given him much pleasure to receive praise on behalf of the Society, from Plantlife staff and a member of the House of Lords and Trustee of the Linnean Society, and this he conveyed to members. In his own words, 'whilst we are a small society we hit way above our weight'.

Most notable in the last year was the publication in May of *The Lichens of Great Britain & Ireland*. This much enlarged and revised edition of the 'Flora' was celebrated by an official launch at which all those involved in this very fine collaborative effort were thanked, particularly the editorial team: Clifford Smith, Andre Aptroot, Brian Coppins, Tony Fletcher, Peter James and Pat Wolseley.

Among other activities, work has continued on the England and Wales data-base project and the OPAL project. The Society is keen to respond to members' wishes, and the President encouraged all members to reply to the questionnaire seeking their views, to inform future development.

4.2 John Skinner, Treasurer
The Treasurer provided a commentary on the accounts of the Society for the year ended 30 June 2009, that had been previously circulated. Items of more recent interest, such as the purchase of microscopes for use on field meetings, were not included. He noted that in future the Society's library would be included as an asset.

The net assets of the Society, £331,507 at the end of its accounting year, are held in three main bank accounts. Major sources of income are from *The Lichenologist* (£42,573), subscriptions (£11,279) and sales (£13,959). Grants had been received for the Database project (£55,800, due to the continued hard work of Janet Simkin and the Data Committee), and the OPAL project (£5,000 to recompense members for their contributions); both of these are restricted funds.

A notable expenditure during the accounting year was the publication of *The Lichens of Great Britain & Ireland*. However, since its launch receipts of sales have covered outgoings: a cheque from the Richmond Publishing Co. Ltd. (acting as agent for the Society) had been transferred to him by Ivan Pedley at the start of this meeting.

For the coming year, the Treasurer could see no reason to increase the subscription although he wished to introduce a new 'electronic' subscription. This level of subscription, at £25, would be equivalent to that of an ordinary membership but with receipt of *The Lichenologist* on-line. The proposal accorded with the wishes of members and the level set was in line with practice adopted by other journals.

The Treasurer warmly thanked Don Chapman, the retiring Assistant Treasurer and Membership Secretary, and welcomed Heidi Döring, who was taking over this important role. Don Palmer (Trade Sales) and Brian Green (Sales to Members) were thanked for all their efforts on behalf of the Society. Both had indicated a wish to stand down from their roles. It was hoped that, in future, Trade Sales (mainly publications) could be managed by a firm. A volunteer from BLS membership was sought for sales of items to members (for example, mugs, T-shirts and souvenirs). The Society's US Treasurer, Dr Jim Hinds, was warmly thanked.

In response to questions the Treasurer confirmed that: (a) access to past on-line copies of *The Lichenologist* would be available for those taking out electronic membership; (b) the cost of electronic membership was viable and would not jeopardise the availability of hard-copy journals for those who wished to continue receiving them (Clifford Smith added that print-on-demand is now low-cost); (c) the accounts are subject to scrutiny by an independent examiner (who has been both supportive of the Treasurer's role and thorough) and he finds them satisfactory.

4.3 Mike Sutcliffe, Education and Promotions Committee

Mike looked forward to the Society's partnership during 2010 in the International Year of Biodiversity (IYB) and commended lichen surveys in gardens (both private gardens as well as those open to the general public). Information about activities will be available in the Society's website, including a joint day with the Royal Horticultural Society, with opportunity to survey lichens in their garden at Wisley.

Support for the OPAL Air Quality survey, using lichens as bio-indicators for N-pollution, has been a priority because of the great opportunity provided for fulfilling the aims of this committee. The survey has been 'live' from September 2009 until January 2010 and will continue for the duration of the OPAL, until the end of 2012. The BLS is benefiting through these many observations and new contacts formed. The appointment of Dr Erika Hogan, BLS information officer during autumn 2009, has enabled support, scrutiny and analysis of results. Results submitted by the public are broadly consistent with research data. The Air Quality survey has benefited greatly through the generosity of the BLS in funding this work.

The debate on BLS's role in developing lichen taxonomy has taken an important step forward. Chris Ellis has agreed to convene a 'Taxonomy Committee', reporting direct to Council. We are grateful to Chris for taking on this role and will be glad to support him further, as progress is made and in ways his committee identifies.

Ishpi Blatchley has continued to support churchyard surveys. She has prepared an attractive coloured A4 poster of churchyard lichen habitats for display in church porches, with assistance from others, notably Ann Allen. This has been funded by the Rosemary Allen Fund, which is gratefully acknowledged. The churchyard recording card is being amended by Ivan Pedley to reflect changes in nomenclature and taxonomy.

Several significant publications have appeared during the year and at this meeting the very latest publication by Frank Dobson was announced: *A Field Key to Coastal and Seashore Lichens*. Warmest wishes were expressed for Frank's full recovery from his current illness. A web-based tutorial, developed by John Masters (Leeds University) during preparation of a doctorate thesis, under the supervision of Brian Shorrock, was introduced by David Hill. This uses information gained from surveying lichens on gravestones; a copy of the tutorial was available for viewing.

Discussion of several matters at the Committee meeting recently held were conveyed, including opportunities to participate in activities of the Society of Biology and liaison with the Assistant Treasurer and Membership Secretary on encouraging and supporting new members.

Mike thanked Barbara Hilton for her previous chairing of this Committee and in turn she commended the many who work on behalf of the Committee, such as linking with other organisations (for example, David Hill and Mark Seaward) and support to individuals about projects (particularly Pat Wolseley and Ann Allen).

Pat Wolseley displayed examples of the recently published lichen posters based on art work by Claire Dalby and these were very well received. David Hill suggested the possibility of joint marketing of posters with the new book by Frank Dobson on 'Seashore Lichens'.

Peter Lambley thanked Mike Sutcliffe for his report and the Committee for all its efforts.

4.4 David Hill, Data

David thanked Janet Simkin for all her continued exemplary work computerising records, now termed 'digitally mobilising' records. This is bringing English and Welsh records into line with the Scottish database so that records for the whole of Britain show date and habitat. David commended use of the recording spreadsheet (available on the BLS website). It is planned to update record cards to take account of recent changes in the 'Flora'. Mark Seaward reported that the fascicle on lirellate species is in progress and will be of immense value to those working with this group of species.

Janet Simkin thanked all BLS members and colleagues collaborating in the database project: between 20–25 people in all. Work is being funded by agencies including Natural England, Countryside Council for Wales and the National Biodiversity Network, for which the Society is very grateful. Janet confirmed that already about 8,000 churchyard record cards had been entered on the database. These records are of good quality and this huge resource base could provide the basis of one or two substantial papers. Data from the Bradford mapping scheme is being uploaded. It is now time to enter records of surveys. The project would be glad to receive survey data since 1960, especially records of the last 20 years and from lichen

'hot spots'. This request is urgent: survey data can be sent to Janet by e-mail, saved in word or excel.

David Hill endorsed all that Janet had said. Our Society is regarded very highly and as a lead society with respect to updating our recording system. We need to live up to expectations.

In response to a query (Barbara Benfield), David Hill confirmed that data held by the Bradford University mapping scheme (Mark Seaward) was being assimilated into the English and Welsh database and would therefore be available on the National Biological Records. Mark Seaward explained that the Bradford scheme, which includes Irish and Channel Island data would be maintained for another two or three years, but then would cease. It has allowed rapid processing of information and alongside this database he has retained all hard-copy records. It amounts to 46 years of lichenological records.

Peter Lambley thanked David Hill, Janet Simkin and all contributors to the work of this Committee which is important and has raised the profile of our Society.

4.5 Bryan Edwards, Conservation

Bryan reported that it is planned, by the end of this year, to revise the 'Conservation Evaluation' of each species and to make the whole available on the BLS website.

In response to current enthusiasm for gorge-walking, Ray Woods has produced a video for outdoor centres which shows the severe abrasion of bryophytes and lichens which can result.

In Scotland the conservation project part-funded by the Society, with the majority of finance from Plantlife Scotland, has been very successful. Rebecca Yahr has led on this and a variety of resources have been produced, including leaflets for the general public and landowners (for example, on pine woodlands).

Many surveys and site-condition assessments and habitat surveys have been carried out, generally with Neil Sanderson taking the lead on Exmoor, Bryan Edwards in Wales and several outstanding lichenologists in Scotland. A problem in woodlands has been observed, due to lack of (or limited) grazing. Pat Wolseley commented that this should be drawn to the attention of policy-makers since the shade from the resulting dense shrub layer inhibits growth of lichens.

Bryan thanked Stephen Ward (secretary), Brian and Sandy Coppins (Scotland) and Ray Woods (Wales) and also expressed appreciation for support through conservation agencies.

In response to a query by Paul Cannon about the harvesting of Lobarion, Rebecca Yahr said that that the genus is on Schedule 8 of the Wildlife and Countryside Act (not yet ratified by the Scottish Parliament).

4.6 Peter Crittenden, Senior Editor

Six issues of *The Lichenologist* have been published in the last year. Altogether 105 submissions have been received and papers are of a good length: the journal is going from strength to strength. Production of the journal is a team effort and Peter commended all involved: the editorial board, managing editor (Tony Braithwaite), editorial assistant (Justine Fox) and the team of proof-readers who all read every paper (Barbara Benfield, Brian Coppins, Jack Laundon and Alan Orange).

David Hill enquired about the journal's 'impact factor', which Peter stated was 1.2, an excellent rating for a 'niche' journal. David responded by complimenting the Senior Editor on this excellent performance and this was endorsed with warm thanks from the President.

4.7 Paul Cannon, *Bulletin*

Two issues of the *Bulletin* have been published in 2009. Paul thanked people for the supply of interesting and varied articles. The Winter 2009 issue of 122 pages reflected the vigorous activity of members. He was mindful of costs, however, and may need to make the *Bulletin* more compact. In striving for this end he sought members' views on the place of species' lists alongside reports of field meetings: if not in the paper-copy *Bulletin*, such lists could be on the BLS website. Several members expressed their views: on the website (Mark Seaward); reduce the font size and include in the printed *Bulletin* (David Richardson); keep the account and list together in order to avoid having two places to search (Ivan Pedley). In conclusion it was suggested that feedback on this be given in response to the members' questionnaire (Sheila Quin). The President endorsed this last comment about completion and return of the whole questionnaire.

The President, as an ex-editor of the *Bulletin* thanked Paul warmly for all the improvements he had brought to this publication, and for this report.

4.8 Ray Woods, Library

In the absence of the Acting Librarian (due to bad travelling conditions) a brief report was given on the removal of the library from Leicester (where it has been supported by Tony Fletcher) to the National Botanic Garden of Wales, facilitated by Ray Woods. Peter Lambley, Paul Cannon and Ivan Pedley were thanked for their efforts in this removal. Ray has plans for making the library more accessible.

4.9 Richard Brinklow, Curator

In the absence of the Curator, thanked for his continuing efforts, members were reminded to send duplicates of specimens, especially new species, to the herbarium.

5 Steve Price, Field Meetings

Steve thanked Ivan Pedley for the excellent role-model he had provided as Field Meeting Secretary.

In 2009 average attendance at field meetings had been 25, with a varied programme: Bristol (David Hill and Brian Coppins, February); the Burren (Stephen Ward, April); Raasay (Peter Lambley, July); and Derbyshire (Steve Price, October).

In 2010 the following are planned: Bristol (David Hill and Brian Coppins, February); Isle of Man (Mark Seaward, April); Findhorn (Heather Paul and Clare Scanlon, August); RHS Wisley (Barbara Hilton and John David, October); Carmarthen (Ray Woods, October). More information is in *Bulletin* and BLS website.

Steve Price was thanked for his report by Ivan Pedley who said Steve would make an outstanding Field Meeting Secretary. The President endorsed this statement and thanked Ivan for covering this work during the inter-regnum.

6 Election of Officers

The President introduced the following nominations and it was proposed they be accepted en bloc by Ivan Pedley, seconded by David Richardson and supported by a show of hands; there were no votes against.

6.1 President

Stephen Ward to be President: he is known through his collaboration with the Society while working at Scottish Natural Heritage with responsibilities for lower plants and contacts with learned societies. He has supported lichenology in Scotland and served the Society for two years as Vice-President. The current President recommended him as bringing a fresh perspective and with the capacity to be an outstanding President.

6.2 Other Officers

Barbara Hilton to be Vice-President, until recently Chair of Education and Promotions Committee, a post she has held for 10 years, and long-standing member of the Society.

Chris Ellis to be Secretary, Chris is Ecologist and Lichenologist at the Royal Botanic Garden Edinburgh.

Heidi Döring to be Assistant Treasurer and Membership Secretary, Heidi is in the Mycology section of the Royal Botanic Gardens, Kew. Don Chapman was thanked for all his work in the past.

Steve Price to be Field Meetings Secretary, a post he has recently taken responsibility for, having excellent background experience with the Derbyshire Wildlife Trust.

Ray Woods to be Librarian and Ray, with much experience of the Society being a past-President, has already helped with the removal of the library to its new home at the National Botanic Garden of Wales.

Mike Sutcliffe to be Chair of Education and Promotions Committee having served on this Committee for over two years and being well known among members through his website, www.britishlichens.co.uk.

All other Officers are willing to continue in their roles.

6.3 New Council Members

Heidi Döring, Mike Sutcliffe and Ray Woods have come to the end of their term as Council members and were thanked by the President for their contributions. The following were proposed as Council members by the President (Peter Lambley), seconded by Pat Wolseley and supported by a show of hands:

Graham Boswell, Environmentalist based in Somerset and a keen supporter of field meetings (nominated by Steve Price).

Andrea Brittain, Ecologist at the Macauley Institute and author of a book on montane lichens (nominated by Peter Crittenden).

David Hawksworth, major taxonomist, ex-head of the International Mycological Institute, Professor of Biosciences at the University of Gloucester and Research Professor at the University of Madrid (nominated by Peter Lambley).

7 Any Other Business

7.1 Honorary Member: Jack Elix

Jack Elix, Emeritus Professor of the University of Canberra, Australia, was proposed by David Galloway, seconded by Peter Crittenden and unanimously supported by the meeting. Jack Elix was described by Peter Crittenden as a 'towering figure' of international lichenology. He is one of our leading lichen chemists and also a systematist with a wide range of interests who has made – and is continuing to make – a major contribution to Southern Hemisphere lichenology. His publications from 1969–2000 include over 400 titles; many co-authored and testifying to Jack's willingness to help others. He has made substantial contributions to the families Candelariaceae, Fuscideaceae and Pannariaceae, and the genera *Caloplaca*, *Lethariella*, *Menegazzia*, *Miriquidica*, *Physcia*, *Placopsis*, *Rimularia*, *Sagedia*, *Tuckermanopsis* and *Umbilicaria*. He is a long-standing member of the Society, frequently referees publications and has been awarded the Acharius medal of the International Association for Lichenology.

On his acceptance as an Honorary Member it was agreed that a Quaich, in recognition of this honour, would be suitably engraved and presented to him at an appropriate opportunity.

8 The incoming President, Stephen Ward, took over the Chair of the AGM and thanked Peter Lambley for the incredible job he had done as President, calmly steering the Society through the production of the 'Flora' and, most recently, ensuring the AGM took place, in spite of severe weather and snow. Peter was warmly thanked by a round of applause.

9 Ursula Duncan Award: Peter Lambley

Peter Lambley was nominated by Ivan Pedley and unanimously supported by the meeting for the Ursula Duncan Award.

Peter Lambley MBE studied botany at Leicester University, his first post was in the Norfolk Museum Service (for 14 years), following which he worked at Papua New Guinea University (for four years). On return he joined the Nature Conservancy, later English Nature and now Natural England. He retired in 2006 when he was awarded the MBE. He has been a member of the Society for 40 years and served in several positions: Assistant Treasurer, *Bulletin* Editor, Vice-President and President. During his term as President he has steered many important initiatives and supported understanding of lichens through his own attendance and provision of field meetings. He is modest with social ease founded in quiet confidence and genuine good will towards others.

Ivan, with great skill and good humour, explained that he was unable to present the Duncan Award itself as the two remaining serpentine awards were in Peter's own possession. However, he was able to give Peter the traditional certificate and an engraved plaque to be affixed to the base of the serpentine award of his own choosing.

Peter warmly thanked the Society for this honour and recalled the help and support he had received in the early days of his lichenology, from Francis Rose and Frank Brightman.

The meeting closed, with the announcement of the next AGM: This will be held in London on 15 January 2011. Details will be announced in the Bulletin and on the BLS website.

Introducing myself as your new President

First, I would like to pay tribute to Peter Lambley, your outgoing President, for his superb service – he will be a hard act to follow. The Society honoured him with the *Ursula Duncan Award* about which you can read elsewhere in this Bulletin. A measure of the work he put in can be gained from a comment made by his wife, Gill, on the eve of my election - that she was looking forward to getting her husband back! However, we are not letting Peter escape – not only will he remain on Council to advise us for the coming year, he is kindly taking on the role of Secretary to the Conservation Committee.

Turning now to the huge honour of becoming President of this **learned society**. Having witnessed the impressive wizardry which some lichenologists demonstrate with their identification skills, I hesitate to describe myself as a lichenologist – more a lichen enthusiast. So, what has been the route by which I came to be elected? Being asked, over two years ago, whether I would be Vice-President was a huge surprise but, having thought about it for a few days, I came to the view that it must be thought I had something to offer – and so I accepted.

What is my background in lichens? My introduction came during my doctorate under Charles Gimmingham, at the University of Aberdeen, looking at the plant communities of heathlands on mineral soils in Scotland and Scandinavia. My first summer's fieldwork on what is now Muir of Dinnet National Nature Reserve, found me pondering over many lichens – mostly *Cladonias*. I collected samples of each of the different species in my quadrats. That first winter, Charles handed me a key to the genus by Dahl – on cyclostyled foolscap paper for those of you who remember such things. At the same time he gave me some paraphenylenediamine – Pd for short – with the comment that I might find it useful.

I don't think there were as many *Cladonias* in those days! – but with the aid of the Pd which produced instantaneous stunning yellows and brick red reactions, they keyed out easily enough. Having checked that she was prepared to receive them, I sent them to a certain lady for checking – Ursula Duncan.

Towards the end of my doctorate in 1967, near Inverness, I observed from the road some half – or could it have been a quarter mile distant – an east-facing cliff above Loch Duntelchaig which, even from afar, I could see was festooned with lichen. Curious to know what it might be, I found great quantities which had sloughed off onto the slope below. I took a sample and ascertained from Ursula that it was *Alectoria sarmentosa*.

In the early 1970s, working for the Nature Conservancy in Bangor, our views were sought on a proposal for an Aluminium Smelter near Holyhead. We were provided with maps of predicted isofluors – anticipated concentrations of fluoride which is emitted in the smelting of bauxite – aluminium ore. High concentrations

would come from the louvres in the smelting hall and lower concentration via the stack, with the plume typically coming to ground some 7 miles downwind. With colleagues, I set up a sampling procedure using lichens to measure the impact. When production commenced *Evernia prunastri* and *Ramalinas*, which had been common in hawthorn scrub in the vicinity of the smelter, blackened and disappeared almost overnight. We also set up a series of lichen quadrats on rock faces.

A young lichenologist from the Natural History Museum kindly came and helped us to annotate the lichens within our quadrats – Peter James. The first day, I told him about the sample of *Alectoria* still in my possession. Peter asked that I bring it the next day and, on seeing it, enthused about the fine fruiting material. A colleague of his was working on the genus – could he take the sample for him?

A few days later, I received a letter from David Hawksworth confirming that it was, indeed, very fine material and – rather than returning it to me – would I be agreeable to its being curated in the herbarium? Of course, I said yes, pleased that my sample had found a home.

In the late 1990s, by now working for *Scottish Natural Heritage* with responsibility for advising staff on the conservation of lichens, bryophytes and fungi, I found myself once more in vicinity of Loch Duntelchaig in the company of the local area officer. The cliff was still festooned with *Alectoria*, the slope below still strewn with sloughed material. But one thing worried me – the material was only half the length some nine inches – and I began speculating as to why this might be. I decided that, on my next visit to London, I would look up my original sample which memory told me was twice as long.

In the herbarium, armed with a ruler, I looked once more upon my *Alectoria* of long ago and it was – nine inches long! So – the moral of this tale is that as lichenologists grow older, they lose all sense of proportion!

In my work for SNH, I received tremendous support from Brian and Sandy Coppins and developed a close working relationship with the Society – particularly its Conservation Committee. Upon retiring in 2003, I served a term on Council and, upon its expiry submerged myself in a quiet life in rural Ireland. That is until, one day, this memo arrived asking me whether I would be Vice President. And in this Society, one thing leads to another – and here I am.

I look forward to working with you all. As ever, if an organisation is successful, it is not down to one individual but to teamwork. And so, I am pleased to welcome Barbara Hilton as your new Vice President, Chris Ellis of the *Royal Botanic Garden Edinburgh* as your new Secretary, Heidi Döring of the *Royal Botanic Garden Kew* as your new Membership Secretary & Assistant Treasurer, Ray Woods as your new Librarian with the Library close by in the *National Botanic Garden Wales* and Steve Price as your new Field Meetings Secretary. Mike Sutcliffe has taken over as Chair of the *Education & Promotions Committee* from Barbara who served as an outstanding Chair for ten years. Everyone else carries on as before – a huge thank you to them on your behalf.

Stephen Ward
sdward@eircom.net

The Ursula Duncan Award 2010

Peter Lambley MBE

Throughout the history of our Society we have been fortunate in the number of able members who have stepped forward to assume responsibility for its various offices and functions. The time, the effort, the mental pressure and, sometimes, the sheer drudgery inherent in such responsibilities pass unnoticed by the vast majority of the membership. Those who do discern such things and who then inquire into the reason for this show of loyalty and commitment usually receive a reply that indicates a determination to return something for all the interest, the pleasure, and the friendship that their membership of the Society has brought—in short, the altruistic idea that "people willingly gave me so much at the start of my involvement with lichens, I am simply doing the same for those who follow." We thank them, of course, and sometimes offer a formal recognition for their extraordinary service in the form of Honorary Membership or The Ursula Duncan Award. Occasionally, however, the contribution of particular individuals seems to go unrecognised sometimes for years. The oversight is perhaps because they are so active in the Society—always ready to say yes to a request to assume yet another responsibility—that their efforts become so familiar as to go unnoticed. It is as though their continued service confers an ability to become seamlessly part of the fabric of the Society and so merge into the background. Such a person is Peter Lambley, a member of this Society for 40 years, one who has held with great success several of its important offices—including, for the past two years, that of President—and yet who is only now being formally recognised for his remarkable dedication by The Ursula Duncan Award.

Peter joined the Society in 1970 whilst working at Norwich Castle Museum. His professional career changed dramatically when in 1984 he, together with his family, moved to Papua New Guinea where he not only managed collections and trained technicians but also found time to work on the lichens of those islands. He returned to the United Kingdom in 1988 and became Conservation Officer within the Nature Conservancy Council and then for English Nature in Norfolk. He also acted as a lichenologist in the English Nature Botanical Network until his retirement in 2006. For his services to conservation he was awarded the MBE in the same year.

His commitment to the Society for 40 years has been extraordinary. He has been elected to Council on several occasions and has been an active member of various committees—notably representing Natural England on the Society's Conservation Committee for many years. He has led numerous field meetings—the last two, to The Lizard in 2008 and to Raasay in 2009 will be particularly remembered with great pleasure by the participants. The success of these meetings lies not only in his ability as a field lichenologist but also in his obvious and infectious pleasure in introducing new sites and unfamiliar species to his friends—he is still fascinated by lichens and by lichenology.

The posts which he has held have been numerous; they include those of Assistant Treasurer, Bulletin Editor, Vice President and, of course, for the past two years, President. In this latter role he has been exemplary; meetings have been chaired with diplomacy and purpose and have invariably led to a consensus.

Nevertheless he has never avoided difficult decisions or actions. His work rate over the past two years has been formidable—attending every field meeting, helping with mundane tasks such as the transfer of the library from Leicester to Wales (involving him in a long road journey to and from Norwich), being present whenever the Society's "flag" has been unfurled. Amongst this flurry of activity he still found the time to oversee the printing of "The Lichens of Great Britain and Ireland," an achievement which will have a useful financial impact on the Society's activities.
All this effort has earned respect from his colleagues but, ultimately, the high regard in which he is held stems from more consequential qualities. He combines modesty with social ease and throughout his membership, but particularly in his leadership roles, has shown a remarkable ability of thinking the very best of people, with an uncritical eye.

We have been fortunate as a society to have been served over so very long a period by this tireless supporter to whom we now show our thanks by the presentation of The Ursula Duncan Award. I have little doubt that she would be the first to acknowledge that this award, bearing her name, goes to a member who truly reflects all that is good and worthy about this Society.

Ivan Pedley
Ivan was supported in Peter's nomination by Ishpi Blatchley, Brian Coppins, Sandy Coppins, Frank Dobson and Barbara Hilton

Change and stability – dilemmas in coastal conservation

Coastal sand and shingle systems are some of the most important habitats for terricolous lichens in the British Isles. They result from dynamic coastal processes and are therefore subject to change. They are not homogenous but support a series of communities which reflect the different physical and temporal factors impacting on the habitat. They also present difficult long term problems for their conservation especially in respect to rising sea levels as a result of global warming and also as a result of changing policies on coastal defence.

Some of these issues are particularly well demonstrated in the shingle and sand dune systems on the coast of East Anglia. Blakeney Point, for example is a long shingle spit extending westwards on the north Norfolk coast, with sand dunes developed on a series of recurving spits which progressively decreasing in age towards the Point. Blakeney was one of the earliest sites in the study of lichen ecology with a paper published by McLean in the Journal of Ecology in 1915. Whilst the spit is continuing to extend westwards it is also moving landward at about 1 metre a year so that some of the old recurved spits described by McLean are now largely overrun by the retreating ridge. Nevertheless, there are areas of stable shingle which hold for example the only population of *Bryoria fuscescens* in East Anglia and by supporting *Suaeda vera* probably the largest population of *Caloplaca suaedii*. Whilst the site has been in National Trust ownership since 1912 and is not threatened by

development, long term coastal change may eventually result in its loss. It is also possible that change could result by restoring grazing marsh to saltmarsh as proposed in the draft Shoreline Management Plan out for consultation at present. This is because such restoration would result in a greater volume of water entering and exiting the harbour resulting in the loss of the end of Point.

Orfordness is another shingle spit on the Suffolk coast. This is a largely shingle structure with little in the way of dune systems. It has been heavily disturbed in the past by the construction of military radar instillations and by the building of test facilities for testing the trigger of nuclear bombs. Again there are long term erosion issues related to sea level rise. However the structures do provide additional habitats for some lichens for example the rare *Caloplaca albolutescens*. The concern at this site is that greater coastal access from new legislation may increase of the fragile shingle habitat which is still recovering from the construction of the various facilities.

Winterton dunes, on the east Norfolk coast is an important acids dune system which supports many *Cladonia* species (see field meeting report below), is separated from the beach which is its source of sand by a concrete sea defence wall built in the 1960s and 70s. This prevents the system from responding to coastal changes and therefore tends to 'fossilise' it. In addition in order to maintain beach levels dredged sand has been pumped ashore. This has the potential to change the pH eventually if it contains sea shells, hence the insistence of English Nature that it should not. At Holkham in north Norfolk a colony of *Usnea articulata* thrives in an area where there is low level trampling. Whilst this level of trampling remains low it is probably beneficial but increased coastal access which is being promoted by Natural England might be detrimental to the species. These are difficult situations to manage.

These issues are reflected in other parts of the country for example at Porlock in Somerset. This site has cobbles with a good crustose lichen flora. A storm in 1996 resulted in the breach of the beach which previously had been bulldozed up at intervals. After a prolonged period of consultation the beach was allowed to reprofile naturally. There are now lichen communities developing on the landward side where it borders the newly formed saltmarsh.

Lastly at Perranporth there are extensive areas of blown sand covering low cliffs . There is a community with *Fulgensia fulgens, Toninia sedifolia* and *Diploschistes muscorum*. Whilst this site is not threatened by sea level rise or changes in sea defences it is in area of generally high recreational pressure. At present this is at an acceptable level again like at Holkham but will need monitoring.

At present in discussions on coastal change birds feature highly as a concern particularly with regard to RDB birds like Bittern, but the importance of other groups such as lichens should not be ignored when considering changes to coastal management whether for recreation or sea defence. In the light of these potential threats it is important that as many of these coastal sites as possible are documented for their lichen floras in the near future.

Peter Lambley
plambley@aol.com

AGM Field Meetings

Sunday 17th January

We were very fortunate with the weather which was bright and still rather cold but at least the snow of the previous week had entirely melted. The morning was spent on the dunes at Winterton on the east coast of Norfolk, about 20 miles east north- east of Norwich. This is a distinctly acid dune system which extends for 427ha.. The more recent dunes are vegetated with *Ammophila and Leymus.* The older dunes are dominated by Grey hair grass *(Corynephorus canescens),* Sand sedge *(Carex arenaria)* with good cover of species of *Cladonia*. This grades into *Calluna* heath with *Erica tetralix* in the wetter dune slacks. Reindeer lichens (*Cladina* sp.) are conspicuous including: *Cladonia arbuscula* ssp *squarrosa*, *C. ciliata* var *tenuis* and *C. portentosa. Cladonia cornuta* was recorded, this species is known from Winterton but it is generally rare over most of England. Other *Cladonia* species recorded included *C. cervicornis* subsp. *cervicornis*, *C. cervicornis* subsp. *verticillata*, *C. diversa*, *C. fimbriata*, *C. foliacea*, *C. furcata*, *C. gracilis*, *C. macilenta*, *C. ramulosa*, *C. rangiformis*, *C. scabriuscula* and *C. uncialis* subsp. *biuncialis.* Other species recorded on the dunes included *Cetraria aculeata*, *Hypogymnia physodes*, *Peltigera didactyla* and *P. hymenina.* Brian Coppins found some *Cladonia furcata* which was contorted at the apices with what appears to have been irregular brownish soralia. These 'soralia' are occupied by what appears to be an undescribed species of lichenicolous fungus - *Taeniolella* (or similar).

Lumps of concrete also added some diversity. Shrubs at the back of the dunes still had *Lecanora conizaeoides* in some abundance and other species of note included *Arthonia punctiformis, Flavoparmelia caperata* and *Micarea nitschkeana*, the latter on *Calluna*. In all fifty-one species were recorded from the site in the morning.

Laurens Sparrius explained that in The Netherlands the grey dune habitat had been lost as a result of changes to the flora caused by nitrogen emissions. In particular Carex arenaria had become very abundant on these dunes. This demonstrated the value of comparing similar sites in neighbouring European countries and provides an indicator of what changes we should look for when monitoring the condition of dunes in the British Isles.

In the late morning members then moved to Winterton Church. This is built with flint and mortar with the buttresses and corners to the tower built with oolitic limestone quarried in Lincolnshire. The older monuments are a mix of oolitic limestone and a sandstone generally thought to be carboniferous and imported from northern England.

Seventy-one species of lichen were recorded but it is likely that a more thorough search would have added some morex species. Nevertheless species with a more eastern distribution like *Caloplaca ruderum*, *C. teicholyta* and *Candelariella medians* were well represented. *Lecania turicensis* was also noted, this species was formerly overlooked but is now found to be quite common on these Norfolk churches.

Two specialities of north-facing walls were found – *Lecanographa grumulosa* (originally thought to be a separate species – *Lecanactis hemisphaerica*) and *Opegrapha arenisida*. The former was present in the arches of the north-facing windows and on

the wall nearby. In Norfolk it is restricted to within a few miles of the east coast and reaches its northern limit in Britain in this county. *Opegrapha arenisida* is also an overlooked species which is found on a number of the churches near the coast in east Norfolk, again always on north-facing walls. By mid-afternoon with a cold wind blowing and the light fading members left for either home or Norwich.

Monday 18th January

The morning was a visit to the western end of Holkham Dunes to view two rare species *Usnea articulata* and *Caloplaca suaedae*. The weather had been rather murky inland but cleared as we reached the coastal strip when the sun broke through. To get to them entails a walk of about a mile along the embankment fringing the saltmarsh. The dunes are less acid than those at Winterton. The *Usnea articulata* is abundant in one dry dune slack and present in an adjacent one with a few scattered plants elsewhere. It is found in an area which is lightly trampled by walkers following the line of a fence. The others side of the fence is lightly grazed and has abundant *Cladonia furcata* and *C. rangiformis* but the *Usnea* is almost entirely absent. Laurens' work has shown that many of these normally corticolous species require bare sand to colonise and that a way of encouraging the *Usnea* to develop onto the otherside of the fence would be small scale opening up and exposing the sand. There was originally another colony of this species on the north Norfolk coast at East Hills Wells, where it grew with *Bryoria fuscescens* on *Polytrichum piliferum* but this colony appears to have been lost in the 1980s by sand blow covering the site. The *Caloplaca suaedae* was growing nearby in its typical habitat of relatively old *Suaeda vera* bushes at the upper limit of a salt marsh. This species was probably originally found at Blakeney where Knight recorded *Caloplaca luteoalba* on *Suaeda vera* in 1936. This was not entirely surprising as the two species look rather alike. We were treated to cake and coffee on the dunes brought by my wife providing a pleasant interlude during our recording. We then retired to the Deepdale Café at Burnham Deepdale for lunch before the remaining members dispersed homewards.

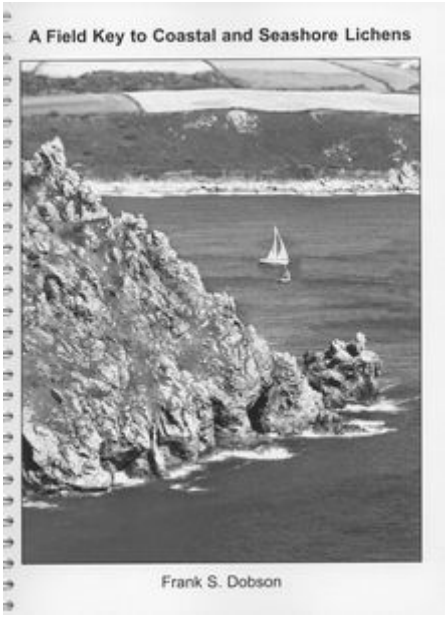
Peter Lambley
plambley@aol.com

British Lichen Society Annual General Meeting 2011

The 53rd Annual General Meeting of the British Lichen Society will take place on 15 January 2011 at the Natural History Museum, Cromwell Road, London, SW7 5BD. Further details will be provided in the Winter 2010 *Bulletin*.

New publications

A Field Key to Coastal and Seashore Lichens
By Frank S. Dobson. Published by Frank S. Dobson, 2010. Soft covers, spiral bound, 100 pages, 96 colour photographs in 6 plates. Price £10 (BLS members), £12 (non-members) + £2.00 p&p., available from: Frank S. Dobson, 57 Acacia Grove, New Malden, Surrey, KT3 3BU. Tel/fax: 020 8949 2416. Cheques (not credit or debit cards) payable to Frank S. Dobson, enclosing name, address and post code.



Frank Dobson is to be congratulated on his latest achievement: *A Field Key to Coastal and Seashore Lichens*. This draws on his broad knowledge of the habitat, years of experience in the field and tutoring, and skills in construction of keys and close-up photography.

The seashore and coastal habitat surrounding our islands includes high diversity and abundance of lichens. New substantial, up-to-date keys for the habitat are long overdue. This attractive and comprehensive field key incorporates the latest nomenclature changes as in the recently published *Lichens of Great Britain and Ireland.* Keys are provided for over 400 species with notes on about a further 100 rare taxa: altogether over one-quarter of the total species described in the British 'Flora'.

The major part of the book is devoted to carefully constructed, well-tested identification keys. Other important information is provided, beginning with an essential table of *Contents* at the front. Six photographic plates and an *Introduction* defining terms and providing instructions on how to use the keys follow. At the back of the book after the *Glossary* (including the minimum technical terms required to use the keys accurately), are lists of the species for each of the keys A–H and the rare species. A *Selected Bibliography* is provided on the final page. Overall, detail is accurate with few inconsistencies or errors. Reference is made to the influence of factors such as exposure and shelter on shores and users should be aware that considerable variation occurs in geographical distribution of seashore lichens over the whole of the British Isles.

Three methods of identification are provided, at increasing levels of refinement. Method 1 utilises only the 96 colour photographs grouped into six plates according to seashore zones (plates 1–4), calcareous substrates (plate 5) and coastal cliff-top (plate 6). The photographs have impact, are well-reproduced with suitably saturated natural colour and show diagnostic features clearly. Magnifications and a useful millimetre scale are provided. This quick and easy visual method enables beginners to identify many common seashore lichens.

Method 2 relies on a table of characteristics which can be used to confirm the identifications made from the 96 photographs. The table acts as a multi-access key drawn from combinations of growth form, thallus colour, seashore zone, soralia/isidia and fruit colour. All species names are referred to a numbered photograph. This method requires closer observation and more knowledge.

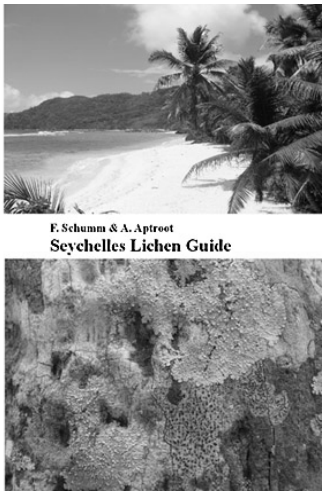
Method 3 provides dichotomous keys to 400 species. In order to cope practically with the large number of lichens, several separate keys (clearly listed on the *Contents* page) allow for short-cuts to be made by the user. Five main keys cover the 400 species: A (fruticose), B (foliose), C (squamulose), D (crustose) and E (leprose). Additionally there are three supplementary keys F, G and H (for limestone, soil and sawn wood, respectively); the user is encouraged to by-pass the main keys at the start if the lichen is found on one of these more specific substrates. Only Method 3 includes spot tests, enabling distinction to be made, for example, between *Flavoparmelia caperata* and *F. soredians*. Very occasional reference is made to spores and microscopic observations as these are beyond the scope of a field key. Descriptions in other books (see the *Bibliography*) need to be consulted, for example for spore size, which could resolve confusion between species such as *Buellia aethalea* and *B. stellulata*. Very useful drawings are provided in the margins of the keys; these and the photographs are carefully cross-referenced to the species in the keys.

A Field Key to Coastal and Seashore Lichens is excellent value for money, especially as it will prove useful for a range of people interested in lichens and shore ecology. Beginners and students can progress from the FSC AIDGAP key: *Guide to Rocky Shore Lichens* (by this same author, but with only 62 colour photographs), on to this more comprehensive field key. Many will take the book into the field and also use it on the workbench; its design makes it practical for both purposes. An understanding of its organisation and scope enables its usefulness and flexibility to be fully appreciated. In conclusion: it admirably fills the gap for field identification of lichens in this important habitat.

Ann Allen

Seychelles Lichen Guide

By F. Schumm and A. Aptroot. ISBN 978-3-00-030354-1, A5, 404 pp, with 1127 coloured pictures, price 90 Euro. Copies of this limited edition available via email to *fschumm@online.de.*



This book treats virtually all lichen genera and species known to date from the Seychelles. Many coastal lowland lichens are rather widespread, and the book thus contains a large set of species that can be found elsewhere in the tropics.

The book will be reviewed at a later date in *The Lichenologist*.

Catalogue of the Lichens of Switzerland
By Philippe Clerc & Camille Truong, available online at:
http://www.ville-ge.ch/musinfo/bd/cjb/cataloguelichen/recherche

This catalogue is based on *The Lichenized Fungi of Switzerland – Catalogue and bibliography supplemented by data on distribution and ecology of the species* published in 2004 by Philippe Clerc (*Cryptogamica Helvetica* **19**: 1-320) and published by Bryolich and the Swiss Mycological Society with the financial support of the Swiss Academy of Natural Sciences.

Compared to the Catalogue published in 2004, the first electronic version has been updated in terms of nomenclature and new species for Switzerland published since that date until the end of 2009. A regular update will be provided every two years. Species are presented in alphabetical order with the accepted names in bold. For each species the following are mentioned: nomenclature, substrate, altitudinal distribution, geographic distribution, any comments and literature. It is also possible to search by canton.

Lichenicolous fungi of Poland; A catalogue and key to species
By Krystyna Czyżewska and Martin Kukwa, 2009; 133 pp. W. Szafer Institute of Botany, Polish Academy of Sciences; Kraków. ISBN 978-83-89648-76-1. Price 30,00 EUR (without postage); available from *ed-office@ib-pan.krakow.pl*

The catalogue offers an overview of the current knowledge of lichenicolous fungi in Poland. It covers data from 1851 to 2008 and comprises 249 species, including 216 lichenicolous non-lichenized fungi, 27 lichenicolous lichens, and 6 lichenicolous myxomycetes. Thirty-two species are known only from older records. The list of species is alphabetically arranged, by genus and species within genera. For each species, the following information is given: correct name, synonyms, hosts, references to the sources, and notes. The catalogue is supplied with very helpful keys to the lichenicolous fungi and slime molds occurring in Poland. The history of studies on lichenicolous fungi in Poland is also presented. The 247 works cited in the catalogue, are given in the literature.

Mosses and liverworts of Britain and Ireland. A Field Guide
Edited by Ian Atherton, Sam Bosanquet and Mark Lawley, 2010; 848 pp. British Bryological Society. ISBN 978-0-9561310-1-0. Price £24.95 including postage (to anywhere in the world), available from *http://rbg-web2.rbge.org.uk/bbs/Activities/Field_Guide_order.htm*

I was mightily impressed with the new *Lichens of Great Britain and Ireland* (still available, see the last *Bulletin* for details!), but here is another amazing account of a major group of British organisms produced by our sister organization the British Bryological Society. Sadly, my knowledge o**f** British bryophytes is limited, despite having been taught at university by the incomparable

Eric Watson, but here is an identification guide that is both accessible to non-specialists and an advanced treatise for the real aficionados. Almost all species of the region are covered, with descriptions that minimize jargon, notes on similar species and habitat, a thumbnail distribution map and sometimes line drawings. Most impressively, though, all the species accounts are accompanied by high-quality and well reproduced colour photographs, many with signs pointing out diagnostic features. It's enough to tempt one away from lichenology, even though they are all green....

There are two separate identification keys, designed for different user groups. The first consists of a gallery of line drawings of the commonest bryophytes, arranged within very basic categories, with page references to the main species accounts. I am somewhat nervous of this approach as the complete beginner will all too often assume that nothing they find might be anything other than very common, but it should do well to whet the initial appetite. The main field key starts with sensible health warnings (not every species is covered, infraspecific variation is not always fully explained and microscopic examination is necessary for many), and some brief instructions on preparation of material. The key itself is divided into six sections (thallose liverworts, hornworts, leafy liverworts, *Sphagnum* species, acrocarpous and pleurocarpous mosses), and each of these follows the standard dichotomous arrangement but with useful thumbnail sketches illustrating the key features. There's even a millimetre scale printed on the outer margin, though curiously very few of the couplets include measurements. Writing keys of this length and complexity is a considerable challenge, but these are easy to use bearing in mind the cryptic nature of many of the species distinctions. The index is preceded by a useful series of species lists for particular habitats, which may provide an identification short-cut for those unwilling to plough through the keys.

The book is attractively produced, and extraordinarily good value for money considering the colour illustrations throughout. My only quibble is that it is titled as a field guide, but you would need to be very careful indeed to use this book in the field due to the thinness of the paper and the risk of pages sticking together in the damp. But at this price, you can afford a second copy! Hearty congratulations to all involved in this most impressive project.

Paul Cannon
p.cannon@cabi.org

Table of measurements for *Verrucaria* species

The following three pages constitute a table of ascospore measurements for the *Verrucaria* species included in the recently published *Lichens of Great Britain and Ireland*, part of which was inadvertently omitted from the printed copies. A new print run is currently being arranged and these copies will have the table included, but if you would like an electronic copy of the table to print out yourself (and thus avoid cutting up your precious *Bulletin*!) this can be obtained from myself (*p.cannon@cabi.org*). Further amendments and corrections will be posted on the BLS website in due course.

TABLE X. *Verrucaria* species, arranged in descending order of mean ascospore length (µm)

Species	length					width					habitat			
	min	-1 SD	**mean**	+1 SD	*max*	*min*	-1 SD	**mean**	+1 SD	*max*	F	M	T	L
hochstetteri	*24.6*	29.1	**31.8**	34.3	*41.4*	*13.1*	15.2	**17.6**	20.0	*24.6*			T	
viridula	*24.2*	27.4	**30.3**	33.2	*41.0*	*12.0*	14.8	**17.1**	19.4	*23.4*			T	
margacea	*20.1*	26.2	**29.3**	32.3	*40.5*	*9.0*	11.2	**12.6**	14.0	*17.5*	F			
macrostoma	*21.3*	25.2	**28.5**	31.8	*36.1*	*9.4*	11.6	**13.2**	14.9	*17.2*			T	
latebrosa	*19.0*	23.9	**26.6**	29.3	*36.5*	*8.5*	10.5	**11.6**	12.6	*14.5*	F			
andesiatica	*19.0*	23.1	**25.0**	26.9	*32.0*	*9.5*	11.0	**12.4**	13.8	*16.8*	F			
calciseda	*20.9*	22.7	**24.7**	26.7	*29.1*	*8.6*	10.0	**11.3**	12.7	*14.8*			T	
rosula ad int.	*20.5*	22.7	**24.6**	26.4	*28.5*	*7.5*	8.9	**9.8**	10.7	*12.5*	F		T	
funckii	*19.3*	22.3	**24.0**	25.8	*30.0*	*8.0*	9.2	**10.1**	11.0	*13.0*	F			
canella	*18.5*	21.3	**23.9**	26.5	*30.3*	*6.6*	7.7	**8.5**	9.4	*10.3*			T	(L)
elaeomelaena	*17.0*	20.1	**22.3**	24.4	*27.5*	*11.0*	11.9	**12.8**	13.7	*15.6*	F			
internigrescens	*15.0*	19.6	**22.3**	24.9	*30.0*	*7.5*	9.1	**10.3**	11.6	*13.1*		M		
muralis	*16.8*	19.9	**22.0**	24.1	*27.1*	*7.4*	9.8	**11.2**	12.5	*14.4*			T	
bryoctona	*15.0*	19.3	**22.0**	24.7	*29.0*	*5.0*	5.8	**6.4**	7.0	*8.0*			T	
fusconigrescens	*17.2*	19.4	**21.4**	23.4	*25.8*	*6.6*	7.9	**8.8**	9.6	*11.1*		M	T	
denudata	*14.8*	19.6	**21.5**	23.4	*26.5*	*6.5*	8.1	**9.0**	9.9	*12.0*	F			
praetermissa	*16.0*	19.2	**21.0**	22.9	*28.0*	*6.5*	7.9	**8.7**	9.5	*10.5*	F			
murina	*13.5*	18.4	**21.1**	23.8	*28.7*	*6.0*	8.0	**9.6**	11.3	*14.4*			T	

Major habitat: F = Freshwater, M = Maritime, T = Terrestrial, L= Lichenicolous SD = Standard Deviation

Species	length					width					habitat			
	min	-1 SD	**mean**	+1 SD	*max*	*min*	-1 SD	**mean**	+1 SD	*max*	F	M	T	L
ochrostoma	*15.6*	18.4	**20.9**	23.5	*27.1*	*8.6*	10.2	**11.5**	12.9	*13.9*			T	
nigrescens	*15.2*	15.6	**20.6**	25.5	*24.6*	*7.8*	7.3	**9.5**	11.7	*12.3*			T	
cf. crustulosa	*14.0*	17.5	**20.0**	22.5	*27.0*	*7.0*	8.3	**9.1**	9.9	*11.1*	(F)			L
sandstedei	*16.0*	?	**?**	?	*21.0*	*3.0*	?	**?**	?	*5.0*		M		
aethiobola	*15.0*	18.0	**19.9**	21.9	*27.0*	*7.5*	9.5	**10.6**	11.7	*14.0*	F			
elaeina	*15.0*	17.7	**19.4**	21.0	*24.0*	*6.0*	7.4	**8.0**	8.7	*10.0*			T	
phaeosperma	*16.0*	17.1	**19.3**	21.5	*24.2*	*8.2*	8.5	**9.0**	9.5	*9.8*				L
pachyderma	*15.0*	16.1	**19.1**	22.1	*23.5*	*6.0*	6.5	**7.7**	8.8	*9.0*	F			
xyloxena	*13.5*	16.6	**18.8**	21.0	*27.0*	*5.5*	6.3	**7.3**	8.2	*10.0*			T	
dufourii	*15.6*	16.4	**18.1**	19.8	*23.4*	*6.6*	7.1	**7.8**	8.4	*9.0*			T	
pinguicula	*11.9*	13.9	**16.7**	19.5	*24.6*	*4.9*	5.7	**7.0**	8.4	*11.0*			T	
baldensis	*14.0*	?	**?**	?	*21.0*	*6.0*	?	**?**	?	*10.0*			T	
parmigerella	*14.0*	?	**?**	?	*21.0*	*6.0*	?	**?**	?	*8.0*			T	
amphibia	*13.1*	15.0	**16.6**	18.1	*19.7*	*4.9*	5.6	**6.2**	6.8	*7.4*	M			
sublobulata	*13.5*	14.9	**16.4**	17.8	*21.5*	*6.0*	6.8	**7.6**	8.3	*9.0*	F			
dolosa	*12.7*	14.9	**16.4**	17.9	*21.5*	*5.5*	5.5	**7.5**	8.4	*10.3*	F		T	
maura	*13.9*	14.8	**16.1**	17.4	*18.0*	*7.4*	7.8	**8.6**	9.5	*10.3*		M		
scabra	*11.0*	13.9	**15.7**	17.5	*21.3*	*7.0*	7.6	**8.3**	9.0	*10.5*	F			
cyanea	*13.5*	14.1	**15.5**	16.9	*18.5*	*5.7*	6.1	**7.0**	7.8	*9.0*			T	
Major habitat: F = Freshwater, M = Maritime, T = Terrestrial, L= Lichenicolous SD = Standard Deviation														

Species	length					width					habitat			
	min	-1 SD	**mean**	+1 SD	*max*	*min*	-1 SD	**mean**	+1 SD	*max*	F	M	T	L
fuscella	*11.5*	13.2	**15.1**	17.0	*20.5*	*4.5*	5.2	**5.7**	6.2	*7.4*			T	(L)
caerulea	*11.9*	12.8	**15.0**	17.3	*23.5*	*5.0*	5.3	**6.2**	7.0	*9.5*			T	
polysticta	*10.3*	12.6	**14.1**	15.7	*16.4*	*5.3*	5.6	**6.2**	6.9	*7.8*			T	
conturmatula	*11.5*	12.6	**14.1**	15.6	*18.0*	*3.3*	4.9	**5.4**	6.0	*6.5*	(F)			L
latericola	*10.6*	?	**14.0**	?	*18.9*	*4.5*	?	**5.8**	?	*7.5*				L
prominula	*10.3*	11.7	**12.9**	14.2	*16.0*	*4.5*	6.7	**7.4**	8.2	*9.0*		M		
rheitrophila	*8.5*	11.2	**12.8**	14.4	*16.0*	*6.0*	6.6	**7.4**	8.2	*9.5*	F			
madida	*9.0*	10.6	**12.1**	13.6	*14.8*	*5.3*	6.1	**6.6**	7.1	*7.4*	F			
aranensis	*6.9*	?	**9.8**	?	*11.1*	*5.6*	?	**6.3**	?	7.2			T	
ditmarsica	*7.4*	8.6	**9.6**	10.6	*12.0*	*5.0*	5.9	**6.6**	7.3	*8.0*		M		
halizoa	*7.0*	7.8	**9.1**	10.5	*11.9*	*3.3*	3.6	**4.1**	4.7	*5.3*		M		
striatula	*7.8*	8.2	**9.1**	10.1	*11.9*	*4.9*	5.3	**5.6**	5.9	*6.2*		M		
ceuthocarpa	*8.5*	?	**?**	?	*10.5*	*6.0*	?	**?**	?	*7.5*		M		
knowlesiae	*7.5*	?	**8.9**	?	*11.0*	*5.6*	?	**5.9**	?	*7.0*			T	
mucosa	*7.0*	?	**?**	?	*10.0*	*4.0*	?	**?**	?	*7.0*		M		
degelii	*7.0*	?	**?**	?	*10.0*	*4.0*	?	**?**	?	*7.0*		M		
bulgarica	*7.0*	7.9	**8.6**	9.4	*10.0*	*4.5*	4.5	**4.8**	5.1	*5.5*			T	
simplex	*6.0*	7.0	**8.2**	9.4	*9.5*	*3.5*	3.8	**4.4**	4.9	*5.0*			T	
aquatilis	*6.5*	7.4	**8.2**	8.9	*10.0*	*4.5*	5.6	**6.1**	6.7	*8.0*	F			

Major habitat: F = Freshwater, M = Maritime, T = Terrestrial, L= Lichenicolous SD = Standard Deviation

BLS Microscopes at Field Meetings

The BLS has recently acquired two microscopes for communal use by members at field meetings. They are a dissecting microscope (10× & 30×) and a binocular compound microscope (40×, 100×, 400× and 1000×-oil). Bob Town of GT Vision Ltd (*www.gxoptical.com*) kindly provided the microscopes to the Society at a substantial discount.

Note that whilst all efforts will be made to transport the Society microscopes to every field meeting it may not always be practicable to do so. Attendees will be told before hand about the availability of this equipment at the meetings. Members using this equipment will be expected to provide their own consumables, e.g. microslides, cover-slips, petri-dishes, razor blades, chemicals etc.

30% Discount Offer to BLS Members

GT Vision Ltd are also offering a **30% discount** on any GX Microscopes product from their website to all members of The British Lichen Society. This offer is open until 1st June 2011. See *www.gxoptical.com* and phone GT Vision on +44 (0)1440 714737.

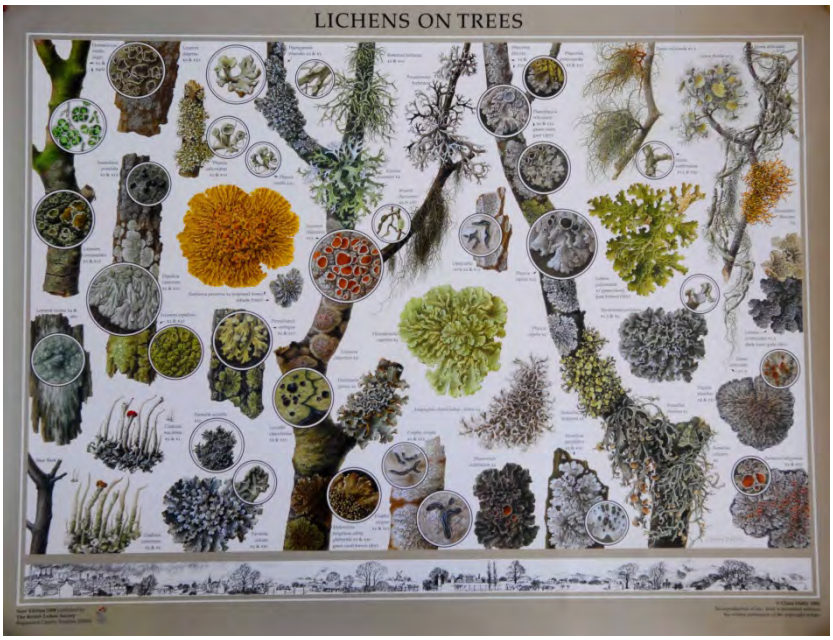
Steve Price
Field Meetings Secretary

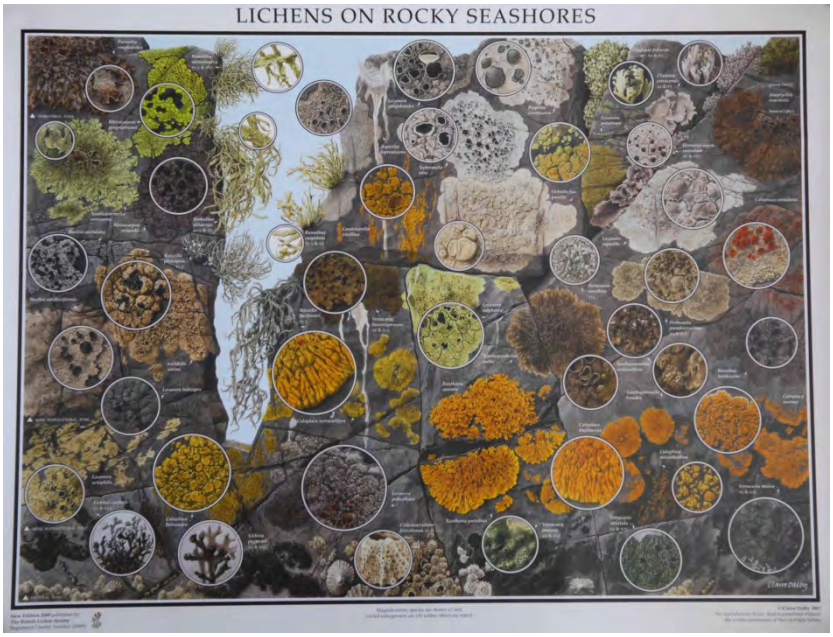
NEW MEMBERS January to May 2010

This year we are taking up a former tradition to welcome new members to the society in the Bulletin…..

Dr D. Barker, Fife, UK
Mr N. Bhatti, Sutherland, UK
Miss C.A. Bickler, West Yorkshire, UK
Mrs F. Cowie, Worcestershire, UK
Mr R. Davies, Orkney, UK
Mr J. Drewett, Yorkshire, UK
Ms M. Durnell, Bristol, UK
Dr P.K. Evans, Hampshire, UK
Mr J. Fankhauser, Roseville, USA
Dr T. Hackwill, Berkshire, UK
Miss S. Hanley, Swansea, UK
Mr A. Hotchkiss, Powys, UK
Mr J. Hudson, Pembrokeshire, UK
Mr F.G. Jones, Gwynedd, UK
Mr J. Larman, Middlesex, UK
Ms M. Madigan, Gwynedd, UK
Mr S.P. Mallon, Somerset, UK
Ms T.R. McDonald, Durham, USA
Mr J. McKenzie, West Yorkshire, UK
Mrs S. Moore, East Sussex, UK
Mr D.J. Mulloy, Lancashire, UK
Miss C. Munns, North Somerset, UK
Dr H. Plaisier, Fife, UK
Miss L. Popely, North Yorkshire, UK
Dr R. Pring, Somerset, UK
Mr S. Robson, Jersey, UK
Dr M. Rogers, Tyne and Wear, UK
Mr M. Rung, Liverpool, UK
Mr J.A. Sánchez Jr., Chaplin, USA
Mr L. Saunders, Cambridgeshire, UK
Ms A.J.E. Seddon, Gwynedd, UK
Mr R. Smith, London, UK
Dr I.W. Stacey, Middlesex, UK
Prof. E.G.D. Tuddenham, London, UK
Mr M. Valentine, Lancashire, UK
Miss H. Wade, Sheffield, UK
Dr J.K. Wardle, Isle of Man, UK
Dr D.P. Waters, Lawrence, USA

New Lichen Wall Charts illustrated by Claire Dalby





These beautifully illustrated colour wall charts: Lichens on Trees and Lichens on Rocky Seashores have been updated with the new species names. Ideal as learning aids, with over 40 different species per poster. Size: A1, 80cm width x 60cm height. Price: £5 each plus £2 P & P for purchases of less than 8 or £4 per poster plus P & P for purchases of 8 or more. Please contact John Douglass: *jrdouglass@hotmail.com*

THE CHURCHYARD

A Sanctuary for Lichens Enjoy and Protect Them

A church and its graveyard provide undisturbed surfaces on which lichens can grow, especially on stone. Remarkably, over one third of the 2000 species of lichens that occur in Britain and Ireland are found in churchyards!

Limestone headstones with yellow-orange crustose lichens

Psilolechia lucida **picks out the letters on a sandstone headstone**

Trees and seats often have leafy lichens

Chests provide different niches for lichens including the horizontal top

Granite Celtic cross with leafy and crustose lichens

For further information see the British Lichen Society website www.theBLS.org.uk or write to the BLS, c/o Dept of Botany, Natural History Museum, Cromwell Rd, London SW7 5BD

The BLS acknowledges support from The Rosemary Allen Trust

The new BLS poster for churchyards

PUBLICATIONS AND OTHER ITEMS FOR SALE

(Subject to availability)

For publications and other items please send orders to:

Brian Green, 3 Tyn y Coed, Carneddi, Bethesda, Gwynedd LL57 3SF, UK (email brian@mrgreen.org.uk). Cheques in Sterling should be made payable to **'The British Lichen Society**', and drawn on a UK bank or on a bank with a UK branch or agent. All prices include postage and packing. Purchases in US$ can be made through the Americas Treasurer: US Dollar rates are double the Sterling Rate. Cheques in US$ should be made out to 'British Lichen Society' and sent to J W Hinds, 254 Forest Avenue, Orono, Maine 04473-3202, USA. *Overseas members may also pay by direct transfer into the Society's UK bank account. Please contact Brian Green for details if you wish to pay by this method.*

Brian is hoping to retire from his duties as BLS shopkeeper after long and faithful service! If you would be interested to take on this not-very-onerous task, he would be very pleased to hear from you.

PUBLICATIONS

Lichen Atlas of the British Isles (ed. M.R.D. Seaward)

Fascicle 2 (*Cladonia* Part 1: 59 species): members £7.50; non-members £10.00.

Fascicle 3: The Foliose Physciaceae (*Anaptychia, Heterodermia, Hyperphyscia, Phaeophyscia, Physcia, Physconia, Tornabea*), *Arctomia, Lobaria, Massalongia, Pseudocyphellaria, Psoroma, Solorina, Sticta, Teloschistes*: members £7.50; non-members £10.00.

Fascicle 4: *Cavernularia, Degelia, Lepraria, Leproloma, Moelleropsis, Pannaria, Parmeliella*: members £7.50; non-members £10.00.

Fascicle 5: *Aquatic lichens and Cladonia* (part 2): members £8.00; non-members £10.00.

Fascicle 6: *Caloplaca*: members £8.00; non-members £10.00.

Identification of Parmelia Ach. [UK species] on CD-Rom - ISBN 0 9523049 4 5. Members £8.00; non-members £13.00; multiple users at one site £24.00.

Microchemical Methods 2nd edition with additions and corrections and 2 colour chromatograms for *Lepraria* species ISBN 978 0 9540418 9 2. Price non-members £12.00, Members £9.00 (Airmail, additional at cost).

Lichens & Air Pollution (James): 28 page Booklet; £1.50.

Key to Lichens and Air Pollution (Dobson): £2.00.

Lichens on Rocky Shores. A4 laminated Dalby 'Wallchart' £1.50.

Key to Lichens on Rocky Shores (Dobson): £2.00.

Taxonomy, Evolution and Classification of Lichens and related Fungi Proceedings of the symposium, London 10-11 January 1998 (reprinted from *The Lichenologist* Vol. 30): members £8.00; non-members £13.00.

Bibliographic Guide to the Lichen Floras of the World (Edn 2; Hawksworth & Ahti (reprint from *The Lichenologist* Vol. 22 Part 1): £2.00.

Checklist of British Lichen-forming, Lichenicolous and Allied Fungi (Hawksworth, James & Coppins, 1980): £2.00.

Checklist of Lichens of Great Britain and Ireland (Coppins, 2002): members £7.00; non-members £9.00.

Lichen Habitat Management Handbook: members £10; non-members £15.00.

Surveying and report writing for Lichenologists (Guidelines for surveyors, consultants and commissioning agencies): members £10.00; non-members £15.00.

The Lichen Hunters (Gilbert, 2004): £8.50.

Horizons in Lichenology (Dalby, Hawksworth & Jury, 1988): £3.50.

Aide Mémoire: Usnea (James): members £3.90; non-members £5.90.

A Field Key to Common Churchyard Lichens (Dobson): members £7.00; non-members £8.00.

A Guide to common churchyard Lichens (Dobson): £2.50.

A Conservation Evaluation of British Lichens (Woods & Coppins): members £4.00; non-members £6.00.

Indices of Ecological Continuity for Woodland Epiphytic Lichen Habitats Of the British Isles **(**Coppins & Coppins): members £3.50; non-members £6.00.

Lichen Photography (Dobson, 1977): £1.00 [Photocopies of A4 sheets].

Mapping Cards: General, Churchyard, Woodland, Mines, Coastal, Urban, Chalk and Limestone, Moorland: free.

BLS leaflets: Churchyard lichens - Lichens on man-made surfaces (encouragement and removal): free.

Lichen Society Postcards: Lichens in full colour in assorted packs of 16. £3.00 [Orders for more than five packs are available at a reduced rate.]

British Lichen Society Car Sticker: 5 colour 4" diam. self-adhesive plastic: £1.50

OTHER ITEMS

All the following items have the British Lichen Society logo in three colours - black outline, silver podetia and red apothecia.

Woven ties with below-knot motif of BLS logo: £7.00. Colours available: maroon, navy blue, brown, black and charcoal.

Sweatshirts with breast pocket size embroidered motif of BLS logo: £16.00. Colours available: light grey, navy blue, bottle green, red.

Sweaters, wool with breast pocket size embroidered motif of BLS logo: £14.00. Colours available: maroon, bottle green and navy (various sizes).

T-shirts with screen-printed full chest motif of BLS logo encircled by the words 'British Lichen Society': £10.00. Colours available: light grey, navy

blue, bottle green, tangerine (one old stock yellow - small). Please specify size *and* colour options.

Earthenware mugs (white) with coloured logo on both sides and encircled by the words 'British Lichen Society' below: £3.00

Hand lenses

Gowland x10 plastic lens - a useful spare or second lens, handy when taking a friend with you! £3.00.

x10 glass lens in metal body, lens diam 18mm £8.50.

x30 lens, diam 21mm. A new top quality lens £14. This lens is not suitable for general field work, a x10 lens is necessary for this and the x30 for more detailed examination later.

NEW FOR LOAN: For UK members only

A microscope stage-micrometer slide for the calibration of eye-piece graticules in 10µm divisions is available for loan. A deposit of £40 is required.

When ordering items through the post, please allow a month for delivery, as many items have to be ordered specially, or in bulk.

BACK NUMBERS OF *THE LICHENOLOGIST*

Cambridge University are pleased to announce that from 2006 all BLS members will be able to purchase back numbers of the Lichenologist (ISSN 0024-2829) at £10.00 per back issue and back volumes at £40.00. Cambridge holds issues back to and including Volume 33 (2001).

Contact:

Tel. 0044 1 233 326070; Fax 0044 1 223 325150; E-mail: journals@cambridge.org

Back stock is also held at SWETS. For details see:

http://backsets.swets.com/web/show/id=47067/dbid=16908/typeofpage=47001

A complete volume from SWETS costs 200 euros.

SUBMISSION DEADLINE

Please would intending contributors to the Winter 2010 issue of the *Bulletin* submit their copy to the Editor by 21 September. These can be sent by e-mail to p.cannon@cabi.org as an attachment. Alternatively they can be sent on a CD to the Editor (for address see inside front cover). Colour images are welcomed but for reasons of economy it may not always be possible to use them. Please send these as separate high-resolution (at least 500 kb) .jpg or .tif files; do not embed them in a Word document as they are difficult to edit without losing much resolution. For the style of references see past *Bulletin*s.

BRITISH LICHEN SOCIETY - 2010 MEMBERSHIP DETAILS

Applications for membership should be made to The Membership Secretary, The British Lichen Society: Dr Heidi Döring, Mycology Section, Royal Botanic Gardens, Kew, Richmond, Surrey TW9 3AB, email h.doring@kew.org, or through the Society's Web site: http://www.theBLS.org.uk

Queries on membership matters and subscription payments and **Changes of address** should be sent to: The Membership Secretary at the address above.

CATEGORIES OF MEMBERSHIP AND SUBSCRIPTION RATES

Ordinary Membership for individuals (not available to institutions) who have signed the Application Form and paid the subscription. Ordinary Members are entitled to all publications and facilities of the Society.

Rate for 2010: **£30 / $60** Three year rate for 2010-2012 (for non-UK members only): **£85 / $170**

Electronic Membership, as Ordinary Members but access to 'The Lichenologist' online only (no hard copy). Rate for 2010: **£25 / $50**

Life Membership is available to persons over 65 years of age at **£300 / $600**. Life Members have the same entitlement as Ordinary Members.

All three categories of **Associate Member** listed below are entitled to all the facilities of the Society, including the *Bulletin*, but excluding *The Lichenologist*.

Associate Membership. Rate for 2010: **£22 / $44**
Senior Associate Membership, for persons over 65 years of age. Rate for 2010: **£10 / $20**
Junior Associate Membership, for persons under 18 years of age, or full-time students. Rate for 2010: **£5 / $10**

Family Membership is available for persons living in the same household as a Member. They are entitled to all the facilities of the Society, but receive no publications and have no voting rights. Rate for 2010: **£5 / $10**

Bulletin only subscriptions are available to institutions only. Rate for 2010: **£22 / $44**

PAYMENT OF SUBSCRIPTIONS *Members may pay their subscriptions, as follows:*

Sterling cheques, drawn on a UK bank, or on a bank with a UK branch or agent, should be made payable to *The British Lichen Society*. Payment by **Standing Order** is especially welcome; the Assistant Treasurer can supply a draft mandate.

Internet (credit card) payments using PayPal: Please see the Society's website for the full details: http://www.theBLS.org.uk/

US dollar payments should be sent to: **Dr James W. Hinds, 254 Forest Ave., Orono, ME 04473-3202, USA.**

Overseas members may also pay by direct transfer into the Society's UK bank account. However, please contact the Assistant Treasurer if you wish to pay in this way, ***and before you make any payment***. Her contact details are given above.

British Lichen Society *Bulletin* no. 106, Summer 2010
ISSN 0300 4562
Issued by the British Lichen Society (Registered Charity 228850), c/o Department of Botany, Natural History Museum, Cromwell Road, London SW7 5BD. Edited by Paul Cannon, Jodrell Laboratory, Royal Botanic Gardens, Kew, Richmond, Surrey TW9 3AB. The views of contributors are not necessarily those held by the British Lichen Society.

British Lichen Society Bulletin no. 106 Summer 2010

Index