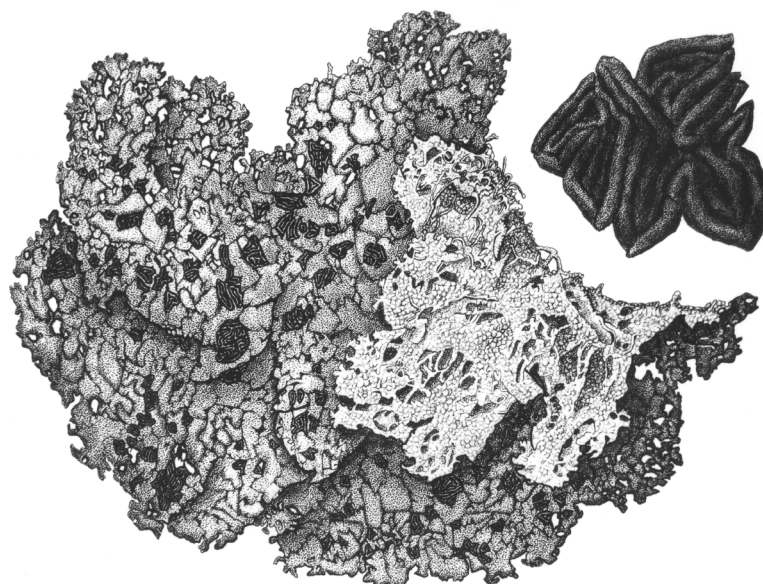
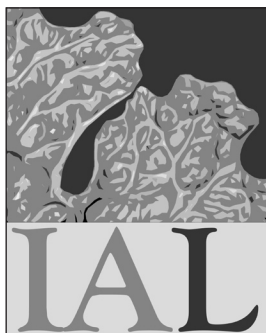


# INTERNATIONAL LICHENOLOGICAL NEWSLETTER

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The opinions expressed in the *Newsletter* are not necessarily those held by the International Association for Lichenology

## INTERNATIONAL ASSOCIATION FOR LICHENOLOGY

The International Association for Lichenology (IAL) promotes the study and conservation of lichens. It organizes symposia, field trips, and distributes a biannual newsletter. There is a listserver that enables on-line discussion of topics of interest. Webpages devoted to lichenology are also maintained by members of the Association. People wishing to renew their membership or become members of IAL are requested to send their subscription (one payment of 40 USD for 2009-2012) to either Treasurers.

The **International Lichenological Newsletter** is the official publication of IAL. It is issued twice a year (July and December) in English. The *Newsletter* is also available on the Internet. The *Newsletter* is divided into four main sections: 1) **Association news**: official information concerning the Association, such as minutes of Council meetings, proposals of Constitutional changes, new members, changes of addresses, etc. 2) **News**: information about lichenologists, institutional projects, herbaria, requests of collaboration, announcements of meetings, book reviews, etc. 3) **Reports**: reports of past activities, short lectures, obituaries, short historical novelties, etc. 4) **Reviews**: presentation of recent progress and other topics of interest in lichenology with optional discussion. When the material exceeds the available space, the Editor will prepare a summary, on prior agreement with the contributors.

**Any information intended for publication should reach the Editor on or before June 15 and November 15 for inclusion in the July and December issues, respectively.**

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IAL affairs are directed by an Executive Council elected during the last General Meeting. Council members elected at the IAL6 Symposium (Asilomar, California (U.S.A.), 2008) are listed below, and will serve until 2012.

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## ASSOCIATION NEWS

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### **IAL7, 9-13 January 2012, Bangkok, Thailand**

#### **Lichens: from genome to ecosystems in a changing world**

Located in the heart of Southeast Asia, Thailand is a thriving, dynamic hub of various facets that has received much interest from people all around the world. In addition, the country has all the necessary state-of-the-art facilities for hosting a most successful symposia or conference. Also while participating in their conference or symposia, delegates can immerse themselves in experiencing the unique Thai culture, fun entertainment, shopping bargains, and exotic dining, or enjoy discovering Thailand's hidden treasures in various destinations before or after their event that will leave them with a wonderful memory and make them want to come back again and again to the "Land of Smiles".

#### **Accommodation:**

The venue of the IAL7 in Bangkok, The Chaophya Park Hotel ([www.chaophyapark.com](http://www.chaophyapark.com)), is located in the central area of Bangkok. The hotel offers meeting rooms, a variety of accommodation possibilities, local and international meal services, Internet, spa, and golf driving range. Several satellite hotels ranging from five-star to low-cost student rate hotels will also be available.

#### **Scientific Program:**

The meeting will include symposia ranging over the entire field of research in lichenology, from using genomic approaches to understand the lichen symbiosis to the ecological roles for enhancing our knowledge in diversity and evolution of lichens and applied aspects; such as, use of lichens to monitor air pollution and climate change, as well as novel products. Poster sessions, selected lectures, expert workshops, discussion sessions, and field excursions will be organized. Suggestions are welcome by December 1st, 2010, by sending to the program committee members to be announced or entered at <http://www.lichenology.org/IAL7/>. The program will be finalized during the spring of 2011.

#### **Field Trips:**

Currently the following field trips are planned.

Preconference excursion: is a one-day field trip just before the start of the main symposia. Several routes in the vicinity of Bangkok will be arranged lead by Kajonsak Wongshe-warat and Wetchasart Polyiam of Ramkhamhaeng University.

Post conference excursions: 4-6 days each with the following routes:

2.1 Northern route- the Himalaya foot hills: Chang mai area represented by subtropical flora. Natural vegetations are teak and mixed deciduous forests. Wanarak Saipunkaew of Chaingmai University and Sureeporn Jarianprasert of Maejo University will lead this excursion.

2.2 The Northeastern route-old Dinosaur area: Mahasarakarm and Khonkan are the main locations. They are surrounded by dipterocarp forests. Dinosaurs have been excavated in these areas. Hosted by Khwanruen Papong of Mahasarakarm University.

2.3 The Eastern sea coast and mangrove forest: Chantaburi and Rayong cities are the main areas. Mangrove and beach forests as well as tropical fruit plantations are accessible. Hosted by Pachara Mongkolsuk and Kawinnat Buaruang from Ramkhamhaeng University.

## **IAL AWARDS 2012**

### **Invitation for Nominations**

The IAL plans to make awards of the Acharius Medal and the Mason Hale Award at IAL7 in Bangkok in January 2012. For information regarding previous recipients of these awards, please consult: <http://www.lichenology.org/>.

#### *Acharius Award*

The Acharius medal is awarded for outstanding contributions to lichenology over the career of an individual. Probably two medals will be awarded at the IAL meeting in Bangkok. Nomination should be sent no later than 31 August 2011 to Thorsten Lumbsch ([tlumbsch@fieldmuseum.org](mailto:tlumbsch@fieldmuseum.org)).

#### *Mason Hale Award*

This award is granted to recognise excellence in research by young lichenologists for outstanding work resulting from doctoral dissertations or similar studies which have been completed since the closing date for the award made at IMC9, i.e. since 1 February 2010. The submission of work(s) for consideration must be made by a person other than that being proposed. The selection process will be in two stages. The first stage submission should comprise: (a) a copy of the title page and abstract either of the thesis or published work(s) with an indication or other evidence of the actual date the thesis was submitted or works were published; (b) a statement from the person making the nomination; and (c) supporting letters from not less than two other lichenologists based in different countries from that of the person being nominated (to be sent directly to the Chair of the Committee). In the second stage, candidates short-listed by the Committee will be required to send hard copies or pdfs of the nominated work(s) to each member of the Committee. First-stage nominations and supporting letters should be sent directly by e-mail to the Chair of the Committee, Professor D L Hawksworth CBE ([d.hawksworth@nhm.ac.uk](mailto:d.hawksworth@nhm.ac.uk)) to arrive not later than 1 August 2011.

### **IAL Members' email addresses**

In future it is Council's intention to send members an email alert when an issue of the Newsletter is published. It goes without saying that for this to work smoothly it is important that members' email addresses are accurate and up-to-date. Please would you visit the IAL Website (<http://www.lichenology.org/>) and check that your email address is listed (go to 'Membership' and then 'List of Members') and that it is correct. Ignore the '<at>' notation in place of '@'. Any additions or corrections should be sent to our Webmaster ([beck@bsm.mwn.de](mailto:beck@bsm.mwn.de)).

### **IAL8 – 2016**

Expressions of interest are invited from consortia willing to host IAL8 in 2016. These can be directed to myself ([pd@nottingham.ac.uk](mailto:pd@nottingham.ac.uk)) or any member of Council.

## **Call for Nominations for 2012-2016 IAL Officers, Auditors and Nominating Committee**

IAL 2012-2016 Nominating Committee: Lucyna Śliwa, Gintaras Kantvilas, Ulrik Søchting (secretary).

This is an official call for nominations for IAL Officers, Auditors and Nominating Committee for 2012-2016. The elected Officers of the IAL are a President, a Vice-President, a Secretary, a Treasurer, an Assistant Treasurer, an Editor, the organizer of the next IAL Congress, and three Council members-at-large. These officers form the Council of the IAL. The Auditor and Vice-Auditor are elected non-Council members. The Nominating Committee is composed of three elected non-Council members, and they elect a secretary among themselves.

The term for Officers, Auditors and Nominating Committee is four years. The maximum period for any Council Officer, Auditor and Nominating Committee member is two consecutive terms. Council Officers, with the sole exception of the Editor, cannot serve more than one consecutive term in the same position. Current office holders are listed on the IAL web site <http://www.lichenology.org/> - click on 'About' sidebar, then click on 'Council'. 2000-2008 office holders are listed in past newsletters, also online.

Any member in good standing (i.e., with dues paid for 2008-2012) of the IAL may submit nominations or be nominated. Nominations, to be valid, need the written consent of the nominees, and need to reach the Nominating Committee at least two months prior to the general meeting. To that end we set November 1, 2011 as the deadline for submitting nominations. Nominations from the floor at general meetings are allowed only when no nominee for a given post is elected. Elections will be made by majority vote at the IAL general meeting at IAL7, Bangkok, Thailand, 9-13 January 2012.

Please submit all nominations to the secretary of the IAL 2008-2012 Nominating Committee: Ulrik Søchting, e-mail: [ulriks@bio.ku.dk](mailto:ulriks@bio.ku.dk), Section for Ecology and Evolution, Department of Biology, University of Copenhagen, Universitetsparken 15, DK-2100 Copenhagen O, Denmark.

## **IBC2011 Melbourne**

The registration brochure & call for abstracts of the XVIII International Botanical Congress is available now (see [www.ibc2011.com](http://www.ibc2011.com)). The congress will be held in Melbourne 23-30 July 2011. Early registration ends by the 1<sup>st</sup> of February 2011. The Nomenclature Section will be held prior to the main congress from 18-22 July at the University of Melbourne.

## IMC9 Edinburgh

The first *International Mycological Congress* was held in Exeter (UK) in 1971, and the series has become the international focal point which brings together all aspects of mycology, including lichenology. The congresses, organized under the auspices of the *International Mycological Association* (IMA), are now run at intervals of four years. The 8<sup>th</sup> was in Cairns (Australia) in 2006, and the 9<sup>th</sup> was held in Edinburgh (UK) on 1-6 August 2010. Entitled *The Biology of Fungi* to give the impression of breadth, the 45 symposia were arranged in five series: Biology, biochemistry and physiology; Environment, ecology and interactions; Evolution, biodiversity and systematics; Pathogenesis and disease control; and Genomics, genetics and molecular biology. In addition, there were 23 Special Interest Group sessions held immediately before the Congress. There was also an exhibition *From Another Kingdom: the Amazing World of Fungi* (accompanied by a coffee-table book aimed at the general public as well as academics) run at the Royal Botanic Garden Edinburgh to coincide with the Congress.

This was one of the largest IMC's so far, with 1593 registered delegates from 83 different countries. Unusually for an IMC, over £ 100,000 was available to help with the costs of 220 invited speakers and Symposium Organizers, and bursaries were given to 296 delegates from 80 countries. In total, some 330 delegates gave oral presentations in Symposia and Special Interest Group sessions, and there were around 1,200 posters displayed in shifts.

The IAL President, Peter Crittenden, ensured that the IAL was involved from the first. A pre-Congress excursion to the Kintail area and the Isle of Skye was organized by Brian Coppins and introduced foreign participants to Scottish mist (i.e. extended periods of heavy rain). At a very pleasant dinner of the IAL held at the Royal Botanic Gardens Edinburgh, Acharius Medals were awarded to Brian Coppins and Tom Nash, and the Mason Hale award was presented to Suzanne Joneson.

Papers dealing with lichens were integrated within the main symposia, but one of the Special Interest Group meetings was on cryptic speciation in lichens; that was organized by Ana Crespo and Thorsten Lumbsch, and a report of that has been published separately (*IMA Fungus* **1** (2): 167-170, 2010).

An innovation for this IMC, was the series of three Nomenclature Sessions, designed to enable participants to express their views on proposals being made to the International Botanical Congress in Melbourne (Australia) in July 2011 to make changes in the International Code of Botanical Nomenclature. Votes were held on proposals already published, which are to be finally decided upon at the Melbourne Congress. In addition, all IMC delegates were asked to complete a questionnaire to gauge their views on particular matters. These included topics such as the transference of responsibility for issues related to mycological nomenclature from International Botanical Congresses to IMCs, and making the deposition of key nomenclatural information in an approved international online depository (e.g. MycoBank) a requirement for the valid publication of fungal names; all key proposals received almost unanimous support. In addition, there was also strong support for allowing the use of English as an alternative language for diagnoses, but mixed views on how to move away from the dual nomenclatural system used in some pleomorphic fungi to one-name for one-fungus. Reports of these sessions, and the results from the questionnaire have now been published (*IMA Fungus* **1** (2): 143-147, 2010; *Mycotaxon* **113**: 503-514, 2010), and a *synopsis* is also due to appear in the February issue of *Taxon*.

As befits an international organization, IMC venues generally rotate through different continents, and at the closing plenary session of the congress, it was announced that IMC10 is to be held in Bangkok (Thailand) in 2014. As the next IAL congress is also to be held in Thailand in January 2012, these two meetings should be a great boost to Thai lichenology. I have attended all nine IMCs, and they have always broadened my horizons. There is always much to learn from such wider interactions, not least by the most important discussions during coffee and meal breaks. I always try to hear and meet people whose works I have read and also invariably make new acquaintances – often leading to exchanges of PDFs and new collaborations. Lichenologists will always have much to learn from mycologists working with other fungi – and *vice versa!*), especially as genomics and molecular phylogenetics increasingly become all-embracing, so do try and make IMC10.

David L Hawksworth, London

### **Lichens among fungi – impressions from Edinburgh**

How to find other lichenologists on a conference that is mainly about fungi? – We belong to a group of PhD-students and young researchers from North European countries that have met and discussed their research on two Nordic Young Lichenologist symposia, and now we went out to the IMC9 in Edinburgh to increase our connections. What seemed to be difficult at first then worked relatively easily: people grouped together in similar sessions and poster presentations, and often we recognized fellow lichenologists. And even though the amount of lichen presentations was not excessive, there were also plenty of other interesting topics to fill up our days. The conference was therefore a good opportunity to meet new people, to get insights into “what’s going on in the lichen world”, and to discuss our own research – we are happy that we attended!

The conference venue (EICC and Usher Hall) was very nice – being right in the city, with a lot of friendly stuff, and very well organized all together. Of course also a pipe player wasn’t missing at the introduction evening! The poster sessions were crowded, and it would have been nice to have a little bit more space between some of the poster stands, but the atmosphere was very friendly and relaxed. Many people seemed to be interested, even in lichen posters.

As being relatively new in lichen research it is not always very easy to approach well-known lichenologists and professors. Something that we would like to suggest for a next such meeting would be a “lunch with professors”. This could give PhD-students and young researchers the possibility to connect with well-known people in the field in a relaxed and undemanding atmosphere. Also, it was a pity that we both missed the IAL dinner, and therefore there was no general “lichenologists evening” for us, as this would have made it easier to bond with other people in the field.

Edinburgh is a vibrating lively city – a great choice for a congress. Not only is the scenery with its old buildings and castle amazing, there were music and street performers everywhere. To see some green areas one could climb “Arthur’s seat”, but one should not miss out to see the great Botanical Garden! There was an interesting exhibition on the fungal world at the moment, and we also enjoyed seeing “Kingdom Fungi’s Flying Circus: an Exploration of Fungal Mobility” by Nicholas P. Money.

Altogether, we enjoyed the conference, and would like to take the opportunity to thank all organizers for this great event!

Katja Fedrowitz, Uppsala & Ulla Kaasalainen, Helsinki

### *New Acharius medallists*

#### **Brian J. Coppins**

Brian J. Coppins has been at the forefront of lichen research in Britain for more than 30 years. Brian became interested in lichens while at school when, like so many of his generation, he fell under spell of Kershaw and Alvin's *Observer's Book of Lichens*. He studied Botany at Hull University and as an undergraduate it is reputed that he could already identify most of the British lichen flora. One of his earliest publications (in *Oikos* [1971]) was based on his undergraduate project on lichens and mosses in heathland on Skipwith Common, Yorkshire, supervised by David Shimwell. He then went to the Department of Geography, King's College, London to take up a PhD studentship under the supervision of Francis Rose studying air pollution effects on lichens. Although Brian produced published output from this work (e.g. a chapter in *Air Pollution and Lichens* [1973]), he developed a far greater enthusiasm for lichen taxonomy than lichen ecophysiology, so much so that he eventually decided to switch topics and embark on a new PhD on the taxonomy of *Micarea* in Europe supervised jointly by Francis Rose and Peter James. He rapidly gained a reputation for being a gifted lichen taxonomist and, in 1974, he was appointed to the position of Ascomycete Taxonomist in the herbarium at The Royal Botanic Garden Edinburgh even before gaining his PhD; he was awarded this in 1982 and it was published in 1983 in *The Bulletin of the British Museum (Natural History), Botany*. Brian remained in Edinburgh for the duration of his professional career specializing in the systematics of crustose groups and producing major works on sterile crusts, *Ramonia*, *Veizdaea*, *Psilolechia*, *Arthropyrenia*, *Catillaria*, Arthoniaceae, *Halecania* and SE Asian Thelotremataceae while continuing to describe new species of *Micarea* amongst those of many other genera. Brian has also worked extensively describing the lichen mycota of habitats in many parts of Scotland, latterly an activity he frequently undertook with his wife Sandy, making a monumental contribution to our appreciation of the conservation importance of habitats such as the Atlantic hazel woods, Scottish native pinewoods, and alpine areas such as Ben Lawers and the Ben Nevis range, and raising awareness of the rich heritage of lichen communities in Scotland and their biodiversity importance in a European context. In recent years he has had a very fruitful collaboration with Chris Ellis on the impact of climate change on lichen species ranges in Scotland. Brian has given generously of his time as a teacher and mentor, Oliver Gilbert observing that he "gave a higher priority to assisting other people with their lichens than making his own name through publications" (*The Lichen Hunters* [2004]). Brian has run numerous training courses and workshops including the now famed Rucker's Workshop at Braemar and Kintail, 2005, and, until recently, the annual lichen course for beginners at the Kindrogan Field Studies Centre, again latterly in conjunction with Sandy. As a part of their lichen conservation campaign, Brian and Sandy initiated the "Lichen Apprenticeship"



scheme providing training in lichen identification and survey methods to novices with work-related interests in conservation with a view to increasing awareness about lichens and increasing the number of skilled lichen identifiers. This scheme prompted a remarkable revival of interest in lichenology in Scotland. In recognition of their lifetime contributions to conservation of UK lichens, Brian and Sandy were presented with *The Plantlife Award for Contributions to the Conservation of Plant Diversity* (2009). Although Brian's field research has



been largely focused on Scotland he has nonetheless had sorties to more exotic locations such as Borneo, Chile, the Carpathians, Thailand, USA, Norway and Canada and he has collaborated in describing new species from many parts of the world. Many of these collaborators, and colleagues in general, have enjoyed Brian and Sandy's warm hospitality in their home in East Linton, and after dinner perhaps have been cosseted with a glass or two of a Scottish malt while discussing lichenology until late into the evening. At the same time as being a world authority on saxicolous crusts, Brian has an encyclopaedic knowledge of lichens in general and of lichen habitat ecology. As an example, several species of *Thyrea* and *Anema* from Spain that I sent to him were returned identified in a matter of a few days. Brian was a member of the editorial teams for the much celebrated *Lichen Flora of Great Britain and Ireland* (1992) and its recent revision *The Lichens of Great Britain and Ireland* (2009), either authoring or co-authoring over one fifth of the genera accounts in both volumes, and he has authored or co-authored several revisions of the Checklist of Lichens of Great Britain and Ireland. He was for many years Senior Editor of the *Edinburgh Journal of Botany* (1984-2001) and continues to serve on the editorial boards of *The Lichenologist* (all proofs are subject to Brian's scrutiny!) and the *Turkish Journal of Botany*. He was President of the British Lichen Society from 1988-89, elected an Honorary Member in 1994 and awarded the BLS' Ursula Duncan Award in 2005. Brian retired from the RBGE in May 2009. The fact that there are now two full-time lichenologist positions at RBGE is itself a tribute to the quality of Brian's science and reflects the importance and relevance now attached to lichen conservation in 21st Century Scotland, thanks to him and Sandy. I am sure that Brian's colleagues in many parts of the world will share my delight in his being awarded the Acharius Medal.

Peter Crittenden, Nottingham, UK

### **Tom Nash III**

Thomas Hawkes Nash III was born in Arlington (Virginia) in 1945. His scientific career started in the late 1960s at Duke University where he received a B. Sc. in 1967. Subsequently, he went to Rutgers University to receive his M.Sc. and Ph. D. in Botany and Statistics. Soon after graduating from Rutgers, he was appointed as an Assistant Professor at Arizona State University in Tempe. There he spent almost 40 years of his scientific career. He is unique among lichenologists for his versatility and interdisciplinary research that includes different fields, such as ecophysiology, ecology, taxonomy and floristics and more applied research areas, such as bio-monitoring. Recently, he has become very interested in modern approaches to data-basing of collections and taxonomic information. He has made significant contributions in each of these fields. Given his broad interests, it is no surprise that Tom Nash took the lead in editing a textbook on *Lichen Biology*. This has been recently published in a second, enlarged edition, which is quite remarkable for a textbook on lichens! His list of publications (that includes more than 200 original articles) is impressive, since it covers a wide array of research fields within lichenology and a successful textbook, but also by achieving his magnum opus that most of his colleagues thought would never be possible: a modern and comprehensive account of the Greater Sonoran Desert region. With this three volume flora, he has clearly demonstrated how persistent and - in a good way – stiff-necked he is and that he has the talent to organize large-scale projects. The Sonoran Desert project included 92 collaborators from 23 countries. As I know from personal experience, Tom was never shy to remind contributors that their contributions were due or to suggest additional genera that might be covered by contributors. The endeavour of a lichen flora for a region that was poorly known before Tom started would not have been possible without Tom's dedication to fieldwork and collecting. He vastly enlarged the lichen herbarium at ASU from about 100 specimens when he started in Tempe to one of the most important lichen herbaria in south-western USA with over 110,000 specimens. Further, as a university teacher, Tom was involved in teaching courses and served in committees of over 30 graduate students. He was also always interested in collaborations and stayed for long and productive periods of time at various research institutes or universities in Europe and Australia to work with colleagues on specific projects. This includes, among many others, Jürgen Kesselmeier (Max Planck Institute, Mainz), Gerhard Rambold (Univ. Bayreuth), Josef Poelt (Univ. Graz), Burkhard Büdel (Univ. Kaiserslautern), Otto Ludwig Lange (Univ. Würzburg), Ludger Kappen (Univ. Kiel) and Jack Elix (Australian National University).

H. Thorsten Lumbsch, Chicago

### **Mason Hale Award**

The Mason Hale Award of the International Association for Lichenology (IAL) is for outstanding work resulting from doctoral dissertations or similar studies. The award was introduced in 1992, and past recipients are among the most productive and innovative lichenologists of today. This demonstrates that a high quality dissertation can predict future success in the field, and the award for 2010 is made to Suzanne Joneson.

Suzanne Joneson's thesis, *The Molecular Biology of Lichen Symbiosis and Development*, was accepted by Duke University for the degree of PhD in 2009. Her thesis represents a

series of innovative studies exploring the operation of the lichen symbiosis at the functional level, using the latest available molecular approaches as well as culture experiments.

She explored the earliest steps in the initiation of a lichen thallus by studying the response of the lichen-forming fungus *Cladonia grayii* to contact with its usual *Asterochloris* algal partner, other cellular and also filamentous algae, a moss protonema, and inert glass beads. In addition she examined the effect of growing the *Asterochloris* with the fungus but separated by a nitrocellulose filter which only allowed molecular interactions. This series of experiments established that the change in hyphal branching seen in the first stages of lichenization was not just a thigmotropic response, i.e. one to contact, but something much more specialized.

To explore what this "something" could be, Suzanne turned to comparative genomics, using suppression-subtractive-hybridization (SSH) to ascertain differential gene expression – comparing genes that were operational in the pre-contact and post-contact stages of lichenization in the experiments with those expressed when the partners were growing in isolated culture. She then constructed chromosomal DNA libraries for potentially involved genes, sequencing around 500-1000 clones from each and checking for possible roles by comparison with genes of reported function.

Suzanne then went on to select genes that seemed most promising because of reported involvement in fungal pathogenicity and endeavoured to verify which were involved using quantitative PCR (qPCR) and measured their levels in lichenized and non-lichenized states of the fungal partner. Especially exciting was that, not yet satisfied and wanting to link expression to function, she engineered one of the genes, a lipase, into yeast to enable her to conduct experiments as to its role. This achievement, successfully inserting a gene from a lichen-forming fungus into a yeast, opens up new vistas towards our understanding of all aspects of the lichen symbiosis at the molecular level.

Comments made to the Award Committee during the assessment process included: "Groundbreaking work that has provided the most definitive characterization to date of the genetic basis of the lichen symbiosis", "Suzanne's thesis is a turning point and landmark, which is associated with the initiation of a completely new line of research", and "She is the type of high-flyer which is urgently needed in our discipline". Suzanne has, and continues to, operate in the innovative way Mason Hale experimented with upcoming new methodologies from the mid-1950s into the early 1970s in particular, and is consequently a most worthy recipient of this award.



David L Hawksworth, London  
Chair, IAL Mason Hale Award Committee

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## PERSONALIA

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**Martina Zahradnikova** accepted a four year PhD-position at the Museum of Natural History, University of Bergen, Norway, from August 1st, 2010. She is working on *The taxonomy of Fuscidea and Ropalospora in Europe* under the supervision of **Tor Tønsberg** and **Heidi Lie Andersen**.

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## NEWS

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### *New literature:*

**ETAYO, J. (2010): Líquenes y hongos liquenícolas de Aragon.** – Guineana 16. – Paperback. 501 pages. ISSN 1135-7924. Price: 25.00 Euro.

The autonomous region of Aragon situated in the northeast of Spain comprises an area of 47,645 km<sup>2</sup> or nearly 10% of the whole of Spain, being somewhat larger than the Netherlands. The altitude ranges from lowland to 3,404 m, and the annual precipitation ranges from 350 to 2000 mm. Having these figures in mind, a rich lichen flora is to be expected.

This book catalogues the 1420 taxa of lichenized and lichenicolous fungi known from the area. For every accepted taxon, at least one literature source is given, and in most cases notes on habitat and distribution are presented, followed by citations of recent records mostly from the collections of the author. 14 new species (not 15 as given in the English abstract) are fully described and illustrated by photographs, all of them lichenicolous fungi or in the case of *Fulgensia epiplacynthium* a lichenicolous lichen. The new taxa are in the genera *Arthonia* (3), *Cladoniicola*, *Dactylospora*, *Fulgensia*, *Lichenochora*, *Lichenothelia*, *Phaeospora*, *Polycoccum*, *Pronectria*, *Skyttea*, *Stigmidium* and *Wernerella*. Two new combinations in *Diplotomma* and *Platygramme* and a neotypification in connection with the new combination *Polycoccum alboatrum* are also proposed. Although all other species are not described and no keys are provided, an enormous amount of information is given to enlarge our knowledge of Spanish lichens and lichenicolous fungi.

As well as its value for the region, every serious student of lichenicolous fungi will need a copy, not only because of the newly described species but also because of the rich information on their occurrence and ecology given by one of the experts in this field.

The Editor

**GIRALT, M. (2010): Physciaceae I. Endohyalina, Rinodina y Rinodinella.** – Flora Liquenológica Ibérica 5. – Barcelona: Sociedad Española de Liquenología (SEL). Paperback, 105 pages. ISSN 1696-0513. Price: 10.00 Euro.

It is a pleasure to announce that the *Flora Liquenológica Ibérica* is making further progress with new issues at regular intervals. The first part of the Physciaceae, including 4 species of *Endohyalina* (one with two varieties), 71 *Rinodina* (five with two varieties) and 2 *Rinodinella* is presented here. A further species, named “*Buellia*” *parvula* is also fully described. 12 species of *Rinodina* and 1 species of *Rinodinella* had to be excluded for

various reasons. No taxonomic novelties introduced here. So all in all there are full descriptions for 77 accepted species from the Iberian Peninsula. Many of them are illustrated, normally by drawings of the typical spores, a few by photographs of spores, but also 15 by colour photographs of the habit. "Iconography and additional information" is cited for every species. As well as the necessary keys to the species of the three treated genera, a general key is provided to almost 30 genera within the Physciaceae. As in other parts of the series, the distributions are given according to 64 geographical subunits illustrated on a map.

The text is completely in Spanish without any abstract in other languages. Iberian and especially Spanish lichenology can be congratulated for the ongoing progress with its lichen flora. The price is very reasonable and will allow any person interested in Mediterranean lichens or in *Rinodina* s.l. to buy a copy.

The Editor

**HAUCK, M., & U. DE BRUYN (2010): Rote Liste und Gesamtartenliste der Flechten in Niedersachsen und Bremen. 2. Fassung, Stand 2010.** – Informationsdienst Naturschutz Niedersachsen 30(1). – Hannover, 84 pages. Paperback. ISSN 0934-7135. Price: 4.00 Euro. (Available from: <http://webshop.nlwkn.niedersachsen.de>)

Once more a red list for a German region – yes, but this one is much more. First it is not only a red list but also a checklist and a catalogue of lichenized and many lichenicolous fungi of the German state of Lower Saxony plus the small but politically independent state of Bremen. The area covered is nearly 50,000 km<sup>2</sup> and stretches from the North Sea coast to the western part of the Harz Mountains reaching almost 1,000 m altitude. The checklist contains 980 species (plus 12 infraspecific taxa), of which 901 are regarded as lichens, 58 as lichenicolous fungi and the rest are fungi related to lichenized taxa or traditional treated together with lichens. About two thirds are red listed (i.e. threatened or extinct) and one fifth of all species are extinct. What makes this list more interesting is the separated evaluation for three regions within the political boundaries. These are the coastal, the lowland and the more mountainous regions (illustrated by a map). As all included species are evaluated this way, there are in fact now three separated checklists (and red lists) available. Furthermore, an additional list with background information for all species shows the estimated abundance (in 8 categories), both long and short time tendencies in abundance (7 categories) and possible risks (7 categories) for the whole area, and separately for the three regions explained above. For extinct species, the year of last records or publications is given if known. By this the user gets an enormous amount of information which can not only be used in nature conservation, but also for many questions of lichen ecology and distribution in general. The list also delivers a good deal of information on lichens and lichen habitats and general threats to them, since such lists are mainly aimed for the practice of nature conservancy and planning and not for lichen experts alone. It is also nicely illustrated by photographs of lichen habitats and a few lichen examples.

In addition to this detailed checklist, the authors have prepared an appendix which serves as catalogue where all references for every taxon published after the catalogue of 1996 (Hauck, Die Flechten Niedersachsens, *Naturschutz und Landschaftspflege in Niedersachsen* 36) are listed.

The authors should be thanked for compiling this enormous amount of information to improve our knowledge of the lichens in Lower Saxony. The publisher must be thanked for the well illustrated publication at a real bargain price.

The list of contents, introduction and abstract (all in German) can also be found at the homepage given above. The appendix of 23 pages is not included in the printed version, but can also be downloaded.

The Editor

**HUNECK, S. (unter Mitwirkung von H. D. KNAPP) (2010): 10000 Kilometer unterwegs im Herzen Asiens – Expeditionsberichte aus der Mongolei.** – Jena: Weissdorn-Verlag. 112 pages. Hardback. ISBN 978-3-936055-61-0. Price: 19.95 Euro. (Available from: [www.weissdorn-verlag.de](http://www.weissdorn-verlag.de))

Siegfried Huneck, now passed his 80th year, working for most of his scientific career under difficult conditions in Eastern Germany, and although not allowed to travel to conferences in western countries until the changes of 1989, he became one of the foremost experts on the chemistry of lichen substances and some other natural products. Nevertheless, sometimes the border opened to the east, which allowed him to visit Mongolia and Korea based on arrangements between the (East) German Academy of Sciences and partner institutions in those countries.

In this richly illustrated book he presents a travelogue of his three expeditions to Mongolia during 1978, 1983 and 1988. Two times Hannes Knapp, now professor and director at the International Academy for Nature Conservation at the island of Vilm, was allowed to accompany him on these tours, mainly because of his good knowledge of Russian but also because of his expertise in flowering plants. They obviously developed a long lasting friendship from these experiences.

The present book is not a scientific report, but based on Siegfried Huneck's diaries and therefore includes a good number of personal impressions, mixed with information on Mongolian culture and customs. Of course a lot of information on flowering plants, lichens and bryophytes is scattered through all the pages (e.g. the first record of *Pseudocyphellaria crocata* for central Asia p. 78, or the discovery of a new earthstar, later named *Geastrum huneckii* p. 42). The difficult political and economic situation becomes visible when they had to wait close to the Gobi Desert for new coupons to be sent from the capital to be allowed to buy petrol. In this way the book is also a document of those times: those who went to Mongolia in socialist/communist times will well remember many things about strange things happened. People going now to this huge and sparsely populated country might be interested to compare.

The book concludes with short portraits of 19 botanists from Mongolia, Russia and Germany who were involved in the botanical exploration of Mongolia between 1960 and 1990, as well as a rich bibliography and some examples of chemical structures of the natural products found in the samples collected during the expeditions. To the biographical information given in the book it should be added that Nina S. Golubkova passed away on 24 August 2009 (see ILN 42(2): 16).

The Editor

**KIRSCHBAUM, U. & V. WIRTH (2010): Flechten erkennen – Umwelt bewerten.** – Wiesbaden: Hessisches Landesamt für Umwelt und Geologie. 204 pages. Paperback ISBN: 978-3-89026-363-2. Price: 11.00 Euro (available from: [vertrieb@hlug.hessen.de](mailto:vertrieb@hlug.hessen.de))

**KIRSCHBAUM, U. & K. HANEWALD (2009): Flechten als Anzeiger der Luftgüte und des Klimawandels.** – Wiesbaden: Hessisches Landesamt für Umwelt und Geologie – 47 pages. Paperback. Without ISBN. Price: 5.00 Euro (available as above) or free download from <http://www.hlug.de/fileadmin/dokumente/luft/faltblaetter/Flechtenbroschuere.pdf>

Biomonitoring with the help of lichens has a long and strong tradition in Germany. Over the years the German Engineers Organisation (VDI) developed several versions of guidelines for measuring the toxic effects of immissions on lichens. For more than two decades, Ulrich Kirschbaum headed the working group of specialists meeting regularly for developing and improving these guidelines. As well as the official guidelines, he and Volkmar Wirth published the first popular introduction to this guideline, illustrated by high quality colour photographs and descriptions of most relevant epiphytic lichen species, in 1995. This booklet proved to be very successful with two editions, but has been out of print for some time and somewhat outdated because of new trends in lichen recolonisation resulting from reductions in air pollution and some newly developed guidelines.

The completely revised and enlarged 3rd edition appears under a slightly changed title. The content in general is still the same: a popular introduction to lichens, to methods of lichen mapping in relation to immissions, to collecting methods, and to the determination of lichens. The main part of the book consists of colour photographs and descriptions of 107 epiphytic lichen species. The keys include many more (mostly rarer) species, by means of which the less experienced user will be able to determine most epiphytic lichens occurring on trees in Germany in order to estimate the air pollution in a studied area.

The really new part of the book (beside the improved keys, additional species etc.) is the explanation of the new guidelines for area measurements of lichen thalli for long-term studies in relation to ecological changes and a chapter on lichens as indicators of climatic changes. Finally the book includes some helpful tables as support for determinations and ecological evaluations. These tables are more relevant for the characters of *Lecanora* species, brown species of the *Parmelia*-type and for sterile crustose species of the *Pertusaria*-type. In additional tables, all spot test reactions of included species are listed; here the UV reaction could have been added without needing additional space. The last table presents the ecological values and ecological preferences of epiphytic lichens according to a revised version to be published in the journal *Herzogia* now already in press.

The book, like its forerunners, is a really comprehensive introduction to the subject which will certainly allow the beginner to determine and evaluate most epiphytic lichens occurring on free standing trees in Central Europe, but will also serve the expert with a lot of valuable information otherwise scattered over several publications. The quality of printing and binding is high and the price therefore very reasonable.

The second publication by Kirschbaum and Hanewald comes from the same publisher and is therefore shortly mentioned here. It is the short version of a report on permanent plot studies with lichens in Hesse using the guidelines explained in the book reviewed above. It illustrates the possibilities of using lichen studies for evaluating air quality and climatic changes in detail. It also offers the complete report on request from the senior author or the publishing institution.

The Editor

**NASH, T. H. III, L. GEISER, B. MCCUNE, D. TRIEBEL, A. M. F. TOMESCU & W. B. SANDERS (eds.) (2010): *Biology of Lichens – Symbiosis, Ecology, Environmental Monitoring, Systematics and Cyber Applications*.** – Bibliotheca Lichenologica 105. – J. Cramer in Gebr. Borntraeger Verlagsbuchhandlung, Berlin & Stuttgart. 256 pages. Paperback. ISBN 978-3-443-58084-1, ISSN 1436-1698. Price: 79.00 Euro.

The most recent addition to *Bibliotheca Lichenologica* is a volume of 26 papers on a wide range of lichen studies most of them presented at the 6th Symposium of the International Association for Lichenology (IAL6) at Asilomar, California in 2008. The great variety of topics might be explained best by citing the subgroups into which the papers are arranged, giving the numbers of papers in every group in brackets: *Together and separate: the lives of the lichen symbionts* (2), *Lichenicolous Fungi: taxonomy and diversity* (2), *Integrated Data Networks in Lichenology* (4), *Air Pollution and Public Health* (7), *Lichen Community Structure and Dynamics* (4), *Oldest Lichens and Bryophytes* (2), *The World under Your Feet: biological soil crusts* (2), *Mexican Parmeliaceae Systematics* (2) and *Selectivity in the Lichen Symbiosis* (1).

Four new species are described in the papers on lichenicolous fungi and on Mexican Parmeliaceae, one in each paper, namely *Stigidium californicum* K. Knudsen & Kocourk., *Dacampia lecaniae* Kocourk. & K. Knudsen, *Canoparmelia tamaulipensis* T. H. Nash & R. E. Pérez and *Melanohalea mexicana* Essl. & R. Pérez. Unfortunately the name of the author R. E. Pérez Pérez is given with different initials to those cited above.

It is of course difficult and very subjective to select papers for special treatment in such a review, but I found the two papers on oldest lichens and bryophytes especially informative in relation to new ideas and attempts to settle the question raised by the title. Tomescu and co-workers paper on *Simulating fossilization to resolve the taxonomic affinities of thalloid fossils in Early Silurian (ca. 425 Ma) terrestrial assemblages* gives some insight into experimental archaeology or palaeontology. Fossils from the Appalachian Basin show clear patterns of plant and fungal growth, but they are altered too much to name them satisfactorily. Therefore they simulated fossilization under high pressures and heat with recent lichens, bryophytes, algal crusts etc. and compared the resulting structures with the fossils. By this it was found that structures of recent lichens changed into the direction of the structures of the fossils, giving further evidence that lichens might be involved in fossilized structures older than those known from any vascular land plants. The second paper in the section entitled *Was the origin of the lichen symbiosis triggered by declining atmospheric carbon dioxide levels?* by D.W. Schwartzman raised the question as to whether lichenization was forced by algae growing on fungal mats because of higher CO<sub>2</sub> concentrations resulting from fungal respiration. This hypothesis is supported to some extent from experimental studies by various authors that refixation of photorespired carbon dioxide is likely in lichens. The problem needs certainly further studies, some suggested by the author, but nevertheless is an interesting aspect of the evolution of lichens.

The book is certainly a need for lichenological libraries, but might be a bit to heterogeneous to attract many private buyers.

The Editor



**SEAWARD, M. R. D. (2010): Census Catalogue of Irish Lichens (3<sup>rd</sup> ed.)** – Cultra Holywood: National Museums Northern Ireland Publication Number 025. 64 pages. Hardback. ISBN 978-1-905989-62-1. Price: 3.00 GBP (4.00 Euro) (Available from: damian.mcferran@nmni.com)

More than 25 years after the publication of the first edition of a *Census Catalogue of Irish Lichens* by Mark Seaward in 1984, the 3rd updated edition is now available. The number of accepted taxa has increased to 1,165, including 5 subspecies, 20 varieties and 6 forms. The distribution of every entity is given by the numbers of the vice-county system used in former editions. This vice-county system of natural history recording for Ireland is illustrated by a map given in figure 1. The catalogue includes the Irish Republic as well as Northern Ireland as natural parts of one island. The only other figure given in the booklet is a progress map showing the number of lichen taxa recorded per 10 x 10 km grid squares in Ireland up to March 2010. This instructive map shows that only 3.4% of all 1,010 Irish grid squares have not received any coverage, but for 290 grids more than 100 species are recorded now. A table shows the progress made between 1994 (when the last overview of the vice-county distribution had been published) and 2010. The average increase of records per vice-county is 43%. This is the result of the mapping efforts by many members of the British Lichen Society during field meetings and personal visits as well as further herbarium studies by the author. The bibliography given in this edition includes, beside the cited papers from the introduction, only relevant literature for Irish lichen distribution in addition to those bibliographies previously published. Therefore it is important that the first edition of the *Census Catalogue* published in *Glasra* 8 (1984) is now available as download at <http://www.botanicgardens.ie/glasra/glasra8.pdf> free of charge. Finally an appendix of 52 excluded taxa is added.

Last but not least I have to say that it is a real pleasure to have such a nicely printed and bound booklet at such a reasonable price. It has not only a beautiful drawing of *Teloschistes* as a vignette on the title page, but even a ribbon for the comfort of the user.

The Editor

**SKIRINA I. F., S. I. KOZHENKOVA & I. M. RODNIKOVA (2010): Epiphytic lichens of Primorsky kray and their application in environmental monitoring.** – Vladivostok: Dalnauka. 134 pages + 16 colour plates. Paperback ISBN 978-5-80444-1111-5 (In Russian). Price: not indicated.

Primorsky kray is the most southern region of the Russian Far East, which includes the cities of Vladivostok and Nakhodka, and borders the Japanese Sea (Pacific Ocean). The authors are scientists of the Pacific Institute of Geography, the Far Eastern Branch of the Russian Academy of Sciences in Vladivostok. The book summarizes the results of more than 30 years' research on epiphytic lichens as indicators of air quality of Vladivostok, Nakhodka and some industrial territories of the region, as well as Lasovsky and Ussuriysky nature reserves. The authors were motivated to prepare this book in response to the need for practical methods to estimate air pollution on the basis of various characteristics of lichens (epiphytic species composition, degree of coverage, vitality under different air pollution, ranking of lichen species according to their sensitivity to degree of air pollution, etc). An index of poleotolerance (I.P.) has also been adopted for ranking the territory according to the degree of air pollution, with sketch-maps of Vladivostok and Nakhodka to

illustrate this. There are keys for the identification of common epiphytic lichen genera and species (55) of the territory under study. The book is concluded by 16 plates, each with four reasonably reproduced lichen photographs, a glossary of common lichenological terms and an index of scientific names.

Lev G. Biazrov, Moscow

**TÜRK, R. & J. HAFELLNER (2010): Nachtrag zur Bibliographie der Flechten in Österreich.** – Biosystematics and Ecology Series 27. – Wien: Österreichische Akademie der Wissenschaften. 381 pages. Paperback. ISBN 978-3-7001-6794-5. Price: 63.70 Euro.

In 1993 Roman Türk and the late Josef Poelt published a bibliography of lichens and lichenicolous fungi in Austria as part of a long-running project *Catalogus Florae Austriae* of the Austrian Academy of Sciences (Vienna). Now a supplement for lichens is added, but this is more extensive than the previous volume although restricted to the lichenized fungi. The taxonomy of the complete list of the lichens presently known to occur in Austria is based mainly on the checklist of Austrian lichenized fungi by the same authors (*Stapfia* 76, 2001) with some alterations according to new taxonomic knowledge. Following the accepted name, some synonyms are included. The main part of the information provided is the chronological listing of all papers containing information on the occurrence of a taxon in Austria except those listed already by Türk & Poelt (1993); hence for completeness, both volumes have to be consulted. In the new volume this is followed by one line giving information on the occurrence in Austrian provinces (Bundesländer), the altitudinal range in Austria, and the general ecological preferences. More than 700 publications containing information on Austrian lichens had to be evaluated, 460 of them appearing since 1993, the remaining older papers are those which had not been evaluated for the basic volume before. In addition to the lichenized fungi some non-lichenized species traditionally included in lichen lists (e.g. *Phaeocalicium*, *Sarea*) are treated here.

With all this information, a comprehensive catalogue of the Austrian lichen flora is now available and the authors had to be congratulated for the enormous work they have undertaken. Austrian lichenologist as well as lichen hunters visiting Austria, especially the Alps, will certainly be grateful for this information available. Those interested in lichenicolous fungi might hope for a similar supplement.

The Editor

**WIRTH, V. (2010): Lichens of the Namib Desert. A guide to their identification.** – Göttingen: K. Hess. 96 pages. Paperback. ISBN 978-3-933117-08-3. Price: 18.00 Euro. [Southern Africa: ISBN 978-9916-57-34-9. Price N\$ 198]

The knowledge of African lichens is still rather poor compared to all other continents. So every step to improve this situation is always welcomed. Southern Africa is certainly among the better known parts of the continent, but even there, determining lichens is not an easy task because of the lack of keys and/or floras. Now for a restricted part of southern Africa the situation has changed. Volkmar Wirth was for many years interested in the lichen flora of the Namib Desert and also involved in a project of biodiversity research in the area, some of which is provided in this richly illustrated guide. 75 species are described

and illustrated with colour photographs, with one species per page. The book also includes introductions to the special ecology of the Namib and to lichen identification, followed by a glossary, references and a "Guide to characteristic species groups" instead of full keys. There are, for good reasons, no taxonomic novelties introduced here, but it might be mentioned that a dozen of the crustose species included had been described by the present author over the years.

The quality of the photographs meets the high standards we expect from the author of some of the best illustrated lichen books. As a result, many of the lichens from the Namib Desert and also from surrounding areas can be named easily now. However, the book might also be of interest to some nature tourists travelling to a region where lichens play such an important role. Author and publisher deserve our thanks for producing such a delightful and useful book.

The Editor

### **Panarctic Checklist of Lichens and Lichenicolous Fungi**

At the CAFF Flora Group meeting in Helsinki in March 2001, it was decided to start work on a checklist of lichens and bryophytes for all the arctic regions. This was seen as a prerequisite for future work on the conservation of rare or threatened species in that area. One of the CAFF Flora Group members, Hörður Kristinsson agreed to lead this work. The limitation and regional division of the Arctic used in the checklist follows the natural delimitation already in use by the Panarctic Flora Project (PAF). Cooperation was established with two specialists, Eric Steen Hansen for Greenland and Mikhail Zhurbenko for the Russian Arctic, arctic Asia and for the lichenicolous fungi. The first author was responsible for initiating the work, first compiling the main bulk of information and constructing a database, and maintaining its data. The panarctic lichen checklist was first opened on <http://www.arcticportal.org> on Dec. 2006.

The printed version published late 2010 reflects the status of the database in early 2009: the main table lists 1610 lichens and 250 lichenicolous fungi for 28 different regions of the Arctic, and includes an estimate of the frequency of species both within the Arctic, and on worldwide basis. In addition, two smaller tables filtered out from the database: one lists species which appear to be endemic to arctic regions according to present knowledge (133), and the other lists species rare outside the Arctic (223).

The panarctic lichen checklist database is now being updated with data that have accumulated during the last two years since the printing of the Technical Report No. 20. We hope this it will be available on the internet again in early 2011.

Panarctic Checklist of Lichens and Lichenicolous Fungi by Hörður Kristinsson, Mikhail Zhurbenko & Eric Steen Hansen. CAFF Technical Report No. 20, CAFF International Secretariat, Akureyri, Iceland, 2010.

[http://www.caff.is/images/stories/Lichen\\_Report\\_July\\_2010\\_Low\\_res.pdf](http://www.caff.is/images/stories/Lichen_Report_July_2010_Low_res.pdf)

Hörður Kristinsson, Akureyri

## Galapagos Lichen Checklist Now Online

Celebrating its 50th anniversary, the bicentennial of Charles Darwin's birthday, and 150 years since the publication of the *Origin of Species*, the Charles Darwin Foundation (CDF) in 2009 launched a new initiative to compile the first comprehensive census of all species ever reported from the Galapagos Islands. A prototype was made available for download from the CDF website as early as December 2008. These lists, still very incomplete, were simple spreadsheets of specimen data of the material available in CDF natural history collections. In January 2009, a new version was launched that included literature reports, and in November 2009, Robin and Paul Schroeder, database specialists from an Arizona-based software company segisoft.com, volunteered to re-write the CDF Collections Database so that it now integrates and manages all taxonomic and collection data of both literature and specimen records for all Galapagos organisms (vertebrates, marine and terrestrial invertebrates, plants, fungi &c.).

During the past two years, a CDF team of four curators, project coordinator Frauke Ziemmeck, biodiversity assessment theme leader Frank Bungartz, programmers Anna Dolma Alonso and Samuel Clarke, countless volunteers and many collaborating scientists worldwide all worked together to update this census of all species known from the archipelago. In May 2010, celebrating the International Year of Biodiversity, the new format of the checklists now includes detailed information on many different taxonomic and ecological groups. All checklists give credit to numerous contributors, many of them working in Galapagos several decades ago. The first lichen inventory, for example, was initiated single-handedly by Bill Weber, when he visited the archipelago as part of the Galapagos International Scientific Project in 1964. He published the first Galapagos lichen checklist, a list that, with several updates, included up to 220 species. Since 2005 this list has grown significantly, when André Aptroot and Frank Bungartz began a new Galapagos lichen inventory. Most recently, in June 2010, the first International Lichen Workshop held at the Charles Darwin Research Station on Santa Cruz Island added additional records and the newly revised version scheduled to be launched in December 2010, will now include more than 600 lichen species.

The Galapagos lichen checklist also provides a first, preliminary regional red-list assessment of the Galapagos species, with simple distribution maps. It can be assumed that almost all species are native to Galapagos, with some currently known only from the archipelago and therefore presumed endemic. The list distinguishes between accepted names, preliminary identifications, and problematic taxa. Most preliminary identifications may eventually be confirmed, but problematic taxa require further taxonomic studies or revision of historic specimens. A list of erroneous reports of species which have been rejected is also included. As a next step it is planned to add photographs and a wider range of different download formats, including a PDF of a Rapid Identification Guide of Galapagos Lichens.

Apart from the checklist authors, many lichenologist continue to contribute to this project: Othmar Breuss, Philippe Clerc, Carolina Cornejo, Paul Diederich, Damien Ertz, Tassilo Feuerer, Manuela Dal Forno, Marusa Herrera, Georg Hillmann, Kerry Knudsen, James Lawrey, Robert Lücking, Bibiana Moncado, Roland Moberg, Eimy Rivaz Plata, Matthias Schultz, Harrie Sipman, Adriano Spielman, Ulrik Søchting, Anders Tehler, Leif Tibell, Camille Truong, William A. Weber, Martin Westberg, Alba Yáñez.

Bungartz, F., Ziemmeck, F., Aptroot, A. & Nugra, F. (2010). List of known lichenized fungi species from the Galapagos Islands. *In*: Bungartz, F., Herrera, H., Jaramillo, P., Ti-

rado, N., Jimenez-Uzategui, G., Ruiz, D., Guézou, A. & Ziemmeck, F. (eds.). List of all known species from the Galapagos Islands. Charles Darwin Foundation, available at <http://www.darwinfoundation.org/datazone/checklists/ecological-groups/lichens>, last updated 20 May 2010.

Frank Bungartz, Galapagos, Ecuador  
([frank.bungartz@fcdarwin.org.ec](mailto:frank.bungartz@fcdarwin.org.ec))

### **Young Lichenologist's Workshop: Lichens in the Alps**

Despite a long tradition of high mountain agriculture, forest management and tourism, the Alps still constitute the largest natural to semi-natural ecosystem complex in central Europe. Lichens are among the prominent life forms in alpine habitats. Their role in ecosystems and the vulnerability to change, including global warming, offers opportunities for interesting research.

The Institute of Plant Science in Graz announces an international workshop focusing on lichens in the Alps next summer (20. – 23. July 2011). The workshop will be organised by Toby Spribille, Juri Nascimbene, Lucia Muggia, and Martin Grube, under the auspices of the IAL. We want to especially encourage young lichenologists to participate at this workshop.

The Institute of Plant Sciences in Graz hosts one of the most important collections of lichens from the Alps, including a large number of type specimens. The workshop will be an excellent opportunity to discuss lichenological topics (floristics, systematics, ecology, phylogeography, etc.), present current projects, and plan future collaboration. Graz offers a relaxed and informal atmosphere on the south slopes of the eastern Alps, and is ideally situated for field trips to nearby alpine localities.

Participation fee will be kept low. We will have an upper limit of c. 20 participants. For more information and registration contact: [martin.grube@uni-graz.at](mailto:martin.grube@uni-graz.at).

Martin Grube, Graz

### **Lichenological seminars of the Humboldt Institute 2011**

The following Eagle Hill field seminars might be of interest for lichenologists:

Lichens and Lichen Ecology

Tutors: David Richardson & Mark Seaward; May 22 - 28

Crustose Lichens: Identification Using Morphology, Anatomy, and Simple Chemistry

Tutor: Irwin M. Brodo; May 29 - Jun 4

The Lichen Genera *Rhizocarpon*, *Fuscidea*, *Porpidia*, and Other Lecideoid Lichens

Tutor: Alan Fryday; Jun 12 - 18

Lichens and Gravestones

Tutors: Judith M. Jacob & Michaela Schmall; Jul 17 - 23

Online general information may be found at <http://www.eaglehill.us>.

2012 seminars will be posted in mid-December of 2011.

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## REPORTS

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### **IMC9 Excursion, Kintail (Scotland), 24-31 July 2010**

The 9th International Mycological Congress (IMC9) took place in Edinburgh, Scotland, on 1-6 August 2010, prior to which, from 24 to 31 July, an IAL excursion to Kintail was organized. A group of 30 lichenologists from all over the world were eager to see the wild-life of north-western Scotland, especially the lichens. We were not disappointed and experienced a wonderful week studying lichens in different habitats, as well as lichenological discussions, in a truly natural Scottish environment.

On the morning of 24 July, most of our group met at the gates of Edinburgh Botanical Garden from where we started our almost day-long drive to the western coast of Scotland. This drive gave us the first glance at Scottish landscapes from the Lowlands to Highlands. In the evening we arrived at the Base Camp of Kintail, which provided our pleasant home during the week. The next day, we had the first opportunity to explore the Atlantic hazel woodlands in Duirinish, on the west side of Allt Duirinish, with its lush epiphytes, mostly belonging to *Lobarion* and *Graphidion* lichen communities, and later to study the lichens in coastal habitats at Port Bán. The weather was beautiful, almost no rain, and the bravest of us went to swim.

On 26 July, we drove to the Isle of Skye, which was to be our main destination on almost every day during the week. In the morning, we had a chance to hunt for lichens in an astonishing hazelwood with luxuriant growth of epiphytes in the region of Coille Gaireallach. We had the exiting opportunity to see epiphytic lichen assemblages which are unique in Europe and globally rare, species of *Degelia*, *Lobaria*, *Pannaria* and *Sticta* being the most conspicuous lichens of this habitat. In the afternoon we visited a most impressive limestone pavement and basalt dyke of the unique geological Camas Malag formation. Both sites are part of Strath Site of Special Scientific Interest (SSSI). The weather was quite rainy, especially at the coast.

On 27 July we visited a site hitherto totally unexplored by lichenologists on the north side of River Attadale in Glen Attadale, where we investigated different habitats with various substrates: stone walls, solitary ash trees, riverside woodland with ash, alder, beech etc. and birch wood with rowan and oak. It was moderately raining.

On 28 July we drove to the famous rocky landscape of Storr on Skye with its impressive landmark "The Old Man of Storr", a weird-shaped pinnacle and remnant of ancient landslips, to study lichens on these basaltic outcrops. The rain was unrelenting and we saw only a few metres ahead of us. However, it was here that we had probably the largest surprise of the trip as we had no idea of the dramatic and mysterious landscape which surrounded us until suddenly the rain stopped, clouds moved away, and we saw the most spectacular view over the area.

On 29 July, planned to be "cultural", we visited Dunvegan Estate, one of the oldest continuously inhabited castles in the area. Besides the interesting tour inside the castle, where we were acquainted with the local history, we couldn't resist exploring the lichen flora in Dunvegan Castle Woods. The other destination of the day, tightly connected with Scottish traditions, was Taliskar Distillery, the only one on the isle. It was strange, but on this day we had no rain at all.

The day before departure we visited Kinloch Forest, a remnant ash-hazelwood east of Leitir Fura, a fairly remote site with a long and interesting history, which is also a Site of

Special Interest (SSSI). We met Chris Marsh, the Forest Officer for the Forestry Commission who gave us an excellent overview of this part of the Skye, including the story behind the abandoned dwellings of Leitir Fura, and the current role of the Forestry Commission for these woodlands. On the way back to the base camp, we stopped in Kyleakin, the gateway village to the Isle of Skye, where the Vikings landed and settled around the 8th century. During our stay there, the rain stopped and we had chance to explore rocks below the castle ruins, enjoy nice weather, and observe the activities of sea otters.

On 31 July, we all felt sorrow to leave the base camp and fascinating landscapes of north-western Scotland. We had all experienced a wonderful week with lichens and we are very grateful to the organizers for arranging this excursion. On behalf of all the participants, we would like to thank Sandy and Brian Coppins and Chris Ellis for organizing this most enjoyable excursion, taking care of all kinds of practical things and helping to determine the lichens. We express our special thanks to Sandy, who had devoted much time to organize the delicious dinners and who even made sure that we all get an experience of Scottish national food. We are also very grateful to Christian Printzen for financial arrangements in preparation of the meeting.

Inga Jüriado & Ave Suija, Tartu



From the left: Martin Westberg, Kawinnat Buaruang, Silke Werth, Ana Millanes, Johnathon Fankhauser, Imke Schmitt, Sittiporn Parnmen, Thorsten Lumbsch, Khwanruan Papong, Inga Jüriado, Esteve Llop, Camille Truong, Ave Suija, Reinaldo Vargas Castillo.

## Lichen Use and Regeneration in India

Jan Wolf

Whereas lichenology is a branch of mycology, one clear advantage for the 'true' mycologist is that after a long day of fieldwork, he/she often has the option to take a study object home to enrich a well-deserved evening meal. However, maybe the lichenologist should reconsider? In India, lichens are commonly used to flavour meals, and in no small amounts. In the south of India, the spice mix Garam Masala is a key ingredient of many curry dishes and this mix consists for a stunning 20% (approx.) of foliose epiphytic lichens. Thus, in the famous spice shops in Kerala, a coastal state in southern India, not only locally grown spices like cardamom, cloves, coriander, cumin, ginger, nutmeg, pepper and turmeric are sold, but also bags with lichens may be purchased to include in the spice mix.

In contrast to most other spices, lichens are not cultivated but harvested from natural forests. In India, an estimated staggering total amount of 1000 metric tonnes of lichens are extracted from the wild each year (SHAH 1997). In addition, recently lichens are also smuggled into India from Nepal to fulfil local demand (MARASENI *et al.* 2006). Lichens are not only used as a spice, but also form the raw material for industries that manufacture medicine, perfume and paint (KUMAR & UPRETI 2001, UPRETI *et al.* 2005). Increasing industrialisation, globalisation (exports), deforestation, human population growth and the emergence of smuggling routes, raises questions about the sustainability of lichen harvesting in India.

In 2008, we attempted for the first time to assess the impacts of lichen harvesting from natural forests *in situ* (MOLLEMAN *et al.* in press). Our study was undertaken in mixed submontane evergreen forests of the Palni Hills around the Paliyan settlement of Vadakaraiparai (Pannaikadu region) in the state of Tamil Nadu (10°16' N, 77°35' E; 1,200-1,600 m a.s.l.). The Palni Hills area is part of the Western Ghats biodiversity hotspot and known for its varied and abundant lichen flora (AWASTHI 2000).

Paliyan tribes have always used lichens from the forest, but in 1984 the Vadakaraiparai community started trading epiphytic macrolichens on a commercial basis. This activity now constitutes the greater part of the community's livelihood. In a single day, a harvester (male) can collect about 1,5 kg of lichens, which is sold for 75,00 RS (1,25 Euro) to middlemen that pass by the village at regular intervals. This activity thus provides an income comparable to the minimum wage in agriculture.

We started out by accompanying harvesters in the field. Harvesters collected all epiphytic macrolichens in the forest, irrespective of species. Neither terrestrial nor crustaceous species were gathered. At first sight, this seemed logical because terrestrial and crustaceous growth forms are hard to separate from the substrate they grow on and would therefore contaminate the product. On close inspection of bags of harvested lichens, however, we learned that pieces of bark were commonly included. Apparently, there is no market for crustaceous or terrestrial lichens.

From further observation of harvesters in the field we learned that the presence of bark pieces in the lichen sample is not attributed to sloppiness. Lichens, which are traded by weight, are removed with the help of sturdy filling knives and it became apparent that the harvesters made a special effort to include as much bark as they thought they could get away with. Lichens are traded in large jute bags and whilst filling the bottom of the bag, lichens were gathered with sizeable pieces of bark attached. This 'deep harvesting' of tree bark contrasted with 'shallow harvesting' when the top of the bag was filled.



We were particularly interested to learn if the Paliyans also made an effort to attain a sustainable yield of lichens on the long-term. Whereas the harvesters did not distinguish between lichen species, they did avoid forests where lichens had been recently harvested, resulting in an informal harvesting rotation schedule. Since harvesters do not keep records, they depended on their, over many years, acquired field-knowledge of bark- and lichen community regeneration to identify forests suitable for harvesting. The harvesting of lichens leaves a scar on the bark and harvesters claimed to be able to estimate the time since harvesting of patches by the regeneration of the bark on the basis of its colour, smell and structure. To evaluate their claim, we designed an elaborate field-exam and tested 20 experienced harvesters from the community. Remarkably, test subjects performed very well, indeed. Even whilst the lichens were removed before the exam, individually tested community members were capable of estimating the age of a previously harvested patch with a one year accuracy up to a patch age of eight years, independent of the harvesting method used or species of host tree (t-test adjacent year-intervals:  $P < 0.05$ ).

Based on the initial field survey, we designed a field study on lichen harvesting and regeneration. We used a transect study to assess general harvesting intensity in the area. Lichen regeneration was studied in 320 bark patches of up to 50 cm<sup>2</sup>, equally divided over eight 1-year time since harvesting cohorts, four species of host tree and two sampling methods (deep or shallow), with five replicates per factor. At each patch, we estimated several ecological factors and the coverage of each lichen species. In the transect study, we found that harvesting in the area was intensive: 63.3% of all forest trees showed harvesting scars and on harvested trees 29.5% of all lichens were removed, on average. Paliyans apparently do not particularly enjoy climbing trees: lichen removal was negatively correlated ( $P < 0.01$ ) with tree height.

In total, we identified 30 species that were harvested, the commonest being *Dirinaria aplanata*, *Heterodermia diademata*, *Parmotrema cristiferum*, *P. hababianum*, *P. sancti-angelii* and *P. stuppeum*; for a complete list, see MOLLEMAN *et al.* (in press). It is not clear if all of the species collected end up in someone's curry. In one particular spice shop, only a mixture of large Parmeliaceae species, such as *Parmotrema hababianum*, *P. stuppeum* and *P. tinctorum*, was sold, suggesting that somewhere along the trading route, lichen species are selected for specific purposes.



The regeneration of the lichen community in terms of species abundance and species richness started about 2-3 years after shallow harvesting, and about five years after deep harvesting. Apparently, the bark needs to regenerate to some degree to facilitate lichen establishment. After this initial time lag, lichen coverage and richness also increased faster on shallowly harvested than on deeply harvested patches. After eight years, we found that in shallowly harvested patches the lichen community had regenerated successfully in terms of species richness and abundance. At that time, the coverage on deeply harvested patches was c. 40% lower. Hence, it appears that with shallow harvesting, sustainable harvesting with respect to the epiphytic lichens is possible with a rotation cycle of c. 10 years. Moreover, we observed no negative effects of lichen harvesting on the host tree. Nevertheless, prudence

is in order since our study is a one-time assessment only and in particular it does not address possible changes on the species composition of the lichen community. We did indeed see noticeable shifts in the abundance of several species, but our study did not allow us the opportunity to relate community dynamics to the harvesting practice. More information is needed on the, presumably spatially dependent, process of lichen regeneration to evaluate the risk of local loss of species. Finally, prudence is in order since we did not study a possible detrimental effect on the co-inhabiting vascular and non-vascular epiphyte community.

Because lichen harvesting is important for the livelihood of many rural communities in India, it is likely to continue. In addition to adopting a 10-year rotation cycle, we recommend that any sustainable harvesting management plan should include a detailed monitoring programme on lichen (and other epiphyte) regeneration after harvesting. Finally, we propose that harvesters stop employing the deep harvesting method since this ‘business trick’ adversely affects lichen recovery. The higher quality obtained by meticulously harvesting shallowly should increase the price paid per unit weight, leading to higher returns. In addition, it may pay to train the Paliyans in species recognition, to track down trading routes and to start lichen farming. As to the latter, promising initial results were obtained by sowing pieces of thallus on jute cloth, placed on racks in the open.

In any case, next time when you are enjoying a curry dish at your favourite Indian restaurant, you may want to contemplate which lichens helped create its flavour, from which forest these originated, and through which hands these passed.



A Kerala Spice Shop

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## First International Galapagos Islands Lichen Workshop

An international lichen workshop took place at the Charles Darwin Research Station (CDRS) in Puerto Ayora, Santa Cruz, Galapagos Islands from June 14 to 18 June 2010. This workshop formed part of two projects funded by the National Science Foundation (NSF), namely “Neotropical epiphytic microlichens – an innovative inventory of a highly diverse yet little known group of symbiotic organisms” (DEB 0715660 to The Field Museum; PI Robert Lücking) and “Phylogenetic diversity of mycobionts and photobionts in the cyanolichen genus *Dictyonema*, with emphasis on the Neotropics and the Galapagos Islands” (DEB 0841405 to George Mason University; PI James Lawrey, subcontracted to the Charles Darwin Foundation, local coordinator Frank Bungartz).

The workshop included an introduction to lichenology and training in identification methods, a field trip, and aspects of systematics and phylogeny. This meeting not only provided many new insights to professional lichenologists such as Adriano Spielmann, Ricardo Miranda and ourselves, but it was also an exciting opportunity to many other participants: staff botanists of the research station, school teachers, local naturalist guides, national park rangers and university students formed a diverse group of participants from Galapagos and mainland Ecuador, as well as Brazil, France, Germany, Mexico, Peru and the USA.

Thanks to the organizers, Frank Bungartz, Frauke Ziemmeck and Robert Lücking, the whole group devoted long days to the study of these amazing organisms and worked very hard to ensure that everyone had an amazing time. Frank Bungartz surprised everybody with his colourful presentation of lichens from Galapagos, including an explanation of the “Ah-Ah” lava (which is rather sharp, so you make “ah ah” sounds when you rapidly walk over it, a term originally coined by native inhabitants from Hawaii, and now universally used by geologists...). The workshop included a fieldtrip to the beach “El Garrapatero” and more humid inland localities, where surprisingly different types of vegetation could be observed from the dry coast to the humid highlands. Participants were overwhelmed not only by the lichens, but also marvelled at the wonderful view of white sands (a rarity in Galapagos) and the turquoise ocean, several participants abandoning their lichenological activities for a minute to take pictures such unbelievable places.



**Participants of the first Galapagos Lichen Workshop; first row (sitting/kneeling, left to right):** Manuela Dal Forno (George Mason University), Alba A. Yáñez Ayabaca (Universidad Central del Ecuador), Anne Guézou (Charles Darwin Foundation, CDF), Eimy Rivas Plata (Field Museum), Lenyn Betancourt (CDF), Desiree Cruz (Galapagos Naturalist Guide) Catalina Quintana (Universidad Pontifical Católica del Ecuador, PUCE), Patricia Jaramillo (CDF); **second row (standing, left to right):** Rosa Batalles (National Herbarium of Ecuador), Valeria Dután (CDF), Diego Villagomez (CDF), Frank Bungartz (CDF), Adriano Spielmann (Universidade Federal de Mato Grosso do Sul), Ricardo Miranda (Universidad Nacional Autónoma de México), Frauke Ziemmeck (CDF), Harald Jonitz (Galapagos Naturalist Guide), Danilo Minga (Universidad de Azuay), Robert Lücking (Field Museum), Fredy Nugra (Universidad de Azuay).

After several days of herbarium work and course activities, the team ended up with at least 60 new records for the Galapagos Islands (a 10% increase), and possibly as many as 10 species new to science. The new records included species only reported from Central or South America, or South East Asia, and the new species included individuals with amazing features, such as a *Physcia* with an unidentified substance giving K+ deep orange reaction or a new sorediate *Graphis*, as well as a *Heterodermia* in the *leucomela* group with white cilia and salazinic acid.

These discoveries will be made public as part of the CDF Galapagos Species Checklist, a gigantic collaborative effort of the Charles Darwin Foundation to publish an online checklist of all Galapagos Species: <http://www.darwinfoundation.org/datazone/checklists/> These results show, again, why fieldtrips are an important part of taxonomy, without them new species would not be discovered and the incredible biodiversity of our planet would continue to remain unknown.

Manuela Dal Forno (George Mason University) & Eimy Rivas Plata (Field Museum)

## **Irresponsible Collectors**

The Seychelles, along with Madagascar, the Mascarenes and Comoros form a biodiversity hot spot in the Indian Ocean. Several of the islands have relatively small human populations and lack expertise in certain scientific fields, for example botanical taxonomy. We therefore welcome collaboration with overseas universities and research institutions, and particularly value cooperation with visiting specialists who can assist with taxonomic identification, training and advice.

It is therefore with some regret that we report the unethical behaviour of at least two visiting botanists, including a lichenologist, to one or more of these islands, who in recent years have collected botanical specimens even within protected areas without due authorisation and sometimes failed to contact the authorities or work alongside our local botanists. Some of us may not be specialists but we do know where we need assistance, and we therefore welcome cooperation with overseas experts who choose to visit these islands. It is therefore extremely disappointing to find that specialists have visited these islands, taken unauthorised material and yet not contributed anything, such as sharing their expertise with local scientists, providing duplicate identified specimens for our herbaria, informing us when publications come out (based of course on the specimens collected) and in particular providing such publications to the countries investigated to act as valuable reference material. Such behaviour is totally disrespectful of the local authorities and the scientific communities of such islands, and goes against the ethic of being a field biologist.

In Seychelles at least, suitable legislation regarding the collection and export of genetic material is still in preparation, but national protocols and procedures, which are neither complex nor lengthy unless there are serious issues with the research, are in place. We therefore wish to reiterate that while we welcome and encourage mutually beneficial collaboration with visiting botanists we abhor the negative and exploitative behaviour of (we hope) a minority, who, though known to us, fortunately for them remain nameless for the moment.

Katy Beaver (Plant Conservationist, Seychelles) & Mark Seaward, Bradford

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## The cover-page illustration

*Umbilicaria torrefacta* by Bethia Brehmer, first published in *American Arctic Lichens*, Vol. 1.