

INTERNATIONAL LICHENOLOGICAL NEWSLETTER

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The opinions expressed in the *Newsletter* are not necessarily those held by
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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 listserv 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 pay their membership fee (one payment of 40 USD for 2016-2020) using PayPal or by bank transfer. All details available at <http://www.lichenology.org/>.

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 10 and November 10 for inclusion in the July and December issues, respectively.

IAL affairs are directed by an Executive Council elected during the last General Meeting. Council members elected at the IAL8 Symposium (Helsinki, Finland, 2016) are listed below, and will serve until 2020.

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ASSOCIATION NEWS

LETTER FROM THE PRESIDENT

Dear IAL Members!

The end of 2018 is approaching, and among the many things that happened this year was the IMC meeting in Puerto Rico, which is reported on elsewhere in this Newsletter!

Just as in many other parts of the world, Sweden suffered a record-hot and dry spring and summer this year. During the IMC conference in Puerto Rico, a couple of forest fires close to the geographical mid-point of Sweden developed into the worst forest fires in modern times in the country, covering ca 9500 hectares in total. As I have a property in this area, receiving updates on how the fires spread without control was very disturbing and a huge distraction during the conference. Sweden received an enormous amount of help from other EU countries sending teams of firefighters to assist the locals, plus a number of water-bombing aircrafts and helicopters, which all made a huge difference. It took 21 days to stop the fires from spreading further, and another week to finally extinguish them. Similar things have happened with increasing frequency in many places around the world, and as I am writing this we can read about huge fires in California. Few would disagree that the increase of such disasters is caused by climate change.

When walking in the woods in central Sweden, it is clear that a large percentage of the former coniferous forests burned frequently. Old stumps and remaining snags in older stands often show signs of fire. Many organisms, including many lichens (the genus *Carbonicola*, for instance), live on charred wood and are thus dependent on fires. A large proportion of the more lichenologically interesting forest stands in “my” region of central Sweden are also aging successional forests that have been developing since fires in the late 19th century, with clones of old *Populus* and *Salix caprea* that host many rare lichens. Controlled burning of stands has become frequent in Swedish forest conservation, to simulate these natural processes, and to ensure that new burnt wood and new *Populus*- and *Salix*-rich successions arise. I hope that a substantial proportion of the older forests that burned in Sweden this summer will become nature reserves or are otherwise conserved, although most of the damaged areas were likely even-aged, plantation-type forests.

We are looking forward to the upcoming IAL Conference in Bonito, Brazil in August 2020! Right now you are invited to propose symposia! There are more details about the ongoing planning elsewhere here in the Newsletter!

Lastly, I want to remind you all about making sure that you have paid your IAL dues. Council has noted that many in the lichenological community have not yet paid for the current period (2016-2020). Unfortunately, we have been forced to temporarily remove our list of members from the IAL website due to changes in the Regulations on Data Safety in the European Union [General Data Protection Regulation (GDPR) (EU)]; we cannot restore this list until we have collected permissions from members that you will allow your membership status to be made available online. This makes it difficult for you to check your membership status. If you are uncertain about if you have paid your dues, please contact Scott LaGreca <scott.lagreca@duke.edu> or Andreas Beck <beck@bsm.mwn.de>! We want you all to continue being members. The IAL, and our potential to be a strong voice for lichenology, depends on our members!

I hope that you all will enjoy a great holiday towards the end of the year, and that you will have a prosperous and lichen-filled 2019!

Mats Wedin, IAL President

THE ACHARIUS MEDAL WILLIAM ALFRED WEBER



Acknowledgements for the photo: *Bill Weber*.

The Acharius Medal is awarded by the IAL honouring outstanding lifetime achievements in lichenology. William Alfred Weber was awarded the Acharius medal on July 20th 2018, during the 11th International Mycological Conference in San Juan, Puerto Rico, and since he is 100 years old and still active, his lifetime contribution is exceptionally long.

William A. Weber (Professor of Natural History and Curator of the Herbarium Emeritus, University of Colorado Museum) was born in New York on November 16, 1918. His education includes a B.S. degree in 1940 (Iowa State College), M.S. degree in 1942 (Washington State University), and finally a Ph.D. degree in 1946 (Washington State University). Bill Weber was a faculty member in CU's biology department from 1946 to 1962. From 1962 until his retirement in 1991 he served full-time at the museum. In 2015 the University Libraries selected Bill Weber as *CU Legend* and honoured him with an exhibit; "The Naturalist", in recognition of his lifetime achievements, including his many services and contributions to the university. Biologists like him—"old school naturalists" with an in-depth knowledge of many taxonomic groups and their ecology—are becoming increasingly rare in the academic sciences. Of his many publications, many have dealt with cryptogams, and a substantial number of them are lichenological.

In 1951, that is, almost 70 years ago (!), Bill Weber entered the world of lichenology, which he himself has expressed was the "most significant event in my life". The first scientific article concerning lichens that he published appeared in 1954 (together with S. Shushan; *Lichens—only survivors?*). Over the years, he published several lichenological books (for example, Weber 1972;

Weber & Corbridge 1998), monographs (for example Weber 1966, 1968), book chapters (for example Weber 1966), and scientific articles (for example Weber & Shushan 1955; Weber 1971; Weber, Bratt & Larsen 1987; Weber 1996; Bowler, Weber & Riefner 1996). The publications deal with a variety of themes, such as taxonomic revisions (for example, *Acarospora* and *Cyphelium* in the U.S.A.), checklists, descriptions of taxa, chemistry, and biogeography, and include several parts of the world (the U.S.A., especially Colorado; the Galapagos Islands; Nepal; New Guinea; and so on). He has described more than 40 taxa of lichen-forming fungi. Bill's continuing passion for lichenology resulted in the important work *A Rocky Mountain Lichen Primer* with former CU-Boulder Chancellor James Corbridge (1998).

During his approximately 65 years with lichens, he visited several areas that had never before seen a lichenologist. The most important example was in 1964, when he participated in the Galápagos International Scientific Expedition, which opened the islands to modern research. Bill was the first to explore the Galápagos Islands for bryophytes and lichens and, after nine trips, became the leading expert at the time on Galápagos mosses and lichens. This work resulted in numerous publications on the lichen mycobiota of the islands.

One more example of Bill's important contributions to lichenology is *The Lichenes Exsiccati COLO* (Weber 1961-1989, and additions in 2008), through which he assembled and distributed a standard herbarium of lichens. With 700 numbers, and over 40,000 specimens distributed to some 60 herbaria all over the world, it is an outstanding contribution. The exsiccate has been of service to the science of lichenology for over 50 years, and will most certainly be important for lichenological studies for many years to come.

In 1946, Bill acquired a small, low-quality herbarium of less than 50,000 specimens. Over forty years, he single-handedly, through collection and exchange, built it into a National Resource herbarium. Today, the CU Museum of Natural History Herbarium houses more than half a million specimens of vascular plants, bryophytes, and lichens, earning it national and international rankings in many of its holdings. The lichen collections contain ca 113,000 specimens. In 2012, the herbarium was named *The W. A. Weber Collection* in his honour.

Bill Weber has always been dedicated to his students. He encouraged field studies as part of their work, and a number of them have become professionals in herbarium curatorship. Several students mentored by him went on to possess significant capacities in lichenology, for example, Roger A. Anderson, Juliette Asta, and Toby Spribille. He also trained D. D. Awasthi, who did his doctorate at CU, and who went on to become the great authority of Indian lichenology.

Approximately 20 lichen-forming taxa described by several authorities in lichenology are named in honour of Bill Weber. This includes the genus *Wawea* Henssen & Kantvilas, the species *Cetraria weberi* Esslinger, and *Xanthoria weberi* S. Kondr. & Kärnefelt.

Bill Weber turned 100 years old on November 16, 2018. Still active in botany, he is back with the cryptogams! Together with his daughter Linna, he recently published an online article about bryophytes. The paper is available on his personal website, which his grandson constructed (<http://williamaweber.com/>).

Louise Lindblom

Bill Weber eventually received the Acharius Medal at a ceremony on August 15th 2018, during the ABLs meeting in Colorado, USA. Many thanks to Erin Tripp and Carla Rae Anderson who organised the transportation, and acted as couriers to carry the medal from Puerto Rico to this event, and to Frank Bungartz who, in the end, did the presentation on behalf of me!

Mats Wedin

THE MASON HALE AWARD PHILIPP RESL



Philipp Resl (Photo: *Walter Obermayer*)

The Mason Hale Award was given to Philipp Resl for his thesis "The Evolution of Substrate Affinity in Trapelioid Lichen-forming Fungi" on the occasion of the 11th International Mycological Congress in Puerto Rico, July 16-21, 2018. Under the co-supervision of Helmut Mayrhofer and Toby Spribille, Philipp aimed to identify causes and consequences of substrate associations using phylogenetics and genomics. Based on a robust phylogeny, the monophyly of core trapelioids was confirmed; the new genus *Parainoa* was described, and eleven species of *Rimularia* were transferred to *Lambiella* (Resl, P; Schneider, K; Westberg, M; Printzen, C; Palice, Z; Thor, G; Fryday, A; Mayrhofer, H; Spribille, T. 2015. Diagnostics for a troubled backbone: testing topological hypotheses of trapelioid lichenized fungi in a large-scale phylogeny of Ostropomycetidae (Lecanoromycetes). *Fungal Diversity* 73: 239-258). Philipp's work also demonstrated that substrate associations of trapelioid genera exhibit strong phylogenetic signal, and were apparently present before the genera diversified. In addition, a comparative genomic dataset (of eleven lichen-forming fungi) was used to identify functional enrichment of genes under selection, exceptional codon usage, or protein expansions. Finally, Philipp discussed how substrates impact the evolution of lichens. This thesis is a great example of how genomics has propelled lichenology into an exciting new era.

Martin Grube, Graz

NEWS

THE 9TH IAL SYMPOSIUM – BRAZIL AUGUST 2–7, 2020

The International Association for Lichenology and the IAL9 Organizing Committee cordially invite you to attend the next IAL meeting, which will take place in **Bonito, Mato Grosso do Sul, Brazil, August 2–7, 2020**. This is the first IAL symposium to be held in Latin America and the Southern Hemisphere.

The City and the Venue

The event will happen in Bonito (meaning beautiful in Portuguese), Mato Grosso do Sul, one of the most popular destinations for Brazilians interested in ecological tourism. The city is well-known for its high biodiversity, crystal clear rivers, and caves, among other natural wonders. The meeting will take place in the Centro de Convenções de Bonito (Bonito Convention Center), which is architecturally inspired by Brazil's indigenous culture. For more information, visit the official website (<http://www.ccbonito.com.br/en/index.html>, in English). Make sure to extend your trip to enjoy some of the incredible attractions offered in the area.



Balneário Municipal (top) and Convention Center (bottom). Photos: www.ccbonito.com.br/en/en_downloads.html

Proposals for Symposia – IMPORTANT!

We are now accepting **proposals for symposia** to be held at the next IAL symposium. We welcome symposia in all areas of lichenology. Please submit your proposals via the online Google form (<https://goo.gl/LCw3XU>) by **January 15th, 2019**. If you have questions, please do not hesitate to contact us via email (mscaceres@hotmail.com or manudalforno@hotmail.com) or social media.

Social Media

We have a Twitter account (<https://twitter.com/IAL9Brazil>) and a Facebook page (<https://www.facebook.com/IAL9Brazil>) if you are interested in getting the most up-to-date information about the event; learning more about the area; discovering Brazilian lichens and those who work on them; and interacting with the IAL9 organizers.

Preliminary Symposium Programme (August 2–7, 2020)

Sunday, August 2nd: Opening Ceremony

Monday, August 3rd: Regular Symposium Day

Tuesday, August 4th: Regular Symposium Day

Wednesday, August 5th: Half-day excursion + Half-day Symposium

Thursday, August 6th: Regular Symposium Day until mid-afternoon + General Meeting + IAL Dinner

Friday, August 7th: Regular Symposium Day + closing ceremony

Saturday, August 8th: Departure for post-meeting field trips

** There will be no official field trips organized before the IAL9 meeting, but we encourage you to explore the area on your own or via one of the many tourism agencies in Bonito.*

Organizing Committee

President: Marcela Cáceres, Universidade Federal de Sergipe

Vice-president: Adriano A. Spielmann, Universidade Federal de Mato Grosso do Sul (UFMS)

Secretaries: Luciana da Silva Canêz (UFMS), Manuela Dal Forno (Smithsonian Institution), Natália M. Koch (UFMS)

Field Trips

We are considering offering four options for excursions with lichen collecting, each allowing 15–20 people:

- 1- **South** (Rio Grande do Sul state) – Region: Serra Gaúcha; biome: Atlantic Forest (Mata de Araucária).
- 2- **North** (Amazonas state) – Region: Reserva Florestal Adolpho Ducke; biome: Amazon Rain Forest.
- 3- **Mid-west** (Mato Grosso do Sul state) – Region: Porto Murtinho and Surroundings; biome: Brazilian Chaco/Tropical Wetland (known as Pantanal).
- 4- **Northeast** (Pernambuco state) – Region: Catimbau National Park; biome: Caatinga.

**We will be working closely with field trip participants with regards to collecting guidelines and permits, following Brazil's new Biodiversity Law.*

Hope to see you in Brazil soon!

Manuela Dal Forno and Marcela Cáceres

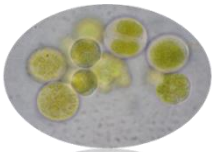


Post-IAL9 meeting excursions – Field trips sites: (1) Serra Gaúcha; (2) Reserva Florestal Adolpho Ducke; (3) Porto Murtinho and Surroundings; and (4) Catimbau National Park.

THE COMPLEXITY OF LICHEN SYMBIOSIS: NOVEL INTERDISCIPLINARY APPROACHES

FROM GENOMIC TO FUNCTIONAL PERSPECTIVES

3-4 DECEMBER 2018



The Workshop will take place at the Universitat de València,
Campus de Burjassot, Valencia, Spain

Lichens are complex symbiotic systems, in which coexistence occurs between several microalgal taxa and/or lineages with a single fungus -mycobiont-, displaying different tolerance patterns to multiple kinds of abiotic stress. Furthermore, certain communities of non-photosynthetic bacteria and yeasts are starting to be considered as an integral part of lichen thalli.

Currently, interdisciplinary genomic approaches (NGS, culture isolations, multi-tool genetic analyses, etc.) have generated promising results to deal with lichen complexity and microalgal diversity. Therefore, the new point of view considers lichen thalli to be complex micro-ecosystems, which brings about further questions concerning many of the biochemical and cellular mechanisms of the microalgae involved in the functional equilibrium of lichen symbioses.

This meeting is dedicated to discussing and better clarifying our knowledge of the complex interactions that uphold lichen symbiosis, through the characterization of different aspects of biology and phylogenetic relationships within the symbionts.

Outstanding international attendees experienced in different research field of lichen symbiosis will present and discuss their novel results. A DEMO training session will be dedicated to explain/ teach some biogeographical and phylogenetic tools in an informatics room. At the same time, this unique meeting will give everyone the opportunity to both strengthen present cooperation and establish new contacts for the compilation of future research proposals.

This interdisciplinary meeting is open to Masters and Doctoral students, Post- Doctoral fellows, lecturers, etc., both directly related or not to research in lichen symbiosis. **OPEN to ALL: NO REGISTRATION FEES**, REGISTRATION would be appreciated prior to attending talks in: liquenologiauv@gmail.com

The Faculties of Biological Sciences and Mathematics will provide the venue and informatics facilities. The Cavanilles Institute of Biodiversity and Evolutionary Biology (ICBIBE) and the Department of Botany and Geology will provide lab facilities and other seminar rooms for any additional needs during the workshop.

Venues: Lectures in the **Degree Seminar room in the Mathematics Faculty. Informatics room 4B at the Faculty of Biological Sciences**, 46100- Burjassot, C/ Dr. Moliner 50 (see maps below).

Website: <http://symbiolichen.blogs.uv.es/december-2018/>

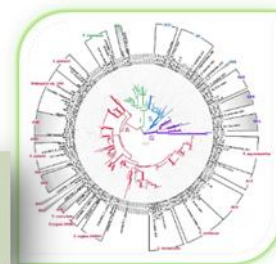
The venue can be easily reached in 15-20 min from the city centre (bus line n. 63), or from the underground/ tram stations.

Organizers:

Eva BARRENO, Pedro CARRASCO, Francisco GARCÍA-BREIJO, Francisco MARCO, Patricia MOYA, Salvador CHIVA

“Symbiosis diversity and evolution of lichens and plants: biotechnology and innovation”
UVEG/team

“Plant Biodiversity-Ecophysiology team”



WORKSHOP SCHEDULE

3-12-2018		
Authors	Title	Institution
9:15 – 9:30 h: Registration 9:30 – 10:00 h: Welcome address		
10:00 - 10:30 h: Pavel Škaloud	“The <i>Primus</i> project - towards understanding the nature of lichen symbiosis”	<i>Charles University in Prague, Czech Republic</i>
10:30 - 11:00 h: Francesco Dal Grande, Anjuli Calchera & Imke Schmitt	“High-throughput sequencing of lichen photobionts: from species to communities”	<i>Senckenberg Biodiversität und Klima - Forschungszentrum / BiK-F; Goethe-Universität, Germany</i>
11:00 - 11:30 h: Tomislav Cernava, Martin Grube & Gabriele Berg	“Recent insights into the functioning of lichen-associated bacterial communities”	<i>Graz University of Technology. Institute of Environmental Biotechnology, Austria</i>
Coffee-break 11:30-12:00 h		
12:00 – 12:30 h: Sergio Pérez-Ortega	“Invariant network properties shape the relationships between lichen-forming fungi and their photobionts”	<i>Real Jardín Botánico de Madrid, CSIC, Spain</i>
12:30 - 13:00 h: Patricia Moya, Arantzazu Molins, Lucia Muggia & Eva Barreno	“Illumina assay reveals habitat/ location as the main factor influencing microalgal diversity in <i>Ramalina farinacea</i> ”	<i>Universitat de València, ICBIBE, Spain</i>
13:00 -13:30 h: Lucia Muggia	“Culture approaches in the study of lichen symbiosis”	<i>Università di Trieste, Department of Life Sciences, Italia</i>
Lunch time		
Authors	Title	Institution
15:00 - 15:30 h: Florian Mundt, Dieter Hanelt, Lars Harms & Sandra Heinrich	“Shedding light on the dark – Linking physiology and gene expression in <i>Cosmarium crenatum</i> under the influence of polar night”	<i>University of Hamburg, Scientific Computing, Bremerhaven, Germany</i>
15:30 - 16:00 h: Ernesto Hinojosa-Vidal, Francisco Marco, Fernando	“Characterization of the responses to saline stress in symbiotic green microalga <i>Trebouxia</i> sp. TR9”	<i>Universitat de València, BIOTECMED & Universidad</i>

Martínez-Alberola, Francisco J. Escaray, Francisco J. García-Breijo, José Reig-Armiñana, <u>Pedro Carrasco</u> & Eva Barreno		<i>Politécnica de Valencia, Spain. I IIB-INTECH/CONICET-UNSAM, Argentina</i>
16:00 - 16:30 h: <u>Myriam Catalá, J.R. Expósito, M.R. de las Heras González, A. Casillas, L. Ben Oukhiye, P. Herrero</u> & Eva Barreno	“Advances in the study of the role of NO in lichen phycobiont adaptation to anhydrobiosis and other interesting topics”	<i>Universidad Rey Juan Carlos & Universitat de València, ICBIBE, Spain</i>
Coffee-break 17:00-17:30 h		
16:30 - 17:00 h: Salvador Chiva, <u>Patricia Moya</u>, Arantzazu Molins & Eva Barreno	“Biological Soil Crusts: myco/phycobiont relationships in terricolous lichen communities”	<i>Universitat de València, ICBIBE, Spain</i>
17:00 - 17:30 h: <u>Tomislav Cernava, Martin Grube</u> & Gabriele Berg	“Persistence of the lichen microbiome under unfavorable environmental conditions”	<i>Graz University of Technology. Institute of Environmental Biotechnology, Austria</i>
18:00-19:00 h	Research Projects Discussion	
20:00 h	Dinner in Valencia city	
4-12-2018		
Authors	Title	Institution
9:30 - 10:00 h: Ernesto Hinojosa-Vidal, <u>Francisco Marco, Fernando Martínez-Alberola, Pedro Carrasco</u> & Eva Barreno	“The genome of <i>Trebouxia</i> sp. TR9. How we have improved its assembly and which new insights have emerged from its annotation”	<i>Universitat de València, BIOTECMED, Spain</i>
10:00 - 10:30 h: Pradeep Divakar	“Larger genome size of mitochondria in mutualistic fungi and its role to maintain obligate mutualistic relations”	<i>Universidad Complutense de Madrid, Biología Vegetal II, Spain</i>
10:45 - 11:15 h: Jana Steinová	“Diversity and phylogeny of symbiotic partners in zeorin-containing red-fruited <i>Cladonia</i> species”	<i>Charles University in Prague, Czech Republic</i>
Discussions and Coffee-break 11:15-12:00 h		
12:00 - 12:30 h: Francisco J. García-Breijo, <u>Alfonso Garmendia</u>, José Reig-Armiñana, Patricia Moya, Arantzazu Molins & <u>Eva Barreno</u>	“Towards a new proposal on the ultrastructural taxonomy of <i>Trebouxia</i> microalgae”	<i>Universidad Politécnica de Valencia & Universitat de València, ICBIBE, Spain</i>
12:30 - 13:00 h: Pavel Škaloud	“DNA-based taxonomy in ecologically versatile microalgae: a re-evaluation of the species concept within the coccoid green algal genus <i>Coccomyxa</i> ”	<i>Charles University in Prague, Czech Republic</i>

Lunch time		
PRACTICAL ANALYSIS TOOLS 15:00-19:00 h		
Francesco Dal Grande	“Introduction to the assembly, taxonomic binning of mycobiont-photobiont-bacteria components and functional characterisation of metagenomic reads from whole lichen thalli”	<i>Senckenberg Biodiversität und Klima - Forschungszentrum / BiK-F, Germany</i>
Pavel Škaloud	“Species delimitation and speciation analyses in R”	<i>Charles University in Prague, Czech Republic</i>
Isaac Garrido-Benavent	“Biogeographical analysis tools: dating and delimitation of species, population genetics”	<i>Real Jardín Botánico de Madrid, CSIC, Spain</i>

MEETING AND EXCURSION OF THE NORDIC LICHEN SOCIETY (NLF) AUGUST 5-10, 2019, ESTONIA

The next NLF meeting and excursion will be held August 5-10, 2019, in Estonia. We will stay at the Maria Farm (<https://www.maria.ee/en/>), which is located in southwest Estonia about 30 km from the City of Pärnu. Among other places, we will visit Kihnu, a small island famous for its cultural heritage and natural history (<https://en.wikipedia.org/wiki/Kihnu>); the Island of Muhu (<https://en.wikipedia.org/wiki/Muhu>), where alvar areas have been recently restored; and the Nigula Nature Reserve, a bog island with an old, well-preserved, broadleaf forest. During the meeting, Dr. Martin Kukwa from the University of Gdańsk will host a workshop on a group of crustose lichens best known by their nickname ‘yellow and sterile’.

Further information on registration, accommodation, excursions, prices, etc. will be announced in January or February 2019, and also online at <https://sisu.ut.ee/nlsm2019>.

On behalf of the organising committee, Ave Suija

EAGLE HILL INSTITUTE’S SEMINARS ON LICHENOLOGY IN 2019

Eagle Hill is on the coast of Eastern Maine (United States), between Acadia National Park and Petit Manan National Wildlife Refuge.

May 19–May 25 Lichens and Lichen Ecology - Troy McMullin

May 26–Jun 1 Old-growth Forest Lichens and Allied Fungi, with a Focus on Calicioids - Steven Selva and Troy McMullin

May 26–Jun 1 Introduction to Bryophytes and Lichens - Fred Olday

Aug 11–Aug 17 Lichens, Biofilms, and Stone - Judy Jacob and Michaela Schull

Aug 11–Aug 17 Crustose lichens, Accessory Fungi, and Symbiotic Transitions - Toby Spribille

The seminar descriptions will be posted by December 15th.

For general information and a complete calendar”

<https://www.eaglehill.us/programs/nhs/nhs-calendar.shtml>

Links to flyers with seminar descriptions will be posted by December 15th.

office@eaglehill.us <<mailto:office@eaglehill.us>> ... 207-546-2821 Ext 4

Joerg-Henner Lotze

NEWS ON LICHENOLOGY IN HELSINKI (H)

About ten persons continue to be involved with research on lichens in the Botany Unit, Finnish Museum of Natural History (LUOMUS) in Helsinki, Finland. Some of them are permanent staff members; some are hired to work on short-term, grant-funded projects; some are retired volunteers; and some are primarily employed at different institutions elsewhere in Helsinki. Recent lichen research news at H is given below.

Projects: A major phylogeny of the family Cladoniaceae (S. Stenroos, R. Pino-Bodas, J. Hyvönen, H.T. Lumbsch & T. Ahti) was completed a few months ago and is now in press. The phylogeny was constructed using five loci from 643 specimens representing 304 species from all over the world. **Teuvo Ahti** and **Soili Stenroos** will now be concentrating on a World Monograph of the family Cladoniaceae; they hope to finish it in a few years.

Lichen herbarium: According to the annual report of 2017, the registered lichen specimens in H total 449,836. This figure indicates that H is one of the largest lichen herbaria in the world. Total accessions for 2017 amounted to 1624 specimens. The lichenicolous fungi are included in the general mycological herbarium, which comprises 454,067 fungus specimens.

Digitization. A large number of the lichen types (c. 10,000) have been databased, imaged and uploaded to JSTOR. Only a small percentage of some of our separately held collections are currently available in our H database, but this work is ongoing. For example, c. 10,000 specimens (25%) of the Aino Henssen herbarium have been databased and incorporated in the lichen herbarium.

Exchange: The following exsiccata sets are available for exchange:

Norrlin & Nylander: Herbarium Lichenum Fenniae, Fasc. 1-9 (1875, 1882).

Malme: Lichenes Suecici Exsiccati, Fasc. 2-7, 9 (1897-1811).

Please contact **Leena Myllys** (leena.myllys@helsinki.fi) if you are interested in receiving these exsiccata for your institution.

Loans: we encourage lichenologists to borrow our materials. For example, we have large numbers of undetermined specimens of many genera and groups such as: Graphidaceae, *Lecanora*, *Rhizocarpon*, *Aspicilia*, and *Parmotrema* from numerous countries, e.g., North Europe, Russia, Mongolia, China, Japan, Canada (especially Newfoundland, British Columbia, Yukon, NWT), Brazil, Venezuela, Patagonia, Antarctic, and Australasia.

Soili Stenroos, Leena Myllys, and Teuvo Ahti, Helsinki

REPORTS

THE TRIPLE L (LICHENS, LICHENOLOGY, AND LICHENOLOGISTS) AT THE 11TH INTERNATIONAL MYCOLOGICAL CONGRESS (IMC11) IN SAN JUAN, PUERTO RICO

Four years after an unforgettable event in Bangkok, Thailand, the 11th International Mycological Congress was for the first time held in Latin America, in the strikingly elegant *Puerto Rico Convention Center* in San Juan, from July 16 to 21, 2018. Less than one year had passed since Hurricane Maria, the worst on record ever hitting the island, with the aftermath still notable. In spite of these adverse circumstances, the organizing committee, lead by Sharon Cantrell and Jean Lodge, managed to put together an extraordinary event.

Of course, where mycologists gather from all around the world, lichenologists cannot be far. Lichenology was well-represented at the Congress, as always providing an additional opportunity to present new lichen research at an international level besides the regular IAL meetings. I was not able to obtain the total number of participants and how many of these were lichenologists, but quite a large number of fellow lichenologists were in attendance, and there were numerous contributions dedicated to lichens and lichenicolous fungi. It was nice to see two symposia specifically dedicated to lichens: *Evolution and Diversity of Lichenization in the Basidiomycota*, moderated by Manuela Dal Forno and Robert Lücking; and *Lichens on Islands: Evolution, Endemism, and Conservation*, convened by Thorsten Lumbsch and Joel Mercado. Notably, the two symposia were among those opening and closing the Congress, so essentially lichens provided the frame for mycology!

Basidiolichens are rarely considered in a specific context during such a large event, so the symposium was an opportunity to highlight this enigmatic group. Six speakers and a total of 29 co-authors from seven countries reported on the taxonomy, phylogeny, ecology, biogeography, and microbiomes of basidiolichens. Unfortunately, Dong Liu from China could not assist due to last-minute visa issues, but he sent his presentation and I was honored to give his talk on his behalf. The contributions by Dong Liu and Luis Coca (Colombia) highlighted one of the most surprising findings in basidiolichen research: the rapidly increasing number of species in the genus *Sulzbacheromyces* (Lepidostromataceae), a taxon discovered only recently. Bibiana Moncada (Colombia) presented new data on the extraordinary diversity of the genus *Cora* in Colombia, and Marcela Cáceres (Brazil) showed that basidiolichens are also to be found in unexpected biomes, such as lowland forests. The microbiomes of basidiolichens, currently being studied by Manuela Dal Forno (U.S.A., Brazil), is a novel topic promising interesting insight on correlations with thallus morphology and ecogeography. At the beginning of the symposium, Jim Lawrey (U.S.A.) set the stage nicely by elaborating on general aspects of the evolution, diversity, and ecology of basidiolichens.

Recently, island lichen biota are also coming more into focus, showing that the long-held view of low endemism rates among lichen fungi is likely wrong. *Lichens on Islands* provided an overview of recent studies on this topic, taking the audience across the globe to places such as the Caribbean, the Galapagos, Hawaii, New Zealand, Tasmania, Taiwan, Madagascar, the Masquarenes, Macaronesia, and St. Helena. Topics ranged from DNA-based taxonomic inventories of the genus *Sticta* in Puerto Rico (Joel Mercado), to the history of lichenology in Tasmania (Gintaras Kantvilas), to the impact of ITS barcoding on the assessment of endemism in island lichen biota (Robert Lücking), to conservation ecology of lichens in the Galapagos (Frank Bungartz), to striking cases of radiation in Peltigerales in Madagascar and the Masquarenes (Antoine Simon), to the evolutionary origin of *Ramalina* and *Roccella* species on St. Helena (André Aptroot).

Lichen talks were also included in several other symposia, highlighting the diverse roles of these organisms in often extreme ecosystems as well as their importance in regard to conservation issues. In *Gondwana Reunited! Fungal Biogeography in the Southern Hemisphere*, hosted by Matthew Smith and Camille Truong, Isaac Garrido-Benavent (Spain) and co-authors talked about lichen fungi from Antarctica, pointing out the high proportion of 33% endemic species and the likely colonization of bipolar species during the Pleistocene. Contributions on *Polyextremotolerant Fungi in Natural and Urban Extreme Environments* were presented by Nina Gunde-Cimermann and Lucia Muggia; this symposium also included an overview of lineages of extremotolerant fungi occurring inside lichen thalli by Martin Grube (Austria) and co-workers. The symposia *Fungi in a Changing Environment*, moderated by Lynne Boddy and Håvard Kauserud, and *Experimental Approaches to the Conservation of Rare Fungi*, convened by Gareth Griffith and Rebecca Yahr, focused on fungal conservation and biomonitoring. Jessica Allen (U.S.A., Switzerland) elaborated on three case studies of species and even community translocation, and the utility of species distribution modeling to determine translocation sites. Correlating genetic population structure and differential reproductive strategies in *Nephroma* species with sensitivity to climate change was the topic of the

talk by Rebecca Yahr (Great Britain) and collaborators. Jordan Hoffman (U.S.A.) presented results from population size analysis of the regionally endemic *Cladonia submitis*, with the aim to substantiate an IUCN risk assessment.

Numerous posters also featured lichen topics, ranging from taxonomy and phylogeny, to morphology and chemistry, to autecology and symbiont relations, to biodiversity and conservations, to biocontrol applications. The poster sessions were well-organized, and featured superb snacks, so the combination of excellent science and great food (and wine) made for a packed crowd and lively discussions. My favorite (and perhaps that of many others) was the poster by Chase Mayers and collaborators, *Where do you fit in the mycological genealogy?*, about the entertaining project of *The Academic Family Tree* (<https://academictree.org>). I highly recommend you pay this site a visit!

Of course, an IMC is primarily a mycological congress, providing numerous opportunities for lichenologists to learn about what is going on in other fields of mycology and perhaps get ideas for new lines of study and new collaborations. For me, one of the most interesting aspects was nomenclature, often believed to have an antiquated touch, but now coming into focus with the need to accommodate new technologies such as detecting novel lineages through voucherless environmental sequencing. Both the *Nomenclature Session* and the *ICTF DNA Taxonomy Debate Session* were well-attended, including many lichenologists interested in these topics. Now that fungal-specific rules have their own section in the *Code* and are governed by the IMC, we have the unique opportunity to shape fungal nomenclature to our needs, with exciting possibilities but also responsibilities. Many of you will have followed the often heated discussion on sequence-based nomenclature leading up to the congress; it was not quite as heated on site (but still lively), and the subject is now in the hands of a Special Committee (to be formed).

Unfortunately, the size of such events requires numerous parallel sessions, and Murphy's Law dictates that the most interesting will happen at the same time in different places. All of the 45 symposia were promising, but there was one I definitely wanted to attend and could not: *Early Fungi That Changed the World: Phylogenomic and Fossil Evidence*, hosted by Mary Berbee (U.S.A.) and Christine Strullu-Derrien (Great Britain). With the recently published book chapter *On Ediacarans, protolichens, and lichen-derived Penicillium: A critical reassessment of the evolution of lichenization in fungi* by myself and Matt Nelsen (in: Krings et al., eds., 2018, *Transformative Paleobotany*: 551–590), it would have been great to listen to all these talks, particularly Paul Kenrick's talk on *The Nature of Early Terrestrial Communities*. As fate would have it, the *Lichens on Islands* symposium took place simultaneously and I was unable to clone myself in time (I did try!).

Overall, the quality of the talks, posters and other events was outstanding and made me proud to be a small part of this large and diverse community. If there was one particularly exceptional lecture, it was John Taylor's *Species Recognition: Can One Type fit All Applications?* Forget about *Presentations for Dummies* or attending a course on how to assemble a superb talk. Just attend a presentation by John Taylor and you learn everything you need. Of course, species recognition is a hot topic all by itself, but until this talk I hadn't yet seen it presented in such a clear, sharp, down-to-the-point manner.

Last but not least: the customary IAL dinner was excellently organized by IAL President Mats Wedin and Joel Mercado at the *Club Nautico de San Juan*. As usual, two awards were granted: the 2018 Mason Hale Award, awarded to Philipp Resl (Austria, currently Germany); and the Acharius Medal, awarded to William (Bill) Weber, who is known for his work on Galapagos lichens and bryophytes and who is celebrating his one hundredth birthday this month! More on these two awardees can be found elsewhere in this newsletter.

See you all at IAL9 in Brazil, and IMC12 in the Netherlands!

Robert Lücking, Berlin



Figure: Mural of Felisa Rincon de Gautier, mayor of San Juan from 1946 to 1968 and first female mayor of a capital city in the Americas. — Puerto Rico Convention Center and its inside, filled with mycologists. — IAL president Mats Wedin dissecting a poster while Jim Lawrey is smiling. — Microphone open for the first lichen symposium. — André Aptroot discussing lichens. — An enlightened Peter Crittenden chatting with Manuela Dal Forno. — Permanent and associate Chicago crew (Felix Grewe, Bibiana Moncada, Thorsten Lumbsch). — Next-gen lichenologists Carlos Pardo and Nicolas Magain. — The Puerto Rican delegation of lichenologists (Raiza Gonzales, Joel Mercado), both heavily involved in the organization of the Congress, and both great and knowledgeable company for exploring San Juan's neighborhoods and nightlife.

Useful links (so long as they work):

IMC11 Official Website:

<http://imc11.com>

IMC11 Program Book:

<http://imc11.com/wp-content/uploads/2018/09/IMC-2018-Programme-Book-vF2.071018v3.pdf>

IMC11 Abstract Book:

<http://ut.suagm.edu/sites/default/files/uploads/pdf/IMC-2018-Abstract-Book-071618.pdf>

IMC11 Photo Gallery:

<https://www.flickr.com/photos/155485972@N06/albums>

LICHENOLOGY AT THE LATIN AMERICAN BOTANICAL CONGRESS, QUITO

This year, as part of the *XII Congreso Latinoamericano de Botánica* (Latin American Botanical Congress), October 21-28 in Quito, Ecuador, the *Grupo Ecuatoriano de Liquenología* (GEL) organized an *International Lichen Symposium*, a *Workshop on Tropical Lichen Identification* and a *Field Trip* to the endemic *Polylepis* forests around Papallaca (a small town in Napo Province, southwest of Quito).

The symposium on Friday, October 26, was very well attended, covering a wide range of topics such as: lichens as indicators of a new, previously unknown tropical ecosystem the "lowland cloud forests" of Ecuador; ecology of lichens in the Atacama desert; systematics of *Caloplaca* s.l. in Antarctica; lichen diversity of coastal Ecuadorian dry forests; a new Checklist of Lichens in Ecuador and the Consortium of Latin American Lichen Herbaria (<http://lichenportal.org/chlal/index.php#>); vegetation and habitat ecology of Galapagos lichens; and much more.



Participants of the International Lichen Symposium at the XII Latin American Botanical Congress in Quito, Ecuador.

Outstanding were two contributions by *Andressa Silva Rodrigues* from the *Universidade Federal de Mato Grosso do Sul* (Campo Grande, Brasil) and *Mahecha Camila*, from the *Universidad Distrital Francisco José de Caldas* (Bogotá, Colombia). Andressa presented her work on DNA barcoding of Brazilian lichens in the Parmeliaceae in her talk entitled "*Sistemática e DNA Barcoding: Um estudo preliminar de Parmeliaceae (clado Parmelioide) nas restingas do Extremo Sul do Brasil*" [= Systematics and DNA barcoding: a preliminary study of Parmeliaceae (clade Parmelioide) in southernmost parts of Brazil]. Camila presented her exciting research on preserving a living collection of lichens at the Botanical Garden of Bogota: "*Conservación de Líquenes en condiciones ex situ: una propuesta de creación de la colección viva de Líquenes del Jardín Botánico de Bogotá José Celestino Mutis*" [= Lichen conservation *ex situ*: a proposal on how to establish a living collection of lichens at the Botanical Garden José Celestino Mutis in the city of Bogota, Colombia].

Thanks to two very generous, anonymous donors, these two students were awarded a \$1,000 travel grant by the *Grupo Ecuatoriano de Liquenología* (GEL). Jorge Deleg, a student from the *Universidad Técnica Particular de Loja*, received an honorable mention for his research on how habitat disturbance affects epiphytic cryptogam diversity in the lowland rainforests of Ecuador (*Efectos en la perturbación del hábitat de las criptógamas epífitas en bosques lluviosos de tierras bajas del Ecuador*).



And the winner is ...: Latin American lichenologists celebrate the winners of the scholarship awarded to Camila Macheca (second from left) and Andressa Rodríguez (second from right) at the XII Latin American Botanical Congress in Quito, Ecuador.

On Thursday, October 25, the lichen workshop at the *Instituto Nacional de Biodiversidad* del Ecuador (INABIO; Parque Carolina, Quito) was well-attended, both by Ecuadorian and international participants: Rosa Batallas (Ecuador), Ángel Benitez-Ramírez (Ecuador), Frank

Bungartz (USA), Jorge Deleg (Ecuador), Juan Larrain (Ecuador), Camila Mahecha (Colombia), Domenica Naranjo (Ecuador), Daniel Navas (Ecuador), Andressa Rodríguez (Brasil), Daniel Stanton (USA), Alba Yáñez-Ayabaca (Ecuador), and Reinaldo Vargas (Chile).

As part of the workshop, Frank Bungartz presented an overview of lichen diversity; an introduction to their morphological, anatomical and chemical characteristics; and the resources available for tropical lichen identification. The afternoon was dedicated to "hands-on lichenology" during which specimens from the *National Herbarium of Ecuador* (QCNE) were examined and identified by the participants. INABIO generously provided the room and microscopes for this workshop, and the mixture of internationally experienced lichenologists with less experienced students—and some newly converted acolytes of lichenology—proved a very productive learning environment, where the different participants all benefited from one another.



Identifying tropical lichens at the Instituto Nacional de Biodiversidad del Ecuador in Quito, Ecuador.

Saturday, October 27 was dedicated to a visit to a unique environment: forests of the endemic *Polylepis* trees in the paramo near Papallacta, southwest of Quito. The paramos of the high Andes in South America are today recognized as one of the most diverse habitats in the world; they are particularly rich in lichenized fungi, with many highly diverse tropical genera. This excursion thus proved a worthy conclusion to three exciting days of lichenology at the Latin American Botanical Congress. None of this would have been possible without tireless support of the congress organizing committee (especially Alina Freire-Fierro, Javier Irazabal and Hugo Valdebenito), and the Instituto Nacional de Biodiversidad (particularly Rosa Batallas and Daniel Navaz) —thank you very much to all of you from the Grupo Ecuatoriano de Liquenología!

Alba Yáñez-Ayabaca, Ángel Benitez-Ramírez & Frank Bungartz

HELMUT MAYRHOFFER'S CELEBRATION



Helmut Mayrhofer expressing thanks for his Festschrift (Photo *W. Obermayer*).

On 13 November 2018, more than 80 friends, colleagues and past and present students came together to pay tribute to the career of Helmut Mayrhofer, longtime head of the Institute of Botany, later Institute of Plant Sciences at the University of Graz, on the occasion of his retirement and the year of his 65th birthday. The “Festkolloquium” was organized by former students and colleagues of Helmut, including Astrid Scharfetter, Martin Grube and Walter Obermayer of the University of Graz; and Philipp Resl, currently at the Ludwig-Maximilians-University of Munich. The festivities kicked off with Pier Luigi Nimis from Trieste giving a presentation looking back at Helmut’s illustrious career, followed by yours truly giving a talk about the current state and potential future of research in lichenology. Helmut was also presented with a gift basket by his former colleagues as well as two kinds of “Festschriften”: the first, the “little Festschrift,” was a jersey of his favourite

football team, Sturm Graz, signed by all current members of the team. The second was a special issue of *Herzogia* with 28 dedicated contributions from colleagues around the world, covering lichens, lichenicolous fungi and bryophytes, and the publication of numerous new nomenclatural combinations and new species, including seven named for Helmut. Helmut's generosity of spirit, patience and steadfastness has been an inspiration to many lichenologists over the years and it was a great pleasure to be able to join friends from across central Europe presenting Helmut with the honours and seeing him enjoy the company of his lichenological family.



Lichenological friends and colleagues mingle in the botanical garden greenhouses after the festivities (Photo *P.L. Nimis*)

Toby Spribille, University of Alberta, Edmonton, AB T6E 2R3

ADDENDUM: REPORT ON “NATIONAL CONFERENCE ON CURRENT DEVELOPMENTS AND NEXT GENERATION LICHENOLOGY” ORGANIZED BY INDIAN LICHENOLOGICAL SOCIETY, LUCKNOW (INDIA)

During the conference the students and well-wishers of Dr. D.K. Upreti recommended that he be honoured with the title “**Father of Modern Lichenology**”. The recommendation was welcomed by all members of the ILS and participants of the conference. The dignitaries of the conference also released a book entitled “Taxonomic Revision of the Lichen Genus *Opegrapha sensu lato* (*Roccellaceae*) in India”, authored by Siljo Joseph, G.P. Sinha and V.S. Ramachandran; it has been published as Indian Journal of Forestry Additional Series VI by Bishen Singh and Mahendrapal Singh, Dehradun (ISBN: 978-81-211-0967-3).

Sanjeeva Nayaka, Secretary, ILS

INTERNATIONAL CONFERENCE "PROTECTION OF LICHENS IN POLAND AND EUROPE" - XXX CONGRESS OF POLISH LICHENOLOGISTS, KĘSZYCA LEŚNA

The international conference, "Protection of Lichens in Poland and Europe", together with the XXX Congress of Polish Lichenologists, took place in Kęszyca Leśna, Poland, September 26-29, 2018 at the Lubuski Nazaret - Training and Recreation Center of the Zielonogórsko-Gorzowska Diocese. The symposium venue was located in the Międzyrzecz Forest District. The meetings were organized jointly by the Department of Morphological Sciences, Biology and Health Sciences, AWF Poznań, ZWKF Gorzów Wlkp; and the Międzyrzecz Forest District, RDLP Szczecin, League of Nature Conservation District Board, also in Gorzów Wlkp. About 30 people participated in the conference, and ca. 100 people participated in a workshop for foresters.

The meeting began on Wednesday with the arrival and registration of participants. The second day started with an opening ceremony, followed by a presentation by a State Forests employee. Then, after a short break, the scientific presentations began. Presentations as well as a poster session stimulated numerous discussions. The day ended with a gala dinner at which some of the issues raised through the day were continued. The third day consisted of workshops for foresters about protected lichens. After the workshops, foresters visited two localities: coniferous forest and larch forest. The rest of the day was filled with numerous attractions for lichenologists. After lunch in a picturesque place by Lake Głębokie, we took a trip to MRU (Międzyrzecki Rejon Umocniony - Międzyrzecki Strengthened Region) and the Fortification Museum. The trip included an impromptu lichenological exploration of the concrete teeth of the dragon in MRU! It was probably the most interesting lichenological object we saw all day, and the exploration lasted until sunset. The day ended with laboratory work, conversations and singing around a bonfire.

We sincerely thank Piotr Grochowski and the other organizers for this opportunity to meet in such a wonderful, natural setting and such a great, friendly atmosphere.

Magdalena Kosecka, University of Gdańsk

BOOK REVIEWS

Blanz, P. (ed.) (2018): Biodiversity and Ecology of Fungi, Lichens, and Mosses. Kerner von Marilaun Workshop 2015 in memory of Josef Poelt. (Biosystematics and Ecology Series 34) – Wien: Österreichische Akademie der Wissenschaften, xvi + 715 pages, softback. ISBN 978-3-7001-8219-1. Price: 90 €.

In September 2015, a workshop to commemorate the 20th anniversary of the death of Josef Poelt was held at the Institute of Plant Sciences of the Karl-Franzens-University in Graz, where Dr. Poelt was a full professor of botany since 1971. On this occasion, many of his former pupils came together for a scientific workshop on cryptogamic botany following the main scientific interests of Poelt. Twenty-five contributions are collected in this volume.

The volume starts with two general papers: *Josef Poelt – on his personality and his footprints in the history of lichenology* by Hannes Hertel (pp. 1-100); and *How to understand cryptogams? The development of research methods and their impact on the knowledge of cryptogams – A tribute to Josef Poelt* by Franz Oberwinkler (pp. 101-185).

The following shorter contributions concentrate on non-lichen, non-lichenicolous fungi (17 papers), bryophytes (1 paper) or lichen fungi (7 papers). This review will focus on the lichen papers of the volume.

An overview of taxonomic and nomenclatural problems—as well as on the state of art in the study of lichenicolous fungi—is given by Josef Hafellner in his paper, *Focus on lichenicolous fungi: Diversity and taxonomy under the principle “one fungus – one name”* (pp. 227-243). Since 1990, more than 1000 new species have been described in this group, and the author concludes that “The taxon accumulation process is ongoing and there is no indication that we are close to reaching the plateau of the global species accumulation curve.” (p. 230).

Another overview of general interest comes from Martin Grube with *The lichen thallus as a microbial habitat* (pp. 529-546). The author underlines that according to recent research, the lichen thallus contains a high diversity of microbial colonizers, and that these bacteria play a role in the symbiotic interactions of photo- and mycobionts.

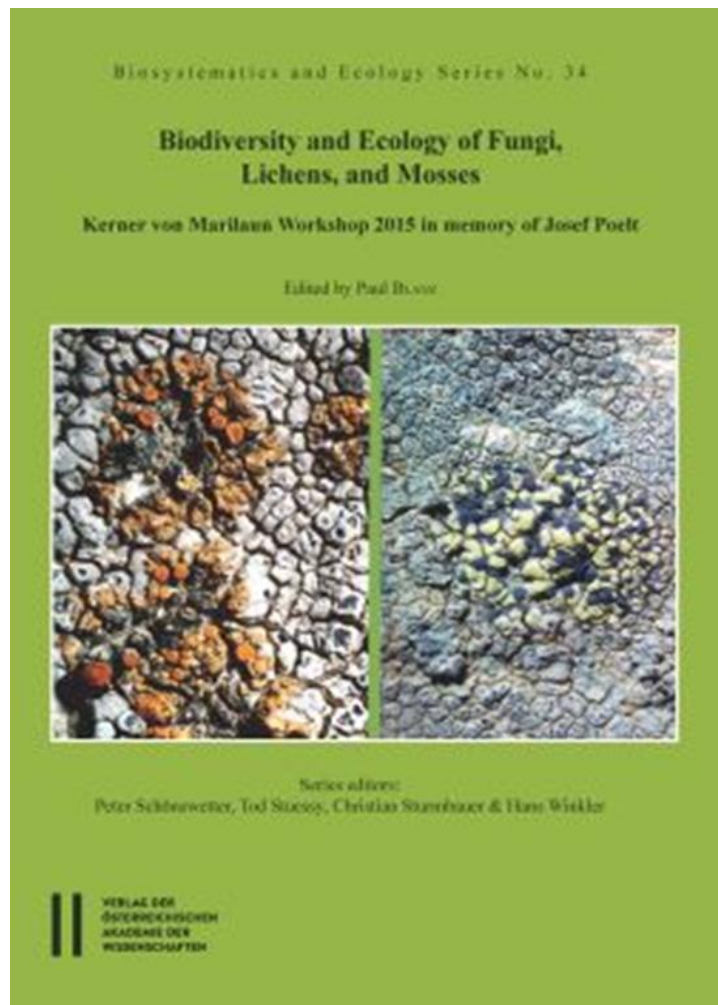
The next paper, by Rosmarie Honegger, entitled *Fossil lichens from the Lower*

Devonian and their bacterial and fungal epi- and endobionts (pp. 547-563), shows in detail that the oldest known fossil lichens already had bacterial colonies on the surface of the cortex, endolichenic fungi between the hyphae of the cortex, and actinobacterial filaments in close contact with medullary hyphae. These results come from scanning electron microscopic (SEM) studies of charcoalified lichen fragments from the Welsh borderlands.

Three further lichen papers of the volume concentrate on different regional lichen floras: *The lichen flora of Germany – regional differences and biogeographical aspects* by V. Wirth, U. Schiefelbein and B. Litterski (pp. 565-588); *Towards a checklist of the lichens of the Alps* by P. O. Bilovitz and H. Mayrhofer (pp. 589-596); and *A contribution to the lichenological exploration of the greater Tibetan region with special focus on the impact of Austrian scientists or explorers* by W. Obermayer (pp. 597-657).

P. L. Nimis contributed a final paper on *The “Golden Period” of Italian lichenology and its importance in modern times* (pp. 659-671).

The volume concludes with separate indices on persons, taxa and subjects. The price of the printed volume is very reasonable, and all major botanical libraries should have a copy in their shelves. All the papers are also available as free downloads from the open access portal of the Austrian Academy of Sciences (<https://austriaca.at/8219-1inhalt?frames=yes>).



Peter Scholz, Schkeuditz

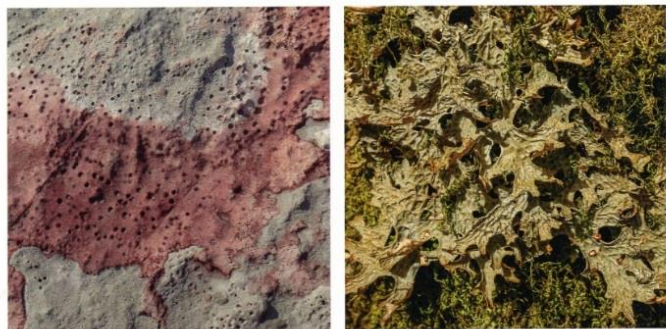
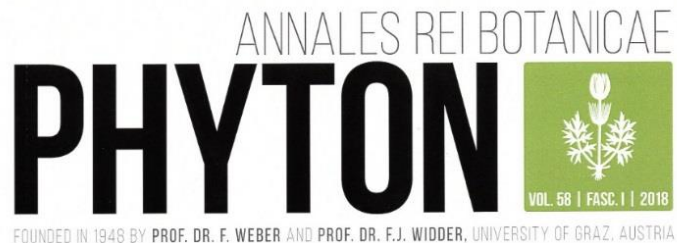
Mayrhofer, G, Konrad, L.-M., Prettner, M., Seifer, K., Bilovitz, P.O. (2018): The lichens of Croatia. *Phyton* 58(1): 1-102. DOI:10.12905/0380.phyton58(1)-2018-0102. Ferdinand Berger & Söhne GmbH, Horn, Austria. ISBN: 0079-2047, price: EUR 56.00

This book is a catalogue of lichenized, lichenicolous and some allied fungi reported so far from Croatia. As stated by the authors, it is the last country of the Balkan Peninsula for which such a catalogue was missing, and now the set of lists from that region is complete. It is based on an evaluation of almost 450 publications and contains 1115 taxa of lichens, 30 lichenicolous fungi and 35 “other” fungal species (non-lichenized or doubtfully lichenized). Citations are presented for each species, including synonymous names under which they were originally reported. A brief history of lichenological explorations of Croatia is also presented.

The book is undeniably well-prepared, and it was impossible to find any flaws in the list. Authors followed the nomenclature of all groups according to the latest standards; however, for reasons not explained in the text, two genera—*Aspicilia* and *Caloplaca*—are presented in a wide sense, without the newest changes in generic divisions. However, this is probably due to the fact that if one consults one of the cited references on which the overall nomenclature of the book is based, it appears that too many species in *Aspicilia* and *Caloplaca* still await transfer to the new, segregate genera (Nimis et al. 2018. MycoKeys 31, doi: 10.3897/mycokeys.31.23658). In addition, some names, e.g. in the genus *Nephroma*, are in need of major taxonomic revisions, as they seem never revised.

In summary, the book is a good resource for future studies, and will prove a solid reference for use in preparing local and extra-local lists of lichens and allied fungi.

Martin Kukwa, Gdańsk



ISSN 0079-2047 Published 10 Oct 2018

NEW BOOKS RECENTLY PUBLISHED

McCune, B. and R. Rosentreter. 2007. Biotic Soil Crust Lichens of the Columbia Basin. Monographs in North American Lichenology 1: 1-105. Pbk. \$30. Fully illustrated in color. ISBN-10: 0-9790737-0-7; ISBN-13: 978-0-9790737-0-0

Reprinted in 2018 with updates to nomenclature and much improved color rendition! If you are already a regular user you will love the reprint, easily worth the \$30 for a new copy.

Number of books and shipping charges will be set at checkout.

See sample pages:

http://northwest-lichenologists.wildapricot.org/Resources/Documents/Psora_Spread.pdf

Why write a book for identifying soil crust lichens? We have three reasons: (1) they are ecologically important, (2) they can be difficult to identify with existing sources, or they are omitted altogether, and (3) they should be more widely recognized for what they are. More at the website:

<http://northwest-lichenologists.wildapricot.org/MoreOnVol1>

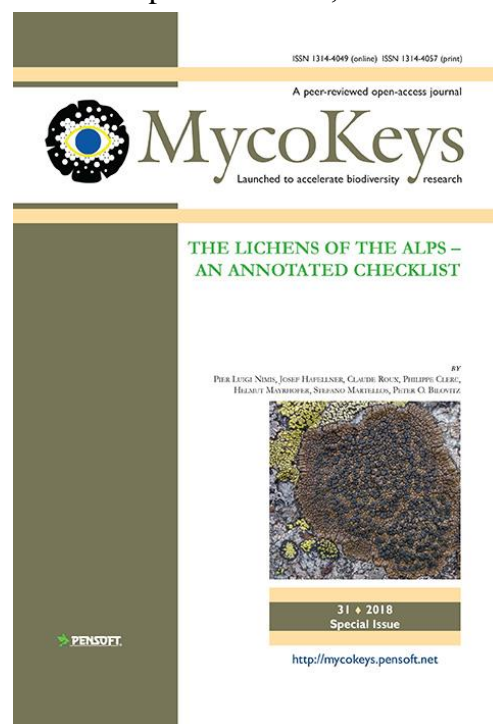
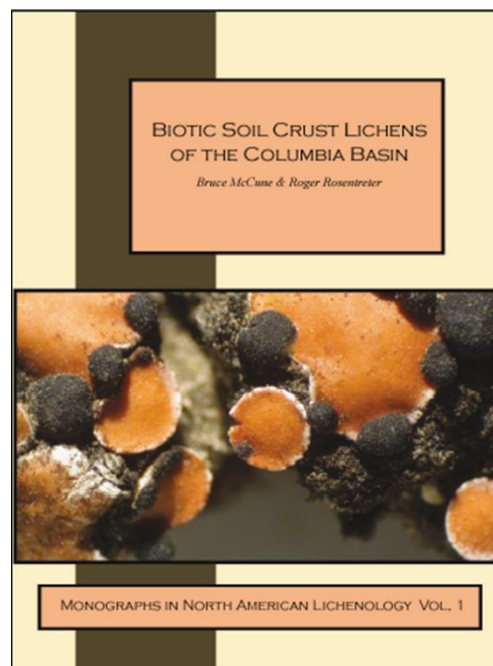
Roger Rosentreter continues to teach workshops and short courses on "The ecology and management of biocrusts".

Roger Rosentreter

Nimis PL, Hafellner J, Roux C, Clerc P, Mayrhofer H, Martellos S, Bilovitz PO (2018) The lichens of the Alps – an annotated checklist. MycoKeys 31: 1-634. Paperback € 120,00
<https://doi.org/10.3897/mycokeys.31.23568>

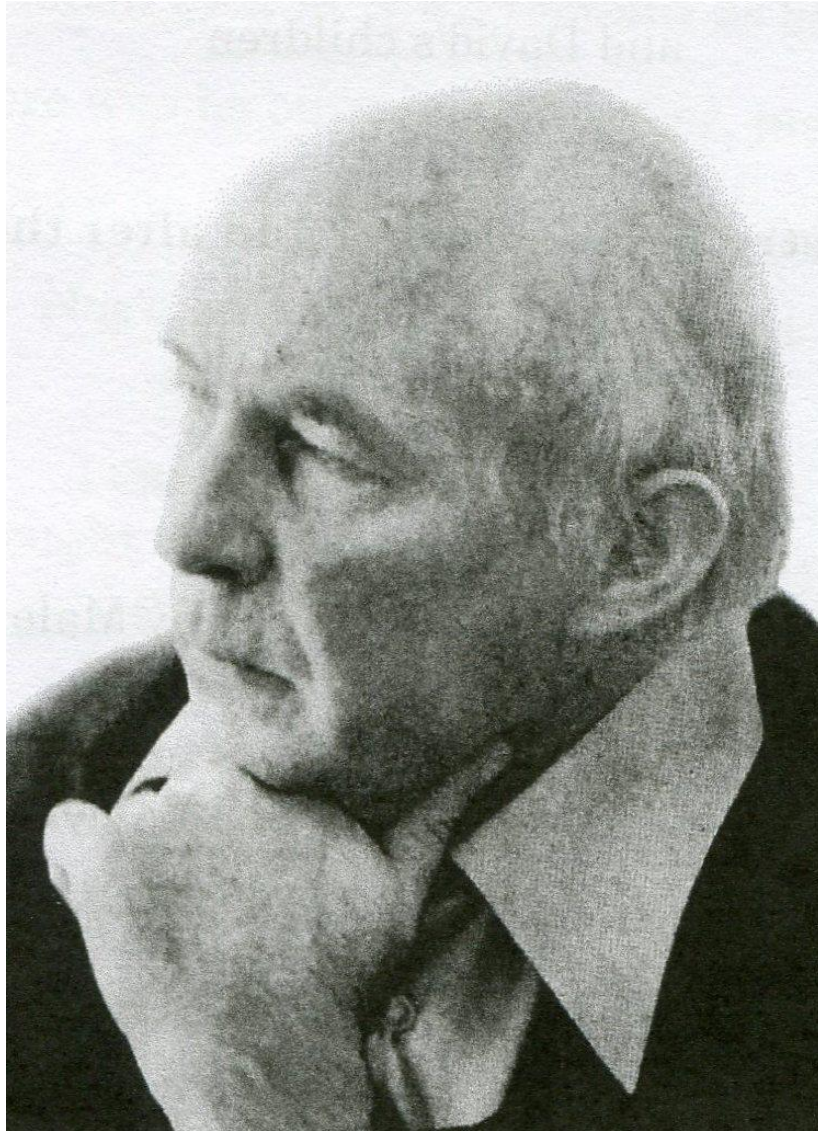
This book is based on recent national or regional checklists and provides an overview of the lichen diversity of the Alps. It provides a list 3,163 infrageneric taxa (including synonymous names) with data on their main substrata and distribution in eight countries i.e. Austria, France, Germany, Lichtenstein, Monaco, Italy, Slovenia, Switzerland and in 42 Operational Geographic Units. Among them 117 non- or doubtfully lichenised taxa are also listed. Moreover, thirteen new combinations are proposed in the genera *Agonimia*, *Aspicilia*, *Bagliettoa*, *Bellemerea*, *Carbonea*, *Lepora*, *Miriquidica*, *Polysporina*, *Protothelenella*, *Pseudosagedia* and *Thelidium*.

The Editor



OBITUARY

SIR DAVID CECIL SMITH FRS (1930-2018)



David Smith, undoubtedly one of the most eminent of British lichenologists, died on 29 June 2018. For 67 years, as researcher, teacher and administrator, his reputation and achievements in all aspects of academic life were widely recognised.

David Smith was born in Wales, but educated in England where he came under the influence of an inspirational sixth-form biology teacher whose approach to the subject through fieldwork and the identification of organisms was instrumental in changing his career; he had every intention of becoming a doctor, but instead, became ‘hooked on plants’, gaining the Browne Scholarship to Queen’s College, Oxford, where he read botany, graduating with first class honours in 1951. A Scholarship from Oxford University, with additional support from the Swedish Institute, enabled him to undertake postgraduate research, first at Uppsala University for one year and then at Oxford. He was awarded a doctorate in 1954 for his studies on lichen physiology. In 1959 he received the Harkness Fellowship which enabled him to further his research at the University of California, Berkeley.

After an initial joint paper on lichens with his supervisor in *Annals of Botany*, his research was published in the *New Phytologist* from 1960 onwards as ‘Studies in the physiology of lichens’, a series of 15 papers via which he and a series of graduate students continued to report research

progress in this area over the next 16 years. During this time, he built up an international reputation through his pioneering work. Initially his studies were on the uptake of nitrogen containing substances, water relations and carbohydrate physiology of *Peltigera polydactyla*. However, with his students, he extended this research to include a variety of lichen genera. The research demonstrated that lichen algae could release large amounts of carbohydrates, formed as a result of photosynthesis, to the fungal partner which then stored them. In addition to research papers dealing with the physiology of lichens and mechanisms involved in this symbiosis, he wrote a series of seminal reviews that were widely read and stimulated research elsewhere.

In 1966, he extended his studies on symbiosis, choosing to study coral-reef systems, since most of their corals, anemones, flatworms, molluscs and coelenterates host symbiotic algae. For several years, including a sabbatical year in California and Jamaica, he was primarily a marine biologist, often forsaking the Oxford laboratory to work in exotic tropical environments.

David Smith remained at Oxford until 1974 as a member of the Department of Agricultural Science. He was then appointed Melville Wills Professor of Botany at Bristol University, and three years later as Director of Biological Sciences. In 1980, his appointment as Sibthorpe Professor of Rural Economy and Head of the Department of Agricultural and Forest Sciences, Oxford, enabled him to return once again to his alma mater.

In 1975, he was elected a Fellow of The Royal Society for his distinguished work on the physiology of symbiotic systems. He played an active role in that Society, firstly as a Council Member, then as its Biological Secretary, a position he held from 1983 to 1987.

In 1987, he was appointed Principal and Vice-Chancellor of Edinburgh University. Despite his strong commitment to a broad spectrum of university duties, and a very active research career, he still found time to pursue a significant role on research councils, national committees and learned societies. He recognised the over-dominant influence that research had come to play in universities and also the problems involved in the assessment of quality, and he championed the value of taxonomy and systematics in biology teaching at all levels.

David Smith had a long and close association with the British Lichen Society, and indeed was a founder member in 1958, and its President from 1972 to 1974. He also supported the formation of the International Symbiosis Society, giving the opening address in 1991 at its first Congress in Jerusalem. For his major contribution to lichenology he was awarded the Acharius Medal in 2003. He was also President of the British Mycological Society in 1980 and of the Society for Experimental Botany from 1983 to 1985. In 1988 he was elected a Fellow of the Royal Society of Edinburgh, and in 1989 he was awarded the Linnean Society's Medal for Botany.

David Smith had an extensive publication record. In addition to reviews on lichens and other symbioses published in, for example, *Biological Reviews*, *Symposia of the Society for General Microbiology*, *Symposia of the Society for Experimental Biology*, *Perspectives in Experimental Biology* and *Symbiosis*. He also co-authored *The Biology of Symbiosis* with Angela Douglas, co-edited several books, including *The Cell as a Habitat* and *Cell to Cell Signals in Plant, Animal and Microbial Symbiosis*, and was the senior editor of two of Britain's premier journals, *The New Phytologist* and *Proceedings of the Royal Society*, for 18 and 4 years respectively.

In 1994, he returned to Oxford, taking up the Presidency of Wolfson College. After two terms of office, he retired in 2000, moving back to Edinburgh. However, this was in no way to be a real retirement, since, for example, he accepted the position as President of the Linnean Society from 2000 to 2003.

David Smith had a warm and generous nature, and was an excellent supervisor of researchers providing wise advice but letting them make their own way forward and then encouraging and helping to see their research published. Many of his students and researchers have subsequently had distinguished careers. Highly respected throughout the academic world, his outstanding ability to present material in a novel, interesting and delightfully humorous way made him much in demand as a speaker. His keynote address at the Mycological Congress in Tampa in 1977 entitled *What can lichens tell us about 'real fungi'* is still remembered by many to this day.

His innovative work and tireless efforts on behalf of British science were recognised by the conferment of a knighthood in 1986, the Order of Merit of both Italy and Poland, and honorary degrees from numerous universities, including Aberdeen, Bradford, Exeter, Heriot-Watt (Edinburgh), Hull, Liverpool, Napier (Edinburgh), Pennsylvania (Philadelphia) and Queens's (Ontario). This distinguished and remarkable man will be greatly missed by many throughout the world.

Mark R. D. Seaward and David H. S. Richardson

PERSONALIA

NEW PHD IN HELSINKI

New PhD thesis: **Annina Launis** defended her thesis on 14 September 2018. The title was "Lost before found? On systematics and conservation of lichen genus *Micarea* Fr. (Pilocarpaceae, Ascomycota)". 31 pp. plus five separate papers, two of which already published. The opponent was Dr. **Christian Printzen** from Frankfurt. Annina continues her studies in Helsinki as a postdoc focusing on the phylogeny and character evolution of *Micarea* in collaboration with **Leena Myllys**.

Soili Stenroos, Leena Myllys, and Teuvo Ahti, Helsinki

NEW CZECH-AMERICAN GRANT

Jana Kocourková and Kerry Knudsen of the University of Life Sciences in Prague, Czech Republic, have received a Czech-American grant to work for four years on the biodiversity of lichens, lichenicolous fungi, saxicolous microfungi, and soil crusts in the Chihuahuan Desert of New Mexico, with comparative work in California at Joshua Tree National Park. Parts of the project will be carried out in cooperation with Jason Stajich's lab at the University of California at Riverside (U.S.A.), Nicole Pietrasiak's lab at New Mexico State University (U.S.A.), and Matthais Schultz at the University of Hamburg (Germany).

Kerry Knudsen

DR GOTHAMIE WEERAKOON AT THE NATURAL HISTORY MUSEUM IN LONDON

Dr Gothamie Weerakoon is now Senior Curator of Lichens and Slime Moulds at the Natural History Museum in London (BM) since June 2018 (which marked one year since Dr Holger Thüs vacated the position). She has been a visiting researcher to the NHM many times during and after completion of her PhD, and is now a recognised expert on tropical lichens and in particular the Graphidaceae. Her main responsibility as Senior Curator is to manage and develop one of the world's largest lichen collections including lichens, lichenicolous fungi and slime moulds with c. 450,000 specimens. The collection includes non-lichenised fungi as well as the earliest scientifically accurate collection of fungi models by J. Sowerby. Her role involves supporting visiting researchers, including those with SyntheSys projects; organising loans and requests that involve destructive sampling; and providing support for users of the collections both in the UK and abroad. You can contact Gothamie at gothamie.weerakoon2@nhm.ac.uk or find out more about her and her projects on the NHM website. We look forward to welcoming IAL members at the Natural History Museum in London.

Pat Wolseley, Scientific Associate

LIST OF SOCIETIES

Australasia: Australasian Association for Lichenology. Info: W.M. Malcolm, Box 320, Nelson, New Zealand 7040. Phone: (+64) 3-545-1660, e-mail: nancym@clear.net.nz
Journal: *Australasian Lichenology*, web-page: <http://nhm2.uio.no/botanisk/lav/RLL/AL/>

Brazil: Grupo Brasileiro de Liquenólogos (GBL). Info: Marcelo P. Marcelli, Instituto de Botânica, Seção de Micologia e Liquenologia, Caixa Postal 4005, São Paulo – SP, Brazil 01061-970. Fax: (+55)-11-6191-2238, phone: (+55)-11-5584-6304 (institute), 218-5209 (home), e-mail: mpmarcelli@msn.com

Central Europe: Bryologisch-lichenologische Arbeitsgemeinschaft für Mitteleuropa (BLAM). Contact: Volker John, Pfalzmuseum für Naturkunde, Hermann-Schäfer-Straße 17, D-67098 Bad Dürkheim, Germany, e-mail: V.John@pfalzmuseum.bv-pfalz.de, web-page: <http://blam-bl.de/>
Journals: *Herzogia*, *Herzogiella*, web-page: <http://www.blam-hp.eu/herzogia.html>

Colombia: Grupo Colombiano de Liquenología (GCOL). Info: Bibiana Moncada. E-mail: bibianamoncada@gmail.com; web page: <http://grupocolombianodeliquenologia.blogspot.com/>

Czech Republic: Bryological and Lichenological Section of the Czech Botanical Society. Chairperson: Svatava Kubešová, e-mail: svata.kubesova@gmail.com, web-page: <http://botanika.bf.jcu.cz/bls/english/index.html>
Journal: *Bryonora*, web-page: http://botanika.prf.jcu.cz/BLS/bryonora_en.php

Ecuador: Grupo Ecuatoriano de Liquenología (GEL). Info: Alba Yanez, e-mail: albayanez8@gmail.com; web page: <http://grupoecuadorianodeliquenologia.blogspot.com/>

Estonia: Mycology Society, Estonian Naturalists' Society, Struve 2, Tartu 51003, Estonia, web-page: <http://mukoloogiauhing.ut.ee/avaleht> (in Estonian). Chairman: Külli Kalamees-Pani, e-mail: kulli.kalamees-pani@ut.ee
Journal: *Folia Cryptogamica Estonica*, web page: <http://www.ut.ee/ial5/fce/>

Finland: Lichen Section, Societas Mycologica Fennica. C/o: Botanical Museum (Lichenology), P.O. Box 7, FI-00014, Helsinki University, Finland. Info: Teuvo Ahti, e-mail: teuvo.ahiti@helsinki.fi
Journal: *Karstenia*, web-page: <http://www.karstenia.fi/index.php>

France: Association française de Lichénologie (AFL). Président: Jean-Pierre Gavériaux, e-mail: jp.gaveriaux@numericable.fr, web-page: <http://www.afl-lichenologie.fr>
Bulletin: *Bulletin d'Informations de l'Association française de lichénologie* (deux Bulletins annuels), web-page: http://www.afl-lichenologie.fr/Afl/Publications_afl.htm

Great Britain: The British Lichen Society (BLS). C/o: Department of Botany, The Natural History Museum, Cromwell Road, London SW7 5BD, UK. President: Dr. A. Pentecost. Secretary: P.A. Wolseley. For membership go to <https://my.britishtichensociety.org.uk/>, Society web-page: www.britishtichensociety.org.uk/
Journal: *The Lichenologist* (accessible via Cambridge Core <https://www.cambridge.org/core/journals/lichenologist>); *British Lichen Society Bulletin*

India: Indian Lichenological Society. Address for correspondence: Lichenology Laboratory; CSIR-National Botanical Research Institute; Rana Pratap Marg, Lucknow-226001, U.P., India. President:

Dr. D.K. Upreti. Secretary: Dr. Sanjeeva Nayaka, e-mail: indianlichenology@gmail.com, webpage: <http://www.indianlichenology.com>

Italy: Società Lichenologica Italiana (SLI). President: Sonia Ravera, via del Labaro 54, I-00188 Roma, e-mail: presidente@lichenologia.eu, web-page: <http://www.lichenologia.eu/>
Journal: *Notiziario della Società Lichenologica Italiana* (in Italian), web-page: http://www.lichenologia.eu/index.php?procedure=pubbl_not

Japan: The Lichenological Society of Japan (LSJ): President: Hiromi Miyawaki, e-mail: miyawakh@cc.saga-u.ac.jp, web-page: <http://eng.lichenjapan.jp/>
Journal: *Lichen*, web-page http://lichenjapan.jp/?page_id=19
The Japanese Society for Lichenology (JSL). President: Kunio Takahashi, contact email (secretary): kawahara@kansai-u.ac.jp, web-page: <http://www.lichenology-jp.org/index.php/en/>
Journal: *Lichenology*, web-page: <http://www.lichenology-jp.org/index.php/en/journal/>

The Netherlands: Dutch Bryological & Lichenological Society (Bryologische +Lichenologische Werkgroep, BLWG). Contact: L.B. (Laurens) Sparrius, contact e-mail: sparrius@blwg.nl, web-page: <http://www.blwg.nl>
Journals: *Buxbaumiella* and *Lindbergia*, web-pages: www.buxbaumiella.nl (open access) and www.lindbergia.org (open access)

Nordic Countries: Nordic Lichen Society (Nordisk Lichenologisk Förening, NLF). President: Ave Suija, e-mail: ave.suija@ut.ee, web-page: <http://nhm2.uio.no/lichens/nordiclichensociety/>
Journal: *Graphis Scripta*, web-page: see NLF web page

North America: American Bryological and Lichenological Society, Inc. (ABLS). President: Catherine LaFarge, contact e-mail: clafarge@ualberta.ca, web-page: <http://www.abls.org/>
Journals: *Evansia*, web-page: <http://www.bioone.org/loi/evia>; and *The Bryologist*, web-page: <http://www.bioone.org/loi/bryo>

North America, Northwest: Northwest Lichenologists (NWL). Info: Bruce McCune, contact e-mail: bruce@salal.us, web-page: <http://www.nwlichens.org>
Newsletter: *Northwest Lichenologists Newsletter*, web-page: <http://www.nwlichens.org>

North America, California: The California Lichen Society (CALs). President:, contact e-mail: president@californialichens.org, web-page: <http://californialichens.org/>
Bulletin: *Bulletin of the California Lichen Society*, web-page: http://californialichens.org/?page_id=15

North America, East: Eastern Lichen Network. Info: Marian Glenn, e-mail: glennmar@shu.edu, web-page: <http://www.nybg.org/bsci/lichens/elN/>

Poland: Lichenological Section of the Polish Botanical Society (Polskie Towarzystwo Botaniczne). President: Martin Kukwa, e-mail: dokmak@ug.edu.pl, web-page: <http://www.porosty.varts.pl/>

Slovakia: Slovak Botanical Society – Lichenological Working Group, c/o Institute of Botany, Slovak Academy of Sciences, Dúbravská cesta 9, 841 01, Bratislava 4, Slovakia. Info: Alica Košuthová, e-mail: alica.kosuthova@savba.sk, web-page: <http://sbs.sav.sk/>
Journal: *Bulletin Slovenskej botanickej spoločnosti*, web-page: <http://sbs.sav.sk/SBS1/content.html>; <http://ibot.sav.sk/lichens/>

South America: Grupo Latino Americano de Liquenólogos (GLAL). Info: Susana Calvelo, e-mail: scalvelo@crub.uncoma.edu.ar
Journal: *GLALIA*, web-page <http://nhm2.uio.no/botanisk/lav/RLL/GLALIA/>

Spain: Sociedad Española de Liquenología (SEL). President: Isabel Martínez, e-mail: isabel.martinez@urjc.es, secretary: Sergio Pérez-Ortega, e-mail: sperezortega@rjb.csic.es, web-page: <http://www.ucm.es/info/seliquen/>
Journal: *Clementeana*, web-page: <http://www.ucm.es/info/seliquen/cl.htm>

Sweden: Svensk Lichenologisk Förening (SLF). President: Martin Westberg, e-mail: martin.westberg@nrm.se, web-page: <http://www.sbf.c.se/slf/>
Bulletin: *Lavbulletin*, web-page: <http://www.sbf.c.se/slf/Bulletinen.html>; see also *Svensk Botanisk Tidskrift*, web-page: <http://www.sbf.c.se/index.php?id=122>

Switzerland: Swiss Association of Bryology and Lichenology (BRYOLICH). President: Ariel Bergamini, e-mail: praesidium@bryolich.ch, web-page: http://www.bryolich.ch/index_en.html
Journal: *Meylania*, web-page: http://www.bryolich.ch/meylania/meylania_en.html

Venezuela: Grupo Venezolano de Liquenólogos (GVL). Info: Jesús Hernandez, e-mail: Jeshernandezm@gmail.com, web-page: www.bit.ly/lqvzla

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The cover-page illustration

Dibaeis columbiana (Vain.) Kalb & Gierl (*Ascomycota: Lecanoromycetes: Icmadophilaceae*) from
Colombian paramo near Bogota (*Photo: Robert Lücking*).