

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 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 send their subscription (one payment of 40 USD for 2012-2016) 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.

IAL affairs are directed by an Executive Council elected during the last General Meeting. Council members elected at the IAL7 Symposium (Bangkok, Thailand, 2012) are listed below, and will serve until 2016.

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ASSOCIATION NEWS

Bid for IAL9 – 2020

We would like to propose Brazil as the host country for the 9th IAL Symposium in 2020. The venue, the Bonito Convention Center, in Bonito, Mato Grosso do Sul, in the Center-West region of Brazil (<http://www.bonito-brazil.com/>), has previously hosted the 49th Annual Meeting of the Association for Tropical Biology and Conservation (<http://www.eventus.com.br/atbc2012/welcome.html>) with over 1200 participants; furthermore, the city of Bonito has the infrastructure to host large international events with about 70 lodging options.

Currently, we have a large group of leading Brazilian lichenologists from different parts of the country that as a team would be involved with the organization of the IAL meeting, including, apart from us, Emerson L. Gumboski (Univille), Eugênia Pereira (UFPE), Iane Cunha Dias (UEMA), Marcelo P. Marcelli (IBt), Michel N. Benatti (IBt), Patrícia Jungbluth (UFSM), Sionara Eliasaro (UFPR), and Suzana Azevedo Martins (FZB-RS).

We have also planned at least four different field trips to areas with resident lichenologists and appropriate infrastructure to host field workshops focusing on unique Brazilian ecosystems: Reserva Ducke (Amazon Forest); Serra Gaúcha (Atlantic Forest); Porto Murinho and surroundings (Brazilian Chaco); and the Catimbau National Park (Caatinga).

The host city, Bonito, is one of the most popular destinations in Brazil. Although little known abroad, its name translates to “beautiful”, a reference to an area important for ecotourism due to its natural beauties. Bonito has many caves, waterfalls and streams with crystal-clear waters, and one of the world's largest sinkhole is nearby, hosting one of the largest populations of scarlet macaws.

Brazil is one of the world's leading countries in science and technology and has historically been important for its numerous botanical expeditions into the Amazon, the Pantanal and the southeastern Atlantic Forest. Due to the work of Müller, Krempelhuber, Vainio and Malme, many species have historically been described from Brazil. In recent decades, lichenologists from inside and outside the country have been extremely active, making Brazil one of the countries with the best known and most diverse lichen biota. Additionally, it would be the first IAL meeting in South America and the Southern Hemisphere.

We are excited to announce our candidacy and will work hard to offer the participants of the 9th IAL Symposium in Brazil a great experience and look forward to seeing our colleagues in Helsinki, Finland.

Thank you,

Marcela Cáceres (President, UFS)

Adriano Spielmann (Vice-President, UFMS)

Luciana Canêz (Secretary, UFMS)

Manuela Dal Forno (Treasurer, Smithsonian Institution)



NEWS

Lichenology courses at the Eagle Hill Institute

Steuben, Maine – 2016



Photo: Craig Snapp

Eagle Hill field courses are of special interest because they focus on the natural history of one of North America's most spectacular and pristine natural areas, the coast of eastern Maine from Acadia National Park to Petit Manan National Wildlife Refuge and beyond. Our summer field courses are taught by experts in their respective fields. Course participants include beginning to advanced amateurs, graduate and undergraduate students, teachers, professional field biologists, university professors, and personnel from federal and state agencies and numerous environmental organizations.

For general program information, <http://www.eaglehill.us/programs/nhs/natural-history-seminars.shtml>. For our complete course listing, go to <http://eaglehill.us/seminars>. Titles are hot-linked to course descriptions and instructor biographies. Go to <http://www.eaglehill.us/programs/general/application-info.shtml>. Institute homepage: <http://www.eaglehill.us>. For more information, contact Marilyn Mayer: marilyn@eaglehill.us or 207-546-2821 x1

Lichens and Lichen Ecology July 3–9, 2016

Instructors: David Richardson and Mark Seaward

This seminar is designed to help teachers, students, amateurs and those working in state or federal positions become more knowledgeable about lichens. It is suitable for beginners and those who have some familiarity with lichens. With small student numbers and two instructors, we happily accommodate a range of abilities. Lichens are abundant and diverse along the coast of Maine, so participants can pursue topics of interest and also to develop identification skills. This seminar emphasizes both fieldwork and laboratory studies. We focus on identification of specimens using books, keys and chemical spot tests. We provide instruction for how to do these tests and how to cut sections of lichens and their fruiting structures in order to examine the spores. Lichens from open, forested, and seashore habitats will be studied, with an emphasis on the macrolichens, although some crustose species will also receive attention. Lectures and slide presentations will cover topics such as the structure, reproduction, and

ecology of lichens, as well as their use by man and their value for pollution monitoring. Those completing this seminar can go on to advanced lichen seminars, such as *Crustose Lichens of Coastal Maine*.

Dr. David Richardson (*david.richardson@SMU.CA*), Professor and Dean Emeritus at Saint Mary's University in Halifax, Nova Scotia, is a specialist in the effects of air pollution on lichens and has published many research papers and the books, *The Vanishing Lichens* and *Pollution Monitoring with Lichens*. His studies have taken him to England, Ireland, Canada, and Australia.

Dr. Mark Seaward (*m.r.d.seaward@bradford.ac.uk*), Professor of Environmental Biology at Bradford University, England, is a lichen ecologist. He has written/contributed to eight books and edited the well-known *Lichen Ecology* published by Academic Press, as well as some 400 other publications. He has studied lichens in Eastern and Western Europe, the Middle East, Indian Ocean islands, and Hong Kong.

Crustose Lichen Identification: July 10–16, 2016

Instructor: Irwin Brodo

Although the lichens of Maine's coastal rocks and forest are a conspicuous component of the vegetation, it is usually the larger lichens, the foliose and fruticose species that attract one's attention. This seminar will concentrate on the less conspicuous, but equally diverse and important, crustose lichens. Collections will be made from bark, wood, rocks and soil, and they will then be identified in the laboratory. The newly expanded keys to crustose lichens from *Lichens of North America*, will be used, as well as other modern keys from the world literature. Techniques for sectioning, staining, and interpreting the tissues of crustose lichen fruiting bodies will be introduced, with special attention being devoted to staining various ascus types with iodine. Thin layer chromatography will be introduced and used to demonstrate how to analyze the chemistry of some crustose lichens, especially sterile species, as the interest of participants and time permits. Techniques for testing crustose lichens with paraphenylenediamine, hypochlorite solution (bleach), potassium hydroxide, nitric acid, and iodine will be discussed and used regularly for identifications. (Special \$10 lab fee).

Dr. Irwin M. Brodo (*ibrodo@mus-nature.ca*) was the research lichenologist at the Canadian Museum of Nature in Ottawa for 35 years and remains a Research Associate there. He is the author of over 90 research papers on lichens, most of them on the taxonomy of North American species, but also including studies of ecology, air pollution, and general lichen biology. Together with photographer/naturalists Sylvia and Stephen Sharnoff, he has written an encyclopedic reference book entitled *Lichens of North America* illustrated with over 920 color photographs. The book was published in October 2001 by Yale University Press and is in its fifth printing. He has fully revised and expanded the keys from that book published by Yale University Press in 2015.



Universidad
Rey Juan Carlos



XXI Simposio de Botánica Criptogámica
Aranjuez, 21-24 de Junio 2017

21st Symposium of Cryptogamic Botany

21–24 June 2017

We are delighted to announce the 21th edition of the Symposium of Cryptogamic Botany that will take place 21–24 of June 2017. This edition is organized by University Rey Juan Carlos, and will be hosted at Pavia building, old headquarters that nowadays is part of the Campus of this University in Aranjuez.

Venue: Aranjuez, situated in the Madrid Region, lies 42 km south of Madrid and 44 from Toledo, and is easily reached by bus, train and car.

The Royal Site and Villa of Aranjuez nestles in the valley at the confluence of the Tagus (locally Tajo) and Jarama rivers, in a privileged natural settling with vegetable gardens. An old quarter which is a Historic-Artistic Site, royal palaces and gardens on the banks of the Tagus forms the layout of Aranjuez. declared a World Heritage Site by UNESCO in 2001.



The current layout dates back to the XVI century, during the reign of Felipe II, who awarded this town the title of Royal Site. In the following centuries (17th and 18th) Aranjuez became a centre of the court with palace architecture and gardens design following the aesthetic taste of the Enlightenment.

Symposium Center: Old Headquarters Building Pavia. It was built at the time of Fernando VII (1752), and subsequently used with military purposes. It is currently one of the historical buildings of Aranjuez, and part of the Campus of University Rey Juan Carlos (URJC).

The motto of the Symposium is “The Hidden Biodiversity” which highlights the efforts of researchers on Lichens, Ferns, Algae, Fungi and Bryophytes to reveal and make public the richness of these groups, their ecology and their conservation value.



Local Organizing Committee, members of the Area of Biodiversity and Conservation at URJC:

Isabel Martínez Moreno

María Prieto Álvaro

Ana M Millanes Romero

Rosa M Viejo García

Brezo Martínez Díaz-Caneja

Gregorio Aragón Rubio

Luis García Quintanilla

M Carmen Molina Cobos

Further information:

More information about the Symposium will be soon available in the web page <http://www.criptogamia2017.com>. For questions and suggestions, please send an email to: simposiocriptogamia@gmail.com.



Languages: Spanish, Portuguese, English.

Please, mark the dates **21–24 June 2017** in your calendar! We are looking forward to seeing you in the Symposium.

11th International Mycological Congress

16–21 July 2018, San Juan, Puerto Rico

The Mycological Society of America (MSA), the International Mycological Association, the Latin American Mycological Association (ALM), the Puerto Rican Mycological Society (SPM), Universidad del Turabo and Meet Puerto Rico are proud to sponsor the 11th International Mycological Congress in San Juan, Puerto Rico.

San Juan, the capital city, possesses a state of the art convention center, excellent hotels, excellent cultural activities and an amazing culinary experience. The Luis Muñoz Marín International Airport is a main hub for different airlines receiving direct flights from major airports in the USA, Europe, Central and South America.



New Cryptogamic Herbarium (ICH) in Iran

I am pleased to provide the link of the new lichen herbarium (http://sweetgum.nybg.org/science/ih/herbarium_details.php?irn=245024) founded in May 2016 at the Iranian Research Organization for Science and Technology (IROST).

The Iranian Cryptogamic Herbarium currently contains mostly lichenized and lichenicolous fungi, as well as wood-inhabiting macrofungi. This collection has an estimated number of 2000 specimens mainly from Iran, and some duplicates from around the world, with an emphasis on Caspian Hyrcanian mixed forests, Oak forests of the Zagros Mountains, arid and semiarid steppes. It is a fundamental resource for biological systematics and classification, diversity and conservation, biotechnological applications, biological monitoring, biodeterioration and bioremediation studies, climate change, ecology, and pharmaceutical bioprospecting. The collection is a resource for academics, students, government, private organizations, and the public.

The new herbarium is one of the fundamental infrastructures of the Iranian Lichen Flora project, which will start as a Multi-Authored International Research Project in the near future. You are most welcome to visit ICH, to request loans, exchange lichen material, initiate bilateral cooperation, and to receive gift samples which will be safely deposited in ICH.

Mohammad Sohrabi, Tehran

REPORTS

Second Young Lichenologists' Workshop

12–15 November 2015, Budapest, Hungary

In view of the success of the First Young Lichenologists' Workshop in 2009, we decided to attend the second meeting in Hungary. This event was organized especially for Ph.D. students and young scientists with deep interests in lichenology, who could present their current research works in front of an international audience and thus improve their discussion abilities and language skills. Since it was free of charge, the event was available for a wider audience of interested students. The meeting brought together 17 participants from six European countries (Croatia, Finland, Hungary, Poland, Slovakia, Ukraine). The main topics of the workshop were focused on lichen biodiversity and chemistry, but lichenological investigations e.g. taxonomy, morphology, ecology, ecophysiology and climate change, were welcome.

On the first day, the organizers welcomed us in the Danube Research Institute, MTA Centre for Ecological Research of the Hungarian Academy of Sciences in Budapest. Péter Ódor, Director of the Institute of Ecology and Botany, Centre for Ecological Research of the MTA, opened the workshop with a presentation on the dynamics of epiphytic species composition in Hungarian mixed forests. At the evening welcome reception we could freely talk with other participants and enjoyed delicious home-made specialities prepared by the organizers. The second day was devoted to presentations of invited speakers S. Ya. Kondratyuk and R. Engel,

as well as student participants. S. Kondratyuk's presentation was about novel lichenicolous fungi described by him from Ukraine, Israel and South Korea, and R. Engel presented work on the detection of active secondary compounds from herbs and lichens by HPLC. Edit Farkas' presentation covered the chemistry of lichens and standard HPTLC methods used in her work – these three presentations provided a very useful summary to all of us. In total, 12 oral contributions and three posters were presented. The ideal atmosphere generated during discussions enabled one to pose many questions and encouraged us to share, develop and guide our ideas.



Group photo (from left) Katalin Veres, Edit Farkas, Nóra Varga, Zsanett Laufer, Rita Engel, Sergej Kondratyuk, Mónika Sinigla, Gábor Matus, Zuzana Fačkovcová, Zsolt Csintalan, Natalia Matura, László Lőkös, Maja Maslač, Aino Hämäläinen. Photo: Nora Varga

During the next days, the programme was enriched by an excursion to Mt Odvas-hegy in the Buda Mts, which are the part of the Transdanubian Mountain Range. We observed the lichen diversity on opened xerothermic slopes with predominantly grassland vegetation and conglomerate outcrops, where we recorded various species, despite the windy weather, such as *Agonimia opuntiella*, *Cladonia convoluta*, *Fulgensia fulgens*, *Lecanora argopholis*, *Leptogium schraderi*, *Psora decipiens*, *Squamarina cartilaginea* and *Toninia sedifolia*. A rare saxicolous species *Rusavskia papillifera* (= *Xanthoria p.*) discovered about 100 years ago was found on the calcareous rocks of the SE slopes. After the excursion we checked some specimens under microscopes, learnt about some lichen taxa, and discussed several questions.

We also visited the Institute of Ecology and Botany, MTA and the National Botanical Garden in Vácrtót, which contains c. 11 600 plant taxa, resulting in the richest scientific plant collection of Hungary; we also checked materials in the lichen herbarium (VBI).

The aims of the Second Young Lichenologists' Workshop were fulfilled and we returned home with new knowledge that will help us to increase our research expertise. For us, it was pleasure being a part of this unforgettable event and therefore we would like to thank the organizers Edit



In the field – Mt Odvas-hegy. Photo: Lazlo Lőkös.



Lichen identification after the excursion. Photo: Nora Varga

Farkas and Nóra Varga of the Institute of Ecology and Botany, MTA Centre for Ecological Research of the Hungarian Academy of Sciences. We hope that the idea of this workshop will continue.

Zuzana Fačkovcová and Mónika Sinigla

Institute of Botany, Slovak Academy of Sciences, Dúbravská cesta 14, 845 23 Bratislava, Slovakia; zuzana.fackovcova@savba.sk

Bakony Museum of the Hungarian Natural History Museum, H-8420, Zirc, Rákóczi tér 3–5., Hungary; monikasinigla@gmail.com

“The bold and the beautiful” exhibition, Tallinn

Despite the work done by schools, many people do not know the difference between lichens and mosses. To pour oil on the fire, the words ‘lichen’ and ‘moss’ are very similar in Estonian, namely *samblik* and *sammal* respectively and hence people frequently assume that these are synonymous names for one organism. An exhibition of lichens and mosses in the Estonian Museum of Natural History introduces these two groups to a wider audience and shows how bold and beautiful they really are. People often do not recognize the existence of lichens and mosses, and remain invisible because they are usually small. To change this, we brought lichens and mosses to our exhibition hall, where visitors can look and explore them very closely using a variety of ways, such as touch, smell, viewed through magnifying glasses and light and digital microscopes, and use of hands-on interactive models. Lichens and mosses are brought from the background to the foreground, turned from extras to superstars (as often demonstrated in the wild). Two themes – lichens and mosses – are divided into two different exhibition rooms,



Lichens under the microscope. Photo: Jarek Jõepera



Journey to the lichen diversity. Photo: Jarek Jõepera

their physical separation emphasising that these are two fundamentally different groups. One signpost on the floor leads visitors to the fungal kingdom, and the other to the plant kingdom.

The bold and the beautiful. Starred by: lichen and moss is the largest and most comprehensive exhibition of lichens made in Estonia. In the fungal kingdom, visitors can learn lichen 'basics', and dig deeper to explore their appearance, hardiness, significance, etc. Boards with texts, drawings, photographs and different species placed on walls and exhibition displays a variety of topics, helping to open up lichens world to visitors. Texts, drawings, etc. have been designed to aid both people who are just getting acquainted with lichens as well as those who wish to expand their knowledge of them.

In the exhibition we showcase the commonest and most conspicuous lichens from different habitats and varieties of substrates in Estonia. Genuine tree trunks, rocks, etc. have been introduced into the exhibit room, so that visitors could touch and have a closer look at lichens on different surfaces. In addition to Estonian lichens, outstanding species from around the world are also presented. Altogether about 80 species are displayed, most of which were collected for the exhibition, but some specimens are on loan from the lichenological collections of the University of Tartu and the Estonian Museum of Natural History.

The part of the exhibition devoted to lichens consists of ten topics.

1. Lichen = fungus + alga; 2. Lichen as a fungal greenhouse; 3. Lichens in the distant past

In the exciting journey of discovery, visitors can peek into lichens via an interactive model and examine under the microscope a X 100 enlarged cross section of lichen thallus. Visitors can examine the rhizines with a magnifying glass and read about their true function. The following questions will find an answer: is the relationship mutualistic or parasitic, did lichens already exist before the dinosaurs, and how old is the oldest confirmed lichen fossil?

4. *Variegated folks; 5. Where is its home ground?*

Visitors can learn from text boards that lichens colonize all region of the world, but are dominant in about 8% of the land surface, notably in extreme polar areas, deserts and high mountains. However, they can also be found growing in the realm of water. Lichens are displayed to show a variety of lichen substrates starting with trees and ending with a soldier's boot. A hands-on device introduces the extraordinary diversity of shapes and colours exhibited by lichens, and enables the visitor to find lichens with different growth forms on trees by just pressing a button – to confirm the accuracy of its search, or simply learn rapidly.

6. *Reproduction – together or alone*

A digital microscope helps visitors to take a closer look at fungal fruiting bodies and vegetative reproduction of lichens, and to explore their diversity. Through the microscope, drawings and texts visitors can learn about the two different ways of reproduction and their importance in different environmental conditions.

7. *Hardy but sensitive*

An interactive solution has been created to illustrate a lichen's resistance to extreme temperatures, radiation and moisture fluctuations on the one hand, and their sensitivity to air pollution on the other hand. Via text boards how and why lichens are used to detect air quality is explained, visitors can also acquaint themselves with several indicator species.

8. *The 1000 reasons for uniqueness – lichen substances; 9. Lichens at the service of humans*

The exhibition brings light to the well-hidden secret of lichens – lichen substances of which



Special UV-light device for observing fluorescing lichen substances. Photo: Jarek Jõepera

there are more than 1000, mostly unique to lichens, some fluorescing in ultraviolet radiation – visitors can switch on and off a specially made UV “searchlight” device. Guests can also read about the role and importance of lichen substances to lichens. The human use of lichens, from having a meal to making mummies, is displayed on rotating text boards.

10. Jobs in the ecosystem

Lichens play a number of important roles in the ecosystem, from soil formation to offering a habitat and shelter to small invertebrates. To show lichens as soil makers, rocks with lichens growing on them are demonstrated in the exhibition. In addition, visitors can find a chaffinch’s nest constructed mainly of lichens on a branch – and look for a disguised butterfly.

The exhibition, enhanced by educational programmes, lectures and workshops, supported by the Environmental Investment Centre in Estonia, is open in the Estonian Museum of Natural History in Tallinn’s old town (Lai 29a) until 8 January 2017. All texts are in Estonian, English and Russian.

Marja-Liisa Kämärä, Tallinn

OBITUARY

Lars-Erik Emil Muhr

25 October 1936 – 24 May 2015



Lars-Erik Muhr in 1983. Photo: Roland Moberg

On May 24th 2015 Lars-Erik Muhr died, aged 78. For many years he was deeply engaged in lichenology. Like his predecessor and friend Sigurd Sundell, he mainly concentrated on the lichen flora of his home province Värmland, but he also collected elsewhere in Scandinavia. He was one of very few lichenologists who set up a TLC laboratory at home and his knowledge in lichen chemistry was valuable in his study of sorediate crusts, often in collaboration with

Tor Tønberg. He was also keen on picking up news from abroad, particularly from British lichenologists.

Lars-Erik published a number of floristic and taxonomic papers, alone or in collaboration with others, in *Svensk Botanisk Tidskrift*, *Graphis Scripta*, *The Lichenologist* and *Nordic Journal of Botany*. New species co-authored by him included *Buellia violaceofusca*, *Japewia subaurifera*, *Micarea marginata*, *Pertusaria flavocorallina* and *Schaereria corticola*. He also discovered *Stereocaulon urceolatum*, which was first described as *Muhria urceolata* in honour of him. The main part of his collections are housed at UPS, which 2544 are currently registered in the UPS database (available at the home page of The Museum of Evolution).

During the last 20 years Lars-Erik pursued other interests, partly due to the cancer he managed to successfully fight for a long time. Two of these were entomology and the compilation of crosswords. His large collection of hoverflies (Syrphidae) will soon be incorporated into the zoological part of The Museum of Evolution, and his crosswords are still manifested by small amounts of money now and then sent to his wife from different newspapers and magazines.

Our acquaintance with Lars-Erik was mainly in the 1980s and 1990s, when we met at several excursions arranged privately or by NLF and SLF. We profited greatly from his deep knowledge and sharp eyes, which made us discover details we would not have seen without his assistance, and we rejoiced in his sympathetic personality and his sense of humour. We will forever remember him as a good friend and an extraordinary lichenologist.

Roland Moberg and Anders Nordin, Uppsala

[Published in Graphis Scripta 28-1, 2016]

PERSONALIA

A new lichenologist at the Canadian Museum of Nature (CANL).

R. Troy McMullin has accepted the position of Research Lichenologist at the Canadian Museum of Nature in Ottawa. He began his tenure on April 3, 2016. This is the position vacated by Irwin (Ernie) Brodo in November 2000 when he retired, although Ernie has continued to do lichen research at the Museum ever since.

Troy was born in Montreal, Quebec, but received much of his later education in Ontario, earning several degrees and diplomas in Environmental Studies. His interests turned to lichens in Nova Scotia where he earned his Master's Degree at Dalhousie University (Halifax) studying lichens in old growth forests. He continued his lichenological studies at the University of Guelph in Ontario dealing mainly with woodland caribou habitat in Ontario focusing on the genus *Bryoria*. Since earning his Ph.D. at Guelph, he has held several postdoctoral fellowships there, especially at the Centre for Biodiversity Genomics.

Troy's interest in lichen floristics has taken him far and wide in North America, especially in Canada, and he has amassed a sizable lichen collection and deep knowledge of lichens of all

kinds, which will be a particular value in his new job. He has written or contributed to several guidebooks on lichens, the latest being *Common lichens of the Northeastern North America* (New York Botanical Garden Press, 2014), collaborating with Nova Scotia lichenologist, Frances Anderson. In recent years, Troy has made many important additions to the Ontario lichen flora and has made the stubble lichens (calicioid lichens) his special field of interest. (He recently described the new species, *Chaenotheca balsamconensis* and has another in press.) Troy recently was appointed to the Subcommittee on Lichens and Bryophytes of the Committee on the Status Endangered Wildlife in Canada (COSEWIC) keeping track of rarities in the country and writing assessment reports.

Troy's acceptance of the position begins a new era for lichenology at the Canadian Museum of Nature and promises to bring new life to Canadian lichenology in general.

Irwin Brodo, Ottawa

Boros Ádám Award in Hungary 2016

Ádám Boros (1900–1973) was a famous Hungarian botanist with a special interest in bryology from an early age. He spent his life investigating the flora and vegetation of the Carpathian Basin, particularly cryptogams, and many taxa were named after him.

The Boros Ádám Award was established in 1998, on the 25th anniversary of his death, by Albert Tóth, Attila V. Molnár and Róbert Vidéki to honour the achievements of botanists contributing outstanding work on the flora and vegetation in the Carpathian Basin. The award



OKLEVÉL

Farkas Edit és Lőkös László

részére,

a hazai zuzmóflóra szisztematikus térképezéséért,
és e munka megszervezéséért, számos fiatal kutatót
a lichenológia tudományába történő bevonásáért,
több faj hazai előfordulásának első kimutatásáért

a

BOROS ÁDÁM-DÍJAT

nyerte el.

Budapest, 2016. február 12.

A BÍRÁLÓ BIZOTTSÁG NEVÉBEN:

X. Székely
Dr. Székely Gábor
akadémikus

R. Vidéki
Dr. Vidéki Róbert
akadémikus

A. Tóth
Dr. Tóth Albert
a díj alapítója

is given every second year during a ceremony at the International Conference *Advances in research on the flora and vegetation of the Carpato-Pannonian region*. The aim of the award is to inspire and give moral support to botanists for their future endeavours and hopefully inspiring them to become eminent lichenologists. During the 11th Conference (Budapest, 12–14 February, 2016) two Hungarian lichenologists, Edit Farkas (Institute of Ecology and Botany, MTA Centre for Ecological Research) and László Lőkös (Botanical Department, Hungarian Natural History Museum) were honoured by this Award. In his speech, Prof. Attila Borhidi announced that these lichenologists had made outstanding and pioneer work themselves, as well as organizing the mapping of the lichen flora in Hungary, discovering a large number of lichen-forming fungi for the country as floristic novelties, introducing new chemical methods for identifying lichen compounds in Hungary, and involving and teaching many young students and scientists in their collaborations.

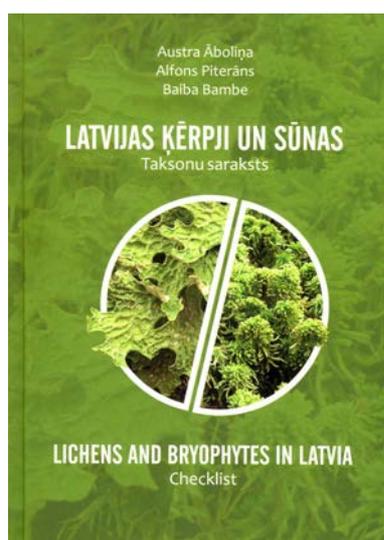
Congratulations to Edit and Laszlo and my best wishes to continue their work for a long time to come.

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Institute of Ecology and Botany, MTA Centre for Ecological Research, Vácrátót, Hungary

BOOK REVIEWS

ĀBOLIŅA, A., PITERĀNS, A. & BAMBE, B. (2015): Lichens and Bryophytes in Latvia. Checklist. (Latvijas Ķērpji un Sūnas. Taksonu saraksts) – Salaspils:Latvijas Valsts mežzinātnes institūts ‘Silava’, DU AA ‘Saule’, 213 Pages, Hardcover. ISBN 978-9984-14-735-2. Price: unknown.



Latvian lichens remain the least studied of all the three Baltic States and during the last two decades comparatively very few papers dealing with lichen flora of this country have been published. Among them, there was the first lichen checklist in 2001 compiled by the author of the present checklist which includes 573 species and, for the first time, lichenicolous fungi (albeit listed separately from the lichens). The checklist follows the same format as the previous one, namely: name of species, synonyms, substratum data and frequency in Latvia. It can be an unrewarding job to compile checklists of understudied but easily accessible areas since such lists of species often become obsolete very soon after published. Sadly this is what happened with the latest checklist of Latvian lichens. Several recent papers, published or in press, add c. 100 new lichenized and lichenicolous fungi species for the country

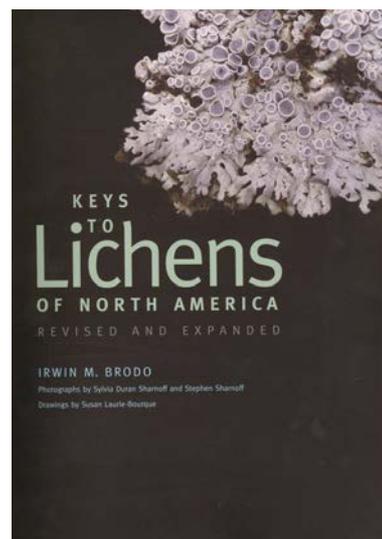
(i.e. over one-sixth of this checklist). Still, the book can be of some use for those interested in lichen distribution in the eastern Baltic region, but should be regarded with certain reservations due to numerous misprints, misuse of taxon names, lack of modern revision of some species

or species complexes, or a critical evaluation of the presence in the country of species that are known only from historical literature data.

Jurga Motiejūnaitė, Vilnius

BRODO, I. M. (2016): *Keys to Lichens of North America: Revised and Expanded*. – Canadian Museum of Nature. 427 Pages, 43 Figures (13 color, 30 b/w). ISBN 978-0-30019573-6. Price: \$29.95 8 1/2 x 11

Fifteen years ago, natural history enthusiasts and lichenologists alike were astounded by the exquisite photos and excellent keys and descriptions in Brodo, Sharnoff and Sharnoff's instant classic, the *Lichens of North America*. Brodo's new *Keys to Lichens of North America: Revised and Expanded* (2016) complements the original work by almost doubling the number of species and providing nomenclatural updates. The revised and expanded keys include 2028 species in 382 genera, including 106 new genera. The format, paperback and spiral bound, makes it easy to use for lichen identification in a classroom or workshop. The keys are comprehensive yet straightforward so that both professionals in the field and other lichen enthusiasts will find it a valuable addition to their libraries.



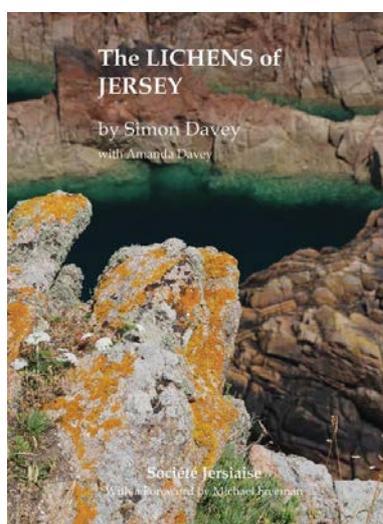
As in *Lichens of North America*, the keys are presented and organized in way that makes them accessible. The book begins with an identification key to major groups followed by keys to the genera in each of these major groups. The identification keys to species are organized alphabetically by genus, which makes it easy to find the genus you are looking for. The keys include leads on geography, habitat type, lichen color, external and internal structures, responses to spot tests and to illumination with UV light. Often when describing spot test results, Brodo includes in parentheses the name of the secondary compound(s) responsible for the response, as in, “K+ red (salazinic acid)”, which is helpful for students developing understanding of the chemical diversity of lichens. Brodo has been accepting comments on his *Lichens of North America Key* for over a decade, and has improved many of the couplets for clarity.

The book also includes many valuable sections for people just learning lichenology, many of which were also in *Lichens of North America*, with some new ones included. The diagrams of Susan Laurie-Bourque include those describing thallus growth forms, vegetative propagule types, the types of fruiting bodies including cross-sections, types of asci and types of spores; these diagrams are very helpful for clarifying the language in the keys. Another valuable diagram for beginners depicts where on a foliose lichen one should measure the lobe size. New figures include illustrations of the 5 algal and 5 cyanobacterial photobionts, the difference in lichen appearance between wet and dry specimens, the variation in types of isidia, the branching and measurement of *Usnea*, and spores of *Rinodina*.

The literature cited section directs readers to more detailed treatments of the taxa included; the fact that 76% of the sources were published since 1998, when *Lichens of North America* was first prepared, underlines how important it was that Brodo compiled this revised and expanded key, which is a superb resource for lichenologists of North America and beyond.

Natalie Howe, Edison, New Jersey, United States

DAVEY, S. with DAVEY, A. (2015): *The Lichens of Jersey*. – Société Jersiaise Jersey. xi + 195 Pages, Paperback. Available from The Société Jersiaise, <http://shop.societe-jersiaise.org> or through <http://www.tiliapublishinguk.co.uk>, ISBN 978-0-901897-58-9. Price £15 + postage.



The Lichens of Jersey is a significant, comprehensive and attractive contribution to our understanding of the lichens of this, the largest of the Channel Islands. The authors, Simon and Amanda Davey, provide us with accounts of its rich diversity, 560 recorded species, of which over one half are generously illustrated by the authors' colour photographs.

Resulting from their enthusiasm and frequent visits to the island, many jointly with Peter James, the authors have taken the opportunity of drawing on background and contextual information, and lichen collections, seldom made available in such a publication. This makes the book uniquely useful and of interest both to lichenologists seeking more than an up-to-date list of the lichen species of Jersey and also to a wider audience.

The book is skilfully organised into nine main chapters within which species accounts (Chapter 6) occupy half of the volume. It is the enhancement of supporting and background chapters which provides the special strength of the book: Chapter 1 (Introduction), Chapter 2 (History of Lichenology in Jersey), Chapter 3 (The Difficulties of Species Names over Time), Chapter 4 (Topography and Geology), Chapter 5 (Habitats), Chapter 7 (Jersey Lichen Herbaria). These chapters, together with a Glossary (Chapter 8) and Bibliography (Chapter 9) and sections devoted to Dedication, Acknowledgements, Foreword, and Indices (both general and to lichen species) make up the rest of the book.

Chapter 4 (four pages) alerts the reader to the diversity of habitats in Jersey, rich in coastal granites (see map on page 23), and to its affinity with the nearby French coast, as also is the case for other Channel Islands. The map shows the positions of the 48 sites visited superimposed on the underlying geology. Habitat descriptions in Chapter 5 (36 pages) include photographs and mention the influences of the geology of the island on the lichens. Selected corticolous, saxicolous (which includes churchyards, castles and forts) and terricolous (grassland) lichen communities in these habitats are discussed, accompanied by photographs and with lists of noteworthy lichens of described sites. Conservation status is given for corticolous communities as, for example, in St Catherine's Woods (see page 27) and mention is made in species accounts (Chapter 6) of nationally scarce Jersey lichens.

Charles Lorbalestier, the eminent 19th century lichenologist, is the main protagonist in the history of lichenology of the island (Chapters 2, 3 and 7). He was born and lived in Jersey and studied at Cambridge; the account given in this book includes his interaction with other prominent lichenologists of the day (eg William Nylander), reference to his collecting in Jersey, other Channel Islands and in Ireland and makes a valuable and enlightening read. Lorbalestier was part of an active network of Victorian lichen collectors who made bound exsiccati, exchanged and sold them and sent exsiccati to museums worldwide.

The book remains a summative account, the value of which should not be eclipsed by weaknesses that can be improved in any future edition. Inevitably, a few minor inconsistencies and typographical errors occur. In Chapter 6 photographs can be difficult to match with the relevant species accounts as the caption should include the species name, as well as (or instead of) the site. It would also be helpful to include magnification or scale for species photographed. Some images reproduced are disappointing, as for very dark lichens (e.g. *Verrucaria nigrescens*, page 157) which can be notoriously difficult, requiring adjustment in exposure and extra care in printing, to reveal detail. Most serious is the absence of keys to genera (and to species where applicable) or reference to diagnostic characters which reduces the usefulness of the book for identification purposes. An additional section or chapter could be included, rather than presume reliance on another publication to provide keys, as found in *The Lichen Flora of Great Britain and Ireland* edited by Smith et al. or in *Lichens an Illustrated Guide to the British and Irish Species* by Dobson (the omission of which in the Bibliography is regrettable).

The Lichens of Jersey is recommended to those interested in the lichens of this and other Channel Islands, both from contemporary and historical perspectives. This study should also appeal to the natural historian and ecologist, attracted by its broader scope. It is important to bear in mind that the lichen flora of Jersey, as so much of our coastline, is rapidly changing with resultant losses (reduced diversity) and impact on lichen communities. At the same time, more remote areas, such as inaccessible headlands and small islands, may provide reservoirs of relic species lost from elsewhere, a situation requiring monitoring. The information in this book, in addition to providing a current list of Jersey lichens, contributes to our knowledge of ecological change.

Ann Allen, Bideford, Devon

DIETRICH, M. & DANNER, E. (2014): Flechten. Faszinierende Vielfalt in der Bergwelt um Engelberg. Auf den Spuren von Pater Fintan Greter (1899–1984). (Naturforschende Gesellschaft Obwalden und Nidwalden NAGON Bd. 5) – Grafenort: NAGON, 239 pages, Hardback. ISBN 3-9521401-5-5. Price: CHF 40.

This nicely produced book, despite its title *Lichens. Fascinating diversity in the mountainous world around Engelberg. On the tracks of Father Fintan Greter (1899–1984)*, is mostly an introduction to lichens in general and therefore of much broader interest than its title may suggest. The book is the result of the revision of the lichen collections of Fintan Greter, a Benedictine monk from the monastery of Engelberg working for much of his life as a high school teacher of biology and other natural sciences. These collections are now housed in the



Natural History Museum of Lucerne in Switzerland (Natur-Museum Luzern) and have been determined or revised by the present authors. Fintan Greter only published his thesis on mosses during his lifetime, but had a strong interest in lichens as well, collecting more than 3000 specimens (> 500 species) from the area of Engelberg in central Switzerland. He was also a founding member of the Swiss Bryological and Lichenological Society (today *Bryolich*) and the organizer of its second meeting in Engelberg.

On 20 pages the tradition of natural history research and collections in the monasteries of Engelberg and Einsiedeln are explained. Short biographical notes of 10 botanists among the Benedictines of these two monasteries during the last 200 years are presented, followed by a short biography of Fintan

Greter. 18 pages are devoted to an introduction of the area studied by Greter: the upper Engelberg Valley south of Lucerne reaching altitudes of over 3000 m. The next 28 pages are a general introduction to lichens, their diversity, morphology and ecology. A further 40 pages cover the occurrences of lichens in the local habitats, and finally 96 species are portrayed with good colour photographs and descriptions. A glossary, a list of illustrated species and, most important from a scientific point of view, a complete list of all the c. 500 species collected by Greter together with notes on their occurrence in the Cantons of Obwalden, Nidwalden and Uri are provided.

Sadly the photographs lack scales which are especially important for beginners and non-lichenologists for whom the book is mainly intended. Nevertheless the book can be warmly recommended for everybody who require an introduction to lichens and lichenology of the Alps in general.

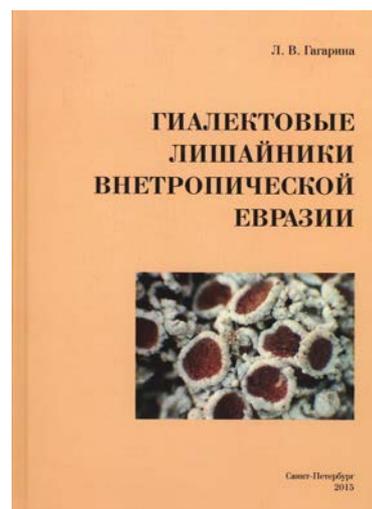
Peter Scholz, Schkeuditz

GAGARINA, L.V. (2015): Gyalectoid lichens (families *Gyalectaceae* Stizenb. and *Coenogoniaceae* (Fr.) Stizenb. in extratropical Eurasia [In Russian] – Nestor-Historia, Sankt-Petersburg. 240 pages ISBN 978-5-4469-0662-8. Price: unknown.

This comprehensive monograph arose from the author's dissertation on extratropical gyalectoid lichens. It starts with an in-depth overview on different past and present concepts of these lichens, followed by a detailed description of their morpho-anatomy, including SEM photographs showing the different types of ascomata and microstructures of the ascospore's surface. One interesting aspect is the inclusion of original b/w drawings describing the development of ascospores and the formation of septa in gyalectoid genera. Less coverage is provided on chemical characterization, ecological aspects and geographical distributions. The final chapter summarizes the current knowledge of molecular systematics in gyalectoid lichens. In addition to standard methods commonly used to identify lichen secondary metabolites (i.e. spot tests, TLC, HPTLC), the author has used a metabolomic method to characterize the whole set of metabolites. From five species representing three genera

(*Coenogonium*, *Gyalecta* and *Pachyphiale*), 573 substances were detected, 17% of which were identifiable as polyols, carbohydrates, amino acids, etc. Based on a statistical analysis of the range of substances it would appear that each genus has its own unique set of metabolites.

The major part of the book contains detailed descriptions and keys for 62 species of *Belonia*, *Cryptotechia*, *Gyalecta*, *Pachyphiale*, *Ramonia* and *Coenogonium*, three of which, *Gyalecta hokkaidica* Gagarina, *Pachyphiale filamentosa* G. Thor & Gagarina and *Ramonia elongata* Gagarina, are described, and 34 species are lectotypified. One species – *Gyalecta levuschensis* Vain. is synonymized with *Biatora sphaeroides* (Dicks.) Hornem.

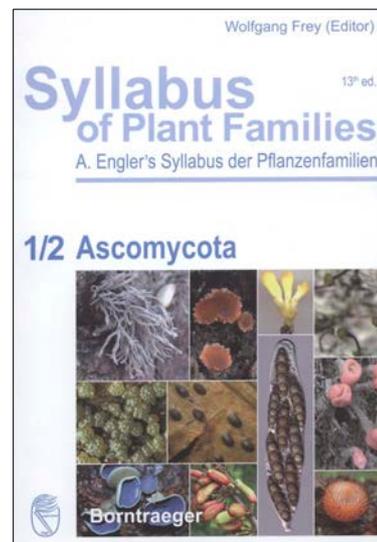


The book is richly illustrated by photographs and b/w drawings, some of which are original drawings of main characters (asci, ascospores, paraphyses). Three appendices are given, two of which are tables summarizing the main characters of extra-tropical gyalectoid lichens and their substrate preferences, and the third comprises distribution maps.

The Editor

JAKLITSCH, W., BARAL, H.-O., LÜCKING, R. & LUMBSCH, H.T. (2016): Ascomycota. – In: Frey, W. (ed.): Syllabus of Plant Families. Adolf Engler's Syllabus der Pflanzenfamilien 13th edition, Part 1/2. – Stuttgart: Gebr. Borntraeger, 322 pages, Hardback. ISBN 978-3-443-01089-8. Price: 119 EUR.

Some lichenologists may be surprised by a work which includes a volume on lichenized and non-lichenized Ascomycota in its 13th edition that they may not have heard much about before. However, so-called cryptogams have been included in this work for more than 100 years due to the famous botanist, Adolf Engler, Director of the Berlin Botanical Garden and Museum, who wrote a single volume himself which included all fungi (with lichens) on only 21 pages. It started in 1892 with a slightly different title and soon became a standard text with new editions every few years, the 6th edition appearing with minor alterations in 1909. The 7th edition in 1912 saw the inclusion of illustrations and therefore an extension of the fungal chapter to nearly 40 pages. Engler was supported by E. Gilg hereafter until the 11th edition in 1936 which was issued by Ludwig Diels as a single volume. Only the 12th edition, edited by H. Melchior & E. Werdermann in two volumes in 1954 and 1964, contained a special chapter (15 pages) on lichens by F. Mattick.



After a break of about 60 years a completely new edition of several volumes written in English by well-known international specialists and edited by W. Frey has appeared. From the former editions in German it follows the general concept, title and tradition of including the fungi as well as blue-green algae, myxomycetes etc.

The short introduction of 12 pages is followed by a synopsis of classification of the phylum Ascomycota on 14 pages. This continues with the systematic arrangement of taxa – the main corpus of the book. Here all accepted taxonomic entities to family level are described using morphological as well as molecular data. Taxonomic uncertainties are discussed and extended lists of references are separately given for every class. Accepted genera in every family are listed with an estimation of the number of species in brackets. This part is illustrated by 7 plates of line drawing taken from the 12th edition and 17 plates of c. 150 new colour photographs of high quality. The orders Thelocarcales Lücking & Lumbsch and Vezdeales Lumbsch & Lücking are proposed as taxonomic novelties.

The text of the introduction and the systematic arrangement is written by Thorsten Lumbsch and Robert Lücking with contributions by the other two authors. The lichenized Ascomycota are treated by Lumbsch and Lücking, whereas the non-lichenized Ascomycota are partly written by Walter Jaklitsch of Vienna or Hans-Otto Baral of Tübingen.

This is a standard reference work mandatory for every honest botanical library. For lichenologists the parts including lichen photo-symbionts may also be of interest. Photoautotrophic eukaryotic Algae have been published as volume 2/1 in 2015, blue-green Algae are included in volume 1/1 published in 2012, and Basidiomycota are still in preparation.

Peter Scholz, Schkeuditz

RANDLANE, T., SAAG, A., MARTIN, L., TIMDAL, E. & NIMIS, P. L. (2011): Epiphytic macrolichens of Estonia. – University of Tartu, Tartu. 326 Pages, Paperback. ISBN 978-9949-19-652-4. Price: 12–19 EUR.



The book provides an identification key, species descriptions, glossary, distribution maps, photographs and drawings for 120 epiphytic macrolichens found in Estonia. This is the first three-language (Estonian, English, Russian) richly illustrated lichenological book not only in the Baltics, but on a wider scale to encourage interested people to study epiphytic macrolichens.

The book starts with the identification key (with lichen characteristics in three languages) supplemented with pictures and drawings, making it easy to use. Although a page reference at the end of each species identification to its description is not given, the latter are fortunately presented in alphabetical order to aid locating them. The species descriptions provide key information on morphology, chemistry, distribution and ecology (in three languages), each species description is illustrated by a high quality macro-photograph, where typical lichen thallus structures are accentuated; drawings are added for some descriptions to elaborate particular characters. Each species is complemented by a

map to show its distribution in Estonia. A useful glossary in three languages defines the most important terms used in the book.

Those interested in this excellent book could be both students as well as experienced lichenologists interested in temperate region epiphytic macrolichens. The book has in user-friendly format, and is easy use in the laboratory and to take in a backpack for fieldwork. The identification key is also available in a digital form via the internet and smart-phone applications. The price of the paper printed version is very attractive.

Anna Mežaka, Rēzekne

VUST, M. (2015): Inventaire des lichens du canton de Genève. – Boissiera 69. – Genève: Editions des Conservatoire et Jardin botaniques, 144 pages, Paperback. ISBN 978-2-8277-0085-1. Price: 75–100 CHF.

http://www.ville-ge.ch/cjb/publications/publications_pdf/liste_publications.pdf

The inventory of the lichens in the Canton of Geneva (Switzerland) is part of a major project of lichen research in this area. Somewhat surprisingly the main list of accepted species is not included in this paper, but has been published previously in *Herzogia* (vol. 28 (1): 153–184) by M. Vust, P. Clerc, C. Habashi & J.-C. Mermilliod in English. The present French publication with an English abstract includes a general introduction to the project, the studied area and the history of lichen inventories in Geneva. Despite the recent detailed investigations there are two major sources of historical information on lichens in the area, the first on the notes and collections of Jean Müller (Müller Argoviensis), who published in 1862 a list of lichens in the vicinity of Geneva, but continued to make notes on their distribution over more than 30 years until the end of his life (1896), and the second on the more than 1200 unpublished collections of Jacques Rome (1831–1888) made during 1874–1887 and now part of the lichen herbarium of Geneva (G). The general results of the inventory are presented and discussed. The red list of the lichens of the Canton is also discussed, but not included; however, it can be downloaded from http://www.ville-ge.ch/cjb/publications/publications_pdf/LR_lichen.pdf.



A major part (50 pages) of the present publication is an overview of lichen communities “quite likely to exist in the Canton”, which includes 52 associations in 14 classes. Most of them are illustrated by photographs and their characteristics are discussed but no vegetation assessments have been given.

The publication concludes with two important appendices of the species listed by Jean Müller and of the unpublished collections of Jaques Rome, complete with localities, dates and accession numbers at G.

All those who have been involved in the inventory can be congratulated on the many detailed results assembled for a rather small Canton, especially the main investigator, Mathias Vust, but I would have preferred to see the results in a single volume instead of several publications.

Peter Scholz, Schkeuditz

New theses

Margrét Auður Sigurbjörnsdóttir (University of Iceland) defended her Ph.D. thesis *The lichen-associated microbiome: taxonomy and functional roles of lichen-associated bacteria* on March 7th, 2016

Aino Hämäläinen (University of Eastern Finland) defended her Ph. D. thesis *Retention forestry and intensified biomass harvest: epiphytic lichen assemblages under opposing ecological effects in pine-dominated boreal forests* on June 10th, 2016.

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