

# The Bryological Times

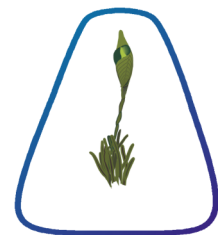
VOLUME 141

SEPTEMBER 2015

## Table of Contents

Bryophyte Conservation Group Report	pages 2, 16-20
BRYOQUEL; Passing of a Swiss Botanist	p. 3
Book Reviews	p. 4, 13, 21, 22
IAB Awards	p. 5
Early Land Plant News	p. 6, 10
Theses in Bryology,32	p. 7
Flag Ship Journal of IAB	p., 8
Item Number 59: Forensic Bryology	p. 8, 12
Bryonet; Henk Greven	p. 9
VII Southern Connections Congress in Chile	p. 11
Bryological Society of China	p. 13—14
Liverworts of Oregon	p. 15
Bryological Meeting in Spain	p. 20
IAB: 2015 World Conference	p. 23

**IAB**



## A glimpse of bryophyte conservation activities around the globe: Conservation reports from members of the IUCN Bryophyte Specialist Group

The Steering committee of the IUCN Bryophyte Specialist Group: Ariel Bergamini<sup>1</sup>, Irene Bisang<sup>2</sup> and Tomas Hallingbäck<sup>3</sup>

<sup>1</sup> Swiss Federal Research Institute WSL, Birmensdorf, Switzerland.

<sup>2</sup> Swedish Museum of Natural History, Stockholm Sweden.

<sup>3</sup> University of Agricultural Sciences, Uppsala, Sweden.

Financial support for conservation activities aimed at bryophytes is usually rather low in comparison to other, more popular organisms such as birds, butterflies or mammals. A general lack of knowledge of bryophytes by fellow conservationists and/or nature conservation authorities, possibly because there are hardly any flagship species among the bryophytes, may be responsible for this. Nevertheless lots of bryophyte conservation activities are initiated and undertaken by innovative and enthusiastic bryologists.

In the IUCN Bryophyte Specialist Group, BSG, we regularly collect (usually by the end of the year) accounts from members on what was going on in their country or region in the past year with respect to bryophyte conservation. It is always astonishing and encouraging to hear from all these activities which are taking place around the globe. We present here the reports of the members of the BSG which we received in January and February 2015. We are aware that there are further achievements for bryophyte conservation in countries which are not represented in the BSG. Our goal for the future is to present a more comprehensive picture of global bryophyte conservation. Nevertheless, we think that also our somewhat biased sample represented below gives a good insight into bryophyte conservation activities worldwide. We are truly amazed to read about all these activities!

**Australia** (by D. Meagher): The Threatened Bryophytes (Australia) Group (TBAG) has been established, after expressions of interest were sought in the Australasian Bryological Newsletter. The members

are Sapphire McMullan-Fisher, Perpetua Turner, David Cameron, Andi Cairns and David Meagher. The group will gradually publish a proposed list of threatened Australian bryophytes via the newsletter. Initially seven species have been proposed for listing as Extinct in Australia (and consequently globally) (Threatened Bryophytes Advisory Group 2015; Australasian Bryological Newsletter 65, p. 17--19). A large number of species have also been proposed as Least Concern (LC) in Australia and therefore of no further interest for conservation purposes.

**Japan** (by H. Akiyama): In Japan a number of Red Lists including bryophytes have been published in the period 2011-2014. All of them are in Japanese. There is one national list, which is the 4<sup>th</sup> Red List of Japan and was published by the Ministry of the Environment in 2012 (<http://www.env.go.jp/press/files/jp/9948.pdf>; pp. 3-6). Moreover, 22 prefectures have published new Red Lists during this period. For details, please contact Dr Hiroyuki Akiyama ([akiyama@hitohaku.jp](mailto:akiyama@hitohaku.jp)).

**Kenya** (by I. Malombe): Together with colleagues, we got the first records of bryophytes from Koobi Fora in Northern Kenya around Lake Turkana, which is famous for archaeological discoveries and indeed the 'cradle of humankind'. One of the interesting species is a new record of *Didymodon*. As well, we had *ad hoc* collections from the coastal forests of Kenya, which had several new

## BRYOQUEL—the Bryophyte Database of Quebec-Labrador

The Quebec Bryological Society (SQB - Société québécoise de bryologie) is announcing BRYOQUEL, a new online database. The main objective of BRYOQUEL, the Bryophyte Database of Quebec-Labrador, is to make publicly available the information documenting the presence, distribution, bibliographic references and status of bryophytes reported from the territory of Quebec-Labrador. BRYOQUEL is initially launched as downloadable [spreadsheet and PDF] files posted on the SQB web site, and updated as needed. BRYOQUEL will soon be integrated in the CANADENSYS network.

***BRYOQUEL is a work in progress. New information and new features will be added over time as they become available.***

See : <http://societequebecoisedebryologie.org/Bryoquel.html>

A PDF in english is available to introduce the database :

[http://societequebecoisedebryologie.org/bryoquel\\_docs/Presentation\\_BRYOQUEL\\_eng.pdf](http://societequebecoisedebryologie.org/bryoquel_docs/Presentation_BRYOQUEL_eng.pdf)

The lists already available should be helpful to authors working on the BFNA project.

-----  
In a parallel effort to BRYOQUEL, the Quebec Bryological Society is undertaking to make available on its website photo of bryophytes from Québec-Labrador. Again this is a new undertaking and it is hoped that, gradually, we will be able to present as many as possible of the taxa occurring in this territory.

See : <http://societequebecoisedebryologie.org/Photos.html>

Participations are welcome.



## Passing of a Swiss Botanist

Hans Hürlimann, Swiss botanist and leading specialist on the liverwort flora of the South Pacific region, died on 1 October 2014 at the age of 93. Obituaries will appear in *Meylania* and in *Cryptogamie*, *Bryologie*

## SUPERBLY ILLUSTRATED FLORA OF AFRICAN LIVERWORTS AND HORNWORTS

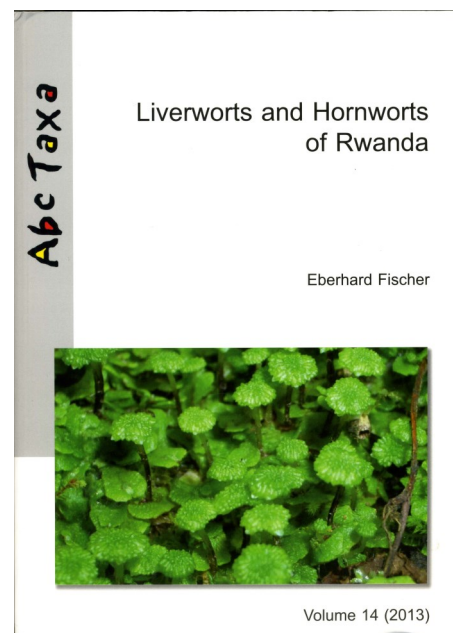
**Eberhard Fischer (2013) Liverworts and Hornworts of Rwanda. *Abc Taxa* vol. 14, 552 pages, 446 color plates, ISSN 1784-1283 (hard copy), 1784-1291 (online pdf). To be downloaded for free at <http://www.abctaxa.be/volumes> or to be ordered as hard copy book from [abctaxa\\_orders@naturalsciences.be](mailto:abctaxa_orders@naturalsciences.be) (ca. 35 € excl. postage). Bryologists in developing countries may obtain a free copy of the book by writing to the above email address.**

Tropical East Africa, including Rwanda, is probably the most varied region of the African continent. It includes many climate belts and vegetation types such as savanna woodlands, everywet mountain forests, afroalpine grasslands etc. and has a rich bryoflora. In spite of this richness, there is a serious lack of identification manuals for the bryophytes of East Africa. Chua-Petiot's *Mosses, Liverworts & Hornworts of Kenya* treats only the most conspicuous taxa and E.W. Jones's excellent *Liverwort and Hornwort Flora of West Africa* is by its scope of limited use for East Africa.

Eberhard Fischer's book is the first complete identification manual for the species of liverworts and hornworts of a country of East Africa. It is the fruit of the author's extensive collecting in Rwanda over a period of more than 30 years. Rwanda is a mountainous country, lying above 1000 m and reaching its highest elevation on Mt. Karisimbi (4507 m) in the Virunga Volcanoes, famous for its popula-

tion of the mountain gorilla. The best habitats for bryophytes are the humid mountain forests in the western part of Rwanda, and this is where most of the species occur. In total, 262 species of liverworts and hornworts were recorded in the country or only slightly fewer than in the whole of West Africa, which covers an area more than one hundred times larger!

The book begins with a brief history of bryological exploration. Follow-



ing this are very useful sections on the vegetation of Rwanda and bryophyte habitats, phytogeography, classification, collecting techniques and an overview of the morphological characters of liverworts and hornworts. These chapters are followed by artificial keys to main groups, to families and genera, and to species within genera. In addition, keys to genera are provided for families with 2 or more genera. The keys are followed by color plates and brief descriptions of all the spe-

cies, which are treated in alphabetical order.

In general, the keys in the book work well; the couplets are comparative and give clear features. One might perhaps question use of the terms "inflorescence" (Lejeuneaceae, p. 72) and "lobule" for the large ventral leaf lobe of Scapaniaceae and Schistochilaceae. Distinguishing the latter two families by leaves dentate vs. entire might not serve to separate the species in these groups. And couplet 32 in the key to families and genera of Jungermanniopsida does not separate *Gongylanthus* from *Lethocolea*, both of which have a band of elongate leaf cells and reduced perianths. Families with only one genus are only mentioned in the family key and not elsewhere, hence are searched for in vain in the book. It would have been better in these cases to mention only the genus name in the key and omit the family name, as for *Notoscyphus* (p. 73). An unfortunate omission is a glossary of morphological terms, which would have helped beginners to work their way through the keys.

Undoubtedly the most captivating feature of this book are the numerous color photographs, showing the habit and microscopic features of the species in great detail. Also the vegetation and morphology chapters are beautifully illustrated by color pictures. No less than 464 color plates are included in this book, each plate usually made up of

# IAB AWARD ANNOUNCEMENTS

## The Spruce Award 2015

The council of IAB congratulates Lars Hedenäs for winning the Spruce Award 2015, given for outstanding contributions to bryological research.

Lars Hedenäs, senior curator at the Swedish Museum of Natural History, is one of the world's leading muscologists. His scientific publications (> 100) span a period of about 25 years and are truly outstanding. Lars is a specialist of pleurocarpous mosses and has published on numerous different aspects of this group, including classical taxonomy and nomenclature, molecular phylogeny, population genetics, reproductive biology, morphological adaptation, biogeography and ecology. Probably the most impressive aspects of his research are the broad and innovative approach to the study of bryophytes. His work, often done in cooperation with others worldwide, stands as a model for the younger generation how to do bryological research. Among favourite papers of him, it will be necessary to mention his excellent monograph of Amblystegiaceae in Flora Neotropica and his recent paper in *Taxon* (in collaboration with a large team of bryologists) on *Homalothecium sericeum*: "Three species for the price of one within the moss *Homalothecium sericeum*" (*Taxon* 63: 249-257. 2014). The latter paper impressively demonstrates how to study of the so-called "cryptic species" that are increasingly being reported in bryophytes, by using detailed morphological and genetic analyses. These are just two examples; many more titles could be added. Congratulations to Lars Hedenäs for his splendid and major contributions to bryology in the first 25 years of his career. In the IAB he has been very active as a council member, an editor of *The Bryological Times* and a member of the bryophyte conservation group. It could be hardly think of a candidate more suitable for the Spruce award than Lars!

## The Riclef Grolle Award for Excellence in Bryodiversity Research 2015

The council of IAB congratulates Rui-Liang Zhu for winning the Riclef Grolle Award for Excellence in Bryodiversity Research 2015.

Rui-Liang Zhu, curator at the Biological History Museum (HSNU), and Director of the Department of Plant Sciences, East China Normal University, is one of the world's leading liverwort experts. His expertise on the morphological evolution, diversity, taxonomy and systematics of liverworts is vast. He is especially recognized as a worldwide authority on the enigmatic leafy liverwort family Lejeuneaceae, which represents



the largest liverwort family. During the last two decades he has published over 170 scientific publications, including the beautiful monograph of Lopholejeunea (Spruce) Schiffn. (Lejeuneaceae).

Besides his scientific love for bryophytes he is also engaged in securing bryophyte resources in threatened habitats and promotes bryology as president of the Bryological Society of China as well as vice-president of IAB. In addition, he serves the bryological community as associate editor of various scientific journals such as *Cryptogamie Bryologie* as well as the flagship journal of IAB, *Bryophyte Diversity and Evolution*.

## The Hattori Prize

The Committee for the Hattori Prize unanimously selected the book: *Liverworts and Hornworts of Rwanda* by E. Fischer. *ABC Taxa* vol. 14. 552 pp. (2013) as the best bryological publication for the years 2013/2014.

The book treats 262 taxa, it has a key to these taxa, color photos of habit and microscopic details of the plants. It is available to the public on the Web, and will be useful not only for Rwanda and surrounding countries but for most African and tropical countries. It is a remarkable effort by one author in a country torn by wars and hence difficult to do scientific work. It is a very meritorious effort and scientific contribution to bryology.

We congratulate Eberhard Fischer for winning the IAB Hattori Prize 2015

## Stanley W. Greene Award 2014

On behalf of the committee we are pleased to announce two awards were made for the Stanley W. Greene Award. All the proposals were of extremely high quality. It was extraordinarily difficult to arrive at a decision given the high quality of the proposals. The committee was genuinely very impressed with the high level of excellence. Please join us in congratulating the two recipients, Jorge Enrique Gil Novoa and Chua Mung Seng. Jorge is a Master's student in the Biological Sciences at Universidad Pedagógica y Tecnológica de Colombia. Jorge's project will investigate the bryophyte composition of the páramos of Tota-Bijagual-Mamapacha (Boyacá-Colombia). Páramo-like formations occur on high isolated peaks and ranges and are unique habitats in the Neotropics. Chua Mung Seng is a PhD student at Fairy Lake Botanical Garden, Shenzhen, China. Chua's interesting research investigates the bryophyte diversity, ecology, and conservation of karst regions between southwestern China and east Malaysia. The 2014 Stanley W. Greene committee included Matt von Konrat, Denise Costa and Dietmar Quandt.



## Early Land Plant News

submitted by Matt von Konrat

### Back from extinction: The rediscovery of mosses from the Neotropics

During the first two weeks of June, 2015, Dr. Bill Buck (Curator, New York Botanical Gardens) and MSc student Jorge Gil (Colombia) joined Matt von Konrat (Head of Botanical Collections, McCarter Collections Manager, Bryophytes & Pteridophytes) and Juan Larraín (Post doctoral scientist) to help with the determination of uncatalogued Neotropical moss collections, mostly from Bolivia. Former



Field Museum Research Associate Marko Lewis made the collections during the late 1970's and early 1980's. Specimens were collected for the most part in remote areas rarely visited by collectors and are provided with extensive habitat data. In view of rapid the disappearance of tropical ecosystems, this collection represents an irreplaceable resource. The Lewis collection held at the Field Museum exceeds the 18,000 specimens, and an important progress was made

during the first two weeks where over 1,500 collections were identified at the species level. Dozens of new records for Bolivia, some for Perú, as well as a few putative new species were identified among the collections. One species known only from the type specimen and believed to be currently extinct (*Flabellidium spinosum* Herzog) twice among the collections, from localities different than the original collection. This is an on-going project sponsored by the Negaunee Foundation and was also an opportunity to share his expertise and provide valuable training to Jorge and Juan, among our many new bryologists. This is enabling the a valuable collection that will increase with data available through the Museum's accessible collection database as well as the distribution of numerous duplicate material to herbaria around the world. If a duplicate set could be valuable for your herbarium or research please feel free to contact Matt directly.



was found ties different going project Negaunee for Bill Buck ble training next genera-unlocking of accessibility web accessibility world. Matt

### Critical Curation for a Critical Collection

In May, 2015, Matt von Konrat (Head of Botanical Collections, McCarter Collections Manager, Bryophytes & Pteridophytes) was awarded a grant from the National Science Foundation to support the project entitled 'Critical Curation for a Critical Collection: The Schuster Herbarium at The Field Museum'. The principal objective is to curate the recently acquired private herbarium. In 2013, the Museum acquired 35,000 liverwort specimens from the private herbarium of one of the most preeminent

## THESES IN BRYOLOGY 32

William R. Buck

Institute of Systematic Botany

New York Botanical Garden

Bronx, NY 10458-5126, U.S.A.

bbuck@nybg.org

As reported in a previous issue of *The Bryological Times* (99: 17, 1999), the International Association of Bryologists has decided to begin a repository of bryological theses.

These theses are being housed in the Library of The New York Botanical Garden. They are available via interlibrary loan. The NYBG Library online catalog (CATALPA) may be viewed at: <http://opac.nybg.org/screens/opacmenu.html>. As theses arrive, bibliographic data and a brief synopsis will be published in this column (see examples below). Bryological theses for any degree, covering any aspect of bryology, in any language, will be included. Please send theses to Bill Buck at the address above. Please refer to the preliminary notice (cited above) for information on financial assistance from IAB for reproduction of theses. The current IAB Treasurer is Matt von Konrat ([iab@fieldmuseum.org](mailto:iab@fieldmuseum.org) or [mvonkonrat@fieldmuseum.org](mailto:mvonkonrat@fieldmuseum.org)).

Amiri, Ali Asghar. 2011. Floristic and biosystematics study of bryophyte flora of Minoodasht (Golestan). M.S. thesis, Tarbiat Modares University, Tehran, Iran. 177 pp. In Persian with English summary. Address of author: Department of Biology, Tarbiat Modares University, Jalal Ale Ahmad Highway, Tehran, Iran. E-mail: [aliasghamiri@yahoo.com](mailto:aliasghamiri@yahoo.com).

This master's thesis examined the bryophyte flora of Minoodasht in Golestan Province, northern Iran, near the Turkmenistan border. A total of 55 species were found in 45 genera and 32 families. Of these, 12 species, 12 genera and 6 families are new to the province. Six species (*Aneura pinguis*, *Chiloscyphus polyanthus*, *Aulacomnium palustre*, *Microbryum floerkeanum*, *Sanionia orthothecioides* and *Sphagnum girgensohnii*) are new to Iran. All taxa are keyed, described and illustrated.

Monforte López, Laura. 2014. Ultraviolet-absorbing compounds in bryophytes: phylogeny, ecology and biomonitorization. Ph.D. thesis, Universidad de La Rioja, Departamento de Agricultura y Alimentación, La Rioja, Spain. [v] 195 pp. In English. Address of author : unknown.

Liverworts and mosses differ in the levels and compartmentation of UV-absorbing compounds (UVACs). In general, hepatics had higher levels of the soluble fraction in vacuoles and lower levels of the insoluble fraction in cell walls than mosses, and vice-versa. Assuming that cell wall-bound compounds are more efficient UV screens than vacuolar compounds, the higher amount of cell wall-bound

UVACs in mosses than in liverworts would have allowed mosses to be more competitive in sunny UV-rich environments. This difference represents additional evidence of the phylogenetic distance between the two groups. Thus, UVAC compartmentation represents a new ecophysiological trait that could be evolutionarily important in the colonization of new UV-rich environments after the conquest of land by plants. UVAC compartmentation may help differentiate the main evolutionary lineages in mosses (acrocarps vs. pleurocarps), as well as *Sphagnum*, but still does not differentiate the main evolutionary lineages of hepatics. Pleurocarpous mosses constituted the most homogeneous phylogenetic group in regard to UVAC levels and compartmentation. *Jungermannia exsertifolia* ssp. *cordifolia* is used as a sample organism. Overall, UVACs of herbarium samples of the *Jungermannia* have demonstrated a wide variety of relationships with UV radiation in the temporal and spatial scales. This is in line with the fact that UVACs of fresh samples of *J. cordifolia* also respond consistently to UV radiation both temporally and spatially. They, the species is a good biomonitor of changes in past and present UV levels.

Rosengren, Frida. 2015. Genetic variation and sexual reproduction in a moss with dwarf males, *Homalothecium lutescens*. Doctoral thesis, Lund University, Lund, Sweden. 141 pp. In English with Swedish summary. Address of author: Mölllevägen 7, 247 54 Dalby, Sweden. E-mail: [rosengrenfrida@gmail.com](mailto:rosengrenfrida@gmail.com).

Among land plants, dwarf males are unique to mosses. They originate from male spores that land and germinate on the female where their final size is restricted to a few millimeters. Having the males growing as tiny epiphytes on the females facilitates fertilization, as the male and female sex organs are positioned more closely together. In this study, dispersal and establishment of dwarf males and female shoots within populations of a moss with dwarf males, *Homalothecium lutescens*, are studied. Also investigated was regulation of spore germination on the female shoots, and the population genetic variation and structure as well as gene flow and levels of inbreeding in populations with high abundance of dwarf males. The results confirm that the presence of dwarf males increase the level of fertilization. Dwarf males are often more closely related to their host shoot, indicating that spores are mostly dispersed locally. Therefore, it was shown that inbreeding levels were generally high. However, polyandry together with sporadic fertilization by dwarf males of non-host females appears to maintain relatively high levels of genetic variation. No mechanisms that prevent or limit inbreeding could be found. Females and dwarf males appear to follow two different recruitment models: female shoots follow a repeated recruitment model where new females are rarely but continuously recruited from spores; dwarf males follow a metapopulation or source-sink dynamic. It was shown that dwarf male spores from *Isoetecium alopecuroides* would not germinate on female plants of *H. lutescens*. In contrast, male spores from *H. sericeum* were able to develop into fertile dwarf males on female shoots of *H. lutescens*, which suggests a previously unexplored hybridization pathway between closely related species.

## Bryophyte Diversity and Evolution the new Flag Ship Journal of IAB

In 2013 Tropical Bryology celebrated its 25th anniversary with volume 35. At the same time volume 35 sets the stage for a new area of the journal. As agreed by the IAB council at the London 2013 meeting - after long and thoughtful discussions that followed earlier discussions in Kuala Lumpur (2007) and Melbourne (2011) - Tropical Bryology moved under the roof of the International Association of Bryologists (IAB). In order to meet the standards of an official association journal its content was broadened to cover all aspects of bryological research and the editorial board was considerably expanded. Please visit [www.mapress.com/bde/editor.htm](http://www.mapress.com/bde/editor.htm) for a full list of editors. With the journal now serving as the societal publication of IAB required a new journal title reflecting the broader scope, and the title "*Bryophyte Diversity and Evolution*" ([bryodiv.org](http://bryodiv.org)) was adopted. BDE is hosted by an international well-known publisher: Magnolia Press. Most of you will know Magnolia Press as publisher of *Phytotaxa* and we hope you will share our excitement with this exciting development. The online platform is now open at [www.mapress.com/bde/](http://www.mapress.com/bde/). With a professional publisher such as Magnolia Press turnaround times of manuscripts will improve, all publications will be equipped with DOI numbers, including the back issues of Tropical Bryology, and from our experience with *Phytotaxa* it is foreseeable that the journal will be listed in the Science Citation Index in due time. As a member of IAB you have the benefit of free access to the online resources of the journal and no publication costs are charged. Therefore, we also encourage you and your students to join the International Association of Bryologists ([www.bryology.org](http://www.bryology.org)) and share your thoughts and ideas with researchers around the globe. The success of the journal depends foremost on the quality of the submission and we invited you to send in for consideration the results of your innovative and stimulating research, and thereby contribute to the establishment of a reference journal in bryological research. For further information on the submission process please visit [www.mapress.com/bde/author.htm](http://www.mapress.com/bde/author.htm).

We are looking forward to the wealth of your contributions.

Dietmar Quandt (Editor-in-Chief)

Bernard Goffinet (President of IAB)

Mat von Konrat (Treasurer of IAB)

### Item Number 59: Forensic Bryology

by Matt von Konrat

Cook County (Illinois, U.S.A) prosecutors achieved two convictions in the Burr Oak cemetery case on February 11, thanks in part to the expertise of some Chicago scientists. The widely-publicized case, which first broke in 2009, revolved around cemetery workers relocating remains and reselling graves at the historic African-American cemetery in Alsip, Illinois (final resting place of Emmett Till, Dinah Washington, and Willie Dixon, among many other notables). One defendant pled guilty in 2011 and was sentenced to a 12-year term. A fourth person

remains to be tried.

Investigators called in Anthropologist Anne Grauer of Loyola University (also a Research Associate of The Field Museum), who has long experience assisting law enforcement with forensic analysis of human remains. Anne and a team of students assisted investigators in analyzing the relocated remains, which had been dumped in the back of the cemetery. They concluded that the bones were relocated through human intervention rather than from natural processes.



## Bryonet will not switch to Google Groups

Janice Glime surveyed folks to see if it would be a good idea to change Bryonet's listserv to Google Groups. Raised questions and responses were very helpful. Of particular concern was whether the list would be blocked in some countries. She learned that the blockage was indeed true. So, it was decided it was not a good idea to move Bryonet to Google Groups.

This leaves us with one continuing problem. Our current listserv software does not notify Janice or flag addresses that are not working. So she needs your help. If your email address changes, please notify her so she can change it. Even if your mail is automatically forward-

ed, she would prefer to have the new address because the list will not recognize your new address.

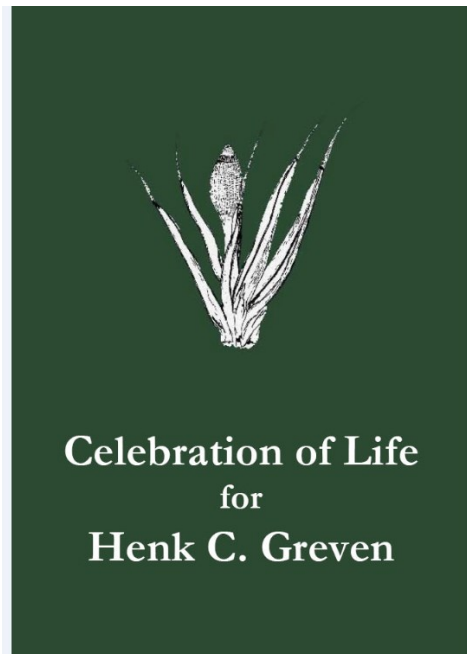
Thank you for all your help!



## Henk Greven, passed away

by Laurens Sparrius

On January 5, Dutch *Grimmia* specialist Henk Greven passed away at the age of 77, shortly after the diagnosis of cancer. Since the 1980's, Henk helped lots of amateur bryologists and revised all Grimmiaceae collections in the Netherlands. Most of Henk's work on *Grimmia* can be read on [www.grimmiasoftheworld.com](http://www.grimmiasoftheworld.com). Henk was honored with the species *Grimmia grevenii* by C. Feng, X.L. Bai & J. Kou (2014). He was quite a remarkable man. The ceremony on Saturday was held in a theatre and included champagne, a live performance of Shakira's *Underneath your clothes* and a hash joint being put in the coffin. His memoirs will be published later this year.



*I wasn't born to follow*  
- The Byrds -

Op maandag 5 januari 2015 overleed zacht en weloverwogen,  
thuis in Doorn, mijn lieve man, onze vader en grootvader

**Henk Greven**  
bryoloog

20 december 1936  
Steenwijk

5 januari 2015  
Doorn

Echtgenoot van Shirley Nirmala Khoebal

Haarlem    Stefan Greven & Tamarah van Rijn  
              Lieve  
Utrecht    Harmen Greven  
Berlijn    Jos Khoebal & Manuela Schaffron  
              Levi  
              Mala

Op zaterdag 10 januari 2015 om 11.00 houden wij voor Henk  
een afscheidsbijeenkomst in het Beauforthuis te Austerlitz.

Adres: Woudenbergseweg 70, 3711AB (tussen Doorn en Zeist).  
Welkom vanaf 10.30 uur.

Wij stellen je aanwezigheid op prijs.  
Liever geen bloemen, wel graag een mos of mooie tak.

**Correspondentieadres**  
Koninginneweg 2  
3941DP Doorn  
+31 (0)2843-421549  
shirley@shukho.nl

*Grimmia mauriensis* H.C. Greven capsule bearing plant

## Early Land Plant continued p. 6

botanists of the 20th century. This recent acquisition makes The Field Museum liverwort collection, of over 220,000 specimens, the largest collection in the US and among the top four in the world. The recently acquired liverwort collection is in critical need of curation because of its poor condition. There is vital type material, used to describe and name new species, requiring urgent attention. This project will ensure the preservation of this collection as a national resource for future generations. The project also engages teens in understanding the role collections play in furthering scientific discovery. Families, students, and the general public can also participate as Citizen Scientists and help discover biodiversity by visiting <http://microplants.fieldmuseum.org>. The project has strong training, outreach and educational components that will improve science instruction and student learning, leveraging museum re-

sources. This is in collaboration with the Learning Center, many colleges and universities as well as leaders in online Citizen Science, Zooniverse.



## 2017 IBC and IAB: Mark Your Calendar

In 2017 IAB will meet with other societies at the International Botanical Congress in Shenzhen, China.

We are invited to propose a plenary speaker, two keynote speakers and four symposia.



### Where is Neil Bell?

Neil Bell has been working as research bryologist at Royal Botanical Garden Edinburgh. You can reach him at:

Dr Neil Bell  
Research Scientist (Bryology)  
Royal Botanic Garden Edinburgh

20A Inverleith Row  
Edinburgh, EH3 5LR

Tel +44 (0)131 248 2861  
[n.bell@rbge.org.uk](mailto:n.bell@rbge.org.uk)

## VII Southern Connections Congress in Chile

VIII Southern Connections Congress January 18<sup>th</sup> - 23<sup>rd</sup> 2016

Punta Arenas, Chile

**Symposium: Phylogeography & Ecology of Bryophytes in the Southern Hemisphere**

Bryophytes are one of the most important components of high latitude floras in terms of diversity, abundance, and ecological function playing key roles in primary succession, water retention, terrestrial carbon sequestration, and nutrient cycling. At high latitudes bryophytes contribute disproportionately to regional biodiversity, with the Antarctic flora composed almost entirely of bryophytes, and the southernmost tip of the Americas hosting 5% of the world bryophyte diversity on just 0.01% of the earth's terrestrial surface. Over the last decade, molecular tools have dramatically shifted paradigms of bryophyte evolution, ecology, and biogeography both globally and in the Southern Hemisphere. Here we bring together cutting edge research on bryophyte phylogeography and ecology in order to highlight the key processes driving diversification, richness, and biogeography of bryophytes across ecosystems and timescales in the Southern Hemisphere.

If you are interested in presenting within, or have questions regarding the symposium please contact the organizers:


### Symposium Organizers

Elise Biersma (Cambridge University & British Antarctic Survey, UK, [elibi@bas.ac.uk](mailto:elibi@bas.ac.uk))

Dr. Lily R. Lewis (University of Connecticut, USA, [lilyrlewis@gmail.com](mailto:lilyrlewis@gmail.com))

**Congress Website & Registration:** <http://southernconnection2016.com/congress/>

Symposium:  
**Phylogeography and Ecology of Bryophytes  
in the Southern Hemisphere**



**VIII SOUTHERN CONNECTION  
CONGRESS 2016**  
January 18 - 23th / Punta Arenas, Chile  
<http://southernconnection2016.com/congress/>

Organizers:  
Elise Biersma, Cambridge University and British Antarctic Survey, UK ([elibi@bas.ac.uk](mailto:elibi@bas.ac.uk))  
Lily R Lewis, University of Connecticut, USA ([LilyRLewis@gmail.com](mailto:LilyRLewis@gmail.com))

## Item Number 59: Forensic Bryology (continued from p.10)

During their work at the site, Anne’s team found some moss co-mingled with human remains and grave debris. The moss was found buried approximately 8 inches below the top of a raised mound of soil—which was determined to be a man-made “feature.” The moss proved to be critical to confirming the move of the remains, as well as narrowing down a timeline for the crime.

To analyze the moss, the Federal Bureau of Investigation, the Cook County District Attorneys Office and the Cook County Sheriff’s Office contacted The Field Museum’s Matt von Konrat, Head of Botanical Collections. Matt was able to determine that this particular moss species, *Fissidens taxifolius*, was not growing at the location where it was recovered, but was abundant in other areas of the cemetery. Thus indicating that this particular specimen—aka “Item No. 59”—was transported with the remains when they were moved from the graves to the dumping spot. This was an international collaborative effort as Matt reached out to worldwide experts of the genus *Fissidens*, including Dr. Jessica Beever (Landcare Research, New Zealand), Dr. Ida Bruggeman Nannenga (Utrecht University, The Netherlands), and the late Dr. Ronald Pursell (Pennsylvania State University, U.S.A).

The next step was determining when the moss (and thus the remains) had been moved. Matt collaborated with plant physiologist, Associate Prof. Lloyd Stark at the University of Nevada, who performed experiments to test the viability and photosynthetic efficiency of Item No. 59. They compared the crime scene sample with freshly collected moss and a specimen in the Field’s herbarium. The control specimen was also from Cook County, collected in 1995—dead material, with no metabolic activity. Matt complemented this information with climate data from the Cook County area and also sought expertise from soil specialists, plant physiologists, other bryologists, and the National Snow and Ice Data Center. The green condition of the crime scene sample as compared to the 1995 sample, along with the climate data, led Matt, Lloyd and their colleagues to conclude that the moss was transported to the dumping spot between six months and two years from its discovery. This was especially important for prosecutors because the defense initially claimed, among other things, that the relocation of the human remains and gravesites had occurred five or more years earlier, before the defendants worked at the cemetery. The moss indicated otherwise.



While it is somewhat routine for physical anthropologists to assist with crime scene investigations (this was by no means Anne's first CSI consult), your average bryologist rarely gets a call for help from a prosecuting attorney (although Matt also helped police in Michigan in a kidnapping-homicide case in 2013—but that’s another story). The key role Matt and his colleagues played in this case underscores society’s need for nitty-gritty science expertise. Who would have ever guessed that really, really knowing your mosses could make such a difference in winning or losing a criminal case? At The Field Museum, visitors often ask (when touring our 27-million-fold collections) “why do you keep all this stuff?” The Burr Oak Case provides a great example of why. Having the right evidence on hand, and the right scientist to explain it, can answer questions we can’t even imagine.



## **SUPERBLY ILLUSTRATED FLORA (CONTINUED FROM P. 4)**

several photographs. Most of the photographs were taken from freshly collected material, only occasionally from wetted herbarium material.

This book is a fantastic and indispensable tool for the identification of East African liverworts. The lavish illustration of the species by color photographs adds immensely to the usefulness of the book. I would like to end with citing Martin Wigginton and Tamás Pócs from their text on the back cover of the book: "An immense amount of work has gone into this guide, and the author is to be congratulated for drawing together such a wealth of information into an attractive and useful book. It is a significant milestone in the study of African bryology and will prove to be an invaluable aid in the identification of liverworts and hornworts of Rwanda and surrounding countries, and essential reading for amateur naturalists, students and professional bryologists alike."

S. Robbert Gradstein

## **2014 National Symposium of the Bryological Society of China (BSC)**

by Lei Shu, Dong-Ping Zhao & Rui-Liang Zhu

The National Symposium of the Bryological Society of China (BSC) was held in the Inner Mongolia University, Hohhot, China on 1-5 August 2014. More than 130 participants from 33 universities and institutes in China attended the symposium.

2014年全国苔藓植物学学术研讨会合影 2014.8.2·呼和浩特



Group photo

*The symposium received 58 abstracts. A total of 40 participants were invited to present their research findings. In closing ceremony Prof. Rui-Liang Zhu, the president of BSC, announced the winners of the Best Postgraduate Presentation Award.*





Prof. Rui-Liang Zhu and Tong Cao as well as three winners of the Best Postgraduate Presentation Award (Left to right R.-L.Zhu, X. Wang, L. Shu, M.-J. Zhang, T. Cao)



Field collection in Erlongshitai National Forest Park.

After the symposium participants visited Erlongshitai National Forest Park, Inner Mongolia. All participants would like to thank the local organizer, Prof. Xue-Liang Bai and his group, for nice organization of the conference and fieldtrips.

The contents of the abstracts of the National Symposium is available at <http://biolab.ecnu.edu.cn/labs/moss/>

## Wagner: Guide to the Liverworts of Oregon

Wagner, David H. 2014. *Guide to the Liverworts of Oregon*. Northwest Botanical Institute, Eugene, Oregon, U.S.A. (fernzenmosses.com). E-book, HTML document, 593.8 megabytes on disk, 860+ illustrations, mostly color photomicrographs. ISBN 978-0-9906193-0-7. \$50 for initial purchase, \$10 for upgrade at any time. Introduction with instructions for navigating using web browser, illustrated dichotomous keys to 170 species, shortcuts to distinctive species, individual species pages, illustrated glossary, literature references, genus index, species index, classification overview with illustrated exemplars. The book may be ordered online at <[http://fernzenmosses.com/?page\\_id=33](http://fernzenmosses.com/?page_id=33)>

The primary aim of the Guide is to provide dichotomous keys for identifying the species of liverworts growing naturally in the state of Oregon, U.S.A. The signal feature of the Guide is the use of photographic images which illustrate the critical features defining the contrasting characters delineated in the leads of each couplet. Photomicrographs have been emphasized over habit photos.

The keys are based on earlier text manuscripts which were revised and formatted into a web document. The general key to genera was first published in Evansia (Wagner 1984) and an illustrated key to genera appeared in the *Guide for the Identification of Rare, Threatened or Sensitive Bryophytes in the Range of the Northern Spotted Owl, Western Washington, Western Oregon, and Northwestern California* (Christy and Wagner 1996). Conversion to digital format began around 2000, making it possible to replace the line drawings with color photomicrographs. Accurate depiction of oil body data was the main motivation for this conversion.

Retaining the traditional algorithm of dichotomous keys was a conscious decision. Anybody who has used dichotomous keys will find these keys easy to use. The web format reduces errors that are common when following a thread—making a series of choices—through long keys.

An electronic, HTML version of a dichotomous key has significant advantages over a printed key. The web format assures that a user is always taken to the proper destination based on the choice of lead in a couplet. There is only one couplet per page. It allows step by step back tracking through the key, instant return to the beginning, thumbnail hot links to images, and rapid navigation to indices, shortcuts, and glossary. The structure of the work makes it an excellent learning tool as well as a way to identify liverworts.

The Guide also includes species pages with synonyms and a summary of the distribution and abundance of each species, usually with recognition hints and several additional

illustrations. Western Oregon is covered much more thoroughly than the eastern part of the state. With over 860 images, mostly color photomicrographs illustrating 170 species, the Guide will be useful throughout the Pacific Northwest bioregion.

The style of this work has been developed with the intermediate to advanced student in mind. It is assumed that the user of this work has prior training in general botany but perhaps is not well versed in bryological lore. All technical terms used in the key are defined in the illustrated glossary.

Neither a textbook nor a manual, the Guide is intended to work as a companion to the California liverwort keys by Doyle and Stotler (2006), *Field Guide to Liverwort Genera of Pacific North America* (Schofield 2002), and the upcoming volume on liverworts in the Flora of North America (Vol. 29, scheduled to come out in 2017). Further morphological, phylogenetic, ecological, or biological details of the species covered here can be found in other literature. Recently published books which may be particularly useful are those by Paton (1999), Damsholt (2002), Schumacker and Vana (2005), and Atherton et al. (2010). Northwest Botanical Institute maintains a web site, fernzenmosses.com, where additional resources and updates may be found. Alerts will be posted on this web site when significant updates to the Guide are ready.

### Literature Cited

- Atherton, I., S. Bosanquet, and M. Lawley (eds). 2010. Mosses and Liverworts of Britain and Ireland - a field guide. British Bryological Society, United Kingdom.
- Christy, J.A. and D.H. Wagner. 1996. Guide for the Identification of Rare, Threatened or Sensitive Bryophytes in the Range of the Northern Spotted Owl, Western Washington, Western Oregon, and Northwestern California. USDI Bureau of Land Management, USDA Forest Service, The Nature Conservancy, and Northwest Botanical Institute, Portland, Oregon, U.S.A.
- Damsholt, K. 2002. Illustrated Flora of Nordic Liverworts and Hornworts. Nordic Bryological Society, Lund, Sweden.
- Doyle, W.T. and R.E. Stotler. 2006. Contributions toward a bryoflora of California III. Keys and annotated species catalogue for liverworts and hornworts. *Madroño* 53: 89-197.
- Paton, J. 1999. The Liverwort Flora of the British Isles. Harley Books, Colchester, England.
- Schofield, W.B. 2002. Field Guide to Liverwort Genera of Pacific North America. University of Washington Press, Seattle, Washington, U.S.A.
- Schumacker, R. and J. Vana. 2005. Identification Keys to the Liverworts and Hornworts of Europe and Macaronesia. 2nd Edition. Sorus Publishing and Printing House, Poznan, Poland.

## Conseravation (continued from page 2)

records to the region or country. Although the bryophyte diversity is low in the coastal region of Kenya, the bryoflora status is largely unknown and much effort has concentrated on the vascular plants neglecting these environmental indicator taxa.

In addition, illegal collection of the hanging moss around the forests near Nairobi City especially Ngong Hills and Aberdare ranges has occurred and was for sale in making wreathes used during burial ceremonies is rampant. This has led to depletion of the species general biomass and cover. Studies are necessary to estimate the damage and understand the growth patterns of the key bryophyte species.

**Malaysia** (Sabah; by M. Suleiman): There was a paper presentation during Gaya Island Scientific Seminar 2014. Dr M. Suleiman presented a paper entitled “The mosses of Pulau Gaya”, during a seminar organized by Sabah Parks in Kota Kinabalu on 26-27 February 2014. This seminar was based on a scientific expedition on Gaya Island (Pulau Gaya), a national park in Malaysia, in July 2013. Dr M. Suleiman also participated in the expedition for three days collecting two lowland species new to Borneo, *Leucoloma mitteni* M.Fleisch. and *Fissidens laxitextus* Broth. ex Gangulee. The importance of conserving the remaining lowland forests in Sabah, Borneo, has been highlighted. A manuscript entitled “The mosses of Gaya Island with two new records for Borneo” has been accepted by the Sabah Parks Nature Journal and will be published this year.

Dr M. Suleiman participated in the Heart of Borneo (HoB) Scientific Expedition in Sungai Imbak Forest Reserve from 31 March to 4th April 2014, which was organised by Sabah Forestry Department, Malaysia. Sungai (river) Imbak Forest Reserve is a Virgin Jungle Reserve in the heart of Sabah. During the expedition, a new species *Bryobrothera tambuyukonensis* H.Akiyama & M.Suleiman was collected, which was published in January 2015. Invitation from government agencies to bryologists to participate in such an expedition recognises that bryophyte flora is also important in any scientific exploration in this region, and not only of flowering plants, as before.

Two foreign collaborators, Dr. Matt von Konrat and Dr. Juan Larraín, from The Field Museum in Chicago, came to Mount Kinabalu, Sabah, to search for fresh material of *Steerea clemensiana*. The type was collected 51 years ago by Z. Iwatsuki and M. Mizutani from a forest between Tenompok Pass and Kamborongoh Radio Station on Mt. Kinabalu. Some part of the original locality, however, is now on private land outside the Kinabalu Park.

Tenompok Pass is no longer accessible and we failed to find the species around the now Kamborongoh Telecom Station. We also searched, high and low, along existing trails on the mountain and on road sides outside the park from 20<sup>th</sup> to 24<sup>th</sup> September 2014 but with no luck. Thus, we are proposing this species to be listed on the International Red List for endangered plants.

**Panama** (by N. Salazar): As part of the project by the National System for Monitoring the Biological Diversity (SNMDB for its Spanish initials) of the Panamanian Corridor of the Atlantic Phase II (CBMAP II), the setting and inventory (plants and animals) of one-hectare plots at Parque Nacional General de Division Omar Torrijos H. (PNGDOTH), El Copé (Province of Coclé) and at Parque Nacional Santa Fé (Province of Veraguas) have been completed. The Autonomous University of Chiriquí (UNACHI) has been working on setting the third one-hectare plot at Parque Nacional Volcán Barú (PNVB). They are also gathering information on the bryophytes of this Park to serve in the elaboration of the Management Plan for PNVB that is being designed by the National Authority of the Environment of Panama. Identification of bryophytes, vascular plants and animals continue on these projects. Support for the projects on PNGDOTH and Santa Fé parks ended in December of 2014.

One of the products of these inventories is a plasticized Guide to the Genera of Bryophytes common to PNGDOTH. There are two other guides to the Ferns and Flowering Plants also. A preliminary assessment on the diversity of bryophytes at PNGDOTH was presented at a National Congress in Panama and at the AIBS meetings in Boise, Idaho, USA by N. Salazar Allen (with the collaboration of all participants) as director of the bryophyte part of the project. Adriel Sierra senior botany student of the University of Panama presented his study on the epiphyllous bryophytes on *Piper grande* Vahl at the IAB meeting in Port Williams (Navarino), Chile 2015.

In August 2014, Clotilde Arrocha, her assistant and students from UNACHI, found *Cryptomitrium* at Parque Nacional Volcán Barú. It is the first report of this thalloid liverwort for Panama. Arrocha and collaborators are working on the publication of this new addition to the liverwort flora of Panama. Arrocha is the resident bryologist leading the bryological work on the Western part of Panama. She has two students working their B.A. research on bryophytes and one of her former students is doing a Ph.D. in Germany on the physiology of bryophytes. This student is doing her field work at the Forest Reserve of Fortuna (Province of Chiriquí).

**Portugal** (by C. Garcia): In Portugal during the year 2014 the most important progress was the publication of Atlas and Red Data Book of Threatened Bryophytes of Portugal: Sérgio C., Garcia C.A., Sim-Sim M., Vieira C., Hespanhol H. & Stow S. 2013 – Atlas e Livro Vermelho dos Briófitos Ameaçados de Portugal (Atlas and Red Data Book of Threatened Bryophytes of Portugal) MUHNAC. Lisboa. 464 pp.

This publication is an Atlas and Red Data Book of the Threatened Bryophytes of Portugal and was produced using the most up to date bryofloristic knowledge, until the end of 2012, and based on the criteria and threat categories produced by the International Union for the Conservation of Nature. The distribution patterns of species were updated. The book was well received at national level by the competent authorities for the conservation of the species (ICNF - <http://www.icnf.pt/portal>).

At the same time Portugal developed intensive field-work in order to discover new populations of species of high conservation status at national and European level, including the Atlantic Islands.

The collaboration with the Portuguese “Blue Flag organization” is also an important aspect. This is an evaluation of the environmental performance for each municipality that wants to have the Green Flag award (<http://www.abae.pt/programa/ECOXXI/inicio.php>), with procedures that protect the habitats and their species. This national environmental education program is having good results; we worked out the criteria for biodiversity and carry out the assessment.

The participation at the national level in the committee to the Standardization of Forest Management is also important for the preservation of our species (<http://www.icnf.pt/portal/florestas/gf/norm-gf>).

The problem is the lobby of the planted forest, where purposely do not distinguish between native forest and production forests, despite my protest in this committee. Frequently we are consulted to give advice, and collaborate in the selection of sites for carrying out public works with the least possible impact. The national team of bryologists has developed work together and meet with some frequency.

**Russia** (by N. Konstantinova): In Russia new editions of Red Data Books for several republics and provinces were published. Some of them were published at the beginning of 2014 but the year of the issue is 2013.

1. The Red Data Book of the Murmansk Province. Kemerovo, Asia-Print, 2014, 578p.

<http://ias.kgilc.ru/redbook/>. It includes data sheets for 43 species of hepatics and 77 species of mosses.

2. The Red Data Book of the Khanty-Mansiyskiy Autonomous Okrug – Yugra: animals, plants, fungi: 2-ed. A.M.Vasin & A.L.Vasina (eds.) – Ekaterinburg, izd. Basko, 2013. 460p. <http://oopt.aari.ru/rbdata/2204>. It includes descriptions of 4 species of hepatics and 14 mosses.

3. The Red Data Book of the Republic of Burjatia: Rare and threatened animals, plants and fungi: 3-th edition, elaborated and expanded. N.M.Pronin (ed.) – Ulan-Ude, izd. BNC SO RAS, 2013: 688p. It includes data sheets for 12 species of hepatics and several species of mosses.

4. The Red Data Book of the Karachaevo-Cherkessian Republic. 2013. 360 p. It includes the data sheets for 7 species of hepatics and 12 species of mosses.

Several protected areas were established in different provinces but I have not enough information apart of Murmansk Province. In Murmansk Province the Nature Park Rybachiy and Sredniy was established in the north-western part of Murmansk Province. This area is quite rich in bryophytes and some bryophytes rare in the province occur on this territory.

Intensive field work in different early not studied areas in Siberia, in Far East of Russia and in far north was resulted in numerous findings of rare and threatened in Russia species.

**Sweden** (by T. Hallingbäck): A new Red List for Sweden has been under development during 2014 and the work is in the final stage and the list will be published in April 2015. No big changes will be presented, however, still quite many species (c 23% of the total bryophyte number) are considered as redlisted.

One report and one book have been published during 2014 which are important in bryophyte conservation. According to the EU Habitats Directive, Sweden as well as all other EU member states, has an obligation to preserve all species and habitats listed in the Directive. In this Directive also some bryophytes are included. In Sweden 16 of these species occur. Each member State has to assess the conservation status of the species every sixth year. The report was compiled by the Swedish Species Information Centre in spring 2014. The conservation status, range and future prospect was assessed as well as population size and habitats (including quality) were also taken into consideration.

Species and habitats currently enjoying a favourable conservation status are mainly found within the northern mountain range, where huge areas are protected. ., South

and below the mountains, species and habitats with a favourable conservation status are mainly associated with rocky areas, where the levels of exploitation are low and land use less intense. However, the wetlands and their species are mainly considered to have an inadequate or bad conservational status in all Sweden.

The main threat to the forest habitats and their species is the intensive forestry. Dead wood dependent liverworts suffer from lack of old trees, decaying wood and forest continuity. The main problem for the 16 bryophyte species in general is small population size. In order to achieve a favourable conservation status, a general increase in protected areas is required, combined with increased continuity and improved habitat quality.

Those bryophytes assessed as having an unfavourable conservation status are *Mannia triandra*, a species which was refound by Dr Henrik Weibull in 2012 on one site, *Cephalozia macounii*, *Dicranum viride*, *Encalypta mutica*, *Orthothecium lapponicum* and *Scapania carinthiaca*.

In order to turn the negative trends, thereby attaining and maintaining a favourable conservation status for species and habitats, it will be necessary to decrease the overall negative human impact, to expand the number and area of protected sites, and to actively restore and maintain certain threatened habitats.

In order to conserve the bryophytes we need a better knowledge of taxonomy, morphology and ecology of all species occurring in a region. Since 2001 the Species Information Centre at Swedish University of Agricultural Sciences has produced a series of colour illustrated books with the aim to help people to identify species correctly. In 2006 the first volume which included mosses was published, in 2008 the second volume, and in autumn 2014 the third volume was printed. The latest volume contains all the pleurocarpous mosses of Sweden (220 species) and the main author is Dr Lars Hedenäs. It can be ordered here: [http://www.nationalnyckeln.se/en/Published-books/Publiced\\_volumes/](http://www.nationalnyckeln.se/en/Published-books/Publiced_volumes/)

Sweden has supported Nick Hodgetts in his work with the report: Checklist and country status of European bryophytes - towards a new Red List for Europe. This work has been done within the network of the European Committee for Conservation of Bryophytes (ECCB). Hopefully ECCB will receive a major economic support from EC's LIFE programme to work on a IUCN Red List for European bryophytes, starting this year. The report should soon be possible to download from <http://eccbbryo.nhmus.hu/node/16>.

**Switzerland** (by A. Bergamini): Most importantly, work on the Swiss online bryophyte flora ([www.swissbryophytes.ch](http://www.swissbryophytes.ch)) is progressing steadily (project leader: Heike Hofmann, Institute of Systematic Botany, Zürich) and in 2014 on-line keys to *Bryum* and *Mnium* have been finalized. Financial support of the Record Centre of Swiss Bryophytes ([www.nism.uzh.ch](http://www.nism.uzh.ch)) by the Swiss government was going on and the database increased again by several thousand bryophyte records among which a number of rare and threatened species. Happily, *Riccia canaliculata* which was considered as extinct in Switzerland was refound after more than 100 years by Niklaus Müller and Norbert Schnyder. Several species could be added to the Swiss checklist such as *Orthotrichum vitii*, *O. acuminatum*, *O. hispanicum*, *Sematophyllum adnatum*, and *Seligeria campylopoda*. There was further some work on agricultural bryophytes where the value of set aside areas for bryophyte conservation were studied and on *Tayloria rudolphiana* for which Switzerland has a high responsibility. First transplantation experiments with *T. rudolphiana* showed that it is possible to transfer cushions of *T. rudolphiana* to new host trees. At least partly successful were transplantation experiments with the critically endangered *Frullania parvistipula*. Both transplantation experiments were conducted by Niklaus Müller and Heike Hofmann. There are plans for a revision of the Swiss Red List of threatened and endangered bryophytes and Swiss bryologists were invited by the government to submit a proposal two years ago but so far no decision has been made.

**United Kingdom** (by N. Hodgetts): In UK, the Site Condition Monitoring for bryophytes goes on in Scotland, with most sites remaining in a 'favourable' condition, but some not. The BBS has published its new Atlas, which will be very useful. Some work has been done on ash die-back. Targeted fieldwork on some rare species (e.g. *Ditrichum plumbicola*, *Zygodon forsteri*). Bryologists contributed to The State of Nature, a major report by the RSPB (The Royal Society for the Protection of Birds). Between 2012 and 2014, Richard Lansdown and Ellie Phillips undertook two bryophyte conservation pilot studies on behalf of the Cleeve Common Board of Conservators, at Cleeve Hill in Gloucestershire. In 2014 these studies were extended using the results of the pilot studies to inform project design:

- The first project involved re-creation of an "extinct" habitat, mud-capped walls, last documented in the UK in the 1950s, by mixing animal dung with oolite silt and applying it to the tops of drystone walls. The practice of capping walls with mud is thought to have been a by-



product of the maintenance of roads and died out with the advent of cars and spread of tarmac, resulting in the loss a unique assemblage of bryophytes, including *Ceratodon conicus*. Revision of Spanish and French records shows that between 1990 and 2010, there were two reliable records of *C. conicus*, both from Sicily. In the UK *C. conicus* was deemed extinct until a population was found near Bristol by Peter Martin in 2011, material of which was brought into cultivation at Kew by Margaret Ramsay who placed some material in cryopreservation and

bulked up material for transplanting. In 2014, a new wall was built, and capped using a range of oolite silt and dung mixtures, the bulked up *C. conicus* material was planted into the cap using different methods and preliminary results suggest that at least some of these have taken.

•The second project involved creation of habitat for acidophilous bryophytes most of which had become extinct on the site following cessation of exploitation of the acid sands capping the oolite of the hill, and particularly *Atrichum angustatum*. Following a catastrophic decline in the UK, *A. angustatum* which was once widespread was thought to have become extinct in the UK before 1995 until a population was found on Cleeve Hill, material from which was brought into cultivation at Kew by Margaret Ramsay who placed some material in cryopreservation and bulked up material for transplanting. Shallow scrapes into the sands were made in 2012; however these were smoothed out by a combination of the weather and livestock. In 2014 four groups of three deep, narrow holes were excavated and *A. angustatum* introduced. Preliminary results suggest that many of these have survived, most are growing well and some appear to be spreading.

(the projects were funded by Cleeve Common Board of Conservators, Natural England: Species Recovery Programme and the Cotswold Conservation Board: Sustainable Development Fund)

Further information on the projects:

Lansdown, R.V. and Phillips, E.L. 2014 An annotated checklist of the bryophytes of Cleeve Common, Gloucestershire. Ardeola, Stroud, Gloucestershire.

Lansdown, R.V. 2014 A provisional red data book of bryophytes in Gloucestershire. The Gloucestershire Naturalist No. 25, Special Issue. Gloucestershire Naturalists' Society, Gloucester.

**Venezuela** (by Y. Leon): The bryologists in Venezuela have created a web platform of the Venezuelan mosses. This platform has the information of mosses in the red list.

To view the webpage type <http://musgos.cecalc.ula.ve/>. As example you could search for *Aloinella venezuelana* in the browser of the webpage.

There are important advances in inventory of mosses of forests in the Coastal Cordillera, as well as the Andean paramo forests.

**Western Indian Ocean islands** (by C. Ah-Peng): Madagascar and the neighbouring islands host a rich bryoflora which is still poorly known. Since 2004, Dr C. Ah-Peng along with Drs Terry Hedderson (University of Cape Town) and Jacques Bardat (National Museum of Natural History Paris) have been studying the Bryoflora of Réunion (Mascarenes) and have extended these studies to Madagascar, Comoros and Mauritius.

In 2012, they published the Red List of liverworts and hornworts for Réunion. The Moss Red List for the island is waiting to be produced.

The flora of the liverworts and hornworts for the Mascarene Islands is in preparation, which will promote in the future the study of bryophytes in this region (systematics, ecology etc.).

Activities with regard to bryophyte conservation starts with teaching bryology, as knowing these plants, people can then orientate their work towards conserving them.

With the help of European funding (FEDER), Dr C. Ah-Peng contributed to the training of students in Honours, Master and PhD students in the field of tropical bryology. One of her students Lovanomanjanahary Marline from Madagascar, who is doing presently her PhD at the University of Cape Town on the bryoflora of Madagascar, recently received the green talents award from the German research ministry (<http://www.uct.ac.za/dailynews/?id=8941>).

Training is also delivered to professional botanists of Réunion (National Park, Botanical conservatory), with the aim to be more familiar with bryophytes in the field and to include this group in their conservation tasks.

A current research project Moveclim, "Montane vegetation as listening posts for climate change", that C. Ah-Peng is coordinating uses bryophytes as indicators of climate change for the conservation of tropical and subtropical cloud forests (<http://moveclim.blogspot.fr>). The researchers study the role of bryophytes in these systems for water and nutrient cycling and investigate the role of cloud water in the physiology of bryophytes.

**Ex Situ Conservation** (by M. Ramsay): Big changes are ahead in 2015: with the restructuring of science at Kew, Margaret Ramsay no longer has a job and she is taking voluntary redundancy leave from 13 February 2015 after nearly 25 years. The future of ex situ conservation of bryophytes at Kew is very uncertain. While M. Ramsay ensured that everything that she had in culture is now in cryo-

opreservation and this will be maintained, any future work would require full project funding rather than the contribution towards core relief that has been the funding model over the last few years. M. Ramsay has been involved in exciting reintroduction work, of which Richard Lansdown reports here above.

### BRIEF OVERVIEW OF THE XXIV BRYOLOGICAL MEETING IN CAZORLA, SEGURA Y LAS VILLAS (ANDALOUSIA, SPAIN)

The twenty-fourth meeting of the Spanish Bryological Society was held at the Natural Park of *Cazorla, Segura y Las Villas* between June 13 and 16, 2014, attended by 23 people. Most participants came from well-established bryological groups, regular attenders in these meetings (Universidad de La Rioja, Murcia, Valencia, Autónoma de Barcelona, Autónoma de Madrid, Jardín Botánico de Madrid), but we also had this time novice participants from the Museo de Ciencias Naturales in Madrid, Universitat de Girona and professional botanists.



Barranco de la Charca, Jaen, Spain. Photo by Marta Alonso.

During those days we enjoyed the collaboration of the Park and the Training Center in Vadillo, who gave us great facilities, both in logistics and planning of the sampling and providing collection permits. The director, María Teresa Moro, welcomed us in Vadillo and showed a huge interest in the work that SEB could make in improving bryological knowledge so deficient in the area. The support and the company of the staff were not missed at anytime: Alfredo Benavente was our untiring guide and an inexhaustible source of information on this natural area. Carlos Herrera, from the Estación Biológica de Doñana (CSIC) joined the group on the visit to Guadahornillos reserve, and Pedro Antonio Tíscar, an expert in the *Pinus nigra* ssp. *salzmannii* forests accompanied us to Pico Cabañas.

On the 14th and 15th in the afternoon a total of 12 scientific communications on eco-physiology, diversity patterns, taxonomy, phylogeny, ecology and chorology, were presented, which showed the intensity and diversity of research activity of SEB members. Also on the 15th, the General Assembly of the Society was held. In the social arena, the *Hedwigio* awards -increasingly coveted- were consolidated in this meeting and bestowed by vote of the participants.

Again, it was the opportunity to work and enjoy with colleagues and friends, in a climate of unbeatable cordiality, fostering to deepen ties, share experiences and discuss ideas, keys to the scientific development of any discipline.

Belén Albertos



ASBS  
2015

**Building  
Our  
Botanical  
Capital**

Australasian Systematic  
Botany Society Conference  
Canberra, Australia  
29 November–3 December 2015



[www.asbs.org.au/cbr2015](http://www.asbs.org.au/cbr2015)

## Book Review: Maine Mosses

**Allen, B.: Maine Mosses: Drummondiaceae–Polytrichaceae. 607 pp. Hard cover. Memoirs of The New York Botanical Garden 111 (ISSN 0077-8931). The New York Botanical Garden Press, 2014. ISBN 978-0-89327-527-3. Order and inquiries: [nybgpress@nybg.org](mailto:nybgpress@nybg.org). Website: <http://nybgpress.org>**

This book, being the 2<sup>nd</sup> volume of *Maine Mosses*, closes Bruce Allen's project that lasted some 37 years – hats off to that! The first volume that treated the families from Sphagnaceae through Timmiaceae was published in 2005. Together the two volumes cover 231 + 226 = 457 species and varieties in 49 families. In the first volume some families were not treated by Allen himself, but in the present one all of the text is his, as are the illustrations.

This volume does not restrict itself to treatments of species found only in Maine but, to make the flora more useful as Allen says in the Introduction, covers the moss flora from Delaware/Maryland in the south to Nova Scotia in the north, containing species that might occur in Maine. The area covered thus partly (Nova Scotia) overlaps with Robert Ireland's 1982 "bryoclassic" *Moss Flora of the Maritime Provinces*.

Although the two volumes of the Maine flora treat nearly the same number of species, volume two is almost 200 pages longer. This is mainly because especially the generic but also species descriptions are longer in the present volume. Allen stresses that his taxonomic bias is morphological rather than molecular – as it should be in a flora –, and the recent disruption of numerous morphology-based genera in families such as Amblystegiaceae, Brachytheciaceae or Hypnaceae is in many places discussed (and criticized) by him at some length. From my own experience I can say that molecule-based groups are sometimes morphologically nearly undefinable, but geographically consistent, so there must be lessons there to be learned of moss evolution. But yes, moss taxonomy has become so much more complicated in the last few decades, a fact that does not render compiling useful floras any easier than before!

Species of the, should I say, taxonomically challenging Hypnales take up a major part of this book. To facilitate separating species in some difficult generic groups, Allen uses "characters that often are

considered tedious and unimportant", including stem anatomy, rhizoid position and form, and pseudoparaphyllia. They may be tedious to use, but often unavoidable so this only adds to the usefulness and value of the volume.

The taxonomic part of this volume begins with a main key to genera, that also leads to separate keys to pleurocarpous taxa with single costae and papillose or prorate (Key A), or smooth (Key B) leaf cells. Keys C and D contain pleurocarps with different types of costae and with prorate (Key C) or smooth (Key D) leaf cells. While I have not yet been able to test the keys I trust they will work, as the keys Allen has compiled in many of his previous publications have proved to be trustworthy.

It is not reasonable here to scrutinize the taxonomic content in great detail. The taxonomic discussions are consistently meticulous, versatile and diplomatic. All treated species are illustrated in very informative line drawings from plant habit to cellular details, one species or variety per plate. If the species occurs in Maine, one studied specimen is cited from each county.

There are a couple of taxonomic issues I want to comment on however. *Rhytidadelphus subpinnatus* is here treated as a synonym of *R. squarrosus*. At least in Europe, the two are clearly distinct species. The question is not yet finally resolved, as Allen indeed points out. *Neckera oligocarpa* is placed in the synonymy under *N. pennata*, but based on my experience these two species are readily distinguished on morphological grounds. It is likely that "true" *N. oligocarpa* occurs in North America, as Allen's description of *N. pennata* in fact stretches to contain also *N. oligocarpa*.

But such minor issues aside, Bruce Allen, one of the best moss taxonomists of our time, is to be congratulated and thanked for having perseveringly carried out this personal project that in his own words "has occupied an inordinate amount of my free time". From the viewpoint of the thankful international bryological community, not a minute of that time was wasted!

Johannes Enroth

## Book Review: Bryophytes of the Aegean Islands

by Geert Raeymaekers

Rüprecht Düll (2014). A survey of the bryophytes known from the Aegean Islands. 185 pages; 240 illustrations. Weissdorn-Verlag Jena (ISBN 3-936055-69-6). Price: 29,95 €. Website: <http://www.weissdorn-verlag.de>

This survey of the bryoflora of the Aegean Islands, situated in the eastern part of the Mediterranean Sea between Greece and Turkey and including Crete. The publication provides a compilation of the currently known 115 liverworts and 404 mosses of these islands. The core of the survey consists of an alphabetical survey of the liverworts and of the mosses. The list of species is based upon previously published lists of European bryophytes by the author (between 1983 and 1993) and does not follow the currently more used list of European bryophytes as for instance the 2006 annotated checklist of mosses of Europe and Macaronesia (Hill et al 2006).

For each species the following information is provided: the species name, the synonyms, the broad geographical distribution, the habitat of the species and the occurrence of the species amongst the Aegean island. Many species are illustrated with colour photographs. Through this publication, Rüprecht Düll aims to provide a comprehensive account, but as a end-user, I got lost in the list of acronyms and can imagine that such an account will confuse other users too. To give an example of a species account:

### **Gymnostomum calcareum** Nees & Hornsch.

Holarc(-bip); submed-mont – Only on damp, shaded limestone. Often cspg.. AEW:EU;N (CH: south of Pyrkadia, limestone, ca 10m!), KAS: Kalitheia (E. SAUER 95), TH: e.g. southwest border of Limenas on *Platanus* creek valley, limestone, ca 80-120 m!; E: SA:3-650 m, usually cspg., Nightingale Valley, in direction Vourliotes, calcicolous-silicious rock, 120 m!, and cspf. C 80 m!, IK: 10-390 m. Limestone areas, e.g. !, MYT cf KOS (FM ZANDER 74); RH (NIC, T, e.g. cspg.: Rhodes-city, near sea level up to ca 20 m!; S: KP: Lastos Plateau in limestone niches, ca 850 m!, CR: in all provinces, 20-1600 m!, e.g. Ch: e.g. cspg. near Mournies on loam, ca 50m! and I: e.g. Lentas (D. 07)! - Outside of AE also not rare in Greece, but all records have to be verified. NE: above Paleokastro (ERZBERGER 06).

To understand the acronyms of the island or island regions, one has to consult a non-alphabetical list of acronyms on pg 21 and it is unclear why some of the localities are further described. I rather would have preferred a table with the occurrence of the species amongst the several islands of the Aegean Sea.

Other topics covered in this survey are: a summary of the bryological exploration, the islands inventoried by the author, again a non-alphabetical list of the main Aegean islands with the number of species recorded or published, and for a number of islands a list of bryophytes that can be found in various habitats. The introduction to bryology ("What is a bryophyte – moss or liverwort?") is poorly written and includes environmentally-related information which is not relevant in this context (.... "*Bryophytes are threatened by destruction through the often wasteful withdrawal of water for irrigation and households. Even worse when travel agencies offer hotels with swimming pools. The suitable local building of damms could prevent further disaster.*").

Very few publications from Greece eastern mediterranean exist and for those interested in the bryoflora of the Aegean islands it is a publication which may fill some gaps.



## International Association of Bryology (IAB): 2015 World Conference

The 2015 International Association of Bryology World Conference (<http://chile.unt.edu/iab2015>) was held from the 11<sup>th</sup> to the 15<sup>th</sup> of January at the Omora Ethnobotanical Park and the High School in Puerto Williams, the capital of the Antarctic Province of Chile and the UNESCO Cape Horn Biosphere Reserve (CHBR) on the southern shore of the Beagle Channel. Situated south of Tierra del Fuego, at the austral end of the sub-Antarctic Magellanic ecoregion, Cape Horn represents a hotspot of bryophyte biodiversity. While many participants had the opportunity to enjoy the magnificent Darwin Cordillera, the majestic fjords, channels, and glaciers during a 33 hour navigation by ferry from Punta Arenas, other observed the landscape from the air, joining Puerto Williams the host town of 2,200 inhabitants, by plane.

Fifty-one bryologists from 19 countries registered for the meeting, contributing 38 oral and 11 poster presentations (<http://bryology.uconn.edu/iab-2015-program/>). As the official journal of the International Association of Bryologists (IAB), *Bryophyte Diversity & Evolution* (<http://www.mapress.com/bde/>) will publish the conference proceedings. The IAB conference in Puerto Williams received a fair amount of media coverage, in part due to Chilean President Michelle Bachelet inaugurating the conference. Co-organizer Dr. Francisca Massardo-Rozzi compiled all the links to the reports; the links are posted at: <http://bryology.uconn.edu/2015/01/26/iab-2015-in-the-news/>

Anyone interested in seeing some pictures taken during the conferences “activities” see: <http://bryology.uconn.edu/iab-2015-in-puerto-williams-chile/>

During the conference, Rear Admiral Felipe García-Huidobro Correa of the Chilean Navy invited all participants on a navigation to Wulaia, a historical site, known to historians of Darwin. Local field trips provided participants an opportunity to discover the bryophyte diversity, first during a guided tour of the

Omora Ethnobotanical Park, then during a 2-3 hike through *Nothofagus* forests from sea level to Cerro la Bandera at about 630 m elevation and finally in and around a *Sphagnum-Polytrichum* dominated bog.

The conference was sponsored by the Universidad de Magallanes (UMAG), and the Institute of Ecology and Biodiversity (IEB-Chile), through the efforts by Dr. Juan Oyarzo, President of UMAG and Dr. Mary Kalin, Director of IEB. The University of North Texas (UNT), and in particular the Center for Environmental Philosophy (CEP) and the University of Connecticut provided technical and logistic support which is greatly appreciated. Furthermore the conference was made possible through the support from the regional and local governmental authorities and we wish to thank Mr. Jorge Flies, Intendente, Magellanic and Antarctic Region, Mr. Patricio Oyarzo, the Governor of the Chilean Antarctic Province, Ms. Pamela Tapia, Mayor of Puerto Williams and Rear Admiral Felipe García-Huidobro Correa, Commander-in-Chief, III Naval Area, Punta Arenas.

On behalf of all participants I wish to thank the International Association of Bryologists and in particular Dietmar Quandt and Matt von Konrat for their support and continuous encouragements. Finally, Dra. Francisca Massardo-Rozzi and Dr. Ricardo Rozzi, and their Chilean colleagues in Puerto Williams are whole heartedly thanked for their warm welcome in Puerto Williams, and their persistence in organizing what will be a most memorable set of experiences for all of us.

We hope to see many you in 2017 in Shenzhen, China!

IAB President,  
Bernard Goffinet



## Subscribing to Bryonet-l

### To Subscribe:

Send an email message to <jmglime@mtu.edu> with the subscribe request in the subject.

*Subject: subscribe bryonet-L your name*

Substitute your own name for "your name" shown above.

Please include your full name and country or state affiliation in the message.

This list will require the approval of the list owner. Once you are approved for the list you will receive a welcome email.

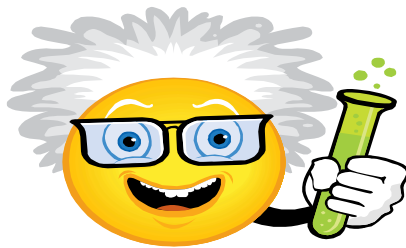


### To Unsubscribe (either of two ways):

1. To unsubscribe from this group and stop receiving emails from it, send an email to <bryonet-L+unsubscribe@mtu.edu>.
2. Contact the list owner <jmglime@mtu.edu> to be removed from the list. I prefer this method. Include a message with your name and the email address you wish to unsubscribe. If you wish to change email addresses, you can do it in the same message.

## ATTENTION All Bryological Societies...

IAB would like to keep up with all of the Bryological Societies that exist. Please help report your information in *The Bryological Times* by supplying the editors with a contact for your society. Column space is available and we would love to showcase what your group is doing. Report local



meetings, field trips, grants and awards, etc. If you have a BT country contact (see the last page), please have them communicate with DB Poli at poli@roanoke.edu to ensure all contact information is up-to-date. We look forward to hearing from you! Thank you!

## Free IAB-membership for students

This is just a reminder that students can join the International Association of Bryologists (IAB) free for one year. Full information is on the website <http://www.bryology.org/> under the "How to Join" button. The new treasurer is Matt von Konrat. Email him at [mvonkonrat@fieldmuseum.org](mailto:mvonkonrat@fieldmuseum.org)



## The Bryological Times

### Column Editors

Conservation: Tomas Hallingback  
Tomas.Hallingback@ArtData.slu.se

Literature: Johannes Enroth  
Johannes.enroth@helsinki.fi

Thesis: William R. Buck  
wbuck@nybg.org

Tropical Biology: Tamas Pocs  
colura@chello.hu

*The International Association of Bryologists (IAB) is an organization open for all interested in bryophytes. For membership contact Matt von Konrat at mvonkonrat@fieldmuseum.org. Visit the IAB website: <http://bryology.org> for further information or to pay using PayPal.*

*The Bryological Times was founded in 1980 by S. W. Greene (1928-1989) as a newsletter published for the IAB. Items for publication in The Bryological Times are to be sent to the Editors, Regional Editors, or to the Column Editors. The newsletter is issued 3 to 4 times per year.*

## Who to Contact in Your Part of the World: Country Contacts

Country	Name	E-mail Address
Africa (South)	Jacques van Rooy	J.vanRooy@sanbi.org.za
Albania	Carmine Colacino	Carmine.Colacino@unibas.it
Austria	Harald Zechmeister	harald.zechmeister@univie.ac.at
Australia/New Zealand	Rod Seppelt	Rod.seppelt@tmag.tas.gov.au
Belgium	Herman Stieperaere	herman@br.fgov.be
Canada	Rene Belland	Rene.belland@ualberta.ca
Canada	Michael Simpson	mjs14@ualberta.ca
China	Cao Tong	CT1946@263.net
Colombia	Jaime M. Uribe	juribem@unal.edu.co
Czech Republic	Zdenek Soldan	sold@natur.cuni.cz
Estonia	Kai Vellak	kvellak@ut.ee
Finland	Sinikka Piippo	sinikka.piippo@helsinki.fi
France	Denis Lamy	lamy@mnhn.fr
Germany	Volker Buchbender	volker.buchbender@gmx.de
Hungary	Tamas Pocs	colura@chello.hu
India	Virendra Nath	drvirendranath2001@rediffmail.com
Italy	Carmine Colacino	Carmine.Colacino@unibas.it
Japan	Tomio Yamaguchi	yamatom@hiroshima-u.ac.jp
Kenya	Itambo Malombe	imalombe@museums.or.ke
Lithuania	Ilona Jukonieme	llonet@botanika.lt
Malaysia/Singapore	Benito Tan	btakakia@yahoo.com
Netherlands	Laurens Sparrius	sparrius@blwg.nl
Panama	Noris Salazar Allen	SALAZARN@si.edu
Poland	Ryszard Ochyra	Ryszard.Ochyra@ib-pan.krakow.pl
Romania	Sorin Stefanut	Sorin.stefanut@biol.ro
Spain	Isabel Draper	Isabel.draper@uam.es
Slovakia	Zdenek Soldan	sold@natur.cuni.cz
Sweden	Tomas Hallingback	Tomas.Hallingback@ArtData.slu.se
Switzerland	Michelle Price	Michelle.Price@ville-ge.ch
Turkey	Mesut Kirmaci	mkirmaci@adu.edu.tr
USA	Matt von Konrat	mkonrat@fieldmuseum.org
USA - Puerto Rico	Ines Sastre-De Jesus	Ines.sastre@upr.edu
Venezuela	Yelitza Leon	yeltleon@ula.ve

IAB is on the Web:  
<http://bryology.org>

IAB

