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CONTENT

IAB News

- An Update - IAB Bryological Congress in Malaysia (July, 2007) 2
- Invitation to suggest new candidates for the IAB council 3

Personal News 3

Donation 4

Research News

- Phylogenetical research of hornworts 5
- COSMOSS News 5
- Bryophytes of the Napa river watershed 6
- Biomonitoring heavy metals in India 7

Opinion: No name for bryophytes? 8

Tropical Bryology 8

Research opportunities

- Synthesis: European natural history scientists 9

Country Reports

- Albania 10
- Indonesia 11

Bryological exhibition 12

Literature column

- Main Mosses 12
- Biology of peatlands 13
- Bryophytes as forest quality indicators 14
- Checklist of bryophytes of the Azores 14
- To order Flora Iberica. 15

Courses and workshops

- 4th international meeting on the biology of Sphagnum: Alaska 2007 16
- IXth Australasian Bryophyte Workshop 16
- So be Free 12 16

Conservation column 17

Web news

Bryological Times Contacts 20

Upcoming Meetings – Agenda 20

Dear bryologists,

Haji Mohamed, Amru Nasrullhaq Boyce and Benito Tan have been busy preparing the next IAB Bryological Congress in Malaysia, that takes place in July 2007, and have sent important information about the conference (see next page).

Consult the conference website: <http://www.bryology2007.net/>

In 2007, the term for half the IAB Council is ending and five new council members plus one vice-president therefore need to be elected. IAB-members wishing to suggest candidates for vice-president or council member should inform Lars Hedenäs (see page 3).

Geert Raeymaekers

IAB



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The **International Association of Bryologists (IAB)** is an organisation open for all interested in bryophytes. For membership, contact Geert Raeymaekers or Blanka Shaw. Visit the IAB web site: <http://bryology.org> for further information.

The Bryological Times is issued 3 to 4 times per year.

IAB NEWS

An Update - IAB Bryological Congress in Malaysia in July of 2007

By Haji Mohamed, Amru Nasrullah Boyce and Benito C. Tan

The preparation for IAB World Congress in Bryology in July of 2007 is well underway. The meeting, the first one to be held in tropical SE Asia, will be held from July 23 to 27 at the Hilton Hotel (PJ) in Kuala Lumpur near the campus of the University of Malaya. The meeting location is near the public rail line and is convenient for participants to go downtown to do shopping and sightseeing. For the latest information on the meeting, please see the newly installed IAB World Bryology 2007 website at <http://www.bryology2007.net/>

Although the main theme of this congress is "Bryology in Asia in the New Millennium", there will be six other sessions focused on the recent advances in various aspects of bryology organized for oral presentations, in addition to poster presentation on any topics in bryology.

The six special themed sessions are:

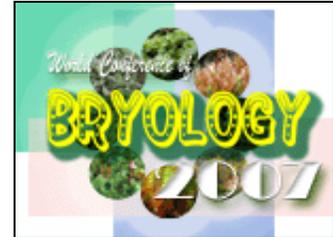
- (1) Molecular Phylogeny of Bryophytes (organizer to be announced);
- (2) Bryophyte Ecophysiology (to be organized by J. Glime);
- (3) Bryophytes Morphology, Ultrastructures and Ontogeny (to be organized by J. Duckett);
- (4) Bryophyte Genomic Project and Genomic Study (to be organized by B. Mishler);
- (5) Bryophyte Conservation and Economic Importance (to be organized by T. Hallingback);
- (6) Bryophyte Chemistry (organizer to be announced).

Interested participants who like to contribute a paper or poster presentation on these various themes and the main theme of the congress on Asian bryology in the new millennium are urged to submit the title and abstract to the Secretariat Office of the IAB World Congress in Malaysia (see website address above) c/o Mr. Patrick Lee at patrick@um.edu.my as soon as possible. The deadline set for the submission of the titles and abstracts of both oral and poster presentations is 28 February, 2007.

Some of the new information about the meeting are listed below:

The meeting venue is set at the Hilton Hotel at Petaling Jaya (PJ). A list of hotels with a wide range of accommodation charges near the conference venue is available on the IAB Congress website (see above). Several hotels provide special discount only to

participants of this meeting. Detailed maps of the location of various hotels and inns recommended, as well as the instruction of travel from the international



airport of Kuala Lumpur to the conference venue and various hotels, are also provided at the website of the IAB congress. All participants are urged to book early and directly with the hotel management.

An extension of the period of payment to the end of February of 2007 for the early bird registration fees of US\$200 is offered to all members, with a special rate of early bird payment of US\$120 to student members of IAB. The registration fees after the end of the early bird payment period will be US\$250 for regular members, and US\$150 for students with ID card. The registrations fees include a souvenir bag with goodies and memorabilia, a copy of the abstract programme, the to be printed proceedings of the IAB congress, lunches, and coffee breaks, plus one half-day sightseeing tour of Kuala Lumpur.

A special rate for accompanied family member fee of US\$150 is now offered to all participants. This fees entitled the accompanied family member to attend all the talks and meetings, the lunches and snacks, and also the half day sightseeing tour of Kuala Lumpur.

There will be a separate paid conference banquet where the recipients of 2007 IAB Awards will be announced. The organizer of the congress, the Faculty of Science of University of Malaya, will give awards to three best posters presented at this meeting.

All the three proposed bryological field trips and expeditions to visit, namely, Mt Kinabalu Park in Sabah of Northern Borneo (five days and four nights), the Cameron Highland on Peninsular Malaysia (three days and two nights), and the Herbarium of Singapore Botanic Gardens and Singapore (two days and one night), will be conducted after the congress.

Information of online registration and instruction of payments by check and credit card is now available at the IAB congress website at:

<http://www.bryology2007.net/>

Information on the scientific programme will be put on this website soon.

Invitation to suggest new candidates for the IAB council

In 2007 the term for half the IAB Council is ending and five new council members plus one vice-president therefore need to be elected, according to the constitution of the association. During the summer 2006 a nominations committee consisting of William R. Buck, Niels Klazenga, and myself (Chair) was appointed by our current IAB President, Janice Glime. We have so far approached several persons who have agreed to be put on the coming ballot. The election itself is planned to take place in early 2007, when ballots will be sent out to all members. The list of candidates we have at present includes the following persons:

Vice-president candidates

René Belland
Masanobu Higuchi

Other candidates

Sharon Bartholomew-Began
Min Chuah-Petiot

Nat Cleavitt
Efrain De Luna
Anna Luiza Ilkiu-Borges
Yelitza León
Zhang Li
Emma Pharo
Rosa Ros

We now invite you to suggest additional nominees to be put on the ballot. Please send suggestions for additional candidates to me, under the address below (use e-mail if possible). Provide a few words of information about the candidate you suggest, such as country of residence and field of interest, and include their e-mail address. Please also make sure that the candidate you suggest is willing to be put on the ballot. Suggestions must reach me **before the end of December 2006**.

Lars Hedenäs, Swedish Museum of Natural History,
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PERSONAL NEWS

The editor would like to thank all people that sent in information about their bryological activities.

Have you taken up another position, received a grant, started a research project, moved office?

The best way to inform the other IAB-members is by spreading the news through BRYONET and the Bryological Times.

Please do send your personal news to the editor!

Daniel Spitale, collaborator of the Museo Tridentino Scienze Naturali (Trento, Italy) prepares his doctoral degree at the University of Parma under the direction of Prof. Dr. M. Tomaselli. He researches the vegetation (vascular plants and bryophytes) of spring habitats and other aquatic biotopes, which is generally poorly known in this region of the Italian Alps. The research is part of a multi-disciplinary Project CRENODAT (2004-2007), financed by the Research Dept of the Autonomous Province of Trento to monitoring species and habitat quality of springs in the Trentino area (Italian Alps). In total, 108 springs sampled are investigated between 170 and 2792 m a.s.l. and the moss diversity reflects the wide range of geological strata in the area: limestone, dolomite,

siliceous metamorphic rock (schist, gneiss), microcrystalline (porphyry) and holocrystalline (Hercynic and Tertiary granite) magmatic rock. As part of this project, he already found a strange submersed moss, resembling to *Palustriella pluristratosa*. Prof. J.P. Frahm will carry out molecular analysis of this sample. Additionally to his vegetation research, he plans field experiments on *P. commutata* on fragments dispersion and on the effect of submersion-emersion on its re-colonization capacity. Concluding, his interest is bryophyte ecology, with a special interest in field and auto-ecology of aquatic mosses. He would certainly welcome reprints that cover these topics. Please send these to Daniel Spitale (spitale@mtsn.tn.it), Museo Tridentino di Scienze Naturali Limnology and

Phycology Section, Via Calepina 14, I-38100 Trento Italy

Min Jet Loo will start her doctoral research project at the University of Cadiz (Spain) on a "Taxometric classification", based on morphological and anatomical characters, of hygrophilous and hydrophilous mosses in Mount Kinabalu (Malaysia) and Province of Murcia (Spain). The project aims to study or to compare the species relationship of hygrophilous and hydrophilous moss flora between Malaysia and Spain. The main supervisor is Prof. Dr. T Angel Del Valls C. (Universidad de Cadiz) and Dr. Monica Suleiman (University of Malaysia Sabah).

Samantha Staddon is conducting research into the harvesting of mosses, primarily from conifer plantations as a non-timber forest product. Her aim is to document the extent of harvesting activities and to estimate the value of its harvest and trade in the horticultural industry in Scotland. If you know anything about the harvest or trade or have any contact details for someone who might, Samantha would be most grateful if you would get in touch with her (E-mail: s0566090@sms.ed.ac.uk)

Hiromi Tsubota, Hiroshima, Japan, took up a new position as associate professor in the university in April, 2006, and moved to a new location, Miyajima Natural Botanical Garden, Graduate School of

Science, Hiroshima University. The position still involves bryological activities as well as work on phytogeography, ecology, island biology and conservation biology, by utilizing the excellent natural resources of World heritage listed Miyajima (Itsukushima) Island, southwestern Japan. Please note the new contact address: Mitsumaruko-yama 1156-2, Miyajima-cho, Hatsukaichi-shi, Hiroshima 739-0543, Japan; TEL: +81-829-44-2025, FAX: +81-829-40-2001; web site: <http://home.hiroshima-u.ac.jp/miyajima/>; e-mail: chubo@hiroshima-u.ac.jp.

Mikayla Jones is a Ph.D. student under the supervision of Dr Emma Pharo in the Department of Geography and Environmental Studies at the University of Tasmania, Australia. She is currently working on the role of bryophytes in buttongrass moorland (a major vegetation type in Tasmania) before and after fire, to better understand the effect of more frequent fire on bryophytes in this highly fire-adapted ecosystem, and to determine whether bryophytes will experience a positive or negative feedback in response to increased fire. Little is currently known about the diversity and fire relations of bryophytes in buttongrass moorland, and this project will also incorporate the first comprehensive survey of bryophytes in this vegetation type.
E-mail: mikaylaj@postoffice.sandybay.utas.edu.au

DONATION

Bryological library of the late Dr. William Hoe, Hawaii

I am looking for a home for what may be largest and most comprehensive library of bryology now in private hands, which I accumulated over the past 15 years. Its inclusiveness has been greatly enhanced by the incorporation of the library of the late William Hoe, of Honolulu, Hawaii, who also collected bryological literature until his untimely death. The library contains both old and rare books as well as current literature and floras. It also contains complete, or nearly complete, runs of virtually all of the major bryological journals, mostly very nicely bound, and a large selection of well-organized bryological reprints from non-bryological journals. All of this is accompanied by a computerized catalogue with complete (but not proofed) bibliographic information that also includes much biographical data, cross-references to reviews in the bryological literature, etc. This is an excellent

working library not only for systematic bryology but also for bibliographic research, as an attempt was made to obtain different editions of a given work.

I would like to make a donation of this incomparable resource to an institution that will safeguard it and insure its value to science. The ideal situation would be a gift to an institution in the United States with a modern library system and with a well-established program in botany that has not hitherto included bryology. Failing this, other arrangements would certainly be considered. Some very normal stipulations to the donation would apply.

Storrs L. Olson, 1504 Caroline St., Fredericksburg, VA 22401, USA. olson@si.edu. Ph. 202-633-0795, cell 703-447-1406.

RESEARCH NEWS

Phylogenetical research of Hornworts

I obtained my MS with a thesis entitled "A comparative anatomical and ultrastructural study of two phylogenetically significant hornworts: *Leiosporoceros dussii* and *Phaeoceros fimbriatus*", under the supervision of Dr. Karen Renzaglia (Southern Illinois University, Carbondale, USA). The objective of my research was to elucidate phylogenetic relationships in early land plants, with emphasis on hornworts. Hornworts have an equivocal placement in land plant evolution. Molecular studies place them either as the first extant lineage to invade land, or the sister group to vascular plants. Their assortment of morphological features, including the presence of pyrenoids, the basal meristem in the sporophyte, and *Nostoc* colonies in internal chambers, have confounded attempts to predict their evolutionary placement in the big picture of land plant evolution. Two papers have resulted from my master's research. The first study is already published, and the second is in press:

Villarreal, J.C. & K.S. Renzaglia. 2006. Structure and development of *Nostoc* strands in *Leiosporoceros dussii* (Anthocerotophyta): a novel symbiosis in land plants. *American Journal of Botany* 93(5): 693-705.

Villarreal, J.C. & K.S. Renzaglia. Sporophyte structure in the neotropical hornwort *Phaeomegaceros fimbriatus*: implications for phylogeny, taxonomy and character evolution. *International Journal of Plant Sciences*, in press.

For the first paper I conducted an ultrastructural and anatomical study of the *Nostoc* strands in *Leiosporoceros dussii*. The presence of *Nostoc* in longitudinally oriented schizogenous canals is a feature that separates *Leiosporoceros* from all other hornworts and represents a novel symbiotic arrangement in land plants. In surface view, *Nostoc* canals are visible as elongated, dichotomously branched blue-green strands. To elucidate the anatomy and development of these unusual *Nostoc* strands, we examined sporeling development in culture and the structure of strands in field-collected plants using light and electron microscopy. Rosette-like sporelings have mucilage clefts scattered along

swollen apices. All field specimens were strap-shaped, contained *Nostoc* and lacked mucilage clefts. *Nostoc* strands are located in the center of the thallus and develop behind the apical cell by separation of the middle lamella between apical derivatives. Strands elongate and branch in synchrony with apical growth and thus only a single invasion is required for strand production. Two distinct ultrastructural morphotypes between Panamanian collections suggest non-specificity of *Nostoc*. We speculate that *Nostoc* enters the thallus in the sporeling stage through mucilage clefts, and once colonies are established, cleft production ceases.

In the second study the morphology and ultrastructure of the placenta, basal meristem and aerial sporophyte are described in populations of *Phaeoceros fimbriatus*, a poorly known but widespread species, from Panamá, Venezuela, Costa Rica and Ecuador. The mature sporophyte consists of elongated, thick-walled epidermal cells with stomata, 7-13 layers of assimilative cells with chloroplasts lacking pyrenoids, sporogenous tissue and a central columella containing up to 30 cells. Spores are finely vermiculate with 7-10 dimples on the distal surface. Spore walls comprise a perine-like outer layer derived from the spore mother cell wall, a two-layered exine, and a translucent intine. An aperture of thickened exine and sparse sporopollenin deposition defines the conspicuous trilete mark. This study reveals a sharp morphological separation of plants from Venezuelan páramos from the other populations examined suggesting separate taxonomic status. Superficial structural features such as foot shape, spore color and stomata in the sporophyte align *P. fimbriatus* with *Phaeoceros*, while more elaborate development of histological regions such as massive sporogenous tissue and the ultrastructure of plastids are reminiscent of *Megaceros*. The unique mixture of *Phaeoceros* and *Megaceros* traits supports (Duff et al. 2006) placement of *P. fimbriatus* in the new genus *Phaeomegaceros*.

Juan Carlos Villarreal A.
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COSMOSS News

The *Physcomitrella patens* computational biology resource (www.cosmoss.org) has recently been refurbished. It now possesses a new menu system in order to envelop future resources associated with the genome sequence.

If you didn't have a look yet, please feel invited to drop by. The website cosmoss.org offers e.g.:

- BLAST service against the assembled transcriptome and the genome traces (reads):

- sequence retrieval and visualization of sequence annotation
- functional annotation of the virtual transcripts and keyword search
- *Physcomitrella*-specific splice site prediction
- the *Physcomitrella* ecotype map
- SSR marker data applicable to Funariaceae
- clustered EST data for *Ceratodon purpureus* and *Tortula ruralis*
- literature and links

Soon to come are a new annotated transcriptome representation based on >300,000 EST and CDS, a plant transcription factor phylogeny database and the *Physcomitrella* genetic map

In order to keep you updated about additions to cosmoss.org, we have now established a mailing list, cosmoss-announce. To subscribe to this list, please visit <http://www.cosmoss.org/mailman/listinfo/cosmoss-announce>.

Stefan Rensing :
E-mail :stefan.rensing@biologie.uni-freiburg.de

Bryophytes of the Napa River Watershed

Stephen Patrick Rae completed in June his PhD program at University of California, Davis under the supervision of Michael G. Barbour and with Daniel Potter and Marcel Rejmanek as other Committee members. The doctoral research focused on the bryophyte flora of Napa County, California (USA).

The Napa River watershed encompasses the fertile valley floor (primarily committed to vineyard production) and hillsides supporting chaparral, oak woodlands, mixed evergreen forest, douglas fir and redwood forests, and serpentine sites. A diverse area, the valley rises from sea level to about 1300 m. A Mediterranean climate predominates resulting in significant establishment of invasive plant species. Floristically rich, the valley is known as a locale for endemism and diversity.

Although many studies have included bryophytes in field surveys, the dissertation research focused more on the association of mosses with the structure of the habitat than with the dominant and co-dominant vascular plants. Interestingly, the endemism and speciation known within the vascular flora is not mirrored within the moss flora. The study of mosses is still in the early stages along the Pacific Coast and much remains for us to learn about the relationships of the mosses with their habitats. With the keys and catalogue recently completed by Dan Norris and Jim

Shevock, we are now able to more quickly identify the mosses in our studies. These identification tools have already stimulated interest in bryophytes in California. As we know more, we can better understand the status of their populations and assess opportunities for their management and conservation.

For this doctoral research, eighty plots within the Napa River watershed were surveyed for moss occurrence, vascular plant occurrence, vegetation structure, and environmental variables. From the 631 specimens collected within the plots, 87 moss species are reported, with an additional 14 species reported from 400 non-plot collections around the county. Forty-one woody perennial plants were recorded within the plots. Moss distribution was significantly influenced by percent woody canopy coverage, and less significantly influenced by slope and elevation. An annotated catalog of mosses is presented with site substrate affinities indicated. Suggestions for future research and moss conservation are included.

Thesis: Species and Their Habitats within the Moss Flora of Napa County, California (USA). Dissertation accepted on 13 June by Graduate Studies Office, University of California at Davis.

Stephen Rae
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Biomonitoring heavy metals in India

This contribution describes a project on biomapping of metal precipitations by bryophytes with the project title "Large scale Biomonitoring of the metal precipitation from Kumaon and Garhwal region of Himalayan belt." The research takes place at the Botany Department, Bareilly College, Bareilly, UP, India. Several bryologists contribute to this project and research the following bryophytes: Mr Harinder: (*Thuidium*

cymbifolium), Mr Saiful (*Racomitrium crispulum*), Shiv Om (*Rhodobryum roseum*), Kajal (*Barbula vinealis*). The project is funded by the Department of Botany, Bareilly College, Bareilly UP India and receives financial support of the Department of Biotechnology, Ministry of Science and Technology, Govt. of India and the Department of Environment and Forest, Ministry of Environment and Forest, Govt. of India

Studies are concentrated on two important portions of the hills of the Himalayan range known as Kumaon hills and Garhwal hills. Kumaon hills have beautiful crowded hilly towns namely Nainital, Ranikhet, Almora, Pithoragarh, Mukteswar and the Bhowali nearly located at the altitude of the 1400-2500 mts. While Garhwal hill is towards west of the Kumaon hills almost at same range and has beautiful hill station Mussoorie. Studies are being conducted for the quantification of metals from these two hilly places with the help of mosses and to get the trend of metal precipitation (a) seasonal and (b) annual basis. The main objective of the research is to investigate (a) the deposition of atmospheric metal precipitation on the Kumaon and Garhwal hills using different bryophytes (biomonitors), (b) the change occurring in deposition over time on seasonal and annual basis on the intensity & trend, (c) to compare the suitability of mosses after validating the tolerant species and (d) to investigate the long-term storage of biomonitors as Bryophytes Environment Specimen Bank for regional and National survey.

Specific objectives of the study are to monitor the seasonal and annual trend of metal precipitation data by active monitoring method on Kumaon & Garhwal hills of India (a portion of Himalayan region) beside quantification studies. For this (biomapping) locally growing bryophytes species (a) were tested first for metal tolerance potential by measuring the chlorophyll fluorescence value in the field and as well as in the lab after administration of different level of metals dose in the bryophyte. Later on (b) validated tolerant species are being transplanted at different places seasonally and some are being harvested after definite exposure period to analyze for the metals (Pb, Zn, Cu, Cd) to get the seasonal metal precipitation values. And (c) validated tolerant species

will have dual advantages as same are being applied for the measuring the metal fall data as well as they will be applied in the barren forest to establish the forest cover.

The mosses which are being used are *Thuidium cymbifolium*, *Racomitrium crispulum*, *Bryum cellulare*, *Plagiochasma appendiculatum*, *Rhodobryum roseum*, *Barbula vinealis*, *Polytrichum formosum*, *Hylocomium splendens*, *Hypnum cupressiforme*, and *Isopterygium elegans*. Interspecies calibration and reference specimens are used to follow the biomapping protocol.

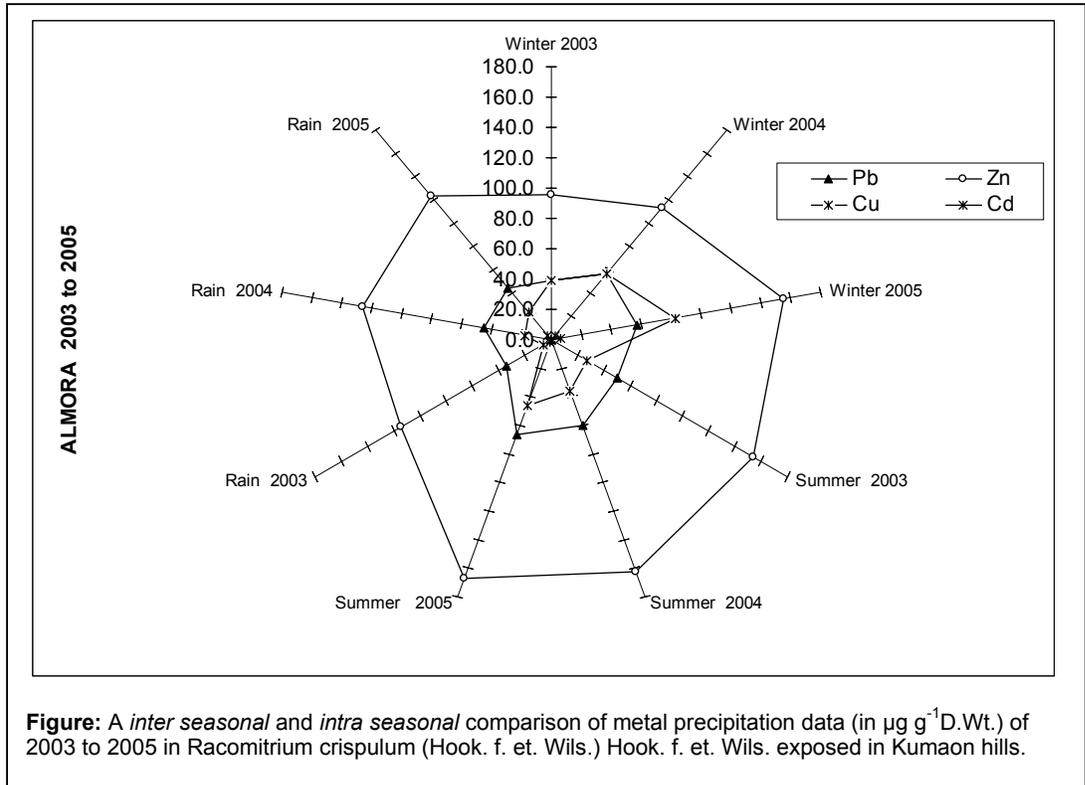


Figure: A inter seasonal and intra seasonal comparison of metal precipitation data (in $\mu\text{g g}^{-1}\text{D.Wt.}$) of 2003 to 2005 in *Racomitrium crispulum* (Hook. f. et. Wils.) Hook. f. et. Wils. exposed in Kumaon hills.

The metal precipitation data gathered will be useful for the planners to combat the problems. The work was initially was initiated 2002 and will continue till 2009.

Results of one place up to 2005: Mean metal data gathered from analysis of moss from 2002 to 2005 is given in the figure below. The data are presented as a seasonal pattern of precipitation. Preliminary survey gives a picture of metal load in the northern Himalayan region (Kumaon and Garhwal region). It was found that the patterns of metal deposition were same in different species whereas the metal uptake capability varies form species to species.

OPINION

No name for bryophytes?

The times were easier in the past concerning the taxonomy of bryophytes. We had one division (Bryophyta) with three classes. But later, things began to split up. It started in the late sixties with the algae, which were originally comprised in one division (Phycophyta) and split up into several independent lineages.

Our professor taught this in a very direct way when he said "the green algae are more related to the Christmas tree than to other groups of algae". Then bryophytes were considered to be independent evolutionary lineages and the former classes were raised to the rank of divisions. But when I am talking about bryophytes in general, what should I say? Bryophytes sounds like Bryophyta and this comprises today only mosses. Bryophytes in the old sense? Doesn't sound very good. What else? Above the division, there is the kingdom (regnum) Plantae. Theoretically, there is a subregnum, although I have not really heard about this category in practice. Perhaps we should activate it and talk about "Bryomorpha". This could also be an idea for comprising the algae (Phycomorpha) and fern allies (Pteridomorpha), which end today also in different divisions.

I have another problem: there are good reasons to name synapomorphies such as Tracheophyta, Cormophyta, Stomatophyta pp., but the suffix -phyta is characterizing divisions and these categories have no

hierarchical rank. Before somebody says that these terms are not derived from genus names and can therefore be not divisions, the ranks above the families may but must not be derived from genus names. And there is also no priority principle for the names above the families, although some bryologists recently started to cite such higher categories with publication dates and year. This is only a recommendation. What to do? Stomatoplastae is just a change from Greek to Latin, would solve the problem, but sounds strange, I confess.

Finally, the choice of names for the categories above the families. There is no rule which names have to be taken, but I always feel uncomfortable with categories such as Marchantiophyta for hepatics. Marchantia is the least typical liverwort. Hepatophyta is more logical and already in use (although not widely), and in this case, Muscophyta would be the most appropriate. And if we formerly said Musci and Hepaticae, why not say Muscophyta and Hepatophyta?

Similar problems are involved with the name Metzgeriidae. We learnt from the classical literature that Metzgeria is in fact not an anacrogynous liverwort since the female gametangia are positioned at the end of reduced branches and are thus acrogynous. Molecular studies support this. Would not be "Aneuridae" be a better solution? (until molecular systematists convince that of the opposite).

Jan-Peter Frahm
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TROPICAL BRYOLOGY

Tropical Bryology: change in the editorship

The introduction of Personal Computers (instead of the use of mainframe computers) at the beginning of the Eighties changed the scientific world significantly. As one of the many consequences, the editing of journals was made possible at home on a "Home PC." As an enthusiastic computer user, I saw a chance for bryology. First of all, we had only bryological journals covering all aspects of bryology and not on special bryological topics, but use of computers led to the journals of bryological societies, which were open to all kinds of contributions by their members, raising their levels to peer-reviewed journals. This left a considerable gap and severely cut the possibilities for publications. In addition, the number of bryological publications had increased much as compared to previous decades. The computerization allowed new

journals to be established, which could be produced without a printer at home. So in 1989 I founded the journal "Tropical Bryology," later the German journal "Limprichtia" and finally an internet-newsletter, the "Bryologische Rundbriefe."

Except for the Hattori Journal, it was possibly the only private bryological journal, which was produced as a non-profit journal, which means that the costs for printing and mailing were covered by the subscription and also avoided taxes. Both profit and tax would have increased the price for the journal significantly. In this way, the costs for the journal were over almost the whole time \$10 per hundred printed pages, which was made possible by replacing offset printing with printing directly from CD. This can be compared with

subscriptions of society journals, which are mainly financed by the library rates, which are many times higher than personal subscriptions. (For instance, the fee for the BBS is only 20 £ for members but £278 (\$500) for institutions. And the postage, which counts for about a quarter of the price, was always included and not charged separately. This private initiative allowed the introduction of several specialities:

- The subscription was only half price for subscribers from tropical countries. This should allow our colleagues in the tropics to receive the journal in spite of their lower salary.
- From the beginning, the journal was available digitally, first "on disk" (for which Brian O'Shea developed a programme interface), later as pdf-files on CD. The CD-version is available for half price, which means a quarter of the price for tropical bryologists, which is sometimes less than the postage.
- Later it was the first (at least bryological) journal, which provided reprints for the authors as pdf-files (for which Marshall Crosby introduced the term "e-print"), today a standard in most journals, but only recently.

Some other novelties, e.g. the "new records column" was apparently so successful that it was copied by the *Journal of Bryology*. The edition of this journal was not possible without the help of the editors, first Rob Gradstein and later Bill Buck, and many co-editors, because I had to prepare the contributions for print, and to do the packing, mailing and book-keeping. What sounds fun was a hard job. Especially in the beginning, the authors were not so familiar with computers and some used to finish every line of their manuscript with

a carriage return like with a typewriter. Some had never seen the journal and did not care about guidelines for authors. Altogether it was a stressful job to set journals on the computer, one or two times a year, in addition two or three volumes of *Limprichtia*, to print labels, lick hundreds of stamps and then try to get the invested money back, and all beside the current work. The financial situation is the dark side of the journal. About a hundred subscribers did not pay several issues within these years and had to be deleted from the subscribers list, which was my financial loss, not to forget big cheques from tropical countries with 5 or 6 round and oval stamps, which could never be cashed but used for decoration, people, who ordered complete back sets and never paid, unfortunately especially from the tropics.

After 17 years and 27 volumes with several thousand pages and getting older, I plan to give up this work. Thankfully two of my former students, Yelitza León from Mérida, Venezuela and Dietmar Quandt from Dresden University in Germany agreed to continue this journal and thus to provide the chance for tropical bryologists to publish even floristic contributions in their mother tongue. Yelitza will prepare the contributions for print and the journal will still be printed and mailed in Germany. I am especially glad that in this way the journal is housed in the tropics and maybe can sometime in the future be fully produced there.

Tropical Bryology has filled a special gap amongst the journals and I hope that it will do it for the future.

Jan-Peter Frahm
E-mail: frahm@uni-bonn.de

RESEARCH OPPORTUNITIES

Research funding opportunity for European natural history scientists

Europe's foremost natural history institutions invite scientists based in European member, candidate, and associated states to visit and access their collections and analytical facilities.

Twenty institutions, including museums and botanical gardens, have joined together to form **SYNTHESYS**. The ambition is to create a single 'virtual' museum service consisting of many physical collections and analytical facilities, together with integrated databases of information about those collections. Main beneficiaries are the European research communities in the biosciences and geosciences, and particularly those researchers with an interest in biodiversity.

The co-operating institutions are organized in 11 national Taxonomic Facilities (TAFs). As one important



element, the project comprises a visiting researcher programme. It enables European scientists to access more than 337 million specimens housed in the partners' collections, state-of-the-art equipment, and internationally renowned expertise, and provides training and supervision in relevant fields. The institutions also collaborate in network activities aiming to improve the coordination, accessibility and high-standard preservation of natural history collections.

The SYNTHESYS visiting researcher programme covers costs for research and accommodation whilst based at the institution, plus international travel costs, and offers a per diem to contribute towards living costs during short visits (maximum of 60 working days) at one or more TAF.

Please visit www.synthesys.info for full details on how to apply for funding including a list of all SYNTHESYS

partners and their facilities, applicant eligibility criteria, and the application form.

The next deadline will be Friday 30 March 2007, 17.00 GMT.

Two more calls will be arranged at approximately 6-month intervals until 2008.

COUNTRY REPORTS

Bryological News from Albania

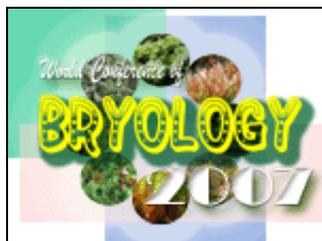
Albania is one of the less studied areas in Europe, as far as bryophytes are concerned. This is due also to the lack, so far, of a resident bryologist. The last bryologists to visit the country were Petrov, from Bulgaria, at the end of the 1950s, and Bischler and her colleagues in 1980, from France. The first check-list for the bryoflora of this country is in print on *Cryptogamie* (Colacino & Sabovlievic), another contribution is in print on *Phytologia Balcanica* (Colacino), a previous work, in Italian, was published recently (Colacino 2005). Albanian bryoflora (based on previous works only, that is, not considering new collections) consists of 327 taxa (3 hornworts, 86 liverworts, and 238 mosses), even though more are certainly present (possibly more than 500). In the last five years several collection campaigns have been carried out by myself, in cooperation also with the Botanical Garden, as well as the Faculty of Natural Science, of the University of Tirana., Albania. A young assistant from the Department of Biology, section of Botany, of the University of Tirana, Jani Marka, is specializing in bryology, the first resident bryologist ever for Albania. He spent several months in my Lab at the University of Basilicata, and he is preparing a Master's thesis in Bryology (at the University of Tirana). A recent botanical trip to the northern Albanian Alps with Albanian, German, and Italian colleagues, organized by the Department of Biology, section of Botany, of the University of Tirana, has recently taken place (first half of June 2006), and included also, as bryologists, myself and Jani Marka. A data base on the distribution

of Albanian bryophytes is in preparation and will be available as soon as possible on the web site www.bryology.eu. The aim is to continually update the database with the help of all those collecting, or that have collected in Albania.

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Carmine Colacino. E-mail: colacino@bryology.eu
<http://www.unibas.it/utenti/colacino/>



**Register for the
next IAB congress
Kuala Lumpur, Malaysia
23 – 27 July 2007
<http://www.bryology2007.net/>**

Bryological news from Indonesia

Bryophyte Garden inaugurated in Cibodas Botanical Garden, Java, Indonesia

We may see bryophytes in the forest hanging from trees or covering rocks; or we may see them in our backyard attached to bricks or growing on damp soil. Rarely, however, do we see all the beautiful, different forms of bryophytes conveniently growing together in one place.

Since 2006, a wide range of bryophyte species are being cultivated in Cibodas Botanic Garden, West Java, Indonesia, in a nice and beautiful 1300 m² garden called "Taman Lumut" or Bryophytes Garden. Construction of the Bryophyte Garden began in 2005



and was completed on 11th April 2006. Most of the cultivated species originate from the wider Cibodas Botanic Garden area; some (ca. 20%) from elsewhere in Indonesia. The bryophyte garden has been constructed for students, scientists and any visitor that might have interest in these plants. The actual purposes of the garden are manifold: to demonstrate the beauty of bryophytes, to show their structure, to increase the awareness of the importance of bryophytes, to help conserving the bryophyte diversity of Indonesia, etc.

The Bryophyte Garden is situated at 1300 m altitude on the eastern slope of the famous Mt. Gede-Pangrango National Park. Relative air humidity is 80-98% and air temperature ranges from 16-22 °C. The bryophytes species are grown under shade trees, including *Altingia excelsa*, *Ficus* spp., *Toona sureni*, and *Pandanus furcatus*, to avoid desiccation. Epiphytic

mosses and liverworts growing naturally on the shade trees are also integrated in the garden. To enhance high air humidity necessary for the growth of desiccation-intolerant species such as *Plagiomnium*, a small river and a pond have been constructed. Additionally, water is supplied by spraying, especially during the critical dry season. Some species needing high moisture such as the bog moss *Sphagnum junghuhnianum* (= *S. gedeanum*), which grows abundantly at the nearby famous Cibeureum waterfall in Gede-Pangrango National Park, are being cultivated in pots. Most of the cultivated species are mosses; few



are liverworts, which are more difficult to grow. Liverworts cultivated successfully in the Bryophyte Garden include *Marchantia*, *Dumortiera*, *Trichocolea tomentella*, and *Plagiochila tjibodensis*.

A lush tropical montane forest environment rich in bryophytes is created by attaching pendent mosses to branches of trees and to the trunks of tree ferns. The ground is covered with large carpets of mosses and liverworts, forming beautiful green mats. The moist moss mats provide a suitable substrate for the germination of seeds of the shade tree *Altingia excelsa*, which grows very well in the garden. A special feature of the bryophyte garden is a miniature model of Mt. Gede-Pangrango, built to show that many of the garden's bryophytes come from Mt. Gede-Pangrango National Park. After one year the model has already become covered by bryophytes, at first by species of *Marchantia*, later on by species of *Thuidium*, *Dumortiera*, *Plagiomnium*, *Pogonatum*, and *Fissidens*.

A large map of Cibodas Botanic Garden in the bryophyte garden is also already covered with bryophytes, such as *Hypopterygium*, *Pyrrhobryum*, *Fissidens*, *Thuidium*, *Leucobryum*, *Hypnodendron*, etc.

Each bryophyte species is cultivated as much as possible according to its natural habitat requirements. Thus, terrestrial bryophytes are being cultivated on soil, with soil conditions varying depending on the habitat of the species. *Pogonatum*, for example, is grown mostly on sand whereas *Rhodobryum* is cultivated on a mixture of sand and humus. Epiphytes seem to grow well on soil that is covered by bark chisels. Some pendent mosses and other epiphytes are successfully cultivated on tree fern trunks. For some bryophyte species substrate type appears to be less important as long as water supply is sufficient.

More than 200 species are currently being grown in the Bryophyte Garden of Cibodas Botanical Garden. We plan to continue our collection activities in future so as to increase the number of bryophytes in cultivation from Indonesia as well as from other tropical regions.

Lia Damayanti, Cibodas Botanical Garden, Java, Indonesia

Email: lia_damayanti_cibodas@yahoo.co.id

Robbert Gradstein, Albrecht von Haller Institute of Plant Sciences, Göttingen, Germany

E-mail: sgradst@uni-goettingen.de

BRYOLOGICAL EXHIBITION

Mosses: the remembrance of water, (Logroño, Spain)

This exposition is exhibited at the Casa de las Ciencias (Science House) in Logroño (Spain) since 28 April to 16 July. It intends to present the moss world by means of diverse elements and materials. The original idea comes from the exposition of the same title that Patxi Heras and Marta Infante elaborated in the Museo de Ciencias Naturales de Alava (Vitoria, Spain) in 2004. It consisted of some panels combining photographs and explanatory texts about the morphology, physiology, ecology and usefulness of bryophytes. These panels have been loaned for our exposition and we have created some other materials in the Universidad de La Rioja (Logroño, Spain): a video presentation about general aspects of mosses, some microscopic slides, a selection of species recreating diverse environments, some panels showing the bryological research conducted at the Universidad de La Rioja, a computer with some bryological webpages, and a great cabinet reproducing a mountain stream dominated by mosses. The exposition also shows a video about mosses from the Andes (loaned by the Universidad de los Andes in Merida (Venezuela), and another video loaned by the

Council of Bejar (Salamanca, Spain) presenting the tradition of Moss Men.

The divulgative and didactic objective of the exposition is potentiated by a workshop for children, in which they carry out some experiences related to the moss form, size, odour, etc., including a raid on the presence of moss inhabitants and one experiment about the use of water by mosses.

We invite you to consult our webpage (<http://www.unirioja.es/ecophys/>), where all the contents and activities of the exposition are shown. We thank all the bryological materials, especially photographs, we have received for the exposition from many bryologists.

Dr. Javier Martinez-Abaigar. E-mail:

javier.martinez@daa.unirioja.es

<http://www.unirioja.es/ecophys/>

Source: Bryonet

LITERATURE COLUMN

Maine Mosses. Sphagnaceae-Timmiaceae

Allen, B.: Maine Mosses. Sphagnaceae–Timmiaceae. Memoirs of The New York Botanical Garden 93. 419 pp., hardback. ISBN 0-89327-471-2. Orders to nybgpress@nybg.org. Price \$ 75.00.

Bruce Allen has collected and studied the mosses of Maine for almost 30 years, and the work towards a "logical consequence", a comprehensive moss flora of the state started in 1992. The present volume is the first part, and the second one, from Orthotrichaceae to Polytrichaceae, is currently in preparation.

The arrangement of families treated in this volume follows Anderson et al. (1990). Sphagnaceae is written by Lewis E. Anderson, Fissidentaceae, Encalyptaceae and Ephemeraceae by Ronald A. Pursell, and Leucobryaceae by Paul L. Redfearn, Jr.; Allen is the author of the rest of the families.

The Introduction provides general information of the nature and climate in Maine, as well as a concise account of its bryological history. That is followed by a

key to the genera, presented “with trepidation” for a good reason as all of us who have used or tried to use such keys will know; as Allen puts it “general keys to the mosses are more or less doomed to failure”. And yet, a flora like this but without a general key would certainly raise some eyebrows, so what can a poor author do?

The taxonomic content follows the formula familiar from numerous floras. The genus as well as species descriptions are accompanied by valuable commentaries or short (sometimes quite lengthy and versatile) discussions of the most useful diagnostic characters and differences from closely similar taxa. The line drawings of the species, all save for Leucobryaceae made by Allen (most Sphagnaceae redrawn from Crum 1984), are economical yet very clear and informative. All in all, the work of a solid taxonomist, leaving nothing to be desired. The commentaries especially are very useful; if I don't recall how the segregation of Bruchiaceae from Dicranaceae is or can be justified, I can check it up from this book.

Some observations on the taxonomic concepts employed in this book. Allen currently thinks that *Dicranella*, *Microdus* and *Anisothecium* do not deserve generic recognition “because of a reticulation in the distribution of the [...] sporophytic characters” (p. 121). Deviating from the traditional North American broad concept of *Dicranum scoparium*, he recognizes *D. leioneuron* and *D. bonjeanii* as species (p. 138); I note this with pleasure, since in Scandinavia, we have long recognized them as species. In my opinion, Leucobryaceae (p. 171) should be shot and buried in the Dicranaceae, but who would be the undertaker? A new species of *Syntrichia* is described in the Pottiaceae (p. 205). In *Grimmia* and *Racomitrium* Allen does not accept the generic “splintering” done by

Ochyra et al. (2003), even if only for “practical” reasons concerning *Grimmia*. In *Schistidium* he follows Blom's (1996) species delimitations and asserts that Blom's revision is “extremely useful for the North American species”. One new species of *Schistidium* is described, Blom co-authoring (p. 254). The family Cinclidiaceae is recognized, although being “very close to the Mniaceae”. One wonders if it is too close, particularly since Cinclidiaceae is not very homogeneous. In Bartramiaceae the significant paper by Virtanen (2003) could have been cited.

Bruce Allen certainly maintains his high standards in this fine flora. Looking forward to seeing part 2 in print!

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- J. Enroth. E-mail: Johannes.Enroth@helsinki.fi

The Biology of Peatlands

This is to announce the recent publication of 'The Biology of Peatlands' by Håkan Rydin and John Jeglum, a textbook several years in the writing based on our combined experiences of research and teaching in Scandinavia and Canada, and travel and studies elsewhere. We were aiming to produce a balanced overview of the subject of peatlands, for a 5-credit semester (ca. 5-week full time) course, an introduction to the non-specialist, and a survey of the extensive peatland literature both old and current. I think we have achieved these goals, and hope that you may be interested to use this text for teaching and as a reference for research and management.

I invite you to look at the write-up in the OUP site below, and ask you to consider obtaining your personal copy and/or one for your library.

I apologize if this message or information has been repeated in other emails or announcements. If you have any questions or comments about the book please contact John Jeglum.

John K. Jeglum, Emeritus Professor
Swedish University of Agricultural Sciences

E-mail: jeglums@shaw.ca

Bryophytes as forest quality indicators

Indicator species for assessing the nature conservation value of woodland species – a Flora of selected cryptogams (in Swedish: Johan Nitare (ed.) Signalarter, indikatorer på skyddsverd skog – Flor over kryptogamer. 1991).

While attending the “Green Week”, an annual environment event organised by the European Commission, I received this book from Lennart Svedlund of the Swedish Forest administration. It is a gorgeously illustrated book of bryophytes, lichens and fungi and their use as a habitat quality indicator of forest biotopes. In total 55 bryophyte species (or taxa) are covered. By indicator species is meant: a species that is known to occur in sites where other endangered species can occur, restricted to rare substrates or woodland habitats, and indicators of old-growth forest conditions. Several woodland biotopes are recognised, ranging from Scots pine forests or e.g. coniferous forests on sandy soil to spring-influenced

areas in forests or shaded cliffs and boulders in forests.

Each of the 55 bryophytes (or genera) is presented with a high-quality photograph, its ecology, indicator value, species or taxa it can be confused with, other associated indicator species, and a map with its occurrence in Sweden (the map indicates also where the species has a high, medium or low indicator value).

Understanding that the vast majority of forest in Sweden are highly managed, this book is a very useful tool to inventory and monitor forest hemi-boreal and boreal forests. The concept can also be used in the vegetation zone next south of the hemi-boreal - in the southernmost part of Sweden and, to a certain extent in Continental Europe. The book contains also signal-species also for this vegetation zone.

Geert Raeymaekers

E-mail: Geert.Raeymaekers@ecosystems.be

Checklist of the Bryophytes of the Azores

Borges, Paulo A.V. et al. (Eds.) 2005. A list of terrestrial fauna (Mollusca and Arthropods) and Flora (Bryophyta, Pteridophyta and Spermatophyta) from the Azores. Dir. Reg. do Ambiente and Universidade de Acores, Horta, Angra do Heroísmo and Ponta Delgada. 317 pp. ISBN 972-8612-22-2

All Macaronesian islands (Azores, Madeira and the Canary islands) harbour rich flora with an important endemic component. This checklist, produced as part of this publication “Listagem de fauna e flora terrestres dos Açores”, includes a checklist of the bryophytes as well as of the ferns, flowering plants, molluscs and arthropods of the Azores. The book is the result of a European Union project, financed under the programme “Interreg III B”.

The introductory chapter presents the GIS-database, Atlantis Tierra 2.0, designed to store the biodiversity information of the Azores, which will be available in 2007.

The Canary Islands portal can be reached at <http://www.gobcan.es/medioambiente/biodiversidad/ceplam/bancodatos/biotaterrestre/Atlantis.jsp>

This chapter is followed by descriptions of the pattern of biodiversity (number of bryophytes, ferns, flowering

plants, molluscs and arthropods and species distribution across the different island groups) and information for conservation managers on how to use e.g. the database for predictive modelling. The following chapters are the checklist of the different taxonomic groups. This list is also available on-line: <http://sram.azores.gov.pt/lffta/>

This checklist of bryophytes, coordinated by Dr. Rosalina Gabriel, updates Sjögren (2001) and lists 5 hornworts, 151 liverworts (of which there are 3 endemic to the Azores) and 282 mosses (of which there are 6 endemics). Finally, the list also indicates the presence of the species in the different islands of the Azores and mentions the Azorean, Macaronesian and European endemics.

Sjögren, E. Distribution of Azorean bryophytes up to 1999, their island distribution and information on their presence elsewhere, including Madeira and the Canary Islands. Boletim do Museu Municipal do Funchal, sup. 7, 1-89.

To order, contact Dr. Rosalina Gabriel at: rgabriel@notes.angra.uac.pt

Geert Raeymaekers

E-mail: Geert.Raeymaekers@ecosystems.be

To order Flora Iberica

Volume III of Flora Iberica has been published (Volumens I and II foreseen for the next two years).
Vol. III. BRYOPHYTA, BRYOPSISIDA (cont.), POTTIALES & ENCALYPTALES. March 2006, 305 pp., ISBN 84-609-9097-4. Order from Europe: 32 €; Order non from Europe: 35 \$

To order, send filled in form by fax to: + 34-968-363917 or + 34-968-363963 or by mail to: Flora Briofítica Ibérica, Área de Botánica, Fac. Biología, Campus de Espinardo Universidad de Murcia, 30100 Murcia, Spain.

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COURSES AND WORKSHOPS

4th International Meeting on the Biology of *Sphagnum*: Alaska 2007

The Duke Herbarium is contributing to the organization of the **Fourth International Meeting on the Biology of *Sphagnum***. The last meeting was 2002, in Sweden and Norway, and this upcoming event takes place in beautiful southern Alaska in the summer of 2007.

Southern Alaska has extensive and ecologically variable wetlands and the region is exceptionally rich in peatmoss

diversity. The purpose of the meeting is to promote interdisciplinary interactions among scientists interested in peatland ecology, global change, and *Sphagnum* systematics / evolution. Below is the first announcement that was sent out over Bryonet in January, 2005.

The Fourth International Sphagnum Meeting has been scheduled for August 2007 in Alaska. The field trip portion will run the first week. The symposium portion will be in

Anchorage. The field trip will include several days in the Anchorage area and then the Kenai Peninsula. The field trip portion will conclude with a group flight to Sitka where we will see the southeastern Alaska coastal mire flora. Added attractions are glaciers, active volcanoes, marine wildlife, salmon runs, and earthquake-altered ecosystems.

The meeting is being organized by Dick Andrus, Blanka & Jon Shaw, and Karen Golinski.

This is just an early announcement and no costs have been established yet. Anyone interested in receiving more information as it becomes available should email Dick Andrus and he will send you updates as they become available. Check this site periodically for updates.

Dick Andrus
E-mail: randrus@binghamton.edu



IXth Australasian Bryophyte Workshop

The next Australasian Bryophyte workshop returns to Tasmania, where the inaugural workshop was held in 1988. It will be held from 3rd to 8th December 2007 and will be located at Maydena (90 kms west of Hobart) on the edge of the southwest World Heritage area.

Participants will encounter bryophytes in a variety of vegetation types that include, gondwanan cool temperate rainforests, button-grass sedgeland communities and wet eucalypt forests that contain the

tallest hardwood trees in the world. As well, there will be sessions devoted to bryophyte groups for beginners and specialists, while some evenings will be occupied with talks and poster presentations.

Further information may be obtained from the workshop conveners.

Paddy Dalton: P.J.Dalton@utas.edu.au

Emma Pharo: epharo@utas.edu.au

Rod Seppelt: Rod.Seppelt@aad.gov.au

The Twelfth Annual Spring Outing, Botanical Excursion, SO BE FREE 12

From 27 to 30 March, 2007 at the American Museum of Natural History's Southwestern Research Station, Cave Creek Canyon, Chiricahua Mountains, southeastern Arizona organized by John Spence, Ecologist National Park Service Glen Canyon National Recreation Area

This year we celebrate the Twelfth Annual So Be Free in the beautiful and spectacular setting of Cave Creek Canyon, on the eastern side of southeastern Arizona's second largest Madrean Sky Island mountain range, the Chiricahua Mountains, at the American Museum of Natural History's Southwestern Research Station, Cave Creek Canyon, Chiricahua Mountains, southeastern Arizona [Website: <http://research.amnh.org/swrs/index.htm> Director, Dr. Dawn Wilson; Station Manager, Diane Smith]

March will be a good time to collect at low and mid-elevations in the region, and with some luck the higher elevations may be snow-free when the workshop starts. A moderate El Niño is predicted for the

winter of 2006-2007, which usually means a wet winter in southern Arizona. Temperatures will be cool at night, and pleasant during the day, with potentially hot temperatures in lowland desert environments. Rain is likely at times, and snow may fall above 8,000 feet. The station is in a beautiful location, has comfortable rooms and bunkhouses, a library and bookshop, public telephone lines, Internet Access, and best of all for \$20/day three solid meals will be prepared for us. The lab has about 20 dissecting and compound microscopes for our use. The conference room will also be available for evening discussions and slide shows. We are holding it mid-week this year, assuming people might want to do some fieldwork travelling to and from.

Reservations:

The Retreat will begin on the evening of March 27th. Make reservations for SWE Station rooms through John Spence. E-mail John_Spence@nps.gov;

US Forest Service Campground at entrance to Cave Creek Canyon, about 8 minutes from Station. Night fee of ~8-10\$ (no showers). If you prefer a hotel room try out the two options at:<http://www.portalarizona.com/lodging.html>

John Spence, P.O. Box 833, Page, AZ 86040-0833

By January 31, 2007, I need to hear from everyone who is coming. Please provide the following

information: Name and spouse name if coming, Vegetarian or not, duration of stay, reservation and payment (preferably earlier than this!), whether you want to give an evening talk; subject and approximate length (Powerpoint, computer projector, slide projector, etc. are available).

John Spence
E-mail John_Spence@nps.gov;

CONSERVATION COLUMN

The EU-Habitats Directive. *Leucobryum glaucum* and a field guide to the *Sphagnum* species of Central Europe

Sphagnum (peat moss) and *Leucobryum glaucum* are listed in Annex V of the European Habitat Directive. Due to this legislation, all member states of the European Union have to monitor populations of these species to assure their favourable conservation status. In Germany, the Federal Agency for Nature Conservation just published methodical recommendations for the monitoring of these species (in German language):

WEDDELING, K., TAUTZ, P. & G. LUDWIG (2005): Moose (Bryophyta). - In: Doeringhaus, A., Eichen, C., Gunnemann, H., Leopold, P., Neukirchen, M., Petermann, J. & Schröder, E. (Bearb.): Methoden zur Erfassung von Arten der Anhänge IV und V der Fauna-Flora-Habitat-Richtlinie. - Naturschutz und Biologische Vielfalt 20: 28-112.

As a supplement, this volume also includes a field guide to all *Sphagnum* species of (Central-)Europe for

determination in the field (lens attributes) with excellent pictures and drawings:

LUDWIG, G. (2005): Bestimmungsschlüssel der Torfmoose Europas. - Supplement to: Doeringhaus, A., Eichen, C., Gunnemann, H., Leopold, P., Neukirchen, M., Petermann, J. & Schröder, E. (Bearb.): Methoden zur Erfassung von Arten der Anhänge IV und V der Fauna-Flora-Habitat-Richtlinie. - Naturschutz und Biologische Vielfalt 20

Both publications can be ordered (28 Euros) at the publisher's homepage:

<http://www.agrarshop.de/bfn/index.jsp>

Klaus Weddeling. kweddeling@aol.com
weddeling@web.de
<http://members.aol.com/kweddeling>

Pacific North-West Commercial Moss Harvest

If you're curious about the practice of moss harvest, please visit the website I've patched together on my experiences with the commercial harvest of epiphytic moss in the temperate rainforests of the Pacific Northwest of North America. I discovered moss harvesting in college through an anthropology professor interested in non-timber forest products and became instantly hooked. I've been working on collecting basic information (species composition, host associations, biomass inventory and accumulation rates) and evaluating the impacts of this commercial harvest for about 15 years, culminating in a dissertation I plan to complete this year. The website



has photographs and text on PNW moss habitats, moss harvest (before and after shots), my research, and includes a bibliography of related literature (although mostly tangentially related as there has been little research on this topic elsewhere). Feel free to contact me if you have questions or would like to share experiences/literature on moss harvest in other parts of the world.

Website:

www.strengtheninperspective.com/JPMoss

JeriLynn E. Peck

WEB NEWS

Cryptogamie – Bryologie

We are very happy to announce the opening of our web site www.cryptogamie.com.

By this way, you should be able to:

- discover our journal: [Cryptogamie, Bryologie](#) ; [Cryptogamie, Mycologie](#) ; [Cryptogamie, Algologie](#);
- see to the contents of each issue and summaries of each published article;
- search an article among our publications (since January 2006);
- [to subscribe on line](#).

Of course, we shall continue developing the website; mainly with the contents and summaries of the previous years.

For further information, do not hesitate to contact us.

Denis Lamy, *President of ADAC and Director of the publication Cryptogamie*

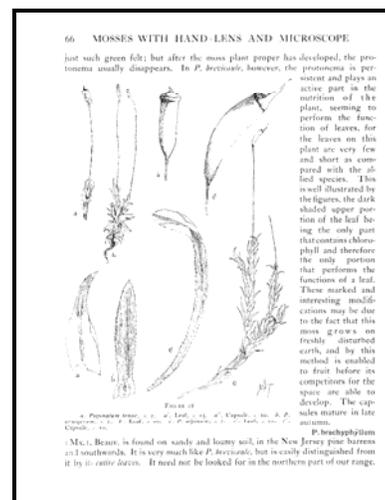
E-mail: Lamy@mnhn.fr

Mosses with a hand Lens and Microscope

We have posted on the website the book "[Mosses with a Hand Lens and Microscope](#)" by A.J. Grout. Published in 1906, the book is full of extremely well done drawings of mosses and their types along with explanatory text. We have found it to be an excellent aid to understanding and identifying mosses and would like to ensure it can be accessed by people who could really get some benefit out of it.

We would like simply to make the collection and book available to the bryology community as a contribution to the understanding, identification, and enjoyment of mosses.

Larry and Dar. larry@fairhavenbryology.com and Dar@fairhavenbryology.com



Index of Bryophytes, 2005

The Index of Bryophytes, 2005, is now available. You may request a pdf file from either of us or directly download the pdf from: <http://www.mobot.org/MOBOT/tropicos/most/bryolist.shtml>

You will find both the 2001--2004 and the 2005 list there. We are currently adding the 2005 names to the 2001--2004 list, and the updated 2001--2005 list will be available in pdf soon. We feel that annual lists may serve as quickly scanned newsletters in which

workers can see what has occurred recently: the 2005 list is only 12 pages, including coverpage, explanation of format, which has changed slightly from 2001--2004, and the bibliography.

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Moss images

The 'Moss Images' website has been moved to a new address some time ago. The address is:

<http://www.mossimages.pwp.blueyonder.co.uk>

Images are freely available to anyone for whatever purpose - just copy them from the website. Judging

by the feed-back, people are finding it to be a useful resource, which is pleasing.

Des Callaghan

E-mail: des.callaghan@hotmail.co.uk

Mosses of Chile

It is a pleasure to present you the first website about Chilean mosses. It is completely in Spanish and it contains field photographs (in quite good resolution) mostly of mosses, basic literature for studying Chilean mosses and a brief history of the bryological research made in the country, as well as an introduction to the ecological role of bryophytes and links to useful sites. If you want a photo in bigger resolution, just ask me.

The page is still in preparation, so any comments about it that you can send to me are very welcome. Website: <http://www.musgosdechile.cl>

Juan Larrain Benoit, Departamento de Botanica, Universidad de Concepcion, Casilla 160-C, Concepcion, Chile
E-mail: juanlarrain@udec.cl

Illustrations Flora of North America

The illustrations for the bryophyte volumes of the Flora of North America will focus on rare and poorly understood species. The first volume is slated to appear late this year, with help of Fortune. Low (but adequate) resolution versions of illustrations for many species are now on the BFNA Website:

<http://www.mobot.org/plantscience/bfna/bfnamenu.htm>

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Liverwort website

We are pleased to announce a new website devoted to liverworts, associated with our collaborative project to reconstruct the "Liverwort Tree of Life". The research is funded by the U.S. National Science Foundation, and includes teams at the University of Michigan, University of Southern Illinois, University of Connecticut, Yale University, the Field Museum, and

Duke University. Comments, suggestions, corrections are, of course, welcome.

<http://www.biology.duke.edu/bryology/LiToL/>

John Shaw

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The Bryological Times, founded in 1980 by S.W. Greene (1928-1989), is a newsletter published for the *International Association of Bryologists*. Items for publication in The Bryological Times are to be sent to the Editors or Regional Editors, except for those for the regular columns, which may go direct to the column editors.

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UPCOMING MEETINGS

2007

March 9 – 11: BBS Bryophyte Ecology Group Spring Workshop. Preston Montford. See BBS website.

April 14-15: BBS Spring field meeting, Northamptonshire (exact date to be confirmed). Contact: joan.james1@virgin.net

July 7 – 14 (tbc) BBS Summer field meeting. Mull. See BBS website.

July 23-27 IAB meeting in Kuala Lumpur, Malaysia. See this issue of the BT (page 2). Organizers: Dr. Haji Mohamed and Dr. Amru N. Boyce, Fac. of Science, University of Malaya, Kuala Lumpur 50603

August 12-16: ABLS meeting: Xalapa, Mexico. See www.abls.org

September 29-30: BBS Annual general meeting and paper-reading session. Liverpool. See BBS website