ASSOCIATION NEWS

Towards IAL5 – Tartu (Estonia), 16–21 August 2004

Preliminary registration for IAL5 has finished. By now, 240 persons have pre-registered. 40 countries from Europe, Asia, North- and South-America, Africa and Australia are represented. 10 or more participants have pre-registered from the following countries: Russia (42), Germany (19), USA (13), Poland (12), Estonia (11), Italy (11), Sweden (11), and UK (10).

The popularity of symposia is as follows: Quality and Quantity: maintaining biological diversity in space and time (105 proposals), Contributions of lichen ecology to a better understanding of lichens in ecosystems (75), Systematics & Evolution (69), Genes, Physiology and Structure (42), Lichen Photobionts (14), Lichen Uses (14). 96 persons are interested in pre-congress excursions and 103 – in post-congress excursions.

The IAL5 Scientific Committee, including 21 members from 10 countries, has been formed. The whole scientific programme of the Symposium will be divided into six Thematic Sessions and three Discussion Sessions. Each Thematic Session will consist of oral and poster presentations and will be led by a "triumvirate" consisting of Convener, Chairperson and Poster-chairperson. These "triumvirates" will also make the final decisions concerning the format (oral lecture or poster) of each presentation; your own suggestions on this matter will surely be taken into consideration. Discussion Sessions will be open to everybody, they will be organised and led by a convener. Members of "triumvirates" and conveners of Discussion Sessions were appointed by the Council of IAL and they form the Scientific Committee of the Symposium.

If you have any problems concerning you presentation (inside any of the six Thematic Sessions), please consult the convener of the according Session.

Further information about the deadlines, fees, excursions etc. is presented in the Second Announcement which is available on the internet (**http://www.ut.ee/ial5**); it will also be distributed by post to all members of the IAL and to those persons who have pre-registered.

Tiina Randlane, Tartu, Secretary of the IAL5 Local Organising Committee

The Sylvia Sharnoff Educational Award – A call for co-operation

The IAL Council has introduced the Sylvia Sharnoff Educational Award, dedicated to the memory of Sylvia Duran Sharnoff, which will be given in Tartu (IAL5) to the best web page devoted to lichens prepared by a class or a school at pre-university level (info: **http://dbiodbs.univ.trieste.it/lichens/Sharnoff_Award**).

By now we have 53 registered pages. However, the ratio between existing web pages and applications - as far as I can judge from the many hours I spent on interesting web-surfing, but is distinctly biased in favour of certain countries and languages. Going into details, we have, for example, no applications from the following languages/areas: Arabian Languages and Persian (Farsi), Australia and New Zealand, Denmark, Dutch (The Netherlands) Finland, French in general (!!), Greece, India, Israel, Oriental areas (from Japan to Thailand), Portuguese, Russia and Slavonic Countries (incl. Ukraine, Slovenia),

Swahili and Turkish (the examples refer to areas/languages where I have found at least one site in the internet which fits our requirements).

This is a typical matter where the Advisory Board of IAL can be of great help. Please contact your national/regional lichen society and try to find somebody (at the best, a pre-university teacher) who is willing to search the Web for pages devoted to lichens prepared by schools in the geographic-linguistic area covered by the society. The job is easy: it just consists of sending me (*nimis@units.it*) two pieces of information: 1) addresses (URLs) of the web pages, 2) e-mails of the school or institution which hosts them.
An example:
1) URL: **http://www.scuole.prato.it/malaparte/media/licheni/home.htm**
2) E-mail: *sm.malaparte@po-net.prato.it*

The deadline is 30 March 2004, but . . . the sooner, the better!

Pier Luigi Nimis, President of IAL

Call for next council – a reminder

Please submit nominations for the following officers (President, Vice President, Secretary, Treasurer, Assistant Treasurer, Editor, Members-at-Large) to be elected at the upcoming meeting in Tartu, Estonia. A nomination does not automatically place a person on the ballot. The nomination committee will confer with nominees to see if they are willing and able to serve before placing them on the ballot.

Helmut Mayrhofer, Graz, and Bruce McCune, Corvallis

Mason Hale Award given to Andreas Beck at the Symbiosis Congress 2003 in Halifax

The Mason Hale Award was given to Andreas Beck (Bayreuth) on the occasion of the International Symbiosis Society Congress in Halifax 2003 for his thesis entitled "Selektivität der Symbionten schwermetalltoleranter Flechten" („Selectivity of symbionts in heavy-metal-tolerant lichens"). Andreas Beck investigated the inventory of photobionts in chalkophilic lichen associations as well as the distribution of the algal partners in relation to lichen species and ecological conditions. Twelve algal species were found in 62 investigated lichen species. Three species were described as new to Science, and one subspecies was raised to species level. Andreas Beck used a broad range of techniques in his thesis, including light microscopy, DNA sequencing, culture techniques, TLC, HPLC, atomic absorbtion spectrometry, etc. Almost all lichens show a high selectivity for their photobionts, whereas algal species were less selective for fungal partners. However, there was no evidence for co-speciation. The photobionts differed in their heavy metal resistance, especially with respect to copper. Phytochelatin production and complexes with Cadmium were detected. There was generally no influence of heavy metals on the photobiont choice, but species with less-tolerant photobionts were absent on substrates with high heavy metal concentration.

The Editor

NEWS

Flora of New Zealand Lichens

Second edition! Due out mid-2004 and to be published by Manaaki Whenua Press.

New Zealand is noteworthy for the richness and diversity of its lichen mycobiota, and since 1985 knowledge of our lichens has increased by over 60% both in terms of numbers of genera and species, making a revised edition necessary. This new edition of the *Flora of New Zealand Lichens* covers 1684 taxa in 351 genera, of which 316 are lichen-forming genera, and 35 are lichenicolous fungal genera (included for the first time). It will be of interest to lichenologists in all countries and especially those of the South Pacific and southern South America.

Keys to genera are provided, covering foliose, squamulose, fruticose, filamentous, placodioid, leprose, crustose, foliicolous and lichenicolous life forms. Genera are arranged alphabetically and do not follow any particular systematic arrangement. Each genus is given a detailed description (or referred to an extant description in the first edition of *Flora of New Zealand Lichens* or in a relevant recent work), and a commentary on the genus provides up-to-date references for further information. Keys to species within different genera precede detailed species descriptions that are also arranged alphabetically. Species descriptions follow a standard format and discuss thalline, apothecial and chemical characters where known. A biogeographical designation is assigned to each taxon (10 biogeographical elements are recognized in the New Zealand lichen mycobiota) and notes on distribution and ecology, and distinguishing characteristics of each taxon are included. All names based on New Zealand material are typified, both homotypic and heterotypic synonyms are listed, and the provenance of all type material is indicated when known.

Introductory material includes: recent lichenological exploration in New Zealand, a survey of taxonomic literature relating to New Zealand lichens for the period 1983–2004, and a revised list of collectors of New Zealand lichens and of institutions where their collections are held. An index to accepted taxa and to synonyms is provided, and the second edition is supported by an exhaustive bibliography that will be a useful resource for all lichenologists worldwide.

David Galloway, Wellington

Checklist of Japanese Lichens

The *Checklist of Japanese Lichens*, a project by the Lichenological Society of Japan (LSJ), was published by the National Science Museum in July 2003. In the present checklist, 1608 taxa of 307 genera reported before July of 2003 are included. The list also includes Japanese common names of lichens in Japanese, if present. The list is edited by: Syo Kurokawa (Editor in Chief), Teuvo Ahti, Masakane Inoue, Hiroyuki Kashiwadani, Tatsuo Matsumoto, Hiromi Miyawaki, Kwang-Hee Moon, Minoru Nakanishi, Yoshihito Ohmura, Heinai Shibuichi, Goran Thor and Kozo Yoshida. The *Checklist of Japanese Lichens* is distributed to members of LSJ free of charge. If you are interested in this publication, please contact to Nobuo Hamada (MXI00715@nifty.com), secretary of LSJ. The *Checklist*

is also available on the website of LSJ homepage but without the preface and references. The URL is **http://home.hiroshima-u.ac.jp/lichen/cklist.htm**

Nobuo Hamada, Osaka

IUCN 2003 Red List

IUCN has launched the *2003 Red List*, which includes lichens for the first time. The International Commission for the Conservation of Lichens of IAL and the Lichen Specialist group of IUCN, Species Survival Commission, have documented two lichen species, *Cladonia perforata* and *Erioderma pedicellatum*, for this year's *Red List*. I am very grateful to lichenologists who contributed to this project and I invite you to suggest additional species for the next year's edition of this important document. You find the complete information on the following websites:
http://www.iucn.org/
http://www.iucnredlist.org/
http://www.iucn.org/themes/ssc/RedList2003/English/profilesEn.htm

Christoph Scheidegger, Birmensdorf

News on "Lichens of North America" by Irwin Brodo, Sylvia Duran Sharnoff and Stephen Sharnoff

Yale University Press reports that the second printing of LNA is almost gone (ca. 10,000 sold), and we have begun to discuss the possibility of a third printing or even a new edition. We are aware of some errors in the book that need correction, but we would welcome (well, perhaps "welcome" is too strong) being informed of any other errors that have come to light, other than changes in nomenclature and taxonomy and the items brought to our attention by reviewers.

Irwin Brodo and Steve Sharnoff, Ottawa

Excursion: Lichens of the Sierra - El Bosque, Mataelpino, Sierra de Guadarrama, 14-18 July 2004

An introduction to the luxuriant lichens of the mountains and forests of the Sierra de Guadarrama in Central Spain. The granitic peaks rise to over 2300 m, and include the UNESCO Alto Manzanares Biosphere Reserve. Accomodation in a brand new centre with sauna and spa facilities and an excellent fish and vegetarian restaurant (see **www.el-bosque.org**) is 40 min from Madrid airport with cheap flights from many European destinations. The charge is inclusive of food and accommodation; for those wishing to explore the region for longer, the centre is offering accommodation and food for the period 11-18 July for € 650. For further information or to book contact the centre (*com@el-bosque.org*) or excursion leader (*myconova@terra.es*).

David L. Hawksworth, Madrid

ABLS meeting at Snowbird, Utah, 31 July - 5 August 2004

The above lichen field trip will be led by Larry St. Clair. Anyone wishing to give a paper on any aspect of lichen biology or to participate in a session on lichen and bryophyte biogeography should get in touch with Nancy Slack, president-elect/program chair at slackn@sage.edu

Nancy Slack, Troy NY

Personalia

Jarle W. Bjerke, University of Tromsø (Norway), defended his doctoral thesis in June 2003. The four papers included in the thesis, three of which have already been published, deal with the effects of solar ultraviolet-B (UV-B) radiation on arctic and alpine lichens. Jarle intends to continue with research on the effects of climatic change on lichens from high altitudes and latitudes. He is also involved in taxonomic and biogeographical projects. More information on papers included in the thesis can be found on the website **http://www.ib.uit.no/~gunnanne/Lavgruppen2/international_publications.htm**

Palmira Carvalho (Lisboa) visited **Martin Grube** in late summer to work on *Collema*, with special focus on the *C. tenax* complex in the Iberian peninsula. The lab facilities in Graz also hosted **Lucia Muggia** (Trieste) who started to work on species delimitation in the *Caloplaca variabilis* complex. In fall, **Magdalena Opanowiecz** (Wrocław) spent three months in Graz for molecular studies in Parmeliaceae.

Miris Castello (Trieste, Italy) was confirmed in the permanent position of researcher at the Department of Biology of the University of Trieste. She is presently working on interactive identification keys of Antarctic lichens.

Chicita Culberson and **Irwin M. Brodo** are reviving a project begun by William (Bill) Culberson over 15 years ago, namely a revision of the North American species of the genus *Haematomma*, which he was actively working on its completion when he became ill last year. The work will include a detailed description and evaluation of the rich chemistry found in the genus, and the distribution maps will reflect the huge amount of work Bill and Chicita did over the years, studying the morphology and chemistry of well over 800 specimens. Although we have requested the loan of material from a few more herbaria, the study of the specimens has essentially been done. However, if anyone has material of *H. ochroleucum* (syn. *H. porphyrium*) from North America, or any of the other sorediate taxa (e.g., *H. americanum*, *H. sorediatum*, or unidentifiable sorediate *Haematomma*s), we would be interested to see it. The study covers North America including Mexico as well as the West Indies and Central America.

Damien Ertz (National Botanic Garden of Belgium) is preparing a taxonomic revision of the paleotropical *Opegrapha* species for his PhD under the direction of **Emmanuël Sérusiaux** (Liège) and **Paul Diederich** (Luxembourg). It includes a molecular analysis of the Arthoniales, for which, in the framework of the AFTOL project, he visited **François Lutzoni**'s laboratory at Duke University from August to December 2003. He made collecting trips to the Republic of Benin in June 2002 and to the island of La Réunion in June 2003, and visited the herbarium of NY in November 2003. He prepared a worldwide revision of the genus *Trimmatothele* with **Paul Diederich** and is currently working on a

synopsis of *Plectocarpon* with **Claude Christnach** and **Paul Diederich**. He is contributing to the second volume of the Sonoran Lichen Flora for some lichenicolous genera.

Mahroo Hadjmoniry (Biology Department, Azad University, Tehran) is studying the lichen taxonomy of the Khorasan province in North-Eastern of Iran for her PhD thesis. She started her studies two years ago and has collected many specimens from this province which are stored in the Research Institute of Forests and Rangelands in Tehran and two other herbaria. As lichenological research in Iran is hampered by the lack of experts and literature, indirect guidance by European lichenologists, especially by **Harrie Sipman**, is helping Mahroo in her pioneering work so far.

Per Gerhard Ihlen, Bergen, successfully defended his doctoral thesis "*Rhizocarpon* DC. (Rhizocarpaceae, lichenized Ascomycota): The taxonomy of the non-yellow species in the Nordic countries, with hyaline and muriform ascospores, and an outline of the phylogeny and character evolution of the genus" in September 2002 with **Hannes Hertel** and **Roland Moberg** as opponents. Ihlen was supervised by **Tor Tønsberg**. Per Gerhard has started as a post-doctoral fellow at Umeå University on the project "The lichenicolous (lichen-inhabiting) fungi of Sweden". The main aim is to summarize and update the current knowledge of Swedish lichenicolous fungi, but smaller taxonomic treatments will also be carried out. This project is part of the Swedish Taxonomy Initiative (**http://www.artdata.slu.se/Svenska_artprojektet_Eng.htm**).

Michael Lakatos completed his postdoctoral grants (EC: NETCARB and ESF: SIBAE) in Lisbon at the Faculty of Science University of Lisbon (FCUL) with **Cristina Mágua** and started as Assistant Professor of Ecology at the University of Technology of Kaiserslautern, Germany. His main interests are ecology and physiology of cyanobacteria, algae and lichens.

Helmut Mayrhofer (Graz) continues and expands lichenological cooperations in South-East Europe and hosted research partners in Graz. From Slovenia, **Tanja Mrak** studied the lichen flora of the Bohinj area of the Triglav national park and **Rok Mesl** focused on oak forests in Slovenia. **Cvetomir M. Denchev**, **Dimitar Y. Stoykov**, **Siyka O. Nikolova** are preparing a national checklist for Bulgaria together with Helmut. The comparatively recent material of the lichen herbarium of Graz was a valuable source of information for these visitors. Helmut is now preparing for a field trip to Montenegro in spring 2004.

Rikke Reese Naesborg, a PhD student with **Leif Tibell** at Uppsala University and **Stefan Ekman** at Bergen University, is working on the phylogeny of *Lecania* and would welcome fresh material (preferably not older than two years) of as many species within the genus as possible. Contact with lichenologists with knowledge of and interest in *Lecania* would be most welcome.

Elena Pittao (Trieste, Italy) obtained a 3-year position as PhD student at the Department of Biology of the University of Trieste, starting in January 2004. Elena intends to work on a thesis on bioaccumulation phenomena in epiphytic lichens.

Sanja Savic started a four-year PhD program in Uppsala under the supervision of **Leif Tibell** in October 2003 on the systematics, phylogeny and conservation status of

Polyblastia in Sweden funded by a grant from the "Swedish Species Initiative" project. The study will include detailed morphological investigations, together with inference of the phylogeny of *Polyblastia* and the relationships of *Polyblastia* to other Verrucariales based on molecular data. Sanja would greatly appreciate fresh material of *Polyblastia* from Europe for both the morphological work and for the DNA isolations!

Matthias Schultz, now at the Botanical Institute of Hamburg University, visited the ASU Lichen Herbarium at Tempe, Arizona from 3 March to 13 April 2003. Fieldwork was conducted in various desert areas in the American SW. Together with **Ulrik Søchting**, **Björn Owe-Larsson**, **Laurens Sparrius** and the ASU herbarium crew he joined a 10 days trip to Baja California organized by **Tom Nash**. Further field studies were made in Chihuahuan Desert habitats of southern New Mexico and western Texas together with **Richard Worthington** from El Paso. Mojahe Desert habitats were visited in southeastern California and southern Nevada. These activities are part of a revisionary study of selected genera of the Lichinaceae (*Peccania*, *Lichinella*, *Gonohymenia* and *Pterygiopsis*) in the American SW which has been funded by the DFG (Deutsche Forschungsgemeinschaft) since March 2003. Supported by Tom Nash, Matthias visited **Mauro Tretiach** at Trieste (early July 2003) to proceed with collaborative work on genera of Lichinaceae within the Sonoran Desert Lichen Flora Project.

Mark Seaward accepted the Geneva Sayre Fellowship in August 2003 to work on the Thomas Taylor lichen collection in the Farlow Herbarium. He was greatly assisted there by **Donald Pfister** and **Scott LaGreca**. From Harvard he went to Halifax, Nova Scotia to deliver a keynote lecture at the 4th International Symbiosis Society Congress. In September 2003 he visited Bad Dürkheim to continue his collaborative research with **Volker John**.

Emmanuël Sérusiaux visited **Claude Roux** in November 2003 to complete a revision of the genus *Strigula* in Western Europe and Macaronesia. The revision provides full descriptions and illustrations of ascospores and macroconidia for 22 species, as well as chorological and ecological data. Keys for specimens with ascomata or with macropycnidia only are also included.

Mohammad Sohrabi (Tehran, Iran) spent three weeks in September at the Deptartment of Biology of the Trieste University. Despite the short time and the huge amount of work (photocopying thousands of pages, identifying lichens, socializing with everybody . . .), he also managed to take part in the annual meeting of the Italian Lichen Society (SLI) in Firenze, where he met **Roman Türk**, **Jacob Garty** and many Italian friends. Mohammad, now a member of the SLI, is planning to follow a PhD course on the lichens of Iran starting in late 2004.

Laurens Sparrius (Leiden University, The Netherlands) finished a world monograph of the genera *Enterographa* and *Sclerophyton* (under the supervision of **André Aptroot**, CBS). The work will be published in *Bibliotheca Lichenologica*. Laurens is now looking for a PhD job in the field of lichen taxonomy or ecology.

New members

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REPORTS

Reports from local lichenological societies

The annual meeting of the **Italian Lichen Society** (**http://dbiodbs.univ.trieste.it/sli/home.html**) took place in Florence on 18 and 19 September 2003, (details of the program can be found at: **http://dbiodbs.univ.trieste.it/sli/conv2003/conv2003.html**). About 80 participants attended. Roman Türk (University of Salzburg, Austria), SLI honorary member, attended as invited speaker. The meeting was dedicated to the study of lichen vegetation.

The first day was devoted to two themes, "The phytosociological approach in the study of lichen vegetation", with contributions spanning from theoretical and philosophical issues to syntaxonomy, and "Lichen vegetation and environmental changes", with talks dealing with ecological factors affecting the lichen biodiversity in the Alps, and the effects of nitrogen and forest management on epiphytic lichen communities.

The second day dealt with "The lichen vegetation of peculiar environments" with contributions touching factors involved in the establishment of saxicolous lichens in specific biotopes of the Eastern Mediterranean basin, changes in lichen diversity along climatic gradients, lichen communities of ophiolithic outcrops in the Alps, and the lichen vegetation of *Castanea*, *Fagus* and *Larix*. Some pictures of the meeting can be viewed at **http://dbiodbs.univ.trieste.it/sli/conv2003/foto.html**.

Stefano Loppi, Siena

News from The Natural History Museum

This year has seen a flurry of activity at the Lichen Herbarium. René Larsen from Copenhagen is employed by William Purvis on a NERC grant for nine months to monitor lichens in London's Parks applying the European method. Hannah McPherson from the Royal Botanic Gardens, Sydney was here for the first six months of the year as Simone Louwhoff's maternity replacement. We had two Sys-resource visitors: Jurga Motiejunaite from the Institute of Botany in Vilnius, Lithuania was here for five weeks to identify lichen species associated with old growth forests in Lithuania and NE Poland in order to define important conservation areas. Anna Guttova from the Slovak Academy of Sciences, Bratislava was here for five weeks, mainly in the molecular lab, in order to develop a phylogeny to refine species concepts in the genus *Leptogium*. Gintaras Kantvilas from the Tasmanian Herbarium in Hobart, Tasmania was with us for five weeks, working together with Simone on a project to reduce the Museum's backlog, funded by the Natural History Museum's (NHM) Special Funds as well as Botany Enhancement Money. Cecilia Rubio from Valparaiso University, Chile was here for three weeks, funded by Raleigh International (RI) to identify lichens collected from the Aysen Region as part of the RI project. Wanaruk Saipunkaew from Chiang Mai University, Thailand, is continuing her Royal Society (RS) joint project for six weeks with Pat Wolseley on developing lichens as bioindicators of pollution in the tropics, and with Simone and Pat on Parmeliaceae from northern Thailand. Peter James and Clifford Smith presently spend much of their time editing the upcoming revision of the *Lichen Flora of Great Britain and Ireland*. Anna Crewe from Umeå University has been here for several visits this year and continues to work on *Acarospora* for her PhD thesis, which is jointly supervised by Mats Wedin from Umeå University, Sweden and William Purvis (NHM). William is also involved with a number of other projects on metal accumulation in lichens; in Russia with Irina Mikhailova from the Russian Academy of Sciences, Ekaterinburg (a RS Joint Project), and in Poland with Barbara Pawlik-Skowronska from the Institute of Ecology, Lublin. Pat Wolseley has been working on projects concerning BioAssess with Christoph Scheidegger, ongoing projects on lichens and nitrogen with Mark Sutton and others at the Centre for Ecology and Hydrology, Edinburgh, and editing the Nitrogen Workshop papers. She is now catching up on the Thai project with Wanaruk. Simone returned as lichen curator following six months maternity leave and she is now rounding off her activities at the NHM. She will be returning to Australia in December after a very enjoyable three years at the NHM, during which time she met many wonderful people from whom she learned a lot, Thank you! The lichen curator post will be advertised on the lichen list server, among other places, and lichenologists with a strong interest in taxonomy and curation are encouraged to apply.

Simone Louwhoff & Pat Wolseley, London

Excursion and Mini-symposium for The Nordic Lichenological Society (NLF) held in Troms, North Norway, August 2003

The 2003 NLF Excursion was arranged at the Field Station of the University of Tromsø at Skibotn, central north Norway 6–10 August, and included 38 participants. To allow for invitation of non-Nordic lichenologists like Brian Coppins, Martin Grube, and Mikhail Zhurbenko funding was obtained to combine the excursion with a mini-symposium. Six Nordic participants (Ulrik Søchting, Ulf Arup, Vagn Alstrup, Line Balschmidt, Silke

Werth and Jarle W. Bjerke) gave presentations on most mornings and evenings before or after the excursions. The Skibotn Valley and surrounding mountains have a very rich selection of habitats. In the lowland, these range from acidic sea-shore rocks, to S-facing cliffs and boulder slopes near the river both along its lower part and further up where it forms a river gorge. Aspen, pine, old birch forest and riparian *Alnus*/*Salix* forest was also represented. In the mountains we had access to a construction road, normally closed, which brought us rather far into the mountains with substrates ranging from iron-rich quartzites to calcareous schists and sandstones to marble. This combined with a strong variation in climate from the warm, continental valley bottom to middle alpine boulder fields support a very high lichen biodiversity. Data are now being prepared for two papers, primarily aimed for the journal *Graphis Scripta*, one on lichens and a separate one on lichenicolous fungi. Preliminary estimates indicate that more than 600 species were observed or collected on the excursion, in addition to about 50 other species previously known from the area (including the neighbouring valley). This is a very high number for such a limited area. A very large number of lichens were collected as new to the county Troms, some also for larger areas like north Norway, or Fennoscandia, and most of these are members of difficult crustose genera. Thus, the gathering of so many specialists really helped in discovering the hidden, but very important biodiversity of such a northerly positioned site. The Brennfjellet area needs reconsideration for being included in a neighbouring forest reserve, and the Gustavsvingen river gorge area also has both floristic and landscape values deserving protection, although the river itself has been subject to hydroelectric regulations.

As organizers we thank all participants for coming and for sharing lichen fascination and culinaric experiences including 'rotten' fish and lichen salads with us!

Arve Elvebakk, Jarle W. Bjerke, and Tina Dahl, Dept. of Biology, University of Tromsø

The participants of the NLF meeting in Troms.

The fourth ISS Congress in Halifax, 17–23 August 2003

The 4th ISS Congress in Halifax was both a very productive and rewarding event. Due to the great organizational work by David Richardson and Douglas Zook, about 250 scientists and teachers from 25 countries met at Saint Mary's University, Halifax, Nova Scotia, Canada.

The keynote contributions to each of the symposia gave an overview of novel, exciting results of symbiotic interactions within a huge and nowadays growing field of research. Referring to Douglas Zook (president), symbiosis research is taking a shift from a peripheral topic into a central interdisciplinary tenet of biology, as plant and animal symbioses are important for the understanding of ecological and evolutionary processes, cell research, phytopathology, forest management and agriculture.

Symposium 3, Lichens, was organized by Mark Seaward, who gave an outstanding key note speech about the use of lichens for environmental impact assessment. In the following contribution, Daniele Armaleo discussed the very surprising role of secondary compounds and their possible involvement in the very complex processes of photosynthesis. Trudi Schaper and Sieglinde Ott concentrated more on symbiotic interactions and selectivity of mycobionts towards a variety of photobionts. My contribution focussed on secondary chemistry of cultured mycobionts and resynthesis products as exemplified by a successful resynthesis of *Cladia retipora* and *Dactylina arctica.* The next talk by Nora Wirtz gave an interesting insight in the reduced specifity of cyanobionts in lichens under extreme conditions. Heath O'Brien presented a multi-locus study of cyanobacterial specifity that are associated with closely related species of lichen-forming fungi. A paper, much discussed by the audience, was given by Cristina Maguas talking about water use efficiency and respiration in lichens in the dark. Jean Pierre Paul de Vera gave a stimulating talk about lichen symbiosis including simulation of extreme conditions, followed by Larry St. Clair who focused on the nature of the lichen symbiosis and evidence for mutualism.

The poster presentation about lichens covered many further interesting topics such as phylogenetic relationships of lichen-forming and non-lichenized fungi, mycobiont-photobiont population structure in *Peltigera* communities, colonization processes of lichens on Antarctic nunataks, variation of growth pattern in species of the genus *Rhizocarpon*, the lichen *Erioderma pedicellatum* as an example of extreme decline, the role of mitochondria in lichens, culture of mycobionts of Australian Xanthoparmeliaceae and the culture of lichen mycobionts for future production of biologically active compounds.

Elfie Stocker-Wörgötter, Salzburg

The application of molecular markers in studies of Cryptogam evolutionary ecology and conservation biology – A workshop in Höör, Sweden, 7–9 November 2003

Cryptogamists, mainly from (Northern) Europe, but also from America and Asia met for three days in the small city of Höör to intensively discuss recent progress and problems of research. The meeting was organized by: BRYOPLANET (Bryophyte Population and Landscape Analysis Network) and the Section of Plant Ecology and Systematics, Department of Ecology, Lund University, with an organizing committee formed by Nils Cronberg, Ulf Arup and Anders Dahlberg. The event was sponsored by the Nordic Academy for Advanced Study. The weather (cold, windy, rainy . . .) helped to keep bryologists, pteridologists and lichenologists together.

The meeting was subdivided to three main sessions: "Genetic population structure, gene flow and phylogeography", "Cryptic speciation: incongruence between morhophological and molecular data sets", "Clonal diversity and persistence". Specialists for each of the main cryptogam groups gave introductory lectures and/or presented case

studies. The lecture part was followed by discussion groups, which revealed gaps of knowledge and topics for future reseach. For example: In lichens, there is still little information concerning reproductive modes and mating systems. Only in a few lichens, including *Lobaria pulmonaria* or *Letharia* the reproductive mode has been studied thoroughly. Furthermore, the reproductive mode of the lichen photobiont is largely unknown (whether sexual recombination occurs). Also, data on hybridisation are lacking and it is unclear how to detect such phenomena. The discussions were continued at a more informal and social level in the evening. There was also a short walk/excursion to the surroundings of the conference center, including an old stone quarry and swamp forest.

The Editor

Third International Workshop on Biomonitoring of Atmospheric Pollution (BioMAP), Bled, Slovenia, 21–25 September 2003

The third BioMAP meeting was organized by the Jožef Stefan Institute (JSI), Ljubljana, Slovenia together with the International Atomic Energy Agency (IAEA), Vienna. More than 90 participants from 30 countries, which included most of the European countries as well as Argentina, Brazil, Mexico, India, Israel and USA, were registered at the meeting. The workshop was about general survey questions and problems as well as the advantages specifically related to biomonitors of air pollution. Biomonitoring practices using different biomonitoring organisms (lichens, mosses and other plants) in many countries were presented. The scientific programme of the Workshop was divided into seven topics, namely: general aspects of biomonitoring (modelling and statistical analysis), methodological aspects of biomonitoring, metabolic responses of biomonitors to air pollution, air quality and biodiversity, health related studies, analytical techniques and case studies using different monitors (lichens, mosses and other species). Prof. Garty from Tel Aviv University, Israel had an invited lecture on physiological and chemical responses of lichens exposed to polluted sites. The abstracts are still available on the BioMAP web page: **http://www.rcp.ijs.si/BioMAP** together with some photos of activities during the Workshop.

Zvonka Jeran, Ljubljana, Slovenia and H. Th. Wolterbeek, Delft, The Netherlands

REVIEWS

Hallucinogenic and toxic lichens

I first encountered mention of the use of lichens being smoked during a visit to the island of Foula, the most westerly of the Shetland Islands, while talking to one of the oldest island inhabitants, Jessie Andrew, at her croft, North Biggins on 30 July 1966. It transpired that people in Shetland used to mix *Parmelia saxatilis* with tobacco and smoked the concotion. In the 18th century this lichen was known locally as “Old Man” (Low 1879), perhaps because the habit of smoking the mixture was associated with older men, although by the 1960s the same common name was being applied to a different lichen by the

islanders of Foula, *Ramalina siliquosa* (known as "Scroty" on Fair Isle, the most southern of the Shetland Islands).

It was not until 35 years later that I next came across mention of lichens being smoked, when browsing Schultes & von Reis' *Ethnobotany: Evolution of a Discipline* in the library of the Humboldt Field Research Institute, Eagle Hill, in Maine, USA. In this work, Lipp (1995) refers to several reports in publications from 1908-1949 of lichens being smoked, particularly "jevud hiosig" (earth flower) which was mixed with tobacco and smoked in cigarettes by the Pima-Papago tribe of southern Arizona and northwestern Mexico, the cigarettes generating a "dizzying, narcotic effect". Curtin (1949) gives the Pima name for the lichen as "jievut hiawsik", and states that it "has a strong odor, is the color of grey ashes and grows on rocks and dead wood" and "more religious meaning than any other plant, and is smoked, mixed with tobacco, at the summer dances". The smoking "makes young men crazy" and able to "get any woman they want". This same lichen was ground up as a powder and sprinkled on sores or cuts when it was reputed to be a most effective cure. According to Lipp (1995) samples of the lichen were later obtained and identified as the species now called *Xanthoparmelia conspersa,* although the thallus colour does not fit with the grey colour mentioned by Curtin. Lipp also refers to reports of unidentified lichens being used in a similar manner by the Mohave and Kiowa tribes. In the case of the Kiowa, Vestal & Schultes (1939) explain that the Kiowa distinguish the lichens principally by colour, dry, and powder them, and then apply them to gums and sores, including abscesses and when infants are teething – at the same time "several of the older men in the tribe remember when lichens were mixed with smoking tobacco…the effect…is described as mildly soporific".

The only other reference to lichens being smoked I have encountered is Richardson's (1988) citation of a report by Lange (1957) of *Parmotrema andinum* (syn. *Parmelia paraguariensis*) being imported into Mauritania, western Africa "from several hundred kilometres to the northwest" for use as a tobacco – apparently unmixed with real tobacco. Thus, there is evidence of lichens being smoked alone or mixed with tobacco in at least three continents, with several reports of them having hallucinogenic or stimulatory effects.

Although the identification of lichens smoked with tobacco by the North American indigenous peoples' must remain somewhat uncertain, it is intriguing that both *Parmelia saxatilis* and *Xanthoparmelia conspersa* have the depsidone salazinic acid as the main medullary compound, although *Parmotrema andinum* has the very differently structured depside lecanoric acid. In addition to the medicinal uses of *X. conspersa* by the Kiowa, mentioned above, this species is also reputed to be used in eastern Africa for the treatment of venereal disease and snakebite by Brodo *et al.* (2001)[1]. However, it is likely that the strongly antibiotic usnic acid would be the active ingredient in those cases.

Caution should be to the fore when using lichens for medicinal purposes, and experimentation for recreational uses is not to be encouraged, as many of the compounds are extremely biologically active. For example, in November 2002 a 24-year old Californian woman, Jennifer Rosenthal, is reported as ending up in a coma after taking four 125 mg capsules of usnic acid each day for 17 days (with a break after 14 days); her liver failed and she had to have a liver transplant, which she fortunately survived (Grady 2003). Rosenthal had bought the capsules over the Internet to increase metabolism and burn off fat, and was taking half the recommended dose. "Dietary supplement" regulations are much less strict than those for medicinal products in the US. This case also makes me wonder about the use of "arctic lichens", notably *Cetraria islandica,* in BlanX® "the first

[1] Perhaps some other species of *Xanthoparmelia* as *X. conspersa* is not mentioned by Swinscow & Krog (1988) as present in east Africa.

protective cosmetic toothpaste" in Italy (Ponchio 1993), as while that lichen does not contain usnic acid, the active ingredient is described as a dibenzofuran, the group of chemicals to which usnic acid belongs. BlanX® has evidently been approved for use by the Italian Association of Dentists, and while I have no doubt that it is efficacious against gum and plaque bacteria if it is based on a dibenzofuran as stated, repeated long-term usage should perhaps not be encouraged in the light of Jennifer Rosenthal's most unfortunate experience.

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David L. Hawksworth, Madrid

Having troubles applying the IUCN categories created to define Important Plant Areas to lichens ?

At a meeting of plant groups in Manchester called by Plantlife, at which Peter James and the two authors of this article attended, we discussed problems in applying these IUCN criteria to lichens. Later PW discussed with JM who was working at the NHM and we would now like to widen the discussion to IAL.

The Global Strategy for Plant Conservation (April 2002) commits signatories (168 countries excluding the USA) to implement 16 outcome-oriented targets by 2010. Target 5 of the Strategy seeks to assure the protection of 50 per cent of the most important areas for plant diversity. One of the European Plant Conservation Strategy (2002) is the production of an inventory of Important Plant Areas (IPAs) in Europe by 2007 with the aim to produce the first draft national lists by 2004.

An Important Plant Area can be defined as a site exhibiting exceptional botanical richness and/or supporting an outstanding assemblage of rare, threatened and/or endemic plant species and/or vegetation of high botanical value.

To qualify as an IPA, a site needs to satisfy one or more of the following site selection criteria:

Criterion A – the site holds significant populations of one or more species that are of global or European conservation concern

Criterion B – the site has an exceptionally rich flora in a European context in relation to its biogeographic zone

Criterion C – the site is an outstanding example of a habitat type of global or European plant conservation and botanical importance.

Criterion A

Published lists. Criteria A depends on published lists of rare and endangered lichens being available. How many countries have published Red Lists? The 1990s has seen an increase in Red Lists for Europe, but even here there is a marked decline from west to east, and often only including macro lichens. Red Lists are only possible when there is an existing lichen flora and how many countries have a flora? Globally numbers of red lists for lichens are very low. Regional assessments are even lower. Sérusiaux, in a ground breaking exercise produced a European redlist of macrolichens (1989). At this point many of the problems in making regional lists became apparent e.g. Atlantic species that are relatively frequent in Britain are on the European Red List but species where the main European stronghold is in the west of Britain are excluded (see Coppins 2001). Species such as *Cetraria sepincola* that are common components of young birch stands appearing after clear-cuts and forest fires in, e.g. Baltic countries, Belarus and NE Poland are on the European Red List. So is *Peltigera venosa* a common component of boreal European heaths and Arctic Europe. *Cladonia norvegica* (also on the list), though not very common, hardly deserves a status of all-European red-listed lichen.

What is Europe in lichenological terms (not political or administrative)? Does it really end with central Poland or (in the best case) with Baltic countries? It would appear so from recently published distribution maps of European lichen species. So this is the problem we are discussing today.

Is there a place for regional lists that can be used in defining important lichen habitats?

Populations. There has recently been much discussion and some research among lichenologists about defining a population for lichen species (where we have a problem defining an individual) (Zoller *et al*. 1999). As for an endangered population – the loss of a genotype or fragmentation of the same may not be apparent until it is already too late. Many populations of *Lobaria* species are restricted to 1 or 2 locations within fragmented habitats of a biogeographic region. Conversely *Lobaria* species are still frequent in the Atlantic regions of Britain but associated species are only found in this region and are internationally rare (Coppins 2001, Woods *et al*. 2003). This makes the use of the present all-European lists of lichens especially dangerous. There might be situations in other countries, where this may lead to under-evaluation and consequently lower conservation status with possible further loss of already fragmented populations.

Criterion B

Where is site-based information available? This is an essential part of identifying IPAs together with a system of evaluation of site-based data across larger geographical areas. There is a proposal to data-base information that exists in various forms in Scotland. Although this is in the pipeline in Britain how much is available elsewhere.

Although a rapid means of assessing the conservation value of an area has been accomplished in a few countries through the development of indicator lists for forests of long ecological continuity and high conservation interest, these can only be applied within the same habitat and biogeographic region. Even in a small country like Britain there are 5 indicator lists for deciduous forests and one for native pinewoods, where a basic list has been provided for deciduous forests and bonus species associated with distinct geographical regions contribute to the indicator score (Rose 1992, Coppins *et al*. 2002). These lists are simply not applicable for use outside their biogeographic region, so yet again countries where there are no red lists and no indicator lists have a problem to define areas of importance for lichens, and this applies to much of the European continent. This makes it very difficult to assess Criteria C on a European scale, let alone a global scale, where knowledge about lichen distribution may be almost non-existent. The recently published Conservation Evaluation of British Lichens (Woods & Coppins, 2003) has presented a database of the British Lichen Flora according to IUCN categories, including those species for which the UK has international responsibility. It provides a basis for species-based evaluation of areas of high lichen interest. Is it possible to arrive at an assessment of IPAs in countries where there is limited knowledge about lichens?

Bioclimatic or biogeographic zones

Loppi *et al.* (2002) propose a method of assessing deviation from naturality in each bioclimatic zone of Italy using an assessment of lichen diversity on different substrata in 'natural' areas. This has already provided a good method of assessing changes associated with pollution. Could this also provide a method for rapid assessment of lichen diversity within targeted bioclimatic zones? This would cut across countries but provide a basis for evaluating sites internationally. Perhaps the greatest problem associated with this approach is that random assessment of defined areas often excludes those species which are found in niche's of a particular habitat, and these may well be our rare and endangered species. According to Burgman (2002): "Biogeographic patterns create opportunities for conservation. But care must be taken in using patterns of endemism to guide conservation priorities. Such a focus may satisfy biologists' preoccupations with unusual areas filled with endemics. Widespread, but less appealing, areas may have more pressing conservation issues" and "The focus given to the vascular flora may blind conservation planners to patterns and priorities in the non-vascular flora".

Criterion C

There is an assumption that many of the sites of conservation importance are already designated in Europe but is this true for lichens? How many rare and endangered lichens are associated with habitats outside existing conservation areas such as British examples of churchyards, metal-rich sites and wayside and parkland trees? If we followed a classification based on biogeographic and climatic zones this would allow identification of special habitats within each zone and the development of meaningful indicator lists that could be allow a comparison of IPAs within each zone, as well as accommodate local variants.

In the present system it appears that many special lichen sites will be excluded under each criterion. Perhaps it is time to rethink what we want to achieve in lichen conservation and make a system which can accommodate some of the IUCN principles but most importantly provide a basis for expanding knowledge at local, regional and global levels. Is this possible and/or desirable?

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Pat Wolseley, Simone Louwhoff, London, Jurga Motiejunaite, Vilnius

LICHENOLOGY ON-LINE

Lichens of Iceland on-line

The website **www.floraislands.is** which opened in April 2001 contains useful information on the lichen flora, as well as that on the vascular plants, bryophytes and fungi of Iceland. The photo gallery contains about 130 species of icelandic lichens at **www.floraislands.is/fletmynd.htm** and 60 more will be added before the end of the year. A checklist of the 714 species of lichens supposed to occur in Iceland is presented at **www.floraislands.is/fletlist.htm**.

Hörður Kristinsson, Akureyri

Back issues of ILN

The following back issues of ILN are still available: 9(1), 9(2), 10(1), 10(2), 11(1), 11(2), 12(1), 12(2), 13(1), 13(2), 14(1), 14(2), 15(1), 15(2), 16(1), 16(2), 17(1), 20(1) and further issues. Photocopies are available of: vol. 1(1), 1(2+supp.), 1(3), 2(1), 3(2), 6(2), 7(1–2), 8(1–2). Two indexes are also available: Index to vol. 1–8, Index to vol. 9–13.
According to a resolution of the IAL Executive Council, published in ILN 16(1), April 1983, the following charges will be levied for back issues of ILN: Vol. 1: 0.25 USD per number (3 per volume); vol. 2–8: 0.50 USD per number (2 per volume); vol. 9–13: 1.00 USD per number (2 per volume); vol. 14–17: 1.50 USD per number (2 per volume). Back issues from vol. 20–29 are available for 1.00 USD per number (3 per volume). The Indexes are free. New members will only receive free copies of the numbers constituting the volume issued for the calendar year in which they join IAL.
Orders for vols. 1–29 should be sent to H. Sipman, Botanischer Garten & Botanisches Museum, Königin-Luise-Straße 6–8, D-14191 Berlin, Germany, fax: (+49)-30-84172949, e-mail: *hsipman@zedat.fu-berlin.de*. For later issues contact the Editor.

Lichens-l is the official mailing list of IAL. You can subscribe by sending an e-mail to *listproc@hawaii.edu* with the message “SUBSCRIBE LICHENS-L YourFirstName YourLastName”.

The official web page of IAL is
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The cover-page illustration

The illustration shows a schematic drawing of a transversal ascoma section from *Ocellularia cavata*, a member of the order Ostropales. Note the apically carbonized excipulum and the carbonized columella. The drawing was kindly provided by Andreas Frisch (Regensburg) and is part of his doctoral thesis on Thelotremataceae.

List of Societies

Australasia: Australasian Association for Lichenology. Info: W.M. Malcolm, Box 320, Nelson, New Zealand. Phone & fax: (+64) 3-545-1660, e-mail: *nancym@clear.net.nz*

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

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