

## IAL 6 – ABLs Program, 13-19 July, 2008 at Asilomar

### Sunday, 13 July

**10:00 a.m. to 5:30 p.m. Registration** – Phoebe Hearst Social Hall (Asilomar)

6:00 to 7:00 p.m. Dinner

**7:30 to 9:30 Reception for all participants** – Merrill Hall

### Monday, 14 July – Joint Sessions morning (Merrill Hall); separate concurrent sessions afternoon

7:30 to 8:20 a.m. Breakfast – Crocker Dining Hall

**8:30 to 8:45 a.m. Introductions** and welcoming by the Presidents (Brodo, Esslinger, Martin, Stone)

**8:45 to 10:00 a.m. Endemics, especially in California** symposium (G. Kantvilas and T.H. Nash III, conveners)

8:45-9:15 a.m. California and its Endemics with an Emphasis on Bryophytes – B. Mishler

9:15-9:30 a.m. Endemism in the lichen flora of California with examples from the Arthoniomycetidae – A. Tehler and M. Irestedt

9:30-9:45 a.m. Tasmania and its lichens: Antipodean hot-spot or just a nice place to work? – G. Kantvilas

9:45-10:00 Endemic *Aspicilia* species in SW Asia – A. Şenkardeşler

10:00 to 10:30 a.m. Morning break

**10:30 to 12:00 noon – Genomics: Potentials for New Research** symposium (P. Dyer and S. Schuette, conveners)

10:30-10:45 a.m. Overview of progress in the lichen genome projects of *Xanthoria parietina* and *Cladonia* species - P. Dyer and P. Crittenden

10:45-11:00 a.m. Decoding symbiosis: sequencing the two genomes of the lichen *Cladonia grayi* – D. Armaleo, S. Joneson, T. McDonald, G. Wray, F. Dietrich, J. Miadlikowska, and F. Lutzoni

11:00-11:15 a.m. Differentially regulated genes of *Cladonia grayi*, and the early stages of lichen symbiosis – S. Joneson, F. Lutzoni and D. Armaleo

11:15-11:30 a.m. DNA methylation in the lichen-forming fungus *Cladonia grayi* - T. McDonald, D. Armaleo and F. Lutzoni

11:30-11:45 a.m. Evolution of Gibberellin Biosynthesis and Function: Lessons Learned from *Physcomitrella patens* - A. Anterola

11:45-12:00 noon Phylogenomic analysis of the putative callose synthase gene family in *Physcomitrella patens*: emergent phenomenon of the moss genome project - S. Schuette, K. Renzaglia, B. Mishler and M. Geisler

12:00 to 1:00 p.m. Lunch – Crocker Dining Hall

## Lichenological Session – Merrill Hall

**1:10 to 2:00 p.m. Guest lecture – Dr. R. Honegger** - The private life of lichen-forming ascomycetes: reproduction in focus

**2:00 to 3:30 p.m. Community Structure and Dynamics** symposium (B. McCune and D. Coxson, conveners)

2:00-2:15 p.m. Poplar trees as facilitators of epiphytic cyanolichen communities – J. Campbell, G.E. Bradfield, C.E. Prescott and A.L. Fredeen

2:15-2:30 p.m. Bark pH - a key factor for epiphytes on beech *Fagus sylvatica* – O. Fritz, M. Caldiz and J. Brunet

2:30-2:45 p.m. Scale-dependency effects of environmental factors on epiphytic and epilithic lichen diversity in Mediterranean ecosystems – P. Giordani, G. Incerti, G. Rizzi, G. Brunialti and P. Modenesi

2:45-3:00 p.m. Evaluation of the significance of different abiotic factors for species of the Parmeliaceae family in the Russian forest-steppe zone – E. Muchnik

3:00-3:15 p.m. Effects of forest fragmentation on epiphytic lichens: role of geomorphologic conditions, vegetation structure, microclimate and neighbouring land-cover – P. Pinho, C. Branquinho, A.J. Pereira, M.J. Pereira, A. Soares, L. Rosário, J. Meira, O. Correia, A. Flôr and \*C. Máguas

3:15-3:30 p.m. Composition of a southern Wisconsin (upper midwest USA) woodland bark lichen community varies with land use – S. Will-Wolf

3:30 to 4:00 p.m. Afternoon break

**4:00 to 5:30 p.m. Lichenological Posters** (15 in Merrill; 17 in Nautilus; 8 in Triton)

## Bryological Session - Surf and Sand room

**1:00 to 3:20 p.m. New explorers** symposium (S. Shevock and D. Wagner, conveners)

1:00-1:20 p.m. Distinctive features of the bryophyte flora of Mediterranean California – D. Norris

1:20-1:40 p.m. State of the Bryological Exploration of the West – K. Kellman

1:40-2:00 p.m. Bryology in the Pacific Northwest; 1792-2008, an Overview – J.A. Harpel

2:00-2:20 p.m. The Discovery of Liverworts in Oregon – D. Wagner

2:20-2:40 p.m. Ecology of arid-land bryophytes in western North America: Insights from northwest Arizona and southern Nevada – J.C. Brinda

2:40-3:00 p.m. Recent advances toward understanding the biogeography and floristics of the mosses of California – B. Carter

3:00-3:20 p.m. Niches of common bryophytes in a semi-arid landscape – T. Sagar and P. Wilson

3:30 to 4:00 p.m. Afternoon break

5:30 to 6:00 p.m. Free time

6:00 to 7:00 Dinner - Crocker Dining Hall

**7:00 to 8:15 p.m. Oldest lichens and bryophytes** symposium (M. Tomescu, convener) – Merrill Hall

7:00 – 7:15 p.m. Cryptospores and the evolution of sporogenesis in bryophytes - P. Strother and W.A. Taylor

7:15 – 7:30 p.m. Lichen and bryophyte signatures in 450-420 million year old biological soil crust-like fossil associations – M. Tomescu

7:30 – 7:45 p.m. Resistant tissues of modern liverworts resemble Early Paleozoic microfossils - L. Graham, J. Graham and M. Cook\*

7:45 – 8:00 p.m. Ancestral character reconstructions in the Lichinales (Lichinomycetes), a presumably ancient lineage of lichen-forming Ascomycetes - M. Schultz & J. Buschbom

8:00 – 8:15 p.m. Was the origin of the lichen symbiosis triggered by declining atmospheric carbon dioxide levels? – D. Schwartzman

**8:15 to 9:15 p.m. Conservation Discussion** (Scheidegger and Peterson, leaders) – Merrill Hall

7:30 to 9:30 p.m. Society Council Meetings (ABLS, Surf and Sand room; IAL, Triton)

## **Tuesday, 15 July – Concurrent Sessions**

7:30 to 8:20 a.m. Breakfast – Crocker Dining Hall

**Lichenological sessions** – Merrill Hall

**8:30 to 10:00 a.m. Lichenicolous Fungi: Taxonomy and Diversity** symposium (P. Diederich and J. Lawrey, conveners)

8:30-8:48 a.m. Introduction to lichenicolous fungi – P. Diederich

8:48-9:06 a.m. The first outline of the phylogeny of the lichenicolous genus *Abrothallus* (Ascomycota) based on nuITS – A. Suija, S. Pérez-Ortega and A. Crespo

9:06-9:24 a.m. Phylogenetic relationships among lichenicolous and non-lichenicolous Tremellales - A. Millanes, P. Diederich and M. Wedin

9:24-9:42 a.m. Lichenicolous fungi of California – K. Knudsen and J. Kocourková

9:42-10:00 a.m. Lichenicolous fungi of Aladağlar National Park (Turkey) – M.G. Halici, A. Aksoy and M. Kocakaya

10:00 to 10:30 a.m. Morning break

**10:30 to 12:00 noon – Selectivity in the lichen symbiosis** symposium (A. Beck, convener)

10:30-10:48 a.m. Photobiont selectivity and diversity in *Lobaria pulmonaria* (L.) Hoffm – F. Dal Grande, C. Cornejo, A. Beck, I. Widmer and C. Scheidegger

10:48-11:06 a.m. Lichen photobiont diversity under changing pollution regimes – H. Döring and L. Davies

11:06-11:24 a.m. Characterization of the trebouxoid photobiont of *Tephromela atra* (Lecanorales, Ascomycota) from the Mediterranean region – L. Muggia, M. Grube and Z. Zellnig

11:24-11:42 a.m. Spanish populations of *Ramalina farinacea* share three different *Trebouxia* photobionts - E.M. Del Campo, J. Gimeno, L.M. Casano, F. Gasulla, F. García-Breijo, J. Reig-Armiñana and \*E. Barreno

11:42-12:00 noon DGGE analysis suggests the occurrence of photobiont exchange in a vegetatively reproducing lichen – Y. Ohmura

**Bryological sessions** – Surf and Sand room for oral presentations

8:30 to 10:00 a.m. **Bryological Posters** (Nautilus Room)

10:00 to 10:30 a.m. Morning break

**10:30 to 12:00 noon – Bryo-genomics symposium** (S. Schuette, convener), Surf and Sand room

10:30 to 10:50 Synergisms between phylogenetics and genomics, with special reference to the *Physcomitrella* Genome Project – B. Mishler

10:50 to 11:10 A phylogenetic perspective for plant genomics: some examples from the complex trait of desiccation tolerance – K. Fisher

11:10 to 11:30 Ultrastructure, immunocytochemistry and bioinformatics: an interdisciplinary approach to elucidating genetic control of spore wall development in *Physcomitrella patens* – S. Schuette, A. Wood, J. Geisler-Lee, M. Geisler, and K. Renzaglia (**Student Presentation**)

11:30 to 12:00 noon Discussion (S. Schuette, leader)

12:00 to 1:00 p.m. Lunch – Crocker Dining Hall

**Lichenological sessions** – Merrill Hall

**1:00 to 2:30 p.m. Together and separate: The lives of the lichen symbiots** symposium (W. Sanders, convener)

1:00-1:07 p.m. Introduction – W. Sanders

1:07-1:22 p.m. Revisiting thigmotropism and the early stages of lichen synthesis – S. Joneson, F. Lutzoni and D. Armaleo

1:22-1:37 p.m. Geographic structure of fungi and algae in a widespread lichen of western North America – S. Altermann

1:37-1:52 p.m. Towards the development of a lichen model organism: will a foliicolous lichen fill the need? – E. Larsen

1:52 – 2:07 p.m. Experimental investigations on fungal and "symbiotic" networks as exemplified by *Ramalina menziesii* and *Cladia ferdinandii*: cultured bionts and morphogenetic dynamics to re-establish the symbiotic state – E. Stocker-Wörgötter, S. Werth, A. Pringle and J.A. Elix

2:07 – 2:22 p.m. Phylogenetic and ecological diversity of lichenized basidiomycetes – J. Lawrey, R. Lücking, D. Ertz, H. Sipman and F. Bungartz

2:22 – 2:30 p.m. Overall discussion

**2:40 to 3:30 p.m. Potpourri Session** (T. Nash, organizer)

3:30 to 4:00 p.m. Afternoon break

**4:00 to 5:30 p.m. Systematic and Phylogeny** symposium (S. Ekman and I. Schmitt, conveners)

- 4:00-4:15 p.m. Generic delineation and character evolution in Verrucariaeae – C. Gueidan, S. Savic, H. Thues, C. Roux, C. Keller, L. Tibell, M. Prieto, S. Heidmarsson, O. Breuss, A. Orange, L. Froberg, A. Amtoft-Wynns, P. Navarro-Rosinés, B. Krzewicka, J. Pykala, M. Grube and F. Lutzoni
- 4:15-4:30 p.m. The major clades and phylogenetic position of the Ostropales – E. Baloch, R. Lücking, H.T. Lumbsch and M. Wedin
- 4:30-4:45 p.m. Status on the Phylogeny of the Genus *Lecania* – R.R. Næsborg
- 4:45-5:00 p.m. Diversity of crustose lichens in continental Antarctica: Morphological and molecular studies on the genus *Lecidea* (Lecideaceae, Ascomycota) from Ross Sea region – U. Carl-Ruprecht, H.T. Lumbsch, G. Brunauer, A. Hager, G. Hochschnartner, T.G.A. Green and R. Türk
- 5:00-5:15 p.m. Selecting the next generation of genes for phylogenetic studies on lichen-forming fungi; Teloschistales as a case study – E. Gaya, B. Ball, B. Robbertse, J. Spatafora and F. Lutzoni
- 5:15-5:30 p.m. The epiphytic crustose lichen flora of the Pacific Northwest, held to its Fennoscandian mirror– T. Spribille, G. Thor, G. Goward and C. Björk

**Bryological sessions** – Surf and Sand room

1:00 to 3:30 p.m. ABLs oral presentations (mostly students)

- 1:00-1:15 p.m. Phenology of *Cryptomitrium tenerum*, a complex thalloid liverwort – S. Tremblay  
**(Student Presentation)**
- 1:15-1:30 p.m. The effects of desiccation hardening on freezing tolerance in *Bryum argenteum* – L. Reynolds\* and L. Stark  
**(Student Presentation)**
- 1:30-1:45 p.m. Company for *Cryptothallus*?: Liverwort/Basidiomycete mycorrhizae and directions for future research – T. Madsen  
**(Student Presentation)**
- 1:45-2:00 p.m. Physiological ecology of the desert moss *Syntrichia caninervis* after long-term exposure to elevated CO<sub>2</sub>: changes in photosynthetic thermotolerance? – K. Coe\*, J. Belnap and J. Sparks  
**(Student Presentation)**
- 2:00-2:15 p.m. Resource-niche specialization in the *Nostoc*-hornwort symbiosis – R. Welch **(Student Presentation)**
- 2:15-2:30 p.m. The sperm cell of *Aneura pinguis*: a novel architecture in liverworts – T. Arténay\* and K. Renzaglia  
**(Student Presentation)**
- 2:30-2:45 p.m. Testing species delimitations in the *Parmotrema perforatum* group in eastern North America – T. Widlhelm\*, R. Egan and T. Livshultz

**(Student Presentation)**

2:45-3:00 p.m. Heritable metal-induced repetitive DNA variations in *F. hygrometrica* protonema – P. Bassi, A. Basile and B. Conte\*

3:00-3:15 p.m. Sex-specific plant responses to environmental variation: implications for spatial segregation of the sexes – K. Groen, C. Stieha, P. Crowley and N. McLetchie\*

3:15-3:30 p.m. Response of bryophytes to forest harvesting and site preparation treatments in high-elevation forests at Sicamous Creek, British Columbia, Canada – K. Golinski\*, M. Ryan and D. Lloyd

3:30 to 4:00 p.m. Afternoon break

2:30 to 5:30 *Grimmia* and *Coscinodon* workshop - Triton

5:30 to 6:00 p.m. Free time

6:00 to 7:00 Dinner - Crocker Dining Hall

**7:15 to 9:00 Lichenicolous Fungi Workshop** (D. L. Hawksworth) - Triton

**9:00 to 9:45 p.m. ABLs business meeting**

**Wednesday, 16 July – Joint Sessions – Merrill Hall**

7:30 to 8:20 a.m. Breakfast – Crocker Dining Hall

**8:30 to 10:00 a.m. Endolichenic Fungi and Bacteria: Implications for Symbioses** symposium (J. Miadlikowska and J. Duckett, conveners)

8:30-8:48 a.m. Endolichenic fungi: diversity, distributions, and evolutionary origins – E. Arnold, J. U'Ren, J. Miadlikowska and F. Lutzoni

8:48-9:06 a.m. The Origins and Evolution of Land Plant Symbioses – J. Duckett

9:06-9:24 a.m. Nitrogen-fixing non-photobiont bacteria and lichens: an alternative lifestyle? – B.P. Hodkinson, T. M. Loveless, P.E. Bishop, and F. Lutzoni

9:24-9:42 a.m. *In situ* analysis of lichen-associated bacterial communities – M. Cardinale, J. Viera de Castro Jr., H. Müller, G. Berg and M. Grube

9:42-10:00 a.m. Characterization of the microbial community associated with *Xanthoria parietina* – A. Beck, M. Vonach, D. Meisinger, E. Facher and N. Lee

10:00 to 10:30 a.m. Morning break

**10:30 to 12:00 noon – Air Pollution** Symposium (L. Geiser and C. Branquinho, conveners)

10:30-10:43 a.m. 20 years investigating lichen and bryophyte biodiversity under globally changing atmospheric conditions – W. Purvis and H. Read

10:43-10:56 a.m. Lichens as indicators of ammonia concentrations across the UK – P. Wolseley, M. Sutton, I. Leith and N. van Dijk

10:56-11:09 a.m. The use of lichens as biomonitors of atmospheric ammonia in a Mediterranean climate: a functional perspective – P. Pinho, C. Cruz, T. Dias, A.P. Rosa, Z. Kaszta, C. Máguas, M. Martins-Loução and C. Branquinho

11:09-11:22 a.m. Nitric oxide protection against oxidative stress during rehydration of *Ramalina farinacea* (L.) Ach. – M. Catalá, F. García-Breijo, F. Gasulla, A. Guéra, A. Prado, J. Reig-Armiñana and \*E. Barreno

11:22-11:35 a.m. Toxic effects of two arid climate pollutants, ozone (O<sub>3</sub>) and gaseous nitric acid (HNO<sub>3</sub>) on two lichen species in the Los Angeles air basin – J. Riddell, P. Padgett and T.H. Nash III

11:35-11:48 a.m. Developing lichen-based critical loads for nitrogen deposition in western North America – S. Jovan, L. Geiser, M. Fenn, M. Porter and D. Glavich

11:48-12:05 p.m. Lichens as indicators of semi-volatile organic pollutants in western North America – L. Geiser, J. Schrlau, D. Glavich, K. Dillman, S. Simonich and A. Marler

12:00 to 1:00 p.m. Lunch – Crocker Dining Hall

**1:10 to 2:00 p.m.** Guest lecture – **A symbiotic approach to the study of lichens** - F. Lutzoni - Merrill Hall

**2:00 to 3:00 p.m. Phylocode Discussion** (B. Mishler, leader), Merrill Hall

3:00 to 3:30 p.m. Afternoon break

**3:30 to 5:00 p.m. Poster Session** (15 in Merrill; 17 in Nautilus; 8 in Triton)

5:00 to 5:30 p.m. Free time

**5:30 to 7:30 p.m. British Lichen Society Reception** – Merrill Hall

**7:30 to 9:30 p.m. Banquet** – Crocker Dining Hall

### **Thursday, 17 July – Joint Sessions – Merrill Hall**

7:30 to 8:20 a.m. Breakfast – Crocker Dining Hall

**8:30 to 10:00 a.m. Tropical Lichen** symposium (R. Lücking, convener)

8:30-8:45 a.m. How many tropical lichens are there – really? – R. Lücking

8:45-9:00 a.m. The diversity of the saxicolous species of the genus *Usnea* Adans. in the tropical Andes - C. Truong and P. Clerc

9:00-9:15 a.m. The Galapagos lichen flora – towards a total species inventory - F. Bungartz

9:15-9:30 a.m. An enumeration of macrolichens from central Western Ghats Karnataka, southern India - Y. L. Krishnamurthy & K. S. Vinayaka

9:30-9:45 a.m. Taxonomy and ecology of foliicolous lichens in Thailand - K. Papong, A. Thammathaworn, K. Boonpragob & R. Lücking

9:45-10:00 a.m. Microhabitat and substrate preferences of the families Porinaceae and Pyrenulaceae (Lichenized Ascomycota) in primary and secondary premontane rainforest in Las Cruces, Costa Rica – J.E. Hernández, A. Bourg, D. Rosabal, H. Komposch, E. Rivas Plata and R. Lücking

10:00 to 10:30 a.m. Morning break

**10:30 to 12:00 noon – Biochemistry and Physiology of Poikilohydry** symposium (A. Hochman and P. Alpert, conveners)

10:30-10:45 a.m. *Vita interrupta*: Life that tolerates desiccation – P. Alpert

10:45-11:00 a.m. Desiccation and rehydration of the lichen *Ramalina lacera* Results in production of reactive oxygen species, nitric oxide and alterations in antioxidants – A. Hochman, L. Weissman, V. Semyatich and J. Garty

11:00-11:15 a.m. The carbon balance of tropical bryophytes and lichens: Carbon exchange and carbon pools along an altitudinal gradient from lowland to cloud forest in Panamá – M. Bader and G. Zotz

11:15-11:30 a.m. The role of lichen anatomy on the ABA content variation after desiccation – A. Şenkardeşler

11:30-11:45 a.m. An investigation of changing activities of lactase and tyrosinase in lichens following wounding or desiccation – A. Ugur and S. Oztuck

11:45-12:00 noon Responses of the lichen photobiont *Trebouxia erici* to desiccation and rehydration (II). Proteomics – F. Gasulla, R. Jain, J. Thelen, A. Guéra, E. Campo, E. Barreno and M.J. Oliver

12:00 to 1:00 p.m. Lunch – Crocker Dining Hall

**1:00 to 2:30 p.m. The World under Your Feet: Biological Soil Crusts** symposium (R. Rosentreter and B. Büdel)

1:00 to 1:15 p.m. An Overview of Members of the Lichinaceae in Biological Soil Crusts – M. Schultz

1:15 to 1:30 p.m. Investigation of fungal populations and diversity associated with biological soil crusts in the Western United States using culture-independent methods – S.T. Bates, T.H. Nash III, and F. Garcia-Pichel

1:30 to 1:45 p.m. Microclimatic factors and photosynthetic activity of crustose lichens from the semiarid southeast of Spain: long-term measurements in *Diploschistes diacapsis* – L.G. Sancho, A. Pintado and R. Lazaro

1:45 to 2:00 p.m. Biological soil crusts in southern Africa: Distribution, succession and classification methods – B. Weber, K. Deutschewitz, S. Dojani and B. Büdel

2:00 to 2:15 p.m. Effects of lichen-dominated biological soil crusts on seed water status and root penetration of two annual grasses and its ecological significance – S. Zimmerman, R. Rosentreter, M. Serpe

2:15 to 2:30 p.m. Photosynthetic performance of two different lichen-dominated soils crust types from the Sonoran Desert – B. Büdel and O.L. Lange

**2:40 to 3:30 Discussion – Global Climate Change** (M. Lakatos, moderator)

3:30 to to 4:00 p.m. Afternoon break

**4:00 to 5:30 p.m. Between Individuals and Species: The Genetics of Populations** symposium (L. Lindblom and C. Printzen, conveners)

4:00 to 4:30 p.m. Population genetics of epiphytic lichen-forming fungi at two different spatio-temporal scales – \*S. Werth, C. Scheidegger and V.L. Sork

4:30 to 4:45 p.m. Paternity analyses reveal multiple mating events in apothecia of *Lobaria pulmonaria* – \*C. Keller and \*C. Scheidegger



4:45 to 5:00 p.m. Plastic morphology in lichens misleads taxonomy and biogeography - S. Pérez-Ortega and C. Printzen

5:00 to 5:15 p.m. Gene flow in photobionts of the Parmeliaceae: hitch-hiking with soredia – M. Piercey-Normore and M. Doering

5:15 to 5:30 p.m. Genetic diversity within and among species and genera in Parmeliaceae – \*R. Del-Prado, H.T. Lumbsch, P.K. Divakar, O. Blanco, C. Molina, G. Amo de Paz and A. Crespo

5:30 to 6:00 p.m. **Discussion of IAL contribution to the next IMC (Scotland, 2010)** – P. Crittenden, leader

6:00 to 7:00 Dinner - Crocker Dining Hall

**7:00-8:30 pm. Poster Session** (15 in Merrill; 17 in Nautilus; 8 in Triton)

**8:30-10:00 p.m. IAL Business Meeting** – Merrill Hall

**Friday, 18 July** – Lichenological sessions – Merrill Hall

7:30 to 8:20 a.m. Breakfast – Crocker Dining Hall

**8:30 to 10:00 a.m. Nutrient Exchange in Lichens and Bryophytes** (P. Crittenden, convener)

8.30-8.40 a.m. Introduction - P. Crittenden

8:40-8:55 a.m. Does nitrogen form or the addition of phosphorus and potassium influence nitrogen deposition effects on lichens and bryophytes? – I.D. Leith, L.J. Sheppard, N. van Dijk, J.N. Cape, M.A. Sutton, J.A. Elix and C. Woods

8:55-9:10 a.m. Temporal fluctuation of Ca, K, Mg, Na, P and Pb concentrations in the lichen *Ramalina lacera*: a retrospective study – J. Garty, H. Lehr and R.L. Garty-Spitz

9:10- 9:25 a.m. Phosphatase activity and nitrogen and phosphorus relations in lichens – E. Hogan, G. Minnullina and P. Crittenden

9:25-9:40 a.m. Increased soil nitrogen and foliar litter decay associated with terricolous dinitrogen-fixing lichens of the genus *Peltigera* in northern Minnesota – R. Knowles, J. Pastor and D. Baesboer

9:40-9:55 Effects of simulated N-deposition on defensive compound concentration in boreal lichens – L. Nybakken, O. Johansson and K. Palmqvist

9:55 to 10:25 a.m. Morning break

**10:25 to 12:03 p.m. – Functional Ecology Symposium** (C. Máguas, convener)

10:25-10:39 a.m. Aspects of  $\delta^{18}\text{O}$  performance of lichens during water exchange – B. Hartard, C. Máguas and M. Lakatos

10:39-10:53 a.m. Chlorophyll fluorescence as a method to quantify the light screening in lichen cortices – P. Larsson, Y. Gauslaa and K.A. Solhaug

10:53-11:07 a.m. Niche partitioning in Alectorioid lichens: The role of physiological response patterns – D. Coxson and M. Coyle

11:07-11:21 a.m. Predicting growth of mat-forming lichens across large-scale gradients of light, moisture and temperature in northern Scandinavia – A. Jonsson, J. Moen and K. Palmqvist

11:21-11:35 Lichen compounds and grazing – can molluscs shape epiphytic lichen communities? – J. Asplund and Y. Gauslaa

11:35-11:49 a.m. Polyketide synthase genes in lichens: evolution and diversity – L. Muggia and M. Grube

11:49-12:03 p.m. How do endolithic lichens dissolve carbonates? – M. Tretiach, P. Crisafulli, C. Gazzano, F. Carbone, C. Baiocchi, M. Giovine, P. Modenesi, S. Rinino, M. Chiapello, O. Salvadori and R. Piervittori

12:00 to 1:00 p.m. Lunch – Crocker Dining Hall

**1:10 to 2:00 p.m. Guest lecture – Dr. T.G. Allan.** Green - The world of lichens as revealed by ecophysiology

**2:00 to 3:30 p.m. Integrated Data Networks in Lichenology** symposium (D. Triebel and S. Heiðmarsson, conveners)

2:00-2:18 p.m. Managing Resources of High Quality Lichen Image Data in the context of the EU Project KeyToNature – P.-L. Nimis, T. Randle and A. Saag

2:18-2:36 p.m. Recent Literature on Lichens: Web Services and Further Developments – E. Timdal

2:36-2:54 p.m. Integrating Description and Collection Data of Lichens – Exemplified by SYMBIOTA, a new approach to online species identification – E. Gilbert and C. Gries

2:54--3:12 p.m. Lichenological Occurrences Data in the International GBIF Network – S. Heiðmarsson

3:12-3:30 p.m. Integrating Biodiversity Data in Lichenology – D. Triebel, M. Weiss, D. Neubacher and G. Rambold

3:30 to 4:00 p.m. Afternoon break

**4:00 to 5:30 p.m. Lichenological Poster Session** (15 in Merrill; 17 in Nautilus; 8 in Triton)

5:30 to 6:00 p.m. Free time

6:00 to 7:00 Dinner - Crocker Dining Hall

**7:15-8:00 p.m. Discussion on Air Pollution and Lichens** (integrating 45 posters and talks from these meetings, L. Geiser, discussion leader – Merrill Hall

**8:00-10:00 Closing Reception** – Merrill Hall

**Saturday, 19 July – Lichenological Session** – Merrill Hall

7:30 to 8:20 a.m. Breakfast – Crocker Dining Hall

**8:30 to 10:00 a.m. Lichens in Polar Ecosystems** symposium (L. Sancho, convener)

8:30-8:48 A century of logging and forestry in a reindeer herding area in northern Sweden – A. Berg, L. Östlund, J. Moen and J. Olofsson

8:48-9:06 Polar biota – What can lichens tell us about their origin? – U. Søchting and L. Sancho

9:06-9:24 Lithobiontic microbial ecosystems in continental Antarctica – A. de los Ríos, J. Wierzechos, L.G. Sancho, M. Grube and C. Ascaso

9:24-9:42 Photosynthetic performance of lichens and mosses under natural conditions in the maritime Antarctic  
– B. Schroeter

9:42 to 10:00 Diversity of lichens along a latitude gradient in continental East Antarctica in comparison with  
the lichen diversity in the nival zone of the eastern Alps – R. Türk

10:00 to 10:30 a.m. Morning break

**10:30 to 12:00 noon –Parmeliaceae: Development of a New Systematics** symposium (H.T. Lumbsch and A.  
Crespo, conveners)

10.30-10.45 - Parmeliaceae - A family with obscure relations revisited – J.-E. Mattsson and M. Wedin

10.45-11.00 - Evolutionary trends in the *Xanthoparmelia* clade – G. Amo de Paz, J. Elix and A. Crespo

11.00-11.15 - A complemented phylogeny of *Cetraria* s. lat. including rare species and mitochondrial DNA –  
A. Thell, F. Högnabba, T. Feuerer, I. Kärnefelt, L. Myllys, T. Randlane, S. Stenroos, A. Saag and T. Ahti

11.15-11.30 - A multi-locus molecular evaluation of chemical and morphological characters in selected  
members of the lichen genus *Xanthoparmelia* (Ascozymycota, Parmeliaceae) from the Intermountain  
Western United States – S. Leavitt and L.L. St. Clair

11.30 – 12.00 - New systematics and generic circumscription of parmelioid lichens inferred from multi-gene  
analysis provided by PARSYS-08 –P. Divakar, A. Crespo, F. Kauff, R. del Prado, S. Perez-Ortega, G.  
Amo, Z. Ferencova, O. Blanco, A. Arguello, A. Millanes, M. Molina, M. Normore, M. Wedin, A. Aptroot,  
F. Bungartz, S. Calvelo, M. Candan, M. Cole, J. Elix, D.Ertz, B. Goffinet, A. Knight, J. Lendemer, L.  
Lindblom, R. Lücking, F. Lutzoni, B. Mamush, B., J.-E.Mattsson, M. Messuti, G. Perlmutter, V. Rico, T.  
Spribille, K. Sweat, A. Thell, G. Thor, G. Urbanavichus and T. Lumbsch

12:00 to 1:00 p.m. Lunch – Crocker Dining Hall

1:15 p.m. Departure